### national**grid**

III. •

NHM 5.9

## Environmental Statement Chapter 9 Ecology and Nature Conservation

#### National Grid (North Wales Connection Project)

Regulation 5(2)(a) including (l) and (m) of the Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009

nationalgrid

### **North Wales Connection Project**

### Volume 5

# Document 5.9 Chapter 9 Ecology and Nature Conservation

i

National Grid National Grid House Warwick Technology Park Gallows Hill Warwick CV34 6DA

Final September 2018

Page intentionally blank

Document Control					
Document P	Document Properties				
Organisation		AECOM and Jacobs (Marine)			
Author		Nicola Lewis, Lyndsey Spawforth, Richard Wardle, Anna Davies, Isabel Lee-Elliott and Matt Robson			
Approved by		Rob Pilcher, Kevin Webb			
Title		Environmental Statement Chapter 9 Ecology and Nature Conservation			
Document Reference		5.9			
Version Hist	ory	•			
Date	Version	Status Description/Changes			
September 2018	Rev A	Final	Final for submission		

Page intentionally blank

#### Contents

1	Introduction	1
1.1	Introduction	1
2	Legislation and Planning Policy	4
2.1 2.2 2.3 2.4	Introduction Legislation National Policy Local Planning Policy	4 4 11 19
2.5	Biodiversity Action Plans	19
3	Scope of Assessment and Consultation	20
3.1 3.2 3.3 3.4 3.5	Introduction Secretary of State's Scoping Opinion Consultation Updates since Scoping Scope of Assessment	20 20 27 28 28
4	Methodology	30
4.1 4.2 4.3 4.4 4.5 4.6	Introduction Guidance Specific to Ecology Baseline Data Gathering and Forecasting Methods Technical Analysis Assumption and Limitations Assessment Criteria	30 30 30 48 48 51
5	Basis of Assessment	62
5.1 5.2 5.3 5.4	Introduction Flexibility Assumptions Consideration of Scenarios Sensitivity Test	62 62 66 67
6	Study Area	69
6.1 6.2 6.3 6.4	Introduction Designated Sites Data Search Areas Surveys	69 69 71 72
7	Baseline Conditions	73
7.1 7.2	Introduction Future Baseline Predictions	73 73

۷

7.3 7.4 7.5 7.6 7.7	Statutory Designated Sites Non Statutory Designated Sites Terrestrial Habitats Vegetation Communities (NVC) Terrestrial Species	73 82 89 95 107
7.8 7.9	Marine Habitats and Species	155
8	Potential Effects	168
8.1	Introduction	168
9	Mitigation and Residual Effects	219
9.1	Introduction	219
9.2	Mitigation	219
9.3	Designated Sites	252
9.4	Habitats	287
9.5	Habitat Losses and Gains	327
9.6	Species	339
9.7	Birds 396	
9.8	Marine Habitats and Species	488
10	Cumulative Effects	497
10.1	Introduction	497
10.2	Intra-Project Cumulative Effects	497
10.3	Inter Project Cumulative Effects	497
11	Summary	530
11.1 11.2	Terrestrial and Freshwater Ecology Birds 533	530
11.3	Marine Ecology	533
11.4	Summary Table	535
Refer	ences	575

vi

FIGURES		
Figure 9.1	Statutory Designated Sites	Document 5.9.1.1
Figure 9.2	Statutory Designated Sites in the Wider Area	Document 5.9.1.2
Figure 9.3	Non-Statutory Designated Sites	Document 5.9.1.3

Figure 9.4	Non-Statutory Designated Sites - CWS	Document 5.9.1.4
Figure 9.5	Marine Statutory Designated Sites	Document 5.9.1.5
Figure 9.6	Drop down camera and benthic grab surveys of subtidal marine habitats sites	Document 5.9.1.6
Figure 9.7	NRW benthic habitats	Document 5.9.1.7
Figure 9.8	Grey Seal Distribution	Document 5.9.1.8
Image 9.1	Distribution of harbour porpoise around Anglesey and the wider Irish Sea	N/A
Image 9.2	Distribution of bottlenose dolphin around Anglesey and the wider Irish Sea	N/A

Page intentionally blank

### 1 Introduction

#### 1.1 INTRODUCTION

- 1.1.1 This chapter presents information about the ecological effects that could result from the construction, operation, maintenance and decommissioning of the Proposed Development (as described in Chapter 3, Description of the Proposed Development (**Document 5.3**) and Chapter 4, Construction, Operation, Maintenance and Decommissioning (**Document 5.4**)). The Proposed Development would provide a new 400 kilovolt (kV) connection between the existing substations at Wylfa and Pentir and is split into six Sections (A to F). Definitions of the six sections are provided in Chapter 3, Description of the Proposed Development (**Document 5.3**) along with relevant figures.
- 1.1.2 Ecological surveys have been undertaken on land within the Order Limits and these have extended outside this area where relevant to assess the zone of influence (ZOI) of potential impacts on certain ecological features. Further information about the study area and survey area is provided in section 6 study area.
- 1.1.3 Survey methods have followed appropriate survey guidance and are summarised in section 4 methodology. In certain circumstances, methods have been adapted from those in relevant guidance, either as a consequence of comments from consultees or as a result of initial survey findings. Any modifications are summarised within section 4 methodology and discussed in more detail within each relevant Baseline Report within Appendix 9.3 to 9.18 (Documents 5.9.2.3 to 5.9.2.18).
- 1.1.4 Mitigation measures are identified where considered necessary to prevent, reduce or offset likely significant adverse effects of the Proposed Development on ecological features. Mitigation measures for the Proposed Development are set out within the Schedule of Mitigation (**Document 5.28**), with further details provided in the Biodiversity Mitigation Strategy (BMS) (**Document 7.7**) and in the Construction Environmental Management Plan (CEMP) (**Document 7.4**).
- 1.1.5 This chapter is supported by 17 Appendices as listed below:
  - Appendix 9.1 Local Planning Policy (**Document 5.9.2.1**);

- Appendix 9.2 Designated Sites Information (Document 5.9.2.2);
- Appendix 9.3 Phase 1 Habitat Report (**Document 5.9.2.3**);
- Appendix 9.4 National Vegetation Classification (NVC) Report (Document 5.9.2.4);
- Appendix 9.5 Hedgerow Report (Document 5.9.2.5);
- Appendix 9.6 Great Crested Newt Report (Document 5.9.2.6);
- Appendix 9.7 Badger Report (**Document 5.9.2.7**) Confidential Appendix for Statutory Consultees only;
- Appendix 9.8 Otter and Water Vole Report (Document 5.9.2.8);
- Appendix 9.9 Reptile Report (**Document 5.9.2.9**);
- Appendix 9.10 Bat Roost Report (**Document 5.9.2.10**);
- Appendix 9.11 Bat Activity Report (Document 5.9.2.11);
- Appendix 9.12 Terrestrial Mammal Report (**Document 5.9.2.12**);
- Appendix 9.13 Freshwater Report (**Document 5.9.2.13**);
- Appendix 9.14 Terrestrial Invertebrate Report (Document 5.9.2.14);
- Appendix 9.15 Ornithological Assessment Report (Document 5.9.2.15);
- Appendix 9.16 Intertidal Report (Document 5.9.2.16);
- Appendix 9.17 Subtidal Report (**Document 5.9.2.17**); and
- Appendix 9.18 Underwater Construction Noise Modelling and Assessment Report (**Document 5.9.2.18**).
- 1.1.6 Other documents relevant to this chapter include:
  - Applicants Report to Support the Habitats Regulations Assessment (**Document 5.23**);
  - Biodiversity Mitigation Strategy (**Document 7.7**);
  - Enhancement Strategy (**Document 7.13**); and

- Construction Environmental Management Plan (Document 7.4), this reports on the standard construction management measures, many of which will help minimise the risk to ecological receptors.
- 1.1.7 Other technical chapters that are helpful to consider in conjunction with this chapter are:
  - Chapter 7, Landscape Assessment (**Document 5.7**), linked to landscape planting, mitigation and habitat loss;
  - Chapter 10, Historic Environment (**Document 5.10**), linked to historically Important hedgerows;
  - Chapter 11, Geology, Hydrogeology and Ground Conditions (**Document 5.11**), linked to surface water dependant designated sites;
  - Chapter 12, Water Quality, Resources and Flood Risk (Document 5.12); linked to the marine and aquatic environment;
  - Chapter 13, Traffic and Transport (Document 5.13), linked to emissions affecting designated sites and effects on habitats due to bell mouths, visibility splays and other potential effects;
  - Chapter 14, Air Quality (**Document 5.14**), linked to emissions affecting designated sites;
  - Chapter 15, Construction Noise and Vibration (**Document 5.15**), linked to construction impacts on ecological receptors; and
  - Chapter 16, Operational Noise and Vibration (**Document 5.16**), linked to operational impacts on ecological receptors.
- 1.1.8 Where it is considered beneficial to refer to another chapter, this is noted in the text of this chapter.
- 1.1.9 All technical terms and abbreviations used within this chapter are defined in the Glossary (**Document 1.4**).

### 2 Legislation and Planning Policy

#### 2.1 INTRODUCTION

2.1.1 This section sets out the legislative and planning policy framework that is relevant to this ecology and nature conservation assessment. A full review of compliance with national and local planning policy is provided in the Planning Statement (**Document 7.14**) and a full review of relevant legislation is set out in the Legislation Compliance Audit (**Document 5.28.2.1**).

#### 2.2 LEGISLATION

2.2.1 The level of statutory protection afforded to sites, habitats and species is used in the Environmental Impact Assessment (EIA) process both in the consideration of legal compliance, but also as it is one of the considerations in determining the ecological importance of these features. The legislative instruments relevant to the assessment of effects on ecology and nature conservation are discussed in the subsequent sections. Relevant legislation is summarised below, ordered by European legislation first followed by national and then country level legislation; within these categories they are presented in reverse chronological order.

#### The Conservation of Habitats and Species Regulations 2017

- 2.2.2 The Conservation (Natural Habitats &c.) Regulations 1994 initially transposed the provisions of Council Directive 92/43/EEC on the Conservation of Natural Habitats and Wild Flora and Fauna (Habitats Directive) into UK law.
- 2.2.3 The Conservation of Habitats and Species Regulations 2017 further enacted within England and Wales the Habitats Directive. Part 2 of these Regulations covers the selection, designation, registration and management of European sites (also known as Natura 2000 sites). Schedule 2 of the Regulations lists the European protected species of animals whilst Schedule 5 lists the European protected species of plants. Conservation Objectives (referred to within Article 6(3) of the Habitats Directive) ensure that the European protected species identified as qualifying features of a Natura 2000 site remain or reach favourable condition (such as by maintaining the extent and distribution of habitats of qualifying features). This means that where the Proposed Development may affect a Conservation Objective of a Natura 2000 site, the design will need to include appropriate measures to ensure the Conservation Objectives are not adversely affected.

*The Water Environment (Water Framework Directive) (England and Wales) Regulations 2017* 

2.2.4 The Water Framework Directive (WFD) 2000/60/EC was adopted and came into force in 2000 and represents a culmination in European Union (EU) water resource protection. The WFD is transposed into law in England and Wales by The Water Environment (Water Framework Directive) (England and Wales) Regulations 2017. The Directive and enacting Regulations aim to achieve 'good status' for all groundwaters and surface waters (rivers, lakes, estuaries, coastal waters) according to biological, hydro morphological, physico-chemical and chemical criteria.

#### Conservation of Wild Birds (the Birds Directive), 2009/147/EC

2.2.5 The EU meets its obligations in relation to the protection of bird species under the Convention on the Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention) which came into force in 1985 and the Conservation of European Wildlife and Natural Habitats (Bern Convention) which came into force in 1982, and more generally by means of Directive 2009/147/EC (the Birds Directive) on the Conservation of Wild Birds (the codified version of Council Directive 79/409/EEC as amended). Annex I of the Birds Directive lists species for which special conservation measures are required. The Directive requires member countries to classify Special Protection Areas (SPAs) as the most suitable sites for these species and also for regularly occurring migratory species. It also includes provisions for the maintenance of the favourable conservation status of all wild bird species across their distributional range.

#### Marine Strategy Framework Directive, 2008/56/EC

2.2.6 The Marine Strategy Framework Directive (MSFD) came into force in July 2008 and into UK regulation via The Marine Strategy Regulations in July 2010. The MSFD requires member states to achieve Good Environmental Status (GES) in all marine waters from the coastline out to the limit of territorial waters by 2020. The MSFD requires an assessment of what GES means for UK waters, with associated targets and indicators, plus an assessment of the current state of UK seas. A monitoring programme to assess progress towards GES was implemented in 2014. There are 11 high-level descriptors to assess GES: biological diversity, non-indigenous species, used commercial fisheries, food webs, eutrophication, seafloor integrity. hydrographical conditions, contamination, seafood contamination, marine litter and noise. The Marine Management Organisation will be the prime regulator. There will be an overlap in the first nautical mile from the coast between MSFD and WFD.

2.2.7 Consideration should be given with regards to the elements of the Proposed Development which may affect the achievement of GES for UK marine waters.

Conservation of Natural Habitats and of Wild Fauna and Flora (the Habitats Directive), Directive 92/43/EEC

2.2.8 This Directive provides protection to the habitats listed on Annex I and to the European protected species listed on Annex II through the provision of a network of protected sites (Special Areas of Conservation (SACs) and SPAs). This network is often referred to as Natura 2000. The Directive also provides special protection to European protected species where they occur outside of the boundary of a Natura 2000 site.

### Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention 1979)

- 2.2.9 The Bern Convention aims to ensure conservation of wild flora and fauna species and their habitats, particularly those that are endangered or vulnerable. Such species are specified in the appendices to the Convention.
- 2.2.10 There should be consideration of the impact of the Proposed Development on the conservation of wild flora and fauna during the planning and development stages.

*Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention 1979)* 

- 2.2.11 The Bonn Convention aims to ensure conservation of migratory species and their habitats by providing strict protection for endangered migratory species (listed in Appendix I of the Convention), concluding multilateral Agreements for the conservation and management of migratory species which require or would benefit from international cooperation (listed in Appendix II), and by undertaking cooperative research activities.
- 2.2.12 There should be consideration of the impact of the Proposed Development on the conservation of migratory species and their habitats during the planning and development stages.

#### Marine and Coastal Access Act 2009

2.2.13 The Marine and Coastal Access Act 2009 allows for the creation of Marine Conservation Zones to protect a range of nationally important marine wildlife, habitats, geological and geomorphological sites. Sites are yet to be created in Welsh waters, but those that were originally identified and taken to consultation have new recommendations made by the Minister of Natural Resources and Food.

2.2.14 This Act also provides the framework for obtaining consents for various works in the marine environment. These consents are granted by Natural Resources Wales (NRW) through the Marine Licensing Team. A Marine Licence may be required for sub-seabed works in relation to the Proposed Development (i.e. when crossing the Menai Strait).

The Countryside and Rights of Way Act 2000

- 2.2.15 The Countryside and Rights of Way Act 2000 applies to England and Wales only. Part III of the Act deals specifically with wildlife protection and nature conservation.
- 2.2.16 The Act places a duty on Government departments and the Welsh Government to have regard for the conservation of biodiversity and maintain lists of species and habitats for which conservation steps should be taken or promoted, in accordance with the Convention on Biological Diversity.
- 2.2.17 Schedule 9 of the Act amends the Sites of Special Scientific Interest (SSSI) provisions of the Wildlife and Countryside Act 1981 (as amended), including increased powers for the protection and management of SSSIs. The provisions extend powers for entering into management agreements; place a duty on public bodies to further the conservation and enhancement of SSSIs; increase penalties on conviction where the provisions are breached; and include an offence whereby third parties can be convicted for damaging SSSIs.
- 2.2.18 Schedule 12 of the Act amends the species provisions of the Wildlife and Countryside Act 1981 (as amended), strengthening the legal protection for threatened species. The provisions make certain offences 'arrestable', include an offence of reckless disturbance, confer greater powers to police and wildlife inspectors for entering premises and enable heavier penalties on conviction of wildlife offences.

#### Hedgerow Regulations 1997

2.2.19 Various wildlife, landscape and historical criteria are specified in the Regulations, which are used to identify what constitutes an 'Important' hedgerow. 'Important' hedgerows are protected from removal (up-rooting or otherwise destroying) without permission from the relevant authority. The local planning authority is also the enforcement body for offences created by these Regulations.

2.2.20 Local planning authority permission is normally required before removing hedges that are at least 20 m (66 feet) in length, more than 30 years old and contain certain plant species.

Protection of Badgers Act 1992

- 2.2.21 Badgers (*Meles meles*) are protected by the Protection of Badgers Act 1992 and are listed under Annex II of the Bern Convention. These legislative measures are based primarily on the need to protect badgers from baiting and deliberate harm or injury.
- 2.2.22 Under the provisions of the Badgers Act 1992, the following activities amount to criminal offences:
  - to wilfully kill, injure, take, possess or cruelly ill-treat a badger or attempt to do so;
  - to interfere with a sett by damaging or destroying it;
  - to obstruct access to, or any entrance of, a badger sett; and
  - to disturb a badger when occupying its sett.
- 2.2.23 A badger sett is any structure or place that displays signs indicating current use by a badger. The legal definition includes main, annexe, subsidiary and outlier setts, even though badgers may only use these intermittently.
- 2.2.24 Penalties for offences can be severe with fines plus up to six months imprisonment for each illegal sett interference, or badger death or injury.

The Wildlife and Countryside Act 1981 (as amended)

- 2.2.25 The Wildlife and Countryside Act 1981 (as amended) is the major domestic legal instrument for wildlife protection in the UK, and is the primary means by which the following are implemented:
  - Convention on the Conservation of European Wildlife and Natural Habitats ('the Bern Convention');
  - Convention on the Conservation of Migratory Species of Wild Animals ('the Bonn Convention'); and
  - Directive 2009/147/EC on the Conservation of Wild birds (the 'Birds Directive').

#### Sites of Special Scientific Interest

- 2.2.26 The Act provides for the notification and confirmation of SSSIs which are sites identified for their flora, fauna, geological or physiographical features by the country conservation bodies. In Wales this is NRW.
- 2.2.27 The Act also contains measures for the protection and management of SSSIs.

#### Wild Birds

- 2.2.28 The Act makes it an offence (with exception to species listed in Schedule 2) to intentionally:
  - kill, injure, or take any wild bird;
  - take, damage or destroy the nest of any wild bird while that nest is in use or being built (also take, damage or destroy the nest of a wild bird included in Schedule ZA1, whether or not it is in use); or
  - take or destroy an egg of any wild bird.
- 2.2.29 Special penalties are available for offences related to birds listed on Schedule1, for which there are additional offences of disturbing these birds at their nests, or their dependent young.
- 2.2.30 The Act also prohibits certain methods of killing, injuring, or taking birds, restricts the sale and possession of captive bred birds, and sets standards for keeping birds in captivity.

#### Other Animals

2.2.31 The Act makes it an offence (subject to exceptions) to intentionally kill, injure or take any wild animal listed on Schedule 5, and prohibits interference with places used for shelter or protection, or intentionally disturbing animals occupying such places. The Act also prohibits certain methods of killing, injuring, or taking wild animals.

#### <u>Plants</u>

- 2.2.32 The Act makes it an offence (subject to exceptions) to:
  - intentionally pick, uproot or destroy any wild plant listed on Schedule 8; or
  - sell, offer or expose for sale, or possess any live or dead wild plant included in Schedule 8, or any part derived from such a plant.

#### Non-native Species

2.2.33 The Act contains measures for preventing the establishment of non-native species which may be detrimental to native wildlife, prohibiting the release of animals and planting of plants listed in Schedule 9 in England and Wales. It also provides a mechanism making any of the above offences legal through the granting of licences by the appropriate authorities.

#### Environment (Wales) Act 2016

- 2.2.34 The Environment (Wales) Act Part 1 of the Act, including Sections 6 and 7, came into force on May 21, 2016.
- 2.2.35 Part 1 of the Environment Act sets out Wales' approach to planning and managing natural resources at a national and local level with a general purpose linked to statutory 'principles of sustainable management of natural resources' defined within the Act.

#### Section 6 - Biodiversity and resilience of ecosystems duty

- 2.2.36 Section 6 of the Act places a duty on public authorities to 'seek to maintain and enhance biodiversity' so far as it is consistent with the proper exercise of those functions. In so doing, public authorities must also seek to 'promote the resilience of ecosystems'. The duty replaces the Section 40 duty in the Natural Environment and Rural Communities (NERC) Act 2006, in relation to Wales, and applies to those authorities to which the previous duty applied.
- 2.2.37 Under this duty, Public authorities are required to report on the actions they are taking to improve biodiversity and promote ecosystem resilience.

### Section 7 - Biodiversity lists and duty to take steps to maintain and enhance biodiversity

2.2.38 This section replaces the duty in Section 42 of the NERC Act 2006. It requires Welsh Ministers to publish, review and revise lists of living organisms and types of habitat which they consider are of key significance to sustain and improve biodiversity in relation to Wales. As such, the UK Biodiversity Action Plan (UK BAP) priority species list and the subsequent NERC Act 2006 statutory lists of priority species and habitats have now been superseded by the lists produced at a country level under Section 7 (S7) of the Environment (Wales) Act 2016.

#### 2.3 NATIONAL POLICY

National Policy Statements

2.3.1 National Policy Statements set out the primary policy test against which the application for a Development Consent Order (DCO) for the Proposed Development will be considered. There are two National Policy Statements (NPS) that are relevant to the Proposed Development; the Overarching National Policy Statement for Energy NPS EN-1 and the technology specific National Policy Statement for Electricity Networks Infrastructure NPS EN-5. NPSs provide the primary basis for decisions made by the Planning Inspectorate (PINS) and, ultimately, the Secretary of State (SoS).

Overarching National Policy Statement for Energy (EN-1)

- 2.3.2 The Overarching NPS for Energy (EN-1) sets out the Government's overarching policy in relation to nationally significant energy infrastructure projects.
- 2.3.3 Part 4 of EN-1 sets out the general policies in accordance with which applications relating to energy infrastructure are to be decided. Paragraph 4.1.3 states that:

'In considering any proposed development, and in particular when weighing its adverse impacts against the benefits, the IPC (now PINS) should take into account:

Its potential benefits including its contribution to meeting the need for energy infrastructure, job creation and any long-term or wider benefits; and

Its potential adverse impacts, including any long-term and cumulative adverse impacts, as well as any measures to avoid, reduce or compensate any adverse impacts.

In this context, the IPC should take account environmental, social and economic benefits and adverse impacts, at national, regional and local levels....'

2.3.4 It also notes that prior to an order to grant development consent, due consideration must be given by the PINS as to whether the project may have a significant effect on a European site, or on any site to which the same protection is applied as a matter of policy, either alone or in combination with other plans or projects in respect of the Conservation of Habitats and Species Regulations 2017.

2.3.5 Table 9.1 provides details of the elements of NPS EN-1 that are relevant to this chapter, and how and where they are covered in the Environmental Statement (ES).

Table 9.1 Compliance with NPS (EN-1) Requirements			
NPS EN-1 Section	Where this is covered in the ES		
Part 4, Section 4.3 4.3.1 Prior to granting a development consent order, the IPC must, under the Habitats and Species Regulations, (which implement the relevant parts of the Habitats	The findings of a Habitats Regulations Assessment (HRA) are reported in the Applicants Report to Support the Habitats Regulations Assessment ( <b>Document 5.23</b> ).		
Directive and the Birds Directive in England and Wales) consider whether the project may have a significant effect on a European site, or on any site to which the same protection is applied as a matter of policy, either alone or in combination with other plans or projects.	Designations made under the Conservation of Habitats and Species Regulations 2017 have been identified in section 7 baseline conditions with a full list provided in Appendix 9.2 Designated Sites Further Information ( <b>Document 5.9.2.2</b> ). The likely effects on these features are assessed and detailed in section 9 mitigation		
	and residual effects. In addition, further details of proposed mitigation are provided within the CEMP ( <b>Document 7.4</b> ) and the BMS ( <b>Document 7.7</b> ).		
Part 5, Section 5.3 5.3.3 Where the development is subject to EIA the applicant should ensure that the ES clearly sets out any effects on internationally, nationally and locally designated	Designations, habitats and protected species have been identified in the section 7 baseline conditions. The likely significant residual effects on these features are		
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.	assessed and detailed in this chapter in section 9 mitigation and residual effects. Further details of mitigation measures are provided within the		

Table 9.1 Compliance with NPS (EN-1) Requirements		
NPS EN-1 Section	Where this is covered in the ES	
	CEMP ( <b>Document 7.4</b> ) and the BMS ( <b>Document 7.7</b> ).	
Part 5, Section 5.3 5.3.4 The applicant should show how the project has taken advantage of opportunities to conserve and enhance biodiversity and geological conservation interests.	Mitigation measures to ensure the conservation of biodiversity conservation interests are reported in section 9 mitigation and residual effects. Where the EIA process identifies opportunities to enhance biodiversity interests these are reported in the Enhancement Strategy ( <b>Document 7.13</b> ).	
	Geological conservation interests are not relevant in this chapter.	
<ul> <li>Part 5, Section 5.3</li> <li>5.3.18 The applicant should include appropriate mitigation measures as an integral part of the proposed development. In particular, the applicant should demonstrate that:</li> <li>during construction, they will seek to ensure that activities will be confined to the minimum areas required for the works;</li> <li>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;</li> </ul>	Section 9 mitigation and residual effects identifies measures which seek to address each of these points. Further details of mitigation proposals are provided within the CEMP ( <b>Document 7.4</b> ) and the BMS ( <b>Document 7.7</b> ). Where the EIA process identifies opportunities to enhance biodiversity interests these are reported in the Enhancement Strategy ( <b>Document 7.13</b> ).	
<ul> <li>habitats will, where practicable, be restored after construction works have finished; and</li> </ul>		
<ul> <li>opportunities will be taken to enhance existing habitats and, where practicable, to create new</li> </ul>		

Table 9.1 Compliance with NPS (EN-1) Requirements		
NPS EN-1 Section	Where this is covered in the ES	
habitats of value within the site landscaping proposals.		
Part 5, Section 5.11.7 The applicant should consult EA (Environment Agency) and Natural England (NE), or the Countryside Council for Wales (CCW), as necessary and in particular with regard to assessment of noise on protected species or other wildlife. The results of any noise surveys and predictions may inform the ecological assessment. The seasonality of potentially affected species in nearby sites may also need to be taken into account.	NRW has been consulted as the relevant statutory nature conservation body as they have replaced CCW and the EA for Wales. The assessment of noise impacts on ecological receptors is included in section 9 and Appendix 9.18, Underwater Construction Noise Modelling and Assessment Report ( <b>Document</b> <b>5.9.2.18</b> ).	

National Policy Statement for Electricity Networks Infrastructure (EN-5)

2.3.6 This NPS, taken together with the Overarching NPS for Energy (EN-1), provides the primary basis for decisions made by the Planning Inspectorate on applications it receives for electricity networks infrastructure.

Table 9.2 Compliance with NPS (EN-5) Requirements		
NPS EN-5 Section	Where this is covered in the ES	
Part 2 Section 2.7 2.7.1 Generic biodiversity effects are covered in Section 5.3 of EN-1. However, large birds such as swans and geese may collide with overhead lines associated with power infrastructure, particularly in poor visibility. Large birds in particular may also be electrocuted when landing or taking off by completing an electric circuit between live and ground wires. Even perching birds	Information about the presence of large bird species is included in section 7 baseline conditions. Full details are provided within Appendix 9.15 Ornithological Assessment Report ( <b>Document</b> <b>5.9.2.15</b> ). The likely effects on these features are assessed and detailed in this chapter in section 8 potential effects, and section 9 mitigation and residual effects.	

Table 9.2 Compliance with NPS (EN-5) Requirements		
NPS EN-5 Section	Where this is covered in the ES	
can be killed as soon as their wings touch energised parts. 2.7.2 The applicant will need to consider whether the proposed line will cause such problems at any point along its length and take this into consideration in the preparation of the EIA and ES (see Section 4.2 of EN-1). Particular consideration should be given to feeding and hunting grounds, migration corridors and breeding grounds and appropriate mitigation such as the placement of the line and its visibility should be proposed where necessary. 2.7.5 Making lines more visible by methods such as the fitting of bird flappers and diverters to the earth wire, which swivel in the wind, glow in the dark and use fluorescent colours designed specifically for bird vision can also reduce the number of deaths. The design and colour of the diverters will be specific to the conditions – the line and pylon/transmission pylon specifications and the species at risk.	In addition, further details are provided within the CEMP ( <b>Document 7.4</b> ) and the BMS ( <b>Document 7.7</b> ). For the purposes of this assessment we have considered that collision risk includes all potential injuries/deaths that may be associated with an avian collision with OHL including electrocution and death occurring either as a direct result of collision or through related injuries (broken wing etc). As confirmed in Section 9 Mitigation and Residual Effects, no significant effects are predicted as a result of bird collision with infrastructure and therefore it has not been necessary to commit to the use of diverters on the OHL.	

#### Planning Policy Wales (Edition 9)

2.3.7 Planning Policy Wales (PPW) Edition 9 issued November 2016 is the currently adopted document that sets out the land use planning policies of the Welsh Government and provides the context for land use planning in Wales. PPW (9) is the version that has been considered for this assessment; however it is noted that consultation is currently being undertaken on the draft PPW Edition 10 issued February 2018 (consultation ended in May 2018). The draft

PPW (10) document has also been reviewed and applicable information has been included where considered relevant.

- 2.3.8 Chapter 5 of PPW (9) sets out the Welsh Government's objectives for the natural heritage of Wales, which include to:
  - 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; and
  - safeguard protected species.
- 2.3.9 PPW (10) additionally includes an objective to:
  - seek enhancement of and improvements to ecosystem resilience by improving diversity, condition, extent and connectivity of ecological networks.
- 2.3.10 Paragraph 5.2.9 of PPW refers to the importance of trees, woodlands and hedgerows as wildlife habitats and the responsibility of local planning authorities to seek to protect these features where they have natural heritage value. It further states that 'Ancient and semi-natural woodlands are irreplaceable habitats of high biodiversity value which should be protected from development that would result in significant damage'. Paragraph 5.63 of PWW (10) describes additional levels of protection for ancient and semi-natural woodlands and individual ancient, veteran and heritage trees. There is a requirement for authorities to consult with NRW when dealing with sites recorded on the Ancient Woodland Inventory and planning authorities should also have regard to the Ancient Tree Inventory.
- 2.3.11 Paragraph 5.3.2 states that regard should be made to the relative significance of international, national and local designations in considering the weight to be attached to nature conservation interests and care should be taken to avoid placing unnecessary constraints on development.
- 2.3.12 Paragraph 5.3.9 requires that the Welsh Government ensures that international responsibilities and obligations for conservation are fully met, and that, consistent with the objectives of the designation, statutorily designated sites are protected from damage and deterioration, with their important features conserved by appropriate management. Paragraph 5.53

of PPW (10) adds that 'The contribution of the designated site to a wider network of resilient ecosystems should be recognised and captured as part of policy and decision making'.

- 2.3.13 It is required that for the purposes of planning, potential SPAs (pSPAs) and candidate SACs (cSACs) should be treated in the same way as classified SPAs and designated SACs, and that the same considerations should be applied to listed Ramsar sites, in accordance with Paragraph 5.3.10 of PPW (9). Paragraph 5.55 of PPW (10) adds that 'proposed SSSIs will be considered under the same policy principles as designated SSSIs'.
- 2.3.14 Paragraph 5.3.11 states that non-statutory nature conservation designations such as Sites of Interest for Nature Conservation (SINC)<sup>1</sup> should not unduly restrict acceptable development. Paragraph 5.57 of PPW (10) changes the wording to '*Policies for non-statutory sites should make it clear that such designations should not preclude appropriate developments*'.
- 2.3.15 With regards to development applications, it is required that biodiversity considerations are taken into account, with the effect of a development proposal on wildlife being a material consideration. It states in Paragraph 5.5.1 that it is important to balance conservation objectives with the wider economic needs of local businesses and communities and that where development does occur, it is important to ensure that all reasonable steps are taken to safeguard or enhance the environmental quality of land. Paragraph 5.5.2 goes on to state that adverse effects on the environment should be avoided, but that where other material considerations outweigh the potential adverse environmental effects, authorities should seek to minimise those effects and should, where possible, retain and, where practicable, enhance features of conservation importance.
- 2.3.16 Paragraph 5.5.5 states that a statutory designation does not necessarily prohibit development, but proposals must be carefully assessed for their effect on those natural heritage interests which the designation is intended to protect.
- 2.3.17 There is a presumption against development likely to damage a SSSI in Paragraph 5.5.8 but the local planning authority must give notice to and take advice from NRW in deciding whether to grant planning permission and in attaching planning conditions.

<sup>&</sup>lt;sup>1</sup> In Anglesey and Gwynedd Joint Local Development Plan, these non-statutory sites are called Wildlife Sites; the term County Wildlife Site (CWS) and candidate CWS (cCWS) has been used in this assessment and chapter.

- 2.3.18 It is stated within Paragraphs 5.5.11 and 5.5.12 that 'the presence of a species protected under European or UK legislation is a material consideration when a local 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'. They go on to state that '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 planning decision'. Furthermore, it is stated that 'developments are always subject to the legislation covering European protected species regardless of whether or not they are within a designated site. New developments for which development works would contravene the protection afforded to European protected species require derogations from the provisions of the Habitats Directive. A derogation may only be authorised if there is no satisfactory alternative and if the action authorised will not be detrimental to the maintenance of the population of the species concerned at a favourable conservation status in its natural range'.
- 2.3.19 Paragraph 5.5.13 outlines that adequate provision is made for the planting or preservation of trees by imposing conditions when granting planning permission. Paragraphs 5.61, 5.62 and 5.64 of PPW (10) now make specific references to hedgerows as well as trees.
- 2.3.20 The European Union is promoting a coordinated policy for coastal regions and is calling on Member States to put in place strategies for Integrated Coastal Zone Management (ICZM). The main principles of the ICZM are embedded into relevant plans and projects and Paragraph 5.6.2 of PPW (9) includes recognition of the importance of the coast for the conservation of the natural environment.
- 2.3.21 Paragraph 5.58 of PPW (10) introduces a step-wise approach to protecting and enhancing biodiversity and building resilient ecological networks by ensuring that any adverse environmental effects are minimised and mitigated.

Technical Advice Note (TAN) 5: Nature Conservation and Planning (Wales) (2009)

- 2.3.22 PPW is supplemented by a series of Technical Advice Notes (TANs).
- 2.3.23 TAN 5 provides advice about how the land use planning system should contribute to protecting and enhancing biodiversity and geological conservation. This TAN brings together advice on legislation relevant to various nature conservation topics which may be encountered by local planning authorities. Chapter 2 sets out the key principles of planning for nature conservation. Chapter 3 provides advice about the preparation and

review of development plans, including the relevant statutory requirements. Chapter 4 addresses nature conservation in development control procedures. Chapter 5 deals with the conservation of internationally and nationally designated sites and habitats and also covers local sites. Chapter 6 deals with the conservation of protected and priority species.

#### 2.4 LOCAL PLANNING POLICY

2.4.1 There are a number of local planning policies set out in the Joint Local Development Plan 2017 (Ref 9.1) that relate to ecology and nature conservation which, in combination with other planning policies, will guide local authority expectations in relation to the Proposed Development. These are set out in Appendix 9.1 Local Planning Policy (**Document 5.9.2.1**). Further information on local policy is also provided in the Planning Statement (**Document 7.14**).

#### 2.5 BIODIVERSITY ACTION PLANS

- 2.5.1 Biodiversity Action Plans (BAPs) were created as part of a national and international programme of actions outlining the activity needed to protect a region's most important and at-risk wildlife. The UK BAP priority species list and the subsequent NERC Act 2006 Section 42 priority species and habitats lists, have now been superseded by those produced under S7 of the Environment (Wales) Act 2016 (see section 2.2 legislation).
- 2.5.2 Local Biodiversity Action Plans (LBAPs) identify local priorities for biodiversity conservation and work to deliver agreed actions and targets for specific habitats and species of local importance.
- 2.5.3 The LBAPs relevant to the study area for the Proposed Development (as set out in section 6 study area) are the Anglesey LBAP published by Isle of Anglesey County Council (IACC) and the Natur Gwynedd LBAP for Gwynedd developed by a partnership of organisations and individuals. These LBAPs cover species and habitat action plans as well as other topics such as agriculture and land use and survey, monitoring and data management.

### 3 Scope of Assessment and Consultation

#### 3.1 INTRODUCTION

3.1.1 This section describes the scope of the EIA, with reference to the SoS Scoping Opinion<sup>2</sup>, other consultation with key consultees that has influenced the scope and any scheme detail, assessment work or new information received after the Scoping Opinion that has changed the initially proposed approach to work for this topic.

#### 3.2 SECRETARY OF STATE'S SCOPING OPINION

3.2.1 Table 9.3 outlines the issues that were raised in the SoS Scoping Opinion and how these have been addressed in the ES.

Table 9.3 Issues Raised in the Secretary of State's Scoping Opinion		
Paragraph	Issue Raised by SoS	Response
3.70	Section 6.4 of the Scoping Report identifies the Scoping Study Area, which comprises: the main Scoping Corridor; an additional 2 km for some habitats and species (which have not been specified); and a 10 km buffer for bats. The DCO application will be for a refined scheme, with a smaller red line boundary. The Scoping Report has not defined what the study area within the ES would be. These should be clearly defined within the ES and sufficiently broad to enable the ecology of the wider area to be understood in addition to the route alignment itself. The ES should justify the chosen study areas, for example	The study areas used in relation to different habitats and species, and the reasons for the extent of each study area are set out in section 6 study area, which includes reference to discussions with NRW, IACC and Gwynedd Council.

<sup>2</sup> The SoS Scoping Opinion - Proposed North Wales Connection, July 2016

Table 9.3 Issues Raised in the Secretary of State's Scoping Opinion			
Paragraph	Issue Raised by SoS	Response	
	with reference to relevant guidance documents, and be agreed with NRW and the Council's where possible.		
3.71	The Applicant's attention is drawn to the comments of the Councils (see Appendix 3 of this Opinion) regarding the need to consider priority species and habitats listed under Section 42 of the Natural Environment and Rural Communities Act 2006.	The NERC Act 2006 is now replaced in Wales by the Environment (Wales) Act 2016, with species and habitats listed under S7. Relevant habitats and species of principal importance listed under S7 of the Act are identified in section 7 baseline conditions and any effects are reported in sections 8 potential effects, and 9 mitigation and residual effects.	
3.72	The SoS notes from the Councils' comments (see Appendix 3 of this Opinion) that Glynllifon SAC is located approximately 10 km south-west of the Scoping Study Area and for which lesser horseshoe bats ( <i>Rhinolophus hipposideros</i> ) are a feature. Given that the SAC is located close to the 10 km study area detailed in the Scoping Report, the SoS recommends that the SAC is considered for inclusion in the assessment on a precautionary basis.	This Proposed Development now covers a much smaller spatial area than the Scoping Corridor and is more than 13 km away from the Glynllifon SAC. It is therefore considered appropriate not to include this designated site in the ES as there is no pathway for a likely significant effect on this designated site, which has been agreed with NRW. Further information is provided in the Applicants Report to Support the Habitats Regulations Assessment ( <b>Document 5.23</b> ).	
3.73	The Scoping Report does not identify the timings or study areas for the surveys undertaken to date, or those proposed. As such, it is difficult to comment on the appropriateness on such	Details of the timing of surveys, study areas and survey areas are included in section 4 methodology and section 6 study area. Further details including specific dates, weather and any	

Table 9.3 Issues Raised in the Secretary of State's Scoping Opinion			
Paragraph	Issue Raised by SoS	Response	
	surveys. The ES should provide this detail.	other material considerations are included in the Appendices 9.3 to 9.17 ( <b>Documents 5.9.2.3 to</b> <b>5.9.2.17</b> ).	
3.74	The Scoping Report notes that access has been limited for some of the ecological surveys undertaken to date. The Applicant should ensure that they have sufficient survey information to support the ecological assessment and is advised to discuss this with NRW and the Councils. In this regard, the Applicant is reminded of the potential to use Section 53 of the Planning Act 2008 to apply to the SoS for access to land.	Details of the final survey coverage and the adequacy of data for the purposes of assessment are included in section 7 baseline conditions and section 9 mitigation and residual effects. It is the preference of National Grid to use powers under s.172 instead of Section 53 where possible.	
3.75	The SoS draws the Applicant's attention to the detailed comments within section 6.5 of the Councils' response, specifically in relation to survey methodology. The Applicant is advised to address these matters during the pre- application stage and ensure they are reflected within the ES.	The survey methodology is described in section 4 methodology, and reflects discussions with the Councils and NRW.	
3.76	The SoS notes the comments of the Councils that Anglesey supports a strong population of polecat ( <i>Mustela putorius</i> ) and recommends that the Applicant discusses the need for surveys for polecat with the Councils and NRW. The Applicant should also explain why no further surveys	Details of the approach discussed and agreed with the Councils and NRW relating to polecat and brown hare are included in section 4 methodology as well as in the Terrestrial Mammal Report ( <b>Document 5.9.2.12</b> ).	

Table 9.3 Issues Raised in the Secretary of State's Scoping Opinion			
Paragraph	Issue Raised by SoS	Response	
	would be undertaken for brown hare ( <i>Lepus europaeus</i> ).		
3.77	Paragraph 6.6.83 of the Scoping Report states that "due to the large extent of the Scoping Corridor, and number of remaining route options, it is proposed to undertake only representative transects in order to index breeding bird populations for one season during spring 2016". By the time the application is made, the route alignment should be accurately determined and not so wide-ranging to represent different route options. The SoS would expect sufficient survey data to be available for the final route alignment and recommends that the approach to surveying for breeding birds, including the locations of vantage points, is agreed with NRW and the Councils. The Applicant's attention is drawn to the comments of NRW and the Councils (see Appendix 3 of this Opinion) regarding vantage points.	The transect alignments have been modified to reflect the Order Limits and have been discussed with NRW and the Councils. The survey locations and results are provided in Appendix 9.15 Ornithological Assessment Report ( <b>Document</b> <b>5.9.2.15</b> ).	
3.78	With regard to the terrestrial invertebrate surveys, the ES should clearly explain what 'suitable habitats' would comprise.	This information is included in Appendix 9.14 Terrestrial Invertebrate Report ( <b>Document</b> <b>5.9.2.14</b> ).	
3.79	Paragraph 6.6.100 of the Scoping Report states that direct burial of cables on the seabed	The assessment provided is of the Proposed Development, which includes a tunnel crossing	

Table 9.3 Issues Raised in the Secretary of State's Scoping Opinion			
Paragraph	Issue Raised by SoS	Response	
	has been discounted. However, as noted above in this Opinion, the SoS is unclear as to the options for crossing the Menai Strait and in assuming a worst case scenario for intertidal and subtidal ecology, has considered the potential for burial by trenching methods. The SoS notes the comments of the Councils (see Appendix 3 of this Opinion) that <i>"other methods remain which could have</i> <i>significant effects on the</i> <i>intertidal and subtidal habitats of</i> <i>the SAC".</i> The SoS considers that a proportionate approach should be undertaken to assessing potential impacts on the intertidal and subtidal environment which is relevant to the chosen crossing method and the location of works.	under the Menai Strait. See section 9 mitigation and residual effects.	
3.80	The Scoping Report has provided limited details regarding potential impacts on the marine environment, specifically within the Menai Strait. For example, the ES should consider the potential for noise and vibration impacts on marine receptors from construction.	The assessment provided is of the Proposed Development, which includes a tunnel crossing under the Menai Strait. Construction noise modelling from tunnelling operations has been carried out (detailed in Underwater Construction Noise Modelling and Assessment Report ( <b>Document 5.9.2.18</b> ). This forms the basis of the underwater noise and vibration assessment in the Menai Strait which is discussed in section 9 mitigation and residual effects.	

Table 9.3 Issues Raised in the Secretary of State's Scoping Opinion			
Paragraph	Issue Raised by SoS	Response	
3.81	The SoS welcomes the descriptions of the terms 'significant' and 'not significant'. Where professional judgement is used to make these decisions, these must be clearly rationalised within the ES.	The process used to identify significance is set out section 4 methodology.	
3.82	The SoS welcomes the proposed assessment of collision risk within the ES. Consideration should be given to feeding and hunting grounds, migration corridors and breeding grounds. The Applicant should also give consideration to the mitigation measures suggested in NPS EN-5 and explain within the ES how these have been taken into account.	The assessment of collision risk, as well as any necessary mitigation, is reported in section 9 mitigation and residual effects. The assessment of effects on migration corridors in the marine environment is also in section 9 mitigation and residual effects.	
3.83	The Scoping Report identifies a number of areas of ancient woodland within the Scoping Study Area, however does not identify a value for this receptor within Table 6.5. The Applicant should ensure that an assessment of the potential impacts on this biodiversity resource is presented within the ES in line with paragraph 5.3.14 of EN-1.	Information about the presence and value of ancient woodland is provided within section 7 baseline conditions. Effects on ancient woodland are reported in section 8 potential effects, section 9 mitigation and residual effects and section 10 cumulative effects.	
3.84	The Scoping Report identifies a large number of designated sites in the vicinity of the proposed development. The ES should clearly set out the potential impacts on these sites. In relation to SSSIs, further	Effects on designated sites are reported in section 8 potential effects, section 9 mitigation and residual effects and section 10 cumulative effects.	

Table 9.3 Issues Raised in the Secretary of State's Scoping Opinion			
Paragraph	Issue Raised by SoS	Response	
	information is provided in Section 4 of this Opinion and the Applicant's attention is drawn to the comments of NRW in Appendix 3 of this Opinion.		
3.85	The Applicant's attention is drawn to the comments of NRW (see Appendix 3 of this Opinion) regarding the need to consider biosecurity. With this in mind, the Applicant should also have due regard to Section 5.6 of NPS EN-1.	Biosecurity measures are included within the CEMP ( <b>Document 7.4</b> ) and within the BMS ( <b>Document 7.7</b> ). Biological elements of statutory nuisance are reported in the Statement of Statutory Nuisance ( <b>Document 5.24</b> ).	
3.86	The Scoping Report has not provided any details on potential mitigation or enhancement within the chapter; the ES should provide this detail. The Applicant should have due regard to paragraph 5.3.18 of EN-1 and ensure that the ES demonstrates how such mitigation measures have been incorporated into the proposed development.	Mitigation measures are detailed in section 9 mitigation and residual effects, with further details provided in the BMS ( <b>Document 7.7</b> ). Enhancement measures are detailed in the Enhancement Strategy ( <b>Document 7.13</b> ).	
3.87	In considering the potential impacts of noise, vibration and air quality impacts on ecological receptors, appropriate cross reference should be made to other relevant chapters of the ES.	Cross references to other topic chapters are included in section 8 potential effects and section 9 mitigation and residual effects.	
3.88	The SoS notes the possible need for an Appropriate Assessment in view of the proposed development site's location in relation to a number of European sites and refers the	The need for Appropriate Assessment is considered in the Applicants Report to Support the Habitats Regulations Assessment ( <b>Document 5.23</b> ).	
Table 9.3 Is	Table 9.3 Issues Raised in the Secretary of State's Scoping Opinion		
--------------	---	--	--
Paragraph	Issue Raised by SoS	Response	
	Applicant to Section 4 of this Opinion for further information on this.		
3.109	With regard to the Applicant's proposed approach to diatoms and macroinvertebrates, as detailed in paragraph 9.6.9 of the Scoping Report, the Secretary of State notes that the requirements of the WFD will not necessarily perfectly align with that of EIA. If there is the potential for significant effects (direct or indirect) on these receptors, then they should be assessed accordingly within the ES. Such an assessment may be appropriately placed in the ecology chapter of the ES.	The scope of the aquatic ecology assessment is limited to macroinvertebrates and fish and is described in section 4 as well as in Appendix 9.13 Freshwater Report ( <b>Document 5.9.2.13</b> ) and the Marine Ecology Reports Appendix 9.16 Intertidal Report ( <b>Document 5.9.2.16</b> ) and Appendix 9.17 Subtidal Report ( <b>Document 5.9.2.17</b> ). Although diatoms are an indicator of water quality, and are used as such under the WFD, they are, in themselves, not considered to be potential receptors of likely significant ecological effects, and are not therefore considered in this chapter.	

#### 3.3 CONSULTATION

- 3.3.1 Meetings have been held with NRW, IACC and Gwynedd Council to discuss the scope, methodology and results of the ecology assessment, as described within this chapter. Chapter 5, EIA Consultation (**Document 5.5**) lists all the meetings that have taken place and the topics discussed.
- 3.3.2 Responses to comments from Stage 3 Consultation are provided in Chapter 5 Appendix 5.2 Schedule of responses to the Preliminary Environmental Information Report (**Document 5.5.2.2**) and the Consultation Report (**Document 6.1**). Responses to comments provided during the technical stakeholder review of the draft ES are provided in Chapter 5, Appendix 5.3 Schedule of responses to the technical stakeholder review of the draft ES (**Document 5.5.2.3**).

# 3.4 UPDATES SINCE SCOPING

- 3.4.1 The great crested newt (*Triturus cristatus*) (GCN) modelling tool, available from Amphibian and Reptile Conservation, can potentially help quantify small scale impacts on meta-populations. However such predictive modelling is currently in its infancy and primarily aimed at providing predictive information where there is little or no field data, which is not the case for the Proposed Development. It is therefore not considered that it would add value to the assessment or change the outcome in terms of the findings of the assessment, mitigation requirements, or the outcome for GCN in relation to the Proposed Development. As such GCN modelling has not been undertaken.
- 3.4.2 Collision Risk Modelling (CRM) has not been undertaken for the ornithology assessment. This is in line with the most relevant available guidance produced by Scottish Natural Heritage (SNH) (Ref 9.2) which states that there is very little empirical evidence on bird interactions with conductors in the UK and no statistical model available that SNH can have confidence in to provide a robust assessment of potential mortality. A qualitative assessment of collision risk has therefore been undertaken based on observed bird activity as discussed with the stakeholders.
- 3.4.3 As a result of the above, no modelling work has been necessary for the assessment of impacts on Ecology and Nature Conservation.
- 3.4.4 A few minor amendments were made in the methodologies to address comments resulting from the Stage 3 Consultation, details of which are provided in the Chapter 5, EIA Consultation (**Document 5.5**). No other changes to the proposed scope as described in the Scoping Report have been made.

# 3.5 SCOPE OF ASSESSMENT

3.5.1 The scope of the assessment work included within the ES has been informed by the discussions with NRW, IACC and Gwynedd Council, the SoS Scoping Opinion<sup>2</sup> and the responses to the Preliminary Environmental Information Report (PEIR) (**Document 2.4.2**) from Stage 3 consultees, as well as through discussions referred to in Chapter 5, EIA Consultation (**Document 5.5**).

#### Welsh Language

3.5.2 Consideration has been given to the potential for this topic to impact on the Welsh language in any way, drawing upon the findings of the Welsh Language Impact Assessment (**Document 5.26**). It has been concluded that

there is no potential for the sources of effects or affected receptors dealt with in this chapter to have any effects upon the Welsh language.

# 4 Methodology

# 4.1 INTRODUCTION

4.1.1 This section outlines the technical methods used to determine the baseline and its sensitivity, how it could be affected by the Proposed Development and how significant the effects would be likely to be.

# 4.2 GUIDANCE SPECIFIC TO ECOLOGY

- 4.2.1 This section provides information about the guidance related to the gathering of ecological baseline information, the analysis of this information, and the assessment of the information in EIA terms. The Chartered Institute of Ecology and Environmental Management (CIEEM) publication Guidelines for Ecological Impact Assessment (EcIA) (Second Edition) 2016 (Ref 9.3) is generally accepted to represent best practice, and the approach to determining the significance of effects resulting from the Proposed Development, which is presented in section 4.6, broadly follows these guidelines.
- 4.2.2 Survey methodologies also broadly follow accepted best practice guidelines. Details of relevant published guideline documents are provided in Appendices 9.3 to 9.17 (Documents 5.9.2.3 to 5.9.2.17).

# 4.3 BASELINE DATA GATHERING AND FORECASTING METHODS

4.3.1 Baseline data collection and survey methodologies are set out in brief below, however more detailed methodologies are provided in each of the baseline survey reports appended to this chapter (Appendices 9.3 to 9.17 (Documents 5.9.2.3 to 5.9.2.17)).

#### Desk Study

4.3.2 A review of ecology data gathered for the terrestrial and marine study areas has been undertaken. Tables 9.4 and 9.5 summarise the data used to define the baseline environment and the source of the data. Whilst in general only relevant data from within the last ten years has been considered, due to the format in which the data has been supplied from Cofnod, some of the records for the same location have been grouped together over a period of years and therefore records older than ten years old may be included. These are

summarised in the tables within each baseline report appended to this chapter (**Appendices 9.3 to 9.17**).

4.3.3 In addition to the data sources listed below, other sources of information have been reviewed, such as ecological survey reports associated with current or historic planning applications, wildlife mitigation monitoring reports and published research papers associated with the study area. A list of these sources is included in section 12 References.

Table 9.4 Baseline Data Sources – Terrestrial and Ornithological		
Receptor	Data source	Details/method
Habitats	Aerial photography (Google Earth)	Visual
Habitats	LANDMAP Information on landscape habitat classifications and evaluations	
Hedgerows	1901 County Series OS maps	Identification of historical hedgerows
Hedgerows	Tithe maps	Identification of historical hedgerows
Designated sites	Joint Nature Conservation Committee (JNCC) online database	Boundaries and citations
	Multi-Agency Geographic Information for the Countryside (MAGIC) website	Boundaries and citations
All	Free access sources	Freely available peer-reviewed data, publically available project reports on the ecology of the surrounding areas, and appropriate mapping and data websites
All	Isle of Anglesey County Council (IACC)	Available records and citations for County Wildlife Sites (CWS). LBAP information
All	Gwynedd Council	Available records and citations for CWS

Table 9.4 Baseline Data Sources – Terrestrial and Ornithological		
Receptor	Data source	Details/method
		LBAP information
All	Natural Resources Wales (NRW)	Available relevant records and reports on designated sites
All	Third party data from Horizon Nuclear PowerRecords from ecological surv conducted on behalf of the Project	
Protected	Cofnod, the Local	Available relevant records.
notable and invasive species.	Environmental Records Centre for North Wales	Boundaries and information on CWS
Birds	Royal Society for the Protection of Birds (RSPB)	Species – specific records of wetland birds
Chough	Chough ( <i>Pyrrhocorax</i> <i>pyrrhocorax</i> ) data from the Cross and Stratford Welsh Chough Project	Available relevant records
Birds	The Wales Raptor Study Group chairman	Any available records of Schedule 1 raptors and owls
Birds	British Trust for Ornithology (BTO) Wetland Bird Survey (WeBS) online ( <u>https://app.bto.org/webs-</u> reporting/)	Any available records
Birds	JNCCs Seabird Monitoring Programme ( <u>http://jncc.defra.gov.uk/s</u> <u>mp/</u> )	Any available records
Birds	The Greenland white – fronted goose ( <i>Anser</i> <i>albifrons flavirostris</i> ) website ( <u>http://greenlandwhitefron</u> <u>t.org/)</u>	Any available records

Table 9.4 Baseline Data Sources – Terrestrial and Ornithological		
Receptor	Data source	Details/method
Birds	Wildfowl and Wetlands Trust (WWT) website ( <u>http://monitoring.wwt.org</u> .uk/publications/)	Wildfowl census reports
Birds	The Breeding Birds in North Wales (Ref 9.43)	Documented records
Birds	Cambrian Bird Report 2015 (Ref 9.31)	Documented records
Birds	Welsh Government	Information on the Glastir Management Scheme
Badger	Clwyd Badger Group (which covers Anglesey and Gwynedd)	Records of sightings and sett locations
Red Squirrel	Red Squirrel Trust Wales (RSTW)	Records of sightings and trapping surveys
Fish	NRW/Welsh Government	Fish data from various survey methodologies.

4.3.4 Characterisation of the existing marine environment within the study area has been undertaken through a combination of desk based and field survey work. Table 9.5 summarises the data used to define the baseline marine environment. Further details about the data collection methods used are provided in Appendix 9.16 Intertidal Report (Document 5.9.2.16) and Appendix 9.17 Subtidal Report (Document 5.9.2.17).

Table 9.5 Baseline Data Sources - Marine		
Receptor	Data source	Details/method
All	Free access sources	Freely available peer-reviewed data and reports on the marine ecology of the Menai Strait and surrounding areas (Ref 9.4).
Intertidal benthic habitats	NRW	2003 intertidal habitat mapping/data covering the Menai Strait (dedicated survey).

Table 9.5 Baseline Data Sources - Marine		
Receptor	Data source	Details/method
Subtidal benthic habitats	NRW	SAC subtidal habitat mapping/data covering the Menai Strait (multiple survey data).
Fish	NRW/Welsh Government	Fish data (2009-2016) from various survey methodologies (e.g. seine net, beam trawl) covering the full extent of the Menai Strait and all freshwater catchments discharging in the Strait, including the Conwy.
Marine mammals	Sea Watch Foundation	Cetacean sightings data collated between 2005 and 2015.

#### Phase 1 Habitat Survey

- 4.3.5 A Phase 1 Habitat survey has been conducted within the Order Limits of the Proposed Development plus a 50 m buffer in general accordance with the JNCC Handbook for Phase 1 Habitat survey a technique for environmental audit (Ref 9.5). The purpose of Phase 1 Habitat survey is to map the broad habitat types present and to identify any habitats or other features that may require further or more specialist survey. In relation to protected habitats or plants, these are recorded in the form of 'target notes' on the survey plans, which are supported by written details of the features of interest or taken through to National Vegetation Classification (NVC) surveys for further assessment. Habitats or ecological features that have the potential to support protected or notable species are also recorded during the survey to highlight areas for further survey.
- 4.3.6 The Phase Habitat 1 survey also includes mapping of any instances of nonnative invasive species listed on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended). The presence of invasive species has also been noted whilst undertaking other ecology surveys.
- 4.3.7 Further details are provided in ES Appendix 9.3 Phase 1 Habitat Report (**Document 5.9.2.3**).

#### National Vegetation Classification

4.3.8 The NVC provides a systematic and comprehensive analysis of British vegetation and is widely used to provide a scientific basis for the description and evaluation of plant communities.

- 4.3.9 An NVC survey has been undertaken in areas where the Phase 1 Habitat survey identified potentially interesting/diverse areas of vegetation that could potentially be affected by the Proposed Development.
- 4.3.10 The surveys have been conducted in general accordance with the "*National Vegetation Classification: Users' Handbook*" published by the JNCC (Ref 9.6). Vegetation types were identified using the floristic tables in the relevant *British Plant Communities* volume (Ref 9.7).
- 4.3.11 Relevés<sup>3</sup> were randomly selected within areas of homogeneous vegetation in each plot. Further relevés were recorded where there was a perceived difference in the vegetation. Sample locations were chosen to provide an overview of the vegetation at the plot, with additional samples taken in areas with distinct vegetation. All samples were randomly selected within stands of vegetation following the standard NVC protocol. Stands of different vegetation were, where possible, excluded from the relevé. Mosaics were recorded using different relevés for each of the constituent plant communities.
- 4.3.12 Woodland was recorded using 50 x 50 m quadrats for the canopy and shrub layers and 4 x 4 m for the ground flora. Grassland and mire vegetation was recorded using 2 x 2 m quadrats.
- 4.3.13 Further details are provided in ES Appendix 9.4 NVC Report (**Document 5.9.2.4**).

# Hedgerow Surveys

- 4.3.14 Hedgerow surveys have been conducted on hedgerows that were identified during the desk study or encountered during the Phase 1 Habitat survey. The hedgerow surveys have been completed where required within the Order Limits plus a 50 m buffer.
- 4.3.15 To inform the survey process, an aerial scoping exercise was undertaken using satellite imagery, OS maps and design layouts to identify boundary features within the survey area which may be affected by the Proposed Development; particular attention has been given to locations where access tracks will intersect hedgerows; this process was ongoing and repeated as the development design was refined.
- 4.3.16 The field surveys have been undertaken using the criteria in the Hedgerow Regulations 1997 to determine whether a hedgerow is classified as 'Important' under the ecological components of the Regulations. Hedgerows

<sup>&</sup>lt;sup>3</sup> A relevé is a 'picture' of the vegetation. It is composed of a species list from a quadrat of defined area and a description of the physical features of the stand.

can be classed as being Important based on either ecological (determined through field surveys) or historical (determined through desk-study) criteria.

- 4.3.17 Hedgerows that were considered to be more than 30 years old and at least 20 m in length were assessed using the ecological criteria defined in the Hedgerow Regulations 1997. Where possible, 30 m sections per 100 m of hedgerow were surveyed (up to a maximum of three sections).
- 4.3.18 The survey methodology was adapted from the guidance provided in the Hedgerow Survey Handbook: A standard procedure for local surveys in the UK (Ref 9.8), with only those features that contributed to the hedgerow being Important under the Regulations recorded and subsequently assessed.
- 4.3.19 Hedgerows classified as Important under the historical criteria were identified through desk-study.
- 4.3.20 Further details are provided in ES Appendix 9.5 Hedgerow Report (**Document 5.9.2.5**).

#### Badger Surveys

- 4.3.21 The survey area for badger included suitable habitat within the Order Limits and a 50 m buffer, as identified during the Phase 1 Habitat survey and a review of aerial mapping. Suitable habitat included fence-lines, hedgerows, woodland and scrub habitats.
- 4.3.22 Surveys were undertaken in general accordance with Harris *et al.* (Ref 9.12) which includes nationally recognised sett classification criteria of main, annex, subsidiary or outlier; setts are further classified as active, partially active or disused.
- 4.3.23 The survey area was assessed to identify suitable areas of habitat that might be used by badgers for foraging and potential sett building; these areas were then searched for signs of badger activity, such as setts, foraging signs, paths and latrines.
- 4.3.24 Any setts or field signs identified were mapped and given a Global Positioning System (GPS) reference.
- 4.3.25 Due to the risk of persecution, badger survey results have been presented in an ES confidential appendix which is available for statutory consultees only (Appendix 9.7 (**Document 5.9.2.7**)).

#### Water Vole Survey

- 4.3.26 The survey area for water vole was the same as that surveyed for otter i.e. a 500 m section of watercourse centred on the proposed crossing locations with both banks (or edges) being surveyed.
- 4.3.27 The survey has been conducted in general accordance with that recommended in the Water Vole Conservation Handbook (Ref 9.14) and updated mitigation guidance published in 2016 (Ref 9.15). All field signs encountered have been recorded, mapped, photographed and given a GPS reference. Potential field signs include: latrines, feeding stations, burrow entrances, paths and runs at the water's edge and sightings/sounds of water voles.
- 4.3.28 Further details are provided in ES Appendix 9.8 Otter and Water Vole Report (**Document 5.9.2.8**).

#### Otter Survey

- 4.3.29 The survey area for otter (*Lutra lutra*) included watercourses within and adjacent to the Order Limits that could be affected by the Proposed Development. Information gained from the Phase 1 Habitat survey and desk study was used to identify potentially suitable habitat that could be crossed by access tracks for the Proposed Development. The crossing locations were obtained from the Indicative Watercourse Crossing Schedule (**Document 5.3.2.2**).
- 4.3.30 The banks and margins of suitable watercourses have been surveyed up to 250 m either side of the proposed crossing location i.e. a 500 m section, with both banks being surveyed where habitat is suitable. This survey area allows for the flexibility of moving the crossing location along the watercourse within the Order Limits as it enabled comprehensive information to be gained on the watercourse features and habitats to determine suitability for otter.
- 4.3.31 The surveys have been conducted in general accordance with the publication 'Monitoring the Otter' (Ref 9.13) and have been specifically aimed at identifying any potential resting sites or holt locations along suitable watercourses. All signs of otter were mapped, photographed and given a GPS reference.
- 4.3.32 Evidence of other riparian mammals such as American mink (*Neovison vison*), bank vole (*Clethrionomys glareolus*) and water vole (*Arvicola amphibius*) were also recorded where observed.

4.3.33 Further details are provided in ES Appendix 9.8 Otter and Water Vole Report (**Document 5.9.2.8**).

#### Bat Surveys

- 4.3.34 A range of bat surveys have been undertaken within the bat survey area to determine the presence/potential presence of bat roosts in trees and buildings/structures including preliminary bat roost appraisal surveys, dusk emergence and dawn re-entry surveys and climb and inspect surveys (tree climbing). In addition, bat activity transects, including the use of static detectors, were completed to obtain data on general bat activity and species present.
- 4.3.35 The data/information presented within this chapter/section includes surveys undertaken in 2016 and 2017 and preliminary results of the 2018 update surveys as these are currently being undertaken. Although the information presented is sufficient for the purposes of assessment, the results of these additional surveys will be presented within a 2018 survey report as an addendum to the Environmental Statement post submission.
- 4.3.36 Survey methodologies have been designed in general accordance with the Bat Surveys for Professional Ecologists: Good Practice Guidelines (3<sup>rd</sup> Edition) (Ref 9.19) and Surveying for bats in trees and woodland – Guide BSI Standards Publication BS 8596:2015 (Ref 9.20).

#### Preliminary Bat Roost Appraisal - Trees

- 4.3.37 Trees that could be affected by the Proposed Development have been assessed for their potential to support roosting bats.
- 4.3.38 The initial appraisal was undertaken at ground level using binoculars and a high powered torch. The appraisal considered the geographic location, surrounding habitat and connectivity to the wider landscape of each tree.
- 4.3.39 Each tree was assigned a bat roost potential of negligible, low, moderate or high. Trees with moderate or high bat roost potential were taken forward for further survey work, i.e. tree climb and/or dusk emergence and dawn re-entry surveys.

#### Aerial Inspection (Tree Climbing)

4.3.40 Tree climbing allows further inspection of potential roost features at height which have previously been identified from the ground to ascertain whether bats are present, to locate evidence of bats such as droppings and to reassess whether the feature is suitable for roosting bats.

- 4.3.41 Any tree identified as being of moderate or high bat roost potential was subject to aerial inspection at height by a certified tree climber, where safe to do so. Any trees which could not be climbed due to health and safety considerations were instead subject to dusk emergence and dawn re-entry surveys. Trees confirmed as having a roost following aerial inspection were subject to a minimum of three dusk emergence and/or dawn re-entry surveys.
- 4.3.42 Where appropriate, the roost suitability of each tree was re-categorised following the aerial inspection.

#### Preliminary Bat Roost Appraisal - Buildings and Structures

- 4.3.43 External inspections have been conducted to establish the presence of suitable features for bats on those structures (one bridge) and properties (up to four buildings) which could be directly affected. The bridge could be subjected to resurfacing works if required, one building is not presently used as a residence and three of the buildings could no longer be used as a residence as a result of the Proposed Development. The appraisal considered the geographic location, surrounding habitat and connectivity to the wider landscape of each building or structure.
- 4.3.44 The buildings and structure were assigned a bat roost potential of negligible, low, moderate or high. Those with low, moderate or high bat roost potential have been taken forward for further survey work, i.e. dusk emergence and dawn re-entry surveys. Surveys were undertaken in 2017 and further survey work commenced in mid-May 2018 to maintain up to date results, the results of which would be provided in 2018 survey reports as an addendum to the Environmental Statement post submission.

#### Dusk and Dawn Emergence Surveys

- 4.3.45 The number of visits required was determined by the level of roost suitability assigned during the initial appraisals and was in accordance with current guidance (Ref 9.19).
- 4.3.46 The dusk emergence surveys were undertaken in the evening commencing approximately 15 minutes before sunset and continuing for a further 90 minutes after sunset.
- 4.3.47 The dawn re-entry surveys commenced 90 minutes to two hours before sunrise and ended at sunrise or until bats were no longer active.
- 4.3.48 The time, location, number, species (where possible) and direction of flight were recorded for each bat pass (either echolocation heard or activity seen) encountered during each survey visit.

4.3.49 The surveys were carried out using frequency division bat detectors (Batbox Duets) and recorded in WAV format using digital recorders (Edirol R05), and also Batlogger M (heterodyne, with automatic tuning) to allow sonogram analysis (BatSound Version 4.2 and AnalookW 4.2d).

#### Bat Activity Transects

- 4.3.50 Following analysis of the Phase 1 Habitat survey and desk study, suitable areas of habitat that could be impacted by the Proposed Development have been identified and subject to bat activity transects.
- 4.3.51 The transects have been focused on habitats identified as being of potential value to bats (such as woodland, network of higher density of hedgerows, watercourses, other linear features such as former railway lines), key areas of habitat loss where connectivity could be permanently severed, or areas where high levels of disturbance could occur. A total of 11 transect routes have been surveyed.
- 4.3.52 As the habitats varied in suitability for bats, the number of survey visits for each transect varied. In accordance with current best practice survey guidelines at least one survey visit was undertaken in each transect location per season in spring (April/May), summer (June/July/August) and autumn (September/October).
- 4.3.53 The dusk activity transect surveys commenced approximately 15 minutes before sunset and continued for two to three hours. The dawn surveys commenced two hours before sunrise until sunrise (or later if bats were still active).
- 4.3.54 Static bat detectors have also been used to supplement the transect data, with the detectors recording for at least five consecutive nights during each transect survey period.
- 4.3.55 Further details are provided in ES Appendix 9.10 Bat Roost Report (**Document 5.9.2.10**) and Appendix 9.11 Bat Activity Report (**Document 5.9.2.11**).

#### Red Squirrel

4.3.56 Information gained from the Phase 1 Habitat survey and desk study was used to focus the red squirrel (*Sciurus vulgaris*) surveys on suitable habitats for this species that could be affected by the Proposed Development. The surveys were conducted within the Order Limits plus a 50 m buffer, and concentrated in areas of woodland.

- 4.3.57 The red squirrel surveys focussed on identifying the presence of red squirrel dreys (or potential dreys) as well as recording any incidental sightings of red squirrel and potential feeding remains e.g. nibbled pine cones. Based on liaison with the Red Squirrel Trust Wales (RSTW) it was assumed that any dreys identified during the surveys on Anglesey were red squirrel dreys due to eradication of grey squirrel (*Sciurus carolinensis*) from the island. Conversely, any dreys identified during the surveys near Pentir where assumed to be grey squirrel dreys due to the absence of records for red squirrel in this area unless there was contrary evidence (e.g. a sighting).
- 4.3.58 Drey counts have been undertaken in general accordance with guidance provided in Practical Techniques for Surveying and Monitoring Squirrels (Ref 9.21). Whilst the estimated drey numbers can be converted to crude indicators of squirrel densities, due to the limited number of dreys recorded, densities have not been calculated as it is considered that this would not assist with the assessment of impact.
- 4.3.59 Further details are provided in ES Appendix 9.12 Terrestrial Mammal Report (**Document 5.9.2.12**).

#### Other Terrestrial Mammal Species

- 4.3.60 No specific surveys have been undertaken for other mammal species such as brown hare, polecat or dormouse (*Muscardinus avellanarius*). Desk based assessments, including a review of previous survey reports along with habitat assessments of land within the Order Limits, in accordance with the Scoping Report, have been used to establish areas of likely presence. This approach has been discussed with stakeholders, including that of dormouse being widely regarded as absent from this area.
- 4.3.61 Any incidental sightings of brown hare or polecat were recorded by surveyors whilst on site carrying out a range of field surveys in relation to the Proposed Development.
- 4.3.62 Further details are provided in ES Appendix 9.12 Terrestrial Mammal Report (**Document 5.9.2.12**).

#### Great Crested Newt (GCN) Surveys

4.3.63 Waterbodies identified within the Order Limits plus a 250 m buffer, have been assessed for their potential to support GCN. A range of survey methods have been used to gather sufficient information for the purposes of assessment. These have included Habitat Suitability Index (HSI) assessments in general accordance with Oldham *et al.* (Ref 9.9), followed by presence/absence GCN surveys or eDNA sampling where the HSI score was above 0.35. The eDNA

sampling followed the methodology and guidance provided in Defra Project WC 1067 (Ref 9.10) which is accepted by NRW as a recognised survey approach.

- 4.3.64 Initial GCN eDNA assessment surveys were undertaken in spring 2015. The results of these surveys were reviewed to establish where further surveys were required. Waterbodies with positive eDNA, inconclusive results or which were not surveyed in 2015 were included in the 2016 surveys. Waterbodies with negative eDNA results in 2015 were not resurveyed in 2016; however the eDNA results of waterbodies located within 100 m of areas where there could be permanent terrestrial habitat loss were updated in 2017, where possible, to determine their current status in relation to GCN. For robustness, additional surveys are being conducted in 2018 to maintain up to date results on relevant ponds, the results of which will be provided as an addendum to the Environmental Statement post submission.
- 4.3.65 The methodology of subsequent presence/likely absence surveys was in general accordance with that provided in English Nature Great Crested Newt Mitigation Guidelines (Ref 9.11), whereby at least three appropriate survey techniques are used, which included; torch surveys, bottle trapping, egg searching, netting and refuge searches. A minimum of four survey visits were made to each waterbody (unless the waterbody dried out prior to completion of four visits) to establish presence or likely absence. Where presence was confirmed, an additional two survey visits were completed to estimate the population size class.
- 4.3.66 Population size class estimates were used to determine the levels of mitigation required and will inform NRW GCN development licence applications.
- 4.3.67 Other amphibian species identified during the surveys were also recorded.
- 4.3.68 Further details are provided in ES Appendix 9.6 Great Crested Newt Report (**Document 5.9.2.6**).

#### Reptile Survey

4.3.69 Habitat data gained from the Phase 1 Habitat survey completed in 2015 and 2016, and the results of the desk study, were used to focus the reptile field surveys. Habitats were assessed for their suitability to support reptile species by looking for features that could provide suitable foraging, breeding, basking, hibernation and shelter opportunities. The National Amphibian and Reptile Recording Scheme (NARRS) Reptile Habitat Guide (Ref 9.16) was used when assessing habitat suitability for reptiles.

- 4.3.70 Presence/likely absence surveys were undertaken in suitable habitats identified within the Order Limits and 50 m buffer (the survey area); including areas of permanent land take, where temporary works could adversely affect the existing reptile habitat or where there is potential to harm reptiles during construction. Areas were ruled out as potential reptile habitats on the basis of limited extent, management and isolation.
- 4.3.71 Surveys have been undertaken in general accordance with the current survey guidelines provided by Froglife Advice Sheet 10: Reptile Survey (Ref 9.17) and Herpetofauna Workers' Manual (Ref 9.18) using artificial refugia placed in suitable habitat at appropriate densities. Seven survey visits have been carried out where possible at each survey area to check for the presence of reptiles, with the artificial refugia collected and removed from the areas at the end of the last survey. These surveys have been combined with visual observation surveys comprising surveyors walking a defined route through the habitat and stopping to observe for reptile presence, often at distance using binoculars.
- 4.3.72 Further details are provided in ES Appendix 9.9 Reptile Report (**Document 5.9.2.9**).

#### Invertebrate Surveys

- 4.3.73 An initial desk-based study was carried out to identify suitable habitats which could potentially support terrestrial invertebrates of conservation significance within the Order Limits. Information gained from the Phase 1 Habitat survey and NVC survey was also used to identify areas for survey.
- 4.3.74 The surveys focused on areas where suitable habitat was present and included areas of permanent land-take, areas where temporary works could adversely affect the existing habitat or where connectivity to important sites that would not be directly affected may be severed.
- 4.3.75 Surveys were designed to target butterflies and dragonflies because these two groups are represented by species listed as qualifying features for two designated sites situated within 2 km of the Order Limits. Consideration was also given to other invertebrate groups and survey methodologies; however, surveys were focused on the qualifying mobile species associated with designated sites that could be affected due to proximity to the Proposed Development. These groups of invertebrates provide a good indication of the quality of habitats present.
- 4.3.76 The surveys were completed in general accordance with guidance provided in the UK Butterfly Monitoring Scheme (Ref 9.22) methodology. This involved

determining a route (transect walk) that provided a fair representation of the habitats and other features present at each area.

- 4.3.77 Butterflies and dragonflies/damselflies were recorded in a fixed width band (typically 5 m wide) along each transect. A minimum of three visits were completed at each survey area across the survey period.
- 4.3.78 Further details are provided in ES Appendix 9.14 Terrestrial Invertebrate Report (**Document 5.9.2.14**).

#### Aquatic Macroinvertebrates

- 4.3.79 The survey area for aquatic macroinvertebrates included watercourses that could be crossed by access tracks for the Proposed Development. Survey locations focused on the proposed crossing locations identified in the Indicative Watercourse Crossing Schedule (**Document 5.3.2.2**) and used information gained from the otter and water vole surveys to determine watercourses that held sufficient water depth for surveys to be carried out.
- 4.3.80 Watercourses chosen for sampling were taken from all Sections of the Proposed Development and comprised different types of watercourses including ditches, streams and rivers to provide a representative sample. A total of 14 watercourse crossing locations were taken forward for survey. The 14 watercourse locations identified were sampled as close to the relevant crossing point as possible. Surveys were undertaken in November 2016 (autumn) and April 2017 (spring) at the same sample locations (where access was possible).
- 4.3.81 The methodologies implemented during the collection and preservation of samples in the field and during the sorting and analysis of samples in the laboratory were undertaken in general accordance with the recommended current guidance (Ref 9.23 and Ref 9.24 respectively).
- 4.3.82 Further details are provided in ES Appendix 9.13 Freshwater Report (**Document 5.9.2.13**).

Fish

- 4.3.83 Fish data provided by NRW for watercourses that could potentially be impacted by the Proposed Development were reviewed.
- 4.3.84 Since 1997, all fish survey data collected across England and Wales has been classified using the National Fisheries Classification Scheme (NFCS), which superseded all previous classification schemes. This national system allows

comparison of the abundance of different species over a wider geographical area.

- 4.3.85 Under the classification, watercourses are given a grade based on the abundances of salmonid species (trout and salmon) recorded in relation to the national data set.
- 4.3.86 Further details are provided in ES Appendix 9.13 Freshwater Report (**Document 5.9.2.13**).

#### Bird Surveys

- 4.3.87 The range of potential impacts, potential receptors affected and geographical scale of the Proposed Development have necessitated the use of a number methodologies in combination to determine the ornithological baseline, in general accordance with the recommended methods set out in SNH guidance (2014 and 2016), adapted as required to the specific needs of the Proposed Development (Ref 9.25 and Ref 9.2 respectively).
- 4.3.88 The survey area is not based on a single set distance from the Order Limits; instead it has been defined by a number of factors including:
  - the extent of the Order Limits;
  - the survey methodology;
  - the type of habitat being surveyed;
  - the likely area and location of such habitat that could be affected; and
  - the behaviours of the birds within those habitats.
- 4.3.89 For example, bird flights may occur over a wide area with potential for spatial errors when plotting bird flights across the area viewed, whereas Common Birds Census surveys typically record specific bird breeding behaviours over a limited habitat area linked to the extent and distribution of bird territories and nest locations. Such survey areas are therefore defined quite differently from one another. Furthermore, specific habitat features merit targeted surveys where there is the possibility of heightened use by species of conservation concern.
- 4.3.90 The survey types and their geographical scope are as follows:
  - Vantage Point (VP) Surveys: undertaken to monitor flight activity throughout the Order Limits and immediate surroundings, covering the Order Limits and up to approximately 500 m outside them;

- Common Birds Census (CBC) surveys: undertaken to determine breeding bird assemblages within 11 discrete habitat areas corresponding to areas of permanent habitat loss (Tunnel Head House and Cable Sealing End Compounds [THH/CSEC] and Pentir Substation extension) and sample survey areas representative of the range of habitats likely to be temporarily affected;
- Inland Water Bird Counts: undertaken at dawn and dusk to quantify the use of the key inland freshwaters (Llyn Alaw and Cefni Reservoir) by roosting whooper swans (*Cygnus cygnus*), these waterbodies being known to support whooper swans on a regular basis, and between which whooper swan movements might have crossed or passed close to the Proposed Development;
- Terrestrial Swan Counts: undertaken to determine the key areas of terrestrial habitat used by whooper swans typically during the daytime within and adjacent to the Order Limits. These were carried out within specific areas following advice from statutory consultees and first-hand observations of swan movements arising from surveys conducted for the Proposed Development. These, and the VP surveys, assisted in identifying potential functional links between roosts and terrestrial feeding areas;
- Searches for nesting Schedule 1 birds to determine key areas of sensitivity with respect to disturbance during construction and to provide additional supporting data for the determination of core flight areas for these species where possible. These were carried out mostly within 500 m of the Order Limits with the search area extended in places to follow up on potential breeding sites identified in other surveys and by third parties; and
- Waterbird Counts on the Menai Strait to determine the year-round use of the Menai Strait where it might be affected by tunnelling activities. The count areas covered all intertidal habitats between the Menai and Britannia Bridges and all intertidal habitats up to approximately 2 km west of the Britannia Bridge.
- 4.3.91 Detailed explanations of these methods and visual representations of the areas surveyed are provided in Appendix 9.15 Ornithological Assessment Report (**Document 5.9.2.15**). The results of the surveys in combination with the third party data provide a detailed ornithological baseline, which is presented in both the above stated report and section 7 of this chapter.

4.3.92 Further details are provided in ES Appendix 9.15 Ornithological Assessment Report (**Document 5.9.2.15**).

Marine Habitats and Species

- 4.3.93 Characterisation of the existing marine environment within the study area has been undertaken through a combination of desk based studies and field surveys. The following paragraphs summarise the survey methodologies and data used to define the baseline marine environment.
- 4.3.94 Further details on the data collection methods and associated guidance used are provided in Appendix 9.16 Intertidal Report (**Document 5.9.2.16**) and Appendix 9.17 Subtidal Report (**Document 5.9.2.17**).

#### Intertidal habitats

Intertidal habitat surveys were undertaken to determine presence/absence of NRW ascribed habitats (see paragraph **Error! Reference source not ound.**), and to assess any changes in their extent. The survey area extent was as described in the Menai Suspension Bridge to Y Felinheli Appendix 9.16 Intertidal Report (**Document 5.9.2.16**). The survey method followed Procedural Guideline No. 3-1: in situ intertidal biotope recording (Ref 9.26).

#### Subtidal habitats: epibenthic communities

- 4.3.95 Thirteen sites were surveyed between the Britannia Bridge and Y Felinheli (Figure 5.9 Appendix 9.17 Subtidal Report (**Document 5.9.2.17**).
- 4.3.96 Surveys used a drop down camera method to capture three images of epibenthic communities at each site. The habitats were ascribed to the Marine Habitat Classification Hierarchy, and taxa were semi-quantitatively enumerated using the SACFOR scale (Superabundant, Abundant, Common, Frequent, Occasional and Rare).

#### Subtidal habitats: Infaunal sediment communities

- 4.3.97 Eight sites were surveyed between the Britannia Bridge and Y Felinheli (Figure 9.6 Drop Down Camera and Benthic Grab Surveys of Subtidal Marine Habitats Sites (**Document 5.9.1.6**) and Appendix 9.17 Subtidal Report (**Document 5.9.2.17**)).
- 4.3.98 The benthic survey utilised a 0.1 m<sup>2</sup> mini-Hamon grab. Three replicate samples were collected at each of the eight sites between the Britannia Bridge and Y Felinheli (Figure 9.5 Drop Down Camera and Benthic Grab Surveys of Subtidal Marine Habitats Sites (Document 5.9.1.6) and Appendix 9.17 Subtidal Report (Document 5.9.2.17)).

- 4.3.99 All fauna were identified to species level, and the resulting data combined with the physical data. Habitats were described and species of conservation importance identified.
- 4.3.100 The drop down camera survey method also captured three images at each site to inform the infaunal sediment analysis. The habitats were ascribed to the Marine Habitat Classification Hierarchy, and taxa were semi-quantitatively enumerated using the SACFOR scale.

#### 4.4 TECHNICAL ANALYSIS

- 4.4.1 Technical analysis of data followed appropriate methodologies where available.
- 4.4.2 The only modelling work that has been undertaken is in relation to the potential noise impacts as a result of the potential drill and blast tunnelling option. Further details are provided in Appendix 9.18 Underwater Construction Noise Modelling and Assessment Report (**Document 5.9.2.18**).

#### 4.5 ASSUMPTION AND LIMITATIONS

4.5.1 General limitations applicable to all of the surveys completed have been included below. Limitations specific to certain surveys and assessments are provided in the baseline survey reports appended to this chapter Appendices 9.3 to 9.18 (**Documents 5.9.2.3 to 5.9.2.18**).

#### General Survey Limitations

- 4.5.2 Surveys were conducted where access was physically and safely possible. For example, in some instances dense vegetation, steep banks, barbed wire fences or presence of livestock or moving farm machinery made it unsafe to fully access a survey location. In these cases, all attempts were made to access the survey area safely (where access was granted) or the area was viewed from suitable vantage points (e.g. opposite banks of watercourses or adjacent fields) using binoculars if appropriate, and checking for signs of protected species presence and possible access points into areas of dense vegetation.
- 4.5.3 Where access was restricted due to dense vegetation or other factors, the suitability of the habitat was assessed using professional judgement to determine the likelihood of protected species being present in order to allow a robust assessment.
- 4.5.4 The majority of ecological surveys are constrained by season and weather as require specific conditions for survey results to be valid. Where conditions

were not considered appropriate, surveys were postponed or abandoned and were repeated when conditions were suitable. Surveys have attempted to capture the peak season for each ecology survey (as determined by relevant guidance) where access has enabled.

- 4.5.5 Bat surveys on the four buildings and one structure which could be affected commenced where permitted in 2017. Surveys continued in 2018 but for one building the full set of surveys in accordance with the guideline outlined in section 4 could not be completed. Professional judgement has been applied, using the results gathered to date, to assess the likelihood of bat roost type and species being present in order to allow a robust assessment; this approach has been discussed with NRW.
- 4.5.6 In a few instances, permission to access land was not received. In these instances existing desk study data were used along with information about the broad habitat types identified from aerial photographs and from suitable vantage points on accessible land in order to extrapolate information. Assumptions made on survey results have been discussed with NRW. Where this occurred this is identified within the technical appendices (**Documents 5.9.2.3 to 5.9.2.17**), though in some instances survey results will be added to the 2018 update reports as an addendum to the Environmental Statement post submission.
- 4.5.7 The survey data available for the purposes of undertaking the assessment of likely significant effects, as presented in this chapter is considered to be robust. 2018 survey data not included within this chapter or its appendices will be provided in the form of an addendum for the sake of completeness, and any clarification of assessment points will also be identified at the same time.

# Desk Study Limitations

4.5.8 The aim of a desk study is to help characterise the baseline context of a proposed development and provide valuable background information that would not be captured by surveys alone. Information obtained during the course of a desk study is dependent upon people and organisations having made and submitted accurate records for the area of interest. As such, a lack of records for particular habitats or species does not necessarily mean that the habitats or species do not occur in a study area. Likewise, the presence of records for particular habitats and species does not automatically mean that these still occur within the area of interest or are relevant in the context of a proposed development.

4.5.9 The detail and accuracy of the desk study records rely on those provided to Cofnod from a variety of sources. The results of the updated desk study undertaken in February 2018 have been considered for the baseline assessment. The latest desk study search was conducted on the Proposed Development layout which now covers a smaller area resulting in some records being excluded that had previously been considered. The search also uses the latest priority and conservation lists which has also resulted in some further additions and exclusions of certain species.

# Equipment Limitations

- 4.5.10 Song Meter SM2 BAT+ (SM2) detectors and Anabat Expresse detectors (both types of automated static bat echolocation detector programmed to record bat echolocation calls) were deployed at the various transect locations. On five occasions over the course of the surveys carried out in 2016 the static bat detectors failed to record. However, as data was collected over a number of visits and was supported by transect surveys it is not considered a significant constraint when assessing the bat species present and general activity levels associated with the transect locations.
- 4.5.11 Bat calls were analysed using AnalookW (Version 4.2d). *Myotis* bat calls can be very similar and are difficult to distinguish between species accurately and with confidence; therefore they have been classified as Myotis species unless call characteristics or observations of the bat and behaviour have been recorded to enable species level identification.

# Marine Species and Habitats Limitations

- 4.5.12 Minor changes observed in intertidal biotope extent between years are likely to be related to limitations in GPS accuracy rather than indicating definite changes in the biotope extent, as confidence is variable in GPS accuracy lower than 5 m is variable. In practice, the boundaries of biotopes are rarely clear cut and introduce a degree of subjectivity for the surveyor i.e. when determining where one biotope ends and another begins; the transition of these biotopes often being a gradual change rather than a defined boundary line. Within these transitional zones, the biological features present are at their natural limits as a result of biological, physical or chemical influences and/or a combination of these. Therefore, it is considered that the resultant biotope map generated is a robust enough representation of the distribution of the biotopes present upon which to make an assessment with an acceptable level of confidence.
- 4.5.13 Although it was not possible to survey all of the subtidal environment in the areas of interest, the combination of drop-down camera and grab survey

techniques ensured that as much baseline information as necessary to inform an assessment was gathered where one or other of the techniques was not suitable. This has resulted in a robust baseline characterisation which can enable a reliable assessment to be made.

### 4.6 ASSESSMENT CRITERIA

The approach to determining the significance of effects resulting from the 4.6.1 Proposed Development on ecological features and resources broadly follows that described in Chapter 6, EIA Approach and Basis of Assessment (**Document 5.6**), although it has been modified where appropriate to better reflect elements of approaches presented in the CIEEM 'Guidelines for Ecological Impact Assessment' (EcIA) (Second Edition) 2016 (Ref 9.3), 'Ecological Impact Assessment' Treweek 1999 (Ref 9.27) and the 'Biodiversity - Code of practice for planning and development' British Standard (BS 42020:2013) (Ref 9.28). CIEEM Guidelines specifically for the ecological impact assessment of marine and coastal environments were published in 2010 (i.e. prior to the publication of Ref 9.3); however, the more recent 2016 CIEEM guidelines were an update to cover coastal environments and subsequently the marine aspects of this assessment follow these more recent guidelines. Notably, the CIEEM guidance encourages professional judgement, based on available guidance and information together with advice from experts, in the prediction of significance rather than applying a strictly matrix based approach.

# Evaluation of Ecological Baseline

- 4.6.2 In valuing ecological features and resources, two key steps have been followed:
  - identify potential ecological receptors based on ecological characteristics; and
  - determine the value within a geographical frame of reference.
- 4.6.3 These two considerations are discussed further below.

#### **Ecological Characteristics**

- 4.6.4 The characteristics used to identify ecological features and resources likely to be of value in terms of biodiversity (adapted from CIEEM, 2016, Ref 9.3) were as follows:
  - designated sites at international, national or more local scales;

- habitats considered typical of natural/semi-natural vegetation types, and habitats that are legally protected or of conservation interest internationally, nationally or more locally through policies; and
- endemic species, subspecies, varieties or locally distinct subpopulations of a species that are legally protected or of conservation interest internationally, nationally or more locally through policies.

#### Geographic Frame of Reference

- 4.6.5 The value of an ecological feature or resource has been determined within a defined geographical hierarchy using the frame of reference presented in the CIEEM EcIA guidelines (Ref 9.3) (i.e. International, National, County and Local value).
- 4.6.6 This hierarchy uses a suite of measures to determine ecological value. This includes site selection criteria such as the SAC selection criteria (Ref 9.29) and the guidelines for the selection of biological SSSIs (Ref 9.30). As such, all designated sites as a whole are considered to be of value to nature conservation at the geographical scale at which they are designated (although not all component parts may be valued equally).
- 4.6.7 The geographical hierarchy also reflects the legal protection afforded to habitats and species through legislation such as the Hedgerows Regulations 1997 or as habitats or species listed as priorities for conservation under S7 of the Environment (Wales) Act 2016.
- 4.6.8 Where neither of the above applies, recognised criteria have been used for appraising the geographical value of different habitats, species and ecological communities. These include factors such as habitat diversity, connectivity and/or synergistic associations and the distribution, historical trends particularly where the distribution is changing as a result of global trends and climate change, size, rarity, fragility and typicalness of species as presented in relevant guides such as Red Data Books.
- 4.6.9 Some habitats or species may have limited intrinsic biodiversity value in themselves but nonetheless perform an important ecological function, such as acting as a buffer against negative effects or providing a resource used by an ecological feature of higher biodiversity value at particular times. An example is where habitat outside of a designated site provides roosting opportunities for the qualifying bird species of an SPA where the boundary only covers the area where birds congregate to feed. In addition, certain features or resources of the landscape that function as 'stepping stones' or wildlife corridors by virtue of their linear or continuous nature (e.g. rivers or

hedges) may be of value for the passage or dispersal of species (e.g. otter or bats).

- 4.6.10 However, it should be appreciated that species may be widespread or common nationally, but of scarce occurrence in the context of lower scale geographies such as County and Local. Conversely, a species may be common in a local or county context, but considered to be rare nationally or internationally. Consequently, when undertaking the valuation of an ecological feature or resource, consideration has also been given to relevant county biodiversity reference documents such as LBAPs and their associated habitat and species action plans. Where this has resulted in a revised valuation, the reason for the adjusted value is explained in the text.
- 4.6.11 A summary of the criteria adopted to establish the ecological or nature conservation value at each geographical scale is provided in Table 9.6.

Table 9.6 Hierarchy of Ecology and Nature Conservation Value		
Geographical Value	Criteria	Examples
International	Very high ecological importance or rarity, internationally protected, limited potential for substitution.	Internationally designated sites e.g. SPA and SAC. Sustainable area of a habitat listed on Annex I of the Habitats Directive where it is a qualifying feature of a Natura 2000 site, or where smaller areas of such habitat are essential to maintain the viability of a larger whole. Sustainable population of a species listed on Annex IV of the Habitats Directive or Annex I of the Birds Directive where it is a qualifying feature of a Natura 2000 site.
National (Wales or UK wide)	High ecological importance or rarity, nationally protected or important, limited potential for substitution.	Nationally designated sites e.g. SSSIs. Sustainable area of a legally protected habitat (e.g. priority habitat identified under S7 of the in the Environment (Wales) Act 2016).

Table 9.6 Hierarchy of Ecology and Nature Conservation Value		
Geographical Value	Criteria	Examples
		Sustainable population of a legally protected species listed (e.g. such as listed under Schedules 1, 5 or 8 of the Wildlife and Countryside Act 1981, or a priority species listed under S7 of the Environment (Wales) Act 2016, or a UK Red Data book species, or of a nationally rare species (15 or fewer 10 km squares in the UK).
County (this covers both Regional (NW Wales) and County (Anglesey/ Gwynedd) as the scale of these counties covers this region	High – medium ecological importance or rarity, regional importance, some potential for substitution.	Regionally important sites with some potential for substitution. Locally designated sites e.g. Local Nature Reserves (LNR), CWS. Nationally scarce species (e.g. recorded in 16 – 100 10 km squares in the UK) or Annex 1 habitats where not a qualifying feature of a Natura 2000 site.
Local	Low ecological importance or rarity, locally protected or important, potential for substitution.	Undesignated sites that are good examples of a more widespread habitat, or species-poor examples of a habitat of note. Population of a species that is of low importance/rarity but of some value locally.

4.6.12 Where the value of the nature conservation feature or resource is considered, and then subsequently valued below local level, this is clearly stated. Whilst such features may or may not be considered further depending on their extent and relationship with other ecological features and resources, when considered in isolation they have no potential to be significantly affected. . . ..

#### Assessing Significance of Effects

4.6.13 The identification of the potential effects associated with the Proposed Development takes into account a variety of impacts, for example loss of habitat, fragmentation of habitats, disturbance to species and changes to hydrological regimes. These potential effects are sometimes direct and at other times indirect, for example affecting the ecological structure and function of habitats on which a feature or resource depends.

#### Severity of Effects and Sensitivity of Receptors

4.6.14 Due to the wide scope of potential ecological resources and features there is no common standard quantitative measure for predicting either the severity of a potential effect, including its perceived probability, or the sensitivity of an ecological resource or feature in relation to physical, chemical or biological change, including its capacity to accommodate such change. Therefore, a qualitative approach was adopted to provide a consistent, robust and transparent methodology for predicting the severity of potential effects and sensitivity of receptors to these effects.

4.6.15	When describing the severity of potential effects, reference has been made
	to the criteria set out in Table 9.7.

Table 9.7 Criteria that Influence the Severity of a Potential Effect		
Criteria	Description	
Beneficial/adverse	If the effect is likely to be positive, negative or neutral.	
Magnitude	The 'size' or 'amount' of an effect and is determined on a quantitative basis where possible (e.g. area and percentage of a particular habitat to be lost).	
Extent	The scale or geographical area over which an effect occurs. The magnitude and extent of an effect may be synonymous.	
Duration	The duration of an effect is the length of time that a receptor would be affected prior to recovery or replacement (e.g. short-term or long-term, permanent or temporary). This can be considered in terms of life cycles of species and regeneration times of habitats. For example, whist construction activity may cause disturbance whilst underway,	

Table 9.7 Criteria that Influence the Severity of a Potential Effect		
Criteria	Description	
	the effect of that construction disturbance may continue for several years after construction has been completed, or conversely, receptors may adapt or habituate to an effect and cease to be disturbed by it before construction is completed.	
Reversibility	Reversible (or temporary) effects are those that do not have a persistent or permanent nature. Reversible or temporary effects are those from which a spontaneous recovery is possible, or for which effective mitigation is possible that will allow such a recovery.	
	Irreversible (or permanent) effects are those that endure within the context of a specific timescale, for example extending throughout the duration of the Proposed Development's operational phase and potentially beyond. Irreversible (or permanent) effects include those from which recovery is not possible within a reasonable timescale, or for which there is no reasonable chance of action being taken to reverse it. The effects of permanent land-take may lead to irreversible fragmentation and decline of habitats. Some indirect effects may also be irreversible or of an unspecified duration.	
Timing and Frequency	Some activities or changes may only cause an adverse effect if they coincide with critical life stages or seasons. The timing of the activity is therefore important in assessing the effect. Such effects may be avoided through careful timing of works. The frequency of an activity may also influence the resulting effect, for example one occurrence may	
	lead to irreversible change in receptors.	

4.6.16 The factors that contribute to the sensitivity of an ecological receptor in relation to the Proposed Development include pathways for physical, chemical or biological change such as direct loss, fragmentation or disturbance, size of the resource or feature such as area or number of

individuals of a particular species affected, rarity/typicalness, adaptability/fragility and recreatability/sustainability.

- 4.6.17 As all ecological receptors will exhibit a greater or lesser degree of sensitivity to the severity of change brought about by the Proposed Development, establishing a common scale of measurement for both the severity of the effect and receptor sensitivity helps to ensure that the assessment is both transparent and robust.
- 4.6.18 As such, for the purposes of this assessment the following terminology for severity and sensitivity has been adopted:
  - Very Low (Negligible);
  - Low;
  - Medium;
  - High; and
  - Very High.
- 4.6.19 Definitions for each of these are provided in Table 9.8 and Table 9.9.

Table 9.8 Definitions of the Severity of Potential Effects to theProposed Development		
Level	Severity of Potential Effects	
Very Low (Negligible)	Almost imperceptible degree of change relative to existing environmental conditions.	
Low	The degree of change is measurable but small relative to existing environmental conditions.	
Medium	The degree of change is noticeable relative to existing environmental conditions.	
High	The degree of change is large relative to existing environmental conditions.	
Very High	The degree of change is severe relative to existing environmental conditions.	

Development			
Level	Sensitivity of Receptors to the Proposed Development		
Very Low (Negligible)	Receptor is tolerant of and can accommodate physical or chemical changes or influences.		
Low	Receptor is generally tolerant of and can accommodate physical or chemical changes or influences.		
Medium	Receptor has some capacity to accommodate physical or chemical changes or influence.		
High	Receptor possesses characteristics which contribute significantly to its distinctiveness and has a limited capacity to accommodate physical or chemical changes or influences.		
Very High	Receptor possesses fundamental characteristics which contribute significantly to its distinctiveness and has very limited or no capacity to accommodate physical or chemical changes or influences.		

# Table 9.9 Definitions of the Sensitivity of Receptors to the Proposed

#### Significance of the Effect

- 4.6.20 Having valued the ecological baseline, and the type and severity of the potential effect, a conclusion has to be reached on whether an effect on a designated site, habitat or species is likely to be ecologically 'significant'.
- In reaching this conclusion, consideration has been given to the sensitivity of 4.6.21 the ecological feature or resource to the severity of the effect. Whilst the geographical value of a site, species or habitat is fixed at a given point in time, and would not change depending upon the nature of the potential effect, the sensitivity can change in relation to the severity of the effect.
- 4.6.22 The potential effects on an ecological feature or resource have initially been identified by taking into account the implementation of the measures already encompassed within the design of the Proposed Development (mitigation by design - MD) but in the absence of committed control and management measures (CMM) presented in the CEMP and any other site specific/bespoke mitigation measures (MM). The residual effect is then assessed taking into account all committed mitigation measures.
- 4.6.23 In broad terms, significant effects encompass impacts on the structure and function of defined sites, habitats or ecosystems or the conservation status of

habitats and species (including extent, abundance and distribution). In determining significance, the key considerations have been as follows:

- designated sites: consideration has been given to whether the Proposed Development would be likely to affect the conservation objectives of the site, the conservation status of qualifying habitat or species for which the site is designated, or affect the condition of the site;
- habitats: consideration has been given to the sum of the influences acting on the habitat, both alone and in-combination, that may affect its extent, structure or function within a given geographical area; and
- species: consideration has been given the sum of the influences acting on a given species alone and in-combination that may affect its abundance or distribution within a given geographical area.
- 4.6.24 In this context, significant effects have been defined with reference to the value of the receptor (using an appropriate geographical frame of reference), the severity of the effect and the sensitivity of the receptor to that effect, as set out in Table 9.10. The table identifies the conclusions that can be reached based on the CIEEM EcIA guidelines 2016 (Ref 9.3), using the significance terminology used in the ES, to provide consistency in the reporting between chapters.
- 4.6.25 Note that the term 'significance' in this context is not the same as that applied under the Habitats Regulations. Significance in the context of the Habitats Regulations is used as the first stage of the process to determine whether it can be concluded the overall scale of the mechanism and possible pathway for an impact are not likely to have a significant effect. The potential for likely significant effects on Natura 2000 sites is assessed in the through the Applicant's Report to Support the Habitats Regulations Assessment (**Document 5.23**).
- 4.6.26 The effects on ecological receptors associated with the Proposed Development have ultimately been classified as Significant or Not Significant as defined in Table 9.10 (taken from CIEEM EcIA guidance (Ref 9.3)).

Table 9.10 Descriptions of the Terms 'Significant' and 'Not Significant'			
Scale of Effect	Description	Terminology used in this chapter	
Significant	An impact that has a major positive effect on biodiversity conservation objectives for 'important ecological features'. Significance of effects can be at an international, national, regional/county or local levels.	Major Beneficial	
	An impact that has a moderate positive effect on biodiversity conservation objectives for 'important ecological features'. Significance of effects can be at an international, national, regional/county or local level.	Moderate Beneficial	
Not significant	An effect that does not influence the structure or function of an ecological feature or resource. It may be that the effect is small in scale or amount, reversible within an acceptable timescale and/or does not coincide with critical life stages.	Minor Beneficial	
		Negligible	
		Minor Adverse	
Significant	An impact that has a moderate undermining effect on biodiversity conservation objectives for 'important ecological features'. CIEEM describe significance with reference to an appropriate geographical scale. Significance of effects can be at an international, national, regional/county or local level.	Moderate Adverse	
	An impact that has a major undermining effect on biodiversity conservation objectives for 'important ecological features'. CIEEM describe significance with reference to an appropriate geographical scale. Significance of effects can be at an international, national, regional/county or local level.	Major Adverse	

4.6.27 In accordance with the CIEEM guidance and EIA Regulations, the detailed assessment of effects has focused on where the Proposed Development would be likely to have a significant effect on an ecological feature or resource. This means an assessment is only required where ecological features or resources are sufficiently valued (described above) in terms of their biodiversity for an effect to be significant. Consequently, the focus of this assessment has been on effects on ecological features or resources valued at or above the Local level.

# 5 Basis of Assessment

# 5.1 INTRODUCTION

- 5.1.1 This basis of assessment section sets out the assumptions that have been made in respect of the design flexibility maintained within the draft DCO (**Document 2.1**), and the consideration that has been given to alternative scenarios and the sensitivity of the assessment to changes in the construction commencement year.
- 5.1.2 Details of the available flexibility are included in Chapter 3, Description of Proposed Development, (**Document 5.3**), Chapter 4, Construction, Operation, Maintenance and Decommissioning (**Document 5.4**) and are also considered in Chapter 6, EIA Methodology (**Document 5.6**).

#### 5.2 FLEXIBILITY ASSUMPTIONS

- 5.2.1 The assessment has been undertaken based upon the design shown on the Works Plans (Document 4.4), the Construction Plans, Figure 4.1 of Chapter 4, Construction, Operation, Maintenance and Decommissioning (Documents 5.4.1.1 and 5.4.1.2), and the Design Plans (Document 4.13). To take account of the flexibility allowed for in the draft DCO (Document 2.1), consideration has been given to the potential for effects to be of greater significance should any of the permanent or temporary infrastructure elements be moved within the LOD or Order Limits.
- 5.2.2 Where relocating temporary or permanent infrastructure within the LOD may have changed the significance of an effect, an environmental commitment has been made, to restrict works in these areas. The Schedule of Environmental Commitments is provided in Volume 7 (**Document 7.4.2.1**) for more information. Where this was not possible, the effect based upon the use of flexibility has also been reported.
- 5.2.3 The assumptions made regarding the use of flexibility are set out in Table 9.11.
| Table 9.11 Flexibility assumptions                                   |  |  |  |  |  |
|--|--|--|--|--|--|
| Element of flexibility   | Proposed Development<br>assumption for initial<br>assessment.  | Flexibility assumptions assessed.  |  |  |  |
| Horizontal<br>Limits of<br>Deviation for<br>pylons and<br>conductors | The pylon is assessed in its<br>current horizontal location as<br>shown on the Works Plans<br>( <b>Document 4.4</b> ).   | The assessment has<br>considered the possible<br>effects of locating pylons<br>or conductors anywhere<br>else within the LOD, and<br>areas were excluded,<br>where possible, where<br>the significance of effects<br>could increase. Where<br>such exclusions were not<br>possible, the increased<br>significance has also<br>been reported. |  |  |  |
| Vertical<br>Limits of<br>Deviation for<br>pylons and<br>conductors.  | The collision risk height band<br>was selected based upon the<br>lowest to the highest potential<br>pylon height.  | No additional flexibility<br>available outside of what<br>has been assessed.   |  |  |  |
| Pylon<br>footprint<br>(permanent)                                    | Assessed using a reasonable<br>worst case assumption for<br>each leg (1 m <sup>2</sup> per leg (4 m <sup>2</sup><br>per pylon)) for low level<br>vegetation. For areas of<br>trees/woodland, the overall<br>pylon footprint has been used<br>in each case. | The maximum flexibility is<br>assessed, therefore no<br>additional assessment<br>assumptions are<br>required.  |  |  |  |
| Pylon<br>foundation<br>type  | As the worst case sources of<br>effects related to foundation<br>type are all identified in other<br>technical chapters, the<br>assessment of effects on<br>ecology does not require<br>separate consideration of<br>foundation types.                     | Not required.  |  |  |  |

Table 9.11 Flexibility assumptions				
Element of flexibility	Proposed Development assumption for initial assessment.	Flexibility assumptions assessed.		
Tunnel alignment within LOD	This is not applicable to the terrestrial ecology and nature conservation assessment as it has no bearing on terrestrial layout of the Proposed Development and would also have no bearing on construction traffic, in terms of quantity or routes. For the marine environment all	Not required, as the full range of flexibility is assessed for marine receptors.		
	sensitive receptors expected to be present within the LOD falling below high water mark in the Menai Strait have been assessed, therefore effects are covered with regards to changes in horizontal alignment within the LOD.			
Tunnel depth	As the only impact relating to tunnel depth in the terrestrial environment results from noise and vibration, the assumptions are the same as those set out in Chapter 15, Construction Noise and Vibration ( <b>Document 5.15</b> ). For marine receptors the assessment is based upon the	As the only impact relating to tunnel depth in the terrestrial environment results from noise and vibration, the assumptions are the same as those set out in Chapter 15, Construction Noise and Vibration ( <b>Document 5.15</b> ).		
	minimum 10 m depth below the bed of the Menai Strait, which represents the worst case for assessment.	The worst case is already assessed for marine receptors.		

Table 9.11 Fle	xibility assumptions	
Element of flexibility	Proposed Development assumption for initial assessment.	Flexibility assumptions assessed.
Tunnel construction compounds	Construction work could take place anywhere within the compounds area identified on the Works Plans ( <b>Document</b> <b>4.4</b> ).	Not required.
Braint and Tŷ Fodol THH/CSEC/ and Pentir Substation	The assessment has been undertaken based on the maximum parameters shown on Design Plans ( <b>Document</b> <b>4.13</b> ).	Not required.
Access tracks and working areas	Access tracks and working areas would be located where they are currently shown on the Construction Plans, Figure 4.1 of Chapter 4, Construction, Operation, Maintenance and Decommissioning ( <b>Document</b> <b>5.4.1.1</b> ).	The assessment has included access tracks and working areas being located anywhere within the Order Limits, and areas were excluded where possible where the significance of effects could increase. Where this has not been possible the alternative significance is also reported.
Penmyndd Road Compound	Construction work could take place anywhere within the compounds area identified on the Works Plans ( <b>Document</b> <b>4.4</b> ).	Not required.
Pentir Construction Compound	Construction work could take place anywhere within the compound area identified on the Works Plans ( <b>Document</b> <b>4.4</b> ).	Not required.

Table 9.11 Fle	xibility assumptions	
Element of flexibility	Proposed Development assumption for initial assessment.	Flexibility assumptions assessed.
Third Party Services	It has been assumed that all third party services would be undergrounded within the LOD shown on the Third Party Services Construction Plans, Figure 4.2 of Chapter 4, Construction, Operation, Maintenance and Decommissioning ( <b>Document</b> <b>5.4.1.2</b> ), as this is considered to have the greatest potential for significant effects Access tracks and working areas would be located where they are currently shown on the Third Party Services Construction Plans, Figure 4.2 of Chapter 4, Construction, Operation, Maintenance and Decommissioning ( <b>Document</b> <b>5.4.1.2</b> ).	There is no additional flexibility available beyond that assessed for working areas. The assessment has included access tracks being located anywhere within the Order Limits, and areas were excluded where possible where the significance of effects could increase. Where this has not been possible the alternative significance is also reported.

## 5.3 CONSIDERATION OF SCENARIOS

- 5.3.1 Three sets of scenarios have been considered in the assessment. These are:
  - Option A and B, as explained in Chapter 3, Description of the Proposed Development (**Document 5.3**);
  - direction of tunnelling (Scenarios 1, 2 and 3) as explained in Chapter 4, Construction, Operation, Maintenance and Decommissioning (Document 5.4); and
  - construction traffic using the existing A5025 (Link 1) alignment or using the new alignment as proposed by Horizon Nuclear Power and as explained in Chapter 4, Construction, Operation, Maintenance and Decommissioning (**Document 5.4**).

5.3.2 Table 9.12 details where these scenarios are relevant to the assessment of ecology and nature conservation and how they have been assessed in section 9 mitigation and residual effects.

Table 9.12 Consideration o	of Scenarios
Option	How it has been considered within the assessment
Option A and B	Effects have been assessed based on both Option A and Option B. Where any differences have been identified for a receptor, this has been stated in section 9.
Direction and method of tunnelling (Scenarios 1, 2 and 3)	Effects of each method (TBM or drill and blast) have been assessed separately for the marine environment. For TBM, it has been assumed that the effects are the same from either direction (i.e. from Braint or Ty Fodol). Although not directly applicable, the indirect effects as a result of air quality are considered to be worst case as the worst case traffic numbers have been modelled for each construction traffic route.
Construction traffic using the existing A5025 (Link 1) alignment or using the new alignment as proposed by Horizon Nuclear Power.	The assessment is based on the existing A5025 alignment (Link 1). Due to the good standard of air quality conditions in both baseline and construction stage scenarios, the effect of construction traffic using the realigned A5025 on air quality impacts would be minimal and would not alter the conclusions of the assessment as stated in Chapter 14, Air Quality ( <b>Document 5.14</b> ).

# 5.4 SENSITIVITY TEST

## Construction Start Date

5.4.1 Under the terms of the draft DCO (**Document 2.1**), construction could commence in any year up to five years following the grant of DCO. Consideration has been given to whether the potential mitigation or residual effects reported in this chapter would differ if construction were to commence in any year up to and including the fifth year.

5.4.2 Consideration has been given to this within this ecology and nature conservation chapter and it is considered that as the dominant land use is agriculture, the habitats are unlikely to change significantly within that timescale. However updated ecology surveys would be required for the baseline date to remain valid. It has therefore not been necessary to undertake a more detailed assessment for an alternative programme to that set out in Chapter 4, Construction, Operation, Maintenance and Decommissioning (**Document 5.4**).

# Duration of Construction Activities

- 5.4.3 It is possible that some construction activities may take a longer or shorter length of time to complete than currently predicted in the construction programme used for the purposes of assessment. Certain assessment methodologies use defined durations when considering effects within the assessment, for example in relation to peak periods of construction, such as that considered for construction traffic effects (consideration is given to the peak week of traffic and the average weekly traffic over the peak year). To ensure a robust assessment, additional consideration has been given to any difference in the effects as assessed should there be any increase or decreases in the duration of individual construction activities, or indeed the construction programme as a whole.
- 5.4.4 For Ecology and Nature Conservation it is considered that effective mitigation (as proposed), would allow a flexible window for construction activities. The assessment of effects, although acknowledging that the short duration may play a part in the low severity of effects, does not rely wholly on this duration, nor for receptors such as those in the marine environment on the seasonality of receptors in its conclusion. It is therefore considered that the potential for changes to the duration of construction activities, or the programme as a whole, would not alter the assessment findings as reported in section 9 Mitigation and Residual Effects.

# 6 Study Area

# 6.1 INTRODUCTION

- 6.1.1 When defining the study area for each ecological feature of interest, the assessment has considered the likely zone of influence of the Proposed Development on that particular ecological receptor, as well as an understanding of the maximum search areas typically considered necessary by statutory consultees and as detailed in relevant guidance referenced through this section.
- 6.1.2 As such, for the assessment of ecological impacts there are different study areas for different receptors, as some are more mobile or susceptible over greater distances than others.

# 6.2 DESIGNATED SITES

## SAC/SPA/Ramsar

- 6.2.1 A minimum of a 2 km study area from the Order Limits has been used to identify the presence of sites designated for their nature conservation value such as SACs and Ramsar sites. This has been widened to 10 km for bat related SACs. The study area for SPAs and Ramsar sites designated for ornithological interest features was defined through consideration of sites that are designated for qualifying species which could use supporting habitat within the Order Limits. The study area for sites has often be widened as a result
- 6.2.2 Construction traffic routes beyond the Order Limits may still give rise to emissions from construction traffic ('Construction Routes and Bellmouth Locations' **Document 5.13.1.3**).
- 6.2.3 Therefore, designated sites within 200 m of construction traffic routes were also included within the study area. However, only those sites likely to be sensitive to emissions were included in the assessment. Within the Menai Strait, a 2 km study area from the below ground Order Limits has been used to identify the presence of sites designated for their marine nature conservation value, which do not contain mobile species (e.g. migratory fish and marine mammals). A wider search area was required to capture other sites with mobile qualifying marine features that could use the Menai Strait

based on their distribution and behaviour. This therefore included the wider Irish Sea and tributaries to the Menai Strait.

- 6.2.4 All European designations, excluding those related to the marine environment (see paragraph 6.2.9 below) within 2 km of the Proposed Development are shown on Figure 9.1 (**Document 5.9.1.1**). Those European designations present in the wider area that are considered as part of the assessment are shown on Figure 9.2 (**Document 5.9.1.2**).
- 6.2.5 All statutory designations relating to marine habitats and species (excluding birds), or those present inland with mobile species that could be potentially affected whilst in their marine phase, that are considered in relation to the assessment of the Proposed Development are shown in Figure 9.5 (Document 5.9.1.5). The distances used to identify the overall study area for each aspect of the Proposed Development or designation feature, are based upon standard practices and discussions with NRW, IACC and Gwynedd Council.

# SSSI/Non Statutory Sites

- 6.2.6 The study area considered for terrestrial (including those designated for ornithological reasons) SSSIs is within 2 km of the Order Limits. Those related to marine ecology follow that stated within section 6.2.9.
- 6.2.7 All SSSI designations within 2 km of the Proposed Development are shown on Figure 9.1 (**Document 5.9.1.1**).
- 6.2.8 Non-statutory designated sites within 2 km of the Proposed Development are shown on Figures 9.3 and 9.4 (**Document 5.9.1.3 and Document 5.9.1.4**).
- 6.2.9 All SSSI designations relating to marine habitats and species (excluding birds), or those present inland with mobile species that could be potentially affected whilst in their marine phase, that are considered in relation to the assessment of the Proposed Development are shown in Figure 9.5 (**Document 5.9.1.5**).
- 6.2.10 As with the internationally designated sites, the study area has been expanded to include SSSIs and non-statutory designated nature conservation sites within 200 m of construction traffic routes to assess the potential effects of emissions from construction traffic.

## 6.3 DATA SEARCH AREAS

Terrestrial/Ornithological

- 6.3.1 A 2 km study area from the Order Limits was used when requesting species records from Cofnod and other sources of ecological data (see section 4.3 Baseline Data Gathering and Forecasting Methods). This included records for protected and notable species and information on locally designated nature conservation sites. For red squirrel records from the RSTW, this was expanded to include Anglesey as a whole. In addition, the following study areas were used when sourcing species specific ornithological records from sources other than Cofnod:
  - Welsh Raptor Study Group Chairman No specific search area but covering whole of Anglesey and Caernarfonshire where appropriate;
  - British Trust for Ornithology (BTO) Wetland Bird Survey (WeBS) online (<u>https://app.bto.org/webs-reporting/</u>) - All Anglesey Core Count sectors monitored in the last ten years within approximately 5 km of the Order Limits (eight sectors); and Core Count Sectors with counts of whooper swan and/or Greenland white–fronted goose (*Anser albifrons flavirostris*) across the whole of Anglesey (inland and coast) in the last ten years (19 sectors);
  - Royal Society for the Protection of Birds (RSPB) Data Unit Order Limits plus 5 km for Greenland white-fronted goose and whooper swan; Order Limits plus 500 m for breeding curlew and lapwing; Menai Strait between the Menai and Britannia Bridges for breeding records of common tern (Sterna hirundo);
  - JNCC Seabird Monitoring Programme (<u>http://jncc.defra.gov.uk/smp/</u>) All of Anglesey;
  - The Greenland white–fronted goose website (<u>http://greenlandwhitefront.org/</u>) – All of Anglesey and North Wales;
  - Wildfowl and Wetlands Trust (WWT) website (<u>http://monitoring.wwt.org.uk/publications/</u>) - All of Anglesey and North Wales;
  - The Cross and Stratford Welsh Chough Project Order Limits plus 5 km; and
  - The Breeding Birds of North Wales and the Cambrian Bird Report (Ref 9.31) no specific study area.

#### Marine

6.3.2 A wider search area was used when obtaining species records for more mobile marine species, based on their distributions and behaviour. These included the whole length of the Menai Strait, and the wider Irish Sea, as applicable.

# 6.4 SURVEYS

# Terrestrial/Ornithological

6.4.1 The survey areas for the field surveys generally comprised land inside the Order Limits and land up to 50 m beyond this boundary (referred to as a 'buffer'). However, where required, survey distances were increased to account for potential impacts to specific ecological features and in line with relevant ecological survey guidance. Where this is the case the buffers used are described in the survey methodology summaries in section 4 methodology and within Appendices 9.3 to 9.17 (**Documents 5.9.2.3 to 5.9.2.17**).

## Marine

- 6.4.2 The only area of the Proposed Development that has a potential direct interaction with the marine environment is Section F, which goes under the Menai Strait in a tunnel.
- 6.4.3 The marine survey area therefore encompassed the section of the Menai Strait between Y Felinheli to the south-east, and the Menai Bridge to the west.

# 7 Baseline Conditions

# 7.1 INTRODUCTION

- 7.1.1 This section summarises the findings of baseline studies and any anticipated changes to this baseline prior to construction. It describes the baseline environment in the areas identified in section 6 study area of this chapter.
- 7.1.2 The descriptions of the baseline conditions are based upon the desk study data, aerial photography, and the detailed ecological surveys that have been undertaken. Full details of each are provided in the baseline reports within Appendices 9.3 to 9.17 (**Documents 5.9.2.3 to 5.9.2.17**).
- 7.1.3 Figures 9.1, 9.2, 9.3 and 9.4 show the locations of designated sites within the study area (**Documents 5.9.1.1 to 5.9.1.4**). Figures showing the survey boundaries and locations of the protected/notable species surveys and habitat surveys are shown on the figures in the baseline reports within Appendices 9.3 to 9.17 (**Documents 5.9.2.3 to 5.9.2.17**).

# 7.2 FUTURE BASELINE PREDICTIONS

7.2.1 Construction of the Proposed Development would be likely to commence in the second quarter of 2020 and be completed in 2026. Within these timescales, or even if construction did not commence until year five following grant of the DCO, there are not expected to be any significant changes in the habitats and species present. The assessment is therefore based upon the existing baseline for the Proposed Development.

# 7.3 STATUTORY DESIGNATED SITES

7.3.1 This section details the international, national and local nature conservation designations located within the study area (see section 6). These designated sites are shown on Figure 9.1 and 9.2 (**Document 5.9.1.1** and **5.9.1.2**) and the principal reasons for their designation are summarised in Table 9.13. More detailed information on the reasons for their designation are provided in Appendix 9.2 (**Document 5.9.2.2**) which identifies all designated sites within the study area and states whether each has been taken forward for assessment. Only those where the Proposed Development could potentially have an effect are included within this chapter; these are presented in Table 9.13.

Table 9.13 Statutory Designated Sites				
Designation	Closest Section	Distance from Order Limit	Citation Summary	Value
Special Areas of	Conservation	(SAC)		
Corsydd Mon/Anglesey Fens SAC	С	Part of this designation falls within the Order Limits (minor works only for drainage and vegetation management).	The site supports the second-largest area of calcareous fens in the UK and contains hard oligo- mesotrophic waters with benthic vegetation of Chara species. Primary reasons for its designation include hard oligo-mesotrophic waters with benthic vegetation of Chara spp., calcareous fens with and species of the <i>Caricion davallianae</i> , and Alkaline fens and Geyer's whorl snail ( <i>Vertigo geyeri</i> ). Qualifying features include Northern Atlantic wet heaths with <i>Erica tetralix</i> and Molinia meadows on calcareous, peaty or clayey-silt-laden soils ( <i>Molinion caeruleae</i> ) and southern damselfly, and marsh fritillary butterfly.	International
Eryri / Snowdonia SAC	Wider Area	2.6 km south east	The site was selected for biological interests, in particular as the best-developed and most extensive areas of Siliceous alpine and boreal grasslands in Wales and is the largest example of the habitat type south of Scotland.	International
Menai Strait and Conwy Bay SAC	F	The Order Limits are within the Menai Strait and Conwy Bay SAC at	The Menai Strait is part of the European designated Menai Strait and Conwy Bay SAC. The site is designated for the diversity and quality of the marine	International

North Wales Connection Project

Table 9.13 Statutory Designated Sites				
Designation	Closest Section	Distance from Order Limit	Citation Summary	Value
		Section F, where the Proposed Development would be located in a tunnel.	benthic habitats that are present throughout. Annex I habitats that are the primary reason for site designation and present within the Strait are Sandbanks which are slightly covered with seawater all the time, Mudflats and sandflats not covered by seawater at low tide and Reefs. The Annex I habitats present as a qualifying feature are Subtidal sea caves and Large shallow inlets and bays.	
Lleyn Peninsula and the Sarnau SAC	F (tunnel crossing zone)	28.3 km	The site is included as it is designated, amongst other features, for mobile receptors (bottlenose dolphin ( <i>Tursiops truncatus</i> ) and grey seal ( <i>Halichoerus grypus</i> ). The site follows the coastline around Cardigan Bay from the Lleyn Peninsula in the north to Aberystwyth in the south.	International
North Anglesey Marine cSAC	A but F only for tunnel crossing zone due to mobile species	224 m (A), approximately 32 km from F	The site encompasses the north coast of Anglesey to Dulas Bay. As set out above, it has been included as it has mobile features such as harbour porpoise( <i>Phocoena phocoena</i> ) that may be present within the Menai Strait. These mobile features are subsequently the only ones considered.	International

Table 9.13 Statutory Designated Sites				
Designation	Closest Section	Distance from Order Limit	Citation Summary	Value
			Section A is the closest but only section F is considered due to mobile species and the tunnel crossing zone	
West Wales Marine cSAC	F (tunnel crossing zone)	36.33 km	The site is situated to the south in Cardigan Bay, is included here as it has mobile features (harbour porpoise) that may be present within the Menai Strait. These mobile features are subsequently the only ones considered.	International
Bae Ceredigion / Cardigan Bay SAC	F (tunnel crossing zone)	86.4 km south	The site is situated to the south in Cardigan Bay, is included here as it has mobile features (bottlenose dolphin and grey seal) that may be present within the Menai Strait. These mobile features are subsequently the only ones considered.	International
Afon Gwyrfai a Llyn Cwellyn SAC	F (tunnel crossing zone)	8.7 km	The site encompasses the Afon Gwyrfai, a small montane river which flows into the southern area of the Menai Strait. It has been included as it has mobile features which potentially would be in the vicinity of the Proposed Development. It is designated for features such as otter and its relatively unexploited Atlantic salmon ( <i>Salmo salar</i> ) population which has a late migratory run. Data from the NRW indicate that there	International

Table 9.13 Statutory Designated Sites				
Designation	Closest Section	Distance from Order Limit	Citation Summary	Value
			are healthy juvenile populations downstream of Llyn Cwellyn.	
Special Protection	n Areas (SPA	.)		
Bae Lerpwl / Liverpool Bay SPA	Wider Area	5.04 km	During the breeding season the area regularly supports little tern ( <i>Sternula albifrons</i> ) and common tern. During the non – breeding season the area supports red – throated diver ( <i>Gavia stellata</i> ), little gull ( <i>Hydrocoleus</i> <i>minutus</i> ) and common scoter ( <i>Melanitta nigra</i> ). The site also supports a water bird assemblage of at least 69,687 individuals, which includes all of the non – breeding species named above, plus red – breasted merganser ( <i>Mergus serrator</i> ) and cormorant	International
			(Phalacrocorax carbo) as key components.	
Traeth Lafan / Lavan Sands and Conwy Bay SPA	Wider Area	5.82 km	During winter the area supports oystercatcher ( <i>Haematopus ostralegus</i> ), red – breasted merganser, Eurasian curlew ( <i>Numenius arquata</i> ), and common redshank ( <i>Tringa totanus</i> ). On passage the area supports great – crested grebe ( <i>Podiceps cristatus</i> ).	International

Table 9.13 Statutory Designated Sites					
Designation	Closest Section	Distance from Order Limit	Citation Summary	Value	
Ynys Seiroil / Puffin Island SPA	Wider Area	15.73 km	During the breeding season the area supports cormorant.	International	
Aber Dyfi / Dyfi Estuary SPA	Wider Area	69.5 km	Qualifying species of the SPA include overwintering populations of Greenland white-fronted goose (Anser albifrons flavirostris)	International	
Ramsar Sites					
Corsydd Môn a Llyn/Anglesey and Llyn Fens Ramsar	С	Part of this designation falls within the Order Limits (minor works only for drainage and vegetation management)	The site supports internationally important assemblage of base-rich fens comprised six component sites, supporting a range of associated floral and faunal rarities.	International	
Sites of Special Scientific Interest (SSSI)					
Cemlyn Bay SSSI	A	1.42 km	The special features of the SSSI include coastal lagoon, vegetated shingle characterised by sea kale ( <i>Crambe maritime</i> ), yellow horned poppy ( <i>Glucium flavun</i> ) and sea radish ( <i>Rapohanus maritimus</i> ); and breeding bird assemblage (sandwich tern, roseate tern, common tern and artic tern).	High (International)	

North Wales Connection Project

Table 9.13 Statutory Designated Sites				
Designation	Closest Section	Distance from Order Limit	Citation Summary	Value
			In addition, shingle barrier, saltmarsh, coastal grassland, marshy grassland, scrub, freshwater pools, ditches, inter-tidal rocks and rock pool habitats contribute to the species interest.	
Tre'r Gof SSSI	A	32 m	The site was selected for biological interests, in particular as a representative example of rich-fen habitat in north-west Wales. The fen has developed in a basin above Cemaes Bay, and consists of a mosaic of rich-fen and associated communities, including the Annex 1 habitat Calcareous fens with great fen sedge ( <i>Cladium mariscus</i> ).	National
Llyn Alaw SSSI	В	470 m	The site is of considerable ornithological interest especially for overwintering wildfowl and large flocks of waders in autumn.	National
Cors Erddreiniog SSSI	С	Part of this designation falls within the Order Limits (minor works only for drainage and vegetation management)	The site comprises of a large calcareous valley mire of national importance. Three fen basins are interconnected by the drainage system.	National

Table 9.13 Statutory Designated Sites				
Designation	Closest Section	Distance from Order Limit	Citation Summary	Value
Caeau Talwrn SSSI	D	25 m	The site comprises areas of interest for neutral grassland and mire vegetation.	National
Coedydd Afon Menai SSSI	F	707 m	The site comprises ivy-oak/ ash <i>(Hedera helix –</i> <i>Quercus/Fraxinus)</i> type woodland.	National
Glannau Porthaethwy SSSI	F	1.41 km	The site extends along 4 km of the shore of Menai Bridge/Porthaethwy in the Menai Strait, and has been selected for its marine biological features. It has the most extensive sheltered rock shore in the area between Bardsey Island and Great Orme's Head and supports diverse marine plant and animal communities.	National
Malltraeth Marsh/Cors Ddyga SSSI⁴	Wider Area	2.5 km Within 200 m of a construction traffic route	The special features of the SSSI include Open water associated with lowland grazing marsh ditch system and former river meanders with associated plants and animals.	National
			In addition, marshy grassland, lakes, pools and fossiliferous coal and shales on old colliery spoil heaps contribute to the special interest.	

<sup>&</sup>lt;sup>4</sup> Part of the SSSI is also an RSPB Reserve

Table 9.13 Statutory Designated Sites							
Designation	Closest Section	Distance from Order Limit	Citation Summary	Value			
			Special features also include birds – breeding waders, ducks and swans.				
National Nature F	Reserve (NNF	R)					
Cors Erddreiniog NNR	С	Part of this designation falls within the Order Limits (minor works only for drainage vegetation management)	The site includes the largest of the Anglesey fens, supporting a variety of rare species including orchids, and also the marsh fritillary and southern damselfly.	National			

# 7.4 NON STATUTORY DESIGNATED SITES

7.4.1 This section details the non-statutory nature conservation designations located within the study area. These sites are shown on Figure 9.3 (**Document 5.9.1.3**) and Figure 9.4 (**Document 5.9.1.4**). The principal reasons for their designation are summarised in Table 9.14. More detailed information on the reasons for their designation are provided in Appendix 9.2 (**Document 5.9.2.2**) which identifies all non-statutory designated sites within the study area and states whether each has been taken forward for assessment. Only those where the Proposed Development could potentially have an effect are included within this chapter; these are presented in Table 9.14.

Table 9.14 Non-Statutory Designated Sites								
Designation	Closest Section	Distance from Order Limit	Citation Summary	Value				
County Wildlife Sites	(including a	candidate sites)						
Arfordir Mynydd y Wylfa - Trwyn Penrhyn CWS	A	266 m Hydrological Link	North facing coastal cliff and cliff top with coastal grassland, semi-improved acid grassland and rocky outcrops. This site includes Trwyn Wylfa LNR to the west but is larger than the LNR.	County				
Afon Wygyr CWS	A	714 m north-east Hydrological Link	A small river with species-rich bank-side vegetation, marshy grassland and small woodlands.	County				
Maen Eryr CWS	С	Adjacent to Order Limits	A floristically rich wet meadow adjacent to an area of species-rich mixed woodland, dominated by ash and sycamore, with some birch ( <i>Betula</i> sp.) and planted conifers. The ground flora is rich in fern species.	County				
Coed Cefn-Du CWS	С	825 m north-east Hydrological Link	Damp birch woodland with abundant alder. The ground is rich in mosses and the marshy areas. The south-east corner consists of marshy grassland and is immediately adjacent to Cors Erddreiniog SSSI.	County				
Graigfryn CWS	С	922 m north-east Hydrological Link	A large area of basic flush and a range of types of marshy grassland with smaller additional patches of	County				

Table 9.14 Non-Statutory Designated Sites							
Designation	Closest Section	Distance from Order Limit	Citation Summary	Value			
			dry heath, acid flush and semi-improved neutral grassland.				
Rhostir Ponciau CWS	С	1.60 km north-east Hydrological Link	This site consists of an area of wet heathland with two small areas of marshy grassland.	County			
Gylched Covert CWS	D	Within Order Limits	An area of semi-natural woodland over a small limestone hill.	County			
Tir Pori Talwrn CWS	D	151 m east Hydrological Link and Air Quality.	A mosaic of semi-improved neutral grassland, marshy grassland, basic flush and scattered scrub.	County			
Cors Tregarnedd Fawr CWS	D	698 m south-west Hydrological Link and Air Quality (adjacent to construction traffic route)	A large site with botanical and ornithological interest. The site has a large area of marshy grassland dominated by rushes and also an area of species- poor rush-dominated improved pasture which is an important habitat for numbers of breeding and wintering birds.	County			
Coed Ty'n-llwyn cCWS	F	Within the Order Limits Air Quality (within 200 m of construction traffic route)	Broadleaved woodland and neutral grassland. The site is known for being a gateway to the Swallow Falls waterfall.	County			

Table 9.14 Non-State	Table 9.14 Non-Statutory Designated Sites							
Designation	Closest Section	Distance from Order Limit	Citation Summary	Value				
Vaynol Park woodlands and lake cCWS	F	Within the Order Limits – tunnel section Air Quality (within 200 m of construction traffic route)	Broadleaved woodland and standing water.	County				
Coed Rhos-fawr cCWS	F	Within the Order Limits	Coniferous woodland and acid grassland.	County				
Coed Nant Y Garth CWS	F	Within the Order Limits Air Quality (within 200 m of construction traffic route)	Coniferous woodland, broadleaved woodland and acid grassland.	County				
Coed Pont Ladi-wen CWS	F	Within the Order Limits Air Quality (within 200 m of construction traffic route)	Coniferous woodland.	County				
Parc Nant-y-garth cCWS	F	Within the Order Limits Air Quality (within 200 m of construction traffic route)	Coniferous woodland.	County				
Fodol Ganol cCWS	F	Within the Order Limits– tunnel section Air Quality (within 200 m of construction traffic route)	Broadleaved woodland.	County				

Table 9.14 Non-State	utory Desi	gnated Sites		
Designation	Closest Section	Distance from Order Limit	Citation Summary	Value
Pentir Substation cCWS	F	Within the Order Limits	Coniferous woodland and broadleaved woodland.	County
Glan-rhyd reservoir cCWS	F	335 m south-east Air Quality (within 200 m of construction traffic route)	Standing water, semi-improved neutral grassland and marshy grassland.	County
Parc Menai woodlands cCWS	F	353 m north-east Air Quality (within 200 m of construction traffic route)	Broadleaved woodland.	County
Coed Tyddyn Badyn cCWS	F	585 m south-east Air Quality (within 200 m of construction traffic route)	Broadleaved woodland.	County
Coed Pant-y-cyff cCWS	F	1 km south-east Air Quality (within 200 m of construction traffic route)	Broadleaved woodland, coniferous woodland, mixed woodland and semi-improved neutral grassland.	County
Treborth Road Woodlands cCWS	F	1.36 km north-east Air Quality (within 200 m of construction traffic route)	Broadleaved woodland and semi-improved neutral grassland.	County

Table 9.14 Non-Statutory Designated Sites							
Designation	Closest Section	Distance from Order Limit	Citation Summary	Value			
Railway cuttings (Treborth) CWS	F	1.38 km north-east Air Quality (within 200 m of construction traffic route)	Broadleaved woodland.	County			
Rhydau Duon cCWS	Wider Area	2.4 km east Air Quality (within 200 m of construction traffic route)	Broadleaved woodland, mixed woodland and acid grassland;	County			
Felin Hen & Cycle Track cCWS	Wider Area	2.7 km north east Air Quality (within 200 m of construction traffic route)	Broadleaved woodland.	County			
Cororion Rough cCWS	Wider Area	2.8 km north east Air Quality (within 200 m of construction traffic route)	Broadleaved woodland.	County			
Parc Lon Isaf cCWS	Wider Area	3.5 km north east Air Quality (within 200 m of construction traffic route)	Broadleaved woodland.	County			
Parc Siambragwynion cCWS	Wider Area	3.8 km north east Air Quality (within 200 m of construction traffic route)	Broadleaved woodland.	County			

Table 9.14 Non-Statutory Designated Sites							
Designation	Closest Section	Distance from Order Limit	Citation Summary	Value			
Coed Rhos Uchaf cCWS North Wales Wildlife	Wider Area Trust sites	3.9 km north east Air Quality (within 200 m of construction traffic route)	Broadleaved woodland.	County			
Cemlyn	A	1.65 km west	Coastal habitat with a large lagoon, separated from the sea by a naturally created shingle ridge. The site hosts a large and internationally important seabird colony, including common terns and Arctic terns and one of the UK's largest nesting populations of sandwich terns.	County			

# 7.5 TERRESTRIAL HABITATS

7.5.1 Habitats identified during the desk study and surveys within the Order Limits and a 50 m buffer are listed in Table 9.15 and are discussed in further detail below.

Table 9.15 Habitats within the Order Limits and a 50 m buffer (Sections A-F)									
Habitat	Environment	Local	Section						
	(Wales) Act 2016	BAP*	A	В	С	D	Е	F	
Lowland Mixed Broadleaved Woodland (this includes Ancient Woodland)	✓	A	~	~	~	~	~	~	
Parkland/Scattered Trees	$\checkmark$	A/G	~	✓	✓	✓	✓	✓	
Semi-improved Neutral Grassland	✓	G	~	✓	✓	✓	✓	✓	
Semi-improved Acid Grassland	✓	G			✓				
Lowland Meadows (Unimproved Neutral Grassland)	1	A**/G			~	~		~	
Unimproved Acid Grassland	✓	G						✓	
Marshy Grassland		G***	~	~	~	✓	~	~	
Valley Mire	✓	A/G			✓				
Scrub		А	~	~	~	~	~	~	
Acid Dry Dwarf Shrub Heath (Lowland)	✓	A						~	
Ruderals			~	~	~	~	~	~	
Hedgerows	✓	G	~	~	~	~	~	~	
Cloddiau and Ancient/Important Hedgerows		A/G	~	~	~	~	~	~	
Rivers/Streams	✓	A/G	~	✓	✓	✓	✓	✓	
Standing Water (Lakes and Ponds)	✓	A/G	~	✓	✓	✓	✓	✓	
Swamp	✓	G				~	✓		

Habitat	Environment	Local	Section						
	(Wales) Act 2016	BAP*	A	В	С	D	Е	F	
Rhos Pasture (Purple moor-grass ( <i>Molinia caerulea</i> ) and rush pasture)	<ul> <li>✓</li> </ul>	G	~		~		~	~	
Inland Rock (Rock Outcrops)	$\checkmark$		~						

\*Gwynedd (G) and/or Anglesey (A) LBAP

\*\* A strip of MG1e Arrhenatherum elatius grassland, Centaurea nigra subcommunity (Appendix 9.4 – National Vegetation Classification Report Fig 5.9.2.4 Plot 55\_NVC032 (relevé 29)). Tentatively fits under the Flower-rich Road Verges BAP

\*\*\*Some areas of marshy grassland are adjacent to watercourses and are likely to be inundated periodically. Areas of marshy grassland could therefore fit under the Lowland Wetlands BAP.

# Woodland

- 7.5.2 Overall, a total area of 77.11 ha of woodland is present within the Order Limits. Of this, 49.65 ha is broadleaved semi-natural woodland; 2.51 ha is broadleaved plantation woodland; 8.82 ha is coniferous plantation woodland; 8.52 ha is mixed semi-natural woodland and 7.61 ha is mixed plantation woodland. There are also linear features/scattered trees extending 0.28 km, areas of parkland/scattered trees of 0.08 ha, and individual trees present of 649 in total for Option A and 649 in total for Option B, of which 13 are coniferous trees for both options.
- 7.5.3 Extensive tree cover was generally uncommon, particularly within the north of the survey area, and where present generally comprised smaller, isolated parcels of woodland. Woodland habitat was more extensive within the south of the survey area, including southern Anglesey and on the mainland. Here there were areas of ancient semi-natural woodland, including restored examples, present alongside the Menai Strait and within Vaynol Park Wildlife Site. Whilst these lie within the Order Limits, works in these locations are limited to the tunnel and therefore the habitats would not be subject to direct effects. Construction traffic routes pass adjacent to these habitats including the A4080 by Plas Newydd (Link 16), the A487 (Link 18), the A4087 (Link 18.1) and the B4547 (Link 19) by Vaynol Estate and the A4244 south of Pentir (Link 20).

- 7.5.4 Pockets of semi-natural broad-leaved woodland were located in all sections of the survey area. Plantation woodland was found in all sections of the survey area, comprising broadleaved, coniferous and mixed plantation woodland. Ancient woodland is present within the Order Limits and includes a number of types such as Plantation on Ancient Woodland and Restored Ancient Woodland Site. Areas of ancient woodland within the Order Limits and adjacent to or within 50 m of the Order Limits include within Section A at the area by the Visitors Centre at Wylfa Nuclear Power Station and Brynddu, Section C to the west of Vaynol Covert, and in Section F within sections of Coed Nant Y Garth woodland adjacent to Fodolydd Lane (Link 30) but not where the OHL oversails the woodland, to the north of Pentir Substation, and the block within Pentir Substation cCWS west of the substation. Some areas of woodland have been classified as habitat types listed under Annex 1 of the Habitats Directive. These are discussed in section 7.6 of this chapter.
- 7.5.5 Due to its limited distribution and irreplaceability the value of Ancient Woodland, and Plantation Ancient Woodland is considered to be **County**.
- 7.5.6 Non-ancient Broadleaved Woodland, Mixed Plantation woodland and Coniferous Plantation woodland, are not classified as habitats listed under Annex 1 of the Habitats Directive, widespread and replaceable, are considered to be of Local value.

## Grassland

- 7.5.7 Overall, a total area of 532.32 ha of grassland (excluding amenity) is present within the Order Limits. Of this, 0.51 ha is semi-improved acid grassland; 12.82 ha is semi-improved neutral grassland; 458.86 ha is improved grassland; 34.31 ha is marshy grassland and 25.64 ha is poor semi-improved neutral grassland. A narrow strip of unimproved neutral grassland was present running adjacent to an access track at Pentir and a small area was present within Cae Canol-dydd totalling 0.11 ha, and a small area of unimproved acid to the south of Pentir Substation of 0.07 ha.
- 7.5.8 A variety of grassland habitats typical of rural pastoral farmland were present throughout the survey area. These were largely characterised by improved grassland grazed by cattle or sheep, which was the dominant habitat in all Sections of the survey area. Semi-natural grassland types present within the survey area included semi-improved, poor semi-improved, marshy (including fen habitat) neutral and acid grassland; although these were largely scattered and fragmented and interspersed amongst improved grassland.
- 7.5.9 Marshy grassland was usually present at the base of shallow gradients within improved or semi-improved fields with poor drainage. Isolated areas of

marshy grassland were found in all Sections of the survey area. Amenity grassland which is intensively managed was recorded in small, isolated areas within all Sections of the survey area. Some areas of grassland have been classified as habitat types listed under Annex 1 of the Habitats Directive. There are discussed in section 7.6 of this chapter.

- 7.5.10 Improved and poor semi-improved grassland is considered to be of **Local** value given their widespread occurrence across the UK.
- 7.5.11 The strip of unimproved grassland at Pentir is a more species-rich subcommunity of an otherwise common and widespread semi-improved grassland type and is also of **Local** value.
- 7.5.12 The unimproved grassland within the Order Limits at Cae Canol-dydd and south of Pentir Substation is of **County** value.
- 7.5.13 Marshy grassland, semi-improved neutral and acid grassland not listed under Annex 1 of the Habitats Directive are considered to be of **Local** value given their widespread occurrence across the UK.

#### Scrub

- 7.5.14 A total area of 4.92 ha of scrub is present within the Order Limits. Of this, 2.94 ha is dense/continuous scrub and 1.98 ha is scattered scrub. There are also linear features extending a combined total length of 7.78 km.
- 7.5.15 Scrub was mostly scattered and fragmented and interspersed with improved grasslands, woodlands and hedgerows in small isolated patches present in all Sections of the survey area.
- 7.5.16 Scrub is considered to be of **Local** value given the widespread distribution of this habitat type.

## Acid Dry Dwarf Shrub Heath (Lowland)

- 7.5.17 A total area of 1.38 ha of acid dry dwarf shrub heath is present within the Order Limits.
- 7.5.18 This habitat type is restricted to one location within the survey area in Section F to the south of Pentir Substation. Remnants of heathland habitats and their characteristic species were occasionally identified on the boundaries of improved fields and within hedgerows and cloddiau (walls with a dry stone outer layer and compacted earth, or earth/rubble core), indicating a previously more widespread occurrence of heathland habitat prior to conversion to more productive agriculture.

7.5.19 Due to its restricted distribution and the flora and fauna it can support acid dry dwarf shrub heath is considered to be of **County** value.

## Ruderals

- 7.5.20 A total area of 2.94 ha of ruderal habitat (including bracken) is present within the Order Limits.
- 7.5.21 Tall ruderal habitats were present in roadside verges, isolated stands within fields and as herbaceous layers bordering other habitats such as woodlands. Areas of ruderal habitat were more frequently recorded in the southern survey areas.
- 7.5.22 Ruderal habitat is considered to be of **Local** value given the widespread distribution of this habitat type.

## Hedgerows

- 7.5.23 A total of 434 hedgerows have been identified and surveyed within the survey area. The hedgerows surveyed fall into two categories in line with the Hedgerows Regulations: non-Important and Important, as detailed within Appendix 9.5 Hedgerow Report (**Document 5.9.2.5**).
- 7.5.24 Overall, a total of 96 hedgerows surveyed within the survey area were found to meet the criteria for an ecologically Important hedgerow. This equates to approximately 15.2 km of ecologically Important hedgerow. Important hedgerows were found predominantly within Sections C, D and E with total numbers of 23, 24 and 24 respectively. The remaining 338 hedgerows surveyed were classified as non-Important with a total length surveyed within the survey area of 51.6 km, this comprised 23 species-rich hedgerows (3.7 km) and 315 species-poor hedgerows (47.9 km).
- 7.5.25 In summary, 93 historically Important boundaries were identified within the Order Limits across all Sections. This equates to approximately 17.5 km of historically Important boundary. These were a combination of boundaries marking parish boundaries (approximately 4.3 km), those recorded from Tithe Maps (approximately 12.5 km) and one of unknown origin (approximately 0.8 km).
- 7.5.26 Twenty-six of the 95 historically Important boundaries were also recorded as ecologically Important hedgerows.
- 7.5.27 During the Phase 1 Habitat surveys, hedgerows were categorised into the following six Phase 1 Habitat categories:
  - intact species-rich;

- intact species-poor;
- defunct species-rich;
- defunct species-poor;
- species-rich with trees; and
- species-poor with trees.
- 7.5.28 Species-rich hedgerows were defined as those with at least five woody species native to the UK, species-poor had four or fewer woody species. Hedgerows with trees were those with one or more trees present along its length. Approximately 17.98 km of species-rich hedgerow and 48.43 km of species-poor hedgerow are present within the Order Limits.
- 7.5.29 Generally, each hedgerow type was identified within all Sections (A F) of the survey area, with the exception of defunct species-rich, which was absent from Section E. Section C was identified as containing the largest number of species-rich hedgerows at eight.
- 7.5.30 Field boundaries were typically formed by fences, dry stone walls, hedgerows, and cloddiau, and these linear features were found in all Sections of the survey area.
- 7.5.31 The Environment (Wales) Act 2016 lists hedgerows as a S7 habitat and both Gwynedd and Anglesey feature ancient hedgerows as a LBAP habitat.
- 7.5.32 Important hedgerows are considered to be of **County** value.
- 7.5.33 Non-Important hedgerows are considered to be of value **Local** given their widespread occurrence across the UK.

## Watercourses/Ponds

- 7.5.34 Overall, a total area of 3.81 ha of standing water is present within the Order Limits and 17.97 km of running water.
- 7.5.35 Watercourses and drains were scattered throughout the survey area with the highest number and longest length being found in the central and southern parts of the survey area; notably Sections C, D and E. More extensive networks of watercourses were present in areas such as Cors Erddreiniog SSSI/NNR (also within the Corsydd Môn/Anglesey Fens SAC) which comprises three fen basins interconnected by the drainage system.

- 7.5.36 The following rivers were present within the survey area: Afon Wygyr (Section A), Afon Clai and Afon Erddreiniog (Section C), Afon Ceint (Section D) and the Afon Braint (Sections E and F).
- 7.5.37 Ponds were present in all Sections of the survey area with the highest density of ponds in Sections A, C and F. Larger waterbodies present outside of, but close to, the survey area, included Llyn Alaw (a SSSI) and Cefni Reservoir.
- 7.5.38 Ponds are considered to be of **Local** value.
- 7.5.39 Watercourses are considered to be of **Local** value for ditches and drains as they are more localised in nature and **County** value for Rivers/Streams which act as valuable wildlife corridors across a much wider area.

# 7.6 VEGETATION COMMUNITIES (NVC)

7.6.1 A summary of the vegetation communities identified within the survey area through the NVC Survey are listed in Table 9.16.

Table 9.16 Summary of NVC Communities								
NVC Community	Description	Corresponding Phase 1 Habitat Type	Annex 1	Environ ment (Wales) Act 2016	Local BAP*	Section (A – F)		
MG1 <i>Arrhenatherum</i> <i>elatius</i> grassland	False oat-grass ( <i>Arrhenatherum elatius</i> ) is normally found on ungrazed, mesotrophic soils where the grass is cut annually. This plant community is found on roadside verges, occasionally in hay meadows, churchyards and other mown habitats. This community usually also contains hogweed ( <i>Heracleum spondylium</i> ) and cleavers ( <i>Galium</i> <i>aparine</i> ).	Semi-improved neutral grassland				F		
MG1e Arrhenatherum elatius dominated grassland, Centaurea nigra sub-community	These false oat-grass dominated grasslands with common knapweed ( <i>Centaurea nigra</i> ) are characteristic of mown, rather than grazed habitats. This particular sub-community is species-rich and found in churchyards, roadside verges and on the margins of horse-grazed pasture, where it can occur as a mosaic with MG5 grassland.	Unimproved neutral grassland			G	F		

Table 9.16 Sumn	nary of NVC Communities					
NVC Community	Description	Corresponding Phase 1 Habitat Type	Annex 1	Environ ment (Wales) Act 2016	Local BAP*	Section (A – F)
MG6 <i>Lolium</i> perenne- Cynosurus cristatus grassland	This is the most widespread type of semi-improved grassland in the lowland parts of the British Isles. Perennial rye-grass ( <i>Lolium perenne</i> ) and crested dog's-tail ( <i>Cynosurus cristatus</i> ) are normally co-dominant with large amounts of white clover.	Semi-improved neutral grassland				A, B, C
M22 Juncus subnodulosus- Cirsium palustre fen-meadow	Blunt-flowered rush dominated vegetation is restricted to base-rich, peat based soils. This plant community has a very restricted distribution in the British Isles.	Marshy grassland	<b>√</b>	✓	A & G	A, C
M23 <i>Juncus</i> effusus/acutiflor us-Galium palustre rush- pasture	This is a common plant community on badly-drained, peat or mineral soils. It is common in the western parts of Britain and replaces the MG10 rush-pasture on acid soils. Grazed examples of this plant community can be very species-rich.	Marshy grassland		•		Α, Β
M24 Molinia caerulea- Cirsium	This was an under-recorded plant community in the original NVC inventory used for establishing the NVC books, British Plant Communities (Ref 9.7) but	Marshy grassland	~	~	A & G	С

Table 9.16 Summary of NVC Communities							
NVC Community	Description	Corresponding Phase 1 Habitat Type	Annex 1	Environ ment (Wales) Act 2016	Local BAP*	Section (A – F)	
<i>dissectum</i> fen- meadow	Stevens <i>et al.</i> (Ref 9.32) have subsequently shown that is quite widespread in Wales. Purple moor- grass, tormentil ( <i>Potentilla erecta</i> ) and devil's-bit scabious ( <i>Succisa pratensis</i> ) are normally present with cross-leaved heath ( <i>Erica tetralix</i> ) and carnation sedge ( <i>Carex panicea</i> ). Flea sedge ( <i>Carex pulicaris</i> ) and tawny sedge ( <i>Carex hostiana</i> ) are often present. Meadow thistle ( <i>Cirsium dissectum</i> ) does not occur in North Wales.						
M25 <i>Molinia</i> <i>caerulea-</i> <i>Potentilla erecta</i> mire	The majority of purple moor-grass dominated grassland can be allocated to this community. It is widespread in south-western England, Wales and parts of southern Scotland. Some stands of the vegetation can be very species-poor, with five or less species in a 2 x 2 m relevé.	Marshy grassland		✓	A	С	
M27 Filipendula ulmaria-	Meadowsweet ( <i>Filipendula ulmaria</i> ) is the sole Class V constant in this plant community. Tall herbs such as wild angelica ( <i>Angelica sylvestris</i> ), valerian	Marshy grassland		~	A	С	
Table 9.16 Sumn	Table 9.16 Summary of NVC Communities						
---	---	--	------------	---	---------------	--------------------	--
NVC Community	Description	Corresponding Phase 1 Habitat Type	Annex 1	Environ ment (Wales) Act 2016	Local BAP*	Section (A – F)	
<i>Angelica</i> <i>sylvestris</i> mire	(Valeriana officinalis) and hemp agrimony (Eupatorium cannabinum) are very common in the Anglesey stands. This habitat type occurs in less heavily grazed rush-pasture and in fen meadow. There are three sub-communities. Angelica, valerian and sorrel ( <i>Rumex acetosa</i> ) are abundant in the Valeriana officinalis-Rumex acetosa M27a sub- community. The Urtica dioica-Vicia cracca M27b sub- community tends to occur on more neutral soils and has a high incidence of nettle (Urtica dioica), false-oat grass and common reed ( <i>Phragmites australis</i> ). The final Juncus effusus-Holcus lanatus M27c sub- community is usually associated with less heavily grazed or abandoned rush-dominated pasture, which are common on Anglesey.						
MG5 Centaurea nigra-Cynosurus	This is the characteristic plant community of species- rich hay meadows in the British Isles. The vegetation is characterised by species such as common	Unimproved neutral grassland			G	С	

Table 9.16 Summary of NVC Communities						
NVC Community	Description	Corresponding Phase 1 Habitat Type	Annex 1	Environ ment (Wales) Act 2016	Local BAP*	Section (A – F)
<i>cristatus</i> grassland	knapweed, bird's-foot trefoil ( <i>Lotus corniculatus</i> ) and rough hawkbit ( <i>Leontodon hispidus</i> ). These species- rich grasslands have suffered a dramatic decline since the Second World War because of agricultural improvement.					
MG10a <i>Holcus</i> <i>lanatus-Juncus</i> <i>effusus</i> rush meadow. Typical sub- community	Rush-dominated grasslands are common on poorly drained soils in western Britain. Soft rush ( <i>Juncus effusus</i> ) is an aggressive coloniser of bare soil and it is very difficult to eradicate when it is established. The plant community is typically species-poor.	Marshy grassland				A, B, C, D
MG10b Holcus lanatus-Juncus effusus rush pasture; Juncus inflexus sub- community	Hard rush ( <i>Juncus inflexus</i> ) is typically found on gleyed clay substrates, rather than peat-based soils. The hard rush may completely replace soft rush, which subsequently plays a subservient role.	Marshy grassland				C, D

Table 9.16 Sumn	Table 9.16 Summary of NVC Communities					
NVC Community	Description	Corresponding Phase 1 Habitat Type	Annex 1	Environ ment (Wales) Act 2016	Local BAP*	Section (A – F)
U4 Festuca ovina-Agrostis capillaris- Galium saxatile grassland	Possibly the most widespread plant community in the British Isles. Sheep's fescue ( <i>Festuca ovina</i> )-common bent ( <i>Agrostis capillaris</i> ) grassland is typical of well-drained, acid soils in upland Britain. It is typically composed of common bent and sheep's fescue and can be extremely species-rich on base-rich soils.	Semi-improved acid grassland		×	G	С
W4a Betula pubescens - Molinia caerulea community	Downy birch ( <i>Betula pubescens</i> ) is a common pioneer species in the upland areas of the British Isles. The tree is relatively short-lived and eventually gives way to sessile oak ( <i>Quercus petraea</i> ) woodland. Purple moor-grass is often absent from drier stands of this plant community.	Semi-natural broad-leaved woodland		*	A	F
W6d Alnus glutinosa-Urtica dioica woodland;	This type of woodland is normally found beside rivers and large lakes. Alder ( <i>Alnus glutinosa</i> ) is usually dominant and there is a relatively impoverished	Semi-natural broad-leaved woodland	<b>√</b>	<b>√</b>	A	A

Table 9.16 Summary of NVC Communities						
NVC Community	Description	Corresponding Phase 1 Habitat Type	Annex 1	Environ ment (Wales) Act 2016	Local BAP*	Section (A – F)
Sambucus nigra sub-community	ground flora. The soil is often eutrophicated as evidenced by the presence of extensive nettle beds.					
W8 Fraxinus excelsior-Acer campestre- Mercurialis perennis woodland	Ash and sycamore quickly colonise unused land and this plant community is common on well-drained soils throughout the British Isles. The plant community includes species-rich, long-established woodland and recent plantations. Field maple ( <i>Acer campestre</i> ) was absent from the Anglesey samples and hazel ( <i>Corylus avellana</i> ) was the most important shrub species.	Semi-natural broad-leaved woodland	~	×	A	A, D, F
W23 Ulex europaeus - Rubus fruticosus scrub	This gorse/bramble scrub community has a fairly low woody cover, usually between 1 and 2 m high, in which gorse is the dominant plant. The community has a widespread distribution.	Scrub				С

Table 9.16 Summary of NVC Communities						
NVC Community	Description	Corresponding Phase 1 Habitat Type	Annex 1	Environ ment (Wales) Act 2016	Local BAP*	Section (A – F)
W12 Fagus sylvatica- Mercurialis perennis woodland	Beech trees are normally dominant in this type of woodland. It is found on dry, base-rich soils. However, it also includes plantations of beech, where it may be the dominant tree. Beech is the only Class V constant, but dog's mercury ( <i>Mercurialis perennis</i> ) is a Class IV constant in most of the stands.	Semi-natural broad-leaved woodland		×	A	F
*Gwynedd or Ang	lesey LBAP					

7.6.2 The NVC survey showed that the majority of those areas highlighted for further investigation comprised rush-dominated pasture with little botanical value. However, the survey did identify a number of sites that were of Local Value or European (listed under Annex 1 of the Habitats Directive) Interest.

## Woodland Communities

- 7.6.3 All of the woodland surveyed as part of the NVC surveys appeared to be secondary in nature (i.e. woodland growing on a previously unwooded site, for example if the site had been cleared at some former time for agriculture then abandoned). The largest area of Annex 1 woodland within the Order Limits is Gylched Covert (Plot 5032\_NVC001), which is located to the east of Llangefni. This is an extensive area of W8e *Fraxinus excelsior-Acer campestre-Mercurialis perennis* woodland (*Geranium robertianum* subcommunity), with the western 20% of the woodland showing characteristics of the W8b *Anemone nemorosa* sub-community however it is not a high quality example of this community. Lack of management has resulted in a species and structurally poor example of this community.
- 7.6.4 Plot 2037\_NVC004 shown on Figure 1 in Appendix 9.4 (**Document 5.9.1.4**) consisted of an area of deciduous woodland surrounding 'Brynddu'; a country house to the east of Llanfechell which was also representative of W8 *Fraxinus excelsior-Acer campestre-Mercurialis perennis* woodland; however this woodland does not lie within the Order Limits.
- 7.6.5 Plot 88\_NVC016, which covers the eastern end of the ravine at Coed Nant Y Garth is also representative of the W8 *Fraxinus excelsior-Acer campestre-Mercurialis perennis* woodland.
- 7.6.6 The southern part of Plot 84\_032, which is adjacent to Pentir sub-station, comprises secondary woodland that is representative of the W8 *Fraxinus excelsior-Acer campestre-Mercurialis* perennis woodland community. This woodland is a poor example of the community, having lacked management, with abundant sycamore in the canopy and a species-poor ground flora.
- 7.6.7 Given that areas of woodland are scarce on Anglesey, as most of the land is devoted to raising sheep and cattle, and W8 *Fraxinus excelsior-Acer campestre-Mercurialis perennis* woodland can be considered a habitat listed under Annex 1 of the Habitats Directive (Tilio-Acerion forests on slopes, screes and ravines), these areas of woodland are considered to be of **County** value.
- 7.6.8 Plot 1991\_NVC029 shown on Figure 1 in Appendix 9.4 (**Document 5.9.1.4**) comprised a small area of wet woodland near Pentreheulyn, located in a narrow limestone valley. The woodland can be ascribed to the *Sambucus*

*nigra* sub-community of the W6d *Alnus glutinosa-Urtica dioica* woodland community in the NVC. This is characterised by the presence of elder (*Sambucus nigra*).

- 7.6.9 Although fragmentary and not a pristine example, wet woodland is quite rare in Anglesey. W6d Alnus glutinosa – Urtica dioica woodland (Sambucus nigra sub-community) can also be considered to represent the Annex 1 habitat Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae) which makes this area of woodland of **County** value.
- 7.6.10 W12a Fagus sylvatica-Mercurialis perennis and W4a Betula pubescens -Molinia caerulea woodlands were present in Section F around Pentir Substation. These woodlands are considered to be of Local value as the W12 community has a wide distribution within the natural range of beech (Fagus sylvatica). As such, this habitat is included within the non-ancient woodland habitat assessment within section 9.

# Mesotrophic Grassland Communities

- 7.6.11 MG5 *Cynosurus cristatus-Centaurea nigra* grassland community was found in Section C and is considered to be of **County** value as the MG5 community has shown a dramatic decline since the Second World War because of agricultural improvement. As such, this habitat is included within the unimproved grassland habitat assessment within section 9.
- 7.6.12 A narrow strip of MG1e *Arrhenatherum elatius* grassland, *Centaurea nigra* sub-community was identified in Section F. These are the species-rich, ungrazed equivalent of the MG5 *Cynosurus cristatus-Centaurea nigra* old meadows and are therefore considered to be of **Local** value. The MG1 grassland community is, as a whole, ubiquitous throughout lowland Britain with the MG1e being defined by appropriate soil conditions. As such, this habitat is included within the unimproved grassland habitat assessment within section 9.
- 7.6.13 The majority of the plots that were highlighted by the Phase 1 Habitat survey for more detailed survey were MG10a or MG10b *Holcus lanatus-Juncus effusus* rush pasture. These grasslands are generally associated with poorly drained permanent pastures.
- 7.6.14 The MG10 community is considered to be of **Local** value as it is widespread throughout the British lowlands with soft rush an aggressive coloniser of waterlogged or reinstated ground. As such, this habitat is included within the marshy grassland habitat assessment within section 9.

#### Acid Grassland

- 7.6.15 An area of acid grassland representative of the U4 *Festuca ovina-Agrostis capillaris-Galium saxatile* grassland community has been identified within the Order Limits in the field to the south of the Cors Erddreiniog SSSI/NNR.
- 7.6.16 This is a widespread plant community and is therefore considered to be of **Local** value.
- 7.6.17 This habitat is not likely to be affected by the Proposed Development and as such is not assessed in section 9.
- 7.6.18 The small area of unimproved acid grassland south of Pentir Substation is assessed as unimproved grassland in section 9, under Marshy Grassland, Semi-Improved Neutral, Poor and Acid Grassland, Unimproved Neutral and Acid Grassland.

#### Mire Habitats

- 7.6.19 M22 *Juncus subnodulosus-Cirsium palustre* fen-meadow has been identified at Cae Canol-Dydd by pylon 4AP062, and is also known to be present within Tre'r Gof SSSI however this area is not within the Order Limits. This community has a very restricted distribution in the British Isles and can be associated with the Annex 1 habitat 7210 Calcareous fens with *Cladium mariscus* and species of the *Caricion davallianae*.
- 7.6.20 Although this is not an Annex 1 habitat in its own right it can be considered a supporting habitat for the development of an Annex 1 habitat. As such it has been assessed as being of **County** value.
- 7.6.21 M23 Juncus effusus/acutiflorus-Galium palustre rush-pasture was present where there were low lying areas of peaty soils. A large expanse of what is presumed to be M23 rush pasture is located near Rhosgoch (Plot 1942\_NVC052) shown on Figure 1 in Appendix 9.4 (**Document 5.9.1.4**). The Proposed Development would cross the improved field immediately to the west of this rush-dominated pasture.
- 7.6.22 Other areas of M23 rush pasture have been found immediately within the Order Limits where the Proposed Development passes through fields to the south of the Corsydd Môn/Anglesey Fens SAC and to the east of Neuadd Wen at Cae Canol-Dydd by pylon 4AP062.
- 7.6.23 An example of the M25 *Molinia caerulea-Potentilla erecta* plant community was also found in this area.

- 7.6.24 Molinia and rush pasture is a Priority Habitat on S7 of the Environment (Wales) Act 2016 (Fen, Marsh and Swamp Habitat), as such the M23 and M25 communities are considered to be of **County** value. As such, M23b habitat is included within the marshy grassland habitat assessment within section 9. M25 habitat is not considered to be likely affected by the Proposed Development and as such is not assessed in section 9.
- 7.6.25 M27 Filipendula ulmaria-Angelica sylvestris plant community, a mire community found throughout the lowlands in areas protected from grazing, was also present in this area and is considered to be of Local value. As such, this habitat is included within the marshy grassland habitat assessment within section 9.
- 7.6.26 The Proposed Development passes through an extensive area of rough pasture adjacent to the Cors Erddreiniog SSSI/NNR which is part of the Corsydd Môn/Anglesey Fens SAC. An area of M24 Cirsio-Molinietum fen meadow, within the SAC boundary, was identified immediately adjacent to and partly within the Order Limits (Plot 1543 NVC002) shown on Figure 1 in Appendix 9.4 (Document 5.9.1.4).
- 7.6.27 M24 Cirsio-Molinietum fen meadow is a habitat listed under Annex 1 of the Habitats Directive (Molinia meadows on calcareous, peaty or clayey-silt-laden soils (Molinion caeruleae)). The M24 community is also becoming increasingly localised due to changes in agricultural practices. Lowland fen and purple moorgrass (Molinia caerulea) and rush pastures are listed under S7 of the Environment (Wales) Act 2016 as Priority Habitats. As such this area is considered to be of **County** value.

#### 7.7 **TERRESTRIAL SPECIES**

7.7.1 Terrestrial species relevant to this assessment identified during the desk study and surveys are listed in Table 9.17 (Protected/Notable Species); records have been split per Section.

Table 9.17 Protected/Notable Species Located in the Relevant Study Areas (Sections A to F) <sup><math>\dagger</math></sup>				
Feature	Status	Section		
Badger ( <i>Meles meles</i> )	Protection of Badgers Act, 1992	A, F*		
Water vole (Arvicola amphibius)	Schedule 5 W&CA/Environment (Wales) Act 2016 S7/A&G LBAP <sup>††</sup>	A, B*, C, D, E, F		

(Sections A to F) <sup>†</sup>	Notable Species Located in the Relevant St	udy Areas
Feature	Status	Section
Otter ( <i>Lutra lutra</i> )	Schedule 2 HR/Schedule 5 W&CA/Environment (Wales) Act 2016 S7/A&G LBAP	A, B*, C, D*, E, F*
Lesser horseshoe bat (Rhinolophus hipposideros)	Schedule 2 HR/Schedule 5 W&CA/ Environment (Wales) Act 2016 S7/A&G LBAP	F*
Pipistrelle bat <i>Pipistrellus</i> sp.	Schedule 2 HR/Schedule 5 W&CA/ Environment (Wales) Act 2016 S7/A LBAP	A*, B*, C*, D, E, F*
Brown long-eared bat (Plecotus auritus)	Schedule 2 HR/Schedule 5 W&CA/ Environment (Wales) Act 2016 S7/A LBAP - species of conservation concern	A*, B, C D, E, F
Natterer's bat ( <i>Myotis nattereri</i> )	Schedule 2 HR/Schedule 5 W&CA	A, D, F
Noctule bat ( <i>Nyctalus noctula</i> )	Schedule 2 HR/Schedule 5 W&CA/ Environment (Wales) Act 2016 S7/A LBAP	A*, B*, C*, D, E, F*
Whiskered bat ( <i>Myotis mystacinus</i> )	Schedule 2 HR/Schedule 5 W&CA	A
<i>Myotis</i> sp.	Schedule 2 HR/Schedule 5 W&CA/ Environment (Wales) Act 2016 S7 - Bechstein's bat ( <i>Myotis bechsteinii</i> ) only	A*, B*, C*, D, E, F*
Common pipistrelle bat (Pipistrellus pipistrellus)	Schedule 2 HR/Schedule 5 W&CA/ Environment (Wales) Act 2016 S7/A LBAP	A*, B*, C, D, F*
Soprano pipistrelle bat ( <i>Pipistrellus</i> <i>pygmaeus</i> )	Schedule 2 HR/Schedule 5 W&CA/Environment (Wales) Act 2016 S7/A LBAP	A*, B*, C, D, F*
Red squirrel ( <i>Sciurus vulgaris</i> )	Schedule 5 W&CA/ Environment (Wales) Act 2016 S7/Wild Mammals (Protection) Act	A, B, C, D*, E, F*

1996/A LBAP

# Table 9.17 Protected/Notable Species Located in the Relevant Study Areas (Sections A to F)<sup> $\dagger$ </sup>

Feature	Status	Section
Brown hare <i>(Lepus</i> europaeus)	Environment (Wales) Act 2016 S7/ Wild Mammals (Protection) Act 1996/A&G LBAP	A*, B*, C*, D, E, F*
Polecat <i>(Mustela</i> <i>putorius)</i>	Schedule 4 HR/Schedule 6 W&CA / Environment (Wales) Act 2016 S7/Wild Mammals (Protection) Act 1996/ /G LBAP	A, B, C, F
Great crested newt ( <i>Triturus cristatus</i> )	Schedule 2 HR/Schedule 5 W&CA/Environment (Wales) Act 2016 S7/A LBAP	A*, B*, C, E
Common toad ( <i>Bufo</i> <i>bufo</i> )	Schedule 5 W&CA/Environment (Wales) Act 2016 S7/A LBAP - species of conservation concern	A, B, C, D, E, F
Common lizard (Zootoca vivipara)	Schedule 5 W&CA/Environment (Wales) Act 2016 S7/A LBAP - species of conservation concern	A*, C*, D, F*
Adder ( <i>Vipera berus</i> )	Schedule 5 W&CA/Environment (Wales) Act 2016 S7/G LBAP & A LBAP - species of conservation concern	A*, C, D
Grass snake ( <i>Natrix</i> <i>natrix)</i>	Schedule 5 W&CA/Environment (Wales) Act 2016 S7/A LBAP - species of conservation concern	С,
Slow worm ( <i>Anguis</i> fragilis)	Schedule 5 W&CA/Environment (Wales) Act 2016 S7/A LBAP - species of conservation concern	A, C, D, F
European eel ( <i>Anguilla anguilla</i> )	Environment (Wales) Act 2016 S7/The Eels (England and Wales) Regulations 2009/IUCN critically endangered	A, B, C, D, E, F
Atlantic salmon ( <i>Salmo salar</i> )	Schedule 4 HR (freshwater only)/ EC Habitats Annex II and V HR (in freshwater only)/ Environment (Wales) Act 2016 S7/Salmon & Freshwater Fisheries Act 1975/G LBAP	A, B, C, D, E, F
Brown/Sea trout ( <i>Salmo trutta</i> )	Environment (Wales) Act 2016 S7/Salmon & Freshwater Fisheries Act 1975/G LBAP	A, B, C, D, E, F

# Table 9.17 Protected/Notable Species Located in the Relevant Study Areas (Sections A to F)^ $\ensuremath{^{+}}$

Feature	Status	Section			
Refer to Appendix 9.13 Freshwater Report ( <b>Document 5.9.2.13</b> ) and Appendix 9.14 Terrestrial Invertebrate Report ( <b>Document 5.9.2.14</b> ) for list of invertebrates and below in section 7.7 for a summary.					
<ul> <li>† Species recorded with not stated it means that been recorded howeve</li> <li>†† A LBAP refers to An Natur Gwynedd Local E</li> <li>A to F = present within</li> </ul>	† Species recorded within the relevant study areas are noted. Where sections are not stated it means that no records or sightings for these species have currently been recorded however this does not necessarily indicate absence of the species; †† A LBAP refers to Anglesey Local Biodiversity Action Plan, G LBAP refers to Natur Gwynedd Local Biodiversity Action Plan A to F = present within 2 km from Order Limits				

A\* to F\* = present within Order Limits

### Mammals

### <u>Badger</u>

- 7.7.2 Badger receives protection under the Protection of Badgers Act 1992. They are protected due to welfare issues rather than conservation, and thus predicted effects and mitigation are discussed in those terms. As such, the badger is not listed on S7 of the Environment (Wales) Act 2016, or in either of the two LBAPs which cover the study area.
- 7.7.3 Badgers are understood to be uncommon on Anglesey and more common and widespread within Gwynedd. It was therefore anticipated that badger activity would be more prevelent in Gwynedd and the potentially suitable areas of wooded habitat on Anglesey alongside the Menai Strait, in comparision with wider areas of Anglesey, and this was indeed supported by the desk study and survey results. All but one of the records provided by Cofnod for this species (dated between 2006 and 2016) were from mainland Wales, suggesting that if badgers have a presence on Anglesey this is only in low numbers.
- 7.7.4 The Phase 1 Habitat survey highlighted that large areas within the Order Limit plus the 50 m buffer were considered unsuitable for badgers (with particular respect to sett building). This included open, agricultural fields that provided little cover (although these may provide some limited opportunities for foraging) predominantly across the majority of Sections A to D, and smaller areas within Sections E and F. However, the hedgerow bases (particularly those associated with more mature, dense hedgerows), and scrub habitats

within all Sections of the Proposed Development offer more suitable habitat for sett building. Woodland habitats which potentially offer more suitable habitat for badgers are scattered through Sections A to D, but are more prevalent in Sections E and F.

- 7.7.5 Badger surveys were conducted in all Sections where suitable habitat existed. Due to the confidential nature of badger records, the specific locations of badger activity and especially any setts identified are not provided within this chapter, however full results of the surveys are provided in the confidential Badger Survey Report, Appendix 9.7 (Document 5.9.2.7). The presence of three potential badger setts were identified in woodland habitat within the Order Limits in Section F. Badgers can be highly variable in their use of particular locations as well as move into previously unused areas. Consequently, whilst surveys up to May 2018 showed these setts to be inactive, on-going monitoring during 2018 found intermittent activity in June 2018. The sett closest to Pentir was found to have one active entrance on 14 June 2018 with others having become disused again and is therefore currently classed as a partially active subsidiary sett. The two nearby outlier setts in Coed Nant Y Garth are currently classed as partially active outlier setts, however one lies outside of the Order Limits. Monitoring continues to be ongoing to ensure that the status of these setts are up to date, the results of which will be provided as an addendum to the ES post submission. Additional field signs showing low levels of badger activity in the wider area of this location were noted.
- 7.7.6 Taking into account the legal status of the species, the limited evidence for presence and that this species is common in a county and national context, overall the nature conservation value of badger is considered to be of **Local** value.

#### Water vole

- 7.7.7 Water vole receives full protection under the Wildlife & Countryside Act 1981 (as amended) which protects both individuals and their habitat.
- 7.7.8 Water vole is listed under S7 of the Environment (Wales) Act 2016 and is included on the Anglesey LBAP and Natur Gwynedd LBAP. These LBAPs consider that water vole is likely to be widespread in suitable habitat, including ditches, with Anglesey as a whole likely to be a stronghold for this species, especially the wetlands in the south and east of the island.
- 7.7.9 Water vole populations on Anglesey are typically found on open field drains and areas of fen habitat. Anglesey is considered to be an important lowland site for this species in the UK due to the large number of streams and

wetlands, as well as historically low levels of American mink presence, a species which preferentially preys on water vole (Ref 9.33). The Cors Erddreiniog SSSI and NNR/Anglesey Fens SAC and Ramsar are collectively recognised as a national key site for water vole; the Order Limits overlap in places along the western boundary of these designated sites. Areas of Gwynedd are also known to support a widespread population of water vole especially in wetland and floodplain areas (Ref 9.34).

- 7.7.10 Cofnod returned relatively few records (14 record locations dated between 2008 and 2018, three of which show multiple records with some predating 2008) indicating that water vole presence within the study area may be low or under-recorded. However, the surveys conducted on watercourses to be crossed by temporary access tracks supported this conclusion of limited occurrence with the presence of water vole only identified on one watercourse within the Order Limits, with potential for them to be present on others within the study area.
- 7.7.11 The watercourse was in Section B on a tributary of the Afon Goch between pylons between 4AP033 and 4AP034 (as shown on the Construction Plans, Figure 4.1 of Chapter 4, Construction, Operation, Maintenance and Decommissioning (Figure 4.1 Document 5.4.1.1)). Water vole latrines and burrows were recorded along the stretch of this watercourse which is within the Order Limits. Figure 4.1 of Chapter 4, Construction, Operation, Operation, Maintenance and Decommissioning (Figure 4.1 of Chapter 4, Construction, Operation, Maintenance and Decommissioning (Figure 4.1 of Chapter 4, Construction, Operation, Maintenance and Decommissioning (Figure 4.1 of Chapter 4, Construction, Operation, Maintenance and Decommissioning (Figure 4.1 Document 5.4.1.1).
- 7.7.12 A second location where potential water vole activity was identified was on a ditch within the Afon Braint catchment area to the north of the A55 (Section E). The location of the field signs were outside the Order Limits approximately 400 m south of the proposed crossing location.
- 7.7.13 Many of the watercourses surveyed were considered sub-optimal or unsuitable for supporting water vole; for example narrow drains with no or limited water depth and limited suitable bank side vegetation for foraging.
- 7.7.14 Whilst the water vole has undergone a serious decline in the UK, the limited evidence for the presence of this species within the study area means that overall the nature conservation value of water vole is considered to be of **County** value.

<u>Otter</u>

7.7.15 Otter is protected under Schedule 5 of the Wildlife & Countryside Act 1981 (as amended) and is listed under Schedule 2 of the Conservation of Habitats and Species Regulations 2017.

- 7.7.16 Otter is also listed on S7 of the Environment (Wales) Act 2016 and is included on the Anglesey LBAP as a recently naturally re-established species on Anglesey, and the Natur Gwynedd LBAP. It is also listed under Annex II of the Habitats Directive as a species present as a qualifying feature, but not a primary reason for site selection, of the Afon Gwyrfai a Llyn Cwellyn SAC.
- 7.7.17 Otter is now found on the majority of Anglesey's river catchments following an absence between the 1980s to mid-1990's; key areas for this species include Malltraeth March SSSI and Llyn Cefni (Ref 9.35) which both fall outside of the study area for this species. The Corsydd Môn/Anglesey Fens SAC and the Corsydd Môn a Llyn/Anglesey and Llyn Fens Ramsar are also known to support otter though not as a qualifying feature; the Order Limits overlap in places along the western edge of this SAC/Ramsar in connection with the drainage works. Otter is also returning to many river catchments in Gwynedd, has been recorded using the Menai Strait and is also an interest feature of the Llyn Cwellyn SAC (Ref 9.36).
- 7.7.18 The most recent otter survey of Wales (Ref: 9.37) conducted in 2009 and 2010, concluded that across North Wales as a whole, the otter had continued to consolidate its range and was considered widespread in the hydrometric area of Glaslyn to the east of the Menai Strait. The largest expansion was reported to have been on Anglesey with an increase from seven (18%) of the 40 survey sites positive in 2002 to 27 (67.5%) of these survey sites positive in 2009, with new sites to the west and north of the island. The otter was considered to most likely now be a breeding species and potentially present on most of river catchments on the island. These recent surveys therefore suggest that the otter population is recovering well and recolonising parts of its former range in North Wales.
- 7.7.19 Numerous otter records were returned from Cofnod dating from 2007 to 2017. All Sections of the study area had records, with Sections A, C, D and F having the highest numbers. The majority of the records were for spraints; no records for holts or couches were provided. Further anecdotal evidence was noted during other ecological surveys and from local landowners of otters present in the wider study area.
- 7.7.20 Two watercourses surveyed within the survey area had evidence of otter presence. One was in Section A on the Meddanen tributary of the Afon Wygyr. The field signs comprised spraint and a mammal run located to the west, outside of the Order Limits, along a stream that flows through the Order Limits. The second watercourse is the Braint Bifurcation tributary of the River Braint to the west of the Menai Strait (Section F). The location of the field signs, comprising two spraints and otter footprints, were on the edge of the

Order Limits approximately 140 m east of the proposed crossing location, but within an area of drainage mitigation.

- 7.7.21 The majority of the watercourses present in the study area (drains and small streams) are considered unsuitable for otters to create a holt or couch due to the absence of cover, and did not provide optimum foraging conditions. These watercourses nevertheless could provide commuting routes for otter between larger streams, rivers, inland wetlands and coastal areas found within and outside the study area.
- 7.7.22 Based on the limited presence of otter within the survey area, and the recent successful return of otter to Anglesey, the overall the nature conservation value of otter is considered to be of **Local** value.

<u>Bats</u>

- 7.7.23 All species of bats are fully protected under the Wildlife and Countryside Act 1981 (as amended) and Schedule 2 of The Conservation of Habitats and Species Regulations 2017.
- 7.7.24 Barbastelle (*Barbastella barbastellus*), Bechstein's bat (*Myotis bechsteinii*), noctule, common pipistrelle, soprano pipistrelle, brown long-eared bat, greater horseshoe bat (*Rhinolophus ferrumequinum*) and lesser horseshoe bat (*Rhinolophus hipposideros*) are listed under S7 of the Environment (Wales) Act 2016.
- 7.7.25 Lesser horseshoe bat is included on the Anglesey LBAP and the Natur Gwynedd LBAP; the latter also including noctule, pipistrelle and brown long-eared bats.
- 7.7.26 Cofnod returned foraging and commuting records of lesser horseshoe bat, common and soprano pipistrelle, noctule bat, Daubenton's bat, Natterer's bat (*Myotis nattereri*), whiskered/Brandt's (*Myotis mystacinus/brandti*), Myotis sp ,bat and brown long-eared bat. Cofnod returned records of Myotis sp., Natterer's bat, noctule, whiskered bat soprano and common pipistrelle, lesser horseshoe and brown long-eared bat roosts, which are provided in Appendix 9.10 Bat Habitat Assessment Report (**Document 5.9.2.10**) and Appendix 9.11 Bat Activity Report (**Document 5.9.2.11**).
- 7.7.27 From a combination of field surveys, aerial inspection (tree climbing) and dusk emergence and dawn re-entry survey, a total of four trees within the Order Limits or within a 50 m buffer were identified as supporting roosting bats (as shown on Figure 4 within Appendix 9.10 Bat Habitat Assessment Report (**Document 5.9.2.10**)):

- Tree ref: W-1991-7-C (located within 50 m of Order Limits, Section A) individual or low numbers of pipistrelle bats (*Pipistrellus sp.*), transitionary roost;
- Tree ref: W-1991-7-E (located within 50 m of Order Limits, Section A) a soprano pipistrelle maternity roost;
- Tree ref: W-2039-12-B (within the Order Limits, Section A) single soprano pipistrelle roost; and
- Tree ref: W-5032-1-B (within the Order Limits, Section D) single soprano pipistrelleroost.
- 7.7.28 None of the trees are considered to be suitable for hibernating bats due to the features they support.
- 7.7.29 Only tree W-1991-7-E is considered to support a maternity colony as the other trees support low number (i.e. less than 3) of bats or a single bat.
- 7.7.30 The number and exact species of bats roosting within tree W-1991-7-C is unconfirmed, despite additional survey work being undertaken. The number of droppings (less than five) and the absence of bats during aerial inspection/use of endoscope in June 2016 and subsequent survey visits during summer 2018, suggests that this tree is not used during the summer breeding season and are more likely to be transitory. The droppings were indicative of pipistrelle species.
- 7.7.31 These four trees supporting roosts are assessed as being of Local value.
- 7.7.32 Four buildings (B1 to B4) were inspected externally and classified as having Moderate potential and the bridge was classified as Low potential. Based on the survey work undertaken in 2017 it is reasonable to conclude that bats are absent from B3 and the bridge 687-B1
- 7.7.33 Although surveys commenced in autumn 2017, for the sake of robustness further survey work is being undertaken for B1 and B2 and B4 in 2018. Surveys undertaken in 2018 indicate that both buildings B2 and B4 support low numbers of soprano pipistrelle bats.
- 7.7.34 There are a range of habitats present within the Order Limits which vary in habitat suitability for foraging or commuting bats. The majority of habitats within the northern sections of the Order Limits are of negligible or low value to bats comprising of open arable (sheep grazing) fields with defunct/low hedgerows with low numbers or no trees present. Further south there are woodland blocks, a higher density of trees and the hedgerows are more

substantial offering more cover/protection for foraging and commuting bats. However, overall the habitats present within the Order Limits are largely of negligible or low suitability for bats.

- 7.7.35 The locations of the 11 transect routes were determined based on an assessment of those areas considered to be of most value to bats; i.e. woodland, network of higher density of hedgerows, watercourses, other linear features such as former railway lines.
- 7.7.36 Consideration was also given to areas where likely that there could be permanent loss of woodland/tree/hedgerow within the Order Limits.
- 7.7.37 Common pipistrelle, soprano pipistrelle, pipistrelle (either soprano or common), noctule, brown long-eared, lesser horseshoe and Myotis species of bats were recorded and observed during the transect surveys.
- 7.7.38 Across all of the transect surveys the highest number of bat passes were soprano pipistrelle (with the exception of transect 5, which is further explained below).
- 7.7.39 Noctule and common pipistrelle were the lowest recorded species, with the exception of lesser horseshoe.
- 7.7.40 Lesser horseshoe calls were restricted to transects 9, 10 and 11 and only picked up on the static detectors. Such calls were not detected every night and the number of lesser horseshoe passes was relatively low, i.e. maximum of five passes in one night. This would indicate that these are bats commuting, rather than using the habitats within these transect areas for foraging.
- 7.7.41 Transect 5, which incorporates the Gylched Covert, had the highest diversity of bat calls with soprano and Myotis species calls dominating but more noctule and common pipistrelle passes than were recorded for other transects.
- 7.7.42 The number of bats passes recorded within transect 3, 6, 7 and 10 was lower than the number of bat passes recorded within the other transects (2, 4, 5, 8, 9 and 11). This could suggest that the habitats present within these transects are of a lower value to bats than habitats within the other locations.
- 7.7.43 The static detector surveys detected a slightly greater diversity of bat species (relative to the activity surveys) within transects 2, 3, 8, 9, 10 and 11. The number of bat passes differed greatly between each transect and survey period. Usage is difficult to place into context because the static detectors do not record the numbers of bats present or the direction of movement, however they provide a useful baseline of bat usage over an extended period of time

that cannot reasonably be recorded during transect surveys, which capture a 'snapshot' of bat usage in a particular area at a particular time.

7.7.44 Based on the transect surveys and static detector data (species assemblage and general activity levels as a whole across the Order Limits) and overall nature conservation value of the habitats within the Order Limits is considered to be of **Local** value to foraging and commuting bats.

### Red Squirrel

- 7.7.45 Red squirrel are listed under Schedule 5 of the Wildlife & Countryside Act 1981 (as amended); this protects both the animals and their habitat used for shelter and protection.
- 7.7.46 Red squirrel is also listed under S7 of the Environment (Wales) Act 2016, the Wild Mammals (Protection) Act 1996 and on the Anglesey LBAP.
- 7.7.47 Red squirrel has been replaced by the grey squirrel throughout most of its range in England and Wales. Despite this, Anglesey remains home to a healthy population of red squirrel, considered to be the largest and most genetically diverse population in Wales, with a particular stronghold in the woodlands around the Menai Strait. Sources including RSTW, suggest that the grey squirrel has been eradicated from Anglesey. Any drey recorded within the survey area on Anglesey was therefore assumed to be a red squirrel drey. Conversely, it was assumed that dreys recorded in the survey area in Gwynedd, on mainland Wales, were grey squirrel dreys, as known records for red squirrels in Gwynedd do not fall within the survey area, as per discussions with RSTW.
- 7.7.48 Records returned from Cofnod during the data search identified red squirrel in all Sections though only 22 records were provided dated between 2009 and 2017, some of which comprise multiple sightings. Records returned by the RSTW included sightings of red squirrel within 50 m of the Order Limits in Section A and numerous sightings and capture study records in all Sections with the highest density around the Anglesey side of the Menai Strait.
- 7.7.49 Potential red squirrel habitat was identified in all Sections of the Order Limits during the Phase 1 Habitat survey in areas of broadleaved and coniferous woodland. However, as woodland habitat is relatively limited within the Order Limits, these potential habitat areas were generally small, isolated patches of woodland particularly in Sections B and C.
- 7.7.50 A confirmed red squirrel drey (calling squirrels were heard) was recorded in Section A within coniferous forest within the Wylfa Nuclear Power Station site; feeding remains (nibbled cones) were also noted throughout the woodland.

Potential dreys were also recorded in all Sections of the survey area, however due to the lack of sightings of animals or other field signs to suggest red squirrel presence, the features could not be confirmed as active dreys. Multiple potential squirrel dreys and feeding remains (nibbled cones) were recorded at Gylched Covert CWS; an area of broadleaved woodland within Section D, but these were not classified as active nor could they be confirmed as dreys.

7.7.51 Whilst the red squirrel population of Anglesey is of national importance, the limited presence of red squirrel within the survey area means that within the context of the Proposed Development the nature conservation value is considered to be **County** value.

#### **Other Mammals**

- 7.7.52 Brown hare is listed under S7 of the Environment (Wales) Act 2016, the Wild Mammals (Protection) Act 1996 and on the Anglesey and Natur Gwynedd LBAPs.
- 7.7.53 Polecat is protected under the Wildlife and Countryside Act 1981 (as amended); it is listed on S7 of the Environment (Wales) Act 2016 and is on the Natur Gwynedd LBAP. It is also listed under Schedule 4 of the Conservation of Habitats and Species Regulations 2017, and the Wild Mammals (Protection) Act 1996.
- 7.7.54 Habitats with the potential to support brown hare were present in all Sections (A to F) of the Proposed Development. These comprised grassland, woodland edge, arable and agricultural fields interspersed with hedgerows and scrub. Cofnod provided records for brown hare in all Sections of the study area except E, and within the Order Limits in Sections A, B and F (only within the Order Limits above the tunnel).
- 7.7.55 Incidental records of brown hare have been made whilst conducting ecology surveys and numerous records were provided for all Sections of the Proposed Development, indicating that this species is widespread across Anglesey and Gwynedd.
- 7.7.56 Habitats with the potential to support polecat were present in all Sections of the study area. These comprised woodland, scrub, grassland and agricultural fields with hedgerows, with foraging occurring mainly along field boundaries and woodland edges, in particular where these border open farmland.
- 7.7.57 Whilst polecats have spread out from their historical stronghold in mid Wales to recolonise north Wales and much of southern and central England, no incidental sightings for polecat were made during the ecology surveys.

Records for this species were returned by Cofnod within the study area for Sections A, B, C and F, the closest record for polecat is 200 m from the Order Limits in Section F. Polecats were recorded during surveys carried out for the Wylfa Newydd Power Station between 2011 and 2012 (Ref 9.38). A total of two polecats were caught during the October 2011 study, one male and one female, and a single male was caught during the March 2012 survey, all within the Wylfa Newydd Power Station survey area.

7.7.58 Due to the widespread distribution of both species and apparent low presence within the Order Limits, the nature conservation value of brown hare and polecat is considered to be of **Local** value.

#### Amphibians

- 7.7.59 GCN are fully protected under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) and as listed under Annex II of the Habitats Directive are also listed under Schedule 2 of The Conservation of Habitats and Species Regulations 2017, making it a European protected species. Schedule 12 of the Countryside and Rights of Way Act 2000 amends the species provisions of the Wildlife and Countryside Act 1981 (as amended), strengthening the legal protection afforded to GCN.
- 7.7.60 The GCN is listed under S7 of the Environment (Wales) Act 2016 and is included on the Anglesey LBAP but not in the Natur Gwynedd BAP.
- 7.7.61 Anglesey is known to be a stronghold for GCN. Despite this, only ten records were returned through the Cofnod data search within the last ten years in Sections A to E.
- 7.7.62 Thirteen ponds within the survey area were found to support GCN. As a result of design changes, Pond A048, which was also found to support GCN, now lies greater than 250 m from the Order Limits of the Proposed Development. These were within Sections A, B and C of the Proposed Development, with the majority of them (eight ponds) around the Rhosgoch area. Ten of the ponds were classified as small population size class with the remaining three having a medium population size class. Analysis of the results suggested there were seven population groups based on their proximity to each other. No ponds located in the survey area for Sections D to F were found to support GCN.
- 7.7.63 A recent record of a positive eDNA result for Pond 198 (21 m outside of the Order Limit) was supplied from Cofnod with the updated data search. This dates within the same month of the negative eDNA result from National Grid surveys in 2017, adding to another negative result from 2015. Further surveys have been conducted in 2018, resulting in a third negative eDNA and no GCN

found during full surveys. At this time, it is assumed to remain a non GCN pond and this will be confirmed or revised if ther is a change the status in the addendum.

- 7.7.64 Terrestrial habitat within the vicinity of ponds can be used by GCN for foraging and shelter, with habitat within 50 m of ponds considered to be of particular importance for this species.
- 7.7.65 The nature conservation value of GCN is considered to be of **County** value based on the spread of records, the survey results, the relative decline in the species in Anglesey and the use of the Spatial Action Plan report.
- 7.7.66 Other amphibians species encountered during the surveys were also recorded, including palmate newt (*Lissotriton helveticus*), smooth newt (*Lissotriton vulgaris*), common toad (*Bufo bufo*) and common frog (*Rana temporaria*). These four amphibian species are protected under Section 9 of the Wildlife and Countryside Act 1981 (as amended), for sale only. Of these species, common toad is also listed under S7 of the Environment (Wales) Act 2016.
- 7.7.67 Amphibians have suffered declines in Wales and across the UK and are particularly vulnerable to the effects of habitat loss, fragmentation and change in condition. Actions to recover populations of amphibians are underway in Wales via local and more general initiatives.
- 7.7.68 Cofnod returned 21 records for common toad (eight of which show multiple records and some dating back to 1988) located within Sections A, C, D, E and F; one of the records in Section E was within the Order Limits, adjacent to an access track. The largest numbers of records were located in Section F but mainly occur within 2 km of the tunnel Order Limits and therefore not within the above ground working area.
- 7.7.69 Common newt (smooth/palmate), common toad and common frog were recorded in all six sections of the survey area during the GCN surveys.
- 7.7.70 The nature conservation value of other amphibians is considered to be of **Local** value as they are common and widespread within the study area.

#### Reptiles

7.7.71 All four common reptile species (common lizard (*Zootoca vivipara*), slow worm (*Anguis fragilis*), grass snake (*Natrix natrix*) and adder (*Vipera berus*)) are protected under the Wildlife & Countryside Act 1981 (as amended) and listed under S7 of the Environment (Wales) Act 2016. Adder is included on the Natur Gwynedd LBAP.

- 7.7.72 The Phase 1 Habitat survey and the desk study identified areas with potential to support reptile species. The areas included habitats that provide reptiles with suitable foraging, breeding, basking, hibernation and shelter opportunities. Mosaic habitats of rough grassland, scrub and woodland edges identified as particularly suitable were present in Sections A, C, D and F.
- 7.7.73 The varied habitats present within the Anglesey Fens SAC/Ramsar and Cors Erddreiniog SSSI/NNR provide excellent reptile habitat and this site is known to support populations of adder, slow worm and common lizard. The Order Limits overlap in places along the western boundary of the designated sites, with slightly more overlap for the NNR compared to the other designations.
- 7.7.74 Records provided by Cofnod identified reptiles in Sections A, C, D and F of the Proposed Development which supported the habitat suitability assessments and the focus for surveys. The records from the last ten years were dated between 2007 and 2017 (inclusive). Over half of the records provided were for adder, and the rest were for common lizard and slow worm. No records for grass snake were provided in the study area. Adder and common lizard were also recorded in small numbers within the Order Limits in Section A as part of the Horizon Nuclear Power Station surveys from 2012 to 2014.
- 7.7.75 Reptile surveys were completed in Sections A, C, D and F and low populations of common lizard were identified in Sections C and F. The areas where common lizard was identified were along the boundary and to the south of the Cors Erddreiniog SSSI and NNR in Section C and to the north and north-west of Pentir Substation in Section F.
- 7.7.76 Overall the nature conservation value of reptiles (four common species) is considered to be of **Local** value based on the populations recorded within the survey area.

# Terrestrial Invertebrates (Butterflies, dragonflies and damselflies)

- 7.7.77 A suite of terrestrial invertebrate species are listed under Annex II of the Habitats Directive which is transposed in to UK law through the Conservation of Habitats and Species Regulations 2017. Twelve species of invertebrates are listed as fully protected under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended), eight of which are butterflies.
- 7.7.78 There are currently 188 invertebrate species listed under S7 of the Environment (Wales) Act 2016. Southern damselfly (*Coenagrion mercuriale*) and marsh fritillary (*Euphydryas aurinia*) are listed under the Anglesey LBAP

while marsh fritillary and hornet robberfly (*Asilus crabroniformis*) are listed under the Natur Gwynedd BAP.

- 7.7.79 Cofnod provided 290 records of terrestrial invertebrates from within the last ten years within the study area, including records for southern damselfly and marsh fritillary which are qualifying features of the Anglesey Fens SAC/Anglesey and Llyn Fens Ramsar. Of these, 290 records, 34 records fell within 500 m of the Order Limits. The 34 records comprised 20 species of butterfly, moth, dragonfly and damselfly. The three most frequently recorded species were marsh fritillary (four records of approximately 200 m or greater from the Order Limits), white ermine (Spilosoma lubricipeda) (four records) and variable damselfly (Coenagrion pulchellum) (three records). The remaining 17 species had one or two records for each species, including small pearl-bordered fritillary (Boloria selene) and hairy dragonfly (Brachytron pratense). No records were returned for within the Order Limits. Of the species recorded within 500 m, one was classified as endangered, 13 were vulnerable, five near threatened, and one of least concern under the International Union for Conservation of Nature (IUCN)<sup>5</sup>.
- 7.7.80 Marsh fritillary and southern damselfly are included in the qualifying features of the Corsydd Môn/Anglesey Fens SAC and Corsydd Môn a Llyn/Anglesey and Llyn Fens Ramsar. No additional nationally important species of invertebrate are listed on the Ramsar Information Sheet for this wetland as occurring on this site. The Order Limits overlap in very small places along the western boundary of this SAC and Ramsar.
- 7.7.81 Neither species was recorded during transect surveys of target areas of habitat, including within the Corsydd Môn/Anglesey Fens SAC and the Corsydd Môn a Llyn/Anglesey and Llyn Fens Ramsar.
- 7.7.82 The surveys did identify the presence of three protected or otherwise notable species of butterfly or odonata (dragonflies and damselflies), namely: small heath (*Coenonympha pamphilus*), wall butterfly (*Lasiommata megera*) and variable damselfly, all three being near threatened under the IUCN. Of the full results, three were classified as near threatened, 29 of least concern and one not evaluated
- 7.7.83 The nature conservation value of the terrestrial invertebrates (butterflies, dragonflies and damselflies) found to be present within the survey area is considered to be of **Local** value. Although other species of higher value species are mentioned above, their higher value is based on their being

<sup>&</sup>lt;sup>5</sup> International Union for Conservation of Nature (IUCN) Red List (also known as the Red List of Threatened Species) http://www.iucnredlist.org/.

features of a designated site, and as such are assessed as part of the designated site.

#### Aquatic Invertebrates

- 7.7.84 Under S7 of the Environment (Wales) Act 2016, 188 invertebrate species are currently listed, including 13 species of aquatic macroinvertebrate. Some species are protected under under Annex II of the Habitats Directive and as such are also listed under The Conservation of Habitats and Species Regulations 2017; however these species were not expected to be found within the study area.
- 7.7.85 The review of the data provided by Cofnod and of the surveys undertaken by Horizon Nuclear Power for the Wylfa Newydd Power Station project (Ref 9.39) showed records for the following six designated species of aquatic macroinvertebrates: three species of damselfly (southern damselfly, variable damselfly and scarce blue-tailed damselfly (*Ischnura pumilio*), and two species of water scavenger beetle the wrinkled brow (*Helophorus strigifrons*) and *Helochares punctatus*, and one species of diving beetle *Ilybius subaeneus* within the study area within the last ten years. The damselfly records were from Sections C and D, *Helochares punctatus* beetle was recorded in Section A and *Hydroporus strigifrons* recorded in Section F. No records were noted within the Order Limits.
- 7.7.86 Note that because damselfly has both aquatic and terrestrial life stages, relevant records have been included in both the terrestrial and aquatic invertebrate sections.
- 7.7.87 Surveys were completed on a sample of watercourses located within the Order Limits or within a 50 m buffer; surveys were focused on those watercourses that would be crossed by temporary access tracks to construct the Proposed Development.
- 7.7.88 The majority of species recorded in all Sections were common, although four 'local' species (Conservation Score 5) were recorded in three watercourses in Sections C (one caddisfly species), E (two snail species) and F (one leech species). Further details on the definitions of 'conservation scores' for aquatic invertebrates are provided in Appendix 9.13 Freshwater Report (**Document 5.9.2.13**). In addition, a species of water scavenger beetle (*Helophorus strigifrons*) was recorded in Section A during the surveys; this species is designated as Nationally Scare, although is not currently listed under S7 of the Environment (Wales) Act 2016.
- 7.7.89 The nature conservation value of the aquatic invertebrates found to be present within the survey area is considered to be of **Local** value. Although

other species of higher value species are mentioned above, their higher value is based on their being features of a designated site, and as such are assessed as part of the designated site.

#### Freshwater Fish

- 7.7.90 Atlantic salmon (Salmo salar), brook lamprey (Lampetra planeri), river lamprey (Lampetra fluviatilis) and sea lamprey (Petromyzon marinus) are listed as Annex II species on the Habitats Regulations; these species have been found in the study area. Atlantic salmon is also listed under Schedule 4 of The Conservation of Habitats and Species Regulations 2017 which means it may not be captured or killed in certain ways. The other species of fish protected under these Regulations were not expected to be found within the study area. Atlantic salmon, brown trout (*Salmo trutta*) and European eel (*Anguilla anguilla*) are also listed under S7 of the Environment (Wales) Act 2016 and salmonids and lampreys listed under the LBAP for Natur Gwynedd.
- 7.7.91 A total of six rivers were subjected to desk review to determine whether protected or notable species of fish had been recorded within these. Those studied were the Rivers Braint, Erddreiniog, Ceint, Goch, Cefni and Wygyr. Biological records from Cofnod were provided for Atlantic salmon, sea/brown trout, brook lamprey, nine-spined stickleback (*Pungitius pungitius*) and European eel.
- 7.7.92 Records of Atlantic salmon, brown trout and European eel were provided for all rivers within the study area where available within the last ten years by NRW. Additionally, lamprey and stickleback were recorded within the Afon Braint and Cefni, with stickleback also being recorded within the Afon Ceint, within the last ten years. The Afon Braint, Erddreiniog and Ceint support abundant populations of brown trout, as well as other migratory species; Atlantic salmon, European eel and brook lamprey. Tributaries of these rivers are also of importance as migratory species, such as Atlantic salmon and brown trout. Such tributaries can constitute valuable habitats, such as nurseries and spawning sites, for those species.
- 7.7.93 The value of freshwater fish is considered to be of **County** value due to the presence of several watercourses of good ecological value for fish species, with populations of legally protected migratory species.

#### 7.8 BIRDS

7.8.1 Table 9.18 includes ornithological receptors located within the relevant studies of Sections A to F. Designated sites and those species associated with them are listed within section 7.3 and 7.4.

7.8.2 With reference to ornithological receptors, the term "Widespread" means that the species has been present in multiple sections, and by virtue of its habitat preferences and the habitats available, would be reasonably expected to occur regularly in any or all of the sections where it has so far not been recorded. Where possible further notes are provided on observed distribution to date.

Table 9.18 Ornithological Receptors Recorded in the Relevant Study Areas (Sections A to F)					
Ornithological Receptors	Status	Location during surveys			
Whooper Swan ( <i>Cygnus cygnus</i> )	Annex 1 Birds Dir, the UK Birds of Conservation Concern Amber List and Environment (Wales) Act 2016 S7	Concentrated near Llyn Alaw (Section B) and Cefni reservoir (Section C).			
Mute Swan ( <i>Cygnus olor</i> )	UK Birds of Conservation Concern Amber List	Generally widespread but restricted mostly to open waters within the survey area including Llyn Alaw (Section B), Cefni Reservoir (Section C and the Menai Strait (Section F).			
Greenland White-fronted Goose (Anser albifrons flavirostris)	Annex 1 Birds Dir, the UK and Welsh Birds of Conservation Concern Red List and Environment (Wales) Act 2016 S7	Rare and highly localised. Recorded once (group of 4) on Llyn Alaw (Section B).			
Greylag Goose (Anser anser)	UK Birds of Conservation Concern Amber List	Widespread in the survey area.			
Shelduck ( <i>Tadorna tadorna</i> )	UK and Welsh Birds of Conservation Concern Amber List	Localised, predominantly at Llyn Alaw (Section B) and the Menai Strait (Section F).			
Mallard (Anas platyrhynchos)	UK and Welsh Birds of Conservation Concern Amber List	Widespread in the survey area.			
Shoveler (Anas clypeata)	UK and Welsh Birds of Conservation Concern Amber List	Localised, predominantly at Llyn Alaw (Section B).			

Table 9.18 Ornithological Receptors Recorded in the Relevant Study Areas (Sections A to F)					
Ornithological Receptors	Status	Location during surveys			
Wigeon ( <i>Anas penelope</i> )	UK and Welsh Birds of Conservation Concern Amber List	Localised, predominantly at Llyn Alaw (Section B), Cefni Reservoir (Section C) and the Menai Strait (Section F).			
Teal (Anas crecca)	UK and Welsh Birds of Conservation Concern Amber List	Localised, predominantly at Llyn Alaw (Section B).			
Tufted Duck ( <i>Aythya fuligula</i> )	Welsh Birds of Conservation Concern Amber List	Localised, predominantly at Llyn Alaw (Section B) and Cefni Reservoir (Section C).			
Gadwall (Anas strepera)	UK Birds of Conservation Concern Amber List	Localised, predominantly at or close to Cemlyn bay (Section A) and Llyn Alaw (Section B).			
Cormorant ( <i>Phalacrocorax carbo</i> )	Welsh Birds of Conservation Concern Amber List	Localised on open water habitats including Cemlyn Bay (Section A), Llyn Alaw (Section B), Cefni Reservoir (Section C), Cors Erdreiiniog NNR (Section C) and the Menai Strait (Section F).			
Little Egret ( <i>Egretta garzetta</i> )	Annex 1 Birds Dir	Localised to wetlands, especially Llyn Alaw (Section B) and the Menai Strait (Section F).			
Grey Heron ( <i>Ardea cinerea</i> )	Welsh Birds of Conservation Concern Amber List	Generally widespread in the survey area.			

Table 9.18 Ornithological Receptors Recorded in the Relevant Study Areas (Sections A to F)					
Ornithological Receptors	Status	Location during surveys			
Red Kite ( <i>Milvus milvus</i> )	Schedule 1 W&CA, Annex 1 Birds Dir, Welsh Birds of Conservation Concern Amber List	Localised distribution heavily biased towards the area between Llanfechell and Rhosgoch (Section A) and the Menai Strai to Pentir (Section F).			
Marsh Harrier ( <i>Circus</i> <i>aeruginosus</i> )	Schedule 1 W&CA/Annex 1 Birds Dir, UK and Welsh Birds of Conservation Concern Amber List	Localised and rare, predominantly over marshy habitats in Sections C and D.			
Hen Harrier ( <i>Circus cyaneus</i> )	Schedule 1 W&CA/Annex 1 Birds Dir, UK and Welsh Birds of Conservation Concern Red List and Environment (Wales) Act 2016 S7	Localised and rare with occasional records within survey area.			
Kestrel (Falco tinnunculus)	Environment (Wales) Act 2016 S7, Welsh Birds of Conservation Concern Red List, UK Birds of Conservation Concern Amber List	Generally widespread within survey area.			
Hobby ( <i>Falco subbuteo</i> )	Schedule 1 W&CA	Localised and rare with occasional records from the survey area.			
Peregrine (Falco peregrinus)	Schedule 1 W&CA/Annex 1 Birds Dir	Widespread within survey area.			

Table 9.18 Ornithological Receptors Recorded in the Relevant Study Areas (Sections A to F)				
Ornithological Receptors	Status	Location during surveys		
Merlin ( <i>Falco columbarius</i> )	Schedule 1 W&CA/Annex 1 Birds Dir, UK and Welsh Birds of Conservation Concern Red List	Widespread within survey area.		
Lapwing (Vanellus vanellus)	Environment (Wales) Act 2016 S7, UK and Welsh Birds of Conservation Concern Red List	Generally widespread within survey area.		
Curlew ( <i>Numenius arquata</i> )	Environment (Wales) Act 2016 S7, UK and Welsh Birds of Conservation Concern Red List	Localised, predominantly in Section A near Cemaes, near Cors Erdreiniog NNR (Section C), the improved pastures near Four Corsses (Section E) and the Menai Strait (Section F).		
Snipe ( <i>Gallinago gallinago</i> )	Environment (Wales) Act 2016 S7	Localised and closely associated with open wet grassland and marsh habitats.		
Barn Owl ( <i>Tyto alba</i> )	Schedule 1 W&CA	Localised with no regular pattern of distribution.		
Chough ( <i>Pyrrhocorax pyrrhocorax</i> )	Schedule 1 W&CA/Annex 1 Birds Dir, Welsh Birds of Conservation Concern Amber List and Environment (Wales) Act 2016 S7.	Localised, within Section A predominantly close to the north coast of Anglesey.		
Farmland/Hedgerow Breeding Bird Assemblage (Passerines of	Environment (Wales) Act 2016 S7/UK Birds of Conservation Concern Red	Widespread within survey area.		

Table 9.18 Ornithological Receptors Recorded in the Relevant Study Areas (Sections A to F)				
Ornithological Receptors	Status	Location during surveys		
High Conservation Concern) – Order Limits	List/Welsh Birds of Conservation Concern Red List			
Woodland Breeding Bird Assemblage (Passerines of High Conservation Concern) - Wylfa	Environment (Wales) Act 2016 S7/UK Birds of Conservation Concern Red List/Welsh Birds of Conservation Concern Red List	Localised.		
Woodland Breeding Bird Assemblage (Passerines of High Conservation Concern) –Gylched Covert	Environment (Wales) Act 2016 S7/UK Birds of Conservation Concern Red List/Welsh Birds of Conservation Concern Red List	Localised.		
Woodland Breeding Bird Assemblage (Passerines of High Conservation Concern) – Pentir Substation	Environment (Wales) Act 2016 S7/UK Birds of Conservation Concern Red List/Welsh Birds of Conservation Concern Red List	Localised.		
Farmland/Hedgerow Breeding Bird Assemblage (Passerines of High Conservation Concern) – Braint Tunnel Head House/Cable Sealing End Compound	Environment (Wales) Act 2016 S7/UK Birds of Conservation Concern Red List/Welsh Birds of Conservation Concern Red List	Localised.		
Farmland/Hedgerow Breeding Bird Assemblage (Passerines of	Environment (Wales) Act 2016 S7/UK Birds of Conservation Concern Red	Localised.		

North Wales Connection Project

Table 9.18 Ornithological Receptors Recorded in the Relevant Study Areas (Sections A to F)				
Ornithological Receptors	Status	Location during surveys		
High Conservation Concern) – Tŷ Fodol Tunnel Head House/Cable Sealing End Compound	List/Welsh Birds of Conservation Concern Red List			
Waterfowl utilising Menai Strait marine and inter-tidal habitat within the Order Limits	UK and Welsh Birds of Conservation Concern Red/Amber list/Environment (Wales) Act 2016 S7	Localised.		

- 7.8.3 The value of the ornithological receptors has been determined using the guidance in Table 9.6, but also through professional judgement by evaluating the conservation and legal status of each respective receptor and its geographical importance. Further details regarding the ecological characteristics and requirements of receptors and their recorded distribution are provided in Appendix 9.15 Ornithological Assessment Report (**Document 5.9.2.15**). Some of the receptors have been aggregated into broader groupings where appropriate, to reflect their collective ecological characteristics and vulnerabilities to specific impacts.
- 7.8.4 All descriptions of flight activity refer to flights recorded during surveys. Further detailed baseline information including detailed tables of bird flight data are included in the baseline ornithology report Appendix 9.15 Ornithological Assessment Report (**Document 5.9.2.15**).
- 7.8.5 Details of locations of Schedule 1 species are included within a confidential version of Appendix 9.15 Ornithological Assessment Report (Document 5.9.2.15) for statutory consultees only.

Whooper Swan (Cygnus cygnus)

- 7.8.6 Whooper swan is a migrant swan that winters in the UK. It is listed on Annex1 of the Birds Directive, the UK Birds of Conservation Concern Amber Listand under S7 of Environment (Wales) Act 2016.
- 7.8.7 Robinson *et al.* (Ref 9.40) stated that Cefni reservoir '*regularly supports a flock* of 30-50 whooper swans during late winter and Llyn Alaw attracts a flock of around 10-30 whooper swans at peak times'. The Llyn Alaw SSSI citation states that '*at times around 1%* of the British population are recorded at Llyn Alaw'. Musgrove *et al.* (Ref 9.41) estimate that there are 11,000 wintering whooper swan in Britain, although Hall *et al.* (Ref 9.42) estimate the population to be 19,590 in Britain and 205 in Wales alone, suggesting that the site is no longer of significant importance in the context of the British population.
- 7.8.8 Records included in the 2015 Cambrian Bird Report (Cambrian Ornithological Society (COS)) (Ref 9.31) include: six and four at Llyn Cefni (8 January 2015 and 5 November 2015 respectively), two immature birds at Cefni reservoir (21 October 2015), four at Cors Bodeilio (4 8 December 2015), 18 on flooded fields at Malltraeth Marsh (31 December 2015) and 15 and seven at Malltraeth Cob (February 2015 and November 2015 respectively).

- 7.8.9 Data from Cofnod identify a number of 1 km grid squares within which whooper swan have been recorded on land up to 2014, including SH4184 between Llanderchymedd and Llyn Alaw (14 records over 12 years with a peak count of 69), SH448 approximately 1 km south-west of Capel Coch (19 records over ten years with a peak count of 65) and SH4781 within the southern part of Cors Erddreiniog NNR (two records over eight years with a peak count of five). Small numbers of whooper swans have also been recorded occasionally at Cors Bodelio; a wetland area in a shallow valley between Pentraeth and Talwrn in eastern Anglesey.
- 7.8.10 Counts conducted for the Proposed Development at Cefni Reservoir and Llyn Alaw recorded regular and simultaneous use of these waterbodies over winter 2016 2017 in numbers that indicate that, outside of Malltraeth Marsh, these are likely to be two of the most important sites on Anglesey for whooper swan. However, the available data indicate that there has been a decrease in the number of swans utilising these waterbodies since the 1990's as reported in Robinson *et al.* (Ref 9.40) and within the Llyn Alaw SSSI citation. The peak count at each of these locations was 13 and the highest combined count was 20 birds.
- 7.8.11 Cefni Reservoir is used by whooper swans as a night-time roosting site, with ten birds (flocks of three and seven) arriving from the north during a dusk count on 9 November 2016 and a group leaving in a northerly direction during a dawn count on 27 October 2016, plus groups of ten and 13 departing from the reservoir during dawn surveys on 14 December and 21 December 2016 respectively. Llyn Alaw appeared to be used more frequently as a night-time roosting site for whooper swans that forage in the surrounding hinterland, with swans observed flying in to roost in the north-eastern bay during targeted dusk counts at this waterbody. A foraging flock of whooper swans was recorded frequently during the VP surveys and visual checks for whooper swans on land in during January and February 2017 in improved pasture near Parc (peak count of 15 on 6 February 2017). Observations of flights to and from Llyn Alaw indicated that these birds were commuting regularly between the reservoir and the terrestrial feeding area near Parc, using nearby Llyn Alaw as a night-time roost. A flock of eight birds (including two juveniles) was recorded flying from these fields to roost on Llyn Alaw during a dusk survey at VP19a in near darkness after sunset on 30 January 2017.
- 7.8.12 Two whooper swans were seen in a flooded field during a VP survey near Capel Coch on 10 December 2015, prior to them flying in a south-westerly direction. This was the only other location in which whooper swan were observed on land during the surveys.

- 7.8.13 Since the completion of formal surveys feeding groups of whooper swan have been seen on two occasions on the damp improved pastures adjacent to the B5111 (NGR SH433 805), which were identified as potential terrestrial habitat, and which are highlighted on Figure Series 4.7: 7 adults were seen on 31 October 2017 and 12 birds (11 adults and one subadult) were seen on 2 November 2017.
- 7.8.14 There were 18 recorded whooper swan flights involving 83 birds in total. The distribution of recorded whooper swan flights was closely allied to the regularly used feeding area near Parc, flights being observed between this area and Llyn Alaw in winter 2016 2017, and this suggests that the historic feeding areas were used less frequently, if at all, over the winters of 2015 2016 and 2016 2017. Other flights to the north of Llyn Alaw were observed, but the common pattern was of flight activity being centred on this waterbody, with small amounts of flight activity in the vicinity of Malltraeth Marsh, Cefni Reservoir and over the mainland in a north/south direction. The latter probably reflected occasional movements towards mainland wintering sites beyond the southern extent of the Order Limits.
- 7.8.15 The data suggest key areas for whooper swan are therefore wetlands predominantly on the western half of Anglesey and, closest to the Order Limits, a number of known feeding areas associated with a Llyn Alaw roost, in addition to historic terrestrial feeding areas in the area between Capel Coch and Cefni Reservoir. The historic records from Cors Erddreiniog probably represent occasional use of the pools there VP surveys recorded no whooper swan flights in this area over the course of two consecutive winters.
- 7.8.16 It is concluded that Whooper swan of **National** value, because although numbers were relatively low it regularly occurs for feeding and roosting with relative close proximity to the OHL.

#### Mute Swan (Cygnus olor)

- 7.8.17 Mute swan is a widespread and common species that is present in all 10 km grid squares that intersect the Proposed Development (Ref 9.43).
- 7.8.18 Mute swan was present in small numbers (peak count seven in winter 2016 2017, two in summer 2017) during surveys of the Menai Strait for the Proposed Development and was recorded on Cefni Reservoir and Llyn Alaw (peak counts 23 and 47 respectively in winter 2016 2017).
- 7.8.19 The species was not recorded on land, in all recorded cases being exclusively associated with open water. It was recorded in flight from VPs close to and/or over open water, almost exclusively during winter and rarely over land. There were 20 recorded flights involving 53 birds in total.
- 7.8.20 This species is likely to occur anywhere across the Proposed Development and adjacent areas, especially where there are inland waterbodies, but key areas are Llyn Alaw, the Menai Strait and Cefni Reservoir.
- 7.8.21 As a widespread species of limited conservation concern Mute swan is considered to be of **Local** value.

Greenland White-fronted Goose (Anser albifrons flavirostris)

- 7.8.22 Greenland white-fronted goose is listed on Annex 1 of the Birds Directive, the UK and Welsh Birds of Conservation Concern Red List and under S7 of Environment (Wales) Act 2016. It is a migrant goose that overwinters in the UK.
- 7.8.23 The results of the desk study show that the distribution of this species is scattered in small numbers across sites in the western half of Anglesey, with the main wintering population centre at Malltraeth Marsh. According to the census for spring 2016 (Ref 9.44), the population for Anglesey is 13, and for Wales is 36, which is 0.3% of the British wintering population.
- 7.8.24 There were no recorded flights for this species during surveys for the Proposed Development. However four white-fronted geese (subspecies not specified) were recorded during a dusk count at Llyn Alaw on 30 November 2016.
- 7.8.25 In the context of the numbers recorded within and adjacent to the Order Limits, and the intrinsic conservation value of the species Greenland white-fronted Goose is considered to be of **County** value.

Greylag Goose (Anser anser)

- 7.8.26 Greylag goose is listed on the UK Birds of Conservation Concern Amber List.
- 7.8.27 Greylag geese are widespread on Anglesey, being present at most wetland sites across the island and on the coast. Within the survey area, Llyn Alaw and adjacent grasslands are important areas for this species, and there are significant movements of this species between here, Llyn Hafodol and the north coast of Anglesey on a regular basis. Further south the Menai Strait is a regularly used habitat and flights to and from here and other wetland sites are common.
- 7.8.28 There were 558 recorded flights involving 11,866 individuals during surveys for the Proposed Development. Flights were widespread but concentrated in particular around Llyn Alaw with frequent movements between Llyn Alaw and the north coast; Parc and Llandyfrydog; Cors Erddreiniog NNR; along the

Afon Ceint corridor towards Malltraeth Marsh; and within approximately 3 km either side of the Menai Strait.

7.8.29 As a widespread species of limited conservation concern Greylag goose is considered to be of **Local** value.

## Shelduck (Tadorna tadorna)

- 7.8.30 Shelduck is present in all 10 km grid squares that intersect the Proposed Development, however, at tetrad level, the main distribution is generally concentrated in coastal areas (Ref 9.43). Records from Cofnod and WeBS online also indicate a predominantly coastal distribution for this species.
- 7.8.31 Menai counts recorded this species on two occasions in Section E (peak count one), four occasions in Section F (peak count five) and more frequently in greater numbers up to nine individuals within intertidal habitats between the Menai and Britannia Bridges.
- 7.8.32 There were six flights of shelduck involving 11 individual birds during surveys for the Proposed Development, distributed within a few kilometres of both Llyn Alaw and the Menai Strait.
- 7.8.33 As a predominantly coastal species of limited conservation concern recorded in very low numbers in the study area Shelduck is considered to be of **Local** value.

### Mallard (Anas platyrhynchos)

- 7.8.34 Mallard is listed on the UK and Welsh Birds of Conservation Concern Amber List.
- 7.8.35 The Cambrian Ornithological Society states (Ref 9.31) states that mallard is a 'common breeding resident and winter visitor'. Third party data include widespread records from within the study area. Mallard is named as part of the waterfowl assemblage for which Llyn Alaw SSSI is notified and has been consistently counted at all of the WeBS core count sectors for which data have been gathered, with a peak count of 207 at Llyn Alaw in the last ten years.
- 7.8.36 Mallard was consistently present in all sectors during the Menai Strait Bird counts for the Proposed Development, with peaks of 76 and 45 in sections F and E respectively over winter 2016 2017. It was also a possible breeder in CBC survey areas 1, 3, 5 and 10, and was confirmed breeding in CBC survey area 7. It was noted as being abundant on Cefni Reservoir and Llyn Alaw during the swan counts.

- 7.8.37 There were 376 recorded flights involving 1,470 individual birds during surveys for the Proposed Development. Flight activity was widespread, reflecting the wide distribution of the species not only on larger waterbodies and the coast but also on small watercourses, pools and ponds within marshes and open farmland throughout the island and mainland.
- 7.8.38 As a widespread species of limited conservation concern apart from a named component of the waterfowl assemblage for which Llyn Alaw SSSI is notified Mallard is considered to be of **Local** value.

### Shoveler (Anas clypeata)

- 7.8.39 Shoveler is listed on the UK and Welsh Birds of Conservation Concern Amber List and is a species highlighted within the Anglesey LBAP. It is also a species listed under the Llyn Alaw SSSI citation.
- 7.8.40 Shoveler has a localised distribution in North Wales, with the population largely restricted to Anglesey. However there was only a single record of confirmed breeding on the island during the 2008-2012 Atlas fieldwork (Ref 9.43). In 2015, breeding was confirmed at Valley Wetlands and Malltraeth Marsh RSPB (Ref 9.31). Overwintering shoveler is one of the key interest features of Llyn Alaw SSSI.
- 7.8.41 This species was recorded in flight only once, when a single bird flew off a small pond close to Bryn Dyfrydog in March 2016, in the direction of Llyn Alaw. Key areas for shoveler are the inland waterbodies, particularly Llyn Alaw and to a lesser extent Llyn Hafodol and Llyn Llegeirian.
- 7.8.42 Due to the very low numbers recorded in the study area Shoveler is considered to be of **Local** value.

# Wigeon (Anas penelope)

- 7.8.43 Wigeon is listed on the UK and Welsh Birds of Conservation Concern Amber List and is a species highlighted within the Anglesey LBAP. It is also a species listed under the Llyn Alaw SSSI citation.
- 7.8.44 Wigeon is a common winter visitor to Wales. The peak count on Anglesey in 2015 was 2000 at Malltraeth Marsh RSPB Reserve on 8 December 2015 (Ref 9.31). It is a component of the wintering wildfowl assemblage for which Llyn Alaw SSSI is designated. Cofnod data include peak counts of 152 at Cemlyn Bay and 358 at Llyn Alaw. Counts during the swan surveys at Llyn Alaw and Cefni Reservoir produced peak counts of 283 and 46 respectively. It has been recorded during WeBS counts at all of the core counts sectors for which WeBS online data were collated, with peaks of 240 at Cemlyn Bay and

Lagoons, 91 at Llyn Llegeirian, 45 at Llyn Hafodol, 379 at Llyn Alaw, 746 at Traeth Dulas, 32 at Cefni Reservoir and 332 at Traeth Coch.

- 7.8.45 There were eight recorded wigeon flights involving 45 birds in total (peak flock size of 11) and all of these were recorded in the areas around Llyn Alaw and Bryn Dyfrydog over winter 2016 2017 from VPs 19a, 19b, 26A and 26B.
- 7.8.46 Key areas for wigeon within the survey area include the inland waterbodies adjacent to the Order Limits (especially Llyn Alaw, Llyn Llegeirian and Llyn Hafodol) and coastal areas around the north, east and southern margins of Anglesey, with potential for flights to occur between these sites and other small pools.
- 7.8.47 Due to the low numbers recorded in the study area Wigeon is considered to be of **Local** value.

## Teal (Anas crecca)

- 7.8.48 Teal is listed on the UK and Welsh Birds of Conservation Concern Amber List and is a species highlighted within the Anglesey LBAP. It is also a species listed under the Llyn Alaw SSSI citation.
- 7.8.49 Teal is a 'sporadic breeder' across North Wales, and is present in all 10 km grid squares that intersect the Proposed Development.
- 7.8.50 Elsewhere, teal have been recorded at Cemlyn Bay, Llyn Hafodol, Llyn Alaw, Newborough Warren, Cors Erddreiniog, Cors Bodelio and Cors Goch (Cofnod records). WeBS online data include regular counts at all of the Sectors for which data were extracted except Traeth Lligwy, however the most significant peak counts are Llyn Llegeirian (326), Llyn Hafodol (115), Llyn Alaw (264) and Traeth Coch (151).
- 7.8.51 The surveys found teal present on Llyn Alaw (peak 73) in winter 2016 2017, but absent on the Menai Strait west of the Britannia Bridge.
- 7.8.52 Possible breeding was recorded in the CBC survey area 1 on one occasion.
- 7.8.53 There were 15 recorded teal flights involving 198 birds during surveys for the Proposed Development. Flights were predominantly in the areas of Llyn Alaw.
- 7.8.54 Key areas for this species are centred around Llyn Alaw and south-east to Bryn Dyfrydog, plus localised activity within and adjacent to Cors Erddreiniog.
- 7.8.55 Due to the low numbers recorded in the study area Teal is considered to be of **Local** value.

# Tufted Duck (Aythya fuligula)

- 7.8.56 Tufted duck is a 'fairly common resident and winter visitor to the Cambrian region' (Ref 9.31). Jones and Whalley (Ref 9.45) estimated 69-80 pairs on Anglesey in 1986. Tufted duck is present as a confirmed or probable breeding species in all 10 km grid squares that intersect the Proposed Development (Ref 9.43). It is one of the wildfowl named on the citation for Llyn Alaw SSSI.
- 7.8.57 This species was recorded regularly at Llyn Alaw and Cefni Reservoir during winter 2016 2017 in numbers up to 160 at Cefni Reservoir and 307 at Llyn Alaw. Breeding at this location is confirmed by the records returned from Cofnod, which also include records at Malltraeth Marsh and Cors Erddreiniog. The species was absent during all bird counts on the Menai Strait.
- 7.8.58 WeBS online data reflect a broad preference of this species for inland freshwaters with large numbers occurring especially regularly at Llyn Alaw (peak 856) and Cefni Reservoir (peak 278) and smaller but still significant numbers at most of the other freshwater sites on Anglesey. In contrast coastal counts are peaks of 11 and one at Cemlyn Bay and Lagoon and Traeth Dulas respectively.
- 7.8.59 There were seven recorded flights involving 31 birds (peak flock size 11) during surveys for the Proposed Development, all but one (VP38) recorded close to or over Llyn Alaw.
- 7.8.60 Key areas for this species are identified as the larger inland waterbodies (Llyn Alaw and Cefni Reservoir) with some infrequent presence on smaller inland freshwaters (Llyn Hafodol and Cors Erddreiniog being key examples), coastal areas and flight activity mostly limited to the areas immediately adjacent to the main freshwater sites identified above.
- 7.8.61 Due to the low numbers recorded in the study area Tufted duck is considered to be of **Local** value.

### Gadwall (Anas strepera)

- 7.8.62 This is a 'fairly common resident and winter visitor to freshwater sites'. Possible breeding was recorded at Cemlyn. The species is widespread at coastal and freshwater sites, with the highest recorded count of 100 at Malltraeth on 8 December 2015 (Ref 9.31).
- 7.8.63 Cofnod records since 2007 include Cemlyn Bay, localised wetlands around Llangefni, Llyn Alaw and small numbers at Llyn Hafodol.

- 7.8.64 There were no gadwall records returned in the WeBS core counts for Traeth Dulas, Traeth Lligwy and Traeth Coch, but this species was recorded at all other core count sectors for which data were collated and the largest count of 33 was at Llyn Alaw, where the surveys recorded a similar number (27) in winter 2016 2017. It was not recorded west of the Britannia Bridge during the Menai Strait bird counts and only one bird was recorded between the bridges.
- 7.8.65 Surveys recorded a single gadwall flight in October 2016 from a small pond close to Rhosgoch, directly southwards and terminating at Llyn Alaw. Other than that, the species was recorded at Llyn Alaw on several of the winter swan counts, with a peak of 27 individuals during surveys for the Proposed Development.
- 7.8.66 Key areas for gadwall are mostly inland freshwaters and some coastal sites. Llyn Alaw and Malltraeth Marsh seem to be important sites for gadwall.
- 7.8.67 Due to the very low numbers recorded in the study area Gadwall is considered to be of **Local** value.

Cormorant (Phalacrocorax carbo)

- 7.8.68 Cormorant is listed on the Welsh Birds of Conservation Concern Amber List.
- 7.8.69 Third party and survey data collected with respect to the Proposed Development indicate that the species is widespread all year across Anglesey coasts and inland waters; Cofnod returned widespread records including at inland waters (Llyn Alaw, Llyn Hafodol, Cors Erddreiniog and Parc Menai) and coastal waters (Cemaes, Wylfa, Cemlyn Bay and Menai Strait).
- 7.8.70 Water bird counts at Llyn Alaw recorded peak counts of 23, 12 and ten over winter 2016 – 2017 during surveys for the Proposed Development. There were no survey records at Cefni Reservoir, although WeBS online data include counts of up to nine there.
- 7.8.71 There were regular counts of cormorant on the Menai Strait with peaks of nine west of the Britannia Bridge and 29 between the bridges during the breeding season and in the winter season peaks of five and 43 (west of the Britannia Bridge and between the bridges, respectively). Ynys Welltog was particularly favoured as a roost at all times of year.
- 7.8.72 There were 92 recorded cormorant flights involving 131 birds. Llyn Alaw represents a particular hotspot of flight activity for this species, with flights to and from this waterbody.

7.8.73 Cormorant is considered to be of **Local** value given the wide distribution around Anglesey and relative lack of flight occurrence across the survey area.

Little Egret (Egretta garzetta)

- 7.8.74 Little egret is a 'fairly common resident species within the Cambrian region' (Ref 9.31) and is present as a confirmed breeding bird in a tetrad through which the Proposed Development passes on the southern end of Anglesey (Ref 9.43). Confirmed and probable breeding pairs numbered 17 on Anglesey in 2014 (Ref 9.46). Cofnod returned a small number of little egret sightings over land including Cors Erddreiniog and roosting at a pool near Llangefni and on the Menai Strait but the majority of reported records are at Cemlyn Bay and Llyn Alaw.
- 7.8.75 There were 75 recorded flights of little egret involving 96 individuals during surveys for the Proposed Development. Flights were recorded all year round, associated with wetlands, the coast and also small drains and watercourses where feeding individuals were noted. Areas of activity were greatest around Llyn Alaw and Llandyfrydog to the south-east, Cors Erddreiniog and the Menai Strait, there being some movement between the Menai Strait and potentially Malltraeth Marsh and inland wetlands within approximately 5 km of the Menai Strait.
- 7.8.76 Due to the low numbers recorded in the study area and limited conservation concern, Little egret is considered to be of **Local** value.

### Grey Heron (Ardea cinerea)

- 7.8.77 This species is described in the 2015 COS (Ref 9.31) as 'a fairly common breeding resident'. It is widespread across Anglesey as a confirmed or probable breeding species in all 10 km grid squares that intersect the Proposed Development (Ref 9.43) and having been recorded consistently at all of the WeBS count sectors for which data were collated.
- 7.8.78 There were 212 recorded flights involving 224 birds recorded over the full 18

   month survey period for the Proposed Development. Flight activity was widespread across Anglesey with elevated levels of activity close to wetland, coastal sites and nests.
- 7.8.79 Important locations for grey heron include the pools and channels within Anglesey Fens SAC and Ramsar/Cors Erddreiniog NNR/SSSI and the Menai Strait.
- 7.8.80 As a widespread species of limited conservation concern Grey heron is considered to be of **Local** value.

#### Red Kite (Milvus milvus)

- 7.8.81 Red kite is listed on Annex 1 of the Birds Directive and on the Welsh Birds of Conservation Concern Amber List. It is also afforded special protection under Schedule 1 of the Wildlife and Countryside Act (1981, as amended).
- 7.8.82 The 2015 COS (Ref 9.31) suggests that red kite is 'scarce but increasing in the northern part of the Cambrian region' and lists several records on Anglesey during the 2015 period. It is absent as a breeding species on Anglesey, with possible breeding in the 10 km grid square covering the mainland part of the Proposed Development (Ref 9.43). All third party information received indicates widespread sightings but no confirmed breeding within the Study Area.
- 7.8.83 There was no evidence from any of the surveys that this species bred within the survey area. However red kites were recorded overflying the survey area. There were 39 recorded flights involving 40 individual birds during surveys for the Proposed Development. The observed distribution of flight activity was heavily biased towards the areas between Llanfechell and Rhosgoch; and the wooded landscape of the mainland between the Menai Strait and Pentir.
- 7.8.84 Due to the low numbers recorded in the study area Red Kite is considered to be of **Local** value.

### Marsh Harrier (Circus aeruginosus)

- 7.8.85 Marsh harrier is listed on Annex 1 of the Birds Directive and on the UK and Welsh Amber List. It is also afforded special protection under Schedule 1 of the Wildlife and Countryside Act (1981, as amended).
- 7.8.86 Marsh harrier is a 'scarce passage migrant' according to the 2015 COS (Ref 9.31); details of an unsuccessful breeding attempt at Malltraeth Marsh are provided within the report. Holling *et al.* (Ref 9.46) state that there was one breeding pair on Anglesey in 2014. However there are no other indications from the survey data or third party records that this species breeds regularly on Anglesey or the mainland within the study area and no records of breeding were returned.
- 7.8.87 Records supplied by Cofnod show that sightings are widespread, however recurrent appearances have occurred at Malltraeth Marsh, Cemlyn Bay, Cors Erddreiniog (where roosting has been recorded) and Llyn Alaw.
- 7.8.88 The species was recorded seven times during the VP surveys; all flights were single birds.

7.8.89 Due to the low numbers recorded in the study area Marsh harrier is considered to be of **Local** value.

Hen Harrier (Circus cyaneus)

- 7.8.90 Hen harrier is listed on Annex 1 of the Birds Directive, on the UK and Welsh Red List of Birds of Conservation Concern and under S7 of the Environment (Wales) Act 2016. It is also afforded special protection under Schedule 1 of the Wildlife and Countryside Act (1981, as amended).
- 7.8.91 Hen harrier is a 'scarce resident and winter visitor' (Ref 9.31), but does not breed on Anglesey (Ref 9.43). There are several records of individual birds on Anglesey in 2015, with the majority of the records occurring during the autumn/winter period; hen harrier was recorded at Malltraeth and Cors Erddreiniog (Ref 9.31). Records from Cofnod indicate a similar distribution to marsh harrier with repeat sightings historically over winter at Cors Erddreiniog and Cemlyn, plus sightings at Cors Bodelio, Brynteg, Cors Goch and Malltraeth Marsh.
- 7.8.92 The only records of this species during the surveys for the Proposed Development were of birds in flight, recorded from VPs. There were three recorded flights, all involving single birds, two of which were attributable to a male and a female active together around the open water within Anglesey Fens SAC/Ramsar and Cors Erddreiniog NNR/SSSI in March 2017, and a longer direct flight northwards over Gylched Covert to the east of Llangefni in April 2016.
- 7.8.93 Within the survey area, Cors Erddreiniog and Cemlyn are likely to be the key areas for this species, with occasional movements between these and other wetland sites likely to occur at any time during winter.
- 7.8.94 Anglesey does not represent an area of important habitat and is not a breeding location for hen harrier. Due to the low numbers recorded in the study area Hen harrier is considered to be of **Local** value.

### Kestrel (Falco tinnunculus)

- 7.8.95 This 'declining resident species' (Ref 9.31) was recorded in several locations throughout Anglesey in 2015. It was a confirmed and probable breeder at multiple and widespread 1 km squares across Anglesey and the north Wales mainland (Ref 9.43). Cofnod data include widespread records, including historical breeding at Cors Erddreiniog.
- 7.8.96 Possible breeding was recorded in CBC survey areas 1 (Wylfa), 3, 14 and 15 (Pentir).

- 7.8.97 Kestrel was recorded throughout the survey area for the Proposed Development, from all but two of the VPs. The number of recorded flights was 214.
- 7.8.98 Kestrel is considered to be of **Local** value, in the context of a common and widespread species with a UK population of 45,000 breeding pairs (Ref 9.40).

# Hobby (Falco subbuteo)

- 7.8.99 Hobby is afforded special protection under Schedule 1 of the Wildlife and Countryside Act (1981, as amended).
- 7.8.100 Hobby is a 'scarce spring and summer visitor'. There were several records on Anglesey in 2015 but there was no indication of breeding (COS, 2016) (Ref 9.31). The Welsh Raptor Study Group Representative confirmed that this species was not known to have bred on Anglesey, with birds occasionally seen hunting over Malltraeth Marsh during the summer, and Cofnod data include a small number of scattered sightings with no obvious pattern of distriubution.
- 7.8.101 Hobby was recorded overflying CBC survey area 10 at the eastern end of Malltraeth Marsh, during surveys for the Proposed Development. Additionally, there were three hobby flights recorded during VP surveys.
- 7.8.102 Hobby is considered to be of **Local** value, since it does not breed within or close to the Proposed Development.

### Peregrine falcon (Falco peregrinus)

- 7.8.103 Peregrine is a species on Annex 1 of the Birds Directive which is also afforded special protection under Schedule 1 of the Wildlife and Countryside Act (1981, as amended) and is highlighted within the Anglesey BAP.
- 7.8.104 Peregrine falcon is a 'fairly common resident' (Ref 9.31). Breeding has been confirmed in at least five of the 10 km squares overlapping the north and west Anglesey coasts (Ref 9.43), one of which overlaps the northern end of the Order Limits at Wylfa. Holling *et al.* (Ref 9.46) state that there were eight breeding pairs on Anglesey in 2014.
- 7.8.105 There were over 30 records of this species returned from Cofnod, showing a widespread distribution across the study area. Reports of nesting on the Britannia Bridge in 2008 and 2016 are included in these records. It has been confirmed by the Welsh Raptor Study Group representative, and surveys, that two birds are present in this area during the breeding season, but that they no longer breed successfully there.

- 7.8.106 There were 39 records of peregrine falcons perching on existing pylons, and the Britannia Bridge, between October 2015 and August 2017, recorded from 20 different vantage points (including a defunct VP abandoned after less than one month of survey in October 2015) covering every section of the Proposed Development.
- 7.8.107 Peregrine was recorded in flight on 155 occasions, involving a total of 157 individuals (i.e. all but two flights involved single birds) and on a year round basis, being recorded in nearly every month of survey during surveys for the Proposed Development.
- 7.8.108 Peregrine is a widespread Green List species considered to be of **Local** value, with a population on Anglesey equivalent to 0.4% of the national UK population of 1,701 breeding pairs (Ref 9.40).

# Merlin (Falco columbarius)

- 7.8.109 Merlin is listed under Annex 1 of the Birds Directive, the UK and Welsh Red List of Birds of Conservation Concern. It is also afforded special protection under Schedule 1 of the Wildlife and Countryside Act (1981, as amended).
- 7.8.110 Merlin is a 'scarce resident and fairly common winter visitor'; there are several records from Anglesey during the autumn/winter period of 2015 (Ref 9.31). Widespread non–breeding records were returned by Cofnod.
- 7.8.111 All first hand records of merlin activity were recorded during winter VP surveys for the Proposed Development. Merlin flights, all by single birds and all recorded during winter 2015 2016, were recorded 35 times. Merlin activity was fairly evenly distributed throughout the survey area, being recorded in all sections of the Proposed Development but with elevated numbers of records in the vicinity of Llyn Alaw, Bodewryd, Tregele and between Cefni Reservoir and Cors Erddreiniog NNR.
- 7.8.112 Merlin is considered to be of **Local** value, since it does not breed on Anglesey, occurring sporadically within the survey area only as a non breeding species in winter.

# Lapwing (Vanellus vanellus)

- 7.8.113 Lapwing is listed on the UK and Welsh Red List of Birds of Conservation Concern and under S7 of the Environment (Wales) Act 2016. It is also a species listed on the Llyn Alaw SSSI citation.
- 7.8.114 Lapwing is a '*fairly common resident and abundant winter visitor*' to the Cambrian region. Records reported from Anglesey include: c. 3000 at Cefni

Estuary and 100 – 200 birds at Malltraeth Marsh RSPB Reserve on 14 February 2015. Numbers at Malltraeth Marsh peaked at 860 in December 2015 (Ref 9.31). Third party data indicate that large flocks of lapwing gather regularly at Cemlyn Bay and several other coastal sites, while breeding occurs mainly at Malltraeth Marsh and small numbers of lapwing breed at Cors Erddreiniog.

- 7.8.115 There were 57 recorded lapwing flights involving 1,660 individuals, flock sizes ranging from one to 250 (mean 29). The species was recorded in all years but only between autumn and late spring (August May inclusive) on VP surveys for the Proposed Development.
- 7.8.116 Lapwing flights were not evenly or randomly distributed but were concentrated in a number of areas including: Llanfechell and Cemaes / Wylfa Head, Llyn Alaw, Cors Erddreiniog NNR and Malltraeth Marsh. One breeding pair was recorded during the CBC surveys within survey area 11 close to Penmynydd in 2016, although this is at least 1 km from the Proposed Development. Possible breeding was recorded in Area 3 in 2017.
- 7.8.117 The observations and third party records of this species indicate the potential for movements within and across Anglesey between coastal and inland roosts and breeding areas, the species being present all year round. Important sites for lapwing are: Malltraeth Marsh (breeding and non-breeding), Cemlyn Bay and Lagoon and terrestrial habitats inland as far as Llanfechell (non-breeding), Llyn Alaw (non-breeding), Cors Erddreiniog (breeding) and Traeth Dulas (non-breeding).
- 7.8.118 Lapwing is considered to be of **County** value, acknowledging its status as a declining breeder on Anglesey and the high numbers recorded in the study area.

### Curlew (Numenius arquata)

- 7.8.119 Curlew is listed on the UK and Welsh Red List of Birds of Conservation Concern and under S7 of the Environment (Wales) Act 2016. It is also a species listed under the Llyn Alaw SSSI citation.
- 7.8.120 Curlew is a 'declining resident and abundant winter visitor'. Breeding was confirmed at Malltraeth Marsh RSPB (1 pair) and a breeding pair was seen at Cors Erddreiniog in April 2015 (Ref 9.31). Notable winter counts include 200 at Cemlyn Bay on 3 January 2015. Possible and probable breeding is reported in Brenchley *et al.* (Ref 9.43) across much of Anglesey's interior and some coastal areas, with at least some overlap between these areas and the Order Limits.

- 7.8.121 Cofnod data include records for Cemlyn and Cemaes, Llyn Alaw, Capel Parc, Cors Erddreiniog, Llyn Alaw, Llyn Hafodol and the Menai Strait, though no specific breeding records were returned. All WeBS core count sectors for which data were obtained, except Cefni Reservoir and Traeth Coch, include records of this species, with particularly large numbers at coastal sites.
- 7.8.122 Surveys for the Proposed Development recorded multiple counts of curlew between the Menai and Britannia Bridges and regular counts of smaller numbers west of the Britannia Bridge, all year round. Possible breeding was recorded in CBC survey area 7, close to Cors Erddreiniog.
- 7.8.123 There were 123 recorded curlew flights involving 1,082 birds with flocks ranging from one to 70 individuals (mean nine). Curlews were recorded in all years and were present on a year round basis, however their distribution was markedly different between breeding (March July) and non–breeding (all other months) periods. Flights recorded during the breeding season were almost exclusively over or close to Anglesey Fens SAC/Ramsar and Cors Erddreiniog NNR/SSSI. Non–breeding flights were recorded throughout the rest of the survey period and were distinctly aligned to the distribution of favoured terrestrial feeding areas (Tregele, the Menai Strait hinterland and Llyn Alaw).
- 7.8.124 Curlew is considered to be of **County** value, which acknowledges its status as a declining breeding species on Anglesey.

# Snipe (Gallinago gallinago)

- 7.8.125 Snipe is listed on the UK and Welsh Amber List of Birds of Conservation Concern and is highlighted within the Anglesey LBAP.
- 7.8.126 Snipe is a 'fairly common resident and common passage migrant and winter visitor' (Ref 9.31). Cofnod returned several records of snipe, especially from Cors Erddreiniog, where multiple records of probable breeding were included in the data set. Elsewhere records where supplied predominantly for wetland areas including Llyn Alaw, Cemlyn and Llyn Hafodol, with other scattered occurrences across the search area.
- 7.8.127 Surveys for the Proposed Development recorded 41 snipe at Cefni Reservoir but none at Llyn Alaw and none on the Menai Strait. It was recorded in CBC Areas 1 and 10 but did not breed in either.
- 7.8.128 The VP surveys detected 102 snipe flights involving 330 individuals in flocks ranging from one to 39 birds (mean three). There were no records of display flights or other breeding behaviours during the VP surveys.

- 7.8.129 Key areas are coastal and inland wetlands, including Llyn Alaw, Cemlyn Bay and Cors Erddreiniog and some smaller inland wetland. Snipe were not recorded on the mainland.
- 7.8.130 Snipe is considered to be of **Local** value on the basis that it is a common and widespread species with a national population of 76,000 breeding pairs and a wintering population of 1,000,000 individuals (Ref 9.40).

# Barn Owl (Tyto alba)

- 7.8.131 Barn owl is afforded special protection under Schedule 1 of the Wildlife and Countryside Act (1981, as amended) and is a priority species on the Anglesey and Gwynedd LBAPs.
- 7.8.132 Barn owl is a 'fairly common resident' species, with a recorded breeding site at a farm a short distance south of Bangor. The only other report was from a farm near Llanfaelog on the southwest coast of Anglesey, where a pair unsuccessfully attempted to breed in 2015 (Ref 9.31). Confirmed breeding at the 1 km square resolution is mapped by Brenchley *et al.* (Ref 9.43) as being mostly around the periphery of Anglesey and at scattered sites on the northern mainland, however the mapped distribution would likely put at least four of the known sites within 1 km of the Proposed Development (Ref 9.43).
- 7.8.133 The Welsh Raptor Study Group chairman stated that there had been no records of breeding barn owl on Anglesey from the previous year (2016), stating that it had been a poor breeding season nationally<sup>6</sup>. However the chairman also acknowledged a paucity of knowledge regarding the breeding status of this species on Anglesey.<sup>7</sup>
- 7.8.134 Records of barn owl received from Cofnod are widespread across the study area and relate mostly to sightings of hunting birds and individuals found dead next to main roads, but there are also records from Hafod Lane near Bangor, a bird hunting over Cors Bodelio and frequent records at Brynteg. Records of potential nest sites returned by Cofnod within the last ten years include two locations in central Anglesey (Section D) and northern Anglesey (Section A). Surveys for barn owl undertaken in 2013 (Ref 9.47) and 2016 (Ref 9.48) concluded that barn owls bred at Cafnan House and Mynydd-Ithel (closest to Section A but both at least 1km from the Proposed OHL Route).

<sup>&</sup>lt;sup>6</sup> Pers. Comm. Welsh Raptor Study Group chairman, email received 21 December 2016

<sup>&</sup>lt;sup>7</sup> Pers. Comm. Welsh Raptor Study Group chairman, telephone conversation on 7 April 2016

- 7.8.135 There were no records of this species from any of the habitat searches or CBC surveys in 2016 - 17. However, the questionnaire results indicated probable breeding on the mainland between Bangor and the Pentir Substation. There is some uncertainty over the exact location but it may be as close as 100-200 m to the Tŷ Fodol THH/CSEC depending on the exact location of the nest site.
- 7.8.136 Regular flight activity involving up to three individual barn owls was recorded exclusively at low height over the disused oil storage site north of Rhosgoch (approximately 1 km north-east of the Order Limits) between and including November 2015 and January 2016.
- 7.8.137 Barn owl is considered to be of **County** value which acknowledges its inclusion on both the Anglesey and Gwynedd BAPs.

# Chough (Pyrrhocorax pyrrhocorax)

- 7.8.138 Chough is an 'uncommon breeding resident' (Ref 9.31) on Anglesey. There were 35 confirmed and probable breeding pairs on Anglesey in 2014 (Ref 9.45) and the Anglesey LBAP states that there are 'about 36 pairs, mainly on [the] North West coast of Anglesey (such as Wylfa), [the] South Stack area, [and] also Penmon which amounts to about 20% of the Welsh total'.
- 7.8.139 Records returned from Cofnod show a scattered distribution predominantly in the northern half of Anglesey, with a bias towards sightings near Cemlyn Bay and occasional records further south such as at Cors Erddreiniog and Star. This was reflected in data supplied by the Cross and Stratford Welsh Chough Project, which showed a predominantly North Anglesey Coast distribution of nest sites and feeding areas, with a single nest site and a few other regularly used feeding areas a few kilometres into the interior of Anglesey.
- 7.8.140 A single chough flight, involving two adult birds, was recorded from VP15SE, close to the disused oil storage site near Rhosgoch in November 2015 during surveys for the Proposed Development.
- 7.8.141 There were no records of this species on the mainland during the surveys. Key locations for chough are along and within approximately 2 – 3 km from Anglesey's north west coast, with all but one nest site on the coast and almost all regular feeding areas on or adjacent to the north coast, occasional forays being made inland as far as Rhosgoch.
- 7.8.142 Chough is considered to be of **County** value because it is an Amber List species included on both the Anglesey and Gwynnedd LBAPs and is of localised distribution in the UK, the Anglesey population representing 12% of the UK population.

### Breeding Bird Assemblages

- 7.8.143 The following paragraphs provide value assessments for species assemblages of high conservation importance associated with specific habitats likely to be affected by the Proposed Development and that are not already considered above. For the purposes of the assessment, the term "high conservation importance" includes any species on one or more of the UK Birds of Conservation Concern Red List, the equivalent list for Wales or Section 7 of the Environment (Wales) Act 2016.
- 7.8.144 Assessments are made separately for discrete habitat areas subject to permanent habitat losses (tunnel head houses, cable sealing end compounds and substations, plus one woodland over which the OHL would be installed, resulting in some habitat loss), and the Menai Strait. For these areas, estimates of the minimum number of breeding pairs of each species affected are derived from the CBC surveys. Additionally, the impacts are considered more generally on such species across the Proposed Development as a whole, for which the species likely to be affected are determined from the results of the CBC surveys in all of the sample survey areas across the proposed development.
- 7.8.145 Some species are assessed in relation to more than one habitat area or habitat type, since they may be widespread and / or have broad habitat preferences when nesting.

Farmland, Hedgerow, Woodland and Scrub Breeding Assemblage (Passerines of High Conservation Concern) – Order Limits

- 7.8.146 Species recorded during the breeding bird surveys for the proposed development include bullfinch (*Pyrrhula pyrrhula*), cuckoo (*Cuculus canorus*), curlew, dunnock (*Prunella modularis*), grasshopper warbler (*Locustella naevia*), house sparrow (*Passer domesticus*), kestrel (*Falco tinnunculus*), lapwing, lesser redpoll (*Carduelis cabaret*), linnet (*Carduelis cannabina*), mistle thrush (*Turdus viscivorus*), reed bunting (*Emberiza schoeniclus*), skylark (*Alauda arvensis*), song thrush (*Turdus philomelos*), spotted flycatcher (*Muscicapa striata*), starling (*Sturnus vulgaris*), whitethroat (*Sylvia communis*) and willow warbler (*Phylloscopus trochilus*). A small breeding population of yellowhammer (*Emberiza citrinella*) was also recorded at Clorach, where singing males were recorded during VP surveys over spring and summer 2016.
- 7.8.147 Outside of the specific areas assessed below, approximate breeding numbers of these species have been estimated for the entirety of the Order Limits where above – ground infrastructure is proposed. This was achieved by extrapolation of the breeding numbers recorded within the CBC survey areas

and the area (in hectares) of suitable breeding habitat recorded during the Phase 1 Habitat surveys.

- 7.8.148 Since definitive breeding numbers are already provided for several key areas where habitat would be lost to above ground infrastructure (Wylfa substation, CBC area 1; Gylched Covert, CBC area 9; Braint THH/CSEC, CBC area 12; Tŷ Fodol THH/CSEC, CBC area 14; and Pentir Substation, CBC area 15), the estimated numbers for the wider Order Limits exclude these areas. The estimations provided are therefore for all other parts of the Order Limits and are additional to the numbers recorded in these discrete survey areas. However the breeding numbers recorded at the locations listed above have been used in the calculation.
- 7.8.149 Breeding numbers for each species are estimated as follows:

N = n x (AOL / ASURV)

Where:

- N is the estimated number of breeding pairs within the Order Limits;
- *n* is the total number of breeding pairs recorded in all CBC survey areas;
- AOL is the area of breeding habitat within the Order Limits; and
- ASURV is the area of breeding habitat within all CBC areas.
- 7.8.150 In determining *n* the maximum number of recorded breeding pairs has been used. In other words, where the recorded breeding numbers differ between survey years and / or where a range of breeding numbers is stated for a species the highest recorded number has been used. For instance at Gylched Covert (CBC area 9) 1 pair of mistle thrush was recorded in 2017, whereas 2 pairs were recorded in 2016. The number recorded in 2016 is therefore included in the calculation of *n* and the overall estimation of breeding numbers, N.
- 7.8.151 Suitable breeding habitats have been determined by matching the characteristics of the recorded Phase 1 Habitat types to the known breeding habitat preferences of each species and then summing the areas of all of the Phase 1 habitats that collectively meet the breeding habitat preferences of the species in question. The measurements of Phase 1 habitat types have been extracted from GIS layers. The estimate of populations as described was initially undertaken on the draft Order Limits. Since this time there have been minor revisions resulting in the Order Limits as applied for. These changes resulted in an increase of between 0.8% and 1.5% increase in each

of the habitat types now included. To account for these increases, a standard 1.5% adjustment has been made to all estimates of breeding bird territories.

- 7.8.152 The following assumptions and limitations apply to the estimation of breeding bird numbers:
  - hedgerows and other linear features where applicable (such as water courses) are assumed to be 1m wide for the purposes of habitat area calculations;
  - the calculation sums the area of habitat provided by linear habitats and makes no allowance for distribution and density of bird territories in such habitats being different than they would be in larger habitat blocks;
  - breeding habitats selected by each bird are assumed to be a good fit to the known preferences of the species in question i.e. nesting behaviours and habitat selection fit expected behaviours;
  - all available breeding habitat is assumed to be of equal quality and is equally likely to be selected by a territorial or nest – building bird i.e. a prospective breeding pair would be equally likely to breed within any of the different Phase 1 habitat types that meet their generalised habitat preferences;
  - breeding pairs are assumed to be evenly distributed within suitable habitats regardless of whether the habitats in question are linear or discrete "blocks";
  - access to, and quality of supporting habitats (e.g. food resources) are assumed to be equal throughout the Order Limits;
  - predator density and predation pressures are assumed to be equal across all parts of the Order Limits;
  - baseline disturbance and noise levels are assumed to be equal across all parts of the Order Limits;
  - the calculations extrapolate breeding numbers using the sum of all records of possible, probable and confirmed breeding; and
  - the estimates are of breeding numbers across a wide area (the Order Limits). No indication of the specific whereabouts of breeding birds outside of CBC survey areas is provided.
- 7.8.153 For the reasons provided above the estimated breeding numbers should be regarded as indicative. They are provided in order to determine the likely

severity of the potential impacts identified in Section 9. The predicted numbers of each species within the wider Order Limits but excluding the areas of key habitat loss stated above are: bullfinch (7), cuckoo (2), curlew (2), dunnock (105), grasshopper warbler (3), house sparrow (12), kestrel (2), lapwing (2), lesser redpoll (4), linnet (18), mistle thrush (23), reed bunting (10), skylark (4), song thrush (56), spotted flycatcher (7), starling (2), whitethroat (35) and willow warbler (91).

7.8.154 The Farmland, Hedgerow, woodland and scrub breeding assemblage across the whole area of the Proposed Development would be considered to be of **County** value due to the large number of species of conservation concern (18) and breeding pairs (which collectively number 385) potentially affected by the Proposed Development.

<u>Woodland Breeding Bird Assemblage (Passerines of High Conservation</u> <u>Concern) – Wylfa Substation</u>

- 7.8.155 Species recorded during the breeding bird surveys for the Proposed Development in the woodlands surrounding the existing Wylfa Nuclear Power Station include dunnock (9), bullfinch (1), house sparrow (1), lesser redpoll (1), linnet (2), song thrush (3), starling (1), whitethroat (10) and willow warbler (6).
- 7.8.156 Woodland breeding assemblage at Wylfa is considered to be of **County** value due to the large number of species of conservation concern and breeding pairs (which collectively number 32) potentially affected by the Proposed Development.

Woodland Breeding Bird Assemblage (Passerines of High Conservation Concern) – Gylched Covert

- 7.8.157 Species recorded during the breeding bird surveys for the Proposed Development within Gylched Covert include bullfinch (1), dunnock (5), mistle thrush (2), song thrush (3) and willow warbler (1).
- 7.8.158 Woodland breeding assemblage at Gylched Covert is considered to be of **Local** value due to the low number of species of conservation concern and breeding pairs potentially affected by the Proposed Development.

<u>Woodland Breeding Bird Assemblage (Passerines of High Conservation</u> <u>Concern) – Pentir Substation</u>

7.8.159 Species recorded during the breeding bird surveys for the Proposed Development within Pentir Substation woodland include: dunnock (16), song thrush (12), mistle thrush (4), spotted flycatcher (2), willow warbler (15), bullfinch (1) and lesser redpoll (3). 7.8.160 The value of woodland breeding assemblage at Pentir Substation is considered to be of **County** value due to the large number of breeding pairs of species of conservation concern affected, which collectively number 53 breeding pairs.

<u>Farmland/Hedgerow Breeding Assemblage (Passerines of High</u> <u>Conservation Concern) – Braint Tunnel Head House/Cable Sealing End</u> <u>Compound</u>

- 7.8.161 Species recorded during the breeding bird surveys for the Proposed Development within the proposed Braint THH/CSEC include dunnock (5), house sparrow (1), mistle thrush (1), song thrush (2) and willow warbler (1).
- 7.8.162 Farmland and hedgerow breeding assemblage at Braint THH/CSEC is considered to be of **Local** value due to the small number of species and breeding pairs potentially affected by the Proposed Development.

Farmland/Hedgerow Breeding Assemblage (Passerines of High Conservation Concern) – Tŷ Fodol Tunnel Head House/Cable Sealing End Compound

- 7.8.163 Species recorded during the breeding bird surveys for the Proposed Development within the proposed Tŷ Fodol THH/CSEC include dunnock (3), linnet (5), mistle thrush (2), song thrush (1), whitethroat (2) and willow warbler (2).
- 7.8.164 Farmland and hedgerow breeding assemblage at Braint THH/CSEC is considered to be of **Local** value as the number of species and breeding pairs potentially affected by the Proposed Development is low.

Waterfowl utilising Menai Strait marine and inter-tidal habitat within the Order Limits

- 7.8.165 Waterfowl species recorded within the Order Limits at the Menai Strait during the surveys for the Proposed Development are: great crested grebe, little grebe, great northern diver, mute swan, brent goose, greylag goose, cormorant, shag, grey heron, little egret, coot, curlew, oystercatcher, redbreasted merganser, shelduck, wigeon and mallard. Red – breasted merganser, occurred only once to the east of the Britannia Bridge, when a single bird was recorded. All other records of this species were between the Menai and Britannia Bridges, outside of the Order Limits.
- 7.8.166 The waterfowl assemblage within the Order Limits is considered to be of **Local** value due to the infrequent occurrence and restricted distribution of the species within the Proposed Development.

## 7.9 MARINE HABITATS AND SPECIES

7.9.1 Marine habitats and species identified during the desk study and surveys within the Order Limits and a within the Menai Strait between the wider seaward inlets are listed in Table 9.19 and 9.20, respectively.

Table 9.19 Marine Habitats within the Order Limits and the Menai Strait (Section F)				
Habitat	Environment (Wales) Act 2016			
Estuarine rocky habitats	$\checkmark$			
Coastal saltmarsh	$\checkmark$			
Intertidal mudflats (including Annex I mudflats not covered by seawater at low tide)	✓			
Subtidal sands and gravels	✓			
Tide swept channels (including Annex I rocky reefs)	$\checkmark$			

# Table 9.20 Protected/Notable Marine Species Potentially Located in theRelevant Study Area (Section F)

Feature	Status
European eel ( <i>Anguilla anguilla</i> )	Environment (Wales) Act 2016 S7/The Eels (England and Wales) Regulations 2009/IUCN critically endangered
Atlantic salmon (Salmo salar)	Schedule 4 HR (freshwater only)/Environment (Wales) Act 2016 S7/EC Habitats Annex II and V
Brown/Sea trout ( <i>Salmo trutta</i> )	Environment (Wales) Act 2016 S7
Atlantic cod ( <i>Gadus morhua</i> )	Environment (Wales) Act 2016 S7
Dover sole ( <i>Solea</i> solea)	Environment (Wales) Act 2016 S7
Mackerel (Scomber scombrus)	Environment (Wales) Act 2016 S7

Table9.20ProtecteRelevant StudyArea	d/Notable Marine Species Potentially Located in the (Section F)
Feature	Status
Plaice ( <i>Pleuronectes</i> platessa)	Environment (Wales) Act 2016 S7
Sand goby ( <i>Pomatoschistus</i> <i>minutus</i> )	Bern Convention Appendix II (although not transposed into EC Habitats Directive/HR)
Common goby ( <i>Pomatoschistus</i> <i>microps)</i>	Bern Convention Appendix II (although not transposed into EC Habitats Directive/HR)
Herring ( <i>Clupea</i> <i>harengus</i> )	Environment (Wales) Act 2016 S7
Thornback ray ( <i>Raja</i> <i>clavata</i> )	Environment (Wales) Act 2016 S7
Grey seal (Halichoerus grypus)	Schedule 4 HR/Schedule 5 W&CA//EC Habitats Directive (Annex II, V); Bern Convention (Appendix III)
Harbour Porpoise ( <i>Phocoena</i> <i>phocoena</i> )	Schedule 5 W&CA/Schedule 2 HR/EC Habitats Directive (Annex II, IV)/ Bern Convention (Appendix II)/ Bonn Convention (Appendix II: North and Baltic Sea, western North Atlantic, Black Sea and North West African populations)/ASCOBANS <sup>†</sup> ; ACCOBAMS <sup>††</sup> /Environment (Wales) Act 2016 S7
Bottlenose dolphin ( <i>Tursiops truncatus</i> )	Schedule 5 W&CA/Schedule 2 HR/EC Habitats Directive (Annex II, IV)/Bern Convention (Appendix II)/Bonn Convention (Appendix II: North and Baltic Sea populations); ASCOBANS <sup>†</sup> /ACCOBAMS <sup>††</sup> /Environment (Wales) Act 2016 S7

<sup>†</sup>Agreement on the Conservation of Small Cetaceans in the Baltic, North East Atlantic, Irish and North Seas;

<sup>++</sup> Agreement on the Conservation of Cetaceans in the Black Sea, Mediterranean Sea and Contiguous Atlantic Area.

#### Menai Strait overview

- 7.9.2 The Menai Strait is a narrow body of coastal water that separates Anglesey from mainland Wales. The Strait is around 25 km in length, and varies in depth, reaching a maximum of 28 m in the central channel of the Swellies area. As a result of the morphology, the Strait experiences very strong tidal currents, which can exceed 13 km/h.
- 7.9.3 The Menai Strait is characterised by a diverse array of intertidal and subtidal habitats. Many of the habitats present are Habitats Directive Annex I features of the Menai Strait and Conwy Bay SAC and habitats listed under S7 of the Environment (Wales) Act, 2016, including hard rocky reefs, sheltered muddy gravels and tidal swept channels.
- 7.9.4 To the west of the Menai is the Glannau Môn: Cors heli / Anglesey Coast: Saltmarsh SAC. This site is primarily designated for Habitats Directive Annex 1 habitats, including Salicornia and other annuals colonizing mud and sand, and Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*). Also present within the site are the qualifying features of estuaries and mudflats and sandflats not covered by seawater at low tide. Due to the hydrological connectivity with the Menai Strait, these qualifying features have been considered within the assessment.

# Marine intertidal habitats and species

- 7.9.5 The intertidal biotope surveys carried out in 2015 within the Mena Strait were based on, and used to validate, NRW biotope mapping data collected in 2003 (see Appendix 9.16 Intertidal Report (**Document 5.9.2.16**)). The majority of the intertidal area surveyed was characterised by rocky substrata comprising bedrock, boulders and cobbles. The rocky communities were characterised by clear patterns of vertical zonation of species and communities typical of the habitats present. The upper shore was typified by lichens, channelled wrack (*Pelvetia canaliculata*) and spiral wrack (*Fucus spiralis*), with the characteristic species on the midshore being knotted wrack (*Ascophyllum nodosum*) and fucoids, while toothed wrack (*Fucus serratus*) continued into the low shore, with the kelp oarweed (*Laminaria digitata*) also common.
- 7.9.6 Appreciable areas of sedimentary habitats were also present, particularly on the Anglesey shore to the east of Britannia Bridge at Church Bay and on both shores (Gwynedd and Anglesey) at the southern end of the Survey Area at Y Felinheli and Moel-y-don. These sedimentary habitats mainly comprised muddy sands, although small areas of sand and shingle were observed throughout the survey area, particularly on the mainland shore between Y

Felinheli and the Britannia Bridge. Sedimentary habitats were characterised by polychaete dominated communities.

- 7.9.7 Fifteen communities of special conservation significance listed under S7 of the Environment (Wales) Act 2016 were recorded in the study area of the Menai Strait. The majority of these communities were recorded to the east of the Britannia Bridge, particularly intertidal boulder communities, tide swept channels, coastal saltmarsh, intertidal mudflats and sheltered muddy gravels. Tide swept channels were recorded throughout the rest of the survey area, while appreciable areas of intertidal mudflats were also recorded on both shores in the south westerly extent of the survey area at Y Felinheli and Moel-y-don. Small areas of coastal saltmarsh and intertidal muds were observed in the vicinity of the Vaynol boathouse.
- 7.9.8 The marine biotopes recorded within the study area represented a diverse range of communities, typical for this biogeographic area. Among the communities found were a number of marine habitats recognised for their contribution to UK and Welsh biodiversity. The low level of variability between the 2003 (NRW data) and 2015 (project data) biotope descriptions and general distributions indicate the relative stability of the communities present within the survey area over this period (Appendix 9.16 Intertidal Report (Document 5.9.2.16) and Appendix 9.17 Subtidal Report (Document 5.9.2.17). This would also imply that both natural and anthropogenic influences have not appreciably altered these communities over this period.
- 7.9.9 Further information relating to these surveys are provided in Appendix 9.16 Intertidal Report (**Document 5.9.2.16**) and Appendix 9.17 – Subtidal Report (**Document 5.9.2.17**).
- 7.9.10 The nature conservation value of the intertidal habitats of conservation importance (Environment (Wales) Act 2016 S7) is considered to be of **National** value. The other intertidal habitats present are considered to be of **Local** value.

# Marine subtidal habitats and species

7.9.11 Broad scale subtidal habitat features information obtained from NRW for the study area of the Menai Strait are shown in Figure 9.7 (Document 5.9.1.7). Drop down camera and benthic grab surveys of subtidal marine habitats were completed in 2015 as detailed in Appendix 9.17 Subtidal Report (Document 5.9.2.17). These were undertaken alongside the Menai Strait, between the Britannia Bridge and Y Felinheli / Moel y-don in July 2015 (Appendix 9.17 – Subtidal Report (Document 5.9.2.17) Figure 9.6 (Document 5.9.1.6).

- 7.9.12 At the most eastern end of the survey area the substrata were characterised by boulders and cobbles, interspersed with gravel, while throughout the rest of the area the substrata were generally coarse; comprising shell, gravel, sand and mud in varying proportions with occasional cobbles. To the west of the survey area the substrata were mainly characterised by sandy sediments.
- 7.9.13 From the images collected by the drop-down camera five discrete biotopes were identified. Current-swept rocky communities were present in the north east of the survey area and mixed coarse substrata along much of the remaining survey area. Along the northern and middle parts of the survey area the epibiota were dominated by hydroids, anemones and sponges. Towards the south western end of the survey area, communities were characterised by sabellid worms and brittlestars.
- 7.9.14 Where grabs were taken the sediment was predominantly coarse, being characterised by sand, gravel, broken shell and cobbles. The infaunal communities were characterised by polychaetes, molluscs and crustaceans, while brittlestars were particularly abundant at several of the grab locations. Table 9.21 summarises the characteristic fauna of each site.
- 7.9.15 The taxa and biotopes recorded from the marine benthic survey were typical of the biogeographical area and were clearly influenced by the physical nature of the substrata and the strong tidal flows evident throughout the Menai Strait.
- 7.9.16 The rocky habitat identified at the north-eastern end of the survey area is representative of the Habitats Directive Annex I habitat 'reefs', which is cited in the Menai Strait and Conwy Bay SAC designation. In addition, throughout the survey area there were two broad priority habitats listed under S7 of the Environment (Wales) Act 2016 habitat: 'tidal swept channels' and 'subtidal sands and gravel'.
- 7.9.17 Further information relating to these surveys is contained in Appendix 9.17 Subtidal Report (**Document 5.9.2.17**).
- 7.9.18 The subtidal habitats of conservation importance (listed under Environment (Wales) Act 2016 S7 and Habitats Directive Annex I) are considered to be of National value. The other subtidal habitats present are considered to be of Local value.
- 7.9.19 Refer to Figure 9.7 NRW Subtidal Benthic Habitats (Document 5.9.1.7) (tunnel crossing overlaid) and Figure 9.6 Drop Down Camera and Benthic Grab Surveys of Subtidal Marine Habitats Sites (Document 5.9.1.6) (tunnel crossing overlaid).

# Table 9.21. Biotopes recorded in Menai Strait during the drop-down camera surveys, 2015.

160

Site	Characteristic fauna	Biotope recorded (code) <sup>8</sup>
DD01	Barnacles, Sagartia elegans, Cancer pagurus, Liocarcinus depurator	CR.HCR.FaT.BalTub
DD02	Hydrallmania falcata, Sertularia argentea, Asterias rubens, Urticina felina	SS.SSa.IFiSa.ScupHyd
DD03	Hydrallmania falcata, Sertularia argentea, Asterias rubens,	SS.SSa.IFiSa.ScupHyd
DD04	Hydrallmania falcata, Asterias rubens, Urticina felina	SS.SSa.IFiSa.ScupHyd
DD05	Hydrallmania falcata, serpulid worms.	SS.SCS.ICS
DD06	Sagartia elegans, Hydrallmania falcata, Asteria rubens	SS.SSa.IFiSa.ScupHyd
DD07	Sagartia elegans, Hydrallmania falcata, Asterias rubens	SS.SSa.IFiSa.ScupHyd
DD08	Brittlestars, Sagartia elegans, Urticina felina, Asterias rubens	SS.SMX.CMx.OphMx
DD09	Hydrallmania falcata, Sagartia elegans, Urticina felina, Cerianthus lloydii, Asterias rubens	SS.SSa.IFiSa.ScupHyd
DD10	Sagartia elegans, Urticina felina, Cerianthus Iloydii, Asterias rubens, Hydrallmania falcata	SS.SSa.IFiSa.ScupHyd
DD11	Asterias rubens, Sabella pavonina, Sagartia elagans	SS.SMX.Imx.SpavSp.An
DD12	Brittlestars, Sabella pavonina, Sagartia elegans, Urticina felina	SS.SMX.CMx.OphMx/ SS.SMX.Imx.SpavSp.An
DD13	Hydrallmania falcata, Sagartia elegans, Cerianthus lloydii, Asterias rubens	SS.SSa.IFiSa.ScupHyd

<sup>&</sup>lt;sup>8</sup> A distinct habitat and associated community associated with it.

Fish (including migratory and marine)

- 7.9.20 The Menai Strait is known as an important migratory route for diadromous species (using both fresh and marine waters during their life cycle) such as Atlantic salmon and sea/brown trout (the former is designated in the Afon Gwyrfai a Llyn Cwellyn SAC<sup>9</sup>), and is also utilised by European eel. These three species are listed under S7 of the Environment (Wales) Act 2016. Atlantic salmon is a Habitats Regulations Annex II species in freshwater only.
- 7.9.21 The Menai Strait also supports a diverse community of marine fish species. Over 90 species of fish have been recorded from a variety of habitat guilds (Ref 9.49). Species present in the outermost areas of the Menai Strait recorded by NRW in more recent surveys (methods used include otter and beam trawl, fyke and seine netting) (2009-2015) are listed in Table 9.22.

# Table 9.22 Fish species recorded in the outer Menai Strait (Foryd Bay and Conwy Bay (NRW data 2009-2015). \* Denotes listed in S7 of the Environment (Wales) Act 2016

Common name	Scientific name	Common name	Scientific name
15-spined stickleback	Spinachia spinachia	Hooknose / Pogge	Agonus cataphractus
3-spined stickleback	Gasterosteus aculeatus	Nilsson's pipefish	Syngnathus rostellatus
5-bearded rockling	Ciliata mustela	Lesser sandeel	Ammodytes tobianus
Sandeel	Ammodytes sp.	Lesser weever	Echiichthys vipera
Anchovy	Engraulis encrasicolus	Long-spined sea scorpion	Taurulus bubalis
Ballan wrasse	Labrus bergylta	Mackerel*	Scomber scombrus
Brill	Scophthalmus rhombus	Plaice*	Pleuronectes platessa

<sup>9</sup> This SAC is designated for its relatively unexploited Atlantic salmon population which has a late migratory run. Data from the NRW indicate that there are healthy juvenile populations downstream of Llyn Cwellyn.

# Table 9.22 Fish species recorded in the outer Menai Strait (Foryd Bay and Conwy Bay (NRW data 2009-2015). \* Denotes listed in S7 of the Environment (Wales) Act 2016

Common name	Scientific name	Common name	Scientific name
Brown / sea trout*	Salmo trutta	Bib	Trisopterus luscus
Short-spined sea scorpion	Myoxocephalus scorpius	Reticulated dragonet	Callionymus reticulatus
Butterfish	Pholis gunnellus	Sand goby	Pomatoschistus minutus
Atlantic cod*	Gadus morhua	Sand smelt	Atherina presbyter
Common dogfish	Scyliorhinus canicula	Scaldfish	Arnoglossus Iaterna
Common goby	Pomatoschistus microps	European sea bass	Dicentrarchus Iabrax
Corkwing wrasse	Crenilabrus melops	Shanny	Lipophrys pholis
Crystal goby	Crystallogobius linearis	Smelt*	Osmerus eperlanus
Dab	Limanda limanda	Solenette	Buglossidium luteum
Dory	Zeus faber	Sprat	Sprattus sprattus
Dover sole*	Solea solea	Thick lipped grey mullet	Chelon labrosus
Dragonet	Callionymus lyra	Thin-lipped grey mullet	Liza ramada
European eel	Anguilla anguilla	Thornback ray / Roker*	Raja clavata
Flounder	Platichthys flesus	Tompot blenny	Parablennius gattorugine

(Wales) Act 2016						
Common name	Scientific name	Common name	Scientific name			
Golden grey mullet	Liza aurata	Tub gurnard	Chelidonichthys lucernus			
Goldsinny	Ctenolabrus rupestris	Turbot	Psetta maxima			
Greater pipefish	Syngnathus acus	Viviparous blenny	Zoarces viviparus			
Greater sandeel	Hyperoplus Ianceolatus	Whiting	Merlangius merlangus			
Grey gurnard	Eutrigla gurnardus	Worm pipefish	Nerophis Iumbriciformis			
Herring*	Clupea harengus					

Table 9.22 Fish species recorded in the outer Menai Strait (Foryd Bay andConwy Bay (NRW data 2009-2015). \* Denotes listed in S7 of the Environment(Wales) Act 2016

- 7.9.22 The subtidal sand habitats of the area are likely to support fish such as sandeels and flatfish, with the sand megaripples forming important nursery areas for species such as plaice (*Pleuronectes platessa*) (Ref 9.4). Demersal species (those that live and feed on or near the bottom sediments of waters) are likely to utilise these areas in search of prey. Sandbanks slightly covered by seawater all the time are present in the outer Menai Strait and would likely support a variety of fish, such as blonde ray (*Bathyraja brachyurops*), thornback ray (*Raja clavata*), dab (*Limanda limanda*), sand goby (*Pomatoschistus minutus*) and solenette (*Buglossidium luteum*) (Ref 9.50).
- 7.9.23 Records for the Ynys Gorad Goch fish trap (north of the Britannia Road Bridge) list other species present include Atlantic salmon, Atlantic cod (*Gadus morhua*), European seabass (*Dicentrarchus labrax*), mullet (*Muglidae/Mullidae*), sunfish (*Mola mola*), sand smelt (*Atherina presbyter*), whiting (*Merlangius merlangus*), garfish (*Belone belone*), mackerel (*Scomber scombrus*), gurnard species (*Triglidae*) and black seabream (*Spondyliosoma cantharus*).
- 7.9.24 The diadromous fish species (e.g. Atlantic salmon and European eel) and marine species listed under the Environment (Wales) Act 2016 S7 are considered to be of **National** value owing to being subject to UK/European conservation designations and the importance of of the Menai Strait for the

passage of these species. The other marine fish species assemblages present are overall considered to be of **Local** value.

### Shellfish

- 7.9.25 Areas of the Menai Strait also support valuable shellfish communities. Oyster and mussel (the common name used for members of several families of bivalve molluscs) farming occurs on a significant scale in the waters of the Menai Strait and constitutes an important part of the overall UK shellfishery. Three mussel fisheries are present within the Menai Strait and Conwy SAC; Menai Strait East, Menai Strait West and Conwy. Ridged pacific oysters (*Magallana gigas*) are also farmed in the Menai Strait western fishery. There are shellfish beds along the intertidal area along the western side of the channel to the southwest of Port Dinorwic Marina.
- 7.9.26 Other shellfish present include crabs and lobsters, including the reef dwelling scorpion spider crab (*Inachus dorsettensis*) and velvet swimming crab (*Necora puber*), with other shellfish including winkles and cockles hand-collected from the intertidal zone.
- 7.9.27 With no species of shellfish listed as qualifying features of the Menai Strait and Conwy Bay SAC the overall nature conservation value of the shellfish community is considered to be of **Local** value.

### Marine mammals

- 7.9.28 Marine mammal sightings from Sea Watch and casual sightings from Whale and Dolphin Conservation (WDC) and Irish Whale and Dolphin Group (IWDG) (Ref 9.51) have been utilised to inform this baseline section relating to cetaceans and grey seal information was taken from a Marine Scotland dataset (Figure 9.8 (**Document 5.9.1.8**)).
- 7.9.29 Harbour porpoise is the most common cetacean present in the waters off Anglesey, with areas of highest density occurring to the north and north west of the Isle. Records of harbour porpoise peak in July and August of each year (which would likely include a potential bias in observer effort). Various estimates of the wider population have been made between 2002 and 2013, ranging from 309 to 565 individuals off north Anglesey and from 1,074 to 410 in Cardigan Bay.
- 7.9.30 Bottlenose dolphin is the next most frequent cetacean observed in the waters off Anglesey with an average group size of approximately 26 individuals. In winter, this species is widely dispersed in large groups to the north and east of Anglesey; in summer, this species is present in small groups near the coast

with the greatest density of individuals concentrated in Tremadog Bay and south Cardigan Bay. The Cardigan Bay population is the largest in the UK.

- 7.9.31 Grey seal occur around the Anglesey coast and islands, with hot spots around Puffin Island (which provides a haul out site) to the north of the Menai Strait and to the north west of Anglesey (densities of between 50 and 100 per 5x5 km square).
- 7.9.32 Harbour porpoise, bottlenose dolphin and grey seal are known to occasionally pass through the Menai Strait (e.g. there is one record of bottlenose dolphin between 2004 and 2014 in the vicinity of the works); however, the shores are not utilised as haul out sites for grey seal. Although individuals may utilise the Menai Strait to travel between Caernarfon Bay or Cardigan Bay and Liverpool Bay, these marine mammals are not commonly observed within the area (NRW meeting, October, 2015<sup>10</sup>). Furthermore, it is expected that owing to the relatively narrow waterway and coastline each side, any individuals that were present in the Strait to be adequately recorded by both land and boatbased observers. Distributions of harbour porpoise, bottlenose dolphin and grey seal are included in Image 9.1, Image 9.2 and Figure 9.8 (Document 5.9.1.8) respectively.
- 7.9.33 These species fall under various conservation designations, including the Habitats Directive, Wildlife and Countryside Act and Bonn Convention. Harbour porpoise and bottlenose dolphin are also included on Schedule 2 of the Conservation of Habitats and Species Regulations 2017, therefore, Marine mammals are considered to be of **International** value.

<sup>&</sup>lt;sup>10</sup> NRW meeting minutes, 21 October 2015, Ty Menai: North Wales Connection: Boreholes within the Menai and onshore.



Image 9.1 Distribution (sighting records) of harbour porpoise around Anglesey and the wider Irish Sea (2004-2014) (Ref 9.51).



Image 9.2 Distribution (sighting records) of bottlenose dolphin around Anglesey and the wider Irish Sea (2004-2014) (Ref 9.51).

7.9.34 Figure 9.8 (Document 5.9.1.8) shows Grey seal total estimated usage for the Irish Sea. Dataset produced by SMRU (2013) on behalf of Marine Scotland. Data available on the Marine Scotland website (Ref 9.52).

### Otter (in the marine environment)

7.9.35 Otter is a feature of the Afon Gwyrfai a Llyn Cwellyn SAC. It is included in this section as individuals may utilise the intertidal areas of the Menai Strait that are close to freshwater discharges, for activities such as foraging for crabs. This species therefore has the potential to be vulnerable to effects of the Project. See Section 7.7 for more information on this species.

# 8 Potential Effects

# 8.1 INTRODUCTION

- 8.1.1 This section describes the potential effects of the Proposed Development on ecology and nature conservation receptors in the absence of mitigation except by design. The receptors considered are those summarised in section 7 baseline conditions and the assessment follows the methods outlined in section 4 methodology.
- 8.1.2 The ecological features and potential impacts addressed fall under three broad categories:
  - direct and in-direct impacts on **sites** designated for their nature conservation interest (statutory and non-statutory) located within the study area (e.g. temporary disturbance, loss of habitat, fragmentation);
  - direct and in-direct impacts on **habitats** of notable interest (e.g. the removal of trees, hedgerows and any other notable habitats); and
  - direct and in-direct impacts upon legally protected and notable **species** (e.g. disturbance during sensitive periods (breeding season/hibernation), injury/killing, post-construction interference). Note that some species, such as dormouse, have been excluded from the assessment, in accordance with discussions with NRW.
- 8.1.3 The assessment considers construction (C), operation (O), maintenance (M) and decommissioning (D) of the Proposed Development. Details of each of these stages are set out in Chapter 4, Construction, Operation, Maintenance and Decommissioning (**Document 5.4**).
- 8.1.4 The potential effects that are reported take into account mitigation by design, but do not take into account the standard mitigation procedures or those required to reduce the potential for significant effects.
- 8.1.5 Table 9.23 provides a general description of the potential ecological effects that could occur as a result of the Proposed Development on identified ecological receptors and considers whether an effect is likely to occur at each phase of the Proposed Development.

Table 9.23 Summary of Potential Ecological Effects at each Phase of Development							
Receptor Potential Effect		Description		Phase			
			С	0	Μ	D	
Corsydd Môn / Anglesey Fens SAC Corsydd Môn a Llyn / Anglesey and Llyn Fens and Ramsar/ Cors Erddreiniog SSSI and NNR Temporar disturban displacen degradati Hydrologi alteration	Direct loss of habitat	There could be small areas of temporary habitat loss in specific locations within all of the designated sites (SAC/Ramsar/SSSI/NNR) due to drainage mitigation, where habitats would be reinstated after construction. There could be very small areas of permanent vegetation management, limited to the NNR, where trees cannot be reinstated given the operational requirements of the OHL due to the need to maintain a low level of height in the vegetation beneath the OHL.	✓	•	•	•	
	Temporary disturbance/ displacement/ degradation	Temporary disturbance or degradation of habitats and displacement of species could occur as a result of noise, visual disturbance, obstructions and habitat alteration. This also includes effects as a result of noise, and dust generation and deposition.	✓		~	✓	
	Hydrological alteration	Modifications to local drainage, ground works and removal of vegetation have the potential to affect the local hydrology potentially resulting in changes to water levels and degradation of habitats.	*	*	•	~	
	Severance and fragmentation	Clearance of sections of vegetation could lead to small scale severance and fragmentation of remaining habitat within all of the designated sites (SAC/Ramsar/SSSI/NNR). Most habitats would be reinstated meaning that the effects would be temporary. However small scale woodland fragmentation would be permanent limited to the NNR, given the	✓				

Table 9.23 Summary of Potential Ecological Effects at each Phase of Development									
Receptor	eceptor Potential Effect Description		Phase						
			С	0	Μ	D			
		operational requirements of the OHL. Fragmentation may affect a number of species that depend on continuous vegetation for foraging, commuting and shelter.							
Eryri/Snowdon ia SAC	Temporary disturbance/ displacement/ degradation	Temporary disturbance or degradation of habitats and displacement of species associated with the habitats could occur as a result of potential through changes in air quality through construction phase emergency generator emissions.	✓		✓ 	✓ 			
Tre'r Gof SSSI	Temporary disturbance/ displacement/ degradation	Temporary disturbance or degradation of habitats and displacement of species associated with the habitats could occur as a result of potential for discharges to water through spills and siltation and changes in air quality through dust generation and deposition.	~		~	<b>~</b>			
Llyn Alaw SSSI	Temporary disturbance/ displacement/ degradation	Temporary disturbance of habitats could result potential for discharges to water through spills and siltation where sites are within or adjacent to, or downstream of, the Order Limits.	~		~	<b>~</b>			
Caeau Talwrn SSSI	Temporary disturbance/ displacement/ degradation	Temporary disturbance of habitats and displacement of species associated with the habitats could occur through potential for discharges to water through spills and siltation during moderate-high flows only for the eastern component only. This also includes effects as a result of dust generation and deposition.	~		~	✓			
Table 9.23 Summary of Potential Ecological Effects at each Phase of Development									
---	---	--	-------	---	---	---	--	--	--
Receptor	Potential Effect	Description	Phase						
			С	0	М	D			
	Hydrological alteration	Modifications to local drainage, ground works and removal of vegetation have the potential to affect the local hydrology potentially resulting in changes to water levels and degradation of habitats.	~						
SSSIs not subject to direct loss but within 200 m of Order Limits and construction traffic routes.	Temporary disturbance/ displacement/ degradation	<ul> <li>Temporary disturbance or degradation of habitats and displacement of species associated with the habitats could occur through potential for discharges to water through spills and siltation where sites are within or adjacent to, or downstream of, the Order Limits, primarily Malltraeth Marsh. This also includes effects as a result of emissions and dust generation and deposition.</li> <li>Includes the following SSSIs;</li> <li>Malltraeth Marsh/Cors Ddyga SSSI and RSPB Reserve; and</li> <li>Coedydd Afon Menai SSSI.</li> </ul>	✓		•	✓			
Marine Statutor	y Designated Sites								
Menai Strait and Conwy Bay SAC and Glannau	Habitat loss and contamination	There could be loss of benthic habitat from areas of seabed affected in the unlikely event of blowout of drilling slurry <sup>11</sup> . Furthermore, contamination from drilling slurry may occur in the waters overlying this area or be carried	✓						

<sup>&</sup>lt;sup>11</sup> For a description of blowout refer to paragraphs 9.3.81 and 9.3.82.

Table 9.23 Summary of Potential Ecological Effects at each Phase of Development								
Receptor	Potential Effect	Description	Phase					
			С	0	Μ	D		
Porthaethwy SSSI		with the tide, which may affect habitats (e.g. Annex I reefs and mudflats) and species inhabiting the vicinity.						
Marine SAC/cSACs	Disorientation of fauna from electric and magnetic fields <sup>12</sup> (EMF)	<ul> <li>There could be disorientation of individuals of sensitive species from EMFs during operation. EMF have the potential to disorientate marine mammals such as harbour porpoise and bottlenose dolphin from the following sites:</li> <li>Pen Llyn a`r Sarnau/Lleyn Peninsula and the Sarnau SAC;</li> <li>North Anglesey Marine cSAC;</li> <li>West Wales Marine cSAC; and</li> <li>Cardigan Bay SAC</li> </ul>		✓				
	Disturbance of individuals/direct effects (noise and vibration)	<ul> <li>There could be disturbance of individuals of sensitive species to noise and vibration during construction. Noise and vibration has the potential to cause behavioural changes or, in more extreme cases, damage to hearing in marine mammals such as porpoise and dolphins from the following sites:</li> <li>Pen Llyn a`r Sarnau/Lleyn Peninsula and the Sarnau SAC;</li> <li>North Anglesey Marine cSAC;</li> </ul>	•					

<sup>&</sup>lt;sup>12</sup> For a description of EMF refer to paragraph 9.3.96.

Table 9.23 Summary of Potential Ecological Effects at each Phase of Development									
Receptor	Potential Effect	Description	Phase						
			С	0	М	D			
		<ul><li>West Wales Marine cSAC; and</li><li>Cardigan Bay SAC</li></ul>							
Afon Gwyrfai a Llyn Cwellyn SAC	Habitat loss and contamination	There could be loss of benthic habitat from areas of seabed affected in the unlikely event of blowout of drilling slurry. Furthermore, contamination from drilling fluids may occur in the waters overlying this area which may affect habitats and species inhabiting or individuals passing through the vicinity.	~						
	Disorientation of individuals (EMF)	There could be disturbance of individuals of sensitive species from EMFs during operation. EMFs have the potential to disorientate fish such as Atlantic salmon on their migration routes.		✓ 					
	Disturbance of individuals, direct effects (noise and vibration)	There could be disturbance to fish present in the Menai Strait from noise propagated into the water above during construction of the tunnel. This has the potential to affect individuals of Atlantic salmon in terms of disturbance or direct injury whilst on their migration route. Any otter foraging in the water in the intertidal zone would not be continually submerged as per marine mammal species and the likelihood of an otter being beneath the water at the time of a blast is extremely low, particularly given the very short blast duration.	~						

Table 9.23 Summary of Potential Ecological Effects at each Phase of Development									
Receptor	Potential Effect	Description	Phase						
			С	0	М	D			
Glannau Porthaethwy SSSI	Habitat Contamination	There could be loss of benthic habitat from areas of seabed affected in the unlikely event of blowout of drilling slurry. Furthermore, contamination from drilling fluids may occur in the waters overlying this area which may affect habitats and species inhabiting the vicinity.	~						
Non Statutory D	esignated Sites								
Gylched Covert CWS	Direct loss of habitat	There could be both temporary habitat loss, where habitats would be reinstated after construction, and permanent habitat loss, where habitats cannot be reinstated as they are beneath the OHL.	✓	<b>v</b>	~	<b>v</b>			
		Habitats available for foraging, breeding, hibernation and resting/roosting by protected or notable species could be temporarily or permanently reduced.							
	Temporary disturbance/ displacement/ degradation	Temporary disturbance or degradation of habitats and displacement of species associated with the habitats could occur as a result of dust generation and deposition.	~	✓	✓	✓			
	Severance and fragmentation	Clearance of sections of vegetation could lead to small scale severance and fragmentation of remaining habitat. Woodland fragmentation would be permanent given the operational requirements of the OHL. Fragmentation	~	<b>v</b>	~	<ul> <li>✓</li> </ul>			

Table 9.23 Summary of Potential Ecological Effects at each Phase of Development									
Receptor	Potential Effect	Description	Phase						
			С	0	М	D			
		may affect a number of species that depend on continuous vegetation for foraging, commuting and shelter.							
	Hydrological alteration	Modifications to local drainage, ground works and removal of vegetation have the potential to affect the local hydrology potentially resulting in changes to water levels and degradation of habitats.	~						
Coed Nant Y Garth cCWS	Direct loss of habitat	There could be both temporary habitat loss, where habitats would be reinstated after construction, and permanent habitat loss, where habitats cannot be reinstated as they are beneath the OHL.	~	~	~	~			
		Most habitats would be reinstated following construction, meaning that permanent losses would be small. However, reinstatement of trees and woodland may not be feasible given the operational requirements of the OHL or the inability to fully reinstate (e.g. ancient woodland).							
		Habitats available for foraging, breeding, hibernation and resting/roosting by protected or notable species could be temporarily or permanently reduced.							
	Temporary disturbance/ displacement/ degradation	Temporary disturbance or degradation of habitats and displacement of species associated with the habitats could occur as a result of pollution, emissions and dust generation and deposition.	✓	✓	<ul> <li>✓</li> </ul>	✓			

Table 9.23 Summary of Potential Ecological Effects at each Phase of Development								
Receptor	Potential Effect	Description	Phase					
			С	0	Μ	D		
	Severance and fragmentation	Clearance of sections of vegetation could lead to small scale severance and fragmentation of remaining habitat. Most vegetation would be reinstated meaning that the effects would be temporary. However woodland fragmentation would be permanent given the operational requirements of the OHL. Fragmentation may affect a number of species that depend on continuous vegetation for foraging, commuting and shelter.	>	~	~	~		
Coed Rhos- fawr cCWS	Direct loss of habitat	There could be temporary habitat loss, where habitats would be reinstated after construction. However this comprises a very small area of potentially affected habitat that may not be affected at all. Most habitats would be reinstated following construction, meaning that permanent losses would be small. However reinstatement of trees and woodland may not be feasible given the operational requirements of the OHL or the inability to fully reinstate (e.g. ancient woodland).	✓	•	✓	✓		
		Habitats available for foraging, breeding, hibernation and resting/roosting by protected or notable species could be temporarily or permanently reduced.						
	Temporary disturbance/ displacement/ degradation	Temporary disturbance or degradation of habitats and displacement of species associated with the habitats could occur as a result of dust generation and deposition, and through spills and siltation.	✓	<b>v</b>	<b>v</b>	✓		

Table 9.23 Summary of Potential Ecological Effects at each Phase of Development										
Receptor	Potential Effect	Description	Phase							
			С	0	Μ	D				
Pentir Substation cCWS	Direct loss of habitat	There could be both temporary habitat loss, where habitats would be reinstated after construction, and permanent habitat loss, where habitats cannot be reinstated as they are within the footprint of the permanent infrastructure. Reinstatement of trees and woodland may not be feasible, given the operational requirements of the OHL or the inability to fully reinstate (e.g. the ancient woodland within this cCWS). Habitats available for foraging, breeding, hibernation and resting/roosting by protected or notable species could be temporarily or permanently reduced.	•	×	•	•				
	Temporary disturbance/ displacement/ degradation	Temporary disturbance or degradation of habitats and displacement of species associated with the habitats could occur as a result of pollution including dust generation and deposition, and through spills and siltation.	✓	✓ ✓	✓	•				
	Severance and fragmentation	Clearance of sections of vegetation could lead to small scale severance and fragmentation of remaining habitat. Woodland fragmentation would be permanent given the operational requirements of the OHL. Fragmentation may affect a number of species that depend on continuous vegetation for foraging, commuting and shelter.	~	~	~	~				

Table 9.23 Sum	Table 9.23 Summary of Potential Ecological Effects at each Phase of Development								
Receptor	Potential Effect	Description	Phase						
			С	0	М	D			
Coed Ty'n- llwyn cCWS	Direct loss of habitat	There could be temporary habitat loss, where grassland and low level habitats would be reinstated after construction; permanent habitat loss is unlikely to be required in this area.	~		~	~			
		Habitats available for foraging, breeding, hibernation and resting/roosting by protected or notable species could be temporarily reduced.							
	Temporary disturbance/ displacement/ degradation	Temporary disturbance or degradation of habitats and displacement of species associated with the habitats could occur as a result of pollution including emissions, dust generation and deposition, and through spills and siltation.	~		~	✓			
	Severance and fragmentation	Clearance of sections of vegetation could lead to small scale severance and fragmentation of remaining habitat. Grassland and other low level vegetation would be reinstated meaning that the effects would be temporary. Fragmentation may affect a number of species that depend on continuous vegetation for foraging, commuting and shelter.	~		~	✓			
CWS not subject to direct loss but within 200 m of Order Limits and	Temporary disturbance/ displacement/ degradation	Temporary disturbance or degradation of habitats and displacement of species associated with the habitats could occur as a result of pollution including emissions, dust generation and deposition, and through spills and siltation.	~		~	~			
		<ul> <li>Includes the following CWS – noted as candidate where relevant;</li> <li>Arfordir Mynydd y Wylfa - Trwyn Penrhyn;</li> </ul>							

Table 9.23 Summary of Potential Ecological Effects at each Phase of Development									
Receptor	Potential Effect	Description	Pha	se					
			С	0	М	D			
construction traffic routes.		<ul> <li>Afon Wygyr;</li> <li>Coed Cefn-Du;</li> <li>Graigfryn;</li> <li>Rhostir Ponciau;</li> <li>Maen Eryr;</li> <li>Tir Pori Talwrn;</li> <li>Cors Tregarnedd Fawr;</li> <li>Fodol Ganol – candidate;</li> <li>Coed Pont Ladi-wen;</li> <li>Parc Nant-y-garth - candidate;</li> <li>Coed Tyddyn Badyn – candidate;</li> <li>Glan-rhyd reservoir – candidate;</li> <li>Coed Pant-y-cyff – candidate;</li> <li>Treborth Road Woodlands – candidate;</li> <li>Pailway cuttings (Treborth);</li> </ul>	С	0	M	D			
		<ul> <li>Vaynol Park woodlands and lake – candidate;</li> </ul>							
		<ul> <li>Parc Menai woodlands – candidate;</li> </ul>							
		Rhydau Duon – candidate;							

Table 9.23 Summary of Potential Ecological Effects at each Phase of Development								
Receptor	Potential Effect	Description	Phase					
			С	0	М	D		
	Hydrological alteration	<ul> <li>Felin Hen &amp; Cycle Track – candidate;</li> <li>Cororion Rough – candidate;</li> <li>Parc Lon Isaf – candidate;</li> <li>Parc Siambragwynion – candidate; and</li> <li>Coed Rhos Uchaf – candidate.</li> </ul> Modifications to local drainage, ground works and removal of vegetation have the potential to affect the local hydrology potentially resulting in changes to water levels and degradation of habitats.	✓		<ul> <li>✓</li> </ul>	✓		
		<ul><li>Maen Eryr; and</li><li>Tir Pori Talwrn.</li></ul>						
Habitats								
Woodland (Ancient, Broadleaved, Coniferous and Mixed Plantation)	Direct loss of habitat	There could be temporary habitat loss, where habitats would be reinstated after construction or trees are managed for access purposes such as trimming overhanging branches. Permanent habitat loss could result where reinstatement may not be feasible given the operational requirements of the OHL or the inability to fully reinstate (e.g. ancient woodland).	~	~	~	~		

Table 9.23 Summary of Potential Ecological Effects at each Phase of Development									
Receptor	Potential Effect	Description	Phase						
			С	0	Μ	D			
	Temporary disturbance/ displacement/ degradation	Temporary disturbance or degradation of habitats could include effects as a result of pollution, emissions and dust generation and deposition.	~		<b>v</b>	~			
	Severance and fragmentation	Clearance of sections of vegetation could lead to small scale severance and fragmentation of remaining habitat. Woodland fragmentation could be permanent given the operational requirements of the OHL.	✓	~	~	~			
Grassland (Marshy Grassland, Semi- Improved Neutral, Poor and Acid Grassland, Unimproved Neutral and Acid Grassland, Improved	Direct loss of habitat	There could be both temporary and permanent habitat losses. The majority of grassland and arable habitats could be reinstated following construction, meaning that permanent losses would be small and would only occur where habitats are within the footprint of the permanent infrastructure.	*	~	×	<b>~</b>			
	Temporary disturbance/ displacement/ degradation	Temporary disturbance or degradation of habitats could include effects as a result of pollution, and dust generation and deposition.	✓ 		✓ 	✓ 			
	Severance and fragmentation	Clearance of sections of vegetation could lead to small scale severance and fragmentation of remaining habitat. Grassland could be reinstated meaning that the effects would be temporary.	~	~	~	~			

Table 9.23 Summary of Potential Ecological Effects at each Phase of Development									
Receptor	Potential Effect	Description	Phase						
			С	0	М	D			
grassland) and Arable	Hydrological alteration	Modifications to local drainage, ground works and removal of vegetation have the potential to affect the local hydrology potentially resulting in changes to water levels and degradation of habitats.	~	~	~	✓ 			
Scrub, tall ruderal habitat and acid dry dwarf shrub heath	Direct loss of habitat	There could be both temporary and permanent habitat losses. The majority of these habitats could be reinstated following construction, meaning that permanent losses (scrub and ruderal) would be small and would only occur where habitats are within the footprint of the permanent infrastructure.	~	~	~	~			
	Temporary disturbance/ displacement/ degradation	Temporary degradation of habitats could include effects as a result of pollution, and dust generation and deposition.	<b>v</b>		✓ ✓	✓ ✓			
	Severance and fragmentation	Clearance of sections of vegetation could lead to small scale severance and fragmentation of remaining scrub and ruderal habitat. Habitat could be reinstated meaning that the effects would be temporary.	~		~	~			
Hedgerows (Important and	Direct loss of habitat	There could be both temporary and permanent habitat losses. The majority of hedgerows could be reinstated following construction, meaning that permanent losses would be small and would only occur where they	~	~	~	~			

Table 9.23 Summary of Potential Ecological Effects at each Phase of Development									
Receptor	Potential Effect	Description	Pha	se					
			С	0	М	D			
Non Important)		are within the footprint of the permanent infrastructure and associated landscape planting.							
	Temporary disturbance/ displacement/ degradation	Temporary degradation of hedgerows could include effects as a result of pollution, and dust generation and deposition.	~		<b>√</b>	<b>√</b>			
	Severance and fragmentation	Removal of sections of hedgerows could lead to small scale severance and fragmentation of remaining habitat. Hedgerows would be reinstated meaning that the effects would be temporary except for within the THH/CSEC.	~	<b>√</b>	✓ 	<ul> <li>✓</li> </ul>			
Ponds	Direct loss of habitat	There could be temporary habitat loss for one pond (Pond A254) at Braint THH construction compound; habitat would be reinstated after construction.	~						
	Temporary disturbance/ displacement/ degradation	Temporary disturbance of waterbodies could occur as a result of pollution and habitat alteration.	✓		~	✓ ✓			
	Hydrological Alteration	Modifications to local drainage, ground works and removal of vegetation have the potential to affect the local hydrology potentially resulting in changes to water levels and degradation of pond habitats.	~		~	✓			

Table 9.23 Summary of Potential Ecological Effects at each Phase of Development									
Receptor	Potential Effect	Description	Phase						
			С	0	М	D			
Watercourses and Drains	Direct loss of habitat	There could be temporary habitat loss where culverts are installed; habitat would be reinstated after construction.	✓		~	✓			
	Temporary disturbance/ displacement/ degradation	Temporary disturbance of watercourses including bridge constructions and culverting of watercourses could occur. This also includes effects as a result of pollution, siltation, and the potential for spread if INNS.	~		✓ 	✓			
	Severance and fragmentation	Temporary watercourse crossings could fragment the watercourse for the duration of the works. Watercourses would be reinstated meaning that the effects would be temporary.	~		~	~			
	Hydrological Alteration	Modifications to local drainage, ground works and removal of vegetation have the potential to affect the local hydrology potentially resulting in changes to water levels and degradation of habitats.	~		~	~			
Woodland W6 and W8 Communities	Direct loss of habitat	There could be temporary habitat loss, where habitats would be reinstated after construction. Permanent habitat loss could result where reinstatement may not be feasible given the operational requirements of the OHL or the inability to fully reinstate.	<b>√</b>	•	✓ ✓	•			
	Temporary disturbance/ displacement/ degradation	Temporary disturbance or degradation of habitats could include effects as a result of pollution, and dust generation and deposition.	<b>√</b>		✓	✓			

Table 9.23 Summary of Potential Ecological Effects at each Phase of Development									
Receptor	Potential Effect	Description	Phase						
			С	0	М	D			
	Severance and fragmentation	Clearance of sections of vegetation could lead to small scale severance and fragmentation of remaining habitat. Woodland fragmentation could be permanent given the operational requirements of the OHL.	~	~	~	~			
Annex 1 Fen Meadow Communities	Direct loss of habitat	There could be temporary habitat loss, where habitats would be reinstated after construction. However this habitat is protected from loss within Schedule of Environmental Commitments ( <b>Document 7.4.2.1</b> ).	~		~	•			
	Temporary disturbance/ displacement/ degradation	Temporary disturbance or degradation of habitats could include effects as a result of pollution, and dust generation and deposition.	✓		✓ ✓	✓			
	Hydrological alteration	Modifications to local drainage, ground works and removal of vegetation have the potential to affect the local hydrology potentially resulting in changes to water levels and degradation of habitats.	~		~	~			
Species									
Badger	Direct loss of habitat	There could be both temporary habitat loss, where habitats would be reinstated after construction, and permanent habitat loss, where habitats cannot be reinstated as they are within the footprint of the permanent infrastructure or where reinstatement may not be feasible, given the operational requirements of the OHL.	~	~	~	~			

Table 9.23 Summary of Potential Ecological Effects at each Phase of Development								
Receptor	Potential Effect	Description	Phase					
			С	0	М	D		
		Badgers may rely on habitats where direct loss could occur. The overall area available for various activities such as foraging, breeding, hibernation and resting/roosting by protected or notable species could be temporarily or permanently reduced.						
	Temporary disturbance/ displacement/ degradation	Temporary disturbance of habitats and displacement of species associated with the habitats could occur as a result of noise, visual disturbance, vibration, obstructions and habitat alteration. This also includes effects as a result of dust generation and deposition.	✓		<b>v</b>	~		
		Badger rely on habitats where direct loss could occur. The overall area available for various activities such as foraging and resting by badger could be temporarily or permanently reduced.						
	Operational noise	Disturbance due to operational noise could occur.		~				
	Severance and fragmentation	Fragmentation may affect a number of species that depend on continuous vegetation for foraging, commuting and shelter.	✓	~				
	Risk of direct impact/harm	Direct impacts on certain species may occur particularly during initial stages of vegetation clearance and ground works, and removal of a sett.	✓		✓	~		
	Loss or damage to shelter,	There is the potential for the works to permanently remove or damage a partially active subsidiary badger sett.	✓					

Table 9.23 Summary of Potential Ecological Effects at each Phase of Development									
Receptor	Potential Effect	Description	Phase						
			С	0	М	D			
	protection and/or breeding habitat								
Water vole	Direct loss of habitat	Temporary direct loss of non breeding potential water vole habitat could occur whilst watercourse crossings are in place.	~		✓	~			
	Temporary disturbance/ displacement/ degradation	Temporary disturbance of habitats (i.e. culverting of watercourses) and displacement of species associated with the habitats could occur as a result of noise, visual disturbance, vibration, obstructions and habitat alteration. This also includes effects as a result of dust generation and deposition.	~		~	~			
	Severance and fragmentation	Clearance of sections of vegetation could lead to small scale severance and fragmentation of remaining habitat. Grassland, hedgerow and other low level vegetation would be reinstated meaning that the effects would be temporary. Fragmentation may affect water vole, which depend on continuous vegetation for foraging, commuting and shelter; however small sections of culverts are not usually a restriction for water voles in terms of fragmentation.	•		✓	✓			
	Risk of direct impact/harm	Direct impacts on water vole may occur particularly during initial stages of vegetation clearance and ground works.	~		•	~			

Table 9.23 Summary of Potential Ecological Effects at each Phase of Development								
Receptor	Potential Effect	Description	Phase					
			С	0	М	D		
	Loss or damage to shelter, protection and/or breeding habitat	There is the potential for the works to remove or damage habitats and features that are used by water vole for shelter, protection and/or breeding.	~		~	✓		
Otter	Direct loss of habitat	Temporary direct loss of non breeding habitat could occur whilst watercourse crossings are in place.	~		~	~		
	Temporary disturbance/ displacement/ degradation	Temporary disturbance of habitats (i.e. culverting of watercourses) and displacement of otter could occur as a result of noise, visual disturbance, vibration, obstructions and habitat alteration. This also includes effects as a result of dust generation and deposition.	~		~	<b>√</b>		
	Severance and fragmentation	Clearance of sections of vegetation could lead to small scale severance and fragmentation of the habitat that otter use for foraging, commuting and shelter. Vegetation would be reinstated meaning that the effects would be temporary.	✓		✓	✓		
	Risk of direct impact/harm	Direct impacts on otter may occur particularly during initial stages of vegetation clearance and ground works.	•		✓	✓		
Bats	Permanent disturbance/	THH ventilation and conductor noise.		~				

Table 9.23 Summary of Potential Ecological Effects at each Phase of Development									
Receptor	Potential Effect	Description	Pha	Phase					
			С	0	М	D			
	displacement /degradation								
	Direct loss of habitat	There could be both temporary habitat loss, where habitats would be reinstated after construction, and permanent habitat loss, where habitats cannot be reinstated as they are within the footprint of the permanent infrastructure.	~	✓	<b>~</b>	✓			
		For habitats like trees, and woodland, reinstatement may not be feasible, given the operational requirements of the OHL or the inability to fully reinstate (e.g. ancient woodland).							
		There are a number of bat species that rely on habitats where direct loss could occur. The overall area available for various activities such as foraging, breeding, hibernation and resting/roosting bats could be temporarily or permanently reduced.							
	Temporary disturbance/ displacement/ degradation	Temporary disturbance of habitats and displacement of bats associated with the habitats could occur as a result of noise, visual disturbance, vibration, obstructions and habitat alteration. This also includes effects as a result of dust generation and deposition.	<b>√</b>		~	~			
	Severance and fragmentation	Fragmentation may affect a number of bat species that depend on continuous vegetation for foraging, commuting and shelter.	~	~	~	~			

Table 9.23 Summary of Potential Ecological Effects at each Phase of Development									
Receptor	Potential Effect	Description	Phase						
			С	0	М	D			
	Loss or damage to shelter, protection and/or breeding habitat	There is the potential for the works to remove or damage habitats and features that are used by certain bat species for shelter, protection and/or breeding. This effect may be temporary or permanent. For example removal of a mature tree that contains a bat roost would be a permanent effect.	~		~	~			
Red squirrel	Direct loss of habitat	There could be both temporary habitat loss, where habitats would be reinstated after construction, and permanent habitat loss, where habitats cannot be reinstated as they are within the footprint of the permanent infrastructure or due to the operational requirements of the OHL.	✓	✓	✓	✓			
	Temporary disturbance/ displacement/ degradation	Temporary disturbance of habitats and displacement of red squirrel could occur as a result of noise, visual disturbance, vibration, obstructions and habitat alteration. This also includes effects as a result of dust generation and deposition.	✓		✓ ✓	✓ ✓			
	Severance and fragmentation	Fragmentation may affect red squirrel, which depend on continuous vegetation for foraging, commuting and shelter.	~	~	~	~			
	Operational noise.	Disturbance due to operational noise could occur.		~					

Table 9.23 Summary of Potential Ecological Effects at each Phase of Development								
Receptor	Potential Effect	Description	Phase					
			С	0	М	D		
	Risk of direct impact/harm (young in dreys)	Direct impacts on red squirrel may occur particularly during initial stages of vegetation clearance and ground works.	~		~	~		
Brown hare and pole cat	Direct loss of habitat Brown hare (grassland,	There could be both temporary habitat loss, where habitats would be reinstated after construction, and permanent habitat loss, where habitats cannot be reinstated as they are within the footprint of the permanent infrastructure or the operational requirements of the OHL.	<b>√</b>	<b>√</b>	✓	<b>√</b>		
	hedgerows) and pole cat (grassland and woodland)	These species rely on habitats where direct loss could occur. The overall area available for various activities such as foraging, breeding, and resting by protected or notable species could be temporarily or permanently reduced.						
	Temporary disturbance/ displacement/ degradation	Temporary disturbance of habitats and displacement could occur as a result of noise, visual disturbance, vibration, obstructions and habitat alteration.	✓		✓	✓		
	Operational noise.	Disturbance due to operational noise could occur.		✓				
	Severance and fragmentation	Fragmentation may affect these species that depend on continuous vegetation for foraging, commuting and shelter.	~		~	~		

Table 9.23 Sum	Table 9.23 Summary of Potential Ecological Effects at each Phase of Development								
Receptor	Potential Effect	Description	Phas		Phase				
			С	0	М	D			
	Risk of direct impact/harm	Direct impacts on these species may occur particularly during initial stages of vegetation clearance and ground works.	*		~	~			
Great crested newt and other amphibians	Direct loss of habitat	There would be no direct loss of GCN ponds, therefore no loss of breeding habitat. There could be both temporary terrestrial habitat loss, where habitats would be reinstated after construction, and permanent terrestrial habitat loss, where habitats cannot be reinstated as they are within the footprint of the permanent infrastructure or given the operational requirements of the OHL. The worst case scenario, Pond A254 could be lost during construction at Braint THH due to the size of the compound, however this is not a GCN pond.	*	•	•	✓			
	Temporary disturbance/ displacement/ degradation	Temporary disturbance of habitats and displacement of GCN associated with the habitats could occur as a result of noise, vibration, obstructions and habitat alteration.	~		~	~			
	Severance and fragmentation	Clearance of sections of vegetation could lead to small scale severance and fragmentation of remaining habitat. Grassland, hedgerow and other low level vegetation would be reinstated meaning that the effects would be temporary. However woodland fragmentation would be permanent given the operational requirements of the OHL.	~	~	~	~			

Table 9.23 Summary of Potential Ecological Effects at each Phase of Development								
Receptor	Potential Effect	Description	Phase					
			С	0	М	D		
		Fragmentation may affect GCN, which depend on continuous vegetation for foraging, commuting and shelter.						
	Risk of direct impact/harm	Direct impacts on GCN may occur particularly during initial stages of vegetation clearance and ground works.	~		~	✓		
Reptiles	Direct loss of habitat	There could be both temporary habitat loss, where habitats would be reinstated after construction, and permanent habitat loss, where habitats cannot be reinstated as they are within the footprint of the permanent infrastructure or due to the operational requirements of the OHL.	✓	✓	✓ ✓	<b>√</b>		
		There are a number of reptile species that rely on habitats where direct loss could occur. The overall area available for various activities such as foraging, breeding, hibernation and resting could be temporarily or permanently reduced.						
	Temporary disturbance/ displacement/ degradation	Temporary disturbance of habitats and displacement of reptile species associated with the habitats could occur as a result of noise, visual disturbance, vibration, obstructions and habitat alteration. This also includes effects as a result of dust generation and deposition.	✓	✓ 	✓	✓ 		
	Severance and fragmentation	Fragmentation may affect a number of reptile species that depend on continuous vegetation for foraging, commuting and shelter.	~		~	~		

Table 9.23 Summary of Potential Ecological Effects at each Phase of Development									
Receptor	Potential Effect	Description	Phase						
			С	0	М	D			
	Risk of direct impact/harm	Direct impacts on certain reptile species may occur particularly during initial stages of vegetation clearance and ground works.	✓		✓	✓			
Terrestrial invertebrates	Direct loss of habitat	There could be both temporary habitat loss, where habitats would be reinstated after construction, and permanent habitat loss, where habitats cannot be reinstated as they are within the footprint of the permanent infrastructure or due to the operational requirements of the OHL. There are a number of terrestrial invertebrate species that rely on habitats where direct loss could occur.	~	✓	~	✓			
	Temporary disturbance/ displacement/ degradation	Temporary disturbance of habitats and displacement of terrestrial invertebrate species associated with the habitats could occur as a result of noise, visual disturbance, vibration, obstructions and habitat alteration. This also includes effects as a result of dust generation and deposition.	~		~	×			
	Severance and fragmentation	Clearance of sections of vegetation could lead to small scale severance and fragmentation of remaining habitat. Grassland, hedgerow and other low level vegetation would be reinstated meaning that the effects would be temporary. However woodland fragmentation would be permanent given the operational requirements of the OHL. Fragmentation may affect a number of terrestrial invertebrate species that	~		~	~			
		depend on continuous vegetation for foraging, commuting and shelter.							

Table 9.23 Summary of Potential Ecological Effects at each Phase of Development									
Receptor	Potential Effect	Description	Phase						
			С	0	М	D			
	Risk of direct impact/harm	Direct impacts on certain terrestrial invertebrate species may occur particularly during initial stages of vegetation clearance and ground works.	✓		~	~			
Aquatic invertebrates and fish	Direct loss of habitat	There could be temporary habitat loss such as culvert location, where habitats would be reinstated after construction.	~		~	~			
	Temporary disturbance/ displacement/ degradation	Temporary disturbance of habitats (i.e. culverting of watercourses) and displacement of aquatic invertebrate and/or fish species associated with the habitats could occur as a result of noise, visual disturbance, vibration, obstructions and habitat alteration. This also includes effects as a result of siltation, and dust generation and deposition.	~		<b>*</b>	~			
	Severance and fragmentation	Fragmentation may affect a number of species that depend on continuous watercourses.	~		~	~			
	Risk of direct impact/harm	Direct impacts on certain species may occur particularly during initial stages of vegetation clearance and ground/in channel works.	~		~	~			
Ornithological									
Whooper swan	Direct loss of habitat	There could be temporary habitat loss, resulting in reduction in the area of foraging habitat available. However the majority of grassland habitats would be reinstated following construction, meaning that permanent losses would be small or zero. Any temporary land take during maintenance	~		•	<b>√</b>			

Table 9.23 Summary of Potential Ecological Effects at each Phase of Development									
Receptor	Potential Effect	Description	Phase						
			С	0	М	D			
		operations could affect this species, however permanent habitat losses affecting this species are not likely to occur.							
	Temporary disturbance/ displacement/ degradation	Temporary disturbance of habitats and displacement of birds using those habitats, especially where they occur on land, could occur as a result of noise, visual disturbance, vibration, obstructions and habitat alteration. This also includes effects as a result of dust.	~		~	✓			
	Collision Effects	The presence of conductors and supporting structures may present a risk of whooper swans colliding with the proposed infrastructure if they fly close to or across it. Risks are likely to be higher where pylons would be erected on or adjacent to foraging habitats and regularly used commuting routes.		<b>~</b>					
Mute Swan	Collision Effects	The presence of conductors and supporting structures may present a risk of mute swans colliding with the proposed infrastructure if they fly close to or across it. Risks are likely to be higher where pylons would be erected on or adjacent to foraging habitats and regularly used commuting routes. Temporary equipment may also pose a small and infrequent collision risk.		~					
Greenland White-fronted Goose	Collision Effects	The presence of conductors and supporting structures may present a risk of Greenland White-fronted Geese colliding with the proposed infrastructure if they fly close to or across it. Risks are likely to be higher where pylons would be erected on or adjacent to foraging habitats and regularly used commuting routes.		<b>√</b>					

Table 9.23 Summary of Potential Ecological Effects at each Phase of Development									
Receptor	Potential Effect	Description	Phase						
			С	0	М	D			
Greylag goose	Direct loss of habitat	There could be both temporary habitat loss, where habitats would be reinstated after construction, and permanent habitat loss, where habitats cannot be reinstated as they are within the footprint of the permanent infrastructure.	✓			<b>v</b>			
		The majority of grassland habitats would be reinstated following construction, meaning that permanent losses would be small.							
		The overall area of habitat used by feeding greylag geese could be reduced during the construction and decommissioning phases, and potentially during maintenance operations where these involve temporary land take, however permanent habitat losses affecting this species are not likely to occur.							
	Temporary disturbance/ displacement/ degradation	Temporary disturbance of habitats and displacement of species associated with the habitats could occur as a result of noise, visual disturbance, vibration, obstructions and habitat alteration. This also includes effects as a result of dust.	✓		~	✓ ✓			
	Collision Effects	The presence of conductors and supporting structures may present a risk of greylag geese colliding with the proposed infrastructure if they fly close to or across it. Risks are likely to be higher where pylons would be erected on or adjacent to foraging habitats, roosts and regularly used commuting routes.		~					

Table 9.23 Summary of Potential Ecological Effects at each Phase of Development									
Receptor	Potential Effect	Description	Phase						
			С	0	М	D			
Shelduck	Collision Effects	The presence of conductors and supporting structures may present a risk of shelduck colliding with the proposed infrastructure if they fly close to or across it. Risks are likely to be higher where pylons would be erected on or adjacent to foraging habitats and regularly used commuting routes.		~					
Mallard	Collision Effects	The presence of conductors and supporting structures may present a risk of mallards colliding with the proposed infrastructure if they fly close to or across it. Risks are likely to be higher where pylons would be erected on or adjacent to foraging habitats, breeding sites, roosts and regularly used commuting routes.		~					
	Temporary disturbance/ displacement/ degradation	Temporary disturbance of habitats and displacement of species associated with the habitats could occur as a result of noise, visual disturbance, vibration, obstructions and habitat alteration. This also includes effects as a result of dust.	✓		✓	•			
Shoveler	Collision Effects	The presence of conductors and supporting structures may present a risk of shovelers colliding with the proposed infrastructure if they fly close to or across it. Risks are likely to be higher where pylons would be erected on or adjacent to foraging habitats, roosts and regularly used commuting routes.		~					
Wigeon	Collision Effects	The presence of conductors and supporting structures may present a risk of wigeon colliding with the proposed infrastructure if they fly close to or		~					

Table 9.23 Summary of Potential Ecological Effects at each Phase of Development								
Receptor	Potential Effect	Description	Phase					
			С	0	М	D		
		across it. Risks are likely to be higher where pylons would be erected on or adjacent to foraging habitats, roosts and regularly used commuting routes.						
	Temporary disturbance/ displacement/ degradation	Temporary disturbance of habitats and displacement of species associated with the habitats could occur as a result of noise, visual disturbance, vibration, obstructions and habitat alteration. This also includes effects as a result of dust.	~		✓	✓ 		
Teal	Collision Effects	The presence of conductors and supporting structures may present a risk of teal colliding with the proposed infrastructure if they fly close to or across it. Risks are likely to be higher where pylons would be erected on or adjacent to foraging habitats, breeding sites, roosts and regularly used commuting routes.		✓				
	Temporary disturbance/ displacement/ degradation	Temporary disturbance of habitats and displacement of species associated with the habitats could occur as a result of noise, visual disturbance, vibration, obstructions and habitat alteration. This also includes effects as a result of dust.	<b>~</b>		✓	•		
Tufted Duck	Collision Effects	The presence of conductors and supporting structures may present a risk of tufted duck colliding with the proposed infrastructure if they fly close to or across it. Risks are likely to be higher where pylons would be erected		~				

Table 9.23 Summary of Potential Ecological Effects at each Phase of Development									
Receptor	Potential Effect	Description	Phase						
			С	0	М	D			
		on or adjacent to foraging habitats, breeding sites, roosts and regularly used commuting routes.							
Gadwall	Collision Effects	The presence of conductors and supporting structures may present a risk of gadwall colliding with the proposed infrastructure if they fly close to or across it. Risks are likely to be higher where pylons would be erected on or adjacent to foraging habitats and regularly used commuting routes.		<b>√</b>					
Cormorant	Collision Effects	The presence of conductors and supporting structures may present a risk of cormorant colliding with the proposed infrastructure if they fly close to or across it. Risks are likely to be higher where pylons would be erected on or adjacent to foraging habitats, breeding sites and regularly used commuting routes.		~					
Little Egret	Collision Effects	The presence of conductors and supporting structures may present a risk of little egret colliding with the proposed infrastructure if they fly close to or across it. Risks are likely to be higher where pylons would be erected on or adjacent to foraging habitats and regularly used commuting routes.		•					
Grey Heron	Collision Effects	The presence of conductors and supporting structures may present a risk of grey heron colliding with the proposed infrastructure if they fly close to or across it. Risks are likely to be higher where pylons would be erected on or adjacent to foraging habitats, breeding sites, roosts and regularly used commuting routes.		~					

Table 9.23 Summary of Potential Ecological Effects at each Phase of Development									
Receptor	Potential Effect	Description	Phase						
			С	0	М	D			
	Direct habitat loss at breeding sites	A nest close to Wylfa Nuclear Power Station could be impacted by losses of woodland habitat resulting from habitat clearance.	✓	✓	<b>√</b>	~			
	Damage or destruction of a nest	A regularly used nest close to Wylfa Nuclear Power Station could be damaged or destroyed during vegetation clearance or as a result of construction activities, particularly vehicle movements along an access road in the substation working area.	✓		✓ 	•			
	Temporary disturbance/ displacement/ degradation	Temporary disturbance of habitats and displacement of species associated with the habitats could occur as a result of noise, visual disturbance, vibration, obstructions and habitat alteration. This also includes effects as a result of dust.	<b>~</b>		<b>v</b>	•			
Red Kite	Collision Effects	The presence of conductors and supporting structures may present a risk of red kites colliding with the proposed infrastructure if they fly close to or across it. Risks are likely to be higher where pylons would be erected on or adjacent to foraging habitats and regularly used commuting routes.		✓ 					
Marsh Harrier	Collision Effects	The presence of conductors and supporting structures may present a risk of marsh harriers colliding with the proposed infrastructure if they fly close to or across it. Risks are likely to be higher where pylons would be erected on or adjacent to roosts, foraging habitats and regularly used commuting routes.		✓ 					

Table 9.23 Summary of Potential Ecological Effects at each Phase of Development										
Receptor	Potential Effect	Description	Phase							
			С	0	М	D				
Hen Harrier	Collision Effects	The presence of conductors and supporting structures may present a risk of hen harriers colliding with the proposed infrastructure if they fly close to or across it. Risks are likely to be higher where pylons would be erected on or adjacent to roosts, foraging habitats and regularly used commuting routes.		✓						
Kestrel	Collision Effects	The presence of conductors and supporting structures may present a risk of kestrels colliding with the proposed infrastructure if they fly close to or across it. Risks are likely to be higher where pylons would be erected on or adjacent to breeding sites and regularly used foraging habitats.		~						
	Direct habitat loss at possible breeding sites	This could include the loss of woodland and / or single trees within which breeding could occur, arising from vegetation clearance at woodlands and hedgerow crossings where mature trees are present. Areas identified with potential breeding include the woodland at the proposed Wylfa substation site.	~	~	~	~				
	Temporary disturbance and displacement from nests	Temporary disturbance of habitats and displacement of species associated with the habitats could occur as a result of noise, visual disturbance, vibration, obstructions and habitat alteration. This also includes effects as a result of dust.	*		~	~				

Table 9.23 Summary of Potential Ecological Effects at each Phase of Development									
Receptor	Potential Effect	Description	Phase						
			С	0	М	D			
	Damage or destruction of a nest	A possible nest close to Wylfa Nuclear Power Station could be damaged or destroyed during vegetation clearance or as a result of construction activities.	✓		~	~			
Hobby	Collision Effects	The presence of conductors and supporting structures may present a risk of hobby colliding with the proposed infrastructure if they fly close to or across it. Risks are likely to be higher where pylons would be erected on or adjacent to regularly used foraging areas.		~					
Peregrine	Collision Effects	The presence of conductors and supporting structures may present a risk of peregrine falcons colliding with the proposed infrastructure if they fly close to or across it. Risks are likely to be higher where pylons would be erected on or adjacent to breeding sites and regularly used hunting areas.		✓					
Merlin	Collision Effects	The presence of conductors and supporting structures may present a risk of merlins colliding with the proposed infrastructure if they fly close to or across it. Risks are likely to be higher where pylons would be erected on or adjacent to regularly used hunting areas.		✓ ✓					
Lapwing	Temporary disturbance/ displacement/ degradation	Temporary disturbance of habitats and displacement of birds using those habitats could occur as a result of noise, visual disturbance, vibration, obstructions and habitat alteration. This also includes effects as a result of dust.	~		✓	✓			

Table 9.23 Summary of Potential Ecological Effects at each Phase of Development									
Receptor	Potential Effect	Description	Phase						
			С	0	М	D			
	Collision Effects	The presence of conductors and supporting structures may present a risk of lapwings colliding with the proposed infrastructure if they fly close to or across it. Risks are likely to be higher where pylons would be erected on or adjacent to foraging habitats, breeding sites and regularly used commuting routes.		~					
	Damage or destruction of a nest	If site clearance and construction activities should occur during the breeding season (typically March – July for this species) this could result in the destruction of and/or damage to nests within the proposed construction area.	✓			•			
Curlew	Direct loss of habitat	There could be both temporary habitat loss, where habitats would be reinstated after construction, and permanent habitat loss, where habitats cannot be reinstated as they are within the footprint of the permanent infrastructure.	✓		✓	✓			
		The majority of grassland habitats would be reinstated following construction, meaning that permanent losses would be small or zero for this species.							
		The overall area of habitat available for foraging, breeding and resting by this species could be temporarily reduced but permanent habitat losses affecting this species are highly unlikely.							

Table 9.23 Summary of Potential Ecological Effects at each Phase of Development								
Receptor	Potential Effect	Description	Phase					
			С	0	Μ	D		
	Temporary disturbance/ displacement/ degradation	Temporary disturbance of habitats and displacement of birds using those habitats could occur as a result of noise, visual disturbance, vibration, obstructions and habitat alteration. This also includes effects as a result of dust.	✓		~	<b>~</b>		
	Collision Effects	The presence of conductors and supporting structures may present a risk of lapwings colliding with the proposed infrastructure if they fly close to or across it. Risks are likely to be higher where pylons would be erected on or adjacent to foraging habitats, breeding sites and regularly used commuting routes.		~				
	Damage or destruction of a nest	If site clearance and construction activities should occur during the breeding season (typically March-August for most species) this could result in the destruction of and/or damage to nests within the proposed construction area.	✓			✓		
Snipe	Direct loss of habitat	There could be both temporary habitat loss, where habitats would be reinstated after construction, and permanent habitat loss, where habitats cannot be reinstated as they are within the footprint of the permanent infrastructure.	✓		✓ ✓	✓		
		The majority of grassland habitats would be reinstated following construction, meaning that permanent losses would be small or zero for this species.						

Table 9.23 Summary of Potential Ecological Effects at each Phase of Development									
Receptor	Potential Effect	Description	Phase						
			С	0	М	D			
		The overall area of habitat available for breeding, foraging and resting by this species could be temporarily reduced, but permanent habitat losses affecting this species are highly unlikely.							
	Temporary disturbance/ displacement/ degradation	Temporary disturbance of habitats and displacement of birds using those habitats could occur as a result of noise, visual disturbance, vibration, obstructions and habitat alteration. This also includes effects as a result of dust.	<b>√</b>		✓ 	✓ 			
	Collision Effects	The presence of conductors and supporting structures may present a risk of snipe colliding with the proposed infrastructure if they fly close to or across it. Risks are likely to be higher where pylons would be erected on or adjacent to foraging habitats, breeding sites and regularly used commuting routes.		~					
Chough	Collision Effects	The presence of conductors and supporting structures may present a risk of chough colliding with the proposed infrastructure if they fly close to or across it. Risks are likely to be higher where pylons would be erected on or adjacent to foraging habitats, breeding sites and regularly used commuting routes.		~					
Barn Owl	Temporary disturbance/	Temporary disturbance of habitats and displacement of birds using those habitats could occur as a result of noise, visual disturbance, vibration, obstructions and habitat alteration. This also includes effects as a result of	~		~	~			
Table 9.23 Summary of Potential Ecological Effects at each Phase of Development									
---	---------------------------------------	---	-------	----------	---	-------	--	--	--
Receptor	Potential Effect	Description	Phase						
			С	0	М	D			
	displacement/ degradation	dust. This impact could occur at one or more nest sites, but hunting habitats are unlikely to be affected.							
	Damage or destruction of a nest	If site clearance and construction activities should occur during the breeding season (typically March-August for most species) this could result in the destruction of and/or damage to nests within the proposed construction area.	*			✓ 			
Farmland, Hedgerow, Woodland and Scrub Breeding Assemblage (Passerines of High Conservation Concern) – Order Limits	Direct loss of habitat	There could be both temporary habitat loss, where habitats would be reinstated after construction, and permanent habitat loss, where habitats cannot be reinstated as they are within the footprint of the permanent infrastructure.	~	<b>√</b>	✓	•			
		The majority of habitats, including grassland and sections of hedgerows, would be reinstated following construction, meaning that permanent losses would be small. However for habitats like trees, woodland and dense scrub, reinstatement may not be feasible, given the operational requirements of the OHL.							
		The habitats available for breeding / nesting and associated activities (principally feeding) by protected or notable species could be temporarily or permanently reduced.							
	Temporary disturbance/	Temporary disturbance of habitats and displacement of species associated with the habitats could occur as a result of noise, visual disturbance,	~		~	~			

Table 9.23 Summary of Potential Ecological Effects at each Phase of Development									
Receptor	Potential Effect	Description	Phase						
			С	0	М	D			
	displacement/ degradation	vibration, obstructions and habitat alteration. This also includes effects as a result of dust.							
	Birds - Damage or destruction of a nest	If site clearance and construction activities should occur during the breeding season (typically March-August for most species) this could result in the destruction of and/or damage to nests within the proposed construction area.	<b>√</b>			✓ 			
Woodland Breeding Bird Assemblage (passerines of	Direct loss of habitat	There could be both temporary habitat loss, where habitats would be reinstated after construction, and permanent habitat loss, where habitats cannot be reinstated as they are within the footprint of the permanent infrastructure.	~	<b>√</b>	<b>~</b>	<b>√</b>			
high conservation		For habitats like trees, and woodland, reinstatement may not be feasible, given the operational requirements of the OHL.							
concern) – Wylfa		There are a number of woodland bird species that rely on habitats where direct losses could occur. The overall area available for breeding and associated activities (principally feeding) could be temporarily or permanently reduced.							
	Temporary disturbance/ displacement/ degradation	Temporary disturbance of habitats and displacement of species associated with the habitats could occur as a result of noise, visual disturbance, vibration, obstructions and habitat alteration. This also includes effects as a result of dust.	~		~	<ul> <li>✓</li> </ul>			

North Wales Connection Project

Table 9.23 Summary of Potential Ecological Effects at each Phase of Development									
Receptor	Potential Effect	Description	Phase						
			С	0	Μ	D			
	Birds - Damage or destruction of a nest	If site clearance and construction activities should occur during the breeding season (typically March-August for most species) this could result in the destruction of and/or damage to nests within the proposed construction area.	<b>√</b>			~			
Woodland Breeding Bird Assemblage	Direct loss of habitat	There could be both temporary habitat loss, where habitats would be reinstated after construction, and permanent habitat loss, where habitats cannot be reinstated as they beneath the OHL.	✓	~	~	~			
(passerines of high conservation		For habitats like trees, and woodland, reinstatement may not be feasible, given the operational requirements of the OHL or the inability to reinstate fully.							
Gylched Covert		There are a number of woodland bird species that rely on habitats where direct loss could occur. The overall area available for breeding and associated activities (principally feeding) could be temporarily or permanently reduced.							
	Temporary disturbance/ displacement/ degradation	If site clearance and construction activities should occur during the breeding season (typically March-August for most species) this could result in the temporary disturbance/ displacement/ degradation of the habitat within the proposed construction area.	•		<b>v</b>	~			

Table 9.23 Summary of Potential Ecological Effects at each Phase of Development									
Receptor	Potential Effect	Description	Phase						
			С	0	М	D			
	Birds - Damage or destruction of a nest	If site clearance and construction activities should occur during the breeding season (typically March-August for most species) this could result in the destruction of and/or damage to nests within the proposed construction area.	✓			~			
Woodland Breeding Bird Assemblage (passerines of	Direct loss of habitat	There could be both temporary habitat loss, where habitats would be reinstated after construction, and permanent habitat loss, where habitats cannot be reinstated as they are within the footprint of the permanent infrastructure.	✓	✓	<b>v</b>	~			
high conservation concern) –		For habitats like trees, and woodland, reinstatement may not be feasible, given the operational requirements of the OHL or the inability to fully reinstate (e.g. ancient woodland).							
Station		There are a number of woodland bird species that rely on habitats where direct loss could occur. The overall area available for breeding and associated activities (principally feeding) could be temporarily or permanently reduced.							
	Temporary disturbance/ displacement/ degradation	If site clearance and construction activities should occur during the breeding season (typically March-August for most species) this could result in the temporary disturbance/ displacement/ degradation of the habitat within the proposed construction area.	<b>√</b>		<b>v</b>	~			

Table 9.23 Summary of Potential Ecological Effects at each Phase of Development									
Receptor	Potential Effect	Description	Phase						
			С	0	М	D			
	Birds - Damage or destruction of a nest	If site clearance and construction activities should occur during the breeding season (typically March-August for most species) this could result in the destruction of and/or damage to nests within the proposed construction area.	*			~			
Farmland/ Hedgerow Breeding Assemblage	Direct loss of habitat	There could be both temporary habitat loss, where habitats would be reinstated after construction, and permanent habitat loss, where habitats cannot be reinstated as they are within the footprint of the permanent compound infrastructure.	<b>~</b>	✓ 	✓ 	✓ 			
(Passerines of High Conservation Concern) –		There are a number of woodland bird species that rely on habitats where direct loss could occur. The overall area available for breeding and associated activities (principally feeding) could be temporarily or permanently reduced.							
Braint Tunnel Head House / Cable Sealing End Compound	Temporary Disturbance/ displacement/ degradation	Disturbance of habitats and displacement of species associated with the habitats could occur as a result of noise, visual disturbance, vibration, obstructions and habitat alteration. This also includes effects as a result of dust.	<b>~</b>		✓	<b>√</b>			
	Birds - Damage or destruction of a nest	If site clearance and construction activities should occur during the breeding season (typically March-August for most species) this could result in the destruction of and/or damage to nests within the proposed construction area.	<b>&gt;</b>			•			

Table 9.23 Summary of Potential Ecological Effects at each Phase of Development									
Receptor	Potential Effect	Description	Phase						
			С	0	Μ	D			
Farmland/Hed gerow Breeding Assemblage (Passerines of High Conservation Concern) – Tŷ Fodol Tunnel Head House / Cable Sealing End Compound	Direct loss of habitat	There could be both temporary habitat loss, where habitats would be reinstated after construction, and permanent habitat loss, where habitats cannot be reinstated as they are within the footprint of the permanent infrastructure.	✓	~	<b>v</b>	<b>~</b>			
		There are a number of woodland bird species that rely on habitats where direct loss could occur. The overall area available for breeding and associated activities (principally feeding) could be temporarily or permanently reduced.							
	Temporary disturbance/ displacement/ degradation	Disturbance of habitats and displacement of species associated with the habitats could occur as a result of noise, visual disturbance, vibration, obstructions and habitat alteration. This also includes effects as a result of dust.	✓		~	✓			
	Birds - Damage or destruction of a nest	If site clearance and construction activities should occur during the breeding season (typically March-August for most species) this could result in the destruction of and/or damage to nests within the proposed construction area.	✓			<b>~</b>			
Waterfowl utilising Menai Strait marine and inter-tidal	Damage to feeding habitats and pollution of waters from blow	There could be loss of habitat inlcuding benthic from areas of seabed affected in the unlikely event of blowout of drilling slurry. Furthermore, contamination from drilling slurry may occur in the waters overlying this area or be carried with the tide, which may affect habitats and species (as prey stocks) inhabiting the vicinity.	✓						

Table 9.23 Summary of Potential Ecological Effects at each Phase of Development									
Receptor	Potential Effect	Description	Phase						
			С	0	М	D			
habitat within the Order Limits	<ul> <li>out during tunnel boring activities</li> </ul>	Such effects may cause birds to alter their behaviour and distribution, putting greater feeding pressure on unaffected habitats and reducing the capacity of the Menai Strait to sustain the bird populations that use it regularly.							
Ornithological D	esignated Sites								
Dyfi Estuary SPA	Collision effects	The presence of conductors and supporting structures presents a risk of interest features colliding with the proposed infrastructure if they fly close to or across it. Risks are likely to be higher where pylons would be erected on or adjacent to foraging habitats, and regularly used commuting routes.		<b>√</b>					
Liverpool Bay SPA	Collision effects	The presence of the conductors and supporting structures presents a risk of interest features colliding with the proposed infrastructure if they fly close to or across it. Risks are likely to be higher where pylons would be erected on or adjacent to foraging habitats, and regularly used commuting routes.		~					
Lavan Sands and Conwy Bay SPA	Collision Effects	The presence of conductors and supporting structures presents a risk of interest features colliding with the proposed infrastructure if they fly close to or across it. Risks are likely to be higher where pylons would be erected on or adjacent to foraging habitats, and regularly used commuting routes.		<ul> <li>✓</li> </ul>					

Table 9.23 Summary of Potential Ecological Effects at each Phase of Development									
Receptor	Potential Effect	Description	Phase						
			С	0	М	D			
	Temporary disturbance/ displacement/ degradation	Temporary disturbance of habitats and displacement of interest features using those habitats could occur as a result of noise, visual disturbance, vibration, obstructions and habitat alteration. This is considered for curlews feeding on terrestrial habitats.	✓		~	•			
Puffin Island SPA	Collision Effects	The presence of conductors and supporting structures presents a risk of interest features colliding with the proposed infrastructure if they fly close to or across it. Risks are likely to be higher where pylons would be erected on or adjacent to foraging habitats, and regularly used commuting routes.		~					
Cemlyn Bay SSSI	Collision Effects	The presence of conductors and supporting structures presents a risk of interest features colliding with the proposed infrastructure if they fly close to or across it. Risks are likely to be higher where pylons would be erected on or adjacent to foraging habitats, and regularly used commuting routes.		~					
	Temporary disturbance/ displacement/ degradation	Temporary disturbance of habitats and displacement of interest features using those habitats could occur as a result of noise, visual disturbance, vibration, obstructions and habitat alteration. This is considered for interest features feeding on terrestrial habitats.	✓		~	•			
Llyn Alaw SSSI	Collision effects	The presence of conductors and supporting structures presents a risk of interest features colliding with the proposed infrastructure if they fly close to or across it. Risks are likely to be higher where pylons would be erected on or adjacent to foraging habitats, and regularly used commuting routes.		~					

Table 9.23 Summary of Potential Ecological Effects at each Phase of Development								
Receptor	Potential Effect	Description	Phase					
			С	0	Μ	D		
	Temporary disturbance/ displacement/ degradation	Temporary disturbance of habitats and displacement of interest features using those habitats could occur as a result of noise, visual disturbance, vibration, obstructions and habitat alteration. This is considered for interest features feeding on terrestrial habitats.	✓		*	~		
Malltraeth Marsh (Cors Ddyga) SSSI	Collision effects	The presence of conductors and supporting structures presents a risk of interest features colliding with the proposed infrastructure if they fly close to or across it. Risks are likely to be higher where pylons would be erected on or adjacent to foraging habitats, and regularly used commuting routes.		~				
Cors Tregarnedd Fawr CWS	Collision effects	The presence of conductors and supporting structures presents a risk of interest features colliding with the proposed infrastructure if they fly close to or across it. Risks are likely to be higher where pylons would be erected on or adjacent to foraging habitats, and regularly used commuting routes.		~				
Cemlyn NWWTR	Collision effects	The presence of conductors and supporting structures presents a risk of interest features colliding with the proposed infrastructure if they fly close to or across it. Risks are likely to be higher where pylons would be erected on or adjacent to foraging habitats, and regularly used commuting routes.		~				
	Temporary disturbance/ displacement/ degradation	Temporary disturbance of habitats and displacement of interest features using those habitats could occur as a result of noise, visual disturbance, vibration, obstructions and habitat alteration. This is considered for interest features feeding on terrestrial habitats.	✓		~	<ul> <li>✓</li> </ul>		

Table 9.23 Summary of Potential Ecological Effects at each Phase of Development									
Receptor	Potential Effect	Description	Phase						
			С	0	М	D			
Marine Habitats	and Species								
Intertidal Habitats and associated species	Blowout of drilling slurry causing habitat loss and contamination with associated disturbance/direct effects.	There could be loss of benthic habitat (priority and non priority habitats) from areas of seabed affected in the unlikely event of blowout of drilling slurry. Furthermore, contamination from drilling fluids may occur in the waters overlying this area which may affect habitats and species inhabiting the vicinity causing disturbance or direct effects such as mortality.	•						
Subtidal Habitats and associated species	Blowout of drilling slurry causing habitat loss and contamination with associated disturbance/direct effects.	There could be loss of benthic habitat (priority and non priority habitats) from areas of seabed affected in the unlikely event of blowout of drilling slurry. Furthermore, contamination from drilling fluids may occur in the waters overlying this area which may affect habitats and species inhabiting the vicinity causing disturbance or direct effects such as mortality.	•						
Shellfish	Blowout of drilling slurry causing habitat loss and contamination	There could be loss of benthic habitat from areas of seabed affected in the unlikely event of blowout of drilling slurry. Furthermore, contamination from drilling fluids may occur in the waters overlying this area which may affect habitats and species inhabiting the vicinity.	✓						

Table 9.23 Summary of Potential Ecological Effects at each Phase of Development									
Receptor	Potential Effect	Description	Phase						
			С	0	М	D			
Marine Mammals	EMFs causing disorientation of individuals during migration.	Individuals of certain species may be attracted or repelled by the presence of EMFs from cable operation, leading to disorientation.		✓					
	Disturbance of individuals (noise)	There could be disturbance of individuals of sensitive species to noise and vibration during construction. Noise and vibration has the potential to cause behavioural changes or, in more extreme cases, damage to hearing in marine mammals such as porpoise and dolphins.	✓						
	Direct effects (noise and vibration)	Potential fish injury/mortality as a result of pressure resulting from blasting to create the tunnel.	~						
Otter (in the marine environment)	Blowout of drilling slurry causing disturbance to individuals	The unlikely event of blowout of drilling slurry causing disturbance to individuals. Otter in the marine environment are included here for completeness; however, as outlined earlier, otter are not expected to be at risk of disturbance owing to the nature of their use of the intertidal areas.	~						
Fish	Blowout of drilling slurry causing habitat loss and contamination	The unlikely event of blowout of drilling slurry causing contamination by drilling fluids.	✓						

217

Table 9.23 Summary of Potential Ecological Effects at each Phase of Development									
Receptor	Potential Effect	Description	Phase						
			С	0	М	D			
	EMFs causing disorientation of individuals during migration.	Individuals of certain species may be attracted or repelled by the presence of EMFs from cable operation, leading to disorientation.		✓					
	Disturbance of individuals (noise and vibration)	There could be disturbance to fish present in the Menai Strait from noise propagated into the water above during construction of the tunnel. This has the potential to affect individuals in terms of behaviour (e.g. avoidance of the area and alteration of migration route).	✓						
	Direct effects (noise and vibration)	Potential fish mortality as a result of pressure resulting from blasting to create the tunnel.	~						

# 9 Mitigation and Residual Effects

## 9.1 INTRODUCTION

9.1.1 This section presents an assessment of the likely significant effects on ecological receptors that could result from the Proposed Development.

### 9.2 MITIGATION

9.2.1 This assessment takes into account any avoidance by design (Mitigation by Design (MD)), standard mitigation procedures as documented within the CEMP Control and Management Measures (CMM) to reduce the potential for significant effects, and specific Mitigation Measures (MM).

### Mitigation by Design

- 9.2.2 A number of potential significant effects have been avoided through careful design or would be addressed through the implementation of standard mitigation techniques. Avoidance by design has been achieved through the following:
  - implementation of the tunnelling methodology beneath the marine SAC Menai Strait and Conwy Bay;
  - commencing tunnelling either side of the areas of significant woodland, including ancient woodland, along the Menai Strait;
  - routeing around Anglesey Fens/Cors Erddreiniog SAC/Ramsar/ SSSI/NNR and other designated sites;
  - micrositing of pylons; and
  - paralleling the OHL with the existing OHL (with the exception of where the existing is routed through the above designated sites) in order to reduce the risk of collision impacts.
- 9.2.3 Whilst there is some flexibility afforded by the LOD, commitments have been made in the Schedule of Environmental Commitments (**Document 7.4.2.1**) to avoid areas where locating temporary or permanent works would be likely to have more significant effects than those reported in this section.

#### Control and Management Measures

9.2.4 The standard measures include specific working hours, light control, waste management and pollution prevention and control. Measures specific to potential ecology effects include careful timing of work, vegetation management in the appropriate season, vegetation protection zones and an ecological watching brief where required. All of these standard and ecology specific measures would be applied through the implementation of the CEMP (**Document 7.4**) which would apply throughout the Proposed Development. Standard biosecurity measures are also included, with further restrictions potentially being required in specific locations due to presence of a particularly valued species or habitats.

### General CEMP Mitigation

9.2.5 General CMM that are committed to in the CEMP and would help avoid or minimise potential effects on all species and habitats are set out in Table 9.24. Full details are provided in the CEMP (**Document 7.4**). Many of these measures would not be necessary to address significant effects on ecological receptors; however, they often help to further reduce minor or negligible effects. Refer to the CEMP for any references used.

Table 9.24: General CEMP Measures Relevant to Ecological Effects		
Code	Description	Reason
General F	Principles	
Working H	lours	
GP11	Construction hours are set out in Requirement 8 of the draft DCO ( <b>Document</b> <b>2.1</b> ). Further details are provided in the CEMP ( <b>Document 7.4</b> ).	Minimise general disturbance at night from noise, vibration, traffic or lighting.
Inspections		
GP51	The Contractor will undertake inspections, which will include monitoring conformance with the CEMP. Checks on equipment and facilities will be undertaken to reduce the risk of incidents occurring (for example oil leaks or biosecurity breaches). Further details are provided in the CEMP ( <b>Document 7.4</b> ).	Prevention of incidents that may be harmful to the environment and ecological features and resources.

Table 9.24: General CEMP Measures Relevant to Ecological Effects		
Code	Description	Reason
GP52	<ul> <li>Regular inspections will be undertaken by National Grid and the contractors to ensure the checks are being undertaken correctly.</li> <li>The inspections will also include:</li> <li>reviewing the daily risk assessment forms;</li> <li>ensuring that corrective action is undertaken and rectified; and</li> <li>providing data for performance monitoring.</li> </ul>	Prevention of incidents that may be harmful to the environment and ecological features and resources.
GP53	Environmental performance data will be collected and collated into the Safety, Health and Environment (SHE) Plan.	Transparency in performance on the prevention of incidents that may be harmful to the environment and ecological features and resources.
GP54	Immediate action including, if necessary, 'stopping the activity in question, where safe to do so', will be taken should any incidents or non-conformance with the CEMP ( <b>Document</b> <b>7.4</b> ) be found during inspection.	Prevention of incidents that may be harmful to the environment and ecological features and resources.
GP55	Environmental performance data will be made available to statutory and non-statutory bodies on request.	Increased monitoring of environmental performance and compliance.
Incident F	Procedure	
GP61	Contractors will develop and implement a Pollution Incident Control Plan (PICP) which will detail their control measures and response in the event of any incident on site. Further details are provided in the CEMP ( <b>Document 7.4</b> ).	Prevention of incidents that may be harmful to the environment and ecological features and resources.
Incident Response		
GP71	All incidents associated with the construction of the Proposed Development, including environmental incidents and non-	Increased monitoring of environmental performance and

Table 9.24: General CEMP Measures Relevant to Ecological Effects		
Code	Description	Reason
	conformance with the CEMP, will be reported and investigated in accordance with the PICP (unless stated differently in other Management Plans).	compliance to prevent further incidents.
GP72	The relevant incident procedures will be followed in the event of an incident and will be detailed further in the PICP. A summary is provided in the CEMP ( <b>Document 7.4</b> ).	To reduce risks to the environment, and ecological features and resources.
Fencing a	and other Means of Enclosure	
GP83	Following discussion with the landowners, working areas will be appropriately fenced off from members of the public and to prevent animals from straying onto a working area in a manner that does not impede the movement or foraging area of protected species. Fencing and gates will be provided at bellmouths where appropriate. Fencing and other means of enclosure (other than ecological mitigation fencing such as GCN fencing) in areas at risk of flooding will be permeable to floodwater, unless otherwise agreed with NRW, to ensure that the fluvial floodplain and areas liable to other sources of flooding continue to function effectively for storage and conveyance of floodwater.	Minimise working areas and encroachment onto adjacent habitats. Retention of commuting and foraging habitat for protected species. Prevent access to working areas and potential risks to members of the public and animals.
GP84	Fencing and other means of enclosure, including those required for mitigating effects on protected species, will be inspected daily initially and then regularly as appropriate, and repaired as necessary. Any temporary fencing will be removed as soon as reasonably practicable after completion of the works.	Minimise working areas and encroachment onto adjacent habitats. Retention of commuting and foraging habitat for protected species. Prevent access to working areas and potential risks to members of the public and animals.

Table 9.24: General CEMP Measures Relevant to Ecological Effects		
Code	Description	Reason
Lighting a	nd Visual Intrusion	
GP85	Construction compounds will not be lit at night outside of the working hours identified for the particular activity, except for welfare and site security cabins, which will include low level lighting. Motion sensor lighting will be used in areas of high security risk.	Minimise disturbance from light pollution effects on ecological features and resources.
GP86	Site or welfare cabins, equipment and lighting will be sited so as to minimise visual intrusion insofar as is consistent with the safe and efficient operation of the work site. Site lighting will be positioned and directed to reduce glare and nuisance to residents. Winter working may require task-specific lighting due to the short day lengths when lighting will be required at the beginning and end of the day. Lighting will be used only when required during working hours for particular activities, unless otherwise stated and will comprise lighting of work areas and access and egress with low level directional lighting which is not towards sensitive receptors.	Minimise disturbance from light pollution effects on ecological features and resources.
GP87	Implementation will comply with the Institute of Lighting Engineers Guidance Notes for the Reduction of Obtrusive Light (2011) in so far as it is reasonably practicable and applicable to construction works. When lighting is necessary, appropriate lighting and luminaires will be used to reduce the impact of lighting on ecological resources, including nocturnal species. Lighting will be designed to minimise spillage into surrounding habitats, such as sensitive watercourses, hedgerows and woodland edges to avoid disturbance to wildlife. Guidance for the reduction of obtrusive light issued by the Institute of	Minimise disturbance from light pollution effects on sensitive ecological features and resources.

Table 9.24: General CEMP Measures Relevant to Ecological Effects		
Code	Description	Reason
	Lighting Professionals (ILP, 2014) and guidance to help minimise the impact of artificial lighting on bats (Bat Conservation Trust, 2014) should be followed in so far as it is reasonably practicable and applicable to do so in relation to construction works.	
Welfare		
GP813	Where portable generators are used to provide electricity for welfare units, industry best practice will be followed to minimise noise and pollution from such generators.	Minimise disturbance from noise and pollution effects on ecological features and resources.
Waste Ma	anagement	
GP814	An Outline Waste Management Plan (OWMP)( <b>Document 7.11</b> ) has been produced. The OWMP sets the framework for the management of wastes generated during the construction of the Proposed Development. It documents the decisions taken during the planning and design stages to minimise construction waste and sets objectives and targets for the main waste types. The contractors will prepare and submit a Site Waste Management Plan (SWMP) which will be in accordance with that set out in the CEMP ( <b>Document 7.4</b> ), which will include invasive plant material.	Minimise risks of invasive species and controlled waste being released/established in the wild.
GP821	Section 14 of the Wildlife and Countryside Act 1981 (as amended) is intended to prevent the release into the wild of certain plants (and animals) which may cause ecological, environmental, or socio-economic harm. Relevant plant species to which this applies are listed on Part II of Schedule 9. Schedule 9 plants, or any part of such a plant that may facilitate establishment in the wild and cause environmental harm, including whole plants,	Minimise risks of invasive species and controlled waste being released/established in the wild.

Table 9.24: General CEMP Measures Relevant to Ecological Effects		
Code	Description	Reason
	seeds, rhizomes, bulbs, corms and cuttings, or any materials such as soil that is contaminated with such plant or part of such plant, are likely to be classified as controlled waste if it is discarded, or is intended to be discarded. Section 33 of the Environmental Protection Act 1990 states it is an offence to deposit, treat, keep or dispose of controlled waste unless carried out under an environmental permit. Section 34 imposes a duty of care on persons who produce, import, dispose of, or treat controlled wastes. The Wildlife and Countryside Act 1981 (as amended) and Environmental Permitting Regulations 2016 will be complied with.	
Air Emissions		
Dust and	PM10 Emissions	
AE11	A certain amount of dust may be produced during dry weather conditions but every effort will be made to keep this to a minimum. This will be achieved by visual assessment of dust emissions and application of control measures as appropriate. Precautions will also be taken to minimise the deposit of mud and dust on the public roads as a result of vehicles arriving and leaving site (referred to as 'track out'). When this cannot be avoided, appropriate control measures will be applied.	Minimise air pollution effects from dust on ecological features and resources.
AE12	A Dust Management Plan (DuMP) will be prepared and will include measures to control dust during the construction of the Proposed Development.	Minimise air pollution effects from dust and ecological features and resources.
AE13	The DuMP will contain the general measures as necessary and outlined within the CEMP ( <b>Document 7.4</b> ), which includes the following;	Minimise air pollution effects from dust and ecological features and resources, and ensure

Table 9.24: General CEMP Measures Relevant to Ecological Effects		
Code	Description	Reason
	<ul> <li>with the exception of stockpiles with a lifetime of less than 3 months, all stockpiles would be seeded with an appropriate seed mix to the existing habitat</li> </ul>	that reinstatement of habitats on a like for like basis.
Site Layo	ut	
AE14	<ul> <li>The DuMP will contain the following measures in relation to site layout:</li> <li>plan site layout so that machinery and dust-generating activities, such as soil screening, are located as far away from sensitive receptors as practicably possible. Where practical remove materials that have a potential to produce dust from site as soon as possible, unless being re-used on site; and</li> <li>hard surfacing will be provided at all</li> </ul>	Minimise air pollution effects from dust on sensitive ecological receptors.
Road Tra	ffic and Energy Plant Emissions	
AE21	The Outline Construction Traffic Management Plan (OCTMP) ( <b>Document 7.5</b> ) implements the control and management of vehicles to and from site including the delivery and removal of goods and materials. Additional measures to those detailed in the CTMP are detailed in the CEMP ( <b>Document 7.4</b> ).	Minimise air pollution effects on ecological features and resources.
Monitoring	g	
AE41	As set out in section 2.6 of the CEMP ( <b>Document 7.4</b> ), the contractor will undertake inspections, which will include monitoring compliance with the CEMP. Details of the inspection requirements are provided in the CEMP ( <b>Document 7.4</b> ).	Minimise air pollution effects from dust on ecological features and resources.
Noise and	d Vibration Control	

Table 9.24: General CEMP Measures Relevant to Ecological Effects		
Code	Description	Reason
NV11	A Noise and Vibration Management Plan (NVMP) ( <b>Document 7.9</b> ) has been produced which sets out the noise and vibration control measures that will be employed by the contractor to minimise adverse noise and vibration effects.	Minimise vibration and noise pollution on ecological features and resources.
NV12	Noise and vibration monitoring will be carried out as appropriate at or around residential properties or any other identified sensitive structures during the construction phase to check compliance with the construction noise and vibration limits as set out in the NVMP ( <b>Document 7.9</b> ).	Minimise vibration and noise pollution and potential impacts on sensitive receptors.
NV13	The proposed hours of work during the construction phase are set out in section 2.18 and Requirement 8 ( <b>Document 2.1</b> ). If necessary, consent will be sought by the contractor under Section 61 of the Control of Pollution Act 1974 (CoPA).	Minimise vibration and noise pollution and potential impacts on sensitive receptors.
NV14	Standard best practice construction working methods will be adopted which are listed in the CEMP ( <b>Document 7.4</b> ).	Minimise vibration and noise pollution and potential impacts on sensitive receptors.
NV31	Surface drilling and curtain grouting associated with shaft construction is limited to Monday to Friday 07:00 to 19:00 hours and 07:00 to 13:00 hours on Saturdays.	Minimise vibration and noise pollution and potential impacts on sensitive receptors.
NV32	<ul> <li>During the drill and blast stage of the shaft construction, the measures outlined in the CEMP (Document 7.4) will be implemented to limit noise and vibration. Amongst others details, these include;</li> <li>Blast design measures or other mitigation measures will be implemented to prevent exceedance of limits/thresholds as set out</li> </ul>	Reduce the propagation of noise into the Menai Strait. Limit the zone of mortality/ hearing threshold shifts in marine and migratory species. Reduce cumulative
	in the NVMP (Document 7.9)	effects and effects of

Table 9.24: General CEMP Measures Relevant to Ecological Effects		
Code	Description	Reason
	<ul> <li>Blast design measures will include refraining from simultaneous blasting (i.e. blasting from both ends of the tunnel at the same time), whilst beneath the Menai Strait.</li> </ul>	continuous noise which could create acoustic barriers.
NV33	Ground vibration as a result of blasting, would be controlled such that it would not exceed a peak particle velocity (PPV) of 6 mms-1 in 95% of all blasts measured over any six month period at the nearest sensitive receptor. Additionally, no individual blast would exceed a PPV of 10 mms-1 at the nearest sensitive receptor. Limits will also be placed on blasting activity to ensure effects on marine mammals and fish are no greater than those reported in ES Chapter 9 ( <b>Document 5.9</b> ).	Minimise vibration and noise pollution and potential impacts on sensitive receptors.
NV36	Surface vibration from underground works, excluding the tunnel boring machine, but including the temporary construction railway, would be controlled such that it would not exceed a peak particle velocity (PPV) of 1.0 mms-1 or a groundborne noise level of 40 dB LAmax, S at nearest sensitive receptors.	Minimise vibration and noise pollution and potential impacts on sensitive receptors.
Soil Mana	agement	
Soil Mana	agement Plan	
SM11	Prior to construction, more site/soil specific measures to protect soils will be set out in a detailed Soil Management Plan (SMP), based upon the Outline Soil Management Plan ( <b>Document 7.10</b> ) and supplemented, by additional survey data, where required).	Minimise soil disturbance and contamination risks or effects on ecological features and resources.
SM12	An outline Soil Management Plan ( <b>Document</b> <b>7.10</b> ) has been produced and includes the measures in accordance with Defra	Minimise soil disturbance and contamination risks or

Table 9.24: General CEMP Measures Relevant to Ecological Effects		
Code	Description	Reason
	guidance <sup>13</sup> , further details of which are provided in the CEMP ( <b>Document 7.4</b> ).	effects on ecological features and resources.
Protection	n of the Water Environment	
Introducti	on	
WE11	<ul> <li>The following three general principles will be adhered to:</li> <li>prevent siltation and contamination of existing drainage systems and natural water environments;</li> <li>ensure that surface water discharged to the water environment from construction areas does not exceed pre-development runoff rates (subject to a minimum rate of 5 litres per second in order to minimise the risk of blockage of outfall structures); and</li> <li>ensure the routes of existing flows (groundwater, surface and watercourse flows) are not impacted.</li> </ul>	Minimise water pollution and disturbance of existing water flows.
Pollution	Control	1
WE21	Pollution prevention measures will be adopted in accordance with the existing Pollution Prevention Guidelines (PPGs) where still relevant and the new GPPs. Further details are provided in the CEMP ( <b>Document 7.4</b> ).	Minimise risk of water pollution.
WE22	In addition to complying with the general committed measures reported in the CEMP ( <b>Document 7.4</b> ), as set out in section 2.7 of the CEMP a specific Pollution Incident Control Plan (PICP) will be prepared and	Minimise risk of water pollution.

<sup>&</sup>lt;sup>13</sup> Defra (2009) Construction Code of Practice for the Sustainable Use of Soils on<br/>Construction Sites. pp64. Available at<br/>https://www.gov.uk/government/uploads/system/uploads/attachment\_data/file/69308/<br/>pb13298-code-of-practice-090910.pdf

Table 9.24: General CEMP Measures Relevant to Ecological Effects		
Code	Description	Reason
	implemented. It will include, or cross-refer to, Environmental Emergency and Contingency Procedures. The PICP will be in place prior to the commencement of works, setting out procedures for pollution control and emergency response measures in the event of accidental spillage or leakage.	
WE23	Generic mitigation measures within the PICP will include (as necessary) those detailed in the CEMP ( <b>Document 7.4</b> ).	Minimise risk of water pollution.
Stand-Off	Distances from Watercourses or Waterbodies	
WE31	Where possible, works within 8 m of watercourse bank tops or waterbodies will be avoided. As a minimum, no works will be undertaken within 3 m of any watercourse or waterbody (other than for watercourse crossings and drainage mitigation works). Greater stand-off distances may be required for the protection of protected species; where relevant these are specified in the Biodiversity Mitigation Plan ( <b>Document 7.7</b> ).	Minimise risk of pollution and disturbance to existing water flows and waterbodies and associated ecological features and resources.
Groundwa	ater and Dewatering Discharge	
Overhead	Line and Substations	
WE41	Groundwater dewatered from excavations (e.g. pylon foundation excavations (assumed to be of approximately three weeks' duration for four pad and column) and substation foundation excavations) would be in accordance with the Environmental Permitting Regulations 2016, discharged to adjacent grassed/vegetated agricultural land, away from watercourses as far as possible and in line with Biodiversity Mitigation Strategy ( <b>Document 7.7</b> ). The discharge rate for groundwater dewatered from excavations must match the rate of infiltration in to the soil	Minimise risk of pollution and disturbance to existing water flows and waterbodies and associated ecological features and resources.

Table 9.24: General CEMP Measures Relevant to Ecological Effects		
Code	Description	Reason
	(which will vary with the soil type, amount of vegetation cover and the gradient). If infiltration is not possible, or where there otherwise remains the potential for this water to runoff into nearby surface water features or direct discharge to surface watercourses is the only option, additional control measures will be put in place. These may include surrounding the discharge area (grassed/vegetated agricultural land) with sediment fencing, check dams, SuDS features, storage ponds or passing the silt- laden water through a silt trapping system.	
Tunnel		
WE42	As part of the tunnel construction, dewatering will be required to remove excess water from the tunnel and tunnel shafts. Details are provided in the CEMP ( <b>Document 7.4</b> ).	Minimise risk of pollution to existing water flows and waterbodies and associated ecological features and resources.
Drainage	Management	
WE51	A Drainage Management Plan (DMP) will be prepared prior to the commencement of works. The DMP will specify measures to minimise the impact of the construction on existing drainage systems. This will be developed following detailed drainage investigations and hydrological assessments, which will determine potential location specific risks in relation to the water and natural environment, and identify appropriate control measures to reduce the risks. A phased approach may be taken to the development of the DMP to reflect the phasing of the construction programme and the different elements of the Proposed Development.	Minimise risk of impacts of construction on existing drainage systems and associated ecological features and resources.
Drainage	Design	

Table 9.24: General CEMP Measures Relevant to Ecological Effects		
Code	Description	Reason
WE52	The DMP will specify appropriate design and control measures. These measures will be designed to ensure no increase from the existing rates. A range of measures can be used: these will be site specific following the detailed drainage investigations and hydrological assessments and will follow relevant industry standards. Design and control measures will be implemented as appropriate. Further details are provided in the CEMP ( <b>Document 7.4</b> ).	Minimise risk of impacts of construction on existing drainage systems and associated ecological features and resources.
Inspection	15	
WE54	An inspection programme will be developed and implemented prior to installing any drainage systems and routine cleaning will be carried out throughout construction. If on inspection any blockages are identified these will be removed.	Minimise risk of impacts of construction on existing drainage systems and associated ecological features and resources.
Silt Mana	gement	
WE55	To prevent sediment laden run-off entering watercourses/standing waterbodies, measures will be implemented, where necessary. Further details are provided in the CEMP ( <b>Document 7.4</b> ).	Minimise water pollution effects from sediment laden run-off.
Land Drai	nage	
WE56	Prior to construction land drainage measures will be undertaken. Details of which are provided in the CEMP ( <b>Document 7.4</b> ).	Minimise impacts of construction on existing drainage systems.
Cors Erddreiniog Drainage Management		
WE57	Additional consideration has been given to the drainage areas which extend into Anglesey Fens SAC. There are seven areas within Section C where the Order Limits either extend into or border this designation for	Minimise impacts of construction on existing drainage systems in relation to the designated site.

Table 9.24: General CEMP Measures Relevant to Ecological Effects		
Code	Description	Reason
	drainage mitigation which are shown in the CEMP ( <b>Document 7.4</b> ). Existing flows in this section flow west to east	
	towards the Cors Erddreiniog protected sites. Existing field drains within this section flow into a larger ditch along the perimeter of the designated sites which is separated from areas supporting qualifying interest features by an existing surfaced track.	
	Where possible runoff will be discharged to existing field drains and ditches outside of the protected sites, minimising the discharge points to the perimeter drain. However at low spots where it is not possible to convey flows to an existing field drain or ditch it may be necessary to convey flows to the perimeter drain. As such temporary outfalls may be required into the perimeter drain, which would comprise a temporary drainage ditch or pipe and glass reinforced concrete headwall inserted into the bank which would be removed on completion of construction agreed otherwise with NRW.	
WE58	A site specific drainage management plan and the detailed drainage design for any temporary outfalls into the perimeter drain will be agreed with NRW prior to the commencement of construction. The site specific drainage management plan will be based on a sound understanding of the existing drainage pathways and include the following measures: • crossing drains will be provided under the access track and stockpiles at regular intervals and low features. These will allow natural flows to continue to flow	Minimise impacts of construction on existing drainage systems in relation to the designated site.

Table 9.24: General CEMP Measures Relevant to Ecological Effects		
Code	Description	Reason
	<ul> <li>surface water and siltation mitigation methods, for example use of vegetated swales will be implemented to prevent both increased flows or silt laden run off from entering the designed sites; and</li> <li>a requirement for on-going liaison with NRW over the water management measures in relation to the Cors Erddreiniog SAC.</li> </ul>	
Control of	Blowout	
WE511	The rock through which the tunnel would be created is generally competent and of low porosity. Should construction be by means of a Tunnel Boring Machine (TBM) drilling fluids would be used to balance the forces at the front of the TBM as it moves through the rock. In the unlikely situation that the drilling fluids enter the surrounding rock, it is highly unlikely to pass upwards to ground level. To ensure that this does not occur the drilling fluids will be closely monitored and constantly measured. The TBM will be operated by the construction contractor in accordance with industry best practice, including appropriate monitoring and management of TBM operations. This would reduce, as far as possible, the occurrence of pressure imbalances and, therefore, the risk of a blowout that could lead to a pathway for pollutants to enter the surface water, groundwater or marine environment.	Minimise water pollution effects on the Menai Strait.
Flood Management		
Design ar	nd Installation of Watercourse Crossings	Γ
FM14	Watercourse crossing design considerations are listed within the CEMP ( <b>Document 7.4</b> ).	Minimise flood risk, minimise risk of impact on ecological features

Table 9.24: General CEMP Measures Relevant to Ecological Effects		
Code	Description	Reason
		and resources and ensure continuity of watercourse corridor.
Biosecuri	ty	
Invasive I	Non-Native Species Method Statement	
BS11	<ul> <li>An Invasive Non-Native Species Method Statement (INNSMS) will be produced in line with the Outline INNSMS (which includes a Biosecurity Risk Assessment (BRA)) as set out in the Biodiversity Mitigation Strategy (Document 7.7). The following general techniques will be employed to avoid the spread of invasive non-native species (INNS), pests and pathogens during construction and ensure legal compliance and are summarised below. following:</li> <li>pre-construction surveys of INNS will be required to detect new occurrences and spread of known areas within the Order Limits;</li> <li>INNS within the development footprint, and in areas which will potentially be disturbed by construction activity, will be demarcated and fenced off where practical. Demarcation may include an exclusion buffer a set distance from visible above ground portions of the INNS. The distance will be established by the ECoW and will be species specific – stand-off distances typically range from 2 m to 7 m. The exclusion area will be declared a contaminated area and will be 'out of bounds'. Signage will show relevant information to ensure that all workers are aware that if in a rear information to ensure that all workers are</li> </ul>	Prevent the release and spread of INNS, pests and pathogens which could have an impact on ecological features and resources.

Table 9.24: General CEMP Measures Relevant to Ecological Effects		
Code	Description	Reason
Code	<ul> <li>Description</li> <li>if work is required within affected areas (including the buffer zone), including works to manage INNS present in such areas, then biosecurity measures must be set up within the exclusion zone, the specifics of which will be species specific and set out within a site specific Biosecurity Management Plan. These measures may include boot, clothing and tool wash facility for all operatives to clean boots and tools before leaving the exclusion zone. A jet wash facility or tough brushes will be required to clean the wheels and other parts of plant and machinery which may have come into contact with any part of the INNS in question. Operatives will be trained in the correct use of the cleaning facilities;</li> <li>rubber wheeled or rubber tracked vehicles must be used during operations in contaminated areas to minimise any possible contamination from INNS seeds or fragments and propagules being trapped in metal tracks of machines;</li> <li>all plant to be used in watercourses/bodies will be jet washed with an aquatic disinfectant (or certified as clean by the plant provider), before commencing work on the site, and after working in INNS contaminated areas. Records must be made/retained of such inspections and</li> </ul>	Reason
	wash down activities. Plant must be allowed to dry thoroughly prior to working within separate watercourses. Where possible, machinery will be designated to a specific watercourse/body to avoid causing the spread of aquatic INNS between	
	watercourses/bodies;	

Table 9.24: General CEMP Measures Relevant to Ecological Effects		
Code	Description	Reason
	<ul> <li>if herbicides are used to treat INNS in or on water, or adjacent to a waterbody within a protected site or near water abstraction, Natural Resources Wales will be contacted and written approval sought;</li> <li>check lists will be used by contractors to</li> </ul>	
	<ul> <li>ensure compliance of the measures;</li> <li>repeated (at least monthly), monitoring of affected areas will be required throughout the construction period to identify any areas of re-grow or new areas of INNS that may require further eradication works or isolating. Monitoring will also determine if the exclusion buffer areas remain effective;</li> </ul>	
	<ul> <li>monitoring will also be required following construction and for a period of no less than two years, potentially more depending on the species, following the completion of control action;</li> </ul>	
	<ul> <li>where INNS are being retained on site, implementation of eradication measures will be considered to provide a net conservation gain;</li> </ul>	
	<ul> <li>Disposal of disinfectant used during the Proposed Development would be undertaken in accordance with standard procedures;</li> </ul>	
	<ul> <li>All washing-down of vehicles;</li> </ul>	
	<ul> <li>Disposal of disinfectant used during the Proposed Development would be undertaken in accordance with standard procedures; and</li> </ul>	
	<ul> <li>All washing-down of vehicles (including wheel washing) and equipment will take place in designated areas and wash water</li> </ul>	

Table 9.24: General CEMP Measures Relevant to Ecological Effects		
Code	Description	Reason
	will be prevented from passing untreated into watercourses and groundwater in accordance with the Environment Agency's GPP 13.	
Japanese	e Knotweed ( <i>Fallopia japonica</i> )	
BS21	All operations involving Japanese knotweed will be controlled as recommended by the Environment Agency guide – Managing Japanese Knotweed on Development Sites: The Knotweed Code of Practice (version 3, amended 2013) and the Welsh Government guide – Control of Japanese Knotweed in Construction and Landscape Contracts Model specification (2011).	Prevent the release and spread of INNS which could have an impact on ecological features and resources.
BS22	Where removal is required, Japanese knotweed excavation works will be supervised by a specialist invasive species subcontractor or the ECoW if they have suitable experience. Where possible, Japanese knotweed should be treated with herbicide prior to such works to reduce rhizome viability and the probability of accidental spread. All material containing Japanese knotweed will be removed where appropriate until clean material is established. Contaminated material will be disposed of following the appropriate duty of care, as required by law.	Prevent the release and spread of INNS which could have an impact on ecological features and resources.
Indian (Himalayan) Balsam ( <i>Impatiens glandulifera</i> )		
BS31	Where timing permits Indian balsam will be controlled by herbicide treatment or hand pulled if the area is small enough prior to flowering and seeding to avoid further spread, this can be done between the start of the growing season (usually May) and July, prior to when seed pods have formed. This may	Prevent the release and spread of INNS which could have an impact on ecological features and resources.

Table 9.24: General CEMP Measures Relevant to Ecological Effects		
Code	Description	Reason
	be required to be repeated as necessary each year during construction where the plant reappears from seeds within the soil. Longer would be required should the plant reappear from contamination from an outside seed source.	
BS32	Where removal is required, Indian balsam excavation works will be supervised by the ECoW – the top 200 mm or deeper where appropriate, from the surface will be excavated to remove all plant material and seed bank.	Prevent the release and spread of INNS which could have an impact on ecological features and resources.
Giant Rhu	ıbarb ( <i>Gunnera manicata</i> )	
BS41	Where removal is required, excavation works will be supervised by a specialist invasive species subcontractor or the ECoW if they have suitable experience – all material containing giant rhubarb must be handled and disposed of in a way which does not result in the potential for further spread including seed bank, and fragments of the rhizomes	Prevent the release and spread of INNS which could have an impact on ecological features and resources.
American	Mink ( <i>Neovison vison</i> )	
BS51	Operations should be carried out in a way to avoid the capture/trapping of mink. All efforts should be made to prevent them being accidentally trapped on site. Any mink accidentally caught/trapped should be notified immediately to the ECoW or the stated contact for removal. Works should cease in the immediate vicinity if the mink appears distressed until it can be removed. Alternatively, if mink do become trapped they must be taken to a vet for humane disposal in accordance with the INNSMS. An animal cage will be kept at a site office for this purpose.	Minimise risk of the capture/trapping of American mink. Humane disposal of a non-native species.

Table 9.24: General CEMP Measures Relevant to Ecological Effects		
Code	Description	Reason
New Zeal	and Pigmyweed ( <i>Crassula helmsii</i> )	
BS61	All operations involving New Zealand pigmyweed will be controlled as recommended by the Environment Agency guide – Managing Invasive Non-native Species (2010) ( <b>Ref 9.53</b> ).	Prevent the release and spread of INNS which could have an impact on ecological features and resources.
BS62	Where removal is required, New Zealand pigmyweed control works will be supervised by the ECoW – all material containing New Zealand pigmyweed must be handled and disposed of in a way which does not result in the potential for further spread.	Prevent the release and spread of INNS which could have an impact on ecological features and resources.
Grey Squ	irrel	
BS71	Operations should be carried out in a way to avoid the capture/trapping of grey squirrels and spread of Squirrel parapoxvirus. All efforts should be made to prevent them being accidentally trapped on site. Any grey squirrels accidentally caught/trapped should be notified immediately to the ECoW. Works should cease in the immediate vicinity if the squirrel appears distressed until it can be removed. Alternatively, if grey squirrels do become trapped they must be taken to a vet for humane disposal in accordance with the INNSMS following consultation the ECoW. An animal cage will be kept at a site office for this purpose. No trapped grey squirrels should be transported from Gwynedd to Anglesey.	Humane disposal of a non-native species.
BS72	Active grey squirrel dreys should also be notified to the ECoW/stated contact and should not be removed by contractors.	Humane disposal of a non-native species.
Water Fern (Azolla Filiculoides)		

Table 9.24: General CEMP Measures Relevant to Ecological Effects		
Code	Description	Reason
BS81	Azolla filiculoides is probably the only species of floating fern found in Britain. It reproduces both vegetatively and by producing spores. Biological control using the azolla wevil can be the most effective form of control; however Glyphosate can be used to treat Azolla. Such treatments are best carried out when a gentle wind or currents have collected floating fronds together at suitable points.	Prevent the release and spread of INNS which could have an impact on ecological features and resources.
BS82	In order to prevent spread machinery used in and around watercourses known to contain <i>Azolla</i> be thoroughly inspected and sprayed down with water before moving to another area.	Prevent the release and spread of INNS which could have an impact on ecological features and resources.
BS83	Where removal is required, <i>Azolla</i> control works will be supervised by the ECoW, and taking into consideration the presence of species such as GCN – all material containing <i>Azolla</i> must be handled and disposed of in a way which does not result in the potential for further spread.	Prevent the release and spread of INNS which could have an impact on ecological features and resources.
Rhodode	ndron ( <i>Rhododendron ponticum</i> )	
BS91	Treatment can be by physical clearance or chemical control. Where removal is required, excavation works will be supervised by a specialist invasive species subcontractor or the ECoW if they have suitable experience.	Prevent the release and spread of INNS which could have an impact on ecological features and resources.
BS92	All material containing rhododendron must be handled and disposed of in a way which does not result in the potential for further spread. Eradication can take a number of years to be achieved depending on the size of the seed bank and root system.	Prevent the release and spread of INNS which could have an impact on ecological features and resources.
Montbretia (Crocosmia X crocosmiiflora)		

Table 9.24: General CEMP Measures Relevant to Ecological Effects			
Code	Description	Reason	
BS101	Montbretia spreads by rhizomes/ corms and rarely by seed. Plants can be dug out but it is essential that all the plant material and corms are removed, which occur in the top 20 cm. It is essential that all rhizome/corms are removed as a new plant can grow from a single corm. Excavated material should be removed from site to licensed landfill or dealt with on site in waste management areas or buried at a depth no less than 1m.	Prevent the release and spread of INNS which could have an impact on ecological features and resources.	
BS102	Where removal is required, excavation works will be supervised by a specialist invasive species subcontractor or the ECoW if they have suitable experience. The most effective time for the removal of Montbretia is just before full flowering occurs around spring and summer and digging out corms when the soil is wet.	Prevent the release and spread of INNS which could have an impact on ecological features and resources.	
Japanese	rose ( <i>Rosa rugosa</i> )		
BS201	Treatment can be undertaken by cutting, herbicide application or excavation of the plants and root rhizome system. The seedbank must also be considered. Where removal is required, excavation works will be supervised by a specialist invasive species subcontractor or the EcoW if they have suitable experience.	Prevent the release and spread of INNS which could have an impact on ecological features and resources.	
BS202	All material containing Japanese rose must be handled and disposed of in a way which does not result in the potential for further spread. Soils containing Japanese rose would be disposed of following the appropriate duty of care, as required by law.	Prevent the release and spread of INNS which could have an impact on ecological features and resources.	
Carpet seasquirt ( <i>Didemnum vexillum</i> )			
BS301	Marine mammal surveillance operations during tunnel construction under the Menai	Prevent the release and spread of INNS which	
Table 9.24: General CEMP Measures Relevant to Ecological Effects			
--	---	---	--
Code	Description	Reason	
	Strait will, where possible be carried out with observers based on land. Where vessels or equipment (such as Acoustic Deterrent Devices (ADDs) are needed these will be uncontaminated (e.g. those that that have been thoroughly cleaned immediately prior to deployment in the Menai Strait), particularly if they have originated from outside of the waterway. A biosecurity risk assessment, which will outline how the risk will be mitigated (if any) of the transfer of <i>Didemnum</i> <i>vexillum</i> and other organisms that may be transported via vessel hulls or equipment will be produced as part of the INNMS.	could have an impact on ecological features and resources.	
Surveys a	and Monitoring	I	
BS401	INNS will only be treated and/or eradicated within the working areas unless under agreement with the landowner. Watercourses will be subject to risk of invasive species growth due to viable seed being transported by the watercourse or via the wind. Site checks will be made throughout the construction period to identify any regrowth or new areas of INNS that may require further eradication works or isolating.	Prevent the release and spread of INNS which could have an impact on ecological features and resources.	
BS402	Regular checks of appropriate information sources would be undertaken to identify occurrences and imposed restrictions with regards to diseases such as avian flu. All restrictions must be adhered to and may include restricted movements within prevention zones.	Prevent the release and spread of INNS, pests and pathogens which could have an impact on ecological features and resources.	
BS403	Contractors will produce Biosecurity Risk Assessments and means of reviewing for compliance. These are to include methods for prevention and monitoring of spread of INNS and diseases, for example ash dieback,	Prevent the release and spread of INNS, pests and pathogens which could have an impact on	

Table 9.24: General CEMP Measures Relevant to Ecological Effects			
Code	Description	Reason	
	which is caused by caused by a fungus ( <i>Hymenoscyphus fraxineus</i> ) and Chytridiomycosis (Chytrid fungus) within aquatic environments.	ecological features and resources.	
Biodivers	ity and Nature Conservation		
Biodivers	ity Mitigation Strategy (BMS)		
BNC11	The Biodiversity Mitigation Strategy (BMS) ( <b>Document 7.7</b> ) describes the measures that will be implemented during the construction of the Proposed Development to protect biodiversity. Any changes to the BMS must be in agreement with the Ecological Clerk of Works (ECoW).	Minimise construction impact on the environment or effects on ecological features and resources.	
BNC12	A suitably experienced and trained ECoW will be appointed by each contractor who will be responsible for ensuring the BMS ( <b>Document</b> <b>7.7</b> ) is implemented by all relevant personnel and that an auditing procedure is in place and conducted accordingly. As necessary they will be supported by other suitably qualified ecologists. They will also ensure that appropriate tool box talks are implemented.	Minimise construction impact on the environment or effects on ecological features and resources.	
BNC13	<ul> <li>The BMS (Document 7.7) sets out the following:</li> <li>ecological mitigation measures as identified in Chapter 9, Ecology and Nature Conservation of the ES (Document 5.9);</li> <li>measures for ecological supervision during the delivery of construction and mitigation activities; and</li> <li>provision for and details of specific ecological mitigation plans and method statements or other management documents.</li> </ul>	Minimise construction impact on the biodiversity and environment of the site and surrounding area.	

Table 9.24: General CEMP Measures Relevant to Ecological Effects			
Code	Description	Reason	
Summary	of General Biodiversity and Nature Conservatio	n Control Measures	
BNC21	Method Statements would be in place during construction to ensure compliance with biodiversity commitments and requirements. These are detailed within the BMS ( <b>Document 7.7</b> ).	Minimise construction impact on the biodiversity and environment of the site and surrounding area.	
Protectior	n of Habitats		
BNC22	Minimising working areas and vegetation clearance within designated sites and areas of protected habitat to only that essential for works. No storage of materials on or within 30 m to designated sites and areas of protected habitat without prior agreement with the ECoW. The exception being soil stockpiles which will be appropriately mitigated in order to prevent silt laden run over as set out in this CEMP.	Minimise construction impact on the biodiversity and environment of the site and surrounding area.	
BNC23	<ul> <li>Maintain appropriate buffers to protect non-working areas where not essential within the Order Limits:</li> <li>maintain 20 m buffer 30 m where possible, from designated sites and areas of protected habitat, including woodland, where not required to work within the site/habitat or within the buffer. Areas closer than 30 m must be approved by the ECoW;</li> <li>maintain at least 5 m distance from hedgerows where possible to protect both hedgerow and ground flora. This would be reduced where the required working area must lie within 5 m however the root protection zones of hedgerow and hedgerow and required to be removed will be protected as per section 12 of this CEMP; ;</li> </ul>	Minimise construction impact on the biodiversity and environment of the site and surrounding area.	

Table 9.24: General CEMP Measures Relevant to Ecological Effects		
Code	Description	Reason
	<ul> <li>maintain 8 m buffers around ponds where possible to protect both the ponds and the immediately surrounding habitat. This may be larger for known Great Crested Newt (GCN) ponds. No non-essential works will be undertaken within 3 m of any pond; and</li> </ul>	
	<ul> <li>maintain 8 m buffers from watercourses where possible. No works within 3 m of watercourses with the exception of crossing points. This would be larger for sections of watercourse identified as being used by otter or water vole details of which are provided within the BMS (Document 7.7).</li> </ul>	
BNC24	Demarcation of non-working areas within designated sites and areas of protected habitat and close to sensitive species to protect habitat	Minimise construction impact on the biodiversity and environment of the site and surrounding area.
BNC25	Use appropriate material for access tracks to ensure no lasting change in soil type.	Minimise construction impact on the biodiversity and environment of the site and surrounding area.
Protection	n of Species	
BNC26	Tree clearance works would be supervised and/or monitored by the ECoW or bat licence appointed person where appropriate.	Minimise construction impact on the biodiversity and environment of the site and surrounding area.
BNC27	A watching brief by an ECoW would be undertaken during working in watercourses. This would also include when dismantling the culverts/bridges.	Minimise construction impact on the biodiversity and environment of the site and surrounding area.

Table 9.24: General CEMP Measures Relevant to Ecological Effects		
Code	Description	Reason
BNC28	Mitigation measures will include as required the utilisation of Marine Mammal Observers (MMOs) and Passive Acoustic Monitors (PAMs) as well as Acoustic Deterrent Devices (ADDs) at all times during blasting of the tunnel beneath the Menai Strait waterway. In the event of a buoy needing to be deployed within the Menai Strait for the purposes of marine mammal or fish mitigation, this would be deployed within the central part of the Strait, away from rocky reef or other sensitive habitats to reduce the risk of any scour impacts occurring.	Minimise construction impact on the biodiversity and environment of the site and surrounding area.
BNC29	Obvious mammal trails would be kept clear of obstructions where possible	Minimise construction impact on the biodiversity and environment of the site and surrounding area.
BNC210	Excavations will be secured or provided with an escape route to prevent harm to or trap animals within them. Larger excavations such as the tunnel shafts will already be appropriately fenced and would include 24 hours working at times which would deter species including badger from this area.	Minimise construction impact on the biodiversity and environment of the site and surrounding area.
BNC211	<ul> <li>Programme of works would include for the following:</li> <li>where possible, phase work so that vegetation clearance, establishment of working areas and habitat restoration within 500 m of inland water bodies at Wylfa, Bryn Dyfrydog and Cors Erddreiniog are completed outside of the breeding bird season (March-September for most bird species). This will ensure compliance with the Wildlife and Countryside Act 1981 (as amended).</li> </ul>	Minimise construction impact on the biodiversity and environment of the site and surrounding area.

Table 9.24: General CEMP Measures Relevant to Ecological Effects			
Code	Description	Reason	
	Further information is provided in the BMS ( <b>Document 7.7</b> );		
	<ul> <li>ground clearance in suitable reptile habitat will be undertaken in accordance with the BMS (Document 7.7) which includes restrictions during winter months, in particular of dismantling potential hibernacula, such as cloddiau. This would be to protect ground level working from affecting hibernating reptiles. Above ground level vegetation clearance could be undertaken where suitable methods are available and under the supervision of an ECoW;</li> </ul>		
	<ul> <li>no ground clearance in GCN mitigation areas commencing during winter months, in particular of dismantling potential hibernacula, such as cloddiau. GCN fence installation and trapping period cannot take place between October and February (this is weather dependent so can continue if weather conditions meet recognised criteria and a data logger is used). Details are provided in the BMS (<b>Document 7.7</b>) and GCN EPS licence). This would be to protect ground level working from affecting hibernating GCN. Above ground level vegetation clearance could be undertaken where suitable methods are available and under the supervision of an ECoW in accordance with the mitigation outlined in the BMS (<b>Document 7.7</b>) and GCN EPS licence;</li> </ul>		
	<ul> <li>no working in watercourses during sensitive months such as spawning season as appropriate for each fish species in each watercourse;</li> </ul>		

Table 9.24: General CEMP Measures Relevant to Ecological Effects			
Code	Description	Reason	
	<ul> <li>pre-construction surveys will be required to reassess presence of species such as GCN, red squirrel, reptiles, badger, otter and water vole in accordance with timings given in the BMS (Document 7.7);</li> </ul>		
	<ul> <li>pre-construction surveys will be required to reassess the trees to be removed should this not have commenced by 2 years after the surveys were conducted; and</li> </ul>		
	<ul> <li>any trees which are to be removed that have been identified as having low, moderate or high bat roost potential (but are not confirmed roosts) within the Order Limits will be removed using the methods within the BMS (<b>Document 7.7</b>) including soft felled. Those confirmed as bat roosts must also be soft felled but under a bat licence.</li> </ul>		
Trees, He	edgerows and Boundary Features		
Trees and	Hedgerows		
TH11	A Tree and Hedgerow Protection Strategy will be produced; this will be in accordance with the Trees and Hedgerows Potentially Affected Plans ( <b>Document 4.11</b> ).	Minimise construction impact on trees and hedgerows.	
TH12	An Arboricultural Clerk of Works will be appointed as required and will be responsible for overseeing and monitoring all arboricultural measures. All trees and hedgerows to be retained are shown on the Trees and Hedgerows Potentially Affected Plans ( <b>Document 4.11</b> ). These plans will be refined prior to construction by the Arboricultural Clerk of Works to identify trees and hedgerows for removal. All retained trees and hedgerows will be protected in	Minimise construction impact on trees and hedgerows.	

Table 9.24: General CEMP Measures Relevant to Ecological Effects			
Code	Description	Reason	
	accordance with the Tree and Hedgerow Protection Strategy.		
TH13	Retained hedgerows and trees will be protected by clearly defined root protection areas to prevent damage/compaction of roots by plant and other machinery.	Minimise construction impact on trees and hedgerows.	
TH14	<ul> <li>The Tree and Hedgerow Protection Strategy will include:</li> <li>a schedule of all trees and hedgerows to be removed;</li> <li>a schedule of all trees which require pruning coppicing or pollarding;</li> <li>a schedule of all trees and hedgerows to be retained including specification for temporary physical protection including clearly defined root protection areas to prevent damage/compaction of roots by other machinery;</li> <li>reinstatement measures in accordance with Figure 1 (Document 7.4.1.1); and</li> <li>details of an auditable system of compliance</li> </ul>	Minimise construction impact on trees and hedgerows.	
Boundary Features			
TH21	A Boundary Features Protection Strategy will be produced. Further details are provided in the CEMP ( <b>Document 7.4</b> ).	Enable reinstatement of boundary features following completion of works.	
Reinstatement			
R1	All temporary working areas and accesses will be removed when construction of that stage of the works has been completed. Plant, temporary cabins and vehicles will be removed from the site. Save for the actual Proposed Development and works forming part thereof, and also anything associated	Minimise long-term damage/disturbance to ecological features and resources.	

Table 9.24: General CEMP Measures Relevant to Ecological Effects		
Code	Description	Reason
	e.g. ground strengthening, all temporary land, including highways and public rights of way crossed by the works or other land temporarily occupied will be made good in consultation with landowners and/or the relevant highways authority.	
R2	To facilitate the reinstatement of land, soil and watercourses, pre-condition surveys will be discussed with landowners and where agreed, carried out of land within working areas. Where required this will include a photographic record, written description and topographical survey, which will be used to ensure appropriate reinstatement of land.	Minimise long-term damage/disturbance to ecological features and resources.
R3	Reinstatement will be in accordance with the relevant parts of the BMS ( <b>Document 7.7</b> ) include making good of any damage or disturbance to any soil structure, native or other planting, grass, fencing, hard landscaping or structures, where in-situ reinstatement is possible.	Minimise long-term damage/disturbance to ecological features and resources.
R4	Trees, hedgerows and boundary features will be reinstated in accordance with section 12.	Minimise long-term damage/disturbance to ecological features and resources.
R5	Any temporary bridge or culvert required will be removed within 12 months of completion of construction of that stage, abiding by all working within watercourses and biosecurity practices stated.	Minimise long-term damage/disturbance to ecological features and resources and ensure continuity of corridors
R6	All affected watercourses or waterbodies will be reinstated on completion of works.	Minimise long-term damage/disturbance to ecological features and resources and ensure continuity of corridors.

#### Mitigation Measures

- 9.2.6 More specific mitigation measures presented in the CEMP and other documents are referenced in the mitigation summary boxes presented for each receptor below, and also reported in the BMS (**Document 7.7**). These measures include additional topic and site specific mitigation measures that have been applied to mitigate or offset any significant effects. Measures include but are not limited to:
  - maintaining habitats and connectivity for mammals such as bats and red squirrel;
  - maintaining and protecting watercourses where species such as water vole and otter are found to be present;
  - minimising impacts to ancient woodland, hedgerows and mature trees;
  - the reinstatement of habitats, in situ where possible or within close proximity (within the Order Limits) in order to maintain connectivity; and
  - replacing lost trees, where possible, in appropriate locations within the Order Limits.
- 9.2.7 The assessment provided in this chapter takes into account the flexibility included within the draft DCO (**Document 2.1**), such as the use of the LOD. Where possible commitments have been made to avoid undertaking work in locations where effects could be of greater significance. However, where this has not been possible, the difference in the level of effect is highlighted in the narrative.

## 9.3 DESIGNATED SITES

- 9.3.1 For the assessments below, the assessment of indirect impacts in relation to dust and emissions uses the air quality study area within Chapter 14, Air Quality (Document 5.14), comprising the following criteria:
  - Construction Dust Emissions Study Area Impacts could occur at ecologically sensitive areas where they are located within 50 m of the Order Limits and/or within 50 m of a public road used by construction vehicles that is within 500 m of a site access point.
  - Construction Road Traffic Emissions Study Area Potential road traffic emissions impacts are only likely to occur where there are sensitive ecologically receptors within 200 m of an 'affected' road link. For ecology receptors, an affected link is one that could experience a change in two-

way traffic flow of 1000 or more annual average daily LDV (LGV) and/or 200 or more annual average daily HDV (HGV) movements.

• Construction Phase Emergency Generator Emissions Study Area - The exception to this is the consideration of emergency generator emissions on a sensitive ecological site. Sensitive ecological sites with an international designation that are located within 10 km of the emergency generators and nationally designated sites located within 2 km of the emergency generators are considered.

# Statutory Designated Sites

9.3.2 This section details the potential effects on statutory designated sites. SACs are discussed in the first instance, though are combined with other designated sites where these overlap. Following these, SPAs, SSSIs and NNRs are discussed. Several sites are combined where the effect is considered to be the same.

# Corsydd Mon/Anglesey Fens SAC, Corsydd Môn a Llyn/Anglesey and Llyn Fens Ramsar and Cors Erddreiniog SSSI and NNR

- 9.3.3 These designations are considered together as they overlap with each other and have many of the same qualifying features. These sites support the second-largest area of calcareous fens in the UK and contain hard oligomesotrophic waters with benthic vegetation of Chara species. Any differences in effects resulting from differing qualifying features are stated. More detailed citations are provided in Table 9.13 and Table 9.14 and Appendix 9.2 (Document 5.9.2.2). The Proposed Development has been designed to avoid these designated sites as far as possible and no permanent infrastructure would be located within these sites. In order to facilitate construction, the Order Limits extend into the boundary of these designated sites for the purposes of temporary drainage measures in relation to the perimeter drain. The Order Limits also allow for a small area of oversail by the conductors, primarily in the NNR boundary.
- 9.3.4 Impacts could occur where works within the Order Limits fall within the designated site boundary. Whilst this is limited to very small areas along the western boundaries of these designated sites, potential impacts on the SAC/Ramsar/SSSI/NNR interest features are as follows:
  - Direct loss of habitat trimming/permanent loss of small areas of trees/hedgerows for two small areas due to slight oversail by the conductors, primarily in relation to the NNR, and at the location of drainage mitigation, but this could change due to the potential for

infrastructure to move within the LOD. However, the areas where this would occur avoid the qualifying features within the designated sites and trees are not integral to the qualifying features of these sites.

- Temporary disturbance/ displacement/ degradation small areas of the SAC/Ramsar/SSSI/NNR would be temporarily disturbed during construction through vegetation removal and installation of drainage mitigation. However, the areas where these would occur avoid the qualifying features within the designated sites, trees are not integral to the qualifying features of these sites and the drainage mitigation would be designed to prevent pollution and maintain the existing hydrological regime. Sources of disturbance/ displacement/ degradation could also include construction traffic movement/noise.
- Temporary disturbance/ displacement/ degradation from changes in air quality, including from vehicle exhaust emissions and dust (particulate matter) where within the study area for the air quality assessment.
- Hydrological alteration the majority of habitats present within the SAC/Ramsar/SSSI/NNR, for example fen and wet heath, are dependent upon the existing hydrological inputs to the site being maintained. Historic drainage of surrounding land means the SAC/Ramsar/SSSI/NNR habitats are currently degrading, and additional inputs of water of an appropriate quality are required in order to achieve favourable status. Eight discreet areas, seven of which fall just within the boundary of each designated site with the eighth falling just outside, have been identified for small scale drainage works in connection with the perimeter drain on the western boundary of the sites. These are discussed below.
- 9.3.5 Mitigation measures required are set out below; full details are provided within the BMS (**Document 7.7**):
  - CEMP Measures in Table 9.24; all relevant General Principle measures, AE11 to AE14, AE21, AE41, SM11, SM12, WE11, WE21 to WE23, WE31, WE41, WE51, WE52, WE54, WE55, WE57, WE58, FM14, BS11, relevant BS measures between BS21 to BS202, BS401, BS403, BNC11 to BNC13, BNC21 to BNC27, BNC29 to BNC211, TN11 to TN14, TN21, R1 to R6.

In addition to the measures set out in Chapter 11, Geology, Hydrogeology and Ground Conditions (**Document 5.11**), Chapter 12, Water Quality, Resources and Flood Risk (**Document 5.12**), Chapter 13, Traffic and Transport (**Document 5.13**) and Chapter 14, Air Quality (**Document 5.14**). The following additional measures would be implemented:

- Where habitat within the designated sites is required to be removed/managed due to conductor swing, this would be done with care to avoid damaging ground habitats, such as by soft felling the trees and avoiding taking vehicles on the designated site where possible.
- The permanent drainage in effect during the operation of the Proposed Development would be designed to maintain the existing hydrological regime.
- 9.3.6 The fen habitat present is integral to the qualifying features of the designated sites. There are numerous ephemeral field drains which flow from west to east towards the sites which flow into a larger perimeter drain on the upgradient side of an existing track, which flows alongside the perimeter of the SAC. The perimeter drain subsequently discharges into the Afon Erddreiniog which flows to the south away from the SAC.
- 9.3.7 The Proposed Development has some potential to impact on hydrology due to the excavation works, for example where required for pylon foundations (pylon location number 4AP051 is 10 m away from the designated sites), and temporarily as a result of the excavation of trenches for the localised undergrounding of the Third Party Services 132 kV line adjacent to the SAC. Historic drainage of surrounding land means the SAC/Ramsar/SSSI/NNR habitats are currently considered to be degrading, and additional inputs of water of an appropriate quality are required in order to achieve favourable status.
- 9.3.8 Chapter 11, Geology, Hydrogeology and Ground Conditions (**Document 5.11**) concludes a negligible, no significant effect as a result of changes to groundwater on these designated sites.
- 9.3.9 Chapter 12, Water Quality, Resources and Flood Risk (Document 5.12) concludes that the construction, operation, maintenance and decommissioning of the Proposed Development would have no measurable residual impact on the river flow regime, morphology or water quality and as such, the stated effects are predicted to be not significant within their assessment, including composite components of the SAC to the south in section D. A site specific Drainage Management Plan would be discussed with NRW prior to the commencement of construction in this section, as secured by DCO Requirement 6.
- 9.3.10 The residual effects during construction, maintenance and decommissioning would be of **Low** severity due to both the temporary nature of the works and because the effects on water quality and hydrology through temporary disturbance/ displacement/ degradation would be managed to an acceptable level by the incorporation of the mitigation measures outlined in the mitigation

summary box above, within the CEMP (**Document 7.4**) and in agreement with NRW.

- 9.3.11 The site as a whole has a potentially **High** sensitivity to significant changes in water quality and hydrology and species, due to the presence of fen habitat and species such as Geyer's whorl snail (*Vertigo geyeri*)(a species that is a primary reason for selection of the SAC) which depend on the fen habitat. However, the sensitivity of the affected location at the edge of the sites, away from the main areas of fen habitat, the degree and short duration of the small changes in water quality and hydrology, as stated above, which would not exceed the natural fluctuations in those areas where the qualifying features occur and are accustomed to accommodating, as a result of the Proposed Development would be **Low** as there would be no measurable residual impact on the water flow regime, morphology or water quality amounts following the mitigation measures that would disperse to insignificant amounts.
- 9.3.12 Trimming/permanent loss of small areas of trees/hedgerows would occur at two small areas due to slight oversail by the conductors primarily in the NNR boundary only (225 m<sup>2</sup> trees to be removed and 0.29 ha trees/hedge potentially affected within the NNR and 675 m<sup>2</sup> trees/hedge potentially affected within the SAC/Ramsar/SSSI (only a proportion of the potentially affected could become affected through use of the flexibility in the LOD)), and at the location of the eight discrete areas of habitat potentially affected for drainage mitigation (319 m<sup>2</sup> trees/hedge for the NNR and 282 m<sup>2</sup> trees/hedge for SAC/Ramsar/SSSI and 40 m of hedge). In addition a further 965 m<sup>2</sup> for NNR and 1025 m<sup>2</sup> for the SAC/Ramsar/SSSI fall within the drainage mitigation areas. The potentially affected areas would not automatically be lost, but a portion of this could be managed/removed should slight changes in the design, within the parameters of the LOD, move some pylons and their associated conductor swing impacts closer to the sites. This would not go beyond the Order Limits. None of the qualifying species of the designated sites were found during surveys or desk study to be present in these peripheral habitats, as the appropriate habitat is generally not present on this edge of the sites. The drainage mitigation would be designed to prevent pollution and maintain the existing hydrological regime including during temporary habitat loss within these areas. The areas which require management of vegetation also avoid those areas that support the qualifying features within the designated sites and trees are not integral to the qualifying features of these sites. Due to these reasons, the severity of the impact of habitat loss and severance and fragmentation would be Low during construction, maintenance and decommissioning. The sensitivity of the SAC/Ramsar/SSSI/NNR to the very small loss of non qualifying habitats on the perimeter of the sites that would be caused by the Proposed Development would also therefore be Low.

- 9.3.13 In Chapter 14, Air Quality (**Document 5.14**), it is concluded that the stated dust and air emission control measures, when implemented throughout the works, as appropriate, would mean that residual effects as a result of construction dust and PM10 deposition would not be significant. Also, in Chapter 14, the contribution of the Proposed Development has been shown to fall below 1% of the Critical Load/Level for all determinants, under all tunnelling scenarios for the units of these designated sites within Sections C and D as lies within 10 km of the construction phase emergency generator. In line with EA guidance, the predicted impacts are considered insignificant. The severity of the impact of potential changes in air quality through temporary disturbance/ displacement/ degradation is therefore considered Low on these designated sites. The critical nutrient load which has been used to assess the significance of the effect of the air quality impacts is 15 KgN/ha/yr, as more sensitive habitats for which the SAC/SSSI/Ramsar is designated are not present adjacent to the Proposed Development. As the sensitivity of this SAC/Ramsar/SSSI/NNR to dust and emissions is dictated by the Critical Loads/Levels of the habitats present in the context of prevailing conditions, the sensitivity of the habitats likely to be affected by the predicted changes in air quality levels by the temporary nature of activities is also considered to be Low.
- 9.3.14 Despite the International (SAC/Ramsar)/National (SSSI/NNR) value of the designated sites, in view of their Low sensitivity to the Low severity of residual effects, the significance of effects during construction would be a Negligible effect (not significant) on these sites. This would also be the case for maintenance and decommissioning with the same mitigation measures in place where relevant.
- 9.3.15 During operation, the severity of the effects stated above would be **Very Low** for all, therefore also resulting in a **Negligible** effect (**not significant**) on these sites.
- 9.3.16 Flexibility in the draft DCO (**Document 2.1**) permits changes in the locations of the pylons and access tracks within the stated LOD. During the design process, these designated sites were avoided where at all possible, minimising the areas that could be affected. The Order Limits were reduced at the edge of the sites where possible in order to prevent further works inside the boundaries. Changes due to use of the LOD could slightly increase the amount of habitat lost or managed due to conductor swing should pylon 4AP051 be required to move east within its LOD. This could increase the amount of habitat management/removal (trees/hedgerows) in the NNR and also result in habitat management/removal (trees/hedgerows) within the SAC/Ramsar/SSSI, but only due to restrictions on the height of vegetation

beneath the OHL. This habitat loss/management would not affect habitat included as a qualifying feature of the sites and therefore does not change the significance of the outcome of the assessment as reported above.

9.3.17 The above assessment applies to both Options A and B as there are no differences in the areas of works in the wider area to this designated site, and therefore there would be no difference to the significance of the assessment.

#### Eryri/Snowdonia SAC – Indirect Effect Only

- 9.3.18 The site was selected for biological interests, in particular as the bestdeveloped and most extensive areas of Siliceous alpine and boreal grasslands in Wales and is the largest example of the habitat type south of Scotland. A more detailed citation is provided in Table 9.13 and Appendix 9.2 (**Document** 5.9.2.2).
- 9.3.19 This site would not be directly affected but falls within the study area for the air quality assessment as it is an International Site within 10 km of the emergency generator, and therefore could be indirectly affected through temporary disturbance/ displacement/ degradation such as through changes in air quality.
- 9.3.20 The critical load range for Siliceous alpine and boreal grasslands is used in the analysis (5-10 KgN/ha/yr) because it is the lowest acceptable (i.e. most sensitive) critical load for the habitats for which this site is designated.
- 9.3.21 Potential impacts on the interest features of these designated sites are as follows:
  - Temporary disturbance/ displacement/ degradation of SAC habitat though changes in air quality through construction phase emergency generator emissions.
- 9.3.22 Mitigation measures required are set out below; full details are provided within the BMS (**Document 7.7**):
  - CEMP Measures in Table 9.24; all relevant General Principle measures, AE21, AE41

The measures set out in Chapter 13, Traffic and Transport (**Document 5.13**) and Chapter 14, Air Quality (**Document 5.14**) would be implemented.

9.3.23 In terms of the impact of changes in air quality on the Eryri/Snowdonia SAC, the contribution of the Proposed Development as a result of lying within 10 km of the construction phase emergency generator, remains less than 1% of the

relevant air quality objective and Critical Loads/Level, and is therefore considered insignificant (not significant) within the air quality assessment in Chapter 14, Air Quality (**Document 5.14**). The impact of the short-term air quality change, which is less than 10% of the Critical Load/Level, is also considered insignificant (not significant). Therefore the severity of the effect is considered to be **Very Low**. As the sensitivity of habitats within Eryri/Snowdonia SAC is dictated by the Critical Loads/Level of the habitats present in the context of prevailing conditions, it is considered that the sensitivity to the short term disturbance/ displacement/ degradation of habitat caused by potential emissions generated from the Proposed Development would be **Very Low** as they are within acceptable levels for these habitats.

- 9.3.24 The **Very Low** sensitivity to the **Very Low** severity of the residual impacts means that despite the **International** value of Eryri/Snowdonia SAC, the significance of effects during construction would be a **Negligible** effect (**not significant**).
- 9.3.25 There would be no operational effects on this site. Effects as a result of maintenance and decommissioning would be similar, but ultimately less than those for construction.
- 9.3.26 Although changes in the design of the Proposed Development within the flexibility afforded by the LOD could occur, it is not considered that they could lead to effects of increased significance, as the mitigation proposed would be equally effective.
- 9.3.27 The above assessment applies to both Options A and B as although there are slight differences in the areas of works in the wider area to this designated site, they would make no difference to the significance of the assessment.

## SPAs/SSSIs relating only to Ornithology

9.3.28 Effects relating to ornithological designated sites and their receptors are dealt with in section 9.7.

## SSSIs - with potential for direct and indirect effects

#### Tre'r Gof SSSI

- 9.3.29 The site was selected for biological interests, in particular as a representative example of rich-fen habitat in north-west Wales. A more detailed citation is provided in Table 9.13 and Appendix 9.2 (**Document 5.9.2.2**).
- 9.3.30 Potential impacts by the Proposed Development that could affect the Tre'r Gof SSSI interest features are as follows:

- Temporary disturbance/ displacement/ degradation of SSSI habitat through potential for discharges to water through spills and siltation and changes in air quality through dust generation and deposition where the boundary of the SSSIs lies within the study area for the air quality assessment. No construction traffic flows in Section A exceed the criteria within 200 m of the Order Limits and no effects as a result of the construction emergency generator would occur.
- 9.3.31 Mitigation measures required are set out below; full details are provided within the BMS (**Document 7.7**):
  - CEMP Measures in Table 9.24; all relevant General Principle measures, AE11, AE12, AE14, AE21, AE41, SM11, SM12, WE11, WE21 to WE23, WE31, WE41, WE51, WE52, WE54 toWE56, FM14, BS11, relevant BS measures between BS21 to BS202, BS401, BS403, BNC11 to BNC13, BNC21 to BNC25.

The measures set out in Chapter 11, Geology, Hydrogeology and Ground Conditions (**Document 5.11**), Chapter 12, Water Quality, Resources and Flood Risk (**Document 5.12**), Chapter 13, Traffic and Transport (**Document 5.13**) and Chapter 14, Air Quality (**Document 5.14**) would be implemented.

- 9.3.32 This receptor is situated downgradient of various elements of the Proposed Development. Although there are no connecting watercourses between the Proposed Development and the SSSI, there is the potential for surface water runoff-related effects from within the catchment.
- 9.3.33 The mitigated Proposed Development still has some potential to impact on water quality due to the excavation required for pylon foundations and temporary trenches required for the localised undergrounding of Third Party Services' 11 kV line. Chapter 12, Water Quality, Resources and Flood Risk (Document 5.12) concludes that the construction, maintenance and decommissioning of the Proposed Development would have no measurable residual impact on the water flow regime, morphology or water quality and as such, the expected change is predicted to be not significant within their assessment.
- 9.3.34 Construction in Section A would have a low to negligible risk of dust impact, due to the construction materials to be used here and the infrequent number of vehicle movements per day, and therefore do not exceed the criteria that indicate that a significant effect could occur, as discussed in Chapter 14, Air Quality (**Document 5.14**). In addition, the site is not close enough to the emergency generators at the tunnel compounds to experience effects that are likely to be significant.

- 9.3.35 The residual effects of disturbance/ displacement/ degradation of habitat caused by the Proposed Development as a result of changes in air and water quality during construction, maintenance and decommissioning would be of **Very Low** severity due to both the temporary nature of the works and because the effects would be managed to an acceptable level by the incorporation of the mitigation measures outlined above and within the CEMP (**Document 7.4**).
- 9.3.36 The sensitivity of these habitats to temporary and small scale disturbance/ displacement/ degradation of habitat caused by the Proposed Development during construction, maintenance and decommissioning is **Low** as there would be no measurable residual impact on the air quality and water flow regime, morphology or water quality amounts following the mitigation measures that would disperse to insignificant amounts.
- 9.3.37 The **Low** sensitivity to the **Very Low** severity of the residual impacts from both emissions and water quality means that despite the **National** value of the site, the significance of effects during construction, maintenance and decommissioning would be a **Negligible** effect (**not significant**) on this site.
- 9.3.38 The overall effect on this SSSI as a result of the construction, maintenance and decommissioning of the Proposed Development would be **Not Significant**.
- 9.3.39 There would be no operational effects on this site.
- 9.3.40 Although changes in the design of the Proposed Development within the flexibility afforded by the LOD could occur, it is not considered that they could lead to effects of increased significance, as the mitigation proposed would be equally effective.
- 9.3.41 The above assessment applies to both Options A and B as there are no differences in the areas of works in the wider area to this designated site, and therefore there would be no difference to the significance of the assessment.

## Llyn Alaw SSSI

- 9.3.42 The site is of considerable ornithological interest especially for overwintering wildfowl and large flocks of waders in autumn and is the largest moderately nutrient-rich lake on Anglesey. A more detailed citation is provided in Table 9.13 and Appendix 9.2 (**Document 5.9.2.2**). Effects relating to ornithological receptors of this site are discussed in section 9.7.
- 9.3.43 Potential impacts on the non ornithological interest features or supporting resources of Llyn Alaw SSSI are as follows:

- Temporary disturbance/ displacement/ degradation of SSSI habitat through potential for discharges to water through spills and siltation where sites are within or adjacent to, or downstream of, the Order Limits.
- 9.3.44 Mitigation measures required are set out below; full details are provided within the BMS (**Document 7.7**):
  - CEMP Measures in Table 9.24; all relevant General Principle measures, WE11, WE21 to WE23, WE31, WE41, WE51, WE52, WE54 to WE56, FM14, BS11, relevant BS measures between BS21 to BS202, BS91 to BS92, BNC11 to BNC13, BNC21.

The measures set out in Chapter 11, Geology, Hydrogeology and Ground Conditions (**Document 5.11**), and Chapter 12, Water Quality, Resources and Flood Risk (**Document 5.12**) would be implemented.

- 9.3.45 This receptor is situated downgradient of various elements of the Proposed Development. Although there are no connecting watercourses between the Proposed Development and the SSSI, there is the potential for surface water runoff-related effects from within the catchment. Chapter 12, Water Quality, Resources and Flood Risk (**Document 5.12**) concludes that the construction, maintenance and decommissioning of the Proposed Development would have no measurable residual impact on the water flow regime, morphology or water quality and as such, the expected change is predicted to be not significant within their assessment.
- 9.3.46 Works would include watercourse crossings, pylon foundations and access tracks adjacent to tributaries of watercourses of the site. The residual impacts during construction, maintenance and decommissioning would be of Very Low severity due to both the temporary nature of the works and because the effects would be managed to an acceptable level by the incorporation of the mitigation measures outlined mitigation summary box above and within the CEMP (Document 7.4). The sensitivity of these habitats to the temporary and very small scale disturbance/ displacement/ degradation of habitat caused by caused by the changes in water quality as a result of the Proposed Development would be Low as there would be no measurable residual impact on the water flow regime, morphology or water quality amounts following the mitigation measures that would disperse to insignificant amounts.
- 9.3.47 The Low sensitivity to the Very Low severity of the residual impacts means that despite the National value, the significance of effects during construction, maintenance and decommissioning would be Negligible effect (not significant) on this designated site.

- 9.3.48 The overall effect on this SSSI as a result of the construction, maintenance and decommissioning of the Proposed Development would be **Not Significant**.
- 9.3.49 There would be no operational effects on this site for non ornithological receptors.
- 9.3.50 Although changes in the design of the Proposed Development within the flexibility afforded by the LOD could occur, it is not considered that they could lead to effects of increased significance, as the mitigation proposed would be equally effective.
- 9.3.51 The above assessment applies to both Options A and B as although there are slight differences in the areas of works in the wider area to this designated site, they would make no difference to the significance of the assessment.

# Caeau Talwrn SSSI

- 9.3.52 Part of this SSSI is within the composite Anglesey Fens SAC. There are three areas designated as both SSSI and SAC to the west of the Order Limits in the northern part of section D, and three SSSI only designated areas to the east of the Order Limits further south in section D. This section of the assessment considers these SSSI elements only and the Anglesey Fens composite SAC is assessed above.
- 9.3.53 This SSSI is designated for neutral grassland and mire vegetation. A more detailed citation is provided in Table 9.13 and Appendix 9.2 (Document 5.9.2.2).
- 9.3.54 Potential impacts on the Caeau Talwrn SSSI interest features are as follows:
  - Temporary disturbance/ displacement/ degradation through potential changes in air quality through dust generation and deposition where the boundary of this SSSI lies within the study area for the air quality assessment, and through potential for discharges to water through spills and siltation during moderate-high flows only for the eastern component.
  - Temporary Hydrological alteration the habitats present within the SSSI include mire and associated communities which are dependent upon the existing hydrological inputs to the site being maintained.
- 9.3.55 Mitigation measures required are set out below; full details are provided within the BMS (**Document 7.7**):

 CEMP Measures in Table 9.24; all relevant General Principle measures, AE11, AE12, AE14, AE21, AE41, SM11, SM12, WE11, WE21 to WE23, WE31, WE41, WE51, WE52, WE54 to WE56, FM14, BS11, relevant BS measures between BS21 to BS202, BS401, BS403, BNC11 to BNC13, BNC21 to BNC25.

The measures set out in Chapter 11, Geology, Hydrogeology and Ground Conditions (**Document 5.11**), Chapter 12, Water Quality, Resources and Flood Risk (**Document 5.12**), Chapter 13, Traffic and Transport (**Document 5.13**) and Chapter 14, Air Quality (**Document 5.14**), would be implemented.

- 9.3.56 In terms of impact of changes to air quality, this SSSI is considered as a potential dust receptor only as it lies outside of the study area for the air quality assessment for emissions. Whilst within 200 m of the OHL access route and public roads, it is not included as a road traffic emissions sensitive receptor because the Proposed Development vehicle flows on the OHL access route and public roads at this point would be minimal. Chapter 14, Air Quality (Document 5.14) determines the level of mitigation required to ensure that a significant effect does not occur at any of the ecological sites within 50 m of the boundary of the site, or 50 m of the route(s) used by construction vehicles on the public highway and up to 500 m from site entrance(s), based on the number of sites present. The chapter concludes no significant effect on this SSSI using the required level of mitigation, therefore the severity of the effect is considered to be Very Low. The sensitivity of these habitats to the temporary and small scale disturbance/ displacement/ degradation of habitat within Caeau Talwrn SSSI caused by potential dust generation and deposition from the Proposed Development would be Low as the predicted Critical Loads/Level in the context of prevailing conditions are within acceptable levels for these habitats.
- 9.3.57 This SSSI has four constituent components; one to the east and three to the west of the Proposed Development. There is no direct flow pathway to the SSSI from the working areas from the eastern part. Two of the three components of the western elements of the composite site are hydrologically connected to the Proposed Development, comprising the northern and southern components of the western elements. One pylon lies within the surface water catchment of the northern component of the SSSI, which is also approximately 180 m downstream of a proposed culvert. The southern component is not linked to the working area via a watercourse, but two pylons and an access track lie up-gradient of the SSSI boundary, and would require permits from NRW for discharge into the SSSI.
- 9.3.58 Chapter 12, Water Quality, Resources and Flood Risk (**Document 5.12**) concludes that the construction, maintenance and decommissioning of the

Proposed Development would have no measurable residual effects on the river flow regime, morphology or water quality and as such, the expected change is predicted to be not significant within their assessment.

- 9.3.59 The residual effects on water quality and hydrology during construction, maintenance and decommissioning would be of **Very Low** severity due to both the temporary nature of the works and the fact that the design of the mitigation would limit any potential for impacts on water quality. The sensitivity of the SSSI to the **Very Low** severity of disturbance/ displacement/ degradation of habitat caused by the water quality and changes in hydrology as a result of the Proposed Development would therefore be **Low** as there would be no measurable residual impact on the water flow regime, morphology or water quality or amounts.
- 9.3.60 The **Low** sensitivity to the **Very Low** severity of the residual impacts means that despite the **National** value of the **SSSI**, the significance of effects during construction would be a **Negligible** effect (**not significant**).
- 9.3.61 The overall effect on this SSSI as a result of the construction, maintenance and decommissioning of the Proposed Development would be **Not Significant**.
- 9.3.62 There would be no operational effects on this site.
- 9.3.63 Although changes in the design of the Proposed Development within the flexibility afforded by the LOD could occur, it is not considered that they could lead to effects of increased significance, as the overall assessment would remain the same and the mitigation proposed would be equally effective.
- 9.3.64 The above assessment applies to both Options A and B as although there are slight differences in the areas of works in the wider area to this designated site, they would make no difference to the significnace of the assessment.

## SSSI with Potential for Indirect Effects Only

9.3.65 This section considers only those SSSIs that lie either within or close to the Order Limits, but would not be directly affected by the Proposed Development. It also includes those that fall within the study area for the air quality assessment and therefore could be indirectly affected through temporary disturbance/ displacement/ degradation such as through changes in air quality as a result of construction traffic emissions, the emergency generators, or dust generation and deposition. SSSIs that are not within the study area for the air quality assessment are not considered in this assessment of indirect effects unless they have been shown to be hydrologically linked to land within the Order Limits or are relevant to the marine or ornithological assessments.

- 9.3.66 The following SSSIs have been considered:
  - Malltraeth Marsh/Cors Ddyga SSSI (and RSPB reserve) The Critical Load range for poor fen and swamp is used because these are the habitats with the lowest minimum acceptable (i.e. most sensitive) Critical Load (10 KgN/ha/yr); and
  - Coedydd Afon Menai SSSI A critical load of 10 kgN/ha/yr has been used as the assessment threshold as this is the lowest part of the critical load range for beech woodland, which is the habitat within 200m of the road.
- 9.3.67 More detailed citations are provided in Table 9.13 and Appendix 9.2 (Document 5.9.2.2). Potential impacts on the interest features of these designated sites are as follows:
  - Temporary disturbance/ displacement/ degradation of SSSI habitat though changes in air quality through construction traffic emissions and dust generation and deposition where the boundary of the SSSIs lies within the study area for the air quality assessment.
  - Temporary disturbance/ displacement/ degradation of SSSI habitat through potential for causing changes in water quality and hydrology where sites are within or adjacent to, or downstream of, the Order Limits for Malltraeth Marsh/Cors Ddyga SSSI (and RSPB reserve) via Afon Cefni.
- 9.3.68 Mitigation measures required are set out below; full details are provided within the BMS (**Document 7.7**):
  - CEMP Measures in Table 9.24; all relevant General Principle measures, AE11, AE12, AE14, AE21, AE41, SM11, SM12, WE11, WE21 to WE23, WE31, WE41, WE51, WE52, WE54 to WE56, FM14, BS11, relevant BS measures between BS21 to BS202, BS401, BS403, BNC11 to BNC13.

The measures set out in Chapter 11, Geology, Hydrogeology and Ground Conditions (**Document 5.11**), Chapter 12, Water Quality, Resources and Flood Risk (**Document 5.12**), Chapter 13, Traffic and Transport (**Document 5.13**) and Chapter 14, Air Quality (**Document 5.14**) would be implemented.

9.3.69 In terms of the impact of air quality changes on Malltraeth Marsh/Cors Ddyga SSSI (and RSPB reserve), the contribution of the Proposed Development remains less than 1% of the relevant air quality objective and Critical Loads/Level, and is therefore considered insignificant (not significant) within the air quality assessment in Chapter 14, Air Quality (**Document 5.14**). The

impact of the short-term air quality change, which is less than 10% of the Critical Load/Level is also considered insignificant (not significant). Therefore, the severity of the effect is considered to be **Low**. As the sensitivity of the habitats on this site is dictated by the Critical Loads/Critical Levels of the habitats present in the context of prevailing conditions, it is considered that the sensitivity of the habitats likely to be affected within Malltraeth Marsh/Cors Ddyga SSSI (and RSPB reserve) to the temporary and small scale disturbance/ displacement/ degradation of habitat caused by potential emissions and dust generation from the Proposed Development would be **Low** as they are within acceptable levels for these habitats.

- 9.3.70 Four proposed access track bridge crossings and eight access track culvert watercourse crossings are situated approximately 500 m to 650 m upstream of Malltraeth Marsh/Cors Ddyga SSSI. There are nine proposed pylons and associated working areas situated approximately 12 m 45 m from the nearest tributary. There is approximately 1.2 km of proposed access track that is also hydrologically connected to Malltraeth Marsh/Cors Ddyga SSSI. Chapter 12, Water Quality, Resources and Flood Risk (Document 5.12) concludes that the construction, maintenance and decommissioning of the Proposed Development would have no measurable residual impact on the water flow regime, morphology or water quality and as such, the expected change is predicted to be not significant within their assessment.
- 9.3.71 The residual effects of disturbance/ displacement/ degradation through water quality and hydrology during construction, maintenance and decommissioning would be of Very Low severity due to both the temporary nature of the works and the fact that the design of the mitigation would limit any potential for impacts on water quality. The sensitivity of the SSSI to the Very Low severity of of habitat caused by the water quality and changes in hydrology as a result of the Proposed Development would therefore be Low as there would be no measurable residual impact on the water flow regime, morphology or water quality or amounts.
- 9.3.72 The Low sensitivity to the Low and Very Low severity of the residual impacts of changes in air and water quality means that despite the National value of Malltraeth Marsh/Cors Ddyga SSSI (and RSPB reserve), there would be a Negligible effect (not significant) during construction, maintenance and decommissioning.
- 9.3.73 In terms of the impact of changes in air quality on the Coedydd Afon Menai SSSI, the contribution of the Proposed Development to change remains less than 1% of the relevant air quality objective and Critical Level and is therefore considered insignificant (not significant) within the air quality assessment in

Chapter 14, Air Quality (**Document 5.14**). The impact of the short-term air quality changes, which is less than 10% of the Critical Level, is also considered insignificant (not significant). Therefore the severity of the effect is considered to be **Low**. As the sensitivity of this SSSI is dictated by the Critical Loads/Critical Levels of the habitats present in the context of prevailing conditions, it is considered that the sensitivity of the habitats likely to be affected within Coedydd Afon Menai SSSI to the temporary and small scale disturbance/ displacement/ degradation of habitat caused by potential emissions and dust generation from the Proposed Development would be

9.3.74 Despite the National value of the SSSI, the Low severity of residual impacts coupled with the Low sensitivity of the habitats within Coedydd Afon Menai SSSI to potential small changes in air quality means that there would be a Negligible effect (not significant) during construction, maintenance and decommissioning.

Low as they are within acceptable levels for these habitats.

- 9.3.75 There would be no operational effects on these sites.
- 9.3.76 Although changes in the design of the Proposed Development within the flexibility afforded by the LOD could occur, it is not considered that they could lead to effects of increased significance, as the mitigation proposed would be equally effective.
- 9.3.77 The above assessment applies to both Options A and B as although there are slight differences in the areas of works in the wider area to this designated site, they would make no difference to the significance of the assessment.

Marine Special Areas of Conservation

Menai Strait and Conwy Bay SAC

- 9.3.78 The only potential impact on the Menai Strait and Conwy Bay SAC interest features, e.g. rocky reefs and mudflats, during construction would be:
  - Habitat loss and contamination If a substantial blowout occurred (potentially containing drilling fluids), it could have significant effects on any overlying Habitats Regulations Annex I reef or mudflat habitat (due to habitat loss and contamination of habitat of international importance) or these habitats in the vicinity (due to contamination with drilling fluids, but not habitat loss).
- 9.3.79 Mitigation measures required are set out below; full details are provided within the BMS (**Document 7.7**):

- CEMP Measures in Table 9.24; WE511, BS11, BS301, BS401, BS403
- 9.3.80 From the baseline information regarding habitat types, it is expected that most of the subtidal habitat immediately overlying the tunnel would comprise coarse sediments rather than Annex I reef habitat. There are small areas of mudflat within the order limits, although these do not comprise the main areas as outlined in the SAC Regulation 33 Advice. The remaining qualifying features of the Menai Strait and Conwy Bay SAC have been screened out in Appendix 9.2 (**Document 5.2.9.2**) and are therefore not considered here.
- 9.3.81 The type of TBM selected would be dictated by the ground conditions identified along the final tunnel alignment. Many TBMs utilise drilling fluids to aid operation of the drilling head. Drilling fluids can include compounds such as bentonite, which are injected ahead of the drilling face to stabilise ground conditions and aid the action of the cutting head.
- 9.3.82 Depending on the ground conditions, drilling fluids may be injected under pressure, which can result in a pressure blowout. Blowouts result where the drilling fluids track or weaken fissures in the rock and result in a release at the land or seabed surface.
- 9.3.83 Depending on the size and location of the pressure release, blowouts can vary in terms of the effects that they have on the overlying benthic habitats. Hard habitat types such as any overlying rocky reefs may be permanently lost or destroyed by a blowout, whereas softer sediment habitat types, with their ability to recover over the mid-term, are less likely to be permanently affected.
- 9.3.84 As stated at the beginning of this section, the unlikely event of a blowout of drilling slurry poses a risk to benthic habitats (including Habitats Regulations Annex I reef habitats). It also poses a risk to associated fish and shellfish as a result of the release of potentially contaminating drilling fluids into the aquatic environment. The release of bentonite and other drilling fluids could result in injury or death as a consequence of direct uptake of contaminants, or through the smothering of gills and gas exchange surfaces.
- 9.3.85 To avoid repetition in this document, the effects on Habitats Regulations Annex I rocky reef habitat and mudflats are reported only once. As such the effects are reported in the 'subtidal habitats and species' section in 9.8. The assessment concludes that the effects on these habitats are Negligible (**not significant**).
- 9.3.86 Considering the findings of the assessment of Habitats Regulations Annex I rocky reef habitat and mudflats, and the fact that there would be no potential for effects on the other qualifying features of the SAC, it is concluded that the

effects on the Menai Strait and Conwy Bay SAC would also be **Negligible** (**not significant**) during construction. There would be no potential for effects during operation, maintenance or decommissioning.

Lleyn Peninsula and the Sarnau SAC / North Anglesey Marine and West Wales Marine cSACs / Cardigan Bay SAC

- 9.3.87 Potential impacts on the mobile interest features of the Lleyn Peninsula and the Sarnau SAC, the Cardigan Bay SAC, and the North Anglesey Marine and West Wales Marine cSACs are as follows:
  - Disturbance of individuals or direct effects (noise and vibration) During construction noise and vibration have the potential to cause behavioural and physiological changes in harbour porpoise and bottlenose dolphin (both primary interest features of the SACs);
  - Disorientation of individuals EMFs emitted during operation have the potential to disorientate harbour porpoise and bottlenose dolphin.
- 9.3.88 There is no potential for effects on other interest features of these more distant SACs as these are either habitats not present within the Menai Strait or mobile features that would not range into the waterway.
- 9.3.89 Mitigation measures required are set out below; full details are provided within the BMS (**Document 7.7**):
  - CEMP Measures in Table 9.24; NV32, NV33, BS11, BS301, BS401, BS403, BNC28.

The following additional measure would be implemented:

- Mitigation for EMF is provided through mitigation by design, as the tunnel is a minimum of 10 m below the bed of the Menai Strait.
- 9.3.90 The peak particle velocity (PPV) has been calculated for TBMs (**Document 5.9.2.18**) and, the maximum PPV level at 10 m from the TBM at the seabed is likely to be no more than 9 mm/s. Taking into account the sound power transmission coefficient from the rock formation to water this equates to a peak sound pressure level of 139 dB re 1  $\mu$ Pa (pk) or an rms sound pressure level of 136 dB re 1  $\mu$ Pa (rms) in the water column near the seabed.
- 9.3.91 Sound due to TBM will be primarily low frequency in content (<500 Hz). It is therefore evident from the hearing ranges presented in **Document 5.9.2.18** that acoustic energy from TBM activities will fall outside the peak hearing sensitivity of mid frequency and high frequency cetaceans as well as pinnipeds. Even for low frequency cetaceans, a marine mammal would be

exposed to SEL levels significantly lower than the onset threshold for TTS or PTS even if it spent 24 hours at the seabed immediately adjacent to the TBM.

- 9.3.92 In terms of the drill and blast methodology, sound modelling conducted on a worst case, cumulative sound based on six 300 kg charge rounds per day predicted that the most sensitive (high frequency) cetacean species (e.g. bottlenose dolphin) exposed to sound within a 171 m radius from the blast could experience auditory injury (permanent threshold shift in hearing).
- 9.3.93 For a pinniped (e.g. grey seal), injury from the above scenario could occur out to 65 m. Cumulative impacts are not considered likely due to the extended time period between each anticipated explosive event.
- 9.3.94 The period of each blast operation is highly restricted (i.e. approximately one second) and the noise model predicted small potential disturbance zones for all marine mammals of 227 m radius or less.
- 9.3.95 The acoustic modelling was based on a theoretical treatment of sound from drill and blast activities. In reality, the situation would be much more complex and it is considered likely, in light of the multiple compounded worst case assumptions made in this study, that actual noise levels and impact zones will be lower than predicted.
- 9.3.96 Studies on the potential effects of EMFs generated by wind farm submarine cables on the marine environment have shown effects to be not significant (Ref 9.54). In addition, mitigation listed in the NPS EN-3 (Ref 9.55) states that a cable housed in a tunnel greater than 1.5 m or more below the seabed would provide sufficient mitigation from the effects of EMF. Although windfarm cables are lower kV than that required for the Project (i.e. 33/132 kV compared to 400 kV), evidence has shown that at 1 m above ground level, EMFs produced by 400 kV cables approach background at approximately 10 m from the centreline. Field measurements have shown that maximum magnetic flux (measured in  $\mu$ T) reduces from approximately 96 to 3 (0 to 10 m away from centreline) and typical  $\mu$ T reduces from 24 to 0.9 at the same distances<sup>14</sup>. The EMFs generated by cables beneath the Menai would therefore be expected to be approaching background within the water column.
- 9.3.97 To avoid repetition in this document, the effects on Habitats Regulations Annex II features (marine mammal species) are reported only once. As such the effects are reported in the 'Marine Mammals' section in 9.8. The

<sup>&</sup>lt;sup>14</sup> http://www.emfs.info/sources/overhead/specific/400-kv/

assessment concludes that effects on these features are Negligible (**not** significant).

9.3.98 Considering the findings of the assessment of Habitats Regulations Annex II marine mammal receptors, and the fact that there would be no potential for effects on the other qualifying features of the SAC, it is concluded that the effects on the Lleyn Peninsula and the Sarnau SAC/North Anglesey Marine and West Wales Marine cSACs/Cardigan Bay SAC would also be Negligible (**not significant**) during construction. There would be no potential for effects during operation, maintenance or decommissioning.

# Afon Gwyrfai a Llyn Cwellyn SAC

- 9.3.99 The only interest feature of this SAC that could be affected by the Proposed Development in the marine environment is Atlantic salmon. Potential impacts on Atlantic salmon are as follows:
  - Habitat loss and contamination If the unlikely event of a substantial blowout of drilling slurry occurred, it could lead to effects on water quality and passing individuals of Atlantic salmon if directly in the vicinity.
  - Disturbance of individuals or direct effects (noise and vibration) During construction noise and vibration have the potential to cause behavioural and/or physiological changes to Atlantic salmon in the vicinity.
  - Disorientation of individuals EMFs during operation have the potential to disorientate fish such as Atlantic salmon.
- 9.3.100 Mitigation measures required are set out below; full details are provided within the BMS (**Document 7.7**):
  - CEMP Measures in Table 9.24; NV32, NV33, WE511, BNC28.
  - The following additional measure would be implemented:
  - Mitigation for EMF is provided through mitigation by design, as the tunnel is a minimum of 10 m below the bed of the Menai Strait.
- 9.3.101 In terms of blowout of drilling slurry events, these have the potential to affect fish through the contamination of the water column. Blowouts are rare events, and the risk of an event has been reduced by the depth of the tunnel alignment, overlying ground conditions and measures put in place in the CEMP (WE511).
- 9.3.102 Atlantic salmon are likely to avoid areas of contamination and if drilling fluid was to be released in the unlikely event of a blowout, this is likely to be in a

very small quantity in comparison to the volume of the receiving water, especially within the context of a well monitored tunnel boring operation. Furthermore, measures put in place by the CEMP (WE511) would further reduce risk of any effects materialising.

- 9.3.103 In terms of the effects of drill and blast methods on marine fish, it is estimated that as a worst case, the maximum possible range at which mortality or potential mortal injury could occur is 14 m from the point of blast at the seabed (i.e. a dome of 26 m diameter into the water column above), as set out in **Document 5.9.2.18**.
- 9.3.104 In terms of TBM operations, the sound generated would be primarily low frequency in content (<500 Hz). It is therefore evident from the hearing ranges presented in **Document 5.9.2.18** that acoustic energy from TBM activities will fall outside the peak hearing sensitivity of fish.
- 9.3.105 To avoid repetition in this document, the effects on Habitats Regulations Annex II features (Atlantic salmon) are reported only once. As such the effects are reported in the 'Fish (migratory and marine)' section in 9.8. The assessment concludes that effects on these features are Negligible (**not significant**).
- 9.3.106 Considering the findings of the assessment of Habitats Regulations Annex II marine mammal receptors, and the fact that there would be no potential for effects on the other qualifying features of the SAC, it is concluded that the effects on Afon Gwyrfai a Llyn Cwellyn SAC would also be Negligible (not significant) during construction. There would be no potential for effects during operation, maintenance or decommissioning.
- 9.3.107 Otter would not be a feature affected by a blowout of drilling slurry as individuals would likely only venture into shallow waters to forage (e.g. for crabs); therefore, a localised area of blowout would not be sufficient to impact on the food source or overall behaviour of these individuals. Otter hearing sensitivity thresholds are similar to grey seal (see e.g. Section Error! eference source not found.), but their behaviour and use of the Menai Strait would mean the risk of an individual being affected would be extremely low. There would be no effects as a result of EMF as otter are not sensitive to EMF. Consequently, otters within the marine environment are not considered further in this assessment.
- 9.3.108 Given that the effects on Atlantic salmon are not significant, and there are no other interest features that could be potentially affected during the construction, operation, maintenance or decommissioning of the Proposed

Development, the overall effect on the Afon Gwyrfai a Llyn Cwellyn SAC is considered to be **Negligible** (not significant).

#### Marine SSSIs

Glannau Porthaethwy SSSI

- 9.3.109 The only potential impact that could affect the Glannau Porthaethwy SSSI receptors is:
  - Habitat Contamination if the unlikely event of a substantial blowout of drilling slurry occurred, it could result in a release of contaminants and sediments into the water column which could reach the SSSI habitats comprising macroalgae and associated faunal communities.
- 9.3.110 Mitigation measures required are set out below:
  - CEMP Measures in Table 9.24; WE511, BS11, BS301, BS401, BS403.
- 9.3.111 Owing to the distance from the tunnel and high dispersion potential of the waters of the Menai Strait, sensitivity of the SSSI to such releases of drilling fluids is considered to be Low as there would likely be little or no difference in water quality and smothering at this site. The dilution potential and risk of occurrence would cause the severity to also be Low. Owing to the National value of the SSSI and the Low severity of residual impact coupled with the Low sensitivity to the blowout effects, it is therefore predicted that effects would be Negligible (not significant) on the SSSI.
- 9.3.112 No effects on the marine environment are envisaged during operation, maintenance or decommissioning activities.
- 9.3.113 The assessment above takes into consideration both the TBM scenarios as well as the drill and blast scenario. It also considers the use of the flexibility afforded by the LOD beneath the Menai Strait. None of these scenarios would alter the significance of effects as presented above.

## Non Statutory Designated Sites

9.3.114 Only those CWS which fall within the Order Limits, or could be affected by air quality due to dust generation and deposition, or through emissions including via a construction traffic route, have been assessed for direct impacts. Those not within the study area for the air quality assessment (unless shown to be hydrologically linked to land within the Order Limits) have been scoped out and are therefore not considered in the assessment of indirect effects, refer to Appendix 9.2 (**Document 5.9.2.2**).

#### Individual County Wildlife Sites

#### **Gylched Covert CWS**

- 9.3.115 Gylched Covert is an area of semi-natural woodland over a small limestone hill with hawthorn (*Crataegus monogyna*), blackthorn (*Prunus spinosa*) and gorse (*Ulex europaeus*) scrub and dense bracken (*Pteridium aquilinum*). It has been classified as an Annex 1 habitat under the Habitats Directive of Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* habitat (NVC W8e community) and includes Category A trees, see section 9.4. A more detailed citation is provided in Appendix 9.2 (**Document 5.9.2.2**).
- 9.3.116 Potential impacts on the interest features of this CWS are as follows:
  - Direct loss of habitat, consisting of 0.45 ha permanent loss of woodland due to habitat modification to allow for the over sailing of the OHL. There could be up to 0.28 ha of affected/managed trees in a strip either side of that permanently lost, and a further 0.33 ha potentially affected (only a proportion of this could become affected through use of the flexibility in the LOD).
  - Temporary disturbance/ displacement/ degradation of CWS woodland habitat through potential changes to air quality (due to generation and deposition of dust).
  - Severance and fragmentation through permanent loss of habitat.
  - Hydrological alteration changes to water quality or the local hydrology could occur through works within or adjacent to wet areas within this CWS.
- 9.3.117 Mitigation measures required are set out below; full details are provided within the BMS (**Document 7.7**):
  - CEMP Measures in Table 9.24; all relevant General Principle measures, AE11 to AE14, AE21, AE41, SM11, SM12, WE21 to WE23, WE41, WE56, BS11, relevant BS measures between BS21 to BS202, BS401, BS403, BNC11 to BNC13, BNC21 to BNC25, TN11 to TN14, R1 to R4.

In addition to the measures set out in Chapter 11, Geology, Hydrogeology and Ground Conditions (**Document 5.11**), Chapter 12, Water Quality, Resources and Flood Risk (**Document 5.12**), Chapter 13, Traffic and Transport (**Document 5.13**) and Chapter 14, Air Quality (**Document 5.14**), the following additional measures would be implemented:

- The existing seed bank in the woodland top soil would be maintained through being stored separately from soils of other habitats.
- Mitigation planting would be included within the gap in the west side of the woodland (Figure 7.13 (**Document 5.7.1.13**)).
- Mitigation planting mixes would be tailored to the existing CWS, existing Annex 1 of the Habitats Directive woodland community for both the replacement woodland planting and the planting beneath the OHL, including scrub habitat, to provide good connectivity to other woodland blocks in the locations available. These would comprise native species of local provenance where possible. This would be tailored to support LBAP targets where possible.
- Future habitat management of Gylched Covert in line with maintaining and improved the quality of this CWS woodland (maintaining this W8e community where possible) to be agreed as part of the draft DCO (**Document 2.1**). Outline of this is provided in the BMS (**Document 7.7**), but full details would be provided in a management plan.
- 9.3.118 Even with this mitigation in place, the Proposed Development still has some potential to impact the woodland habitats of this CWS, due to the relatively long time required for establishment of the landscape mitigation planting, and the need to limit replanting of trees/woodland where habitat would be lost beneath the OHL, to maintain required clearance.
- 9.3.119 Gylched Covert covers an area of 5.6 ha, of which 5.26 ha lies within the Order Limits; however only 1.1 ha lies within the working area for permanent infrastructure. The Proposed Development would require 0.45 ha to be removed due to the OHL over sailing the woodland. This may only comprise loss of the trees, with the understory and ground flora retained. There could be up to 0.28 ha of trees in a strip either side of the area to be lost that could require to be affected/managed, and a further 0.33 ha potentially affected (only a proportion of this could become affected through use of the flexibility in the LOD). Loss of the woodland would alter the conditions for the ground flora, and could encourage other species of value in the more open areas created. Mitigation planting would be undertaken in the area of the west of the woodland, comprising 0.32 ha of species mix appropriate for this woodland, in addition, for scrub habitat to be included beneath the OHL. This equates to a minimum loss of 2.3% of woodland after planting (8% prior to mitigation). For a worst case scenario there would be approximately 12% loss (17.8% prior to mitigation).
- 9.3.120 The relatively small area of woodland lost compared to the remainder of the woodland, the use of suitable species mix for the planting mitigation within this

habitat, and its likely improved overall quality as a result of the measures set out in the outline management plan to be agreed as part of the draft DCO (Document 2.1), results in a severity of impact of Medium for habitat loss. The outline management plan includes for prescriptions such as coppicing the new woodland edge where the trees are removed on a rotation, however this area would not be quantifiable at this time. The sensitivity of this CWS woodland to the temporary and permanent loss of this habitat and fragmentation as a result of the construction, operation and maintenance of the Proposed Development would be **Medium** as a degree of this would be affected/managed woodland but not fully lost, but also considering the time taken for mitigation planting to mature and provide replacement habitat. During decommissioning, the woodland could in theory be allowed to grow back through succession, or could be considered for replanting, as the OHL would be removed and the height restriction for vegetation would not apply, however this would take time to establish. Taking into account the mitigation planting and the regenerative ability of this habitat, the severity and sensitivity of direct loss of this habitat in the long term (decommissioning) is therefore considered Low.

- 9.3.121 Changes to water quality or the local hydrology could occur through works within or adjacent to wet areas within this CWS, notably where purple moor-grass (*Molinia caerulea*), black bog rush (*Schoenus nigricans*), rushes (*Juncus* spp.) and water mint (*Mentha aquatica*) are found. Habitat loss as a result of construction enabling works would be limited to one side of the covert and works would not encroach beyond that needed to be removed. Access tracks would be located to the far side of this habitat loss, further minimising the impact. Management of the woodland would include areas appropriate for this habitat. Changes to the water chemistry of hydrological conditions during construction, maintenance and decommissioning would therefore be of Low severity. These species are dependent upon the existing hydrological inputs to the site being maintained, but the sensitivity of these habitats is Low as they remain outside of the area to be affected.
- 9.3.122 In terms of the impact of changes in air quality, this CWS is considered as a dust receptor only as it lies outside of the study area for the air quality assessment for emissions. Whilst being within 200 m of the OHL access route and public roads, it is not included as a road traffic emissions sensitive receptor, because the Proposed Development vehicle flows on the OHL access route and public roads at this point are minimal. Chapter 14, Air Quality (**Document 5.14**) determines the level of mitigation required to ensure that a significant effect does not occur at any of the ecological sites within 50 m of the boundary of the site, or 50 m of the route(s) used by construction vehicles on the public highway, up to 500 m from the site entrance(s), based

on the number of sites present. The outcome determines the level of mitigation required to ensure that a significant effect does not occur. Therefore, the severity of the effect is considered to be **Very Low**. The sensitivity of this woodland habitat to the temporary and small scale disturbance/ displacement/ degradation of habitat within the CWS caused by potential dust generation and deposition from the Proposed Development would be **Low** as they are within acceptable levels for these habitats.

- 9.3.123 The severity of severance and fragmentation for construction and operation would be **Low** due to the relatively small loss of habitat and either the retention of the understory and ground flora, or appropriate replacement planting/management including areas of scrub. The sensitivity of CWS woodland habitat to severance and fragmentation caused by the Proposed Development during construction, maintenance and operation would also be **Low** as the loss of habitat is limited to one side of the woodland to minimise the effect.
- 9.3.124 The County value of the CWS, the Medium (for habitat loss) severity of impacts coupled with the Medium sensitivity of woodland to the loss of habitat during construction, maintenance and operation, plus the replanting and management of a large proportion of the covert (all of that remaining within the Order Limits) means that there would be a Moderate Adverse effect (significant) (Minor for decommissioning) on the conservation status of this habitat at a County level.
- 9.3.125 The County value of the CWS, the Very Low to Low severity of impacts coupled with the Low sensitivity of woodland to all remaining impacts during construction, maintenance and decommissioning means that there would be a Negligible effect (not significant) on the conservation status of this habitat. There would be no operational effect as a result of hydrology and air quality.
- 9.3.126 The overall effect on Gylched covert CWS as a result of the Proposed Development would be a **Moderate Adverse** effect (**significant**).
- 9.3.127 Changes to the design of the Proposed Development within the flexibility afforded by the LOD could result in a larger area of woodland being lost if pylons were to be moved to the west, although it would then be possible to retain woodland to the east of the area lost. The maximum move to the west would result in a loss of woodland which is also reported above which could increase the severity of the impact slightly but would not result in an effect of increased significance and would remain as **Medium Adverse** effect (**significant**).
9.3.128 The above assessment applies to both Options A and B as there are no differences in the areas of works in the wider area to this designated site, and therefore there would be no difference to the significance of the assessment.

County Wildlife Sites (Including Candidate Sites) – Grouped Sites with Direct Impacts

- 9.3.129 The following CWS/cCWS lie either within the Order Limits and would be directly affected by the Proposed Development and/or could be indirectly affected through temporary disturbance/ displacement/ degradation such as emissions from the works or use of construction traffic routes when within the study area for the air quality assessment. Gylched Covert is dealt with separately above.
  - Coed Nant Y Garth CWS (Coniferous woodland; broadleaved woodland; acid grassland total area of the CWS is 26.5 ha) direct permanent loss of habitat due to over sailing of the OHL. Approximately 0.065 ha (0.25 % of the CWS) would be removed, with wider areas potentially affected due to use of the flexibility available within the LOD/Order Limits (up to 2.21 ha (8 % of the CWS) potentially affected only a proportion of this could become affected) potentially also due to Third Party Service works which could involve works down into the ravine. None of this element includes ancient woodland, however some areas are representative of a W8 Annex 1 habitat. In addition, 0.12 ha (0.45 % of the CWS) of ancient woodland could be affected/managed due to possible road widening works of Fodolydd Lane (Link 30) (note that ancient woodland is considered in section 9.4).
  - Coed Rhos-fawr cCWS (Coniferous woodland; acid grassland total area of the cCWS is 36.4 ha) Potentially affected habitat of 0.038 ha (0.01 % of the cCWS) due to possible visibility improvement requirement at the bend in the road, could occur within the Order Limits (note that ancient woodland is considered in section 9.4 and that the area of ancient woodland comprises only 0.01 ha).
  - Pentir Substation cCWS (Coniferous woodland and broadleaved woodland total area of the cCWS is 12.26 ha) Direct loss of habitat permanently through OHL over-sailing, pylon location, and substation extension at Pentir 3.09 ha removed (25.2 % of the cCWS) (including 0.35 ha of a poor example of W8 Annex 1 habitat), 0.53 ha affected/managed (4.3 % of the cCWS) and 0.29 ha potentially affected (2.4 % of the cCWS) (to the north of the substation only a proportion of this could become affected) of 11.37 ha within the Order Limits. These include 0.04 ha affected/managed of plantation coniferous woodland at

4AP091, and 0.49 ha affected/managed along the existing access track through the ancient woodland. Temporary loss would include widening of the existing access track through the ancient woodland (note that ancient woodland is considered in section 9.4), Third Party Service works, and visibility splays for access tracks.

- Coed Ty'n-llwyn cCWS (broadleaved woodland; acid grassland total area of the cCWS is 9.6 ha) Temporary loss of habitat 0.22 ha (2.3 % of the cCWS) for drainage mitigation within the Order Limits south of Pentir Substation.
- 9.3.130 Potential impacts on the interest features of these sites are as follows:
  - Direct loss of CWS habitat would occur through temporary loss during construction and permanent loss during operation of the Proposed Development.
  - Temporary disturbance/ displacement/ degradation of CWS habitat through potential pollution including changes in air quality when within the study area for the air quality assessment.
  - Severance and fragmentation through permanent loss of habitat for Coed Nant Y Garth CWS, Pentir Substation cCWS, and small scale for Coed Ty'n-llwyn cCWS.
- 9.3.131 Mitigation measures required are set out below; full details are provided within the BMS (**Document 7.7**):
  - CEMP Measures in Table 9.24; all relevant General Principle measures, AE11 to AE14, AE21, AE41, SM11, SM12, WE11, WE21 to WE23, WE31, WE41, WE51, WE52, WE54 to WE56, FM14, BS11, relevant BS measures between BS21 to BS202, BS401, BS403, BNC11 to BNC13, BNC21 to BNC25, TN11 to TN14, TN21, R1 to R6.

In addition to the measures set out in Chapter 11, Geology, Hydrogeology and Ground Conditions (**Document 5.11**), Chapter 12, Water Quality, Resources and Flood Risk (**Document 5.12**), Chapter 13, Traffic and Transport (**Document 5.13**) and Chapter 14, Air Quality (**Document 5.14**), the following additional measures would be implemented:

• Habitat replacement of CWS/cCWS habitats and improvement where appropriate in quality and mix of species, maintaining existing seed bank in top soil.

- Mitigation planting would ensure no net loss of trees, and be as close as possible in location to that lost, and where not possible, to provide good connectivity to other woodland blocks.
- Maintain existing seed bank and soil type by storage of the top soil of each grassland habitat kept separate to that of other grassland habitat types. Avoid use of weed killer on these top soil areas during construction period where appropriate, with hand pulling of weeds being considered.
- Seed mixes would comprise native species of local provenance where possible, and would be of mixes appropriate to each grassland type in each location.
- Mitigation planting mixes at Pentir Substation would be tailored to the existing cCWS habitats, including scrub habitat, to provide good connectivity to other woodland blocks. These would comprise native species of local provenance where possible.
- Management of the ancient woodland section of the Pentir Substation cCWS, where it falls within the Order Limits, to maintain and improve the quality of this cCWS woodland. This would be tailored to support LBAP targets where possible.
- Maintain existing drainage on completion where the drainage mitigation area falls within the cCWS Coed Ty'n-llwyn.
- 9.3.132 The mitigated Proposed Development still has some potential to affect the habitats within these cCWS/CWSs due to the time taken for establishment of the landscape mitigation planting and the difficulty in being able to replant where habitat has been lost due to restrictions. Direct loss and severance and fragmentation of woodland would occur but has been limited through the avoidance of the habitat where possible during the design process through careful siting of pylons and routeing of access tracks. Temporary direct loss of these areas during construction, including the Third Party Service works, would be limited to access tracks, construction compounds and working areas where these pass through or would be adjacent to woodlands. Permanent loss will primarily occur due to restrictions on the height of vegetation beneath the OHL and within the limits of conductor swing, and where substation extension and pylon location cannot avoid this habitat. Siting of the THH/CSECs has avoided woodland loss but will contribute to replacement of woodland within the mitigation planting. The Proposed Development has been designed to ensure habitat loss is replaced, improved or repositioned in as close proximity as possible within the limits of these restrictions. Where trees cannot be replanted, the mitigation planting includes for low level scrub to maintain connectivity between habitats.

- 9.3.133 Replanting at Pentir will include 4 ha of woodland, 470 m of hedgerow, and 6.5 ha of grassland. This equates to a 7.4% increase of woodland at Pentir (worst case scenario of all potentially affected and affected/managed woodland also to be lost would still result in an increase in woodland). Mitigation planting at Tŷ Fodol which lies adjacent to the Coed Nant Y Garth CWS would include, 1.25 ha woodland, 0.38 ha of low scrub, 525 m hedgerow (on Cloddiau), 0.22 ha of meadow and 2.77 ha tussock grasslands, aquatic planting and reinstated pasture back to the landowner. This would result in an increase in woodland compared to that removed.
- 9.3.134 The large scale mitigation planting at Pentir and at Tŷ Fodol THH increases the permanent woodland in this area compared to that lost, and ensures that severance and fragmentation of the habitat does not occur long term, and is improved in places.
- 9.3.135 The severity of habitat loss and severance and fragmentation would be Low during all stages, due to the limited areas of habitat lost in most cCWS/CWSs, the landscape mitigation planting for the sites and mitigation covered by the management plan for Pentir Substation cCWS ancient woodland. Habitat potentially affected within Coed Nant Y Garth would minimised from that quoted due to the steepness of the ravine bringing the height of the trees to further below the OHL. Habitat loss for Coed Rhos-fawr cCWS and Coed Ty'n-llwyn cCWS are temporary and small in scale. The sensitivity of these habitats to temporary loss caused by the Proposed Development would be Medium for Pentir Substation cCWS, considering the time taken for mitigation planting to mature and provide replacement habitat, and Low for the other cCWS/CWSs as where affected, taller vegetation would be managed in favour of removal.
- 9.3.136 Taking into account the County value of the CWS/cCWS, the Low severity of habitat loss and severance and fragmentation coupled with the Medium sensitivity (Pentir Substation) and Low sensitivity (the other cCWS/CWS) to small amounts of habitat loss and fragmentation for all stages, and the proposals for replanting and management of part of the Pentir cCWS, means that there would be a Minor Adverse (Pentir cCWS) to Negligible effect (not significant) on the cCWS/CWSs.
- 9.3.137 The severity of residual temporary disturbance/ displacement/ degradation impacts during construction, maintenance and decommissioning through changes in air quality from construction works and use of the access tracks/construction traffic routes would be Low. This is based on the contribution of the Proposed Development being less than 1% of the relevant air quality objective and Critical Load/Level for all determinants. The potential

change is therefore considered insignificant (not significant) within the air quality assessment in Chapter 14, Air Quality (Document 5.14). The impact of the short-term pollutant, may marginally exceed 10% of the Critical Load/Level for some of these sites (based on the assessment of these sites as ancient woodland), however the UN/ECE Working Group on Effects strongly recommended the use of the annual mean value, as the long-term effects of NOx are thought to be more significant than the short-term effects (Ref 9.56). Chapter 14, Air Quality (Document 5.14) determines the level of mitigation required to ensure that a significant effect for dust generation and deposition does not occur at any of the ecological sites within 50 m of the boundary of the site, or 50 m of the route(s) used by construction vehicles on the public highway, up to 500 m from the site entrance(s), based on the number of sites present. The outcome determines the level of mitigation required to ensure that a significant effect does not occur. As the sensitivity of habitats within these sites is dictated by the Critical Loads/Critical Levels of the habitats present, it is considered that the sensitivity to the short term disturbance/ displacement/ degradation of habitat caused by potential emissions by dust generation and deposition resulting from the Proposed Development would be Low as they are within acceptable levels for these habitats.

- 9.3.138 Changes to water quality or the local hydrology could occur through works within or adjacent to areas within this cCWS/CWSs. Changes to the water chemistry of hydrological conditions during construction, maintenance and decommissioning would be of Low severity and would be temporary and works would be conducted with appropriate mitigation as detailed within the CEMP (Document 7.4). Habitats are dependent upon the existing hydrological inputs to the site being maintained, but the sensitivity of these habitats to this severity is Low as it would be managed appropriately.
- 9.3.139 The County value of the CWS/cCWS, the Low severity of residual impacts coupled with the Low sensitivity of the habitats to disturbance/ displacement/ degradation as a result of air and water quality and hydrology during all stages means that effects on the conservation status of these habitats would be a Negligible effect (not significant).
- 9.3.140 The overall effect on these CWS/cCWS as a result of the construction, maintenance, operation and decommissioning of the Proposed Development would be **Not Significant**.
- 9.3.141 Flexibility afforded by the LOD within the Order Limits permits changes in the locations of the pylons and access tracks. During the design process, areas of CWS and habitats such as ancient woodland were avoided where at all

possible, minimising the areas that could be affected. The remaining ancient woodland within the Order Limits has been included in the Schedule of Environmental Commitments (**Document 7.4.2.1**) in order to prevent works within these areas. A change within the LOD would involve a change in location rather than a large change in the size of area affected, and therefore the assessment findings would be the same. The mitigation planting in these areas exceeds that stated to be lost and therefore an increase in the stated loss of habitat through loss of some of the potentially affected areas would not change the assessment. Use of the flexibility in the draft DCO (**Document 2.1**) is not considered to lead to effects of increased significance, as avoidance where possible and the mitigation proposed would be equally effective.

9.3.142 The above assessment applies to both Options A and B as there are no differences in the areas of works in the wider area to this designated site, and therefore there would be no difference to the significance of the assessment.

## CWS/cCWS - Grouped Sites with Indirect effects only

- 9.3.143 Only those CWS/cCWS that fall within the study area for the air quality assessment but would not be directly affected by the Proposed Development have been assessed, unless shown to be hydrologically linked to land within the Order Limits. Those CWS/cCWS that support mobile species which could be affected by the Proposed Development have been dealt with individually on a species by species basis in section 9.6. None of the effects on these species would alter the overall assessment on these sites. The CWS/cCWS included in the assessment of indirect effects were:
  - Arfordir Mynydd y Wylfa Trwyn Penrhyn CWS (cliff and cliff top with coastal grassland, semi-improved acid grassland and rocky outcrops) (266 m from the Order Limits) possible hydrological link across the Tre'r Gof SSSI habitat;
  - Afon Wygyr CWS (a small river with species-rich bank-side vegetation, marshy grassland and small woodlands) - Potential indirect effects from hydrological link leading to risk of discharges, spills and siltation reaching the site;
  - Coed Cefn-Du (birch woodland) (825 m from the Order Limits), Graigfryn (area of basic flush and a range of types of marshy grassland) (922 m from the Order Limits) and Rhostir Ponciau (wet heathland) CWS greater than 1.6 km from the Order Limits through potential hydrological link leading to risk of discharges, spills and siltation reaching the site;

- Maen Eryr CWS (broadleaved woodland) (adjacent to the Order Limits). Indirect effects due to air quality (adjacent) and potential for pollution risk;
- Tir Pori Talwrn CWS (mosaic of semi-improved neutral grassland, marshy grassland, basic flush and scattered scrub) Indirect effects due to dust from works within the Order Limits (151 m from the Order Limits) and through potential hydrological link;
- Cors Tregarnedd Fawr CWS (large site with botanical and ornithological interest) Indirect effects due to emissions and dust from the A5114 and Llangefni Link Road (Link 8 and 8.2) (adjacent to 8.2) and potential for pollution risk;
- Fodol Ganol CWS (broadleaved woodland) Indirect effects due to emissions from A487 (Link 18), and B4547 (Link 19) and potential for pollution risk;
- Coed Pont Ladi-wen CWS (Coniferous woodland) adjacent to B4547 (Link 19), Link 30 and Link 34, and Parc Nant-y-garth cCWS (coniferous woodland) adjacent to B4547 (Link 19) and Link 34, Coed Tyddyn Badyn cCWS (broadleaved woodland) adjacent to A4244 (Link 20), Coed Pant-y-cyff cCWS (woodland and semi-improved netural grassland) adjacent to A4244 (Link 20) and Glan-rhyd reservoir cCWS (standing water, semi-improved neutral grassland and marshy grassland) adjacent to A4244 (Link 20) Indirect effects due to emissions and dust and potential for pollution risk;
- Vaynol Park woodlands and lake cCWS (broadleaved woodland and standing water) A487 (Link 18), B4547 (Link 19), Parc Menai woodlands cCWS (broadleaved woodland) A487 (Link 18), A55 Britannia Bridge between J8a and A55 J9 (Link 21), Treborth Road Woodlands cCWS (Broadleaved woodland and semi-improved neutral grassland) A487 (Link 18), A55 Britannia Bridge between J8a and A55 J9 (Link 21), Railway cuttings (Treborth) CWS (Broadleaved woodland) A487 (Link 21) Indirect effects due to emissions; and
- Rhydau Duon cCWS (Broadleaved woodland, mixed woodland and acid grassland), Felin Hen & Cycle Track cCWS (Broadleaved woodland), Cororion Rough cCWS (Broadleaved woodland), Parc Lon Isaf cCWS (Broadleaved woodland), Parc Siambragwynion cCWS (Broadleaved woodland), Coed Rhos Uchaf cCWS (Broadleaved woodland), all within 200 m of A4244 (Link 20).
- 9.3.144 Potential impacts on the interest features of these sites are as follows:

- Temporary disturbance/ displacement/ degradation of CWS/cCWS habitat through potential changes in air quality, including emissions and/or dust, where these lie within the study area for the air quality assessment.
- Hydrological Alteration changes to water quality or hydrology could occur through working within or adjacent to wet areas linked to Maen Eryr CWS (floristically rich wet meadow) and Tir Pori Talwrn CWS (includes marshy grassland and basic flush). The nature conservation interest of these wetlands is dependent upon the existing hydrological inputs to the site being maintained.
- 9.3.145 Mitigation measures required are set out below; full details are provided within the BMS (**Document 7.7**):
  - CEMP Measures in Table 9.24; all relevant General Principle measures, AE11 to AE14, AE21, AE41, WE11, WE21 to WE23, WE31, WE41, WE51, WE52, WE54 to WE56, BS11, relevant BS measures between BS21 to BS202, BS401, BS403, BNC11 to BNC13, BNC21 to BNC25.

The measures set out in Chapter 11, Geology, Hydrogeology and Ground Conditions (**Document 5.11**), Chapter 12, Water Quality, Resources and Flood Risk (**Document 5.12**), Chapter 13, Traffic and Transport (**Document 5.13**) and Chapter 14, Air Quality (**Document 5.14**) would be implemented.

- 9.3.146 The mitigated Proposed Development would still have some potential to impact via temporary disturbance/ displacement/ degradation including emissions and dust generation and deposition where these CWS/cCWS lie within the study area for the air quality assessment. The severity of residual disturbance/ displacement/ degradation impacts temporary durina construction, maintenance and decommissioning would be Low, due to the localised nature of the impact, the mitigation provided, including the level determined by the number of designated sites for the management of dust generation and deposition. Although the sensitivity of habitats within these sites is dictated by the Critical Loads/Critical Levels of the habitats present, it is considered that the sensitivity to the short term disturbance/ displacement/ degradation of habitat caused by emissions and dust generation and deposition resulting from the Proposed Development would be **Low** as they are within acceptable levels for these habitats.
- 9.3.147 Chapter 12, Water Quality, Resources and Flood Risk (Document 5.12) concludes that the construction, maintenance and decommissioning of the Proposed Development would have no significant effects on the Tre'r Gof SSSI which separates Arfordir Mynydd y Wylfa Trwyn Penrhyn CWS from

the Order Limits and therefore there would be not effect on the CWS, and no effects on Caeau Talwrn SSSI which is associated with Tir Pori Talrwn.

- 9.3.148 Chapter 12, Water Quality, Resources and Flood Risk (Document 5.12) concludes that the construction, maintenance and decommissioning of the Proposed Development would have no significant effects on the any of the WFD watercourses within their assessment such as Afon Wygyr CWS and the Afon Lligwy through the Coed Cefn-Du, Graigfryn and Rhostir Ponciau CWSs.
- 9.3.149 Changes to water quality or hydrology through working within or adjacent to wet areas linked to Maen Eryr CWS (floristically rich wet meadow) and Tir Pori Talwrn CWS (includes marshy grassland and basic flush). The nature conservation interest of these wetlands is dependent upon the existing hydrological inputs to the site being maintained. The severity is **Low** due to the distance and general mitigation which will be applied, and the sensitivity of these habitats to these temporary small-scale changes in water quality or hydrology during construction, maintenance and decommissioning is **Low** due to there being no measurable residual impact on the water flow regime, morphology or water quality.
- 9.3.150 The **County** value of the CWS/cCWS, the **Low** severity of residual impacts coupled with the **Low** sensitivity of the habitats to potential small amounts/changes means that there would be a **Negligible** effect (**not significant**) on the conservation status of these habitats.
- 9.3.151 The overall effect on these CWS/cCWS as a result of the construction, maintenance, and decommissioning of the Proposed Development would be **Not Significant**. There would be no operational effects.
- 9.3.152 Flexibility afforded by the LOD/Order Limits permits changes in the locations of the pylons and access tracks. As these sites are discussed in terms of indirect affects they lie outside of the Order Limits. Use of the flexibility in the draft DCO (**Document 2.1**) is not considered to lead to effects of increased significance, as the mitigation proposed would be equally effective and the air quality assessment would not change significantly.
- 9.3.153 The above assessment applies to both Options A and B as there are no differences in the areas of works in the wider area to these designated sites, and therefore there would be no difference to the significance of the assessment.

## 9.4 HABITATS

9.4.1 Effects on species using each of the habitats discussed below are dealt with in later sections of this chapter. Habitat loss and gain calculations are

provided in section 9.5. Double counting of effects has been avoided by assessing receptors at their highest value, for example Gylched Covert is a CWS, Annex 1 woodland, and also non-ancient semi-natural woodland with category A trees. Therefore Gylched Covert has been assessed as a CWS in section 9.3, but not within section 9.4, although it is mentioned.

9.4.2 For the habitat assessments below, where appropriate, the assessment of indirect impacts in relation to dust and emissions uses the air quality study area within the Chapter 14, Air Quality (**Document 5.14**) and as set out in section 9.3. With the exception of ancient woodland, due to the use of the haul road not exceeding the criteria for requirement of assessment as a result of emissions, nor these habitats falling within the requirement for assessment for emergency generator emission, only effects on air quality as a result of dust generation and deposition are relevant.

## Ancient Woodland

- 9.4.3 There are areas of ancient semi-natural woodland, including restored examples and 'plantation on ancient woodland', present within, adjacent or close to the Order Limits of sections A, C and F of the Proposed Development. The largest areas include alongside the Menai Strait and within Vaynol Park CWS within section F, and whilst these relatively large areas of this ancient woodland lie within the Order Limits, the Proposed Development in these locations would be within the tunnel. These areas of ancient semi-natural woodland would therefore not be subject to any direct effects. Elsewhere, there are two types of ancient woodland habitat present within the Order Limits that would be directly affected; these are 'plantation on ancient woodland' and 'restored ancient woodland' within section F.
- 9.4.4 Indirect effects could occur on those areas of ancient woodland which lie adjacent to or within 50 m of the Order Limits, and areas within the Order Limits that remain outside of the working areas. In addition, indirect effects could also occur on those falling within the study area for the air quality assessment in Chapter 14, Air Quality (**Document 5.14**) relating to the construction road traffic emissions and the construction phase emergency generator emissions. These effects could include temporary disturbance/ displacement/ degradation and potentially severance and fragmentation of the habitat. Temporary disturbance/ displacement/ degradation could also occur during maintenance and decommissioning through management of the habitat and the widening, if required, of an existing road at a tight location to permit access to a large vehicle.
- 9.4.5 Potential impacts on ancient woodland are as follows:

- Direct loss of habitat occurring in three places within section F; one where an existing access track through the woodland requires modification, one potentially affected should the visibility at the bend in the road require improvement, and the other where woodland may be affected/managed through possible road widening works of Fodolydd Lane (Link 30).
- Temporary disturbance/ displacement/ degradation of ancient woodland through potential impacts from pollution including emissions and dust where areas of this habitat lie within the study area for the air quality assessment.
- Severance and fragmentation during construction including adjacent to Pentir substation extension through adjusting the existing access track to be more accessible/useable.
- 9.4.6 Mitigation measures required are set out below; full details are provided in the BMS (**Document 7.7**):
  - CEMP Measures in Table 9.24; all relevant General Principle measures, AE11 to AE14, AE21, AE41, SM11, SM12, WE11, WE21 to WE23, WE41, BS11, relevant BS measures between BS21 to BS202, BS401, BS403, BNC11 to BNC13, BNC21 to BNC25, TN11 to TN14, R1 to R4.

In addition to the measures committed to in Chapter 7, Landscape Assessment (**Document 5.7**), Chapter 11, Geology, Hydrogeology and Ground Conditions (**Document 5.11**), Chapter 12, Water Quality Resources and Flood Risk (**Document 5.12**) and Chapter 14, Air Quality (**Document 5.14**), the following additional measures would be implemented:

- The importance of protecting ancient woodland would be highlighted in tool box talks given to construction staff.
- Replacement of loss of woodland habitat where appropriate, including through respreading of top-soil with existing seed bank from lost areas of ancient woodland to gaps within and surrounding the woodland, as well as allowing natural regeneration.
- Replacement planting of trees on previously planted areas of ancient woodland to include native species suitable for ancient woodlands, of local provenance where possible, and designed to provide good shelter and food sources for notable species.
- Management of the ancient woodland section of the Pentir Substation cCWS, where it falls within the Order Limits, to maintain and improve the quality of this cCWS woodland. This would be tailored to support LBAP targets where

possible. Outline details of this are provided in the BMS (**Document 7.7**), but full details would be provided in a management plan.

- 9.4.7 The mitigated Proposed Development would still have some potential to impact upon ancient woodland as this habitat is difficult to provide mitigation for. Efforts would be made to provide mitigation in terms of avoidance first, areas not to be affected would be protected, and replanted, and use of the top soil would be undertaken to preserve the seed banks where appropriate.
- 9.4.8 The area of this ancient woodland within the Order Limits is approximately 31.91 ha including that present above the tunnel Order Limits; however very little lies within the working area and associated buffers as shown on the Construction Plans, Figure 4.1 of Chapter 4, Construction, Operation, Maintenance and Decommissioning (Document 5.4.1.1) (not including sections which overhang existing roads and may require minor management for clearance in line with standard highways maintenance). Of this, only 0.49 ha would be affected/managed (this involves widening of an existing access track through 'plantation on ancient woodland' adjacent to the substation extension which is currently in poor condition), and 0.01 ha (90 m<sup>2</sup>) of potentially affected to improve visibility for the bend in the road. In addition, 0.12 ha affected/managed of restored ancient woodland due to possible road widening works of Fodolydd Lane (Link 30). It should be noted that the 0.49 ha affected/managed for widening of the access track does not equate to a 0.49 ha loss as a lot of this already comprises an existing access track. Sections may require widening, and trimming of the canopy above the track may be required in parts to permit use by large vehicles, however this would not be permanent.
- 9.4.9 Mitigation includes a management plan proposed for the wider area of the ancient woodland block through which the existing access track passes, in order to improve its current poor condition, and comprises 3.59 ha within the Order Limits. The small areas of ancient woodland loss cannot be fully mitigated, but the improvement of the larger woodland block and potentially elements of surrounding woodland through implementation of a management plan to improve its condition would help towards reducing the potential residual effect.
- 9.4.10 The severity of residual impacts for loss (comprising potentially affected and affected/managed areas) of ancient woodland during construction would be Low due to the limited areas affected (restricted to three places within section F). The sensitivity of ancient woodland to the loss of habitat is Medium as although ancient woodland cannot be directly replaced or mitigated for, the Low Severity (small areas of largely poor condition ancient woodland) and the

management of the stated woodland to improve its quality would improve a substantially larger area of this habitat than would be adversely affected.

- 9.4.11 In terms of the impact of changes in air quality on ancient woodland, the contribution of the Proposed Development to change remains less than 1% of the relevant air quality objective and Critical Loads, and is therefore considered insignificant (not significant) within the air quality assessment in Chapter 14, Air Quality (**Document 5.14**) for all but one site of ancient woodland near to the Tŷ Fodol THH. The impact of the short-term air quality changes may marginally exceed 10% of the Critical Level for some of the sites of ancient woodland, however the UN/ECE Working Group on Effects strongly recommended the use of the annual mean value, as the long-term effects of NOx are thought to be more significant than the short-term effects (Ref 9.56). The number of sites determines the level of mitigation required to ensure that a significant effect does not occur as a result of dust, and the Air Quality chapter (**Document 5.14**) concludes no significant effects using the required level of mitigation.
- 9.4.12 The severity of residual temporary disturbance/ displacement/ degradation impacts during construction, maintenance and decommissioning through pollution and changes in air quality as a result of dust and emissions (including from the emergency generator and use of the access tracks/construction traffic routes) would be **Low** due to the localised and short-term nature of the impact. As the sensitivity of the habitat is dictated by the Critical Loads/Critical Levels for this habitat, it is considered that the sensitivity to the short term disturbance/ displacement/ degradation of habitat caused by emissions and dust generation and deposition resulting from the Proposed Development would be **Low** as they are within acceptable levels.
- 9.4.13 This includes the woodland in Section A by the Visitors Centre at Wylfa Nuclear Power Station, the woodland at Brynddu, and the woodland in Section C west of Vaynol Covert. In addition, construction traffic routes utilise existing roads adjacent to areas of ancient woodland including the A4080 (Link 16) by Plas Newydd, the A487 (Link 18) and B4547 (Link 19) by Vaynol Estate, and the A4244 south of Pentir (Link 20).
- 9.4.14 The severity of residual severance and fragmentation of habitat during construction, maintenance and decommissioning would be **Low** as the areas of ancient woodland affected are limited to narrow strips alongside existing access tracks and roads. The sensitivity of ancient woodland to this level of fragmentation along the edge of existing roads and tracks is **Low** as it comprises mostly of management of the habitat.

- 9.4.15 The **County** value of ancient woodland, the **Low** severity of residual impacts coupled with the **Medium** sensitivity of ancient woodland to potential small amounts of habitat affected, plus management of the ancient woodland within the Order Limits under NG ownership means that there would be a **Minor Adverse** effect (**not significant**) on the conservation status of this habitat during all stages of the Proposed Development.
- 9.4.16 The **County** value of ancient woodland, the **Low** severity of residual impacts coupled with the **Low** sensitivity of ancient woodland to temporary disturbance/ displacement/ degradation and severance and fragmentation means that there would be a **Negligible** effect (**not significant**) on the conservation status of this habitat for all stages, excluding operation for disturbance/ displacement/ degradation effects.
- 9.4.17 The overall effect on ancient woodland as a result of the construction and operation of the Proposed Development would be **Not Significant**.
- 9.4.18 Flexibility in the draft DCO (Document 2.1) afforded by the LOD permits changes in the locations of the pylons and access tracks as currently shown on Figure 4.1 of Chapter 4 Construction, Operation, Maintenance and Decommissioning (Document 5.4.1.1). During the design process, areas of ancient woodland were avoided where at all possible, minimising the areas that could be affected. The remaining ancient woodland within the Order Limits has been included in the Schedule of Environmental Commitments (Document 7.4.2.1) in order to prevent works within these areas. Use of the flexibility in the draft DCO (Document 2.1) is not considered to lead to effects of increased significance, as the mitigation proposed would be equally effective.
- 9.4.19 There would be no difference in the significance of this assessment for Options A and B as areas of ancient woodland are not affected within areas of differences between the options.

## Non-Ancient Woodland

9.4.20 Non-ancient woodland present within the Order Limits that would be affected includes broadleaved semi-natural woodland, broadleaved plantation woodland, coniferous plantation woodland, mixed plantation woodland and mixed semi-natural woodland. Small areas of this habitat would be lost due to pylon foundations, clearance beneath the OHL, expansion to Pentir Substation, Third Party Service underground assets works and creation of visibility splays for access tracks.

- 9.4.21 Indirect effects could occur on those areas of non-ancient woodland which lie adjacent to or within 50 m of the Order Limits, and within the Order Limits, but remaining outside of the working areas.
- 9.4.22 Effects on Annex 1 of the Habitats Directive woodland habitats are discussed separately below.
- 9.4.23 Potential impacts on non-ancient woodland are as follows:
  - Direct loss of habitat would occur through temporary loss during construction, including the OHL working areas and visibility splays. Permanent direct habitat loss would include the limited locations where pylons would be located in the vicinity of woodland that could not be avoided and beneath and within the swing area of the OHL where trees may need to be removed or managed.
  - Temporary disturbance/ displacement/ degradation of non-ancient woodland through pollution and potential changes in air quality from dust generation and deposition.
  - Severance and fragmentation through temporary and permanent loss during construction, maintenance and operation.
- 9.4.24 Mitigation measures required are set out below; full details are provided within the BMS (**Document 7.7**):
  - CEMP Measures in Table 9.24; all relevant General Principle measures, AE11 to AE14, AE21, AE41, SM11, SM12, WE11, WE21 to WE23, WE41, BS11, relevant BS measures between BS21 to BS202, BS401, BS403, BNC11 to BNC13, BNC21 to BNC25, TN11 to TN14, R1 to R4.

In addition to the measures committed to in Chapter 7, Landscape Assessment (**Document 5.7**), Chapter 11, Geology, Hydrogeology and Ground Conditions (**Document 5.11**), Chapter 12, Water Quality, Resources and Flood Risk (**Document 5.12**) and Chapter 14, Air Quality (**Document 5.14**), the following additional measures would be implemented:

- Habitat replacement and improvement where appropriate.
- Maintaining existing seed bank in top soil of woodland by keeping it separate from topsoil of other habitats.
- Where trees and woodland would be lost beneath the OHL, replacement planting would be located as close to that lost as possible, with alternative planting in these areas to include scrub in order to prevent fragmentation of habitats and loss of food sources for notable species of wildlife, and to provide good connectivity to other woodland blocks in the locations available.

- Landscape mitigation planting would ensure no net loss of trees, with as much of the replacement planting as possible being within the Order Limits.
- Planting mixes would comprise native species of local provenance where possible, and designed to provide good shelter and food sources for notable species. This would be tailored to support BAP targets where possible.
- 9.4.25 The mitigated Proposed Development still has some potential to impact nonancient woodland habitats due to the time taken for establishment of the landscape mitigation planting and difficulty in being able to replant where habitat has been lost due to restrictions within conductor swing due to the height of the trees. Direct loss and severance and fragmentation of woodland would occur but has been limited through the avoidance of the habitat where possible during the design process through careful siting of pylons and routeing of access tracks. Temporary direct loss of these areas during construction, including the Third Party Service works, would be limited to access tracks, construction compounds and working areas where these pass through or would be adjacent to non-ancient woodlands. Permanent loss will primarily occur due to restrictions on the height of vegetation beneath the OHL and within the limits of conductor swing, and where substation extension and pylon location cannot avoid this habitat. Siting of the THH/CSECs has avoided woodland loss but will contribute to replacement of woodland within the mitigation planting. The Proposed Development has been designed to ensure habitat loss is replaced, improved or repositioned in as close proximity as possible within the limits of these restrictions.
- 9.4.26 Effects include the following areas:
  - 1.35 ha of woodland/trees removed, with 0.2 ha affected/managed, and 0.67 ha potentially affected (only a proportion of potentially affected woodland could become affected) of mixed plantation woodland adjacent to Wylfa Substation at pylons 4AP001 to 002 and 4ZA004 to 005;
  - 0.09 ha removed (0.04 ha potentially affected) of semi-natural broadleaved woodland in at Carrog Isa (this is discussed in the potential effect on this site under Annex 1 habitats);
  - 0.055 ha potentially affected west of 4AP021 at Pentreheulyn (this is discussed in the potential effect on this site under Annex 1 habitats);
  - 0.18 ha affected/managed just north of 4AP034;
  - 0.02 ha removed (0.23 ha potentially affected) at 4AP049 which lies just within the Anglesey Fens SAC (this is discussed in the potential effect on this site in section 9.3);

- 0.06 ha removed and 0.5 ha affected/managed (with 0.57 ha potentially affected) at 4AP052 west of Vaynol Covert (which also could include loss due to Third Party Service works);
- 0.16 ha removed and 0.014 ha affected/managed (with 0.05 ha potentially affected) south of 4AP061;
- 0.45 ha removed (0.28 ha affected/managed and 0.33 ha potentially affected) of Gylched Covert (this is discussed in the potential effect on this site in section 9.3); and
- 0.1 ha removed and 0.31 ha potentially affected at 4AP072;
- 0.46 ha potentially affected at 4AP073;
- 43.5 m<sup>2</sup> removed and 0.32 ha potentially affected along the access track to Braint THH;
- 0.065 ha to be removed at Coed Nant Y Garth ravine (potentially also due to Third Party Service works) (2.21 ha potentially affected); and
- 3.29 ha removed at Pentir (0.55 ha affected/managed, and 0.56 ha potentially affected) which are discussed in the section for ancient woodland and CWSs (please note that areas differ slightly as not all areas of woodland are CWS or ancient woodland).
- 9.4.27 Overall to be removed are 6.97 ha (Option A) and 6.98 ha (Option B) comprising tree groups, and 123 (Option A) and 124 (Option B) individual trees. For tree groups, a further 5 ha (both Options) could be affected/managed and 11 ha (both Options) potentially affected, and for individual trees, 125 (Option A) and 124 (Option B) affected/managed, and 324 (Option A) and 317 (Option B) potentially affected. The tree groups include those specific areas detailed above. As part of the mitigation planting, 7.23 ha of woodland will be created in areas including but not limited to Pentir, Gylched Covert and the two THH locations.
- 9.4.28 The severity of temporary and permanent habitat loss and severance and fragmentation during construction, operation, maintenance and decommissioning would be **Low** due to the temporary nature of the works, the mitigation planting to replace this habitat using species appropriate and in some cases an improvement on the existing to be lost, the mitigation to improve the current poor condition of retained areas of non-ancient woodland for Gylched Covert and the ancient woodland at Pentir, and the limited areas of this habitat affected within the Order Limits in comparison with the wider area. The sensitivity of non-ancient woodland to the temporary and

permanent and small scale loss of this habitat as a result of the Proposed Development would be **Medium** for loss and **Low** for severance and fragmentation as a degree of this would be affected/managed woodland but not fully affected, but also considering the time taken for mitigation planting to mature and provide replacement habitat, and that some small areas cannot be replaced due to OHL restrictions.

- 9.4.29 The severity of residual temporary disturbance/ displacement/ degradation impacts during construction, maintenance and decommissioning through changes in air quality from dust generation and deposition would be **Low** as it would be temporary and of localised nature. The air quality assessment determines the level of mitigation required to ensure that a significant effect does not occur as a result of dust generation and deposition. In addition, mitigation detailed within the CEMP (**Document 7.4**) and other chapters as appropriate would be applied. The sensitivity of woodland to this level of disturbance/ displacement/ degradation as a result of the Proposed Development would therefore be **Low** as it would be within the tolerance of this habitat.
- 9.4.30 The **Local** value of non-ancient woodland, the **Low** severity of residual impacts coupled with the **Low** sensitivity for disturbance/ displacement/ degradation, and **Medium** sensitivity of woodland to potential small amounts of loss of habitat, means that there would be a **Negligible** effect (**not significant**) on the conservation status of this habitat.
- 9.4.31 The overall effect on non-ancient woodland as a result of the construction and operation of the Proposed Development is **Not Significant**.
- 9.4.32 Although changes in the design of the Proposed Development within the flexibility afforded by the LOD could result in other areas of woodland being lost, it would not be considered significant; in most cases although the location of the work may change, there would not be an increase in area of woodland affected, with potentially a minor increase in some. Areas of woodland stated above also include areas of potentially affected in each location. Therefore, there are no aspects of flexibility that would lead to a greater significance of effect.
- 9.4.33 The above assessment is applicable to both Options A and B as although the area of works vary slightly, the difference is not sufficient to change the significance of the assessment for woodland/number of trees affected.

## Improved Grassland and Arable

- 9.4.34 Improved grassland and arable are the predominant habitat types throughout the Order Limits (Sections A to F) of the Proposed Development and within the wider area. Due to the generally low ecological value of these habitats, they were preferentially chosen through the design of the Proposed Development when considering the possible positioning of the pylons and the access tracks to avoid habitats of higher value where possible. As a result, there would be direct losses of these habitats both temporarily during construction and permanently, albeit on a small scale. Of the area of these habitats within the Order Limits 481.56 ha (458.86 ha improved grassland and 22.70 ha arable), 200.81 ha (201.03 ha for Option B) improved grassland and 11.05 ha arable lies within the working area, but not all would be permanently lost, as shown on the Construction Plans (Figure 4.1 of Chapter 4, Construction, Operation, Maintenance and Decommissioning (**Document 5.4.1.1**)).
- 9.4.35 Indirect effects could occur on areas of improved grassland and arable which lie adjacent to or within 50 m of the Order Limits, and within the LOD, but remaining outside of the working areas. These could also occur during maintenance and decommissioning through loss and management of the habitat and installation of the temporary access track should it be required.
- 9.4.36 Potential impacts on improved grassland and arable are as follows:
  - Direct loss of habitat would occur through temporary loss during construction including the Third Party Service works in all Sections (A to F) of the Proposed Development.
  - Temporary disturbance/ displacement/ degradation of improved grassland and arable through pollution and potential changes in air quality from dust generation and deposition.
  - Severance and fragmentation would occur through temporary loss during construction, and decommissioning including the Third Party Service works in all Sections of the Proposed Development.
- 9.4.37 Mitigation measures required are set out below; full details are provided within the BMS (**Document 7.7**):
  - CEMP Measures in Table 9.24; all relevant General Principle measures, AE11 to AE14, AE21, AE41, SM11, SM12, WE11, WE21 to WE23, WE41, BS11, relevant BS measures between BS21 to BS202, BS401, BS403, BNC11 to BNC13, BNC21, BNC24, BNC25, R1 to R3.

In addition to the measures set out in the Chapter 14, Air Quality (**Document 5.14**), the following additional measures would be implemented:

- Habitat replacement and improvement where appropriate.
- 9.4.38 Temporary direct loss of habitat would occur during construction, maintenance and decommissioning including the Third Party Service works in all Sections (A to F) of the Proposed Development and in relation to access tracks, pylon working areas, tunnel construction compounds and the Penmynydd Road and Pentir Construction Compounds. This equates to a total of 108.16 ha (108.36 ha for Option B) of improved grassland (and 57.49 ha for Third Party Service works) and 5.38 ha of arable (plus 4.27 ha for Third Party Service works), giving a combined total of 165.65 ha (Option A) and 165.85 ha (Option B). Permanent loss of improved grassland would occur during operation within the Braint and Tŷ Fodol THH/CSECs, and areas of mitigation planting, and the small amount of loss at each pylon foundation where this falls within improved grassland and arable. Permanent loss includes 14.38 ha for improved grassland and 110 m<sup>2</sup> for arable. The severity of residual impacts for direct loss would be Very Low due to the temporary nature of the majority of the works, with small amounts of permanent loss, and the mitigation to replace the habitats on completion where appropriate for temporary effects. Due to the extent of these habitats in the wider area, and their generally low ecological value and ability to readily adapt, the sensitivity of improved grassland and arable to direct loss of habitat is Low.
- 9.4.39 The severity of residual temporary disturbance/ displacement/ degradation impacts during construction, maintenance and decommissioning through changes in air quality from dust generation and deposition would be Very Low as it would be temporary and of localised nature. The air quality assessment in Chapter 14, Air Quality (Document 5.14) determines the level of mitigation required to ensure that a significant effect does not occur as a result of dust generation and deposition. In addition, mitigation detailed within the CEMP (Document 7.4) and other chapters as appropriate would be applied. The sensitivity of improved grassland and arable to this level of disturbance/ displacement/ degradation as a result of the Proposed Development would therefore be Very Low as it would be within the tolerance of this habitat.
- 9.4.40 The severity of severance and fragmentation of habitat would be **Very Low** as the majority of the areas of loss of improved grassland and arable for access tracks would be temporary. Due to the extent of improved grassland and arable habitats relative to the small and largely temporary loss the sensitivity of these two habitats to this level of severance and fragmentation is **Very Low** as they have a generally low ecological value and an ability to adapt to changes readily.

- 9.4.41 The Local value of improved grassland and arable, the Very Low severity of residual impacts coupled with the Low Very Low sensitivity of improved grassland and arable to all effects indicates a Negligible effect (not significant) on the conservation status of this habitat for all stages except operation for temporary disturbance/ displacement/ degradation of which there is no effect.
- 9.4.42 The overall effect on improved grassland as a result of the construction and operation of the Proposed Development would be **Not Significant**.
- 9.4.43 As improved grassland and arable is the lowest value habitat, it is not considered that effects would be of any greater significance should use be made of the flexibility afforded by the LOD.
- 9.4.44 The above assessment is applicable to both Options A and B as although the area of works vary slightly, for example for the pylon footprints, the difference is not sufficient to change the significance of the assessment for these habitats.

# Marshy Grassland, Semi-Improved Neutral, Poor and Acid Grassland, Unimproved Neutral and Acid Grassland

- 9.4.45 Marshy grassland and semi-improved neutral and acid grassland are scattered throughout the Order Limits (Sections A to F) of the Proposed Development. One area of marshy grassland, the sub-community MG23b Juncus effusus/acutiflorus-Galium palustre rush-pasture is present at pylon 4AP062. In addition, small areas of unimproved neutral grassland are present comprising two locations at pylon 4AP062 of MG5a Cynosurus cristatus -Centaurea nigra grassland, typical sub-community and one area adjacent to the track north of Pentir of MG1e Arrhenatherum elatius grassland, Centaurea nigra sub-community. A very small area of unimproved acid grassland lies to the south of Pentir Substation. Through the design of the Proposed Development, these habitats were avoided where possible when positioning the pylons and the access tracks, with habitats of lower ecological value, such as improved grassland, being preferentially selected; however there would still be both direct temporary and permanent loss of these habitats, albeit of small scale.
- 9.4.46 Indirect effects could occur on the grassland habitats which lie adjacent to or within 50 m of the Order Limits, and areas which lie within the Order Limits, but are outside of the working areas as shown on the Construction Plans Figure 4.1 of Chapter 4, Construction, Operation, Maintenance and Decommissioning (i.e. **Document 5.4.1.1**). Temporary disturbance/ displacement/ degradation could also occur during maintenance and

decommissioning through loss and management of the habitat and installation of the temporary access tracks should these be required.

- 9.4.47 Effects on Annex 1 of the Habitats Directive grassland habitats are discussed separately below.
- 9.4.48 Potential impacts on marshy grassland, semi-improved, neutral and acid grassland, and unimproved grassland are as follows:
  - Direct loss of habitat including the Third Party Service works in all Sections of the Proposed Development.
  - Temporary disturbance/ displacement/ degradation could occur on marshy grassland, semi-improved neutral and acid grassland, and unimproved grassland through water quality and potential changes in air quality from dust generation and deposition.
  - Severance and fragmentation could occur through temporary loss during construction including the Third Party Service works in all Sections of the Proposed Development.
  - Hydrological alteration could potentially occur through working within and adjacent to areas of marshy grassland which are dependent upon the existing hydrological inputs to the site being maintained.
- 9.4.49 Mitigation measures required are set out below; full details are provided within the BMS (**Document 7.7**):
  - CEMP Measures in Table 9.24; all relevant General Principle measures, AE11 to AE14, AE21, AE41, SM11, SM12, WE11, WE21 to WE23, WE41, WE51, WE52, WE54 to WE56BS11, relevant BS measures between BS21 to BS202, BS401, BS403, BNC11 to BNC13, BNC21 to BNC25R1 to R3.

In addition to the measures set out in Chapter 12, Water Quality, Resources and Flood Risk (**Document 5.12**) and Chapter 14, Air Quality (**Document 5.14**), the following additional measures would be implemented:

- Maintain existing seed bank and soil type by storage of the top soil of each grassland habitat kept separate to that of other grassland habitat types where appropriate. Avoid use of weed killer on these top soil areas during construction period where appropriate, with hand pulling of weeds being considered.
- Habitat replacement and improvement where appropriate.

- Seed mixes would comprise native species of local provenance where possible, and would be of mixes appropriate to each grassland type in each location.
- Protect habitats during installation of the pilot wire where this occurs outside of main areas of works including those areas protected by the Schedule of Environmental Commitments (**Document 7.4.2.1**).
- 9.4.50 The total area of these habitats is 73.45 ha within the Order Limits, of which 0.51 ha is semi-improved acid grassland; 12.82 ha is semi-improved neutral grassland; 25.64 ha is poor semi-improved; 34.31 ha is marshy grassland; 0.07 ha unimproved acid and 0.11 ha unimproved neutral grassland.
- 9.4.51 The mitigated Proposed Development would affect these grassland habitats, with a temporary loss of 32.5 ha in total where works include compound locations, and working areas such as access tracks, drainage mitigation and Third Party Service works. This includes approximately the following temporarily affected areas;
  - 9.94 ha of poor semi-improved grassland (of which 5.32 ha is for Third Party Service works);
  - 15.17 ha of marshy grassland (of which 6.13 ha is for Third Party Service works); and
  - 7.26 ha of semi-improved neutral grassland (of which 4.54 ha is for Third Party Service works).
- 9.4.52 There is 0.07 of unimproved grassland along the verge north of Pentir Substation (MG1e NVC community) present within the Order Limits, but no works are identified in this section, and 0.68 ha of unimproved grassland temporarily lost at pylon 4AP062 (MG5 NVC community).
- 9.4.53 There would be a permanent loss of 1.95 ha of poor semi-improved grassland under pylon foundation footings and within mitigation planting areas, 0.45 ha of marshy grassland under pylon foundation footings and the Braint tunnel THH/CSEC, 0.58 ha of neutral semi-improved grassland under pylon foundation footings and within mitigation planting areas and 4 m<sup>2</sup> lost for pylon 4AP062 of a mixture of M23b and MG5a NVC communities. Areas of these habitats would be crossed during the installation of the pilot wire which may involve the use of a vehicle, however this would be done with mitigation in place to prevent affecting the habitat. Mitigation planting within Pentir and the two THH locations will include 14.63 ha of grassland, of which 12.58 ha could be unimproved neutral grassland when management appropriately, but will be

a minimum of semi-improved, thereby giving an overall gain of almost 500% of grassland of greater ecological benefit than improved grassland.

- 9.4.54 The severity of residual impacts for direct loss would be Low due to the temporary nature of the majority of the works, the small scale permanent areas of loss and the mitigation to replace the habitats on completion where appropriate. The sensitivity of these habitats to the small scale of temporary and permanent direct loss through all stages of the Proposed Development is Low, as with the top soil being kept separate from other habitat types retention of the seedbanks would allow natural regeneration, and with 5.5 ha of grassland included within the landscape mitigation for Braint and Tŷ Fodol THH/CSEC the long term net loss of these types of grassland would be reduced.
- 9.4.55 The severity of residual temporary disturbance/ displacement/ degradation impacts during construction, maintenance and decommissioning through pollution and changes in air quality from dust would be Low, due to the localised and short term nature of the impact. The air quality assessment determines the level of mitigation required to ensure that a significant effect does not occur as a result of dust generation and deposition. In addition, mitigation detailed within the CEMP (Document 7.4) and other chapters as appropriate would be applied. The sensitivity of these habitats to this level of disturbance/ displacement/ degradation as a result of the Proposed Development would therefore be **Low** as it would be within the tolerance of this habitat. The severity of residual severance and fragmentation of habitat through all stages of the Proposed Development would be Low as the majority of the areas of loss of these grassland habitats for mostly access tracks would be temporary, with permanent loss due to pylon footings not causing fragmentation, and mitigation planting for small areas. The sensitivity of these habitats to the small scale temporary and permanent severance and fragmentation of habitat proposed is Low as they would be reinstated on completion with permanent loss only comprising the 4 m<sup>2</sup> footprints of pylons where it lies within these habitats which would not cause a fragmentation of habitat. Where small scale loss of marshy grassland for mitigation planting would occur, this would be in favour of habitats of higher ecological interest, including other grasslands at Braint THH and Pentir Substation.
- 9.4.56 The severity of residual hydrological alteration of habitat through all stages of the Proposed Development would be Low as the areas of loss of the marshy grassland for access tracks would be temporary and works would be conducted with appropriate mitigation as detailed within the CEMP (Document 7.4). The sensitivity of these habitats to the small scale of potential hydrological alteration is Low as the habitat would be reinstated on

completion of the works with the exception of very small areas of permanent loss as a result of pylon footings and a small area of landscape mitigation planting.

- 9.4.57 The Local value of these grassland habitats (County for MG5 and M23b at pylon 4AP062, and unimproved acid south of Pentir Substation), the Low severity of residual impacts coupled with the Low sensitivity to the small amounts of potential loss of this habitat equates to a Negligible effect (Minor Adverse for MG5 and M23b, and unimproved acid grassland south of Pentir Substation for loss and disturbance/ displacement/ degradation) (not significant) on the conservation status of this habitat for all effects for all stages except operation for temporary disturbance/ displacement/ degradation which does not occur.
- 9.4.58 The overall effect on these grassland habitats as a result of the Proposed Development would be **Not Significant**.
- 9.4.59 An area of semi-improved acid grassland lies within the Order Limits within the field where pylon 4AP055 would be located. This field however comprises a matrix of different habitat types and the pylon would be located at the western edge of the field adjacent to, but outside of, the area of acid grassland, therefore this habitat type would not be directly affected based on the design shown on Figure 4.1 of Chapter 4, Construction, Operation, Maintenance and Decommissioning (**Document 5.4.1.1**), with the exception of transporting the pilot wire across the field using a vehicle if required. If the location of pylon 4AP055 were to be moved within this field, it is possible that this grassland type could be affected, however these areas are protected by the Schedule of Environmental Commitments (**Document 7.4.2.1**). There is unimproved grassland along the verge north of Pentir Substation but no works are identified in this section so it is assumed that this would not be affected. If it was not possible to avoid these habitats then the mitigation for grasslands would be applied appropriately specified to this habitat type to avoid significant effects. M23b and MG5 lie within the working area of Pylon 4AP062, and in the wider area of this field along with M22 (assessed as an Annex 1 habitat below). The Schedule of Environmental Commitments (Document 7.4.2.1) prevents further encroachment into these habitats with the exception of transporting the pilot wire across the field using a vehicle if required.
- 9.4.60 Changes in the design of the Proposed Development within the flexibility afforded by the LOD would not result in effects of greater significance.
- 9.4.61 The above assessment is applicable to both Options A and B as although the area of works vary slightly, the difference is not sufficient to change the significance of the assessment of grassland habitats.

#### Scrub

- 9.4.62 Dense and scattered scrub in isolated patches is interspersed with improved grasslands in all Sections of the survey area.
- 9.4.63 Direct effects including direct loss of habitat and temporary disturbance/ displacement/ degradation could occur due to pylon foundations and the temporary access tracks. Indirect effects, including severance and fragmentation, could occur on scrub habitat which lies within the Order Limits but not the working areas, and adjacent to or within 200 m of the Order Limits. Temporary disturbance/ displacement/ degradation could also occur during maintenance and decommissioning through loss and management of the habitat and installation of the temporary access tracks should they be required.
- 9.4.64 Potential impacts on dense and scattered scrub are as follows:
  - Direct loss of habitat through temporary loss including the Third Party Service works in Sections A, E and F of the Proposed Development.
  - Temporary disturbance/ displacement/ degradation of scrub habitat through pollution and potential changes in air quality from dust generation and deposition.
  - Severance and fragmentation through temporary loss during construction including the Third Party Service works in all Sections of the Proposed Development.
- 9.4.65 Mitigation measures required are set out below; full details are provided within the BMS (**Document 7.7**):
  - CEMP Measures in Table 9.24; all relevant General Principle measures, AE11 to AE14, AE21, AE41, SM11, SM12, WE11, WE21 to WE23, WE41, BS11, relevant BS measures between BS21 to BS202, BS401, BS403, BNC11 to BNC13, BNC21, BNC23, BNC25, R1 to R4.

In addition to the measures set out in Chapter 7, Landscape Assessment (**Document 5.7**) and Chapter 14, Air Quality (**Document 5.14**), the following additional measures would be implemented:

- Habitat replacement and improvement where appropriate.
- Use of scrub and short tree species within the landscape mitigation planting where woodland habitat is fragmented due to the OHL in order to help maintain habitat connectivity between these habitats, in particular to provide continued cover for species present.

- Replacement planting to comprise mixes of native species of local provenance where possible, and designed to provide good shelter and food sources for notable species.
- 9.4.66 Direct loss of scrub habitat would occur through temporary loss during construction including the Third Party Service. This equates to approximately 0.91 ha dense scrub (of which 0.2 ha is from Third Party Service works), and 0.22 ha scattered scrub (of which 0.04 ha is from Third Party Service works). In addition, there would be 2.21 m linear scrub (of which 1.05 m Third Party Service).
- 9.4.67 There would be permanent loss of scrub habitat (0.23 ha dense scrub) due to landscape (woodland) mitigation planting, and the small amount at each pylon foundations where these fall within scrub habitat however 0.87 ha of scrub would be included within the landscape mitigation for the Braint and Tŷ Fodol THH/CSECs, and beneath the OHL where woodland habitat has been lost permanently, but can be replaced with low level vegetation unless remaining understory and ground flora are retained and only the trees are removed.
- 9.4.68 The severity of residual impacts for direct loss during construction, operation, maintenance and decommissioning would be **Very Low** due to the mostly temporary nature of the works, and the mitigation to replace the habitats on completion, and inclusion of scrub planting within landscape planting. Due to the generally low quality and extensive extent of scrub relative to the small area that would be affected by the Proposed Development the sensitivity of scrub habitats to direct loss is **Low**. In addition scrub is generally quick to recover/recolonise.
- 9.4.69 The severity of residual temporary disturbance/ displacement/ degradation impacts during construction, maintenance and decommissioning through changes in air quality from dust generation and deposition would be **Very Low** as it would be temporary and of localised nature. The air quality assessment determines the level of mitigation required to ensure that a significant effect does not occur as a result of dust generation and deposition. In addition, mitigation detailed within the CEMP (**Document 7.4**) and other chapters as appropriate would be applied. The sensitivity of scrub to this level of disturbance/ displacement/ degradation as a result of the Proposed Development would therefore be **Low** as it would be within the tolerance of this habitat.
- 9.4.70 The severity of residual severance and fragmentation of habitat for construction, maintenance and decommissioning would be **Very Low** as most areas of loss of scrub habitats for access tracks would be temporary. The

sensitivity of scrub habitats to severance and fragmentation of habitat is **Low** as scrub is generally quick to recover/recolonise.

- 9.4.71 The **Local** value of scrub habitats, the **Very Low** severity of residual impacts coupled with the **Low** sensitivity of scrub habitats to potential small amounts of loss of habitat indicates there would be a **Negligible** effect (**not significant**) on the conservation status of this habitat for all effects.
- 9.4.72 The overall effect on scrub habitats as a result of the Proposed Development would be **Not Significant**.
- 9.4.73 Although changes in the design of the Proposed Development within the flexibility afforded by the LOD could result in additional areas of these habitats lost, it would not be considered sufficient to change the findings of the assessment.
- 9.4.74 The above assessment is applicable to both Options A and B as although the area of works vary slightly, the difference is not sufficient to change the significance of the assessment for scrub habitat.

Acid Dry Dwarf Shrub Heath

- 9.4.75 Acid dry dwarf shrub heath is only present in Section F of the Proposed Development. This comprises one area adjacent to the existing Pentir Substation access road, and leading behind an adjacent improved grassland field. The habitat also includes scattered scrub and boulders. The area of this habitat is 4.78 ha within the survey area, of an area of 5.66 ha in this location. Of this, there is 1.38 ha within the Order Limits and working areas as shown on the Construction Plans Figure 4.1 of Chapter 4, Construction, Operation, Maintenance and Decommissioning (i.e. Document 5.4.1.1).
- 9.4.76 Potential impacts on acid dry dwarf shrub heath are as follows:
  - Temporary direct loss of habitat during construction due to creation of the access track into Pentir Substation from bellmouth F14, and drainage mitigation and a small amount of Third Party Service work on this habitat. This could also occur during decommissioning through loss and management of the habitat and installation of the temporary access track should it be required, though is unlikely to occur during maintenance.
  - Temporary disturbance/ displacement/ degradation of dry acid heath would occur due to a small amount of Third Party Service work, and through pollution and potential changes to air quality from dust generation and deposition.

- 9.4.77 Mitigation measures required are set out below; further details are provided within the BMS (**Document 7.7**):
  - CEMP Measures in Table 9.24; all relevant General Principle measures, AE11 to AE14, AE21, AE41, SM11, SM12, WE11, WE21 to WE23, WE51, WE52, WE54, WE56 BS11, relevant BS measures between BS21 to BS202, BS401, BS403, BNC11 to BNC13, BNC21 to BNC25, R1 to R3.

In addition to the measures set out in Chapter 12, Water Quality Resources and Flood Risk (**Document 5.12**) and Chapter 14, Air Quality (**Document 5.14**), the following additional measures would be implemented:

- Habitat replacement and improvement where appropriate.
- If required, seed mixes would comprise native species of local provenance where possible, and would be of a mix appropriate to this habitat. Natural regeneration is the preference for recolonisation of areas temporarily affected, but planting/seeding may be required to assist regeneration or for new areas of permanent planting.
- Ensure heathland top soil is kept separate from top soil of other habitats.
- If presence of species which are sensitive to correct orientations are identified through pre-construction surveys then scattered boulders would be carefully moved to outside of the area of works under a watching brief by the ECoW and should be laid in the same orientation as existing.
- 9.4.78 Temporary direct loss of habitat during construction and decommissioning due to creation of the access track into Pentir Substation from bellmouth F14, drainage mitigation, and Third Party Service work equates to approximately 0.86 ha for the access track of affected habitat and would occur for five years with the exception of the drainage mitigation (0.21 ha) which would be put in place at the start of construction, and the (0.43 ha) Third Party Service work, giving a total of 1.29 ha (please note that some of these areas overlap). No permanent loss of this habitat would occur. The severity of residual impacts for direct loss during construction and decommissioning would be Low due to the non-permanent nature of the works, and the mitigation to replace the habitats on completion. The sensitivity of this habitat to the Low severity of direct loss of habitat is Medium as this habitat can be difficult to reinstate, in particular due to the duration required for this access track to be in place. This timescale prevents the potential for transfer and storage of podzols.
- 9.4.79 The severity of residual temporary disturbance/ displacement/ degradation impacts during construction, maintenance and decommissioning through changes in air quality from dust generation and deposition would be Low as it would be temporary and of localised nature. The air quality assessment in Chapter 14, Air Quality (Document 5.14) determines the level of mitigation

required to ensure that a significant effect does not occur as a result of dust generation and deposition. In addition, mitigation detailed within the CEMP (**Document 7.4**) and other chapters as appropriate would be applied. The sensitivity of this habitat to this level of disturbance/ displacement/ degradation as a result of the Proposed Development would therefore be **Low** as it would be within the tolerance of this habitat.

- 9.4.80 The **County** value of acid dry dwarf shrub heath, the **Low** severity of residual impacts coupled with the **Low** sensitivity of acid dry dwarf shrub heath to temporary disturbance/ displacement/ degradation for all stages indicates there would be a **Negligible** effect (**not significant**) on the conservation status of this habitat.
- 9.4.81 The **County** value of acid dry dwarf shrub heath, the **Low** severity of residual impacts coupled with the **Medium** sensitivity of acid dry dwarf shrub heath to potential small amounts of temporary loss of habitat during construction and decommissioning indicates there would be a **Minor Adverse** effect (**not significant**) on the conservation status of this habitat.
- 9.4.82 There would be no residual impact of direct loss during operation and maintenance provided the existing Pentir Substation entrance road would be used and the overall effect on dry acid heath would be **Not significant**.
- 9.4.83 Although there is flexibility in the design of the Proposed Development within the LOD, the location and narrow confines of the Order Limits at this location prevent further encroachment into this habitat, and therefore would not permit a significant change.
- 9.4.84 The above assessment is applicable to both Options A and B, as the areas affected as a result of each option do not differ in this location, and therefore there would be no significant difference in the assessment for this habitat.

## Ruderal

9.4.85 Tall ruderal habitats were present along roadside verges, as isolated stands within fields and as herbaceous layers bordering other habitats such as woodlands. As these were often very small areas or narrow strips, they have not always been large enough to map. Direct effects could occur due to pylon foundations and construction of temporary access tracks. Indirect effects could occur on ruderal habitat which lies within the Order Limits but not the working areas (as shown on the Construction Plans Figure 4.1 of Chapter 4, Construction, Operation, Maintenance and Decommissioning (i.e. Document 5.4.1.1).

- 9.4.86 For this habitat, there is 2.94 (including bracken) ha within the Order Limits; however not all lies within the working area as shown on the Construction Plans Figure 4.1 of Chapter 4, Construction, Operation, Maintenance and Decommissioning (i.e. **Document 5.4.1.1**).
- 9.4.87 Potential impacts on ruderal habitat are as follows:
  - Direct temporary and permanent loss of habitat as a result of construction, operation, maintenance and decommissioning.
  - Temporary disturbance/ displacement/ degradation of ruderal habitat through pollution and potential changes in air quality including through dust generation and deposition.
  - Severance and fragmentation through temporary loss during construction, maintenance and decommissioning including the Third Party Service works.
- 9.4.88 Mitigation measures required are set out below; full details are provided within the BMS (**Document 7.7**):
  - CEMP Measures in Table 9.24; all relevant General Principle measures, AE11 to AE14, AE21, AE41, SM11, SM12, WE11, WE21 to WE23, WE41, BS11, relevant BS measures between BS21 to BS202, BS401, BS403, BNC11 to BNC13, BNC21, BNC23, BNC25, R1 to R3.

The following additional measures would be implemented:

- Habitat replacement and improvement where appropriate, which may be through allowed natural regeneration.
- 9.4.89 Direct residual effects could occur at pylon locations 4AP005/4ZA008, 4AP064, 4AP091 and the temporary access tracks such as that between the A55 and the railway close to pylon 4AP083. Permanent loss of ruderal habitat would occur adjacent to Pentir Substation where it lies beneath proposed landscape mitigation in the form of woodland planting, or small areas scattered throughout the Order Limits which add up to a loss of 0.054 ha. This habitat would be encouraged to return naturally at the edges of the woodland habitats, and beneath the OHL, where woodland planting cannot occur. The affected areas of this habitat consist of approximately 0.6 ha for temporary Third Party Service works, 0.67 ha (Option A)/ 0.71 ha (Option B) for the temporary Proposed Development construction works, and 0.14 ha for visibility splays should the vegetation be tall enough to require management. The severity of residual impacts for direct loss during all stages would be **Very Low** due to the temporary nature of the works, small scale of the loss, the mitigation to

- 9.4.90 The severity of residual temporary disturbance/ displacement/ degradation impacts through pollution and changes in air quality as a result of dust from construction, maintenance and decommissioning works would be **Very Low**, as it would be temporary and of localised nature. The air quality assessment determines the level of mitigation required to ensure that a significant effect does not occur as a result of dust generation and deposition. In addition, mitigation detailed within the CEMP (**Document 7.4**) and other chapters as appropriate would be applied. The sensitivity of ruderals to this level of disturbance/ displacement/ degradation as a result of the Proposed Development would therefore be **Very Low** as it would be within the tolerance of this habitat.
- 9.4.91 The severity of residual severance and fragmentation of this habitat during construction, maintenance and decommissioning would be **Very Low** as the majority of the areas of loss of ruderal habitat would be temporary. The sensitivity of this habitat to the severity of severance and fragmentation of habitat is **Low** as the areas will be quick to recolonise.
- 9.4.92 The **Local** value of ruderal habitat, the **Very Low** severity of residual impacts coupled with the **Very Low** sensitivity of ruderal habitat to the identified impacts indicates a **Negligible** effect (**not significant**) on the conservation status of this habitat.
- 9.4.93 The overall effect on ruderal habitat as a result of the Proposed Development would be **Not Significant**.
- 9.4.94 Although flexibility in the design of the Proposed Development within the LOD could result in some increase in the area of habitat lost, it would not be considered significant.
- 9.4.95 The above assessment is applicable to both Options A and B as although the areas of habitat affected vary slightly, the difference is not sufficient to change the significance of the assessment for ruderal habitat.

#### Hedgerows

9.4.96 Hedgerows were present in all Sections of the Proposed Development, comprising both Important (due to a combination of Ecological (15.2 km) and

Historical (17.5 km) reasons) and Non-important hedgerows. Cloddiau are also present within all Sections.

- 9.4.97 Sections of Hedgerow would be directly lost, both temporarily due to creation of access tracks for construction and working areas, and permanently where the THH/CSECs and Pentir Substation would sever existing hedge lines. Creation of visibility splays would require the temporary cutting back of hedgerows of a variety of widths which depends upon the requirement due to the traffic speed and existing visibility of each road.
- 9.4.98 Access track 'swathes' are 12 m wide, although this is to allow for passing places and top soil storage, which would be avoided at hedgerow crossings. The actual width of access tracks where they cross hedgerows is likely to be approximately 5 m, though if the intersection is oblique the width lost could be higher, and often has been designed to aim for existing gaps and gates within the hedgerows. As a worst case scenario, using the 12 m width (as set out in Chapter 4, Construction, Operation, Maintenance and Decommissioning (Document 5.4)), the temporary loss of all hedgerows would be 6.16 km. Of this the temporary loss of 'Important' hedgerows would be 1.79 km. This would be reduced when based on a more realistic loss of 5 m per hedgerow.
- 9.4.99 At Braint and Tŷ Fodol THH/CSEC 97 m of species poor hedgerow and 12 m of species rich hedgerow (109 m in total) all of non-Important hedgerow would be lost (there would be no permanent loss of Important hedgerow, though some would be removed and replaced for access purposes). In addition, non-Important hedgerow would be lost as a result of environmental mitigation planting of woodland, but replaced by 1.84 km as a gain.
- 9.4.100 Potential impacts on hedgerows are as follows:
  - Direct temporary loss of habitat during construction, maintenance and decommissioning through widening of the existing gates/gaps in hedgerows, and creating new ones where necessary.
  - Direct permanent loss of hedgerows at THH/CSECs.
  - Temporary disturbance/ displacement/ degradation of hedgerows through pollution and potential changes in air quality from dust generation and deposition, and management of hedgerows during construction.
  - Severance and fragmentation through temporary and permanent loss during construction, operation, maintenance and decommissioning

through widening for the access tracks and creation of the tunnel construction compounds.

- 9.4.101 Mitigation measures required are set out below; full details are provided in the BMS (**Document 7.7**):
  - CEMP Measures in Table 9.24; all relevant General Principle measures, AE11 to AE14, AE21, AE41, SM11, SM12, WE11, WE21 to WE23, WE41, BS11, relevant BS measures between BS21 to BS202, BS401, BS403, BNC11 to BNC13, BNC21 to BNC25, TN11 to TN14, TN21, R1 to R4.

In addition to the measures committed to in Chapter 7, Landscape Assessment (**Document 5.7**) and Chapter 14, Air Quality (**Document 5.14**), the following additional measures would be implemented:

- Habitat replacement and improvement where appropriate.
- Maintain existing seed bank for hedgerows in separate top soil spoils heaps to that of other habitats.
- Plant hedgerows along the inside of the visibility splays to minimise the gaps where safe to do so.
- Cut back hedgerows on visibility splays to above ground level to maintain/protect the hedgerow and ground flora, allowing them to grow back on completion of that area of works.
- Protect hedgerows from damage during construction such as through installing scaffolding for installation of OHL over roads and footpaths and when passing the pilot wire over the hedgerow.
- Replace defunct and species-poor hedgerows with intact and species-rich hedgerows with trees, to replace and improve connectivity.
- Hedgerows would be included within the landscape planting scheme of the THH/CSEC areas.
- Replace all cloddiau on completion.
- 9.4.102 Direct temporary loss of hedgerow would occur during construction, maintenance and decommissioning due to widening of the existing gates/gaps in hedgerows, and creating new gaps where necessary. The habitat loss and severance and fragmentation of hedgerows has been designed to occur adjacent to existing access gates and gaps in hedgerows where possible, but could move to create new gaps where necessary. Replacement planting would be undertaken to improve any defunct hedgerows for at least an equivalent length to that affected, if not also the length of hedgerow within the Order Limits. The worst case (12 m width) temporary loss of all hedgerows would result in an overall loss of 5.93 km (Option A) or 5.99 km (Option B) (removed); of this the temporary loss of species rich would be 1.61 km (Option

A) and 1.64 km (Option B) (removed). However, this would be reduced to approximately 5 m width wherever possible, which could therefore halve these figures. The majority of sections lost would be replaced, however the replacement species composition would be of a higher diversity than speciespoor hedgerows lost, therefore the 4.32 km (Option A) or 4.35 km (Option B) of species poor hedgerow temporarily lost would be replaced with species rich and intact (based on the worst case of 12 m width lost per access track). Additional options would be available to landowners who wish for the length of hedgerow within the Order Limit and potentially the entire length of a defunct hedgerow to be planted up; further details are included within the Enhancement Strategy (**Document 7.13**). This has not been taken into account within the assessment as it is not quantifiable at this time. In addition, a total of 15.51 km has been identified as affected/managed. Not all of this would be affected, and where it is, this includes visibility splays or scaffolding where the existing hedgerow would not be lost but managed at a lower height and then allowed to grow on completion.

- 9.4.103 The severity of residual impacts on hedgerows during construction would be Low due to the minimised direct loss, minimised severance and fragmentation for access tracks through careful design, the temporary nature of the works, the mitigation to minimise direct effects and the landscape planting to improve those hedgerows which are species-poor or defunct. This would also be the case for maintenance and decommissioning, however it is anticipated that existing accesses would be used during maintenance wherever possible. The sensitivity of this habitat to the severity of habitat loss and severance and fragmentation of habitat is Low as hedgerows can occur in a wide variety of stages and compositions, including being largely defunct, are usually a managed and maintained habitat and can regenerate naturally. The loss of hedgerow for the Proposed Development is minimised to short sections within the existing hedgerows, and aimed for existing gaps or defunct sections where possible. In addition, the top soil would be kept separately to maintain the seed bank for quick recolonisation of ground flora on reinstatement, aided by natural recolonisation from retained adjacent sections of the hedgerow, with the actual hedgerow being replaced with species-rich and intact, even where currently defunct
- 9.4.104 Temporary disturbance/ displacement/ degradation of hedgerows during construction, maintenance and decommissioning through changes in air quality from dust generation and deposition would occur where these lie close to the areas of works. It would also occur through management of hedgerows where works are within close proximity, such as scaffolding where hedgerows may require management, and visibility splays where hedgerows are cut to above ground levels until completion of construction. All temporarily managed

hedgerows would be left to their continued existing management following a period of post construction monitoring to ensure their health. The air quality assessment determines the level of mitigation required to ensure that a significant effect does not occur as a result of dust generation and deposition. In addition, mitigation detailed within the CEMP (**Document 7.4**) and other chapters as appropriate would be applied. The severity of residual temporary disturbance/ displacement/ degradation impacts during construction, maintenance and decommissioning would be Very Low, due to the localised nature of the impact. The sensitivity of this habitat to the severity of temporary disturbance/ displacement/ degradation of habitat is Low as hedgerows are managed by definition which can help maintain species diversity, and they can thrive adjacent to busy roads.

- 9.4.105 The **County** value of Important Hedgerows, the **Low** to **Very Low** severity of residual impacts coupled with the **Low** sensitivity of Important Hedgerows to potential minimal loss. fragmentation and dust. and the replacement/improvement of habitat indicates that there would be a Minor Adverse effect (not significant) on the conservation status of this habitat (Important Hedgerows) for temporary loss and severance and fragmentation, and Negligible effect (not significant) for all other impacts on this habitat during construction, maintenance and decommissioning.
- 9.4.106 The Local value of non-Important Hedgerows indicates that there would be a **Negligible** effect (**not significant**) on the conservation status of this habitat (non-Important Hedgerows) for these impacts.
- 9.4.107 There would be direct permanent loss of hedgerows at THH/CSECs, and associated severance and fragmentation, however new sections would be planted as part of the mitigation that would include approximately 1.84 km which would replace the 109 m non-Important hedgerows lost (comprising 97 m of species poor and 12 m of species rich hedgerow) for the THH and that lost as a result of mitigation planting of other habitats. The severity of residual impacts during operation would be Very Low due to both the localised direct loss of hedgerows around the THH/CSECs and the landscape planting to include hedgerows.
- 9.4.108 In view of the generally poor condition, the small amounts, the proposed landscape planting, and Very Low severity of permanent direct loss and severance and fragmentation of hedgerows, the sensitivity of this habitat to direct loss is **Low**.
- 9.4.109 The Very Low severity of impact and the Low sensitivity to this impact would mean a Negligible effect (not significant) on the conservation status of this
habitat as a result of permanent loss and fragmentation of the habitat during operation.

- 9.4.110 The overall effect on hedgerows as a result of the construction and operation of the Proposed Development would be **Not Significant**.
- 9.4.111 Although Flexibility in the draft DCO (**Document 2.1**) could result in additional lengths of hedgerow being lost within the LOD, the figures provided above are based upon a worst case of 12 m being lost at each intersection. In reality the amount lost would be substantially lower, and therefore the potential for use to be made of the flexibility within the LOD is not considered to alter the assessment findings. Where possible, the design of the access tracks has aimed for existing gaps and gateways to minimise the actual amount affected, though these have not been taken into account in the assessment of losses identified above. The point of intersection with the hedgerow may change, however the width removed would be no greater than the worst case assessed.
- 9.4.112 The above assessment is applicable to both Options A and B as although the areas of habitat affected vary slightly, the difference is not sufficient to change the significance of the assessment for hedgerows.

## Ponds

- 9.4.113 Although there are ponds present within the Order Limits, only one of these would be lost or directly affected by the Proposed Development. This is Pond A254 at Braint THH. This would be avoided if possible, but would be replaced on completion of the works if lost. Working areas such as access tracks and at pylon locations would be located away from ponds.
- 9.4.114 Indirect effects could potentially occur during construction through temporary disturbance/ displacement/ degradation via possible changes to water quality or hydrological regimes.
- 9.4.115 There would be no permanent effects on existing ponds during operation if pond A254 is replaced. Temporary disturbance/displacement/degradation could occur during maintenance and decommissioning though installation of the temporary access tracks should they be required. New SuDS within the THH/CSECs would be created as part of the drainage mitigation.
- 9.4.116 Potential impacts on ponds are as follows:
  - Potential temporary loss of one pond (Pond A254) at Braint THH if not possible to avoid.

- Temporary disturbance/ displacement/ degradation of ponds through potential changes to water quality (e.g. siltation) or spread of INNS, where these lie within or adjacent to the Order Limits would be limited to working areas close to ponds and temporary in nature.
- Hydrological alteration where construction works occur adjacent to ponds.
- 9.4.117 Mitigation measures required are set out below; full details are provided within the BMS (**Document 7.7**):
  - CEMP Measures in Table 9.24; all relevant General Principle measures, WE11, WE21 to WE23, WE31, WE41, WE51, WE52, WE54 to WE56 BS11, relevant BS measures between BS21 to BS202, BS401, BS403, BNC11 to BNC13, BNC21 to BNC24, R6.

In addition to the measures set out in Chapter 11, Geology, Hydrogeology and Ground Conditions (**Document 5.11**) and Chapter 12, Water Quality, Resources and Flood Risk (**Document 5.12**), the following additional measures would be implemented:

- Replacement of Pond A254 at Braint THH following construction as part of the landscape mitigation. Mitigation planting in this area would avoid fully surrounding this habitat and overshading.
- Although created as part of the drainage mitigation (SuDS), the new ponds would be planted/or allowed to colonise naturally with aquatic vegetation.
- 9.4.118 Due to the loss of only one pond, and the fact that it would be replaced on completion of construction, the severity of this impact is considered to be Low. Although the sensitivity of an individual pond to loss is High, the overall sensitivity of the total pond habitat to the temporary potential loss of one pond during construction throughout the Proposed Development would be Low. This is a relatively new pond as previous mapping and aerial photos show this to have been only marshy grassland. On completion of the THH, a replacement for this pond (if it is lost) would be included as part of the mitigation.
- 9.4.119 Temporary disturbance/ displacement/ degradation of ponds through potential changes to water quality (e.g. siltation) where these lie within or adjacent to the Order Limits would be limited to working areas close to ponds and temporary in nature. Only 12 ponds lie within the Order Limits, not including the Order Limits above the tunnel. The severity of residual temporary disturbance/ displacement/ degradation impacts during construction, maintenance and decommissioning through pollution (e.g. siltation, spills and dust) from works and use of the access tracks/construction traffic routes would

be **Very Low**, due to the limited areas of works close to ponds, the temporary nature of the works, and the mitigation to minimise indirect effects, including the prevention of spread of INNS, and the mitigated levels of dust generation and deposition. Although ponds can generally be highly sensitive to affects such as these as they can alter the suitability of this habitat to support the species that reside within them, due to the low risk, applied mitigation and limited number of ponds that could be affected, the sensitivity of ponds to the level of severity of temporary disturbance/ displacement/ degradation of habitat is **Low** as it is not considered that it would be of a level to adversely lower the guality of the ponds as a habitat.

- 9.4.120 The severity of residual impacts during construction, maintenance and decommissioning as a result of hydrological alteration would be **Very Low** due to the limited areas of works close to ponds, the temporary nature of the works and the mitigation to minimise indirect effects. Although ponds can generally be highly sensitive to affects such as these, they can as a habitat vary in permanence with some ponds being ephemeral, which can be of benefit to some species. Due to the low risk and limited number of ponds that could be affected, the sensitivity of ponds to this level of hydrological alteration is **Low**.
- 9.4.121 The Local value of ponds, the Low and Very Low severity of impacts coupled with the Low sensitivity of ponds means that all effects as a result of construction, maintenance and decommissioning would be a Negligible effect (not significant) on the conservation status of this habitat.
- 9.4.122 Although a couple of new ponds would be created as a result of the SuDS, and these could be managed to create quality habitat, the small number and use of the ponds, along with the Local value of ponds, means that although beneficial, the result of the operation of the Proposed Development on ponds would be a Negligible effect (not significant) on the conservation status of this habitat.
- 9.4.123 The overall effect on ponds as a result of the construction, operation maintenance and decommissioning of the Proposed Development would be **Not Significant**.
- 9.4.124 Although flexibility in the draft DCO (**Document 2.1**) could result in movement of working areas within the limits of the LOD, this habitat has been included within the Schedule of Environmental Commitments (**Document 7.4.2.1**) and therefore would not be lost with the exception of pond A254 where all efforts would be made to avoid the loss but space may be a limiting factor and make this unavoidable.

9.4.125 The above assessment is applicable to both Options A and B as although the area of works vary slightly, the difference is not sufficient to change the significance of the assessment for ponds.

## Watercourses and Drains

- 9.4.126 Although watercourses and drains totalling 17.97 km are scattered throughout the Order Limits, only 46 watercourses would be crossed (some watercourses have more than one crossing). These consist of proposals for 63 crossing locations by the Proposed Development, comprising 42 temporary culverts, 19 temporary bridges and three uses of existing bridges. These include crossings on watercourses that lie between wetland habitats such as Cors Erddreiniog SSSI/NNR within the Corsydd Môn/Anglesey Fens SAC and the Proposed Development. Watercourse crossings during construction would lead to temporary habitat loss throughout the Order Limits due to the creation of working areas and access tracks/temporary culverts/bridges.
- 9.4.127 The following rivers are present within the survey area: Afon Wygyr (Section A), Afon Clai and Afon Erddreiniog (Section C), Afon Ceint (Section D) and the Afon Braint (Section F), in addition there are numerous tributaries and drains present in all Sections.
- 9.4.128 Temporary habitat loss could occur for the duration of the works while watercourse crossings are in place. Indirect effects could occur through temporary disturbance/ displacement/ degradation via potential changes to water quality, hydrological regimes or spread of INNS. Drainage mitigation as part of the construction works could have a beneficial effect by clearing and improving blocked drains. Temporary habitat loss and disturbance/ displacement/ degradation could also occur during maintenance and decommissioning through reinstatement of the temporary access tracks/culverts/bridges should they be required.
- 9.4.129 There would be no permanent effects on existing watercourses and drains during operation.
- 9.4.130 Potential impacts on watercourses are as follows:
  - Direct temporary loss of habitat during construction, maintenance and decommissioning while watercourse crossings are in place. This would be limited to short lengths to facilitate access tracks with associated culverts and bridges.
  - Temporary disturbance/ displacement/ degradation of habitat during construction (including the Third Party Service works), notably through

potential changes to water quality, hydrological regimes or potential for spread of INNS.

- Severance and fragmentation of the habitat would occur temporarily during construction, maintenance and decommissioning whilst culverts are in place, however all temporary bridges would be clear span thereby reducing the effect.
- Hydrological alteration where construction, maintenance and decommissioning works occurs adjacent to watercourses.
- 9.4.131 Mitigation measures required are set out below; full details are provided within the BMS (**Document 7.7**):
  - CEMP Measures in Table 9.24; all relevant General Principle measures, WE11, WE21 to WE23, WE31, WE41, WE51, WE52, WE54 to WE56 FM14, BS11, relevant BS measures between BS21 to BS202, BS401, BS403, BNC11 to BNC13, BNC21 to BNC24, R1 to R3, R5, R6.

In addition to the measures set out in Chapter 11, Geology, Hydrogeology and Ground Conditions (**Document 5.11**) and Chapter 12, Water Quality, Resources and Flood Risk (**Document 5.12**), the following additional measures would be implemented:

- Inclusion of importance of protection of watercourses within tool box talks.
- Reinstatement of the habitat on removal of the temporary crossings to maintain the existing course and watercourse habitat and bed at each location.
- Replacement of temporary loss of habitat through planting or natural regeneration. This includes that the bed, morphology and in channel functioning of the watercourse should be reinstated to at least the existing.
- 9.4.132 The area of habitat affected due to the length of the culvert would vary per crossing, though is not expected to exceed 20 m of channel. This would be limited to short lengths to facilitate access tracks with associated culverts and bridges. Partial severance and fragmentation of the habitat would occur temporarily whilst culverts are in place, however all temporary bridges would be clear span thereby reducing the effect.
- 9.4.133 The severity of residual impacts of direct temporary loss and severance and fragmentation of habitat during construction would be **Very Low** due to both the limited length of affected watercourses within the Proposed Development and the use of clear span bridges to reduce direct effects on specific watercourses. Due to the impact relative to the available length of channel and bank habitat, the sensitivity of watercourses to temporary habitat loss and severance and fragmentation is **Low** as the watercourses will recover readily

including reinstatement of channel morphology through natural processes and recolonisation through natural regeneration.

- 9.4.134 Areas at most risk of temporary disturbance/ displacement/ degradation include where access tracks with associated culverts and bridges cross watercourses, as well as where works lie in close proximity to watercourses. Chapter 12, Water Quality, Resources and Flood Risk (Document 5.12) concludes that the construction, operation, maintenance and decommissioning of the Proposed Development would have no significant effects on any of the WFD watercourses within their assessment.
- 9.4.135 The severity of residual impacts of temporary disturbance/ displacement/ degradation impacts during construction, maintenance and decommissioning through pollution (siltation, spills and dust, and the potential for spread of INNS) from construction works, the limited areas of works close to watercourses outside of the crossing points, and use of the access tracks/construction traffic routes with the mitigation to minimise such impacts outlined in the mitigation summary box above and within the CEMP (**Document 7.4**) would be **Very Low**. Due to the small scale, temporary nature of the works relative to the length of watercourse present and mitigation to minimise indirect impacts, and as the assessment within Chapter 12, Water Quality Resources and Flood Risk Assessment (Document 5.12) has reported that for each identified receptor the prescribed mitigation measures would help manage effects to an acceptable level to ensure that there are no significant effects as a result of any phase of the Proposed Development, the sensitivity of watercourses to temporary disturbance/ displacement/ degradation is **Low**.
- 9.4.136 These impacts could also occur through reinstatement of any access track watercourse crossings during maintenance and decommissioning.
- 9.4.137 The severity of residual impacts during construction as a result of hydrological alteration would be Very Low due to the limited areas of works close to watercourses outside of the crossing points, the temporary nature of the works and the mitigation to minimise indirect impacts. The sensitivity of watercourses to the expected low severity of hydrological alteration is Low as they would be quick to recover. In addition, as stated above, the assessment within Chapter 12, Water Quality Resources and Flood Risk Assessment (Document 5.12) has reported that for each identified receptor the prescribed mitigation measures would help manage effects to an acceptable level to ensure that there are no significant effects as a result of any phase of the Proposed Development.

- 9.4.138 The **Very Low** severity of the residual temporary habitat loss, disturbance/ displacement/ degradation, severance and fragmentation and hydrological alteration during construction, maintenance and decommissioning indicate there would be a **Negligible** effect (**not significant**) on the conservation status of this habitat as appropriate method statements would be in place.
- 9.4.139 The overall effect on watercourses as a result of the construction maintenance and decommissioning of the Proposed Development would be **Not significant**.
- 9.4.140 There would be no affect as a result of the operation of the scheme.
- 9.4.141 Flexibility in the draft DCO (Document 2.1) permits changes in the locations of the crossing points. Changes to the crossing point locations are considered unlikely to significantly alter the assessment and buffers to protect this habitat are included within the CEMP (Document 7.4) which do not permit works (non crossing locations) to be closer to the habitat than that stated on the Construction Plans Figure 4.1 of Chapter 4, Construction, Operation, Maintenance and Decommissioning (Document 5.4.1.1).
- 9.4.142 The above assessment is applicable to both Options A and B as although the area of works vary slightly, the difference is not sufficient to change the significance of the assessment for watercourses.

### Habitats Listed in Annex 1 of the Habitats Directive

#### Woodland W6 and W8 Communities

- 9.4.143 Woodland communities identified under Annex 1 of the Habitats Directive that are present within the Order Limits (plus 50 m buffer) are represented by NVC communities W6 Alnus glutinosa-Urtica dioica woodland, and W6d Alnus glutinosa-Urtica dioica woodland; Sambucus nigra sub-community, W8e Fraxinus excelsior-Acer campestre-Mercurialis perennis at Coed Nant Y Garth, secondary woodland that is a representative of the W8 Fraxinus excelsior-Acer campestre-Mercurialis perennis woodland community at Pentir Substation (a poor example of this habitat), and also W8e Fraxinus excelsior-Acer campestre-Mercurialis perennis woodland covert (NB these W8 habitats form the Coed Nant Y Garth and Gylched Covert CWSs, and Pentir Substation cCWS and are discussed in section 9.3.115).
- 9.4.144 Direct habitat loss would occur temporarily through the construction of working areas and access tracks associated with Third Party Service works. Permanent direct loss of habitat would occur due to removal of trees beneath conductors, including an allowance for swing. Indirect effects could occur on those areas of woodland that lie adjacent to or within 50 m of the Order Limits,

and within the Order Limits, but remaining outside of the working areas. These would include temporary disturbance/ displacement/ degradation as a result of changes in air quality resulting from dust generation and deposition, and severance and fragmentation of the habitat. Effects on species using the habitat are dealt with in later sections of this chapter.

- 9.4.145 Potential impacts on Annex 1 of the Habitats Directive woodland are as follows:
  - Permanent and temporary direct loss of habitat in Gylched Covert (W8e community) (Plot 5032 NVC001 Appendix 9.4 (Document 5.9.2.4)) of 0.45 ha due to conductor swing (see assessment in section 9.3.115), and 0.28 ha affected/managed (and 0.33 ha potentially affected - only a proportion of this could become affected); 0.065 ha removed and 2.21 ha to be potentially affected (only a proportion of this could become affected) at Coed Nant Y Garth ravine due to conductor swing of which some but not all comprises a W8 woodland community (see assessment in section 9.3.115) (potentially also due to Third Party Service works); 0.35 ha of a poor example of W8 Annex 1 habitat at Pentir Substation would be lost; 0.09 ha of W6 community habitat would be lost permanently in the woodland by Carrog Isa (Plot 2039\_NVC005 Appendix 9.4 (**Document 5.9.2.4**)) to allow for conductor swing, with also 0.04 ha potentially affected. No direct loss would occur from the ancient woodland at Brynddu (W8e community) (Plot 2037 NVC004 Appendix 9.4 (Document 5.9.2.4)). The woodland near Pentreheulyn (W6d community) (Plot 1991 NVC029 Appendix 9.4 (Document 5.9.2.4)) could potentially be affected 0.055 ha.
  - Temporary disturbance/ displacement/ degradation of Annex 1 woodland habitat through pollution and potential changes in air quality through dust generation and deposition.
  - Severance and fragmentation through temporary and permanent loss during construction and operation.
- 9.4.146 Mitigation measures required are set out below; full details are provided within the BMS (**Document 7.7**):
  - CEMP Measures in Table 9.24; all relevant General Principle measures, AE11 to AE14, AE21, AE41, SM11, SM12, WE11, WE21 to WE23, WE41, BS11, relevant BS measures between BS21 to BS202, BS401, BS403, BNC11 to BNC13, BNC21 to BNC25, TN11 to TN14, R1 to R4.

In addition to the measures committed to in Chapter 7, Landscape Assessment (**Document 5.7**), Chapter 11, Geology, Hydrogeology and Ground Conditions

(**Document 5.11**), Chapter 12, Water Quality, Resources and Flood Risk (**Document 5.12**) and Chapter 14, Air Quality (**Document 5.14**), the following additional measures would be implemented:

- Habitat replacement and improvement where appropriate, maintaining existing seed bank in top soil of woodland kept separate to that of other habitats.
- Where trees and woodland would be lost beneath the OHL, replacement
  planting would be located as close to that lost as possible, with alternative
  planting in these areas to include scrub in order to prevent fragmentation of
  habitats and loss of food sources for notable species of wildlife, and to provide
  good connectivity to other woodland blocks in the locations available.
- Where trees and woodland would be lost beneath the OHL, landscape mitigation planting would be as close as possible to that lost, and where not possible, to provide good connectivity to other woodland blocks in the locations available.
- Landscape mitigation planting would ensure no net loss of trees, with as much replacement planting as possible within the Order Limits.
- Planting would occur within Gylched Covert (see section 9.3.115) and Carrog Isa woodlands. Planting mixes would be tailored to the existing Annex 1 woodland communities (with the exception of ash) and comprise native species of local provenance where possible. This would be tailored to help support LBAP targets where possible.
- Management of Gylched Covert in line with maintaining this W8e community where possible (see section 9.3.115).
- 9.4.147 The mitigated Proposed Development still has some potential to impact Annex 1 woodland habitats due to the time taken for establishment of the landscape mitigation planting and difficulty in being able to replant where habitat has been lost. The area of W6 habitat at Carrog Isa is 0.53 ha, of which 0.19 ha is within the Order Limits; however, only 0.09 ha will be removed (with also 0.04 ha potentially affected – only a proportion of this could become affected and the majority of this currently comprises gaps within the existing woodland) as it lies within the working area (as shown on the Construction Plans Figure 4.1 4. Construction, of Chapter Operation. Maintenance and Decommissioning (Document 5.4.1.1)). There will be 0.065 ha of replanted woodland in this location, thereby resulting in a loss of 4.7%). The area of W6d habitat near Pentreheulyn is 1.53 ha of which 0.19 ha is within the Order Limits; however, only 0.055 ha would be potentially affected as it is located within the working area. The areas of W8 woodland is assessed in Section 9.3 as all areas are also CWS/cCWSs.

- 9.4.148 No direct loss would occur from the ancient woodland at Brynddu (W8e community). The severity of temporary and permanent loss and fragmentation of this habitat would be Low due to the areas of woodland lost, the mitigation to replace woodland/trees with no net loss, using suitable species mix for each community and the management plan of the remaining Gylched Covert where possible. It would not be prudent to replace ash within this habitat despite it forming part of the existing mix due to the concerns over ash dieback caused by a fungus called Hymenoscyphus fraxineus. The sensitivity of Annex 1 woodland to loss of habitat associated with the Proposed Development would be Medium considering the time taken for mitigation planting to mature and provide replacement habitat. The sensitivity of Annex 1 woodland to the proposed temporary and small scale severance and fragmentation of habitat during construction, operation, maintenance and decommissioning is Low as a degree of this habitat would be managed and not lost, thereby reducing the fragmentation effect, with mitigation planting where nearby to these habitats being tailored to the relevant species composition where possible.
- 9.4.149 Temporary disturbance/ displacement/ degradation could occur during construction and operation, maintenance and decommissioning through potential changes in air quality, including dust generation and deposition, where they lie within the study area for the air quality assessment, loss and management of the habitat and installation of the temporary access track should it be required during maintenance and decommissioning. The severity of residual temporary disturbance/ displacement/ degradation impacts during construction, maintenance and decommissioning through pollution and changes in air quality from dust would be Low as mitigation detailed within the CEMP (Document 7.4) and Chapter 14, Air Quality (Document 5.14). The sensitivity of Annex 1 woodland to the proposed temporary and small scale disturbance/ displacement/ degradation is Low as the mitigation applied would bring it within the tolerance of this habitat.
- 9.4.150 The **County** value of the Annex 1 woodlands, the **Low** severity of residual impacts coupled with the **Medium** (loss only) and **Low** sensitivity of woodland to potential small amounts of loss of habitat, indirect effects and severance and fragmentation, plus the replanting and management of the covert means there would be a **Minor Adverse** (**not significant**) effect for habitat loss, and **Negligible** for all other effects (**not significant**) during construction, operation, maintenance and decommissioning of the Proposed Development on the conservation status of this habitat.
- 9.4.151 The overall effect on Annex 1 woodland as a result of the construction, operation, maintenance and decommissioning of the Proposed Development would be **Not Significant**.

- 9.4.152 Although changes in the design of the Proposed Development within the flexibility afforded by the LOD could result in additional areas of woodland lost, it would not be considered significant. Therefore, there are no aspects of flexibility that would lead to a greater significance of effect.
- 9.4.153 The above assessment is applicable to both Options A and B as although the area of works vary slightly, the differences do not occur by these habitats and would therefore not change the significance for Annex 1 woodland habitat.

#### Annex 1 Fen Meadow Communities

- 9.4.154 The fen community identified under Annex 1 of the Habitats Directive of Molinia meadows on calcareous, peaty or clayey-silt-laden soils in the form of NVC community M24 Molinia caerulea-Cirsium dissectum fen-meadow was present within the 50 m buffer of the Order Limits in one location in Section C of the Proposed Development near to pylons 4ZA064 and 4AP062.
- 9.4.155 There would be no direct loss of this habitat.
- 9.4.156 The fen community identified under Annex 1 of the Habitats Directive of Calcareous fens with *Cladium mariscus* and species of the *Caricion davallianae* in the form of NVC community M22 *Juncus subnodulosus-Cirsium palustre* fen-meadow was present within the 50 m buffer of the Order Limits in one location in Section C of the Proposed Development near to pylons 4AP062, and outside of the Order Limits in Tre'r Gof SSSI in Section A where it would not be lost.
- 9.4.157 Direct effects of habitat loss, and indirect effects during construction, maintenance and decommissioning could occur on this habitat and through temporary disturbance/ displacement/ degradation or hydrological alteration.
- 9.4.158 Potential impacts on this community are as follows:
  - Direct loss through permanent and temporary loss of the habitat at pylon 4AP062 working area and permanent footings, however this habitat is protected from unavoidable loss within the Schedule of Environmental Commitments (**Document 7.4.2.1**).
  - Temporary disturbance/ displacement/ degradation could occur through pollution and potential changes in air quality resulting from dust generation and deposition.
  - Hydrological alteration could occur through working close to these habitats.

- 9.4.159 Mitigation measures required are set out below. Additional details are provided in the BMS (**Document 7.7**):
  - CEMP Measures in Table 9.24; all relevant General Principle measures, AE11 to AE14, AE21, AE41, SM11, SM12, WE11, WE21 to WE23, WE41, WE51, WE52, WE54 to WE56BS11, relevant BS measures between BS21 to BS202, BS401, BS403, BNC11 to BNC13, BNC21 to BNC25, R1 to R3.

In addition to the measures set out in Chapter 12, Water Quality, Resources and Flood Risk (**Document 5.12**) and Chapter 14, Air Quality (**Document 5.14**), the following additional measures would be implemented:

- Habitat replacement and improvement where appropriate, maintaining existing seed bank in top soil of each type kept separate to that of other habitats.
- Ensure continuity of hydrological connectivity with this habitat.
- 9.4.160 The severity of residual temporary disturbance/ displacement/ degradation impacts during construction, maintenance and decommissioning through changes in air quality from dust generation and deposition would be Low as it would be temporary and of localised nature. The air quality assessment in Chapter 14, Air Quality (Document 5.14) determines the level of mitigation required to ensure that a significant effect does not occur as a result of dust generation and deposition. In addition, mitigation detailed within the CEMP (Document 7.4) and other chapters as appropriate would be applied. The sensitivity of these habitats to this level of disturbance/ displacement/ degradation as a result of the Proposed Development would therefore be Low as it would be within the tolerance of this habitat.
- 9.4.161 Hydrological alteration could occur through working close to M24 *Molinia caerulea-Cirsium dissectum* fen-meadow and M22 *Juncus subnodulosus-Cirsium palustre*, potentially disrupting the existing hydrological inputs on which the habitat is dependent upon being maintained. The severity of the impact would be **Low** due to the localised nature of the affect, and the pylon working area being at the high point of the field. The sensitivity of these habitats to Hydrological Alteration is **Medium** as they rely on maintaining the correct conditions.
- 9.4.162 Should it not be possible for the working area to avoid all of this habitat, the small amount that could be affected would be affected temporarily unless a pylon footing is located within this habitat, in which case it would only comprise 1 m<sup>2</sup> per footing. The level of loss would therefore be of **Low** severity as the habitat would be reinstated on completion of the works and the remaining habitat included within the Schedule of Environmental Commitments

(**Document 7.4.2.1**). The sensitivity of this habitat to loss is **Medium** as it is difficult to replace in other locations due to required conditions.

- 9.4.163 The **County** value of these grassland habitats, the **Low** severity of residual impacts coupled with the **Low** and **Medium** sensitivity to potential temporary disturbance/ displacement/ degradation, habitat loss and hydrological alteration impacts indicates there would be a **Minor Adverse** effect (**not significant**) on the conservation status of this habitat.
- 9.4.164 The overall effect on these Annex 1 of the Habitats Directive grassland habitats as a result of the construction and operation of the Proposed Development would be **Not Significant**.
- 9.4.165 Areas of these Annex 1 habitats lie within the Order Limits, including within the field where pylon 4AP062 would be located. This field however comprises a matrix of different habitat types and the pylon would be located at the north western edge of the field. Although this habitat type would be directly affected based on the design shown on Figure 4.1 of Chapter 4, Construction, Operation, Maintenance and Decommissioning (Document 5.4.1.1), this habitat has been added to the Schedule of Environmental Commitments (Document 7.4.2.1) to protect it unless absolutely unavoidable and therefore direct habitat loss would not occur unless essential, as the working areas would be adjacent to, but not within the area of M22 habitat, including for use of the flexibility permitted to move the pylon. As such the pylon could move north along the line but not south further into this habitat.
- 9.4.166 The above assessment is applicable to both Options A and B as although the area of works vary slightly, the differences do not occur by these habitats and would therefore not change the significance for these Annex 1 habitats.

# 9.5 HABITAT LOSSES AND GAINS

- 9.5.1 The following Table 25 and 26 shows the areas of habitat that would be temporarily and permanently lost as a result of the Proposed Development, and also the areas that would be gained through mitigation. Further potential gains as a result of enhancement proposals are not included in this report but are discussed in the Enhancement Strategy (**Document 7.13**).
- 9.5.2 Although there would be a net loss in improved grassland, this is considered to be acceptable as it is the habitat of least biodiversity value of those considered. Given its low value; pylons, THH/CSEC, access tracks and construction compounds have been located on improved grassland where possible. Landscape mitigation planting has also been located on improved

grassland rather than habitats of greater value, to provide as much net gain in biodiversity value as possible.

Table 9.25 Habitat Calculations as a Result of the Proposed Development – Woodland and Hedgerow Habitats										
Habitat	Value	Habitat Present in Order Limits	Habitat Removed	Habitat Affected/ Managed	Habitat Potentially Affected	Habitat Creation				
Ancient Woodland Including Plantation on Ancient Woodland	County	12.46 ha of RAW 3.76 ha of ASNW 15.69 ha of PoAW		0.12 ha road widening (RAW) 0.49 ha access track widening - worst case as most of this comprises existing access track (PoAW)	0.01 ha (90 m²) (PoAW)	3.59 ha of ancient woodland managed to improve its quality.				
Total Ancient Woodland	County	31.91 ha		0.61 ha – worst case	0.01 ha – worst case	3.59 ha managed				
Broadleaved Semi-Natural Woodland	Local	49.65 ha	2.66 ha (Op A) 2.67 ha (Op B)	2.30 ha (Op A) 2.29 ha (Op B)	9.04 ha (Op A) 9.05 ha (Op B)					
Broadleaved Plantation Woodland	Local	2.51 ha	0.16 ha	0.09 ha	0.07 ha	5.85 ha				

Table 9.25 Habitat Calculations as a Result of the Proposed Development – Woodland and Hedgerow Habitats									
Habitat	Value	Habitat Present in Order Limits	Habitat Removed	Habitat Affected/ Managed	Habitat Potentially Affected	Habitat Creation			
Coniferous Plantation Woodland	Local	8.82 ha	0.20 ha	0.06 ha	None				
Mixed Semi- Natural Woodland	Local	8.52 ha	1.07 ha	0.92 ha	0.96 ha				
Mixed Plantation Woodland	Local	7.61 ha	2.85 ha	1.63 ha	0.89 ha	1.38 ha			
Parkland/ Scattered Trees	Local	0.08 ha	0.03 ha	None	0.06 ha				
Individual Trees	Local	649 trees (Op A) 643 trees (Op B) (13 coniferous)	123 trees (Op A) 124 trees (Op B) (5 coniferous)	125 trees (Op A) 124 trees (Op B) (2 coniferous)	324 trees (Op A) 317 trees (Op B) (5 coniferous)	583 trees			

Table 9.25 Habitat Calculations as a Result of the Proposed Development – Woodland and Hedgerow Habitats										
Habitat	Value	Habitat Present in Order Limits	Habitat Removed	Habitat Affected/ Managed	Habitat Potentially Affected	Habitat Creation				
Total Woodland (excluding individual trees)	Local	77.11 ha	6.97 ha (Op A) 6.98 ha (Op B)	5.00 ha (Op A) 4.99 ha (Op B)	11.02 ha (Op A) 11.03 ha (Op B)	7.23 ha				
Hedgerows – Species- Rich*	Local	17.98 km	0.012 km (Permanent) 1.61 km (Op A Temporary) 1.64 km (Op B Temporary)	5.23 km	10.91 km (Option A) 10.85 km (Option B)	1.84 km new hedgerow created. Reinstatement for temporarily removed 5.93 km (Op A) 5.99 km (Op B)				
Hedgerows – Species- Poor*	Local	48.43 km	0.097km (Permanent) 4.32 km (Op A Temporary) 4.35 km (Op B Temporary)	10.28 km	33.96 km (Op A) 33.91 km (Op B)	Replaced with species rich hedgerows.				

Table 9.25 Habitat Calculations as a Result of the Proposed Development – Woodland and Hedgerow Habitats										
Habitat	Value	Habitat Present in Order Limits	Habitat Removed	Habitat Affected/ Managed	Habitat Potentially Affected	Habitat Creation				
Total Hedgerows	Local	66.41 km	0.109 km (109 m) (Permanent) 5.93 km (Op A Temporary) 5.99 km (Op B Temporary)	15.51 km** '	44.87 km (Option A) 44.76 km (Op B)***	<ul> <li>1.84 km new hedgerow created.</li> <li>Reinstatement of that temporarily removed</li> <li>5.93 km (Op A)</li> <li>5.99 km (Op B)</li> </ul>				
Key: ASNW – Ancient semi-natural woodland RAW – Restored ancient woodland PoAW – Plantation on ancient woodland										
** Affected/managed hedgerows include hedgerows cut to a lower height for visibility splays or beneath scaffolding, which would be allowed to grow back on completion.										

Table 9.25 Habitat Calculations as a Result of the Proposed Development – Woodland and Hedgerow Habitats									
Habitat	Value	Habitat Present in Order Limits	Habitat Removed	Habitat Affected/ Managed	Habitat Potentially Affected	Habitat Creation			
*** Where any 'potentially affected' hedgerow becomes 'removed', this would be instead of the previously identified 'removed' area and the section affected will be reinstated.									

Table 9.26 Habitat Calculations as a Result of the Proposed Development – All Habitats Except Woodland and Hedgerow									
Habitat	Value	Habitat Present in Order Limits	Habitat Permanently Lost	Habitat Temporary Lost	Habitat Creation				
Dense/ Continuous Scrub	Local	2.94 ha	0.23 ha	0.91 ha	0.91 ha reinstated 0.87 ha created within mitigation planting				
Scattered Scrub	Local	1.98 ha	None	0.22 ha	0.22 ha reinstated				
Linear Scrub	Local	7.78 km	None	2.21 km	2.21 km reinstated				

Table 9.26 Habitat Calculations as a Result of the Proposed Development – All Habitats Except Woodland and Hedgerow									
Habitat	Value	Habitat Present in Order Limits	Habitat Permanently Lost	Habitat Temporary Lost	Habitat Creation				
Unimproved Acid Grassland	County	0.07 ha	None	0.068 ha	0.068 ha reinstated				
Semi-improved Acid Grassland	Local	0.51 ha	None	None					
Unimproved Neutral grassland	Local / County	0.11 ha	None	0.07 ha	0.07 ha reinstated 12.58 ha* created within mitigation planting areas.				
Semi-improved Neutral Grassland	Local	12.82 ha	0.58 ha	7.26 ha	7.26 ha reinstated Permeant loss replaced with unimproved neutral grassland*.				
Improved Grassland	Local	458.86 ha	14.379 ha (Op A) 14.383 ha (Op B)	165.65 ha (Op A) 165.85 ha (Op B)	2.05 ha 165.65 ha (Op A) or 165.85 (Op B) reinstated Permeant loss replaced mostly with unimproved neutral grassland* and woodland.				

Table 9.26 Habitat Calculations as a Result of the Proposed Development – All Habitats Except Woodland and Hedgerow								
Habitat	Value	Habitat Present in Order Limits	Habitat Permanently Lost	Habitat Temporary Lost	Habitat Creation			
Marshy Grassland	Local	34.31 ha	0.45 ha	15.171 ha (Op A) 15.169 ha (Op B)	Replaced with unimproved neutral grassland* and woodland.			
Poor Semi- improved Neutral Grassland	Local	25.64 ha	1.95 ha	9.94 ha	Replaced with unimproved neutral grassland* and woodland.			
Total Grassland (excluding amenity)		532.32 ha Of which 73.46 ha is not improved grassland	17.36 ha Of which 2.98 ha is not improved grassland	198.16 ha (Op A) 198.36 ha (Op B) Of which 32.5 ha is not improved grassland	<ul> <li>198.16 ha (Op A) reinstated</li> <li>198.36 ha (Op B) reinstated</li> <li>14.63 ha created</li> <li>Overall loss, in particular for improved grassland relates to infrastructure footprint.</li> </ul>			
Ruderals (including bracken)	Local	2.94 ha	0.054 ha (Op A) 0.055 ha (Op B)	1.41 ha (Op A) 1.45 ha (Op B)	Assumed natural regeneration where lost beneath pylons			

Table 9.26 Habitat Calculations as a Result of the Proposed Development – All Habitats Except Woodland and Hedgerow									
Habitat	Value	Habitat Present in Order Limits	Habitat Permanently Lost	Habitat Temporary Lost	Habitat Creation				
Acid Dry Dwarf Shrub Heath (Lowland)	County	1.38 ha	None	1.29 ha	1.29 ha reinstated				
Fen – Valley Mire	County	0.14 ha	None	0.07 ha	0.07 ha reinstated				
Standing Water (Lakes and Ponds)	County	3.81 ha	0.026 ha	0.062 ha	<ul> <li>0.127 ha (aquatic marginal planting) for SuDs, however size of SuDs will be larger</li> <li>0.026 ha relates to Pond A254 and is reinstated.</li> </ul>				
Running Water	Local	17.97 km	19 m	7.35 km	7.35 km reinstated				
(Rivers/Streams/ Ditches)					Permanent loss relates to ditches within the areas of mitigation planting.				
Dry Ditch	Local	3.40 km	1.25 km	1.03 km	1.03 km reinstated				
					1.06 km of permanent loss relates to ditches within the areas of mitigation planting, 0.19 km due to infrastructure				

Table 9.26 Habita Hedgerow	at Calcula	tions as a Res	ult of the Prop	osed Development	a – All Habitats Except Woodland and
Habitat	Value	Habitat Present in Order Limits	Habitat Permanently Lost	Habitat Temporary Lost	Habitat Creation
Arable	Local	22.70 ha	0.01 ha	9.65 ha	9.65 ha reinstated
Amenity Grassland	Local	8.63 ha	None	0.29 ha	0.29 ha reinstated
Ephemeral / Short Perennial	Local	0.06 ha	None	0.06 ha	0.06 ha reinstated
Earth Bank	Local	1.68 km	None	0.64 km	0.64 km reinstated

Notes/Caveats :

\* Habitat can be unimproved neutral grassland subject to management.

Include definitions for what is included in permanent and temporary loss calculations and the definitions for the woodland categories.

Environmental mitigation has been classed as permanent habitat loss; this covers habitats removed for landscaping works.

The landscape areas may involve loss of a certain habitat in order to enhance to a more diverse habitat e.g. improved grassland to woodland planting, therefore although improved grassland would be permanently lost there would be an overall benefit/habitat gain.

Table 9.26 Habita Hedgerow	nt Calculat	ions as a Resu	ult of the Prope	osed Development	– All Habitats Except Woodland and	
Habitat	Value	Habitat Present in Order Limits	Habitat Permanently Lost	Habitat Temporary Lost	Habitat Creation	
The drainage works are included in the NG temporary habitat lost calculations; they will involve either the installation of a pipe then restoring habitat above or creation of a drainage ditch which will have ecological benefit.						

#### 9.6 SPECIES

#### Badger

- 9.6.1 There are two locations where potential badger setts lie within the Order Limits of the Proposed Development, both of which are within Section F in Gwynedd, one of which has two single entrance outlier setts, the other location includes a subsidiary sett with multiple entrances. Until spring 2018 the setts were deemed to be inactive but continued monitoring work has shown intermittent activity at both sites, but heading towards being disused again. Monitoring will continue in 2018 and also during pre-construction to establish current use. Should activity levels return to those of disused setts then no direct loss or disturbance of a sett would occur. Due to the recent intermittent activity, this assessment is based on partially active setts of two nearby outliers in Coed Nant Y Garth, one of which lies outside of the Order Limits, and a subsidiary sett at Pentir, and therefore assesses the loss of one sett and potential disturbance to two others.
- 9.6.2 Records of badger presence within the study area were primarily in the Gwynedd area, though surveys conducted here found very limited evidence of badger activity in the vicinity of the Order Limits. It was therefore concluded that badger would be at a very low risk of being directly impacted during construction of the Proposed Development, though as a potential sett at Pentir may now be lost, and two others disturbed due to recent activity of badger, an NRW licence would now be required. Indirect effects could however occur through loss of foraging habitat, severance and fragmentation of habitat and noise or visual disturbance. Temporary disturbance/ displacement/ degradation of suitable foraging habitat could also occur during maintenance and decommissioning through loss and management of suitable foraging habitat and installation of temporary access tracks should they be required.
- 9.6.3 The potential impacts on badger are as follows:
  - Direct temporary loss of potential foraging habitat and commuting routes during construction, operation, maintenance and decommissioning, could occur, including from the Third Party Service works. These impacts would be limited to land used for access tracks, compounds and working areas for example around individual pylons.
  - Direct permanent loss of potential foraging and commuting habitat would be restricted to the THH/CSECs and the Pentir Substation extension areas which would be fenced using badger proof fencing.

- Temporary disturbance/ displacement/ degradation through noise, visual disturbance, vibration, obstructions and habitat alteration during construction, maintenance and decommissioning of the Proposed Development within Coed Nant Y Garth ravine and close to the substation at Pentir.
- Operational noise would occur at Pentir Substation due to the shunt rector, from ventilation fans at the THH (only stairwell at Braint), and the OHL.
- Severance and fragmentation through temporary and permanent habitat loss during construction and operation. Potential for habitat severance and fragmentation due to fencing and loss of habitat.
- Risk of direct impact during construction, maintenance and decommissioning, such as through collision with construction vehicles or falling into excavations or open trenches, or during the removal of the partially active sett.
- Loss or damage to shelter, protection and/or breeding habitat through permanent loss of a partially active subsidiary sett.
- 9.6.4 Mitigation measures required are set out below; full details are provided within the BMS (**Document 7.7**):
  - CEMP Measures in Table 9.24; all relevant General Principle measures, AE11, AE12, AE14, AE21, AE41, NV11, NV14, NV32, NV33, NV36, WE11, WE21 to WE23, WE31, WE41, BS402, BNC11 to BNC13, BNC21 to BNC24, BNC29 to BNC211, TH21, R1 to R6.

In addition to the measures set out in Chapter 15, Construction Noise and Vibration (**Document 5.15**) and Chapter 16, Operational Noise and Vibration (**Document 5.16**), the following additional measures would be implemented:

 Pre-construction surveys\* would be required throughout the Proposed Development to ensure that no new setts are created within 30 m of the working areas prior to both construction of the Proposed Development and Third Party Service works as each may differ in timings in some locations by a few years. The currently partially active badger setts are discussed within the mitigation strategy, however if the activity levels of the setts change, or new ones are discovered within or up to 30 m from the Order Limits, a revised mitigation strategy would be required, which could amend the permitted location/timing/method of construction activities and the requirement for a licence from NRW.

- Replacement of temporary loss of habitats, improved where appropriate, for example replacing with intact hedgerows where defunct hedgerows are temporarily lost, would be of benefit to badger.
- Trees within the Order Limits through the ravine at Coed Nant Y Garth would be managed to above ground level only and not fully removed where possible but in particular within 30 m of a badger sett.
- Where trees and woodland would be lost beneath the OHL, replacement planting would be located as close to that lost as possible, with alternative planting in these areas to include scrub in order to prevent fragmentation of habitats or loss of food sources potentially used by badger.
- Landscape planting around the THH/CSECs and Pentir Substation has been designed to improve on existing habitats where possible. Tŷ Fodol THH area is currently improved grassland and although a smaller area of replacement habitat would be provided due to presence of structures, the landscaping would provide more suitable foraging habitat for badger than the existing, for example hedgerows and scrub. This would be of benefit to badger.

\*Note that the term pre-construction surveys is defined as surveys to be conducted prior to the start on site for any given area, but could even start pre-consent.

- 9.6.5 Very low levels of badger activity were found throughout the Proposed Development and were restricted primarily to Gwynedd. Temporary habitat loss will be replaced on a like for like basis. Permanent foraging and commuting habitat loss would be replaced, improved or repositioned in as close proximity as possible and designed to prevent fragmentation, with only the THH/CSECs and the Pentir Substation extension areas fenced using badger proof fencing. The severity of the impact of habitat loss is considered **Low**.
- 9.6.6 In view of the low level of badger activity identified and the **Low** severity of these locally small scale works relative to the available foraging and commuting habitat, the sensitivity of badger to the small scale temporary and permanent loss of habitat through all stages is **Very Low** as they are an adaptable species able to utilise alternative habitats and as such would benefit from the proposed mitigation planting.
- 9.6.7 One subsidiary sett is currently partially active but has been disused for the majority of the surveys between 2015 and 2018. In its current status the sett would be lost as part of the substation extension works at Pentir, and would require an NRW licence to close. As it is not a main sett, no replacement sett would be required, however should this change, then space for this would be available within the Pentir area and close to the existing sett location. The

intermittent use of the sett and the limited levels of badger activity in the wider area suggest that the loss of this sett would be of **Low** severity to the population of badger in the area. The sensitivity of badger to the loss of this non main sett would be **Low** due to the alternative setts available in the area (hence absence of need to create a replacement) and as the surrounding and wider area would remain available for setts during and on completion of construction. Badger frequently move between setts, creating new ones where required.

- 9.6.8 Due to the need to avoid severance and fragmentation of badger habitat to occur during construction, maintenance and decommissioning, the stock proof fencing installed alongside working areas would be designed so as not to prevent badger passage on Gwynedd. Permanent and temporary fencing of the THH/CSECs and Pentir Substation would be in place during construction, operation, maintenance and decommissioning but the impenetrable high security fencing would not be around the landscape areas. In view of the Low severity of this impact, the sensitivity of badger to the potential for fragmentation and habitat alteration construction, operation, maintenance and decommissioning is likely to be Very Low as they would be free to move around the habitat with the exception of the THH areas. Mitigation planting would in some cases improve the habitat and connectivity of the habitat for badger.
- No disturbance to the sett closest to Pentir Substation would occur due to the 9.6.9 requirement of the closure of this sett prior to commencement of any works. Disturbance to the remaining outlier setts and badger using the habitat in the surrounding area would still be possible, including due to Third Party Service works. Potentially required vegetation management due to height restrictions beneath the OHL could disturb two partially active outlier setts if it falls within 30 m of them, as one lies just outside of the Order Limits and one within the Order Limits but not within an area of affected vegetation. However as both lie within the ravine, the depth of the ravine could limit this potential requirement for vegetation management. The construction access from the THH lies at least 100 m from the nearest sett and at a higher ground level, and the THH at Tŷ Fodol lies greater than 400 m. Chapter 15, Construction Noise and Vibration (**Document 5.15**) concludes that there are no significant effects during construction of the proposed tunnel following mitigation, for all tunnel construction options. This is on the basis that the noise and vibration effects are only likely to be perceptible/audible at receptors that are within close proximity, around 50 m from the tunnel for TBM and 100 m for drill and blast due to the more impulsive nature of the method, but the duration of perceptibility/audibility would depend upon machine progress/speed but is unlikely to extend beyond one to two days. Around the shaft locations, the

depth from surface to tunnel is greater, with the shallowest parts of the tunnel occurring under the Menai Strait. This means that there are unlikely to be effects of any significance or duration for terrestrial habitats and species.

- 9.6.10 The severity of residual impacts during construction, maintenance and decommissioning as a result of temporary disturbance/ displacement/ degradation through noise, visual disturbance, vibration, obstructions and habitat alteration, and also through direct impacts during construction, maintenance and decommissioning would all be Very Low to Low due to the non-permanent nature of the works, and the mitigation to prevent such effects. The sensitivity of badger to these effects generated during construction, maintenance and decommissioning would be Medium for those present around Pentir and Tŷ Fodol THH due to the duration of works and working overnight in places, and Very Low everywhere else, due to the limited evidence of activity in these areas, and that large sections of the habitat within temporarily affected areas is of low quality for badger and have shown little to no use by badger.
- 9.6.11 Chapter 16, Operational Noise and Vibration (**Document 5.16**) concludes that there would be no significant effect for the Proposed Development. The level of noise during operation of the substation at Pentir, where there is already a substation, would not significantly contribute to the representative baseline levels at the closest long-term measurement locations. Operation of the Proposed Development would also not generate significant levels of vibration, and the ventilation fans fitted with silencers at the Tŷ Fodol THH location, where there would be only one in operation at any one time, under normal operating conditions would not result in a significant adverse impact at identified receptors. Only stairwell fans would be in use at Braint and only when staff are on site. The severity of residual noise impacts during operation of the Tŷ Fodol THH/CSECs and Pentir Substation would therefore be Very Low. The non-percussive and localised nature of the impact, small change in noise levels and potential for badgers to quickly habituate to constant or regular noise sources means sensitivity of badger to noise impacts during operation of the THH/CSEC and substations would be Very Low.
- 9.6.12 The Local value of badger, Low and Very Low severity of residual impacts coupled with the Low/Very Low sensitivity, and Medium sensitivity for disturbance at Pentir and Tŷ Fodol THH of badger to potential activities and effects on habitats including sett losses, means that during construction, operation, maintenance and decommissioning there would be a Negligible effect (not significant) on the conservation status of this species.

- 9.6.13 The overall effect on badger as a result of the construction, maintenance, operation and decommissioning of the Proposed Development would be **Not Significant**.
- 9.6.14 Flexibility afforded by the LOD and Order Limits permits changes in the design within the LOD. The known partially active sett within the Order Limits in Coed Nant Y Garth could be disturbed during vegetation management. In addition, pre-construction surveys could identify new setts within the Order Limits. Where possible, works would be prevented in these locations in the first instance, or amendments to the mitigation would be instigated accordingly. There is space within the Order Limits within land owned by National Grid in the vicinity of Pentir Substation (which is close to the majority of activity of badger found during the surveys) to create a new sett should one be required, however none of the known partially active setts are main setts and therefore would not require a replacement sett, but a licence to close or disturb would be required. Use of the flexibility in the draft DCO (Document 2.1) is not considered to lead to effects of increased significance, as the mitigation proposed would be equally effective.
- 9.6.15 The above assessment is applicable to both Options A and B as although the area of works vary slightly, the difference is not sufficient to change the significance of the assessment for badger.

# Water Voles

9.6.16 Despite records of water vole within the study area, including at Wylfa Newydd Power Station and the Cors Erddreiniog SSSI and NNR (part of the Anglesey Fens SAC and Ramsar) which is recognised as a national key site for this species, only one watercourse surveyed within the survey area had evidence of water vole presence within the Order Limits. Refer to Appendix 9.8 Otter & Water Vole Report (Document 5.9.2.8) for further details. This watercourse was located within the Order Limits in Section B on a tributary of the Afon Goch, between pylons 4AP033 and 4AP034. Water vole latrines and burrows were recorded along the stretch of this stream that falls within the Order Limits but not currently within the working areas as shown on the Construction Plans (Figure 4.1 of Chapter 4, Construction, Operation, Maintenance and Decommissioning (i.e. **Document 5.4.1.1**)). This section of stream has been included within the Schedule of Environmental Commitments (Document 7.4.2.1) for avoidance of works within 10 m. A second location where potential water vole activity was identified comprised a ditch within the Afon Braint catchment area to the north of the A55 (Section E). The location of the field signs were outside the Order Limits approximately 400 m south of the proposed crossing location.

- 9.6.17 Watercourse crossings during construction could cause temporary habitat loss throughout the Order Limits due to the creation of working areas and access tracks/temporary culverts/bridges. Indirect effects could occur through loss of habitat, partial severance and fragmentation of habitat, pollution/siltation of watercourses and noise or visual disturbance. Temporary disturbance/ displacement/ degradation could occur during maintenance and decommissioning through reinstatement of the temporary access tracks should they be required.
- 9.6.18 Potential impacts on water voles are as follows:
  - Temporary direct loss of water vole habitat (non breeding) during removal of vegetation during construction, maintenance and decommissioning, including the Third Party Service works. Effects would be limited to the location of watercourse crossings.
  - Temporary disturbance/ displacement/ degradation of water vole breeding or feeding habitat during construction, maintenance and decommissioning (including the Third Party Service works) could occur as a result of noise, visual disturbance, vibration, obstructions, habitat alteration, and as a result of dust generation and deposition.
  - Partial severance and fragmentation of water vole habitat could occur only temporarily during construction, maintenance and decommissioning at proposed watercourse crossings due to potential for water voles in the wider area to move into or across the Order Limits; however small sections of culverts are not usually a restriction for water voles in terms of fragmentation.
  - Direct impact could occur during construction, maintenance and decommissioning such as through construction vehicles, installation of culverts/bridges or entrapment in open trenches/excavations particularly during initial stages of vegetation clearance and ground works.
  - Loss or damage to shelter, protection and/or breeding water vole habitat during construction, maintenance and decommissioning such as features used by water vole within a watercourse should they move into the working areas as there is a current absence of burrows within the working area.
- 9.6.19 Mitigation measures required are set out below; full details are provided within the BMS (**Document 7.7**):

 CEMP Measures in Table 9.24; all relevant General Principle measures, AE11, AE12, AE14, AE21, AE41, NV11, NV14, WE11, WE21 to WE23, WE31, WE41, WE51, WE52, WE54 to WE56, FM14, BS11, relevant BS measures between BS21 to BS202, BS401, BS403, BNC11 to BNC13, BNC21 to BNC24, BNC27, BNC29 to BNC211, R1 to R3, R5, R6.

In addition to the measures set out in Chapter 11, Geology, Hydrogeology and Ground Conditions (**Document 5.11**) and Chapter 12, Water Quality, Resources and Flood Risk (**Document 5.12**), the following additional measures would be implemented:

- Pre-construction surveys would be required on watercourses throughout the Proposed Development to check the working areas prior to construction. If further burrows were discovered at this time, a revised mitigation strategy would be required, which could amend the permitted location/timing/method of construction activities and require a licence from NRW.
- Vegetation removal/degradation would include staged habitat degradation to encourage water voles to remain outside the working area and stay within suitable remaining habitat. This could also apply should they have been found to be active within working areas following pre-construction surveys. Maintenance of the habitat would be undertaken throughout construction to ensure that it remained unsuitable for water voles under the supervision of the ECoW.
- Watching brief by an ECoW would be undertaken during vegetation removal/degradation, reinstating habitats and during maintenance and decommissioning works where required.
- No works would be conducted within 3 m of a watercourse unless a crossing is being installed, with a buffer of 5 m required for sections of watercourse found to have presence of water voles prior to construction in addition to that already known.
- As stated in Chapter 4, Construction, Operation, Maintenance and Decommissioning (Document 5.4), consent for the detailed culvert design would be sought from NRW post grant of the DCO (Document 2.1); therefore culverts would be designed to allow the safe passage of water voles where the Proposed Development crosses watercourses in accordance with CIRIA (2010) (Ref 9.57).
- Replacement of temporary loss of habitat through planting or natural regeneration. This includes that the bed, morphology and in channel functioning of the watercourse should be reinstated to at least the existing.
- 9.6.20 Works within watercourses would be limited to enabling passage of access tracks with associated culverts and bridges. The area of potential water vole habitat lost/affected would vary per crossing depending on the dimensions of

the crossing and character of the watercourse. Once crossings requiring culverts have been installed, the continuity of flow would be maintained through the culvert, resulting in only a short section of habitat loss whilst the culvert is in place. Watercourse crossings comprising bridges would be of a clear span design and therefore have no in channel effect, and only small amounts of bank habitat lost during construction. The small scale of potential habitat affected by the watercourse crossings, and the temporary nature of the crossings would indicate a **Low** severity of impact for loss of non-breeding habitat during construction, maintenance and decommissioning. The sensitivity of water vole to the severity of habitat loss associated with the Proposed Development would be **Very Low** due to the minimal working areas within range of known areas of water vole activity, the variable territory size of this species and their adaptability to utilise different areas at different times of year and in different years.

- 9.6.21 Although direct effects on water vole and their breeding habitat would generally be considered of high severity and sensitivity, due to the low presence of this species, the lack of burrows in the working area, and the prescribed mitigation, including within the CEMP (**Document 7.4**), the severity of impact and sensitivity of water vole to direct harm and loss or damage to a breeding place during construction, maintenance and decommissioning are both considered to be **Very Low**.
- 9.6.22 Changes to water quality, siltation, noise and light disturbance during construction, maintenance and decommissioning could also occur where close to watercourses. These residual effects could also occur through reinstatement/repair/removal of watercourse crossings during maintenance and decommissioning. The small scale of works close to watercourses, in the main comprising crossings, the temporary nature of the crossings for the duration of the works, and the mitigation including provided as part of the CEMP (**Document 7.4**) would indicate a **Low** severity of impact. Due to the very low presence of this species within the survey area and small scale and temporary nature of potential impacts, the sensitivity of water vole to this level of temporary disturbance/ displacement/ degradation is **Low** as the mitigation would reduce the effects and noise and visual disturbance are in most cases unlikely to have a significant effect on water voles (Ref 9.58).
- 9.6.23 To avoid severance and fragmentation of potential water vole habitat throughout the Proposed Development, all access track culverts/bridges installed during construction or reinstated during maintenance and decommissioning would be designed so as not to prevent water vole passage, and consent for the detailed culvert design would be sought from NRW post grant of the DCO (**Document 2.1**). The severity of residual impacts during

construction would be **Very Low** due to the temporary nature of the works and the mitigation to prevent effects including suitable design of culverts and bridges to prevent fragmentation of habitat. The sensitivity of water vole to severity of severance and fragmentation is **Low**, due to the limited presence of water voles within the Proposed Development, the use of clear span bridges where possible, and that small sections of culverts are not usually a restriction for water voles in terms of fragmentation when appropriate design is used.

- 9.6.24 The **County** value of water vole, the **Very Low** to **Low** residual severity, and the **Very Low** to **Low** sensitivity of this species to potential direct and indirect impacts during construction, maintenance and decommissioning in part due to there being only one area of burrows within the Order Limits, which would be not directly affected, means the Proposed Development would have a **Negligible** effect (**not significant**) on the conservation status of this species.
- 9.6.25 The overall effect on water voles as a result of the construction, maintenance and decommissioning of the Proposed Development would be **Not Significant**.
- 9.6.26 It is not anticipated that there would be any effects as a result of the operation of the Proposed Development.
- 9.6.27 Flexibility afforded by the LOD and Order Limits permits changes in the locations of the crossing points. The known location of water vole burrows within the Order Limits have been included in the Schedule of Environmental Commitments (**Document 7.4.2.1**) in order to prevent a crossing moving to this point. In addition, pre-construction surveys would identify any new areas of burrows within the Order Limits and would prevent crossings being relocated to these points in the first instance, or amend the mitigation accordingly. Use of the flexibility in the draft DCO (**Document 2.1**) is not considered to lead to effects of increased significance, as avoidance where possible and the mitigation proposed up to and including a licence requirement from NRW if needed, would be equally effective.
- 9.6.28 The above assessment is applicable to both Options A and B as although the area of works vary slightly, the difference is not sufficient to change the significance of the assessment for watercourse habitat for water vole.

Otter

9.6.29 Despite records of otter within the study area, notably in the vicinity of the Wylfa Newydd Power Station, Cors Erddreiniog SSSI and the Vaynol Estate in Gwynedd, as well as further afield, notably the banks of the Menai Strait and at Cemaes Bay along the north coast, only two watercourses surveyed

within the survey area had evidence of otter presence (spraint and run). One was in Section A on the Meddanen tributary of the Afon Wygyr to the north of Llanfechell. Whilst the location of this evidence was outside of the Order Limits and beyond the 50 m buffer, this watercourse flows through the Order Limits where it would be crossed by a bridge and not by a culvert. The second watercourse was the Braint Bifurcation tributary of the River Braint to the west of the Menai Strait (Section F). The closest watercourse crossing to the location of this evidence would also be via a bridge; however drainage mitigation could affect this habitat. The location of the field signs, comprising two spraints and otter footprints, was on the edge of the Order Limits approximately 140 m east of the proposed crossing location on this watercourse but adjacent to the drainage mitigation area. Refer to Appendix 9.8 Otter & Water Vole Report (Document 5.9.2.8). Whilst there was no evidence that otter breeding sites would be affected, there was evidence that this species could be commuting and foraging along watercourses within the Order Limits.

- 9.6.30 Watercourse crossings during construction could therefore cause temporary loss of foraging habitat throughout the Order Limits due to the creation of culverts and bridges. Indirect effects could occur through partial severance and fragmentation of habitat, changes in water quality through discharges or siltation of the watercourse and noise or visual disturbance. Temporary disturbance/ displacement/ degradation could also occur during maintenance and decommissioning through reinstatement of the temporary access tracks should they be required. Any effects on otter as a result of the marine environment are discussed in sections 9.3 and 9.8.
- 9.6.31 Potential impacts on otter, where not a feature of a qualifying site, are as follows:
  - Temporary direct loss of habitat during removal of habitat used by otter during construction, maintenance and decommissioning including the Third Party Service works, would be limited to the location of watercourse crossings.
  - Temporary disturbance/ displacement/ degradation of foraging and commuting otter habitat during construction, maintenance and decommissioning (including the Third Party Service works) would potentially occur as a result of noise, visual disturbance, vibration, obstructions, habitat alteration, and as a result of dust.
  - Whilst partial severance and fragmentation of potential otter habitat could occur throughout the Proposed Development; all access

culverts/bridges installed during construction, or reinstated during maintenance and decommissioning would not prevent otter passage.

- Direct impact during construction, maintenance and decommissioning such as through collision with construction vehicles installation of culverts/bridge or entrapment in open trenches/excavations could occur.
- 9.6.32 Mitigation measures required are set out below; full details are provided within the BMS (**Document 7.7**):
  - CEMP Measures in Table 9.24; all relevant General Principle measures, AE11, AE12, AE14, AE21, AE41, NV11, NV14, NV32, NV33, NV36, WE11, WE21 to WE23, WE31, WE41, WE51, WE52, WE54 to WE56, FM14, BS11, relevant BS measures between BS21 to BS202, BS401, BS403, BNC11 to BNC13, BNC21 to BNC24, BNC27, BNC29 to BNC211, R1 to R3, R5, R6.

In addition to the measures set out in Chapter 11, Geology, Hydrogeology and Ground Conditions (**Document 5.11**) and Chapter 12, Water Quality, Resources and Flood Risk (**Document 5.12**), Chapter 15, Construction Noise and Vibration (**Document 5.15**) and Chapter 16, Operational Noise and Vibration (**Document 5.16**), the following additional measures would be implemented:

- Pre-construction surveys would be required on watercourses throughout the Proposed Development to check the working areas prior to construction. If holts/resting places were discovered at this time, a revised mitigation strategy would be required, which could amend the permitted location/timing/method of construction activities and require a licence from NRW.
- Vegetation removal/degradation would encourage otter to remain outside the area and stay within suitable remaining habitat. Maintenance of the habitat would be undertaken throughout construction to ensure that it remained unsuited to otter under the supervision of an ECoW.
- A watching brief by an ECoW would be undertaken during vegetation removal/degradation and when reinstating any during maintenance and decommissioning works where required.
- No works would be conducted within 3 m of a watercourse unless a crossing is being installed, with a buffer of 5 m required for sections of watercourse found to have presence of otter prior to construction in addition to that already known. Larger buffers would apply should any otter resting place or holt be found.
- Replacement of temporary loss of habitat through planting or natural regeneration. This includes that the bed, morphology and in channel functioning of the watercourse should be reinstated to at least the existing.
- 9.6.33 Works within watercourses would be limited to access tracks and associated culverts and bridges. The area of potential otter habitat affected would vary per crossing depending on the dimensions of the crossing and character of the watercourse. Once crossings requiring culverts have been installed, continuity of flow would be maintained through the culvert, resulting in only a short section of habitat loss whilst the culvert is in place. Watercourse crossings comprising bridges would be of a clear span design and therefore have no in channel effect, with only small amounts of bank habitat lost during construction. The small scale of potential habitat affected by the watercourse crossings, the temporary nature of the crossings and the fact that the main watercourse crossings in closest proximity to the otter signs are clear span bridges which would minimise effects on the watercourse and banks, would indicate a **Low** severity of impact. The sensitivity of otter to this low severity of habitat loss associated with the Proposed Development would be Very Low due to the adaptability of this species to the small lengths of habitat change involved, and all but two areas affected are not within known areas of otter presence, thereby retaining all other areas of suitable habitat for their use.
- 9.6.34 Noise/vibration, light disturbance and changes to water quality, including siltation, during construction could also occur where close to watercourses. These could also occur through reinstatement/repair/removal of watercourse crossings during maintenance and decommissioning. Chapter 15, Construction Noise and Vibration (**Document 5.15**) concludes that there are no significant effects during construction for the tunnel following mitigation, for all tunnel construction options. They state that the effects are also only likely to be perceptible/audible at receptors that are within close proximity, around 50 m from the tunnel for TBM and 100 m for drill and blast due to the more impulsive nature of the method, but the duration of perceptibility/audibility would depend upon machine progress/speed but is unlikely to extend beyond one to two days. No watercourses lie within these distances. The nearest evidence of otter activity is greater than 400 m from both the THHs. Around the shaft locations, the depth from surface to tunnel is greater, with the shallowest parts of the tunnel occurring under the Menai Strait and therefore effects of any significance or duration are most unlikely for terrestrial habitats and species.
- 9.6.35 The small scale of works close to watercourses, in the main comprising crossings, the temporary nature of the crossings, and the mitigation provided including as part of the CEMP (**Document 7.4**), would indicate a **Low** severity of impact form noise/vibration, light disturbance and changes to water quality, including siltation. Due to the limited evidence for the presence of this species, small scale nature of potential impacts and the evidence of habituation of this species to human activity during the day when they generally are lying up, the

sensitivity of otter to temporary disturbance/ displacement/ degradation is **Low** (for the two watercourses where evidence was found) to **Very Low** (watercourses where no evidence was found).

- 9.6.36 The severity of residual impacts of severance and fragmentation, and direct impact during construction would be **Very Low** due to the temporary nature of the works and the mitigation in place, plus the fact that the watercourse crossings close to the signs of presence of otter will be of clear span bridge design and therefore would not prevent movement along the watercourse when in place.
- 9.6.37 As otter would not be prevented from moving along the watercourse by the proposed watercourse crossings, the sensitivity of otter to partial severance and fragmentation is **Very Low** as they will continue to be able to navigate past the watercourse crossings. The risk of direct impact is considered very low based on the limited presence and limited works on the watercourses, and therefore the sensitivity of otter to these impacts is **Very Low**.
- 9.6.38 The Local value of otter, the Low to Very Low severity of residual impacts coupled with the Low to Very Low sensitivity of otter to potential indirect impacts means that construction, maintenance and decommissioning would have a **Negligible** effect (not significant) on the conservation status of this species.
- 9.6.39 The overall effect on otter as a result of the construction, maintenance and decommissioning of the Proposed Development would be **Not Significant**.
- 9.6.40 It is not anticipated that there would be any effects as a result of the operation of the Proposed Development, including noise as only stairwell fans will be in use in Braint THH and no otter evidence was found close to Tŷ Fodol THH and Pentir Substation.
- 9.6.41 No otter holts or laying up sites (couches) would be affected by the Proposed Development and as no significant effects would occur it is considered that the Proposed Development would not be detrimental to the maintenance of the favourable conservation status of otter.
- 9.6.42 Flexibility afforded by the LOD and Order Limits permits changes in the locations of the crossing points within the Order Limits. The known locations of otter activity are outside or on the edge of the Order Limits and therefore crossing points cannot be moved to these points, however these watercourses do flow through the Order Limits. Should pre-construction surveys identify any holts/resting places within the Order Limits that could be affected, crossings would either be relocated from the area of activity, or else the proposed

mitigation would be amended accordingly. Use of the flexibility in the draft DCO (**Document 2.1**) is not considered to lead to effects of increased significance, as avoidance where possible and the mitigation proposed up to and including a licence requirement from NRW if needed, would be equally effective.

9.6.43 The above assessment is applicable to both Options A and B as although the area of works vary slightly, the difference is not sufficient to change the significance of the assessment for watercourse habitat for otter.

### Bats

- 9.6.44 There are four confirmed bat roost trees within the Order Limits and a 50 m buffer (W-5032-1-B, W-2039-12-B, W-1991-7-C and W-1991-7-E). Three of these tree roosts support either a single bat or low numbers of bats and are transitory roosts of common species, and one is a maternity roost of a common species.
- 9.6.45 There are four buildings which would be affected by the Proposed Development, two of which support roosting bats. One building is not presently used as a residence, and of the other three buildings, two would no longer be used as a residence, and one could no longer be used as residence for Option A, but would remain a residence for Option B. The two buildings that are known bat roosts have been assessed as supporting low numbers of soprano pipistrelle bats, though as surveys are still ongoing this is a preliminary assessment based on results to date. The bat barn constructed as mitigation for Wylfa Newydd Power Station is not yet known to be used as a roost.
- 9.6.46 The majority of the habitats within the Order Limits are of **Negligible** or **Low** value to foraging and commuting bats, however there are occasional woodland blocks, hedgerows and other linear features within the Order Limits which are of **Medium** value to foraging and commuting bats.
- 9.6.47 Potential impacts on roosting, foraging and commuting bats are as follows:
  - Direct loss of roosting habitat as a result of construction. Two roosts within trees are located within the Order Limits.
  - Temporary disturbance of roosting habitat during construction. Three further roosts within trees surrounded by woodland would not be lost but could be subject to disturbance
  - Direct loss of foraging and commuting bat habitat through temporary loss during construction, maintenance and decommissioning.

- Direct loss of foraging and commuting bat habitat through permanent loss.
- Severance and fragmentation of habitat used by bats within the Order Limits during construction, maintenance and decommissioning.
- Temporary disturbance/ displacement/ degradation through noise, light disturbance during construction, maintenance and decommissioning.
- Permanent disturbance/ displacement/ degradation through noise and light disturbance during operation within the Order Limits to roosting, foraging and commuting bats.
- 9.6.48 Mitigation measures required are set out below; full details are provided within the BMS (**Document 7.7**):
  - CEMP Measures in Table 9.24; all relevant General Principle measures including GP85 to GP87, AE11 to AE14, AE21, AE41, NV11, NV12, NV14, NV32, NV33, NV36, SM11, SM12, FM14, BS11, BS403, BNC11 to BNC13, BNC21 to BNC24, BNC26, BNC211, TH11 to TH14, TH21, R1 to R6.

In addition to the measures committed to in Chapter 7, Landscape Assessment (**Document 5.7**), Chapter 14, Air Quality (**Document 5.14**), Chapter 15, Construction Noise and Vibration (**Document 5.15**) and Chapter 16, Operational Noise and Vibration (**Document 5.16**), the following additional measures would be implemented:

- A European Protection Species Mitigation Licence from NRW would be required prior to the potential loss of one bat roost (W-5032-1-B) and potential disturbance of W-1991-7-C and W-1991-7-E and W-2039-12-B. Mitigation required would be replacement of this roost by means of installation of bat boxes on trees within the Order Limits, located as close as possible to the existing roost site.
- A European Protected Species Mitigation Licence from NRW would be required should buildings B2 and B4 be affected. Mitigation required would be replacement of these roosts by means of installation of bat boxes within the Order Limits, located as close as possible to the existing roost sites.
- Habitat replacement and improvement where appropriate, for example with intact hedgerows where defunct hedgerows are temporarily lost. Replanting of woodland as near as possible to that lost and creating links between areas of woodland to maintain or improve foraging and commuting corridors/linear features for bats.
- Where trees and woodland would be lost within the Order Limits, replacement planting would be located as close to that loss as possible, with alternative

planting in these areas to include scrub in order to prevent fragmentation of habitats and maintain foraging and commuting corridor features for bats.

- Any bat boxes provided as compensation for either confirmed roost or potential roosting feature loss/disturbance, primarily affecting the lost woodland habitat such as Gylched Covert and Pentir Substation cCWS woodland, would be installed prior to the loss of the roosts (tree removal) and maintained in accordance with the BMS and woodland management plans in order to ensure that they remain in post development.
- Replacement of lost woodland within Gylched Covert and the habitat management within the woodland would result in a short term change of foraging habitat for bats which would create edge and glade habitats and would result in an improvement for foraging and commuting bats.
- Hedgerows and linear stretches of vegetation would be maintained as lines of scrub where such features are crossed by the OHL to maintain or improve foraging and commuting corridors/linear features for bats.
- Landscape planting around the THH/CSEC and Pentir Substation would be designed to improve on existing quality of habitats for bats where possible. Both Braint and Tŷ Fodol THH/CSEC sites are currently improved grassland and although a smaller area of replacement habitat would be provided due to presence of structures, the landscaping would provide suitable habitat for bats such as woodland, hedgerows and scrub.
- All hedgerow, woodland and trees planted and all woodland areas coppiced would be maintained for 5 years after planting to ensure successful establishment, including replanting where required.
- The bat boxes would be monitored by checking once annually as part of the bat licence and management plans for five years following their erection, between May and September each year.
- 9.6.49 Two roosts within trees are located within the Order Limits, however only one of these would be potentially lost as a result of the Proposed Development. This roost supports up to two soprano pipistrelle bats and is considered to be a transitory roost site. Three roosts identified within trees surrounded by woodland would not be lost as a result of the Proposed Development but would be subject to disturbance. Two of these roosts support low numbers of common species of bats and are considered transitory roosts (trees W-1991-7-C and W-2039-12-B). Tree W-1991-7-E supports a soprano pipistrelle maternity colony. Buildings B2 and B4 support low numbers of soprano pipistrelle bats and both buildings may no longer be used as a residence as a result of the Proposed Development, but B4 would remain in use but subject to disturbance under Option B.

- 9.6.50 The severity of residual impacts during construction, maintenance and decommissioning would be **Low** to **Very Low** to roosting bats. This is due to the low numbers of roosting bats, temporary nature of the works and the mitigation in place to prevent direct effects or loss or damage to roosting, foraging and commuting bat habitat where possible. All bat roosts are present within sections A to D of the Proposed Development, comprising the OHL areas of works, and none were found within the vicinity of the THHs. The loss of the bat roost would be mitigated for by removing the existing roost site under a European protected species Mitigation Licence and providing a bat box within close proximity. Three bats roosts in trees would be temporarily disturbed and mitigation would be put in place as detailed within the BMS (**Document 7.7**).
- 9.6.51 The sensitivity of bats to the loss of the bat roost in tree W-5032-1-B and the disturbance of the two bat roosts in trees W-1991-7-C and W-2039-12-B is Low as they are transitory roosting habitat supporting low numbers of a common species of bats.
- 9.6.52 The sensitivity of bats to the disturbance of the roost in tree W-1991-7-E is **Medium** as although a common species is present, it is a maternity roost of a small number of bats.
- 9.6.53 The sensitivity of bats to potential for change in use of the buildings B2 and B4 is **Low** due to being of low numbers of a common species. No other roosts have been confirmed to date in the buildings or bridge that may be impacted by the Proposed Development. Should any be subsequently confirmed as a roost, the sensitivity to disturbance or to be no longer used as a residence would depend on the type of roost present, but is likely to be **Low** given that no roosts have been identified to date.
- 9.6.54 The value assigned to roosting bats is **Local**. The **Low** to **Very Low** severity of the impact on bat roosts, and the **Low** to **Medium** sensitivity of the roosts due to the low numbers of common species of bats supported means their loss/disturbance would not affect the favourable conservation status of the bat population within the local area. With the proposed mitigation in place there would be a **Negligible** (**not significant**) effect on the favourable conservation status of bats.
- 9.6.55 Direct temporary and permanent loss of habitat used by bats for foraging and commuting or the severance and fragmentation of habitat used by bats could potentially occur during construction, operation, maintenance and decommissioning. This would be limited to access tracks, construction compounds and working areas. The overall value of the habitats within the Order Limits for bats vary, however the majority are of Negligible or Low value,

such as pasture and improved grassland fields, of which there would be a temporary effect on approximately 165 ha across the whole of the Proposed Development, and although there would be an overall permanent loss of 14 ha, this would be replaced by unimproved grassland where within mitigation planting areas. Habitat loss of woodland, hedgerows and linear features, which is of higher value to bats, would result in a greater impact despite the much smaller areas of habitat affected. This includes approximately 6 km of hedgerow removed, mostly due to small sections for access tracks, but these would all be replaced on completion of construction. Where a permanent loss occurs, there would be an overall gain in the length of hedgerow lost within the replacement mitigation planting. There would also be an overall gain in the area of woodland and number of trees. Refer to Table 9.25 and Table 9.26 in section 9.5 for overall losses of each habitat type. All hedgerows temporarily lost due to construction would be replaced, and there would be no overall net loss of trees/woodland, although these would not necessarily be within the same area. The width of the access tracks would be limited to 5 m where possible where passing through hedgerows, from the 12 m access track width, which would reduce the effect on commuting bats. This, together with small overall loss of suitable habitat and creation of habitat of greater value as a result of the Proposed Development, means the severity of residual impacts on foraging and commuting bats during construction, operation, maintenance

9.6.56 The sensitivity of bats to the temporary and permanent loss of habitat used by bats for foraging and commuting or the severance and fragmentation of bat habitat is also considered **Low** to **Medium** for low quality to high quality habitat respectively. This is based on the proposed mitigation (taking into account the duration it can take for replacement high quality habitat to mature), small scale of the impacts on such features, ability of bats to adapt to a changing landscape and the availability of alternative suitable habitat in the area.

and decommissioning would therefore be Low.

- 9.6.57 The value assigned to foraging and commuting bats is Local. The Low severity of the impact and the Low to Medium sensitivity to direct temporary and permanent loss of habitat used by bats for foraging and commuting or the severance and fragmentation of bat habitat indicates there would be Negligible (not significant) effect on the favourable conservation status of bats for all stages.
- 9.6.58 Temporary disturbance/ displacement/ degradation of further roosting, foraging and commuting of bats could occur within the Order Limits during construction, maintenance and decommissioning. The severity of the small scale, localised and temporary nature of the effects is considered **Low** as the majority of the Proposed Development comprises intermittent and temporary

works where no overnight working would occur, and only lighting would be used at the start and end of daytime working hours in the winter, which would have little effect on bats.

- 9.6.59 The sensitivity of bats to the temporary disturbance/ displacement/ degradation of further roosting, foraging and commuting of bats is considered **Low** to **Medium** for low quality to high quality habitat respectively. This is based on the proposed mitigation (taking into account the duration it can take for replacement high quality habitat to mature), small scale of the impacts on such features, ability of bats to adapt to a changing landscape and the availability of alternative suitable habitat in the area.
- 9.6.60 The value assigned to foraging and commuting bats is Local. The Low severity of the impacts during construction, maintenance and decommissioning and the Low to Medium sensitivity to temporary disturbance/ displacement/ degradation of features used for foraging and commuting by bats indicates there would be Negligible (not significant) effect on the favourable conservation status of bats.
- 9.6.61 The severity of the permanent disturbance/ displacement/ degradation during operation would be **Low**. The level of noise during operation of the substation at Pentir, where there is already a substation, would not contribute to the representative baseline levels at the closest long-term measurement locations, nor would operation generate significant levels of vibration, and the ventilation fans fitted with silencers at the Tŷ Fodol THH location, where there would be only one in operation at any one time under normal operating conditions, would not result in a significant adverse impact at identified receptors. Only stairwell fans would be in use at Braint and only when staff are on site.
- 9.6.62 Lighting of the THH at night would be limited to security lights only under normal operation conditions, with additional lighting used under maintenance activities. The sensitivity to bats to this level of disturbance/ displacement/ degradation due to low level of noise and limited lighting is **Low**.
- 9.6.63 The **Low** severity and **Low** sensitivity of the potential impact of the residual permanent disturbance/ displacement/ degradation during operation would have a **Negligible** effect (**not significant**) on the conservation status of bats.
- 9.6.64 The overall effect on the conservation status of bats as a result of the construction, operation, maintenance and decommissioning of the Proposed Development would be **Not significant**.

- 9.6.65 As a result of the mitigation measures and monitoring measures proposed, it is assessed that the favourable conservation status of the local site level bat populations and the wider county level bat population would be maintained for both roosting and foraging/commuting bats.
- 9.6.66 Flexibility in the draft DCO (**Document 2.1**) permits changes in the locations of the pylons and access tracks within the LOD. A change at Gylched Covert within the LOD could cause the loss of the roost as stated above. Changes within areas of low quality habitats would not affect the assessment significantly. The areas of suitable habitat affected could increase, however in most instances it would change in location within the habitat, and not increase in area affected significantly and therefore would not change the assessment significantly.
- 9.6.67 The above assessment is applicable to both Options A and B as although the area of works vary slightly, the difference is not sufficient to change the significance of the assessment for the non-building habitats for bats.
- 9.6.68 Within the flexibility afforded by the LOD and Order Limits, the potential difference between Option A and Option B is the possible effect on one of the four buildings (B1 to B4). Two of these buildings support roosting bats (B2 and B4), however surveys are currently ongoing. Three of these buildings would remain or no longer be used as a residence, one (a known roost) may remain a residence/no longer be used as residence. For Option B the potential effect would be disturbance of the roost at building B4, but there remains the potential for it to no longer be used as a residence under Option A, as per the second building (B2) with a roost. Buildings B1, B3 and the bridge are not known to be roosts at this time.
- 9.6.69 Use of the flexibility in the draft DCO (**Document 2.1**) is not considered to lead to effects of increased significance, as avoidance where possible and the mitigation proposed up to and including a licence requirement from NRW if needed, would be equally effective for the common and widespread species present.

## Red Squirrel

9.6.70 Only low levels of red squirrel activity were found during the surveys conducted, even though records gathered during the desk study show there is an abundant red squirrel population in the wider study area and throughout Anglesey. There were however only a few records on Gwynedd in the wider area of the Proposed Development.

- 9.6.71 Vegetation clearance during construction could therefore potentially cause temporary loss of red squirrel habitat through sections of the Proposed Development comprising the OHL, in particular where working areas and/or access tracks pass through woodlands in Sections A, B, D and F.
- 9.6.72 Permanent habitat loss would occur where the OHL passes through or adjacent to areas of woodland which provides suitable habitat for red squirrel. There are areas of this in Section A at Wylfa Substation (1.35 ha of woodland removed, with 0.2 ha affected/managed, and 0.67 ha potentially affected only a proportion of this could become affected), 0.09 ha removed at Carrog Isa (0.04 ha potentially affected only a proportion of this could become affected), Gylched Covert with 0.45 ha of woodland removed (0.28 ha affected/managed and 0.33 ha potentially affected only a proportion of this could become affected) in Section D, just north of Section E near Llangefni 0.1 ha removed and 0.31 ha potentially affected at 4AP072 and 0.46 ha potentially affected at 4AP073, and Section F where, with the exception of 43.5 m<sup>2</sup> removed and 0.32 ha potentially affected (only a proportion of this could become affected) along the access track into Braint THH, although there would be areas of woodland affected in Gwynedd, it is considered unlikely that this would affect red squirrel.
- 9.6.73 Temporary disturbance/ displacement/ degradation and direct impact could occur during operation, maintenance and/or decommissioning of the Proposed Development though activities which generate noise and vibration.
- 9.6.74 Potential impacts on red squirrel are as follows:
  - Direct temporary loss of habitat with the potential to support red squirrel could occur, though as a result of the design evolution the majority of tree and woodland management required would be in habitats of low quality for red squirrel.
  - Direct permanent loss of habitat with the potential to support red squirrel would be restricted to the substation areas where woodland would require removal, and where the OHL would pass through or near to areas of woodland.
  - Temporary disturbance/ displacement/ degradation of habitat with the potential to support red squirrel through noise generation and light disturbance during construction along the route of the OHL and close to Wylfa Nuclear Power Station.
  - There is the potential for severance and fragmentation of red squirrel habitat to occur throughout the Proposed Development during

construction, operation maintenance and decommissioning, in particular during tree removal beneath the OHL, within Gylched Covert and adjacent to Wylfa Nuclear Power Station.

- Operational noise would be emitted during operation of the substations at Wylfa and THH at Braint.
- Risk of direct impact during construction maintenance and decommissioning through collision with vehicles and during removal of trees.
- 9.6.75 Mitigation measures required are set out below; full details are provided within the BMS (**Document 7.7**):
  - CEMP Measures in Table 9.24; all relevant General Principle measures, AE11 to AE14, AE21, AE41, NV11, NV12, NV14, NV32, NV33, NV36, BS11, BS71, BS72, BS403, BNC11 to BNC13, BNC21 to BNC24, BNC26, BNC210, BNC211, TH11 to TH14, TH21, R4.

In addition to the measures committed to in Chapter 7, Landscape Assessment (**Document 5.7**), Chapter 14, Air Quality (**Document 5.14**), Chapter 15, Construction Noise and Vibration (**Document 5.15**) and Chapter 16, Operational Noise and Vibration (**Document 5.16**), the following additional measures would be implemented:

- Pre-construction surveys would be required throughout the Proposed Development to check the working areas for active dreys prior to vegetation removal. No active dreys are known within the Order Limits to date.
  Discussions would be held with NRW and RSTW should this change prior to any works that could affect an active drey, including if necessary discussion with NRW in order to obtain a licence.
- Programme of works include appropriate timing of clearance of trees, where possible.
- Replacement of temporary loss of habitats, improved where appropriate, for example replacing with intact hedgerows where defunct hedgerows are temporarily lost. Replanting of woodland as near as possible to that lost (e.g. Gylched Covert) and creating stepping stones between areas of woodland where possible.
- Where trees and woodland would be lost beneath the OHL, replacement planting would be located as close to that lost as possible, with alternative planting in these areas to include scrub in order to prevent fragmentation of red squirrel habitat.
- Landscape planting around the THH/CSEC and substation has been designed to improve on existing quality of these habitats for red squirrel where possible.

Both Braint and T $\hat{y}$  Fodol THH areas are currently improved grassland and hedgerows, and although a smaller area of replacement habitat would be provided due to presence of structures, the landscaping would include suitable habitat for red squirrel such as woodland, hedgerows, scrub and species-rich grassland.

- 9.6.76 Large areas of habitat with a high potential to support red squirrel, such as woodland at Plas Newydd and woodland in the wider areas of Anglesey, were avoided through the design of the Proposed Development. Of the remaining habitat affected, no active dreys were found within the Order Limits. Records obtained show the largest distributions of red squirrel in Llangefni, Talwrn, Plas Newydd and further east on Anglesey, beyond 2 km of the Order Limits. Plas Newydd lies above the tunnel Order Limits and therefore is not affected by the Proposed Development, but populations could benefit from the landscape mitigation planting at Braint THH. Although Gylched Covert lies between the areas of Llangefni and Talwrn, the overall impact on this woodland would not prevent movement between these areas by red squirrel. There are currently very few records of this species in this central area between these two towns. The areas of higher guality habitat outside of the Order Limits and the clusters of records associated with them are illustrated in Figures 2 and 3 of Appendix 9.12 Terrestrial Mammal Report (Document **5.9.2.12**).
- 9.6.77 Direct temporary loss and severance and fragmentation of habitat would occur primarily in areas of low suitability for red squirrel. Those habitats of higher potential include woodland, in particular coniferous woodland, and scattered or lines of trees. Temporary direct loss of these areas during construction, including the Third Party Service works, would be limited to access tracks. construction compounds and working areas where these pass through or would be adjacent to woodlands and hedgerows that could connect these woodlands. The Proposed Development has been designed to avoid habitat for red squirrel as much as possible, and ensure habitat loss is replaced, improved or repositioned in as close proximity as possible, limiting removal such as by reducing the width of the working areas and hence length of hedgerows temporarily lost for access tracks, preventing fragmentation of habitat suitable for red squirrel. The severity of direct temporary loss and severance and fragmentation of habitat, are both considered to be Low. In view of this, the lack of active dreys found within the Order Limits, limited signs of potential activity, the ability of this species to adapt to small changes in the landscape and taking into account the proposed mitigation, the sensitivity of red squirrel to the temporary loss, and severance and fragmentation of habitat during construction, maintenance and decommissioning is Low.

- 9.6.78 Chapter 15, Construction Noise and Vibration (**Document 5.15**) concludes that there are no significant effects during construction for the tunnel following mitigation, for all tunnel construction options. They state that the effects are also only likely to be perceptible/audible at receptors that are within close proximity, around 50 m from the tunnel for TBM and 100 m for drill and blast due to the more impulsive nature of the method, but the duration of perceptibility/audibility would depend upon machine progress/speed but is unlikely to extend beyond one to two days. Around the shaft locations, the depth from surface to tunnel is greater, with the shallowest parts of the tunnel occurring under the Menai Strait and therefore effects of any significance or duration are most unlikely for terrestrial habitats and species.
- 9.6.79 As the majority of works avoid areas of high potential to support red squirrel, as stated above, and combined with the mitigation measures including those within the CEMP (**Document 7.4**) to reduce disturbance, the severity of the effect for temporary disturbance/ displacement/ degradation through noise generation and light disturbance, and for direct impact during construction, maintenance and decommissioning is considered to be **Low**. This is based on the majority of the areas where potential squirrel habitat is present, the construction works would be intermittent and for short term periods. The sensitivity of red squirrel to potential temporary disturbance/ displacement/ degradation, and for direct impact, following this mitigation and due to their mobile nature, limited presence and adaptability to human presence during construction, maintenance and decommissioning would be **Low**.
- 9.6.80 The County value of red squirrel, and Low severity of residual impacts and Low sensitivity of red squirrel as discussed above, mean construction, maintenance and decommissioning impacts would have a Negligible effect (not significant) on the conservation status of this species.
- 9.6.81 Direct permanent loss of habitat with the potential to support red squirrel would be restricted to the substation areas where woodland would require removal, and where the OHL would pass through or near to areas of woodland. The main areas of such habitat loss would be the woodlands around the Wylfa Substation, Carrog Isa/Brynddu, west of Vaynol Covert, Gylched Covert, and north of Pen Ceint in Section D; however habitat would remain in Carrog Isa/Brynddu, Pentreheulyn, opposite Vaynol Covert and north of Pen Ceint. Works in the Section F area in Gwynedd are unlikely to affect red squirrel. Plas Newydd populations of red squirrel could benefit from the permanent landscape mitigation planting at Braint THH.
- 9.6.82 Although Gylched Covert lies between the areas of Llangefni and Talwrn which contain many records of red squirrel, the overall impact on this

woodland would not prevent movement between these areas by red squirrel. There are currently very few records of this species in this central area between the two towns. The severity of permanent loss of foraging habitat and permanent fragmentation of habitat would be **Low** as only the THH/CSEC and substation would be fenced, and habitats would be replaced, improved or repositioned in as close proximity as possible and designed to prevent fragmentation where possible. Habitats at the THH/CSECs and Pentir Substation will be an improvement on the existing habitats.

- 9.6.83 Anglesey is one of nine project areas in the United Kingdom and Northern Ireland for this species. In view of the importance and abundance of red squirrel population on Anglesey and extent of alternative habitat available locally, but considering the time taken for mitigation planting to mature, the sensitivity of red squirrel to the permanent loss and fragmentation of habitat as a result of the operation of the Proposed Development would be **Medium** for high quality potential habitat, and **Very Low** for poor quality potential habitat.
- 9.6.84 The severity of noise impacts during operation would be **Low**, due to the localised nature of the impact and the conclusion of no significant effect of operational noise from the Braint THH concluded within Chapter 16, Operational Noise and Vibration (**Document 5.16**) on receptors. Due to the type of noise that would be emitted during operation of the THH at Braint, and the fact that the substation at Pentir and Tŷ Fodol THH are unlikely to affect red squirrel as red squirrel are not present near these areas, the sensitivity of red squirrel to this level and type of noise generation during operation of the Proposed Development would be **Very Low**.
- 9.6.85 Even though it would take time for the planting to mature, operational impacts comprising permanent loss and fragmentation of habitat would have a Minor Adverse effect (not significant) on red squirrel in areas of high quality habitat, and a Negligible effect (not significant) in areas of low quality habitat and in relation to operational noise on the conservation status of this species.
- 9.6.86 The overall effect on red squirrel as a result of the construction, operation, maintenance and decommissioning of the Proposed Development would be **Not Significant**.
- 9.6.87 Flexibility afforded by the LOD and Order Limits permits changes in the locations of the pylons and access tracks. Changes within areas of low quality habitats would not affect the assessment significantly. The known locations of suitable habitat affected could increase, however in most instances it would change in location of the section of habitat lost within said habitat, and not increase in the area affected significantly and therefore would not change the

assessment significantly. Use of the flexibility in the draft DCO (**Document 2.1**) is not considered to lead to effects of increased significance, as avoidance where possible and the mitigation proposed up to and including a licence requirement from NRW if needed, would be equally effective.

9.6.88 The above assessment is applicable to both Options A and B as although the area of works vary slightly, the difference is not sufficient to change the significance of the assessment for red squirrel.

### Brown Hare and Polecat

- 9.6.89 The data search, incidental sightings during other ecological surveys and habitat assessments conducted for these two species revealed only low levels of polecat activity, notably in Section A from previous surveys undertaken as part of Wylfa Newydd Power Station, but high levels of brown hare activity in the study area. Whilst the latter appeared widespread on Anglesey, there were few records from within the Order Limits. There were also few records on Gwynedd in the wider area of the Proposed Development in the Vaynol Estate and none within the Order Limits between the Tŷ Fodol THH and Pentir Substation.
- 9.6.90 Vegetation clearance during construction could cause the temporary loss of habitat used by either species through the creation of working areas and access tracks where these pass through woodlands and scrub suitable for polecats, or grassland and agricultural fields with hedgerows suitable for both species. Permanent loss of habitat used by either or both of these species could occur where the OHL passes through or adjacent to areas of woodland. There are areas of this in Section A at Wylfa and B at Carrog Isa, at Gylched Covert in Section D and Section F where the OHL would oversail the CWS ravine at Coed Nant Y Garth and the woodlands at Pentir including the Pentir Substation cCWS. Temporary disturbance/ displacement/ degradation could occur during maintenance and decommissioning through loss and management of the habitat.
- 9.6.91 Potential impacts on brown hare and polecat are as follows:
  - Whilst the direct loss of habitat with some potential to support brown hare and/or polecat would occur, the majority of such locations would only be subject to temporary removal.
  - The direct permanent loss of habitat with some potential to support brown hare and/or polecat would be restricted to the very small pylon footings, THH and substation areas where grassland or woodland

removal would be required, and where woodland removal would be needed for conductor swing.

- There would be the risk of temporary disturbance/ displacement/ degradation of habitats suitable to support either or both species through noise and light disturbance during construction along the route of the OHL and close to the substations at Pentir and Wylfa.
- There would be a risk of operational noise to both species during operation.
- There is the potential for severance and fragmentation of brown hare and polecat habitat to occur throughout the Proposed Development during construction, notably through tree removal beneath the OHL, within Gylched Covert, adjacent to Wylfa Nuclear Power Station and at Pentir Substation.
- Risk of direct impact during construction, maintenance, operation and decommissioning through ground and vegetation clearance, and collision with vehicles.
- 9.6.92 Mitigation measures required are set out below; full details are provided within the BMS (**Document 7.7**):
  - CEMP Measures in Table 9.24; all relevant General Principle measures, AE11 to AE14, AE21, AE41, NV11, NV12, NV14, NV32, NV33, NV36, SM11, SM12, BS11, BS403, BNC11 to BNC13, BNC21 to BNC26, BNC29 to BNC211, TH11 to TH14, TH21, R1 to R4.

In addition to the measures committed to in Chapter 7, Landscape Assessment (**Document 5.7**), Chapter 14, Air Quality (**Document 5.14**), Chapter 15, Construction Noise and Vibration (**Document 5.15**) and Chapter 16, Operational Noise and Vibration (**Document 5.16**), the following additional measures would be implemented:

- Pre-construction surveys would be required throughout suitable habitat to check the working areas for presence prior to vegetation removal, in particular for leverets.
- Stock proof fencing design would not prevent access for mammals such as brown hare for the duration of construction.
- Programme of works includes appropriate timing of clearance of vegetation where possible.
- Replacement of temporary loss of habitats, improved where appropriate, for example replacing with intact hedgerows where defunct hedgerows are temporarily lost. Replanting of woodland near as possible to that lost (e.g.

Gylched Covert) and creating stepping stones between areas of woodland if possible.

- Where trees and woodland would be lost beneath the OHL, replacement planting would be located as close to that lost as possible, with alternative planting in these areas to include scrub in order to prevent fragmentation of habitats.
- Landscape planting around the THH/CSEC and substation has been designed to improve on existing habitats where possible. Both Braint and Tŷ Fodol THH areas are currently improved grassland and although a smaller area of replacement habitat would be provided due to presence of structures, the landscaping would provide suitable habitat for brown hare and polecat such as woodland, hedgerows, scrub and species-rich grassland.
- 9.6.93 Direct loss of habitat with some potential to support brown hare and/or polecat would occur, but the majority of habitat types affected would only be subject to temporary removal. Those habitats of higher potential include woodland and scattered or lines of trees. Temporary direct loss of potential habitat during construction would occur, including as a result of the Third Party Service works, but would be limited to access tracks, construction compounds and working areas where these pass through or would be adjacent to woodlands, and hedgerows that could connect these woodlands and therefore would be of Low severity. In view of the widespread occurrence of brown hare on Anglesey as a whole and its apparent low presence in Gwynedd in the vicinity of the Proposed Development, general absence of polecat in the majority of areas, generally wide ranges and use of different habitats, the sensitivity of both species to the proposed small scale and temporary loss of habitat suitable to support either or both species is Low, as polecat in particular is an opportunistic and adaptable species.
- 9.6.94 The direct permanent loss of habitat with some potential to support brown hare and/or polecat would be of Low severity as would be restricted to the very small pylon footings (4 m<sup>2</sup> in most cases), the limited suitability of the habitat at the THH/SECs, substation areas where grassland or woodland removal would be required and where the OHL would pass through or near to areas of woodland such as the 0.45 ha of loss at Gylched Covert. The loss of potentially suitable habitat would include woodland around the Wylfa Substation, Carrog Isa/Brynddu, west of Vaynol Covert, Gylched Covert CWS, north of Pen Ceint Section D and Section F at Coed Nant Y Garth CWS and Pentir Substation cCWS. In view of the widespread occurrence of brown hare on Anglesey as a whole and its apparent low presence in Gwynedd in the vicinity of the Proposed Development, general absence of polecat in the majority of areas, generally wide ranges and use of different habitats, the

sensitivity of both species to the localised permanent loss of habitat suitable to support either or both species is **Low**. The hedgerows being replaced on an improved basis (intact for defunct, and species-rich) would be of benefit for these species. In addition, any long grasses left around the base of pylons would provide habitat in particular for brown hare, providing a safe area in arable fields during farming activities.

- 9.6.95 As the majority of works in areas where potentially suitable habitat is present would be intermittent and for short term periods, as stated above, combined with the mitigation measures including those within the CEMP (Document 7.4) to reduce disturbance, the severity of the effect for temporary disturbance/ displacement/ degradation through noise generation and light disturbance, and for direct impact during construction, maintenance and decommissioning is considered to be **Low**. In addition, no overnight working would occur, and lighting only used at the start and end of daytime working hours in the winter. The sensitivity of brown hare and polecat to the type of noise and light disturbance generated during construction, maintenance and decommissioning would be Low. This is based on the majority of records within the study area not being in the Order Limits, both species often being habituated to noise generating activities associated with farming and are adaptable species such that they can be present in many habitat types and environmental conditions.
- 9.6.96 The severity of noise impacts during operation would be Very Low, due to the localised nature of the impact and the conclusion of no significant effect of operational noise from the Braint THH within Chapter 16, Operational Noise and Vibration (Document 5.16). The sensitivity of brown hare and polecat to the type, levels and very localised nature of noise likely to be emitted as a result of operating the substation and THH, would be Very Low as they are often habituated to noise generating activities associated with farming and are adaptable species.
- 9.6.97 Residual severance and fragmentation of habitat has been reduced, such as by minimising gaps within hedgerows for access tracks, and as the Proposed Development has been designed to ensure loss of habitat suitable for either species is replaced, improved or repositioned in as close proximity as possible, with permanent fencing only in place around the THH and Pentir Substation. Stock proof fencing required for construction would only be temporary and the design would allow passage for brown hare and polecat. As such the severity of the impact would be Low. The sensitivity of both species to potential habitat fragmentation during all stages of the Proposed Development would be Low due to the adaptable nature of the species, often living in ever changing farmland habitats, and the limited severity of impact.

- 9.6.98 The Local value of brown hare and polecat, the Low to Very Low severity of residual impacts coupled with the combination of Low to Very Low sensitivity of brown hare and polecat to potential construction, maintenance, decommissioning and operational impacts mean these would have a **Negligible** effect (not significant) on the conservation status of this species.
- 9.6.99 The overall effect on brown hare and polecat as a result of the construction and operation of the Proposed Development would be **Not Significant**.
- 9.6.100 Flexibility afforded by the LOD and Order Limits permits changes in the locations of the pylons and access tracks. Changes within areas of low quality habitats would not affect the assessment significantly. The known locations of suitable habitat affected could increase, however in most instances it would change in location of the section of habitat lost within said habitat, and not increase in the area affected significantly. Use of the flexibility in the draft DCO (**Document 2.1**) is not considered to lead to effects of increased significance, as avoidance where possible and the mitigation proposed would be equally effective.
- 9.6.101 The above assessment is applicable to both Options A and B as although the area of works vary slightly, the difference is not sufficient to change the significance of the assessment for other mammals.

## Great Crested Newt

- 9.6.102 No GCN ponds would be directly affected or lost as a result of the Proposed Development. Three ponds lie within the Order Limits; however these are not within the actual working area. These are Pond 16 near 4AP017, Pond 23 near pylon 4AP021 and Pond 26 near to pylon 4ZA027. In addition, Pond A026 which lies adjacent to Pond 26, but outside of the Order Limits, has also been confirmed to hold a GCN population. Where access permits, these ponds would be part of the updated surveys in 2018 to establish any change in population sizes and reported on within the addendum. These ponds have been included within the Schedule of Environmental Commitments (Document 7.4.2.1) to ensure they are protected from construction activities or the potential movement of working areas to where these could affect them.
- 9.6.103 Vegetation clearance during construction would cause temporary loss of terrestrial habitat used by GCN within 250 m of 13 ponds that surveys have shown to support this species. These ponds are located within Sections A, B and C of the Proposed Development with the majority of them (eight ponds) around the Rhosgoch area. Ten of the ponds are classified as supporting a small population size class of GCN with the remaining three supporting a medium population size class. In total, these waterbodies are considered to

support seven GCN population groups based on their proximity to each other. Whilst vegetation clearance would be limited to the creation of working areas and access tracks, GCN could be at risk of being directly impacted through temporary dismantling of any cloddiau, removal of hedgerows and trees, movement of construction vehicles, or becoming trapped in open excavations or trenches. Indirect effects could occur through loss of habitat, severance and fragmentation of habitat and noise or visual disturbance. Temporary disturbance/ displacement/ degradation could occur during maintenance and decommissioning though loss and management of the habitat.

9.6.104 Potential impacts on GCN are as follows:

- Direct temporary loss of terrestrial habitat suitable to support GCN during construction, maintenance and decommissioning (including the Third Party Service works) would be limited to access tracks, construction compounds and working areas for example around individual pylons.
- Direct permanent loss of habitat able to support GCN would be restricted to small areas of potential terrestrial habitat at the pylon footings where these lie within 250 m of the 13 ponds shown to support GCN.
- There could be a risk of temporary disturbance/ displacement/ degradation of habitats suitable to support GCN through dust, water quality effects, noise and light disturbance during construction, maintenance and decommissioning along the route of the OHL.
- Severance and fragmentation of habitat that supports, or is able to support, GCN could occur throughout the Proposed Development due to fencing and loss of habitats.
- There could be the risk of direct impact during construction, maintenance and decommissioning and through ground and vegetation clearance, and run over with vehicles.
- 9.6.105 Mitigation measures required are set out below; full details are provided within the BMS (**Document 7.7**):
  - CEMP Measures in Table 9.24; all relevant General Principle measures, AE11, AE12, AE14, AE21, AE41, NV11, NV14, SM11, SM12, WE11, WE21 to WE23, WE31, WE41, WE51, WE52, WE54 to WE56, FM14, BS11, relevant BS measures between BS21 to BS202, BS401, BS403, BNC11 to BNC13, BNC21 to BNC25, BNC27, BNC210 to BNC211, TH11 to TH14, TH21, R1 to R6.

In addition to the measures committed to in Chapter 7, Landscape Assessment (**Document 5.7**), Chapter 12, Water Quality, Resources and Flood Risk (**Document 5.12**), Chapter 14, Air Quality (**Document 5.14**), and Chapter 15, Construction Noise and Vibration (**Document 5.15**), the following additional measures would be implemented:

- Pre-construction GCN surveys would be required on ponds within 250 m of the Proposed Development to check the populations prior to construction and licence.
- European protected species mitigation licences would be secured from NRW to enable GCN fencing to be installed where working areas (not all of the Order Limits) fall within 250 m of known GCN ponds. Vegetation removal would include staged habitat degradation to encourage GCN to vacate the area and move towards suitable remaining habitat. Pit fall traps would be used to clear GCN from these working areas for a duration dependent of the meta-population sizes in each area.
- Investigation would be made of the potential for use of gated sections within a long stretch of GCN fencing to allow passage to the opposite side of the working area due to the duration of the fencing installation.
- Hand searches and watching brief by an ECoW would be undertaken during vegetation removal and working in key habitats within the GCN mitigation areas. This would also include when dismantling of cloddiau and when replacing them following the works.
- Replacement of temporary loss of habitats, improved where appropriate, for example replacing with intact hedgerows where defunct hedgerows are temporarily lost. Replanting of woodland and scrub as near as possible to that lost, creating stepping stones for GCN between areas of woodland and rebuilding of cloddiau to facilitate movement of GCN.
- Where trees and woodland would be lost beneath the OHL, replacement planting would be located as close to that lost as possible, with alternative planting in these areas to include scrub in order to prevent fragmentation of GCN habitats.
- Landscape planting around the THH/CSEC and substation has been designed to improve on existing habitats where possible, and include installation of SuDS. Although GCN are not currently known as being present in these areas, they can be mobile and this improved habitat could encourage them into the area, although they would not be designed specifically for GCN but for the purpose of SuDS.
- 9.6.106 The majority of terrestrial habitats affected by temporary loss are of low quality for GCN, such as arable and improved grassland fields, as during design, areas of higher quality habitat potentially suitable for GCN were avoided where

possible. Those habitats of higher quality for GCN include cloddiau and hedgerows, woodland, scrub and a variety of higher quality grassland types. As GCN were only found to be present within the OHL sections of the Proposed Development, all habitat will be replaced on a like for like basis with the exception of the pylon footings of 4 m<sup>2</sup> per pylon, as minimal areas (137 m<sup>2</sup> of improved grassland across all seven GCN population areas, with the largest being 57 m<sup>2</sup> in Metapopulation A) would be lost to vegetation removal/management due to the OHL in these areas. The severity of the temporary loss of habitat during construction, maintenance and decommissioning would be **Low** due to the limited areas of high guality GCN habitat affected, the temporary nature of the works, and the fact that no GCN ponds would be directly affected. The sensitivity of GCN to a temporary small loss of high quality potential GCN habitat is **Low**, and the sensitivity of GCN to a temporary loss of poor quality potential GCN habitat is Very Low as there remains sufficient quantities of habitat of both low quality and higher quality in the wider area and also the non-working areas within the Order Limits. GCN in these areas would not be isolated in small areas of habitat but would have access to sufficient areas of terrestrial habitat and other ponds, but would just be prevented from entering the working areas.

- 9.6.107 As the majority of works in areas where potentially suitable GCN habitat is present would be intermittent and for short term periods, as stated above, and combined with the mitigation measures including those within the CEMP (Document 7.4) to reduce disturbance, dust, and water quality effects on habitats including ponds and drains, the severity of the effect for temporary disturbance/ displacement/ degradation, and for direct impact during construction, maintenance and decommissioning is considered to be Low. This includes no overnight working required within the OHL sections with the exception of during winter hours which would not affect GCN. Standard GCN mitigation of using fencing and trapping periods would be applied where necessary and under European protected species licences with NRW. The sensitivity of GCN to the type of noise and light disturbance generated during construction, maintenance and decommissioning would be Very Low as this species would be removed from the working area during mitigation for areas where they are known to exist. As the majority of works avoid areas of high potential to support GCN, and given the commitment to standard GCN mitigation, the sensitivity of this species to the direct harm impacts during construction, maintenance and decommissioning would be Low as they would be removed from the working area in a standard and safe manner.
- 9.6.108 Any standard fencing installed during construction, maintenance and decommissioning for the OHL working areas would not prevent the movement of GCN, other than where fencing would be installed as part of the licensed

mitigation to move or exclude GCN from the working areas and therefore the severity of severance and fragmentation impact would be **Low**. Preventing the severance and fragmentation of potentially suitable terrestrial habitat for GCN would be part of the required mitigation and would not occur as a result of the construction works alone due to the intermittent and infrequency of the actual works in each area. Steps would be taken to design a possible dispersal corridor for GCN through long sections of fencing and works would be temporary. Suitable terrestrial habitat and breeding sites such as ponds for GCN are present on both sides of the Order Limits with sufficient areas of terrestrial habitat available that would support the populations in each pond. The sensitivity of GCN to the small scale of potential habitat fragmentation would be **Low** as GCN would be able to move between other ponds and areas of terrestrial habitat.

- 9.6.109 The **County** value of GCN, the **Low** severity of residual impacts coupled with the **Very Low** to **Low** sensitivity of GCN to temporary loss of small areas of high quality habitat, and areas of low quality habitat, temporary severance and fragmentation, and temporary disturbance/ displacement/ degradation, and direct harm during construction, maintenance and decommissioning mean these would have a **Negligible** effect (**not significant**) on the conservation status of this species.
- 9.6.110 There would be no permanent barriers to dispersal, such as fragmentation, as no permanent fencing would be required in the areas of known GCN habitat, plus it would not likely provide a barrier to GCN where they do occur at the THH and Pentir Substation. The severity of loss of habitat and permanent fragmentation of habitat would be Very Low as only the habitat under the pylon footings would be lost where these fall within 250 m of known GCN ponds. This loss equates to 4 m<sup>2</sup> per pylon. As no GCN populations were found within 250 m of the THH/CSEC and substation areas, the permanent habitat loss in these locations is not considered to be relevant to this species. The habitat in all other working areas in these sections would be replaced on a like for like basis, improved where possible including intact hedgerows, or repositioned in as close proximity as possible such as hedgerow trees avoiding the OHL. In view of the Very Low severity of the impact and presence of alternative higher quality habitat in the wider area, the sensitivity of GCN to the very small scale of permanent loss and severance and fragmentation of terrestrial habitat suitable to support GCN is Very Low, especially as the Proposed Development could provide stepping stones of higher quality habitat than that lost where the pylons are situated within improved grassland and arable fields as taller and more tussocky grassland would grow around the pylon footings.

- 9.6.111 The County value of GCN, the Very Low severity of permanent loss and severance and fragmentation of habitat coupled with the Very Low sensitivity of GCN to such small areas of permanent habitat losses indicates that during operation there would be a Negligible effect (not significant) on the conservation status of this species.
- 9.6.112 The overall effect on GCN as a result of the Proposed Development would be **Not Significant**.
- 9.6.113 GCN is widespread throughout much of England and Wales with Anglesey lying at the western edge of the GCN's range. Information on GCN favourable conservation status in North Wales Anglesev was obtained by reviewing information provided in The Spatial Action Plan for Great Crested Newts in Anglesey: A Manual for Achieving Favourable Conservation Status (hereafter referred to as the Spatial Action Plan report), published in March 2017 (Ref The calculations were performed to determine the Current 9.59). Conservation Status (CCS) and Favourable Conservation Status (FCS) of ponds and metapopulations (groups of ponds connected through migration of individuals) identified to contain GCN on Anglesey. These values were then used to determine the percentage-value contribution of each pond and metapopulations towards the total CCS and FCS on Anglesey; as there is no corresponding report for Gwynedd, the basis of the Anglesey Spatial Action Plan report has been applied. Given that there are to be no GCN ponds lost or permanently affected by the Proposed Development, and only the potential for one non GCN pond to be affected, and that habitat would be replaced and improved where possible, it is considered that the Proposed Development is not likely to be detrimental to the maintenance of the favourable conservation status of GCN. Replacement of affected hedgerows throughout the Order Limits on an improved basis may even be of benefit for the FCS of GCN for Anglesey by improving connectivity. The Enhancement Strategy (Document 7.13) includes options for landowners to extend the improvement of the hedgerow for the rest of the length of the hedgerow, however, this is not counted as mitigation within this chapter.
- 9.6.114 Flexibility afforded by the LOD and Order Limits permits changes in the locations of the pylons and access tracks. Changes within areas of low quality habitats would not affect the assessment. Changes of working areas within locations of suitable habitat could occur, however in most instances it would change in location within the habitat, and not increase significantly in areas affected and therefore would not change the assessment significantly. It is unlikely that there would be a pylon which could be moved from low to high quality habitat, however even if this did occur, the small area lost to each pylon, coupled with the limited potential for pylons to be moved (see Chapter

6 Methodology and Basis of Assessment), would not alter the overall assessment of impacts. Known GCN ponds within the Order Limits have been included in the Schedule of Environmental Commitments (**Document 7.4.2.1**) to prevent works occurring within these habitats. In addition, work would be restricted to that included within the European protected species licence obtained prior to commencement on site. Changes to working areas after this would have to be agreed with NRW under a licence amendment. Use of the flexibility in the draft DCO (**Document 2.1**) is therefore not considered to lead to effects of increased significance, as avoidance where possible and the mitigation proposed would be equally effective.

9.6.115 The above assessment is applicable to both Options A and B as although the area of works vary slightly, the difference is not sufficient to change the significance of the assessment for GCN.

## Other Amphibians

- 9.6.116 Other amphibian species encountered during the GCN surveys were also recorded, including palmate newt, smooth newt, common toad and common frog. Common toad is listed under S7 of the Environment (Wales) Act 2016.
- 9.6.117 Potential impacts on these species would be the same as GCN and are summarised below:
  - Direct temporary loss of habitat during construction, maintenance and decommissioning (including the Third Party Service works), including one pond.
  - Direct permanent loss of habitat able to support other amphibians would be restricted to small areas of potential terrestrial habitat at the pylon footings and potentially permanent habitat loss the THH/CSEC and substation areas.
  - There could be a risk of temporary disturbance/ displacement/degradation of habitats suitable to support other amphibians through dust, water quality effects, noise and light disturbance during construction, maintenance and decommissioning along the route of the OHL.
  - Severance and fragmentation of habitat that supports other amphibians could occur throughout the Proposed Development including where fencing would be installed as part of the licenced mitigation to move or exclude GCN from the required working areas.

- There could be the risk of direct impact during construction, operation and maintenance through ground and vegetation clearance, and run over with vehicles.
- 9.6.118 Mitigation measures required are set out below; full details are provided within the BMS (**Document 7.7**):
  - CEMP Measures in Table 9.24; all relevant General Principle measures, AE11, AE12, AE14, AE21, AE41, NV11, NV14, SM11, SM12, WE11, WE21 to WE23, WE31, WE41, WE51, WE52, WE54 to WE56, FM14, BS11, relevant BS measures between BS21 to BS202, BS401, BS403, BNC11 to BNC13, BNC21 to BNC25, BNC27, BNC210 to BNC211, TH11 to TH14, TH21, R1 to R6.

In addition to the measures committed to in Chapter 7, Landscape Assessment (**Document 5.7**), Chapter 12, Water Quality, Resources and Flood Risk, (**Document 5.12**), Chapter 14, Air Quality (**Document 5.14**), and Chapter 15, Construction Noise and Vibration (**Document 5.15**), the following additional measures would be implemented:

- GCN specific mitigation through the European protected species licence would benefit other amphibian species in these areas.
- Habitat replacement and improvement where appropriate, for example replacing with intact hedgerows where defunct hedgerows are temporarily lost. Replanting of woodland and scrub as near as possible to that lost and creating stepping stones between areas of woodland. Rebuilding of all cloddiau.
- Avoidance of loss if possible/replacement if loss would be unavoidable, of Pond A254 at Braint THH following construction as part of the landscape mitigation. Mitigation planting in this area would avoid fully surrounding and overshading this habitat.
- Where trees and woodland would be lost beneath the OHL, replacement planting would be located as close to that lost as possible, with alternative planting in these areas to include scrub suitable for other amphibians in order to prevent fragmentation of habitats.
- Landscape planting around the THH/CSEC and substation has been designed to improve on the suitability of existing habitats of other amphibians where possible, and include installation of SuDS.
- Hibernacula and refugia for other amphibians would be created along the edges of woodland such as Gylched covert, Pentir CWS (where within the Order Limits) and within the THH/CSEC sites.
- 9.6.119 The severity of the temporary and permanent terrestrial habitat loss of varying suitability for other amphibians during construction, operation, maintenance

and decommissioning would be **Low** as in many areas this loss is small and localised, leaving large areas of more suitable habitat in the Order Limits and wider area unaffected. Permanent habitat loss is restricted to the THH and pylon footings, and areas of woodland and trees which lie beneath the OHL, which would be partially replaced with suitable habitat for amphibians that is sufficiently short to be permitted beneath the OHL. Habitat created at the THH would be of better quality habitat during operation than at present, including through provision of SuDs. In addition, only one pond would be temporarily lost during construction, and replaced on completion of construction. The sensitivity of other amphibians to this small scale temporary and permanent habitat loss of varying suitability is **Low** as there remains sufficient quantities of habitat in the wider areas and non-working areas within the Order Limits, and in places the permanent change in habitat could be of benefit to amphibians present.

- 9.6.120 As the majority of works in areas where potentially suitable habitat for other amphibians is present would be intermittent and for short term periods, as stated above, and combined with the mitigation measures including those within the CEMP (Document 7.4) to reduce disturbance, dust, and water quality effects on habitats including ponds and drains, the severity of the effect for temporary disturbance/ displacement/ degradation through dust, water quality effects on habitats including ponds and drains, noise generation and light disturbance, and for direct impact during construction, maintenance and decommissioning is considered to be Low. This includes no overnight working required within the OHL sections with the exception of during winter hours which would not affect other amphibians and takes into account the mitigation measures including those within the CEMP (Document 7.4) to reduce disturbance. The sensitivity of other amphibians to dust, the type of noise and light disturbance generated and direct impact during construction, maintenance and operation would be Low. This is based on in the majority of the areas where potential habitat is present, the construction works being intermittent and for short term periods, and these species adaptability to utilise a variety of habitats including active farmland and residential gardens which are subject to wide ranges of disturbance.
- 9.6.121 As the Proposed Development is designed to ensure habitat loss would be limited where possible, replaced, improved or repositioned in as close proximity as possible to that lost and designed to prevent fragmentation, the severity of severance and fragmentation during construction, maintenance and decommissioning would be **Low** and **Very Low** during operation. The sensitivity of other amphibians to this severity of potential habitat loss and fragmentation would be **Low** during construction, maintenance and decommissioning as they would still be able to disperse through these

habitats, and **Very Low** during operation, with some areas being improved during operation.

- 9.6.122 As the value of other amphibians is considered to be **Local**, and effects are similar to that of GCN in terms of severity, the overall effect on other amphibians as a result of the construction and operation of the Proposed Development would be a **Negligible** effect (**not significant**).
- 9.6.123 Flexibility afforded by the LOD and Order Limits permits changes in the locations of the pylons and access tracks. Changes within areas of low quality habitats would not affect the assessment significantly. The known locations of suitable habitat affected could increase, however in most instances it would change in location of the section of habitat lost within said habitat, and not increase in the area affected significantly. Use of the flexibility in the draft DCO (**Document 2.1**) is not considered to lead to effects of increased significance, as avoidance where possible and the mitigation proposed would be equally effective.
- 9.6.124 The above assessment is applicable to both Options A and B as although the area of works vary slightly, the difference is not sufficient to change the significance of the assessment for amphibians.

## Reptiles

- 9.6.125 Whilst only small numbers of common lizard were found during surveys, the desk study revealed records of adder within the area adjacent to the Wylfa Nuclear Power Station (pylons 4AP001 to 4AP002, and 4ZA004 to 4ZA005), and Cors Erddreiniog SSSI, with further records of adder, slow worm and common lizard in the wider area.
- 9.6.126 Vegetation clearance during construction could therefore potentially cause the temporary loss of habitat that supports reptiles throughout the Order Limits, though only particularly where the creation of working areas and access tracks would pass through areas of more suitable habitat such as hedgerows and cloddiau. Indirect effects could occur through severance and fragmentation of habitat and noise or visual disturbance.
- 9.6.127 Potential impacts on reptiles are as follows:
  - Direct temporary loss of habitat suitable for reptiles during construction (including the Third Party Service works) and loss or damage to habitats used for shelter, protection and/or breeding by reptiles would be limited to access tracks, construction compounds and working areas for example around individual pylons.

- Direct permanent loss of habitat able to support reptiles and loss or damage to habitats used for shelter, protection and/or breeding by reptiles would be restricted to the small footings of each pylon, along the route of the OHL, the THH/CSEC and substation areas.
- There could be a risk of temporary disturbance/ displacement/ degradation of habitats suitable to support reptiles due to dust, or noise and light disturbance during construction, maintenance and decommissioning within habitats suitable for reptiles along the route of the OHL access tracks, pylon locations, and close to the THH/CSEC and substation at Pentir and Wylfa.
- Severance and fragmentation of habitat that supports reptiles could occur throughout the Proposed Development due to fencing and habitat loss.
- Risk of direct impact on reptiles during construction, operation and maintenance through ground and vegetation clearance and run over by vehicles.
- 9.6.128 Mitigation measures required are set out below; full details are provided within the BMS (**Document 7.7**):
  - CEMP Measures in Table 9.24; all relevant General Principle measures, AE11 to AE14, AE21, AE41, NV11, NV14, SM11, SM12, WE11, WE21 to WE23, WE41, BS11, relevant BS measures between BS21 to BS202, BS401, BS403, BNC11 to BNC13, BNC21 to BNC25, BNC210 to BNC211, TH11 to TH14, TH21, R1 to R4.

In addition to the measures committed to in Chapter 7, Landscape Assessment (**Document 5.7**), Chapter 12, Water Quality, Resources and Flood Risk (**Document 5.12**), Chapter 14, Air Quality (**Document 5.14**), Chapter 15, Construction Noise and Vibration (**Document 5.15**) and Chapter 16, Operational Noise and Vibration (**Document 5.16**), the following additional measures would be implemented:

- Pre-construction reptile surveys would be required in the high quality areas of potential habitat that would be directly affected within the Order Limits, to establish if there is a change in the reptile species present and their estimated populations.
- Vegetation removal would include staged habitat degradation to encourage reptiles to vacate the area and move towards suitable areas of retained habitat where presence of reptiles has been confirmed. Maintenance of the habitat degraded would be undertaken throughout construction to ensure that it remained unsuitable for reptiles under the supervision of an ECoW.

- Hand searches and watching brief would be undertaken by an ECoW during vegetation removal and when working in key habitats. This would also include when dismantling of cloddiau, and when replacing them following completion of construction works.
- Replacement of temporary loss of habitat suitable for reptiles, improved where possible, for example replacing with intact hedgerows where defunct hedgerows are temporarily lost. Rebuilding of cloddiau.
- Where trees and woodland would be lost beneath the OHL, replacement planting would be located as close to that lost as possible, with alternative planting in these areas to include scrub in order to prevent fragmentation of habitats suitable for reptiles.
- Landscape planting around the THH, CSEC and substation has been designed to improve on existing habitats where possible. Both Braint and Tŷ Fodol THH areas are currently improved grassland and although a smaller area of replacement habitat would be provided due to presence of structures, the landscaping would provide suitable cover habitat for reptiles such as hedgerows and scrub.
- Hibernacula and refugia would be created along the edges of woodland such as Gylched covert, Pentir Substation cCWS (where within the Order Limits), and within the THH/CSEC sites.
- 9.6.129 The severity of residual impacts of permanent and temporary loss during construction, operation, maintenance and decommissioning would be **Low** due to the limited presence of reptiles within the Proposed Development, evidence that where present they only occur in low numbers, limited areas of better quality habitats lost and the proposed mitigation. The permanent areas of loss of habitat comprise only the pylon footings where these lie within suitable habitat, and the footprint of the THHs and substation extension. All other areas, including surrounding the THHs, adjacent to the substations at Wylfa and Pentir, and areas of woodland lost beneath the OHL would be a change in habitat that would not necessarily adversely affect reptiles, as some areas, such as the mitigation planting around the THH, and a change from woodland to scrub and grassland could be of benefit for reptiles.
- 9.6.130 The majority of habitats affected by temporary loss are of low quality for reptiles, such as arable and improved grassland fields, as during design, areas of higher quality habitat for reptiles were avoided where possible. Those habitats of higher quality for reptiles include cloddiau, woodland, hedgerows, scrub, rocky outcrops and a variety of grassland types. The sensitivity of reptiles to temporary loss of high quality potential reptile habitat is considered **Medium**, and the sensitivity of reptiles to temporary loss of poor quality potential reptile habitat is considered **Very Low**. This is based on the

adaptability of reptiles to use a variety of habitats, including previously disturbed areas, the extent of available alternative habitat throughout the Proposed Development and wider landscape.

- 9.6.131 The majority of the habitat to be permanently lost, including at both THH/CSEC sites (Braint and Tŷ Fodol) is of limited quality for reptiles. Areas where habitat of higher quality for reptiles would be lost include in the vicinity of pylons 4AP001 to 4AP002, 4ZA004 to 4ZA005, and 4AP055, and the areas around the Wylfa Substation connection and Pentir Substation that include woodland and scrub. The sensitivity of local reptile populations to scale of permanent loss of high quality potential reptile habitat is considered **Medium**, and the sensitivity of reptiles to permanent loss of low quality potential reptile habitat is Low. This is based on the adaptability of reptiles to use a variety of habitats, including previously disturbed areas, the extent of available alternative habitat throughout the Proposed Development and wider landscape. The mitigation planting and restrictions on planting woodland beneath the OHL could benefit reptiles by providing more areas of open areas of a scrub and grassland mix. In addition, log piles and hibernacula would be created in permitted areas of habitat.
- 9.6.132 The severity of residual impacts of temporary disturbance during construction, maintenance and decommissioning would be **Low** due to the intermittent and short-term nature of the residual impacts taking into account the proposed mitigation, limited presence of reptiles within the Proposed Development, evidence that where present they only occur in low numbers and that no overnight working would be required within the OHL sections with the exception of during winter hours. The sensitivity of reptiles to the **Low** severity of noise and light disturbance during construction, maintenance and decommissioning of the Proposed Development would be **Low** as they are known to be tolerant of both human presence and activity provided suitable cover is available and night time lighting in winter would not affect reptiles.
- 9.6.133 The severity of residual impacts of disturbance during operation of the THH/CSEC and substations would be Very Low due to the localised nature of the impact and poor suitability of the habitat around the THH/CSECs. The level of noise during operation of the substation at Pentir, where there is already a substation, would not contribute to the representative baseline levels at the closest long-term measurement locations, nor would operation generate significant levels of vibration. The ventilation fans fitted with silencers at the Tŷ Fodol THH location, where there would be only one in operation at any one time, under normal operating conditions would not result in a significant adverse impact. Only stairwell fans would be in use at Braint and only when staff would be on site. The noise of the substation would be reduced where

the woodland surrounds elements, and reptiles would habituate to the low level noises. The sensitivity of reptiles to the **Very Low** severity of noise and light disturbance generated by the Proposed Development would be **Low** as they are currently present around both existing substations at Wylfa and Pentir, habituated to the current level of disturbance, from which there is not a significant increase in levels.

- 9.6.134 As the Proposed Development is designed to ensure habitat loss would be limited where possible, replaced, improved or repositioned in as close proximity as possible to that lost and designed to prevent fragmentation, the severity of severance and fragmentation of habitat suitable to support reptiles during construction, maintenance and decommissioning would be **Low** and **Very Low** during operation.
- 9.6.135 Whilst residual severance and fragmentation of habitat suitable for reptiles could occur throughout the Proposed Development, any standard fencing installed during construction, maintenance and decommissioning for the OHL working areas would not prevent the movement of reptiles other than where temporary fencing would be installed as part of the licenced mitigation to move or exclude GCN from the working areas. Should any reptiles be found during GCN mitigation, they would be moved to appropriate remaining habitat within the Order Limits but outside of the fenced area, such as adjacent to a remaining section of scrub or cloddiau; however no reptiles have been found in the areas identified for GCN mitigation to date. By design, habitat degradation to discourage reptiles outside of working areas from moving into such areas in order to protect them from harm. Where this is not suitable, fencing and trapping of reptiles and moving them to habitats outside of the working area would be considered. Habitat would be replaced, or improved where possible in as close proximity as possible and designed to prevent fragmentation. As a result there would be no permanent barriers to reptile movement. The sensitivity of reptiles to the severity of potential habitat severance and fragmentation as a result of the Proposed Development would therefore be Low during construction, maintenance and decommissioning as they would still be able to move within and between habitats with the exception of the working areas for the duration of construction and Very Low during operation.
- 9.6.136 Despite the extent of potential reptile habitat within the Order Limits, in view of the predicted number of vehicle movements, that the majority of works avoid areas of high potential to support reptiles, the limited evidence of presence and where present they occur only in low numbers, combined with the proposed mitigation, the severity of the potential impact of direct harm reptiles would be **Low**. The sensitivity of reptiles to the severity of potential direct

harm as a result of the Proposed Development would therefore be **Low** during construction, maintenance and decommissioning and **Very Low** during operation as they are known to be tolerant of both human presence and activity provided suitable cover is available

- 9.6.137 The Local value of reptiles, coupled with the Low severity of residual impact and Low and Medium sensitivity of reptiles to temporary and permanent habitat loss of poor and good quality respectively, during construction, operation, maintenance and decommissioning mean this would have a Negligible effect (poor quality habitat) and Minor Adverse effect (good quality habitat) (both not significant) on the conservation status of reptiles as appropriate method statements would be in place.
- 9.6.138 The Local value of reptiles, the Low to Very Low severity of residual impacts coupled with the Low to Very Low sensitivity of reptiles to all other potential impacts mean these would have a Negligible effect (not significant) on the conservation status of this species.
- 9.6.139 The overall effect on reptiles as a result of the construction, maintenance, operation and decommissioning of the Proposed Development would be **Not Significant**.
- 9.6.140 Flexibility afforded by the LOD and Order Limits permits changes in the locations of the pylons and access tracks. Changes within areas of low quality habitats would not affect the assessment. Changes of working areas within locations of suitable habitat could occur, however in most instances it would change in location within the habitat, and not increase in area affected significantly and therefore would not change the assessment significantly. The field where pylon 4AP055 is located has been included in the Schedule of Environmental Commitments (**Document 7.4.2.1**) in order to prevent an increase in works within the habitats present, permitting only the crossing of the habitat to take the pilot wire across. In addition, works would not go further into statutory designated sites such as Anglesey Fens SAC as the Order Limits do not permit this.
- 9.6.141 Use of the flexibility in the draft DCO (**Document 2.1**) is therefore not considered to lead to effects of increased significance, as avoidance where possible and the mitigation proposed would be equally effective.
- 9.6.142 The above assessment is applicable to both Options A and B as although the area of works vary slightly, the difference is not sufficient to change the significance of the assessment for reptiles.

# Terrestrial Invertebrates (butterflies, dragonflies and damselflies)

- 9.6.143 The data search showed that within the last ten years, there were 34 records of notable terrestrial invertebrates within 500 m of the Order Limits. These comprised 20 species of butterfly, moth, dragonfly and damselfly, including four records of marsh fritillary (approximately 200 m or greater from the Order Limits), four records of white ermine and three records of variable damselfly. In addition, records included hairy dragonfly, small pearl-bordered fritillary and also adult southern damselfly from the last ten years for the study area in Section C. No records were returned for locations within the Order Limits. The surveys identified the presence of three protected or otherwise notable species of butterfly and variable damselfly, all three of which are classified as near threatened under IUCN<sup>5</sup>.
- 9.6.144 Construction could cause temporary loss of habitat that supports notable terrestrial invertebrates throughout the Order Limits. Indirect impacts could occur through either loss of habitat including loss of food sources for notable terrestrial invertebrates or severance and fragmentation of habitat. Temporary disturbance/ displacement/ degradation could occur during construction, maintenance and decommissioning.
- 9.6.145 Potential impacts on terrestrial invertebrates are as follows:
  - Direct temporary loss of habitat during construction, maintenance and decommissioning (including the Third Party Service works) and loss or damage to shelter, protection and/or breeding habitat could occur as a result of the Proposed Development.
  - Direct permanent loss of habitat able to support terrestrial invertebrates, including food sources used by notable species of terrestrial invertebrates, and loss or damage to habitat used by terrestrial invertebrates for shelter, protection and/or breeding, would be restricted to the small footings of each pylon, along the route of the OHL, the THH/CSEC and substation areas.
  - There could be a risk of temporary disturbance/ displacement/ degradation of habitats suitable to support terrestrial invertebrates through dust water quality effects, and noise and light disturbance during construction, maintenance and decommissioning along the route of the OHL access, pylon locations, and close to the THH/CSEC and substation at Pentir and Wylfa.

- Severance and fragmentation of habitat that supports terrestrial invertebrates could occur throughout the Proposed Development.
- There could be the risk of direct impact during construction and operational maintenance through ground and vegetation clearance.
- 9.6.146 Mitigation measures required are set out below; full details are provided within the BMS (**Document 7.7**):
  - CEMP Measures in Table 9.24; all relevant General Principle measures, AE11 to AE14, AE21, AE41, NV11, NV14, SM11, SM12, WE11, WE21 to WE23, WE41, BS11, relevant BS measures between BS21 to BS202, BS401, BS403, BNC11 to BNC13, BNC21 to BNC25, BNC211, TH11 to TH14, TH21, R1 to R4.

In addition to the measures committed to in Chapter 7, Landscape Assessment (**Document 5.7**), Chapter 12, Water Quality, Resources and Flood Risk (**Document 5.12**), Chapter 14, Air Quality (**Document 5.14**), Chapter 15, Construction Noise and Vibration (**Document 5.15**) and Chapter 16, Operational Noise and Vibration (**Document 5.16**), the following additional measures would be implemented:

- Habitat replacement and improvement where possible suitable for terrestrial invertebrates, for example replacing with intact hedgerows where defunct hedgerows are temporarily lost. Replanting of woodland as near as possible to that lost (e.g. Gylched Covert CWS and Pentir Substation cCWS) and creating stepping stones between areas of woodland where possible.
- Where trees and woodland would be lost beneath the OHL, replacement planting would be located as close to that lost as possible, with alternative planting in these areas to include scrub in order to prevent fragmentation of habitats potentially suitable for terrestrial invertebrates.
- Landscape planting around the THH/CSEC and substation has been designed to improve on existing habitats where possible. Both Braint and Tŷ Fodol THH areas are currently mainly improved grassland and although a smaller area of replacement habitat would be provided due to presence of structures, the landscaping would provide suitable habitat for terrestrial invertebrates such as woodland, hedgerows, scrub and species-rich grassland as well as SuDs.
- 9.6.147 Direct temporary loss of habitat potentially suitable for terrestrial invertebrates during construction, maintenance and decommissioning (including the Third Party Service works) and loss or damage to habitats potentially used by terrestrial invertebrates for shelter, protection and/or breeding, would be limited to access tracks, construction compounds and working areas for example around individual pylons. The majority of habitats affected are of low

quality for terrestrial invertebrates including as food sources for notable species, as during design, pylon locations were chosen to avoid areas of habitat more suitable for terrestrial invertebrates where possible. Those habitats of higher quality include woodland edges, hedgerows, scrub and a variety of grassland types, including the mosaic of grassland types within the field where pylons 4AP055 and 4AP062 are located. Access tracks within these fields has been limited to only getting to the pylons which have been located to the edge of the field, with the main access track between pylons routed around the outside of these fields.

- 9.6.148 Loss of hedgerows would be limited from the 12 m wide access track width to 5 m through hedgerows and aims to utilise existing gates and gaps where possible to reduce this further. Therefore, the effect on food sources typically found along hedgerows with good ground flora suitable for terrestrial invertebrates would also be limited. Calculations on hedgerow losses have been based on the worst case scenario of 12 m lost, however this is more likely to be 5 m. In addition, as hedgerows would be replaced as species-rich and intact even where a species-poor and defunct hedgerow is affected, then food sources for species of terrestrial invertebrates such as wall butterfly could increase. The severity of loss of habitat potentially suitable for terrestrial invertebrates during construction, maintenance and decommissioning would therefore be Low. The sensitivity of terrestrial invertebrates to temporary loss of suitable habitat is **Low** due to the limited recorded presence of terrestrial invertebrates within the Proposed Development, the mobile nature of these flying species which use a variety of areas during their life cycle, dispersive or opportunistic behaviour, the small scale and temporary nature of the majority of the works and the mitigation to prevent and reduce effects, including avoidance of habitat loss through design.
- 9.6.149 The majority of the habitat to be permanently lost, including at both THH/CSEC sites (Braint and Tŷ Fodol) is of limited quality for terrestrial invertebrates. Areas where habitat of higher quality for terrestrial invertebrates would be permanently lost include the very small areas within Cors Erddreiniog, areas to the south (pylon 4AP055) where habitat loss would be limited to the 4 m<sup>2</sup> of the pylon footings, around the Wylfa Substation connection and Pentir Substation which include woodland and scrub. Replacement woodland planting at Pentir would exceed that lost, and also be supplemented by scrub and grassland areas. In addition, new planting at the THH/CSECs would be of better quality for invertebrates than the existing. Where woodland would be replaced nearby where possible, and although in this location it would not be to the full extent of that lost, however this would be supplemented by planting under the OHL with low level scrub and
grassland habitats. In addition, it is proposed as part of the management plan to include coppicing within and along the newly created larger section of woodland edge habitat, as part of a three tiered half ride habitat system. This would be of benefit to several species of terrestrial invertebrates. This indicates the severity of loss of habitat potentially suitable for terrestrial invertebrates during operation would be **Low**. The sensitivity of terrestrial invertebrates to this degree of permanent loss of habitat is **Low** due to the mobile nature of these flying species which use a variety of areas during their life cycle, dispersive or opportunistic behaviour, the small scale and temporary nature of the majority of the works, the mitigation to prevent and reduce effects, including avoidance of habitat loss through design and that the areas

- to be lost will be replaced nearby where possible, with some habitat replacement being of an improvement for some species of invertebrates by providing a variety of habitats.
- 9.6.150 There could be temporary disturbance/ displacement/ degradation of habitats suitable to support terrestrial invertebrates through potential impacts from dust generation and deposition, noise and light disturbance during construction, maintenance and decommissioning along the route of the OHL access, pylon locations and close to the THH/CSECs and substations at Pentir and Wylfa. As the majority of works in areas of habitat suitable for terrestrial invertebrates are temporary, intermittent and for short term periods, as stated above, and combined with the mitigation measures including those within the CEMP (Document 7.4) to reduce disturbance and dust impacts on habitats, the severity of the effect for temporary disturbance/ displacement/ degradation through noise generation and light disturbance, and for direct impact during construction, maintenance and decommissioning is considered to be Low. The sensitivity of terrestrial invertebrates to these types and severity of disturbance would be **Low** as during the period of temporary and intermittent working, there remains alternative suitable habitat in the wider area. The sensitivity of terrestrial invertebrates to direct impact would be Low due to the small scale areas of suitable habitat to be lost, intermittent construction works within the majority of these areas and that night time lighting in winter would not affect night flying terrestrial invertebrates, notably many species of moths.
- 9.6.151 Whilst severance and fragmentation of habitat that supports terrestrial invertebrates could occur throughout the Proposed Development, taking into account the small scale of loss, that habitat would be replaced, improved or repositioned in as close proximity as possible and designed to prevent fragmentation and therefore the severity would be **Low**. In addition, as stated above, the loss of hedgerows potentially more suitable to support terrestrial invertebrates has been reduced where possible, and would be improved on completion of construction. As a result, there would be no permanent barriers

to terrestrial invertebrate movement, and could be an improvement on the existing in places. This, together with the mitigation planting design around the THH/CSECs and Pentir Substation, which is an improvement on the existing, the mobile nature of these flying species which use a variety of areas during their life cycle, dispersive or opportunistic behaviour, means that the sensitivity of terrestrial invertebrates to potential habitat fragmentation would be **Low** as there remains areas of suitable habitat.

- 9.6.152 The Local value of terrestrial invertebrates, the Low severity of residual impacts coupled with the Low sensitivity of terrestrial invertebrates to all other potential direct and indirect impacts during construction, operation, maintenance and decommissioning mean these would have a Negligible effect (not significant) on the conservation status of this species.
- 9.6.153 The overall effect on the conservation status of terrestrial invertebrates as a result of the construction, operation, maintenance and decommissioning of the Proposed Development would be **not significant**.
- 9.6.154 Flexibility afforded by the LOD and Order Limits permits changes in the locations of the pylons and access tracks. Changes within areas of low quality habitats would not affect the assessment. Changes of working areas within locations of suitable habitat could occur, however in most instances it would change in location within the habitat, and not increase in area affected significantly and therefore would not change the assessment significantly. The fields where pylons 4AP055 and 4AP062 are located have been included in the Schedule of Environmental Commitments (Document 7.4.2.1) in order to prevent an increase in works within the habitats present, permitting only the crossing of the habitat to take the pilot wire across. In addition, works would not go further into statutory designated sites such as Anglesey Fens SAC as the Order Limits do not permit this. The field where pylon 4AP055 is located has been included in the Schedule of Environmental Commitments (Document 7.4.2.1) in order to prevent an increase in works within the habitats present. In addition, works would not go further into statutory designated sites such as Anglesey Fens SAC as the Order Limits do not permit this.
- 9.6.155 The above assessment is applicable to both Options A and B as although the area of works vary slightly, the difference is not sufficient to change the significance of the assessment for terrestrial invertebrates with no overnight working required within the OHL sections with the exception of during winter hours.

#### Aquatic Invertebrates

- 9.6.156 The data search showed there were records for the following six species of aquatic macroinvertebrates: three species of damselfly (southern damselfly, variable damselfly and scarce blue-tailed damselfly), two species of water scavenger beetle: the wrinkled brow and Helochares punctatus, and one species of diving beetle Ilybius subaeneus, within the study area within the last ten years. One record of the variable damsel fly was recorded within 20 m of the Order Limits (within Cors Erddreiniog SSSI), all others were greater than 250 m from the Order Limits. The damselfly records were from Sections C and D of the study area, the wrinkled brow from Section F and Helochares *punctatus* and the diving beetle from Section A. The wrinkled brow was also recorded in Section A during the surveys conducted. Whilst this species is designated as Nationally Scare it is not currently listed under S7 of the Environment (Wales) Act 2016. A further four 'local' species (Conservation value 5) were recorded in three watercourses in Sections C (one caddisfly species), E (two snail species) and F (one leech species). Additional information is provided in Appendix 9.13 Freshwater Report (Document **5.9.2.13**).
- 9.6.157 Watercourse crossings during construction could cause temporary loss of habitat that supports aquatic invertebrates throughout the Order Limits due to access track crossings of watercourses. Indirect effects could occur through loss of habitat, severance and fragmentation of habitat or changes in water quality (such as through siltation) of the watercourse. Temporary disturbance/ displacement/ degradation could occur during maintenance and decommissioning through reinstatement of the temporary access tracks should they be required.
- 9.6.158 Potential impacts on aquatic invertebrates are as follows:
  - Temporary direct loss of habitat, during removal of habitat used by aquatic invertebrates during construction, maintenance and decommissioning including the Third Party Service works.
  - Temporary disturbance/ displacement/ degradation of aquatic invertebrate habitat during construction (including the Third Party Service works), maintenance and decommissioning could occur.
  - Severance and fragmentation of aquatic invertebrate habitat could occur only temporarily during construction, maintenance and decommissioning at proposed watercourse crossings.

- Risk of direct impact on aquatic invertebrates during construction, operational and maintenance through habitat clearance and crossing installation.
- 9.6.159 Mitigation measures required are set out below; full details are provided within the BMS (**Document 7.7**):
  - CEMP Measures in Table 9.21 all relevant General Principle measures, WE11, WE21 to WE23, WE31, WE41, WE51, WE52, WE54 to WE58, FM14, BS11, relevant BS measures between BS21 to BS202, BS401, BS403, BNC11 to BNC13, BNC21 to BNC24, BNC27, BNC211, R2, R3, R5, R6.

In addition to the measures committed to in chapters Chapter 11, Geology, Hydrogeology and Ground Conditions (**Document 5.11**), Chapter 12, Water Quality, Resources and Flood Risk (**Document 5.12**) and Chapter 15, Construction Noise and Vibration (**Document 5.15**), the following additional measures would be implemented:

- As stated in Chapter 4 (**Document 5.4**), consent for the detailed culvert design would be sought from NRW post grant of the DCO, therefore culverts would be designed to allow the safe passage of aquatic invertebrates where the Proposed Development crosses watercourses in accordance with CIRIA (2010) (Ref 9.57).
- Replacement of temporary loss of aquatic invertebrate habitat through planting or natural regeneration. This includes that the bed, morphology and in channel functioning and design of the watercourse would be reinstated to at least the existing.
- 9.6.160 Temporary removal of habitat used by aquatic invertebrates would be limited to the location of watercourse crossings. Once crossings requiring culverts have been installed, continuity of flow would be maintained through the culvert, resulting in only a short section of habitat loss whilst the culvert is in place. Watercourse crossings comprising bridges would be of a clear span design and therefore have no in channel effect, with only small amounts of bank habitat lost during construction. This, together with the Proposed Development designed to ensure habitat loss is replaced, or improved if possible on completion means that the severity of residual impacts during construction, maintenance and decommissioning would be Low. Due to the limited presence of protected or otherwise notable species of aquatic invertebrates within the Proposed Development, the temporary nature of the works and the mitigation to prevent direct effects, the sensitivity of aquatic invertebrates to the severity of habitat loss and therefore the potential for direct harm associated with the Proposed Development would be Low as there will remain alternative habitat to support these species outside the working areas.

- 9.6.161 Temporary disturbance/ displacement/ degradation would be limited to access track crossings and associated culverts temporary bridges, drainage mitigation and where works are located in close proximity to watercourses and therefore the severity of impact would be **Low**. Areas of drainage mitigation that would affect existing watercourses would be designed in agreement with NRW. The area of potential aquatic invertebrate habitat affected would vary per crossing depending on the dimensions of the crossing and character of the watercourse. Changes in water quality, such as through siltation, during construction could also occur where works are close to watercourses but would be appropriately mitigated for as per the CEMP (**Document 7.4**). These effects could also occur through reinstatement of any access track watercourse crossings during maintenance and decommissioning. Due to the limited evidence for protected or otherwise notable species of aquatic invertebrates to be present, and the minimised effects on their potential habitat, the sensitivity of aquatic invertebrates to this level of temporary disturbance/ displacement/ degradation is Low.
- 9.6.162 Whilst severance and fragmentation of aquatic invertebrate habitat could occur throughout the Proposed Development, none of the access culverts/bridges installed during construction or reinstated during maintenance and decommissioning would prevent passage of aquatic invertebrates whilst they are in place, and therefore the severity of this impact is **Low**. The sensitivity of aquatic invertebrates to this severity of severance and fragmentation is **Very Low**.
- 9.6.163 The Local value of aquatic invertebrates, the Low severity of residual impacts coupled with the Low to Very Low sensitivity of aquatic invertebrates to all potential direct and indirect impacts during construction, maintenance and decommissioning mean these would have a Negligible effect (not significant) on the conservation status of aquatic invertebrates.
- 9.6.164 The overall effect on the conservation status of aquatic invertebrates as a result of the construction, maintenance and decommissioning of the Proposed Development would be a **Negligible** effect (**not significant**).
- 9.6.165 It is not anticipated that there would be any effects as a result of the operation of the Proposed Development.
- 9.6.166 Flexibility available within the Order Limits allows for changes to the locations of crossing points. The known locations of protected aquatic invertebrates were beyond the Order Limits and therefore crossing points cannot be moved to these points, and the significance of effects reported above is applicable to all potential crossings. Changes to the crossing point locations are considered unlikely to significantly alter the assessment.

9.6.167 The above assessment is applicable to both Options A and B as although the area of works vary slightly, the difference is not sufficient to change the significance of the assessment for aquatic invertebrates.

## Freshwater Fish

- 9.6.168 The desk study revealed the Rivers Braint, Erddreiniog and Ceint supported populations of brown trout, Atlantic salmon, European eel and brook lamprey. Tributaries of these rivers were also considered important for migratory species such as Atlantic salmon and brown trout as small tributaries can constitute valuable habitats, such as nurseries and spawning sites, for such species. Lamprey and stickleback were recorded within the Rivers Braint and Cefni, with stickleback also being recorded within the River Ceint, within the last ten years.
- 9.6.169 The construction of temporary culverted watercourse crossings would cause temporary habitat loss. Indirect effects could occur through severance and fragmentation of habitat, changes in water quality (such as siltation of watercourses), or noise or visual disturbance. Temporary disturbance/ displacement/ degradation could occur during maintenance and decommissioning through reinstatement of the temporary access tracks should they be required.
- 9.6.170 Potential impacts on fish are as follows:
  - Temporary direct loss of habitat used by fish for foraging, shelter and/or breeding could occur during construction, maintenance and decommissioning, including the Third Party Service works.
  - Temporary disturbance/ displacement/ degradation of fish habitat during construction (including the Third Party Service works), maintenance and decommissioning would be limited to access tracks and associated culverts, temporary bridges and where works are located in close proximity to watercourses.
  - Severance and fragmentation of fish habitat could occur on watercourses flowing through the Order Limits whilst crossings are being constructed and removed during construction, maintenance or decommissioning, whilst in place they would not prevent the movement or migration of fish.
  - Risk of direct impact on fish during construction, operational and maintenance through habitat clearance and crossing installation.

- 9.6.171 Mitigation measures required are set out below; full details are provided within the BMS (**Document 7.7**):
  - CEMP Measures in Table 9.24; all relevant General Principle measures, NV11, NV14, NV32, NV33, NV36, WE11, WE21 to WE23, WE31, WE41, WE51, WE52, WE54 to WE58, FM14, BS11, relevant BS measures between BS21 to BS202, BS401, BS403, BNC11 to BNC13, BNC21 to BNC24, BNC27, BNC211, R2, R3, R5, R6.

In addition to the measures set out in Chapter 11, Geology, Hydrogeology and Ground Conditions (**Document 5.11**), Chapter 12, Water Quality, Resources and Flood Risk (**Document 5.12**) and Chapter 15, Construction Noise and Vibration (**Document 5.15**), the following additional measures would be implemented:

- Pre-construction fish habitat surveys may be required on watercourses crossing points throughout the Proposed Development to assess the importance of working areas prior to construction. If suitable habitat were discovered at that time on watercourses with known populations of fish, a revised mitigation strategy could be required, which could amend the permitted location/ method of construction activities.
- As stated in Chapter 4, Construction, Operation, Maintenance and Decommissioning (**Document 5.4**), consent for the detailed culvert design would be sought from NRW post grant of the DCO, therefore culverts would be designed to allow the safe passage of fish where the Proposed Development crosses watercourses in accordance with CIRIA (2010) (Ref 9.57).
- Watching brief by an ECoW would be undertaken during vegetation removal/degradation, and crossing installation, reinstating habitats potentially suitable for freshwater fish and during maintenance and decommissioning works.
- Replacement of temporary loss of fish habitat through reinstatement of channel sediments, planting of bankside habitat or natural regeneration. This includes the reinstatement of the bed, morphology and in channel functioning of the watercourse to at least the existing condition.
- 9.6.172 Temporary direct loss of habitat used by fish for shelter and/or breeding, associated potential for direct harm during works, and temporary disturbance/ displacement/ degradation during construction, maintenance and decommissioning, including the Third Party Service works, would be limited to the location of watercourse crossings. The Proposed Development would be designed to ensure habitat loss is replaced, improved or repositioned in as close proximity as possible. The area of fish habitat affected would vary per crossing depending on the dimensions of the crossing and character of the watercourse. Once crossings requiring culverts have been installed,

continuity of flow would be maintained through the culvert, resulting in only a short section of habitat loss whilst the culvert is in place. Watercourse crossings comprising bridges would be of a clear span design and therefore have no in channel effect, with only small amounts of bank habitat lost during construction. This indicates a **Low** severity for habitat loss and potential for direct impact.

- 9.6.173 Migratory species are particularly sensitive during the migration seasons during spring and autumn. Whilst the construction of watercourse crossings will seek to avoid such periods, should approved works fall within these periods, migration could effectively be delayed in the short-term whilst dry working is underway. However, the short duration of installation work, combined with the precautions outlined in the CEMP (Document 7.4), and the pre-construction surveys to inform detailed design of any suitable habitats to avoid where possible, would minimise any effect. The sensitivity of fish to this severity of impact for habitat loss and potential for direct impact associated with the construction, maintenance and decommissioning of the Proposed Development would therefore be Low outside sensitive seasons and Medium should sensitive habitats or season be unavoidably impacted during installation of watercourse crossings. This was because whilst most of the watercourses to be crossed were found to be unlikely to support suitable spawning habitats for salmonid species at the crossing points, river tributaries did appear to offer flowing water potentially able to support migratory species, and species such as lamprey can live in silty habitats for a number of years.
- 9.6.174 The **County** value of fish, the **Low** severity of residual impacts coupled with the **Low to Medium** sensitivity of fish to potential direct impacts of loss of habitat or direct harm during construction, maintenance and decommissioning, means there would be a **Negligible** effect (**not significant**) other than for works in sensitive habitats of seasons when there could be **Minor Adverse** effect (**not significant**) on the conservation status of fish species.
- 9.6.175 Changes in water quality (e.g. through siltation), noise and light disturbance during construction, maintenance and decommissioning could also occur where works are close to watercourses. Chapter 15, Construction Noise and Vibration (**Document 5.15**) concludes that there are no significant effects during construction for the tunnel following mitigation, for all tunnel construction options. They state that the effects are also only likely to be perceptible/audible at receptors that are within close proximity, around 50 m from the tunnel for TBM and 100 m for drill and blast due to the more impulsive nature of the method, but the duration of perceptibility/audibility would depend upon machine progress/speed but is unlikely to extend beyond one to two

days. No watercourses lie within these distances. Around the shaft locations, the depth from surface to tunnel is greater, with the shallowest parts of the tunnel occurring under the Menai Strait and therefore effects of any significance or duration are most unlikely for terrestrial habitats and species. Changes in water quality (such as through siltation), during construction could also occur where works are close to watercourses but would be appropriately mitigated for as per the CEMP (**Document 7.4**). The severity of residual impacts during construction, maintenance and decommissioning would be Low due to the limited presence of fish within the Proposed Development, the temporary nature of the works and the mitigation to prevent impacts. These effects could also occur through reinstatement of any access track watercourse crossings during maintenance and decommissioning. Due to the evidence of protected and otherwise notable species of fish being present on watercourses crossed by the Proposed Development, the sensitivity of fish to temporary disturbance/ displacement/ degradation is Medium as the disturbance would primarily occur during installation and removal of watercourse crossings.

- 9.6.176 The **County** value of fish, the **Low** severity of residual impacts coupled with the **Medium** sensitivity of fish to potential temporary disturbance/ displacement/ degradation during construction, maintenance and decommissioning, indicates that there could be a **Minor Adverse** effect (**not significant**) on the conservation status of fish species.
- 9.6.177 The main rivers where fish are known to be present would have clear span bridges installed, with culverts being use for smaller tributaries and drains. This indicates a **Low** severity for severance and fragmentation of fish habitat. Culverts can cause severance and fragmentation of fish habitat whilst being installed, but would not prevent the movement or migration of fish once in place, and would be removed on completion of construction. The sensitivity of fish to severance and fragmentation during only installation and removal of the crossings is therefore **Low**.
- 9.6.178 The **County** value of fish, the **Low** severity of residual impacts coupled with the **Low** sensitivity for severance and fragmentation of habitat during construction, maintenance and decommissioning indicates that there would be a **Negligible** effect (**not significant**) on the conservation status of fish species.
- 9.6.179 The overall effect on the conservation status of freshwater fish as a result of the construction, maintenance and decommissioning of the Proposed Development would be a **Minor Adverse** effect (**not significant**).

- 9.6.180 It is not anticipated that there would be any effects as a result of the operation of the Proposed Development.
- 9.6.181 Flexibility afforded by the LOD and Order Limits permits changes in the locations of the crossing points. Changes to the crossing point locations are considered unlikely to significantly alter the assessment but could be used to avoid possible habitat for fish found to be present during pre-construction surveys.
- 9.6.182 The above assessment is applicable to both Options A and B as although the area of works vary slightly, the difference is not sufficient to change the significance of the assessment for fish.

## 9.7 BIRDS

9.7.1 The following impact assessments for ornithological receptors are based on worst case scenarios with respect to habitat losses. This includes consideration of where flexibility of design within the LOD and Order Limits of the Proposed Development could result in an impact, such as where micrositing of a pylon could result in the loss of a known nest site or roost. The vertical limits of deviation, which refer to the height of the pylons used, have also been accounted for in the Vantage Point survey design, further details of which are provided in the baseline ornithology report (Appendix 9.15 Ornithological Assessment Report, **Document 5.9.2.15**). The assessment therefore takes into account the design of the Proposed Development, which minimises the potential for birds to collide with the proposed OHL. This includes routeing of the proposed OHL alongside the existing line, to which a high degree of avian habituation has been observed.

#### Whooper swan

- 9.7.2 The data search and survey work showed that within the study area whooper swan activity is largely confined to an area in close proximity to Llyn Alaw where all regular feeding and flight activity was recorded. It is therefore concluded that any impact on whooper swan outside of this area is **Negligible**.
- 9.7.3 The surveys also showed that whooper swan feeding was limited to habitats to the west of the existing OHL, with recorded movements between roosts and terrestrial feeding areas therefore not crossing the existing OHL.
- 9.7.4 Of the 18 recorded whooper swan flights only three crossed the existing OHL. The behaviour of whooper swan observed during surveys demonstrates a degree of habituation of this species to the existing OHL with no collisions with the existing OHL recorded during the VP surveys which totalled 2,515 hours across the whole of the survey area, a minimum of 140 hours overlooking Llyn

Alaw and a further 107.5 hours overlooking the observed terrestrial feeding area close to Parc. No carcasses were also recorded.

- 9.7.5 Potential impacts on whooper swan are as follows:
  - Temporary direct loss of habitat due to access tracks and working areas where the OHL is installed through an area of wet grassland in Section B could result in the loss of this feeding habitat close to Bryn Dyfrydog, which has been observed as being regularly used over the course of one winter of surveys. Such a loss of habitat could occur during the construction and decommissioning of the Proposed Development, with some potential for habitat loss during the maintenance phase.
  - Temporary disturbance during construction, maintenance and decommissioning of the Proposed Development potentially leading to displacement of birds from a regularly used feeding area near Bryn Dyfrydog, where up to 15 individuals were recorded feeding between first and last light on a regular basis.
  - Collision with the proposed OHL during operation of the Proposed Development, particularly where it passes through Section B of the Proposed Development.
- 9.7.6 Mitigation measures required are set out below; full details are provided in the BMS (**Document 7.7**):

Mitigation measures for whooper swan include:

• CEMP Measures: all relevant General Principle measures, NV11 to NV14, BNC11 to BNC13, BNC21, BNC22, BNC24, R1 to R3.

The following additional measures would be implemented:

- Phasing of work in the area of Bryn Dyfrydog (between pylons 4AP032 and 4AP034) so that vegetation clearance, establishment of working areas and habitat restoration as much as possible are completed outside of the months September – April. Where work cannot be avoided during this period, a watching brief by an experienced ornithologist would be undertaken to monitor potential impacts on whooper swan which would record vigilance levels of foraging birds and flight/startle responses using standard methods to record percentage time feeding/preening/observing and, if applicable, recording triggers to flight responses including proximity to source. Temporary exclusion zones would be imposed on work should adverse impacts be detected.
- 9.7.7 The impact of temporary loss of foraging habitat could potentially occur during construction, maintenance and decommissioning of the Proposed

Development, as work activities would not always be occurring in the vicinity of the foraging resource, whooper swan would not be displaced from such areas for the whole of these phases. This, coupled with the small numbers recorded and spatial distribution of this species, indicates the severity of the temporary loss of foraging habitat is **Low**.

- 9.7.8 The temporary loss of foraging habitat near Bryn Dyfrydog on whooper swan is considered likely to have limited impact since although the species can be site faithful and can use the same area for foraging for many years, there is a significant potential resource located nearby which could provide alternative foraging of similar value. This indicates the sensitivity of whooper swan to temporary foraging loss is **Low**.
- 9.7.9 The **National** value of whooper swan, **Low** severity and **Low** sensitivity to the potential residual impacts of temporary loss of foraging habitat during construction, maintenance and decommissioning of the Proposed Development means this would have a **Negligible** effect (**not significant**).
- 9.7.10 The low numbers recorded and spatial distribution of this species indicate the severity of the impact of temporary disturbance and displacement during construction, maintenance and decommissioning on the regularly used feeding area near Bryn Dyfrydog is **Low**. Although this species can be site faithful and can use the same area for foraging for many years, there is a significant potential resource located nearby which could provide alternative foraging of similar value. As such, displacement of whooper swan from feeding areas could be expected to result in them moving into nearby areas of similar feeding value. Therefore, the sensitivity of whooper swan to temporary disturbance and displacement is considered **Low**.
- 9.7.11 The **National** value of whooper swan, **Low** severity and **Low** sensitivity to the potential residual impacts of temporary disturbance and displacement during construction, maintenance and decommissioning of the Proposed Development means this would have a **Negligible** effect (**not significant**).
- 9.7.12 During construction, maintenance and decommissioning phases, the impacts of temporary habitat loss and displacement of birds from this feeding area are likely to provide some mitigation against collision by deterring whooper swan from approaching both the existing OHL and the new OHL being installed.
- 9.7.13 The low number of recorded flights of whooper swan, small number of individuals involved and low number of flights predicted to cross the new OHL in the context of an estimated UK winter population of 11,000 birds, indicates a **Low** severity of collision during operation of the Proposed Development.

- 9.7.14 Whooper swan is a large bird with limited manoeuvrability in flight and therefore a species that could potentially be susceptible to collision with OHLs. The primary location where collision with a new OHL could potentially occur would be where whooper swan have been recorded regularly flying between a roost at Llyn Alaw and a feeding area close to the Proposed Development (between pylons 4AP032 and 4AP034). The majority of the recorded flight activity (16 of the 18 recorded flights across the entire survey area) included some time at a height that risked collision with the proposed infrastructure (hereafter referred to as "collision risk height", which also accounts for the vertical LOD), although of those 16 flights only two actually crossed all or part of the existing OHL. The new OHL would be parallel and close to the existing OHL. Whilst the probability of collision is therefore likely to be reduced through an increase in overall visibility of the wire-scape, the sensitivity of whooper swan to collision during operation of the Proposed Development is considered **Medium** given the size of the species and general lack of manoeuvrability when in flight.
- 9.7.15 The **National** value of whooper swan, **Low** severity and **Medium** sensitivity to collision during operation of the Proposed Development means this would have a **Minor Adverse** effect (**not significant**) and that no mitigation is required in relation to collision avoidance for this species.
- 9.7.16 The overall effect on whooper swan as a result of the construction, operation, maintenance and decommissioning of the Proposed Development would be **Not Significant** on the conservation status of this species.
- 9.7.17 The above assessment applies to both Options A and B as although there are slight differences in the areas, they would make no difference to the outcome of the assessment.

# Mute Swan

- 9.7.18 Mute swan is a large bird with limited manoeuvrability in flight and therefore could be susceptible to collision with overhead lines. The data search and survey work showed that within the study area mute swan activity is largely confined to Section B close to Llyn Alaw. Only two recorded flights passed within 500 m of the Proposed Development with most being confined to the airspace above or immediately adjacent to large waterbodies.
- 9.7.19 Due to the spatial separation between the distribution of flying birds and the Order Limits, potential impacts of the Proposed Development on mute swan are limited to:

- Collision with the OHL during operation of the Proposed Development, particularly in Section B, where the route passes closest to Llyn Alaw.
- 9.7.20 The number of flights observed close to or crossing the Proposed Development was very small, with only two of the recorded flights passing within 500 m of the Proposed Development. Most recorded flights were centred on large open water habitats away from the Proposed Development. While occasional passes of mute swan are possible close to or across the Proposed Development, the baseline flight activity data suggest that the frequency of such an occurrence would be very low. This, combined with the small number of individuals recorded in the context of an estimated UK breeding population of 6,400 pairs and estimated UK wintering population of 74,000 birds, indicates the severity of collision is **Very Low**.
- 9.7.21 Despite the size of this species and inherent limited manoeuvrability in flight, the sensitivity of mute swan to collision is considered **Low**. This is because the design of the new OHL parallel and close to the existing OHL increases the overall visibility of the wire-scape. There is also likely to be a degree of habituation by adult mute swan on Anglesey, which is borne out by no collisions with the existing OHL recorded during the VP surveys which totalled 2,515 hours across the whole of the survey area and no carcasses being recorded.
- 9.7.22 The **Local** value of mute swan, **Very Low** severity and **Low** sensitivity to collision during operation of the Proposed Development means this would have a **Negligible** effect (**not significant**) and that no mitigation is required in relation to collision avoidance for this species.
- 9.7.23 The overall effect on mute swan as a result of the construction, operation, maintenance and decommissioning of the Proposed Development would be **Not Significant** on the conservation status of this species
- 9.7.24 The above assessment applies to both Options A and B as although there are slight differences in the areas, they would make no difference to the outcome of the assessment.

# Greenland White-fronted Goose

9.7.25 Greenland white-fronted goose was not recorded during VP surveys of the study area. The distribution of this species within the survey area (based upon data search sources) is restricted almost exclusively to the western half of Anglesey and especially Malltraeth Marsh, with potential for some movement between Malltraeth Marsh and the Dyfi Estuary, especially during spring and autumn migration. This species was recorded only once on Llyn Alaw (four

birds on the water) over the course of two winters' survey and was never recorded in flight.

- 9.7.26 Due to the spatial separation between the distribution of flying birds and the Order Limits, potential impacts of the Proposed Development on Greenland white-fronted goose are limited to:
  - Collision with the OHL, particularly in Section B where the Order Limits pass closest to Llyn Alaw, during operation of the Proposed Development.
- 9.7.27 The severity of the impact of collision with the OHL is considered **Very Low** based upon the baseline data suggesting there is very little risk of this species interacting with the Proposed Development due to the infrequency with which this species is predicted to cross the new OHL. The likelihood of collision is also expected to be reduced through an increase in the existing visibility of the wire-scape as the Proposed Development would be parallel and close to the existing OHL. Although a large bird with high wing loading and tendency for direct flight, the sensitivity of Greenland white-fronted goose to collision is considered **Low**.
- 9.7.28 The **County** value of Greenland white-fronted goose, **Very Low** severity and **Low** sensitivity to collision during operation of the Proposed Development means this would have a **Negligible** effect (**not significant**) and that no mitigation is required in relation to collision avoidance for this species.
- 9.7.29 The overall effect on Greenland white-fronted goose as a result of the construction, operation, maintenance and decommissioning of the Proposed Development would be **Not Significant** on the conservation status of this species.
- 9.7.30 The above assessment applies to both Options A and B as although there are slight differences in the areas, they would make no difference to the outcome of the assessment.

# Greylag Goose

9.7.31 The data search and survey work showed that whilst this species is widespread, within the study area regular feeding occurred mainly on the fields directly to the north and south of the eastern end of Llyn Alaw, where several hundred individuals of this species regularly grazed on the improved pastures that slope down to the shores of the reservoir. There were frequent short direct flights made between these fields and the reservoir. Additionally, small numbers (typically flocks of fewer than ten individuals) of greylag geese made

flights to and from an area of wet grassland on low lying land within the Afon Goch valley immediately east of Bodneithior (near Llandyfrydog). The observed flight activity to and from this area suggests regular movements of small numbers of greylag geese to and from Llyn Alaw, across the existing OHL. Llyn Alaw is an important roost site for this species.

- 9.7.32 Significant flight activity, much of it during autumn 2016 and winter 2016 2017 was observed between Llyn Alaw and the north Anglesey coast (presumably Cemlyn Bay), with greylag goose flocks numbering up to 435 individuals observed flying in a corridor of movement that was generally parallel with the existing OHL and mainly above risk of collision height.
- 9.7.33 Occasional small feeding flocks of greylag geese were observed at Llyn yr Wyth – Eidion within Cors Erddreiniog, with small numbers of flights observed in this location. A corridor of goose movement was also observed along the Afon Ceint corridor towards Malltraeth Marsh; and within approximately 3 km either side of the Menai Strait, with large numbers of geese moving at height (above collision risk height) between the coast and Malltraeth Marsh in autumn. Flight activity indicated frequent occurrence on the Menai Strait and use of the large ponds within Vaynol Park.
- 9.7.34 Just over half (55%) of the 558 flights (involving 11,866 individuals) observed were at collision risk height although no collisions with the existing OHL and no carcasses were observed during the course of the survey work. The most significant areas of activity close to the Proposed Development occurred in Sections A and B.
- 9.7.35 Potential impacts on greylag goose are as follows:
  - Temporary direct habitat loss from feeding areas during construction, maintenance and decommissioning of the Proposed Development.
  - Temporary disturbance during construction, maintenance and decommissioning of the Proposed Development potentially leading to displacement from feeding areas.
  - Collision with the proposed OHL, particularly in Sections A and B, during operation of the Proposed Development.
- 9.7.36 Mitigation measures required are set out below; full details are provided in the BMS (**Document 7.7**):

Mitigation measures for populations of greylag goose:

- CEMP Measures all relevant General Principle measures, NV11 to NV14, BNC11 to BNC13, R1 to R3.
- 9.7.37 Greylag geese generally forage close to breeding or roosting areas where suitable resources exist and this is the pattern observed. The severity of temporary habitat loss and displacement is considered **Low** since there is extensive availability of alternative foraging resources close to Llyn Alaw where such effects are expected. Greylag geese also have **Low** sensitivity to temporary habitat loss and displacement as they are quick to habituate to regular patterns of activity and baseline data records them remaining foraging whilst farm machinery operated in adjacent fields.
- 9.7.38 The **Low** value of greylag goose, **Low** severity and **Low** sensitivity of this receptor to the potential impacts of temporary habitat loss and displacement during construction, maintenance and decommissioning of the Proposed Development means this would have a **Negligible** effect (**not significant**).
- 9.7.39 Significant flight activity by this species was observed within a corridor of movement that was generally parallel with the existing OHL, with regular movements of small numbers of greylag geese across the existing OHL. The spatial and vertical distribution of flight activity substantially limits the risk of collision with the proposed OHL to the east of Llyn Alaw and the section of OHL that runs between Llyn Alaw and Llandyfrydog. With the UK winter population estimated to be over 225,000 birds and the UK breeding population estimated to be around 46,000 pairs, the severity of impact from collision during operation of the Proposed Development is **Medium**.
- 9.7.40 Despite the size of this species and inherent limited manoeuvrability in flight, the sensitivity of greylag goose to collision is considered Low. This is because the design of the new OHL parallel and close to the existing OHL increases the overall visibility of the wire-scape to birds in flight. There is also likely to be a high degree of habituation by adult greylag geese on Anglesey, which is borne out by the observed behaviour of this species close to the existing OHL. No collisions with the existing OHL were recorded during the VP surveys which totalled 2,515 hours across the whole of the survey area and no carcasses recorded.
- 9.7.41 The Local value of greylag goose, Medium severity and Low sensitivity to collision during operation of the Proposed Development means this would have a Minor Adverse effect (not significant) and that no mitigation is required in relation to collision avoidance for this species.

- 9.7.42 The overall effect on greylag goose as a result of the construction, operation, maintenance and decommissioning of the Proposed Development would be **Not Significant** on the conservation status of this species.
- 9.7.43 The above assessment applies to both Options A and B as although there are slight differences in the areas, they would make no difference to the outcome of the assessment.

#### Shelduck

- 9.7.44 Shelduck is largely restricted to coastal sites with occasional presence on inland waters, including Llyn Alaw, to and from which occasional flights were recorded. Recorded activity by this species amounted to six flights by 11 individual birds, all of which were at collision risk height and all but two of which were close to Llyn Alaw. There are no risks to this species on freshwater habitats (predominantly roosts and feeding areas).
- 9.7.45 Due to the spatial separation between the distribution of flying birds and the Order Limits, potential impacts of the Proposed Development on shelduck are limited to:
  - Collision with the OHL during operation of the Proposed Development.
- 9.7.46 The very low numbers of recorded flights of shelduck, small numbers involved in the baseline data, very little risk of this species interacting with the Proposed Development and in the context of an estimated UK winter population of 61,000 birds and estimated UK breeding population of 15,000 pairs, indicates that the severity of collision is **Very Low**.
- 9.7.47 Shelduck are a relatively large species of duck and therefore potentially less manoeuvrable and at greater risk of collision with OHLs than smaller species of duck such as teal. They are, however, significantly more manoeuvrable in flight than geese, swans or grey heron. The sensitivity of this species to the risk of collision is therefore considered Low. No collisions with the existing OHL were recorded during the VP surveys which totalled 2,515 hours across the whole of the survey area and no carcasses recorded.
- 9.7.48 The **Local** value of shelduck, **Very Low** severity and **Low** sensitivity to collision during operation of the Proposed Development means this would have a **Negligible** effect (**not significant**) and that no mitigation is required in relation to collision avoidance for this species.
- 9.7.49 The overall effect on shelduck as a result of the construction, operation, maintenance and decommissioning of the Proposed Development would be **Not Significant** on the conservation status of this species.

9.7.50 The above assessment applies to both Options A and B as although there are slight differences in the areas, they would make no difference to the outcome of the assessment.

## Mallard

- 9.7.51 The data search and survey work showed that mallard is widespread all year round within the study area, being associated with the Menai Strait and inland waterbodies of all sizes. Mallard was recorded breeding in five of the CBC survey areas. Widespread flight activity was observed, though with particular concentrations close to wetlands. Of these, the greatest number of flights were associated with Llyn Alaw and several much smaller ponds between Rhosgoch and Llandyfrydog. Elevated levels of flight activity were also recorded over Llyn yr With Eidion within Cors Erddreiniog and a small wetland approximately 1 km north of Talwrn. The majority of recorded flight activity was therefore within Sections B D. Overall, 57% of the 376 recorded flights, involving 1,470 individuals, were at collision risk height.
- 9.7.52 Potential impacts on mallard are as follows:
  - Temporary disturbance during construction, maintenance and decommissioning of the Proposed Development potentially leading to displacement of birds from breeding and feeding habitats.
  - Collision with the OHL during operation of the Proposed Development.
- 9.7.53 Mitigation measures required are set out below; full details are provided in the BMS (**Document 7.7**):

Mitigation measures for potential impacts on mallard:

- CEMP Measures all relevant General Principle measures, NV11 to NV14, BNC11 to BNC13, R1 to R3.
- 9.7.54 Mallard is widely distributed across Anglesey. With a minimum of approximately five nest sites potentially at risk of temporary disturbance during construction, maintenance and decommissioning of the Proposed Development in the context of the large breeding population across Anglesey, estimated UK breeding population of between 61,000 and 146,000 pairs and estimated UK winter population of over 700,000 birds, indicates the severity of temporary disturbance or displacement on mallard is considered **Low**.
- 9.7.55 Mallard nest across a wide range of wetland habitats across Anglesey and probably respond to seasonal changes in wetland availability. The species is adaptable when breeding and feeding and can move relatively large distances

to feed, except in the period when young are dependent. With a large number of potential suitable nesting and feeding sites the sensitivity of mallard to the temporary disturbance or displacement is considered **Low**.

- 9.7.56 The **Local** value of mallard, **Low** severity and **Low** sensitivity to the potential impacts of temporary disturbance during construction, operation, maintenance and decommissioning of the Proposed Development means this would have a **Negligible** effect (**not significant**).
- 9.7.57 Although no collisions with the existing OHL were recorded during the VP surveys, which totalled 2,515 hours across the whole of the survey area, and no carcasses recorded, given the widespread presence and high number of recorded flights, mallard are potentially vulnerable to collisions with the OHL of the Proposed Development. The severity of this impact is therefore considered **Medium**.
- 9.7.58 Mallard are a medium/large sized duck with high levels of manoeuvrability in flight and therefore significantly less sensitive to collision risk than larger species of waterfowl, including geese and swans, as they are able to respond more quickly if required. The alignment of the proposed OHL alongside the existing one would increase the visual wire-scape and therefore potentially increase visibility to birds in flight. There is also likely to be a high degree of habituation within the adult mallard population on Anglesey which would further limit the severity of impacts. The sensitivity to the risk of collision is therefore considered **Low**.
- 9.7.59 The Local value of mallard, Medium severity and Low sensitivity to collision during operation of the Proposed Development means this would have a Minor Adverse effect (not significant) and that no mitigation is required in relation to collision avoidance for this species.
- 9.7.60 The overall effect on mallard as a result of the construction, operation, maintenance and decommissioning of the Proposed Development would be **Not Significant** on the conservation status of this species.
- 9.7.61 The above assessment applies to both Options A and B as although there are slight differences in the areas, they would make no difference to the outcome of the assessment.

#### Shoveler

9.7.62 The survey work showed shoveler was only recorded on inland waterbodies, particularly Llyn Alaw, Llyn Hafodol and Llyn Llegeirian. It was only recorded

in flight on one occasion between a small pond at Bryn Dyfrydog and Llyn Alaw.

- 9.7.63 Due to the spatial separation between the distribution of flying birds and the Order Limits, potential impacts of the Proposed Development on shoveler are limited to:
  - Collision with the OHL during operation of the Proposed Development.
- 9.7.64 The severity of the impact of collision on shoveler is considered **Very Low** given the lack of flights recorded during the baseline study and restricted distribution of this species close to wetlands away from the Proposed Development.
- 9.7.65 Shoveler is a medium to large sized duck with reasonable levels of manoeuvrability in flight. The alignment of the proposed OHL alongside the existing one would increase the visual wire-scape and therefore potentially increase visibility to birds in flight. The sensitivity to the risk of collision is therefore considered **Low**.
- 9.7.66 The **Local** value of shoveler, **Very Low** severity and **Low** sensitivity to collision during operation of the Proposed Development means this would have a **Negligible** effect (**not significant**) and that no mitigation is required in relation to collision avoidance for this species.
- 9.7.67 The overall effect on shoveler as a result of the construction, operation, maintenance and decommissioning of the Proposed Development would be **Not Significant** on the conservation status of this species.
- 9.7.68 The above assessment applies to both Options A and B as although there are slight differences in the areas, they would make no difference to the outcome of the assessment.

# Wigeon

- 9.7.69 The data search and survey work showed key areas for wigeon within the study area include the inland waterbodies close to the Order Limits (especially Llyn Alaw, Llyn Llegeirian and Llyn Hafodol) and coastal areas around the northern, eastern and southern margins of Anglesey. There were also records of small flocks from small pools near Bryn Dyfrydog and Capel Coch. Eight flights involving 45 individuals were recorded in the areas around Llyn Alaw and Bryn Dyfrydog.
- 9.7.70 Potential impacts on wigeon are as follows:

- Temporary disturbance during construction, maintenance and decommissioning of the Proposed Development potentially leading to displacement of winter birds from roosting and feeding on small pools near Bryn Dyfrydog and Capel Coch.
- Collision with the OHL during operation of the Proposed Development.
- 9.7.71 Mitigation measures required are set out below; full details are provided in the BMS (**Document 7.7**):

Mitigation measures for potential impacts on wigeon:

- CEMP Measures all relevant General Principle measures, NV11 to NV14, BNC11 to BNC13, R1 to R3.
- 9.7.72 The severity of temporary disturbance to wigeon is considered **Low**. This is based on no waterbodies used by this species occurring within the Order Limits and the distance of approximately 220 m between the Order Limits and the pond regularly used by this species at Bryn Dyfrydog, the distance of at least 350 m between the Order Limits (the start of an access track) and Llyn Hafodol, the distance of at least 500 m between the Order Limits and Llyn Alaw and the distance of at least 2.5 km between the Order Limits and Llyn Llegeirian.
- 9.7.73 Wigeon are widely distributed across Anglesey in winter utilising a potentially large number of wetland areas for foraging and roosting in response to local factors including disturbance and weather conditions. They are therefore considered to have a **Low** sensitivity to temporary disturbance of habitats outside the Order Limits.
- 9.7.74 The **Local** value of wigeon, **Low** severity and **Low** sensitivity to the potential residual impacts of temporary disturbance and displacement during construction, operation, maintenance and decommissioning of the Proposed Development would have a **Negligible** effect (**not significant**).
- 9.7.75 The very low numbers of recorded flights in the baseline data combined with the localised distribution of the species close to Capel Coch, Llyn Alaw and Bryn Dyfrydog, very little risk of this species interacting with the Proposed Development and in the context of an estimated UK winter population of 440,000 birds, indicates that the severity of collision is **Very Low**.
- 9.7.76 Wigeon are a medium to large sized duck and with good levels of manoeuvrability in flight and therefore able to change height and/or direction relatively quickly to avoid collision. With no collisions with the existing OHL recorded during the VP surveys which totalled 2,515 hours across the whole

of the survey area, no carcasses recorded and the design of the proposed OHL parallel and close to the existing OHL increasing visibility of the wirescape for birds traversing the line, the sensitivity to collision is considered **Low**.

- 9.7.77 The Local value of wigeon, Very Low severity and Low sensitivity to collision during operation of the Proposed Development means this would have a **Negligible** effect (not significant).
- 9.7.78 The overall effect on wigeon as a result of the construction, operation, maintenance and decommissioning of the Proposed Development would be **Not Significant** on the conservation status of this species.
- 9.7.79 The above assessment applies to both Options A and B as although there are slight differences in the areas, they would make no difference to the outcome of the assessment.

Teal

- 9.7.80 The data search and survey work showed teal is widespread across Anglesey, occurring at both coastal and freshwater sites. Within the study area it was recorded regularly at Llyn Alaw and was recorded as a possible breeder on a small waterbody near Wylfa Substation. There were 15 recorded teal flights involving 198 birds, predominantly in the vicinity of Llyn Alaw and Bryn Dyfrydog, with some localised flight activity over a small pool at the southern end of Cors Erddreiniog.
- 9.7.81 Potential impacts on teal are as follows:
  - Temporary disturbance during construction, maintenance and decommissioning of the Proposed Development potentially leading to displacement of roosting, breeding and feeding birds on small inland pools, particularly near Bryn Dyfrydog, Cors Erddreiniog and Wylfa.
  - Collision with the OHL, particularly populations occurring at/close to Llyn Alaw, during operation of the Proposed Development.
- 9.7.82 Mitigation measures required are set out below; full details are provided in the BMS (**Document 7.7**):

Mitigation measures for potential impacts on teal:

• CEMP Measures all relevant General Principle measures, NV11 to NV14, BNC11 to BNC13, R1 to R3.

The following additional measures would be implemented:

- Phase work so that vegetation clearance, establishment of working areas and habitat restoration within 500 m of inland waterbodies at Wylfa, Bryn Dyfrydog and Cors Erddreiniog are completed outside of the breeding bird season (March – September for most bird species). Where this is not possible all potential breeding habitat to be removed would be checked by an experienced ornithologist prior to removal to ensure that teal are not breeding. This would ensure compliance with the Wildlife and Countryside Act 1981 (as amended).
- 9.7.83 Only a single pair of teal was recorded during survey work as possibly breeding towards the northern end of the Order Limits. This represents less than 0.05% of the estimated UK breeding population of 2,100 pairs. Due to the low numbers of this species recorded during the survey work and taking into account the distance of approximately 220 m between the Order Limits and the regularly used pond at Bryn Dyfrydog, the distance of more than 500 m between the Order Limits and Llyn Alaw, the severity of the potential residual impact on teal as a result of temporary disturbance or displacement is considered **Low**.
- 9.7.84 Teal can utilise a wide range of wetland habitats during the winter in response to changes in environmental conditions as they tend to favour marginal and shallow water for foraging. As a result, wintering and migratory teal populations are widely distributed across Anglesey on a large number of potential suitable feeding sites. The sensitivity of teal to temporary disturbance or displacement as a result of the Proposed Development is considered **Low**.
- 9.7.85 The Local value of teal, Low severity and Low sensitivity on both wintering and breeding teal to the potential residual impacts of temporary disturbance and displacement during construction, operation, maintenance and decommissioning of the Proposed Development would have a **Negligible** effect (not significant).
- 9.7.86 The low number of recorded flights (15) of teal, small number of individuals in the baseline data combined with the localised distribution of the species close to Llyn Alaw, Bryn Dyfrydog, over a small pool at the southern end of Cors Erddreiniog and in the vicinity of Wylfa in the context of an estimated UK winter population of 210,000 birds, indicates limited risk of this species interacting with the Proposed Development and that the severity of collision is **Low**.
- 9.7.87 Teal are a small and highly manoeuvrable species of duck in flight able to change height and/or direction very quickly to avoid collision. No collisions with the existing OHL were recorded during the VP surveys which totalled 2,515 hours across the whole of the survey area and no carcasses recorded.

This, combined with the design of the proposed OHL close to the existing OHL increasing visibility of the wire-scape for birds traversing the line, indicates the sensitivity to collision is **Low**.

- 9.7.88 The **Local** value of teal, **Low** severity and **Low** sensitivity to collision during operation of the Proposed Development means this would have a **Negligible** effect (**not significant**).
- 9.7.89 The overall effect on teal as a result of the construction, operation, maintenance and decommissioning of the Proposed Development would be **Not Significant** on the conservation status of this species.
- 9.7.90 The above assessment applies to both Options A and B as although there are slight differences in the areas, they would make no difference to the outcome of the assessment.

# Tufted Duck

- 9.7.91 The data search and survey work showed tufted duck was recorded regularly at Llyn Alaw and Cefni Reservoir during winter 2016 17 in numbers up to 307 at Llyn Alaw and 160 at Cefni Reservoir. Breeding at Llyn Alaw was confirmed by third party records, which also confirm regular presence in large numbers mostly at inland freshwater sites on Anglesey including Malltraeth Marsh and Llyn yr Wyth Eidion (Cors Erddreiniog). There were seven observed tufted duck flights involving 31 birds. All but one flight was to or from Llyn Alaw.
- 9.7.92 Due to the spatial separation between the distribution of this species exclusively on open water habitats and the Order Limits, potential impacts of the Proposed Development on tufted duck are limited to:
  - Collision with the OHL, particularly populations occurring at/close to Llyn Alaw, during operation of the Proposed Development.
- 9.7.93 The low number of recorded flights (seven) of tufted duck, small number of individuals in the baseline data, localised distribution of the species close to Llyn Alaw and smaller scattered wetlands across Anglesey, and in the context of an estimated UK winter population of 110,000 birds, combined, indicates limited risk of this species interacting with the Proposed Development and that the severity of collision is **Very Low**.
- 9.7.94 Tufted duck are a small and manoeuvrable species of duck in flight able to change height and/or direction quickly to avoid collision. Within the study area they have a preference for deeper and larger waterbodies across Anglesey and show high degrees of association with such areas which they utilise for

bot feeding and roosting, thus limiting the number of flights taken. The lack of flights was confirmed by the baseline data. No collisions with the existing OHL were recorded during the VP surveys which totalled 2,515 hours across the whole of the survey area and no carcasses recorded. This, combined with the design of the OHL close to the existing line increasing visibility of the wire-scape for birds traversing the line, indicates the sensitivity to collision is **Low**.

- 9.7.95 The **Local** value of tufted duck, **Very Low** severity and **Low** sensitivity to collision during operation of the Proposed Development means this would have a **Negligible** effect (**not significant**) and that no mitigation is required in relation to collision avoidance for this species.
- 9.7.96 The overall effect on tufted duck as a result of the construction, operation, maintenance and decommissioning of the Proposed Development would be **Not Significant** on the conservation status of this species.
- 9.7.97 The above assessment applies to both Options A and B as although there are slight differences in the areas, they would make no difference to the outcome of the assessment.

#### Gadwall

- 9.7.98 The data search and survey work showed gadwall present at freshwater sites and some coastal areas on Anglesey. Within the survey area this species was recorded once on the Menai Strait (although this was outside of the Order Limits) and on several occasions at Llyn Alaw. A single flight was recorded between a small pond near Rhosgoch and Llyn Alaw.
- 9.7.99 Due to the spatial separation between the distribution of flying birds and the Order Limits, potential impacts of the Proposed Development on gadwall are limited to:
  - Collision with the OHL, particularly populations occurring at/close to Llyn Alaw and Rhosgoch, during operation of the Proposed Development.
- 9.7.100 Gadwall have a preference for deeper and larger waterbodies, though they also utilise smaller ponds and flashes as well as occasionally occurring in coastal areas. They are also generally sedentary in nature meaning individuals of this species rarely move from their preferred wetland. The localised distribution on Llyn Alaw and other wetlands, single recorded flight, small number of individuals in the baseline data and very low number of flights predicted to cross the new OHL in the context of an estimated UK winter population of 25,000 birds, indicates very limited risk of this species interacting with the Proposed Development and that the severity of collision is **Very Low**.

- 9.7.101 Gadwall are a medium sized and relatively manoeuvrable species of duck in flight able to change height and/or direction relatively quickly to avoid collision No collisions with the existing OHL were recorded during the VP surveys which totalled 2,515 hours across the whole of the survey area and no carcasses recorded. This, combined with the design of the OHL parallel and close to the existing line increasing visibility of the wire-scape for birds traversing he line, indicates the sensitivity to collision is **Low**.
- 9.7.102 The Local value of gadwall, Very Low severity and Low sensitivity to collision during operation of the Proposed Development means this would have a Negligible effect (not significant) and that no mitigation is required in relation to collision avoidance for this species.
- 9.7.103 The overall effect on gadwall as a result of the construction, operation, maintenance and decommissioning of the Proposed Development would be **Not Significant** on the conservation status of this species.
- 9.7.104 The above assessment applies to both Options A and B as although there are slight differences in the areas, they would make no difference to the outcome of the assessment.

#### Cormorant

- 9.7.105 The data search and survey work showed cormorant is widespread throughout the year on both the Anglesey coast and generally larger and deeper inland waters. It was recorded roosting and feeding during surveys at Llyn Alaw and on the Menai Strait, where it roosted on Ynys Welltog and roamed more widely when feeding within the Strait. There were 92 recorded cormorant flights, 75 (81.5%) of which were at collision risk height, involving 131 birds. Of the 75 flights at collision risk height, 31 crossed the existing OHL with 37 of 92 total flights crossing the OHL. While this species is associated with both inland freshwater sites and coastal waters, there is also evidence of flight activity between wetlands over both the Gwynedd mainland and Anglesey. Regular corridors of movement were identified to and from Llyn Alaw in a broadly northwest – south-east direction; and over Cors Erddreiniog to and from the direction of Llangefni. Elsewhere, scattered flight activity was observed to and from the north and south coasts of Anglesey and across the interior of Anglesey.
- 9.7.106 Due to the spatial separation between the distribution of roosting and feeding areas of this species on wetland habitats and the Order Limits, potential impacts of the Proposed Development on cormorant are limited to:

- Collision with the OHL, particularly for populations close to Llyn Alaw and Cors Erddreiniog, during operation of the Proposed Development.
- 9.7.107 The low number of recorded flights of cormorant, small number of individuals in the baseline data, localised distribution close to the Order Limits of the species close to Llyn Alaw and Cors Erddreiniog and low number of flights predicted to cross the new OHL in the context of an estimated UK breeding population of over 9,000 pairs and estimated UK winter population of 41,000 birds, indicates the severity of collision is **Low**.
- 9.7.108 Despite cormorant being a large species of bird they are relatively manoeuvrable in flight and able to change height and/or direction relatively quickly to avoid collision. They are reported (Ref 9.60) to be of low collision risk with windfarms which present a generally greater risk of collision than static powerlines even under adverse weather conditions. Such high avoidance is also supported by no collisions with the existing OHL recorded during the VP surveys which totalled 2,515 hours across the whole of the survey area and no carcasses recorded. Cormorant roam widely searching for prey and the spatial distribution of flights close to Cors Erddreiniog and Llyn Alaw close to the Proposed Development may increase the risk of collision in these areas. However, the design of the proposed OHL, being parallel with and close to the existing OHL increasing visibility of the wire-scape for birds traversing the line, indicates the sensitivity to collision is **Low**.
- 9.7.109 The Local value of cormorant, Low severity and Low sensitivity to collision during operation of the Proposed Development means this would have a Negligible effect (not significant) and that no mitigation is required in relation to collision avoidance for this species.
- 9.7.110 The overall effect on cormorant as a result of the construction, operation, maintenance and decommissioning of the Proposed Development would be **Not Significant** on the conservation status of this species.
- 9.7.111 The above assessment applies to both Options A and B as although there are slight differences in the areas, they would make no difference to the outcome of the assessment.

# Little Egret

9.7.112 The data search and survey work showed that little egret is widespread at inland freshwater and coastal wetland sites around Anglesey, with larger numbers generally at coastal sites. Within the survey area, key sites for this resident species of bird include Llyn Alaw and the Menai Strait. At the latter site, regular feeding and roosting were observed and two nests were recorded on Ynys Welltog, west of the Order Limits.

- 9.7.113 There were 75 recorded flights of little egret, 38 (50.6%) of which were at collision risk height, involving 96 individuals. Recorded activity was greatest around Llyn Alaw, Llandyfrydog, Cors Erddreiniog and the Menai Strait, there being some movement between the Menai Strait and potentially Malltraeth Marsh and inland wetlands within about 5 km of the Menai Strait. Movements close to Llyn Alaw were mostly between the water's edge and wet grasslands and ditches to the south-east of the reservoir, with few occurrences of these flights crossing the existing OHL.
- 9.7.114 Due to the spatial separation in the distribution of roosting, feeding and breeding areas of this species on wetland habitats and the Order Limits, potential impacts of the Proposed Development on cormorant are limited to:
  - Collision with the OHL, particularly populations close to Llyn Alaw, Llandyfrydog and Cors Erddreiniog, during operation of the Proposed Development.
- 9.7.115 Despite the number of flights of this species recorded during the survey work and it potentially being encountered anywhere there is suitable habitat, the observed flight activity of the species was largely restricted to near Llyn Alaw, Llandyfrydog, Cors Erddreiniog and the Menai Strait. This suggests limited risk of this species interacting with the Proposed Development, especially with this being in a tunnel under the Menai Strait. The resulting low number of flights predicted to cross the new OHL in the context of an estimated UK winter population of 4,500 birds and estimated UK breeding population of around 700 pairs, indicates the severity of collision is **Low**.
- 9.7.116 Little egret is medium sized slow flying species of bird which, whilst considered to have limited manoeuvrability in flight, does have some ability to change height and/or direction to avoid collision. No collisions with the existing OHL were recorded during the VP surveys which totalled 2,515 hours across the whole of the survey area and no carcasses recorded. As a resident species the adult population of little egret can show a degree of habituation to the presence of the existing OHL. This, combined with the design of the proposed OHL being parallel with and close to the existing OHL increasing visibility of the wire-scape for birds traversing the line, indicates the sensitivity to collision is **Low**.
- 9.7.117 The **Local** value of little egret, **Low** severity and **Low** sensitivity to collision during operation of the Proposed Development means this would have a

**Negligible** effect (**not significant**) and that no mitigation is required in relation to collision avoidance for this species.

- 9.7.118 The overall effect on little egret as a result of the construction, operation, maintenance and decommissioning of the Proposed Development would be **Not Significant** on the conservation status of this species.
- 9.7.119 The above assessment applies to both Options A and B as although there are slight differences in the areas, they would make no difference to the outcome of the assessment.

## Grey Heron

- 9.7.120 The data search and survey work showed grey heron is a common breeding resident present throughout the year. The distribution is closely linked to that of wetlands, including marshlands, ponds, lakes, ditches, rivers and coastal areas. This species was present at Llyn Alaw during bird counts and VP surveys, with breeding recorded at Ynys Welltog on the Menai Strait and within the plantation woodland adjacent to a proposed access route along the existing road to Wylfa Nuclear Power Station. Grey heron were widespread on most surveys of the Menai Strait and were also recorded within the wetlands of Cors Erddreiniog.
- 9.7.121 There were 212 recorded flights involving 224 birds, of which 147 (69.3%) were at collision risk height. Widespread flight activity was recorded across the survey area with elevated levels of activity at risk of collision close to wetland, coastal and nest sites including Wylfa and Llyn Alaw Llandyfrydog and Cors Erddreiniog. There were also regular flights within a few kilometres of the Menai Strait within the Afon Braint valley, close to Greenwood Forest Park on the mainland and to and from the Menai Strait 2 3 km east of the Order Limits.
- 9.7.122 Potential impacts on grey heron are as follows:
  - Destruction and/or damage of the nest site within woodland at Wylfa during construction, maintenance and decommission.
  - Temporary direct loss of breeding habitat during construction, maintenance and decommissioning, particularly the woodland at Wylfa.
  - Temporary disturbance during construction, maintenance and decommissioning of the Proposed Development potentially leading to displacement from the nest site at Wylfa.
  - Collision with the OHL during operation of the Proposed Development.

9.7.123 Mitigation measures required are set out below; full details are provided in the BMS (**Document 7.7**):

Mitigation measures for grey heron:

• CEMP measures all relevant General Principle measures, NV11 to NV14, BNC11 to BNC13, R1 to R3.

The following additional measures would be implemented:

- Phase work so that vegetation clearance, establishment of working areas and habitat restoration are completed outside of the grey heron breeding season (February – July) if this nest is used at the time of construction. Where this is not possible all potential breeding habitat to be removed would be checked by an experienced ornithologist prior to removal to ensure that grey heron are not breeding. This would ensure compliance with the Wildlife and Countryside Act 1981 (as amended).
- Working areas set up at the onset of construction should be strictly adhered to in order to prevent additional losses of breeding habitat. ECoW to advise operations during the construction phase and temporary exclusion zones imposed on work should a high likelihood of impacts be detected.
- 9.7.124 With the nesting site of this species recorded at Wylfa located approximately 130 m from areas directly affected by habitat clearance during construction, maintenance or decommissioning work for the Proposed Development, there would be no potential for destruction/damage of nests during the breeding season. This impact is therefore not discussed further.
- 9.7.125 With the above mitigation measures in place to avoid works in the nesting season where possible and to limit habitat loss, and in the context of an estimated UK population of 13,000 nest sites, the severity of the potential destruction of breeding habitat during construction, maintenance and decommissioning of the Proposed Development is considered Very Low.
- 9.7.126 With the above mitigation measures in place to avoid works in the nesting season, the nesting sites of this species recorded at Wylfa and Ynys Welltog within the Menai Strait located approximately 130 m and over 1 km respectively from areas directly affected by habitat clearance, the sensitivity to temporary direct loss of breeding habitat during construction, maintenance and decommissioning of the Proposed Development is considered Medium.
- 9.7.127 The Local value of grey heron, Very Low severity and Medium sensitivity to the potential residual impacts of habitat loss at or near the nest site during construction, maintenance and decommissioning of the Proposed Development means this would have a Negligible effect (not significant).

- 9.7.128 The nest site at Wylfa is located approximately 130 m from areas directly affected by vegetation clearance or construction, maintenance or decommissioning work for the Proposed Development. This, with the proposed mitigation measures, indicates the severity of the potential residual impact of temporary disturbance and displacement is **Very Low**.
- 9.7.129 Temporary disturbance and displacement from the breeding area at Wylfa could occur during construction, maintenance and decommissioning of the Proposed Works. This could potentially result in the abandonment of the nest site during the breeding cycle, in response to noise, vibration, vehicle movements and the presence of personnel. However, breeding at this location (and elsewhere) demonstrates a degree of habituation to disturbance as the nest site has been established adjacent to an existing access road. This, with the mitigation measures proposed, indicates the sensitivity to the residual impact of temporary disturbance and displacement is **Low**.
- 9.7.130 The Local value of grey heron, Very Low severity and Low sensitivity to the potential residual impacts of temporary disturbance and displacement during construction, operation, maintenance and decommissioning of the Proposed Development means this would have a Negligible effect (not significant).
- 9.7.131 The low number of recorded grey heron flights, small number of individuals and spatial separation from the proposed OHL of many of the recorded flights indicates limited risk of this species interacting with the Proposed Development and that the severity of collision is **Low**.
- 9.7.132 Herons are large slow-flying birds with a wingspan up to 2 m and, whilst considered to have limited manoeuvrability in flight, have some ability to change height and/or direction to avoid collision. No collisions with the existing OHL were recorded during the VP surveys which totalled 2,515 hours across the whole of the survey area and no carcasses recorded. This, combined with the design of the OHL being parallel with and close to the existing OHL increasing visibility for birds traversing the line, indicates the sensitivity to collision is **Medium**.
- 9.7.133 The **Local** value of grey heron, **Low** severity and **Medium** sensitivity to collision with the OHL during operation of the Proposed Development means this would have a **Minor adverse** effect (**not significant**).
- 9.7.134 The overall effect on grey heron as a result of the construction, operation, maintenance and decommissioning of the Proposed Development would be **Not Significant** on the conservation status of this species.

9.7.135 The above assessment applies to both Options A and B as although there are slight differences in the areas, they would make no difference to the outcome of the assessment.

### Red Kite

- 9.7.136 There was no evidence from any of the surveys that red kite bred within the survey area. However red kite were recorded overflying the survey area. There were 39 recorded flights involving 40 individual birds, of which 35 (89.7%) were at collision risk height. The observed distribution of flight activity was heavily biased towards the areas between Llanfechell and Rhosgoch; and the wooded landscape of the mainland between the Menai Strait and Pentir. Individuals were observed soaring over and across the existing OHL and in Section A (Llanfechell Rhosgoch) almost all recorded flight activity was within 500 m of the existing OHL.
- 9.7.137 Potential impacts of the Proposed Development on red kite are limited to:
  - Collision with the OHL during operation of the Proposed Development.
- 9.7.138 The low number of recorded red kite flights, small number of individuals and spatial separation from the proposed OHL of many of the recorded flights in the context of an estimated UK breeding population of 1,600 pairs, indicates limited risk of this species interacting with the Proposed Development and that the severity of collision is **Very Low**.
- 9.7.139 Red kite is a large bird with limited manoeuvrability in flight and therefore a species that could potentially be susceptible to collision with OHLs. No collisions with the existing OHL were recorded during the VP surveys which totalled 2,515 hours across the whole of the survey area and no carcasses recorded. The observed habituation of this species to the existing OHL, combined with the design of the OHL being parallel with and close to the existing OHL increasing visibility for birds traversing the line, indicates the sensitivity to collision is **Medium**.
- 9.7.140 The Local value of red kite, Very Low severity and Medium sensitivity to collision with the OHL during operation of the Proposed Development means this would have a Negligible effect (not significant) and that no mitigation is required in relation to collision avoidance for this species.
- 9.7.141 The overall effect on red kite as a result of the construction, operation, maintenance and decommissioning of the Proposed Development would be **Not Significant** on the conservation status of this species.

9.7.142 The above assessment applies to both Options A and B as although there are slight differences in the areas, they would make no difference to the outcome of the assessment.

# Marsh Harrier

- 9.7.143 Third party records in the data search include recurrent sightings of marsh harrier at Malltraeth Marsh, Cemlyn Bay, Cors Bodelio and Cors Erddreiniog (where roosting has been recorded). Occasional sightings have also been reported close to Llyn Alaw. A breeding pair was present on Anglesey in 2014 and attempted breeding occurred at Malltraeth Marsh in 2015, but this species is otherwise regarded as a scarce passage migrant. There was no evidence from the surveys that roosting or breeding occurred during the survey period.
- 9.7.144 The species was recorded seven times during the VP surveys. All flights were single birds, five (71.4%) of which were at collision risk height. The majority of flight activity was recorded over the low-lying land between Llandaniel Fab and Llanfairpwll. A juvenile made two flights close to Cors Erddreiniog and a single flight across the eastern edge of Malltraeth Marsh. There is the potential for flight activity to occur in all Sections of the Proposed Development.
- 9.7.145 Due to the spatial separation between the distribution of flying birds and the Order Limits, potential impacts of the Proposed Development on marsh harrier are limited to:
  - Collision with the OHL during operation of the Proposed Development.
- 9.7.146 The low number of recorded marsh harrier flights (seven), small number of individuals (seven) in the baseline data and spatial separation between the distribution of flying birds and the Order Limits in the context of an estimated UK breeding population of 400 pairs, indicates limited risk of this species interacting with the Proposed Development and that the severity of collision is Very Low.
- 9.7.147 Marsh harrier is a large bird with a degree of manoeuvrability in flight and therefore some ability to change height and/or direction to avoid collision. No collisions with the existing OHL were recorded during the VP surveys which totalled 2,515 hours across the whole of the survey area and no carcasses recorded. The design of the OHL being parallel with and close to the existing OHL increasing visibility for birds traversing the line, indicates the sensitivity to collision is **Medium**.

- 9.7.148 The Local value of marsh harrier, Very Low severity and Medium sensitivity to collision with the OHL during operation of the Proposed Development means this would have a Negligible effect (not significant) and that no mitigation is required in relation to collision avoidance for this species.
- 9.7.149 The overall effect on marsh harrier as a result of the construction, operation, maintenance and decommissioning of the Proposed Development would be **Not Significant** on the conservation status of this species.
- 9.7.150 The above assessment applies to both Options A and B as although there are slight differences in the areas, they would make no difference to the outcome of the assessment.

#### Hen Harrier

- 9.7.151 The data search and survey work showed hen harrier is a scarce resident and winter visitor to Anglesey and north Gwynedd. The baseline data do not include any records of breeding or roosting hen harrier, with third party records including repeat sightings in winter at Cors Erddreiniog and Cemlyn, plus sightings at Cors Goch and Malltraeth Marsh.
- 9.7.152 The only records of this species during the surveys were the three flights recorded during VP surveys. Two of these were attributable to a male and a female active together at low height around the open water within Cors Erddreiniog NNR in March 2017. A longer direct flight northwards over Gylched Covert to the east of Llangefni in April 2016 was also recorded. Only one of the flights involved any time at collision risk height.
- 9.7.153 Due to the spatial separation between the distribution of flying birds and the Order Limits, potential impacts of the Proposed Development on hen harrier are limited to:
  - Collision with the OHL during operation of the Proposed Development.
- 9.7.154 The low number of recorded hen harrier flights, small numbers of individuals in the baseline data and spatial separation between the distribution of flying birds and the Order Limits in the context of an estimated UK breeding population of over 600 pairs, indicates limited risk of this species interacting with the Proposed Development and that the severity of collision is **Very Low**.
- 9.7.155 Hen harrier is a medium-large sized bird with a degree of manoeuvrability in flight and therefore some ability to change height and/or direction to avoid collision. No collisions with the existing OHL were recorded during the VP surveys which totalled 2,515 hours across the whole of the survey area and no carcasses recorded. The design of the OHL being parallel with and close

to the existing OHL increasing visibility for birds traversing the line, indicates the sensitivity to collision is **Medium**.

- 9.7.156 The Local value of hen harrier, Very Low severity and Medium sensitivity to collision with the OHL during operation of the Proposed Development means this would have a Negligible effect (not significant) and that no mitigation is required in relation to collision avoidance for this species.
- 9.7.157 The overall effect on hen harrier as a result of the construction, operation, maintenance and decommissioning of the Proposed Development would be Not Significant on the conservation status of this species.
- 9.7.158 The above assessment applies to both Options A and B as although there are slight differences in the areas, they would make no difference to the outcome of the assessment.

## Kestrel

- 9.7.159 The data search and survey work showed kestrel is a widespread resident and breeding species in north Gwynedd and on Anglesey. Third party data confirm that the species breeds at multiple sites across Anglesey and the north Wales mainland and that historic breeding has occurred in pole and tree-mounted nest boxes at Cors Erddreiniog. Within the survey area possible breeding was identified by the presence of a single kestrel flying from woodland at Wylfa Nuclear Power Station (CBC Survey Area 1); however since this was the only bird and no breeding behaviours were observed this is assumed not to have bred. Nevertheless, this species was frequently recorded throughout the survey area at all times of year and it has been assumed that breeding could occur within or close to the Order Limits.
- 9.7.160 Kestrel flights were recorded throughout the survey area, from all but two of the VPs. The number of recorded flights was 214, of which 124 (58%) were at collision risk height for at least some of the flight duration. This species was frequently observed perching on the existing pylons.
- 9.7.161 Potential impacts on kestrel are as follows:
  - Destruction and/or damage of nests during the breeding season.
  - Temporary habitat loss at possible breeding sites during construction, maintenance and decommissioning, which could include woodlands and single trees.
  - Permanent habitat losses from nesting areas during operation of the Proposed Development.
- Temporary disturbance during construction, maintenance and decommissioning of the Proposed Development potentially leading to displacement from breeding and feeding areas.
- Collision with the OHL during operation of the Proposed Development.

# 9.7.162 Mitigation measures required are set out below; full details are provided in the BMS (**Document 7.7**):

Mitigation measures for kestrel:

• CEMP measures all relevant General Principle measures, NV11 to NV14, NV31, NV32, BNC11 to BNC13, TH11 to TH13, R1 to R4.

- Phase work so that vegetation clearance, establishment of working areas and habitat restoration are completed outside of the breeding bird season (March – September). Where this is not possible all potential breeding habitat to be removed would be checked by an experienced ornithologist prior to removal to ensure that kestrel are not breeding. This would ensure compliance with the Wildlife and Countryside Act 1981 (as amended).
- Working areas set up at the onset of construction should be strictly adhered to in order to prevent additional losses of breeding habitat. ECoW to advise operations during the construction phase and temporary exclusion zones imposed on work should a high likelihood of impacts be detected.
- 9.7.163 With the above mitigation measures in place to avoid works in the nesting season where possible or have an inspection of suitable habitat by an experienced ornithologist, there would be no potential for destruction/damage of nests during the breeding season. This impact is therefore not discussed further.
- 9.7.164 With the above mitigation measures in place to limit the permanent and temporary loss of breeding habitat, the low number of recorded nest sites in the context of an estimated UK breeding population of 46,000 pairs and with this species known to nest occasionally on pylons (meaning that for the duration of operation the Proposed Development will potentially provide more nesting habitat for this species), the severity of the potential residual loss of breeding habitat during construction, operation, maintenance and decommissioning of the Proposed Development is **Very Low**.
- 9.7.165 Breeding by this species has not been positively identified within any of the CBC survey areas. However, presence of a kestrel within the woodland at Wylfa Nuclear Power Station suggests potential for breeding to occur there. Breeding could also occur in other parts of the survey area that overlap the

Order Limits especially where woodlands with mature trees are present. As this species tends to utilise the woodland fringe rather than the woodland interior for nesting, the loss of woodland habitat through the widening of trackways could alter nesting opportunities. Elsewhere, relatively few individual trees that could provide nesting habitat for kestrel would be lost. Overall, the sensitivity of kestrel to the loss of nesting habitat is considered **Low**.

- 9.7.166 The Local value of kestrel, Very Low severity and Low sensitivity to the potential residual impacts of temporary and permanent habitat loss during construction, maintenance, operation and decommissioning of the Proposed Development means this would have a **Negligible** effect (not significant).
- 9.7.167 With no confirmed breeding sites and extensive alternative hunting habitat in the wider landscape, together with the mitigation measures proposed, the severity of the potential residual impact of temporary disturbance and displacement on kestrel is considered to be **Low**.
- 9.7.168 Temporary disturbance and displacement from potential breeding and hunting sites could occur during construction, maintenance and decommissioning of the Proposed Works. This could potentially result in the abandonment of nesting and hunting habitat in response to noise, vibration, vehicle movements and the presence of personnel. However, kestrel generally demonstrates a high degree of habituation to anthropogenic disturbance as evidenced by their ability to nest successfully on buildings, pylons, bridges and to hunt alongside roads, railways and other infrastructure. Therefore, with the mitigation measures proposed, the sensitivity of kestrel to the potential residual impact of temporary disturbance and displacement is considered Low.
- 9.7.169 The **Local** value of kestrel, **Low** severity and **Low** sensitivity to the potential residual impacts of temporary disturbance and displacement during construction, operation, maintenance and decommissioning of the Proposed Development means this would have a **Negligible** effect (**not significant**).
- 9.7.170 The high number of observed kestrel flights (214), of which 124 (58%) were at collision risk height for at least some of the flight duration, indicates there is a risk of this species interacting with the Proposed Development and that the severity of collision is **Medium**.
- 9.7.171 Kestrel are a small, fast-flying bird with considerable manoeuvrability in flight and therefore are able to change height and/or direction rapidly to avoid collision. No collisions with the existing OHL were recorded during the VP surveys which totalled 2,515 hours across the whole of the survey area and no carcasses were recorded. The observed use of the existing OHL by a

number of individual kestrel perching on pylons suggests there is a high degree of habituation to this type of infrastructure embedded in the local kestrel population. This, combined with the design of the OHL being parallel with and close to the existing OHL increasing visibility for birds traversing the line, indicates the sensitivity to collision is **Very Low**.

- 9.7.172 The Local value of kestrel, **Medium** severity and **Very Low** sensitivity to collision with the OHL during operation of the Proposed Development means this would have a **Negligible** effect (**not significant**).
- 9.7.173 The overall effect on kestrel as a result of the construction, operation, maintenance and decommissioning of the Proposed Development would be **Not Significant** on the conservation status of this species.
- 9.7.174 The above assessment applies to both Options A and B as although there are slight differences in the areas, they would make no difference to the outcome of the assessment.

#### Hobby

- 9.7.175 The data search and survey work showed hobby is a scarce spring and summer visitor to Anglesey and north Gwynedd but there have been no records of breeding throughout the study area. Hobby was recorded on one occasion overflying the eastern end of Malltraeth Marsh during a CBC survey. Additionally, there were three hobby flights recorded during VP surveys, all of them at collision risk height and all involving single individuals, recorded on 10 June 2016 (over Llanfairpwll), 9 August 2016 (1 km north of Talwrn) and 17 August 2016 (approximately 0.5 km south of Wylfa Nuclear Power Station).
- 9.7.176 Potential impacts of the Proposed Development on hobby are limited to:
  - Collision with the OHL during operation of the Proposed Development.
- 9.7.177 The low number of recorded hobby flights (four) involving single birds in the baseline data in the context of an estimated UK breeding population of 2,800 pairs indicates an absence of breeding and no more than occasional presence in the study area. However, as the flights recorded during VP surveys were all at collision risk height this indicates there is a risk of this species interacting with the Proposed Development and that the severity of collision is Low.
- 9.7.178 Hobby are a small, fast flying bird with considerable manoeuvrability in flight and therefore able to change height and/or direction rapidly to avoid collision. No collisions with the existing OHL were recorded during the VP surveys which totalled 2,515 hours across the whole of the survey area and no carcasses recorded. The observed use of the existing OHL by a number of

individual kestrel perching on pylons suggests there is a high degree of habituation to this type of infrastructure embedded in the local kestrel population. This, combined with the design of the OHL being parallel with and close to the existing OHL increasing visibility for birds traversing the line, indicates the sensitivity to collision is **Very Low**.

- 9.7.179 The Local value of hobby, Low severity and Very Low sensitivity to collision with the OHL during operation of the Proposed Development means this would have a Negligible effect (not significant) and that no mitigation is required in relation to collision avoidance for this species.
- 9.7.180 The overall effect on hobby as a result of the construction, operation, maintenance and decommissioning of the Proposed Development would be **Not Significant** on the conservation status of this species.
- 9.7.181 The above assessment applies to both Options A and B as although there are slight differences in the areas, they would make no difference to the outcome of the assessment.

## Peregrine falcon

- 9.7.182 The data search and survey work showed peregrine falcon breed on Anglesey and are present all year round. Nesting was confirmed at a location on the north Anglesey coast approximately 2.7 km east of the Proposed Development (Section A). Visual observations of peregrine falcon activity close to a quarry 1.4 km west of the Proposed Development (Section E) were indicative of possible breeding there. Presence of a non-breeding pair on the Britannia Bridge (Section F) was also observed.
- 9.7.183 None of the nest locations are sufficiently close to the Proposed Development to be at risk of temporary disturbance. The Proposed Development is therefore not expected to result in displacement of this species from nesting habitat.
- 9.7.184 The survey work showed that flight activity of this species within the Order Limits was widespread, but concentrated particularly within the northernmost 10 km (between Cemaes and Llyn Alaw); between Cors Erddreiniog and Talwrn; and between the Britannia Bridge and the existing OHL approximately 1 km north-west of Star. Of the 155 flights recorded 91% were at collision risk height for at least some of the flight time. Deliberate pylon use by peregrine falcons was observed during the surveys, with 39 separate occurrences of this species using pylons. Pylon use was predominantly recorded in Sections A and E (14 and 15 occurrences respectively). The range of behaviours associated with peregrine use of pylons included perching on a pylon before

flying to and perching on another pylon; using the pylon to search for and/or dive on prey and using the pylon as a plucking post when eating prey.

- 9.7.185 These observations, combined with records of peregrine falcon flights, indicates the greatest activity levels, and therefore potential risk of collision for this species with a new OHL, are in Section A, the northern half of Section B as far as Llyn Alaw, Section D within approximately 1 km of Talwrn and Section E, though here the majority of recorded flights were west of the Proposed Development. However, it has been assumed for this assessment that peregrine falcon would be present and active along the entire length of proposed OHL.
- 9.7.186 Due Potential impacts of the Proposed Development on peregrine falcon are limited to:
  - Collision with the OHL during operation of the Proposed Development.
- 9.7.187 The confirmed nesting and high number of recorded peregrine falcon flights (155) in the baseline data in the context of an estimated UK breeding population of 1,500 pairs, indicates there is a risk of this species interacting with the Proposed Development and that the severity of collision is **Medium**.
- 9.7.188 Peregrine falcon is a medium-sized, fast-flying bird with considerable manoeuvrability in flight and is therefore able to change height and/or direction rapidly to avoid collision. Whilst 91% of recorded flights were at collision risk height for at least some of the flight time, no collisions with the existing OHL were recorded during the VP surveys which totalled 2,515 hours across the whole of the survey area and no carcasses recorded. The commonly observed use of the existing OHL by a number of individual peregrine falcons perching on pylons for the purposes of hunting and resting suggests there is a high degree of habituation to this type of infrastructure embedded in the local peregrine falcon population. This, combined with the design of the OHL being parallel with and close to the existing OHL increasing visibility for birds traversing the line, indicates the sensitivity to collision is **Very Low**.
- 9.7.189 The Local value of peregrine falcon, Medium severity and Very Low sensitivity to collision with the OHL during operation of the Proposed Development means this would have a Negligible effect (not significant) and that no mitigation is required in relation to collision avoidance for this species.
- 9.7.190 The overall effect on peregrine falcon as a result of the construction, operation, maintenance and decommissioning of the Proposed Development would be Not Significant on the conservation status of this species.

9.7.191 The above assessment applies to both Options A and B as although there are slight differences in the areas, they would make no difference to the outcome of the assessment.

#### Merlin

- 9.7.192 Merlin is a winter visitor and scarce resident species in the UK. The data search and survey work showed records predominantly from the non-breeding period over winter. Surveys recorded widespread presence within the survey area over winter, when individuals were observed on the wing, often hunting opportunistically.
- 9.7.193 Merlin flights, all by single birds, were recorded 35 times, of which 13 (37%) were at collision risk height for some or all of the flight duration. Flight activity was widespread, being recorded in all Sections of the Proposed Development, but with elevated numbers of records in the vicinity of Llyn Alaw (VPs 19a and 19b), Bodewryd –Tregele (VPs 7 and 15) and between Cefni Reservoir and Cors Erddreiniog (VP37S). Merlin was observed occasionally perching on existing pylons as a hunting lookout.
- 9.7.194 Potential impacts of the Proposed Development on merlin are limited to:
  - Collision with the OHL during operation of the Proposed Development.
- 9.7.195 The low number of recorded merlin flights (35) in the baseline data, all involving single birds, in the context of an estimated UK breeding population of between 900 1,500 pairs, indicates the severity of collision is Low.
- 9.7.196 Merlin are a small-sized, fast-flying bird with tendency to towards rapid direct flights at low height. This species shows considerable manoeuvrability in flight and is therefore able to change height and/or direction rapidly to avoid collision. Whilst 37% of recorded flights (13) were at collision risk height for at least some of, or all of, the flight duration, no collisions with the existing OHL were recorded during the VP surveys which totalled 2,515 hours across the whole of the survey area and no carcasses recorded. The data also suggests that there is apparent habituation to existing OHL infrastructure embedded in the local landscape. This, combined with the design of the OHL being parallel with and close to the existing OHL increasing visibility for birds traversing the line, indicates the sensitivity to collision is **Very Low**.
- 9.7.197 The Local value of merlin, Low severity and Low sensitivity of this species to collision with the OHL during operation of the Proposed Development means this would have a Negligible effect (not significant) and that no mitigation is required in relation to collision avoidance for this species.

- 9.7.198 The overall effect on merlin as a result of the construction, operation, maintenance and decommissioning of the Proposed Development would be **Not Significant** on the conservation status of this species.
- 9.7.199 The above assessment applies to both Options A and B as although there are slight differences in the areas, they would make no difference to the outcome of the assessment.

#### Lapwing

- 9.7.200 The data search and survey work showed this species was widespread on Anglesey with large numbers present in winter at coastal sites and some inland freshwaters. Small scattered breeding populations were also recorded in the interior of Anglesey, with a breeding population at Malltraeth Marsh.
- 9.7.201 There were 57 recorded lapwing flights involving 1,660 individuals. Flock sizes ranged from one to 250 (mean 29). Of these, 41 (71.9%) were at collision risk height some or all of the time. The species was recorded in all survey years but only between autumn and late spring (August May inclusive). There were no observations of lapwing flocks feeding on land within or adjacent to the Order Limits. The baseline data showed a preference for coastal wetlands and to a lesser extent areas around inland freshwaters.
- 9.7.202 Key areas of lapwing activity were:
  - The area between Llanfechell and Cemaes/Wylfa where wintering flocks were recorded moving inland. A direct observation was made from VP5 of a flock of 16 birds passing successfully between the existing conductors. Feeding was not observed within the Order Limits;
  - Llyn Alaw, where autumn and wintering flocks were observed flying to and from the reservoir shore and islands and occasional use of the grasslands between the eastern lake shore and the Order Limits was observed. There was also an observation of courtship/territorial behaviour on one occasion in early April, on a field to the north of the reservoir's north-eastern shore approximately 265 m west of the Proposed Development;
  - Cors Erddreiniog, where significantly more activity (seven flights in March 2017) than elsewhere was observed in early spring, predominantly by individuals or pairs of birds, two of these observations including display flights, approximately 640 m east of the Order Limits;
  - Malltraeth Marsh NNR and adjacent habitats, where small flocks (three, eight and 34 individuals) were observed in autumn 2015 and 2016 and

small overflying groups were observed in spring (April and May 2016). Breeding and wintering occurs here; and

• CBC Survey Area 11, where one pair of territorial birds was recorded in display flight in May 2016. This is at least 1 km east of the Order Limits.

9.7.203 Potential impacts on lapwing are as follows:

- Potential for destruction and/or damage of nests during the breeding season.
- Temporary loss habitat with the potential to support breeding by this species during construction, maintenance and decommissioning.
- Temporary disturbance during construction, maintenance and decommissioning of the Proposed Development potentially leading to displacement of wintering and breeding individuals of this species.
- Collision with the OHL during operation of the Proposed Development.

# 9.7.204 Mitigation measures required are set out below; full details are provided in the BMS (**Document 7.7**):

Mitigation measures for potential impacts on lapwing:

• CEMP Measures all relevant General Principle measures, NV11 to NV14, BNC11 to BNC13, BNC211, R1 to R3.

- Phase work so that vegetation clearance within the Order Limits where the Proposed Development passes the southern end of Cors Erddreiniog is completed and working areas are established outside of the breeding bird season (March – September). Where this is not possible all potential breeding habitat to be removed would be checked by an experienced ornithologist prior to removal to ensure that lapwing are not breeding. This would ensure compliance with the Wildlife and Countryside Act 1981 (as amended).
- Working areas set up at the onset of construction should be strictly adhered to in order to prevent additional loss of breeding and wintering bird habitat. ECoW to advise operations during the construction phase and temporary exclusion zones imposed on work should a high likelihood of impacts be detected.
- 9.7.205 With the above mitigation measures in place to avoid works in the nesting season or have a pre development inspection of suitable habitat by an experienced ornithologist, there would be no potential for destruction/damage

of nests during the breeding season. This impact is therefore not discussed further.

- 9.7.206 With the above mitigation measures in place to limit the temporary loss of potential breeding habitat, no breeding of this species within the Order Limits, only small, scattered breeding recorded elsewhere within the interior of Anglesey, notably at Malltraeth Marsh NNR, and in the context of an estimated UK breeding population of 140,000 pairs, indicates the severity of the potential residual loss of breeding habitat during construction, maintenance and decommissioning of the Proposed Development is **Very Low**.
- 9.7.207 The limited breeding habitat suitable for lapwing within the Order Limits and availability of suitable breeding habitat for this species elsewhere on Anglesey, particularly throughout Malltraeth Marsh NNR, indicates the sensitivity of lapwing to the loss of nesting habitat is **Very Low**.
- 9.7.208 The **County** value of lapwing (acknowledging its status as a declining breeding species on Anglesey), **Very Low** severity and **Very Low** sensitivity to the potential residual impacts of the temporary loss of potential breeding habitats during construction, maintenance and decommissioning of the Proposed Development means this would have a **Negligible** effect (**not significant**).
- 9.7.209 The closest known breeding sites used by this species to the Order Limits are on fields adjacent at Llyn Alaw (approximately 500 m south-west of the Proposed Development at its closest point) and within Cors Erddreiniog (approximately 640 m east of the Order Limits) and Malltraeth Marsh (over 2.4 km from the Order Limits). The nearest recorded feeding by this species was on fields between the Order Limits and the eastern shores of Llyn Alaw. The low numbers of lapwing recorded and spatial separation between the distribution of breeding and foraging by this species and the Order Limits, indicates the severity of the impact of temporary disturbance and displacement during construction, maintenance and decommissioning on breeding and winter feeding habitat is **Very Low**.
- 9.7.210 This ground-nesting species is susceptible to disturbance during breeding. It can also be very site faithful and use the same area for nesting and foraging for many years. However, as displacement of lapwing from nesting and feeding areas would be expected to result in them moving into the significant potential resource located nearby which could provide alternative nesting and foraging habitat of similar value, the sensitivity of lapwing to temporary disturbance and displacement is considered **Low**.

- 9.7.211 The **County** value of lapwing, **Very Low** severity and **Low** sensitivity of lapwing to the potential residual impacts of temporary disturbance/displacement during construction, operation, maintenance and decommissioning of the Proposed Development means this would have a **Negligible** effect (**not significant**).
- 9.7.212 The number of recorded lapwing flights (57) involving 1,660 individuals in the baseline data indicates a regular presence in the study area. The distribution of observed lapwing flights shows potential interaction with a new OHL could occur at the northern end of the Proposed Development close to the north coast of Anglesey/Wylfa and where the Order Limits are closest to the eastern end of Llyn Alaw, where the majority of flights were recorded. However, as there is a high degree of spatial separation between the majority of recorded flights and the Proposed Development and in the context of an estimated UK winter population of 650,000 birds, the severity of collision is considered Low.
- 9.7.213 Lapwing are a slow-flying bird with a tendency towards direct flights at low moderate height. This species shows considerable manoeuvrability in flight and is therefore able to change height and/or direction rapidly to avoid collision or attack by predators. They are however known to move in large closely spaced flocks and fly in low light conditions. Whilst 71.9% of recorded flights (41) were at collision risk height for at least some of, or all of, the flight duration, no collisions with the existing OHL were recorded during the VP surveys which totalled 2,515 hours across the whole of the survey area and no carcasses recorded. The data also suggest there is apparent habituation to existing OHL infrastructure embedded in the local population. This, combined with the design of the OHL being parallel with and close to the existing OHL increasing visibility for birds traversing the line, indicates the sensitivity to collision is Low.
- 9.7.214 The **County** value of lapwing, **Very Low** severity and **Low** sensitivity to collision with the OHL during operation of the Proposed Development means this would have a **Negligible** effect (**not significant**).
- 9.7.215 The overall effect on lapwing as a result of the construction, operation, maintenance and decommissioning of the Proposed Development would be **Not Significant** on the conservation status of this species.
- 9.7.216 The above assessment applies to both Options A and B as although there are slight differences in the areas, they would make no difference to the outcome of the assessment.

#### Curlew

- 9.7.217 Curlew is a declining breeding species in North Wales and farm stewardship agreements are in place to secure the appropriate management of its breeding habitats. This species is known to occur regularly at many inland and coastal wetland sites including Malltraeth Marsh, Llyn Alaw, Cemlyn Bay, the Menai Strait and Cors Erddreiniog. However, the data search and survey work showed the distribution of curlew within the study area was highly localised. Curlew occurred regularly on the Menai Strait and frequent flight activity was recorded on wet pastures at Four Crosses within approximately 2 km of the Menai Strait. Regular feeding was also recorded on improved pastures to the south of Cemaes, approximately 1.5 km from the north Anglesey coast. Breeding was recorded at the southern end of Cors Erddreiniog in CBC survey area 7 close to the Order Limits.
- 9.7.218 Flight activity in these areas occurred on a year round basis. During the breeding season additional flight activity was observed near Llyn Alaw and Cors Erddreiniog, where some display flights indicated potential breeding. There were 123 recorded curlew flights, 65% of which were at collision risk height, but the majority of which were spatially separated from the proposed OHL by at least 1 km. Flights over the feeding area near Cemaes were all below collision risk height.
- 9.7.219 Potential impacts on curlew are as follows:
  - Potential for destruction/damage of nests during the breeding season near Cors Erddreiniog (Section C).
  - Direct temporary loss of foraging habitat during construction, maintenance and decommissioning at feeding areas close to Cemaes (Section A), Llyn Alaw (Section B) and Cors Erddreiniog (Section C).
  - Temporary disturbance during construction, maintenance and decommissioning of the Proposed Development potentially leading to displacement of wintering and breeding birds, particularly the feeding areas near Cemaes (Section A), Llyn Alaw (Section B) and Cors Erddreiniog (Section C).
  - Collision with the OHL, particularly where curlew activity has been recorded on feeding areas near Cemaes (Section A), Llyn Alaw (Section B) and Cors Erddreiniog (Section C), during operation of the Proposed Development.

9.7.220 Mitigation measures required are set out below; full details are provided in the BMS (**Document 7.7**):

Mitigation measures for potential impacts on curlew:

• CEMP Measures all relevant General Principle measures, NV11 to NV14, BNC11 to BNC13, BNC211, R1 to R3.

- Pre construction survey of the very small number of potential breeding sites within section C within 800 m of the Order Limits and visual and noise screening measures put in place around working areas adjacent to any active nests that are found.
- Phase work so that vegetation clearance within the Order Limits where they pass the southern end of Cors Erddreiniog is completed and working areas are established outside of the breeding bird season (March September) in areas that support breeding curlew. Where this is not possible all potential breeding habitat to be removed would be checked by an experienced ornithologist prior to removal to ensure that curlew are not breeding. This would ensure compliance with the Wildlife and Countryside Act 1981 (as amended).
- Reinstatement of habitats removed for temporary access tracks and working areas.
- Working areas set up at the onset of construction should be strictly adhered to in order to prevent additional loss of breeding and wintering bird habitat. ECoW to advise operations during the construction phase and temporary exclusion zones imposed on work should a high likelihood of impacts be detected.
- 9.7.221 With the above mitigation measures in place to avoid works in the nesting season or a pre-development inspection of suitable habitat by an experienced ornithologist, there would be no potential for destruction/damage of nests during the breeding season. This impact is therefore not discussed further.
- 9.7.222 With the above mitigation measures in place to limit the loss of potential nesting habitat, no breeding of this species within the Order Limits, only possible breeding recorded on localised sites elsewhere, notably fields within Cors Erddreiniog (over 600 m east of the Order Limits) and Llyn Alaw (approximately 800 m from the Order Limits) and in the context of an estimated UK breeding population of 66,000 pairs, indicates the severity of the potential residual loss of breeding habitat during construction, maintenance and decommissioning of the Proposed Development is **Very Low**.
- 9.7.223 The limited breeding habitat suitable for curlew within the Order Limits and availability of suitable breeding habitat for this species elsewhere on Anglesey,

particularly at Cors Erddreiniog, indicates the sensitivity of curlew to the potential loss of breeding habitat is **Very Low**.

- 9.7.224 The **County** value of curlew (acknowledging its status as a declining breeding species on Anglesey), **Very Low** severity and **Very Low** sensitivity to the potential residual impacts of loss of breeding habitat during construction, maintenance and decommissioning of the Proposed Development means this would have a **Negligible** effect (**not significant**).
- 9.7.225 The nearest recorded feeding areas to the Order Limits used by this species were on fields within Cors Erddreiniog (over 600 m east of the Order Limits at its closest point), around Llyn Alaw (approximately 800 m from the Order Limits) and near Cemaes (over 900 m east of the Order Limits). This indicates the severity of the potential residual loss of foraging habitat during construction, maintenance and decommissioning of the Proposed Development is **Very Low**.
- 9.7.226 The absence of foraging habitat suitable for curlew within the Order Limits and availability of suitable foraging habitat for this species elsewhere on Anglesey, particularly at Cors Erddreiniog, around Llyn Alaw and near Cemaes indicates the sensitivity of curlew to the potential loss of foraging habitat is **Very Low**.
- 9.7.227 The **County** value of curlew, **Very Low** severity and **Very Low** sensitivity to the potential residual impacts of loss of foraging habitat during construction, maintenance and decommissioning of the Proposed Development means this would have a **Negligible** effect (**not significant**).
- 9.7.228 The low numbers of curlew recorded and spatial separation between the distribution of breeding and foraging by this species and the Order Limits, indicates the severity of the impact of temporary disturbance and displacement during construction, maintenance and decommissioning on breeding and winter feeding habitat is **Very Low**.
- 9.7.229 This ground-nesting species needs is vulnerable to disturbance during breeding. It can also be very site faithful and may use the same area for nesting and foraging for many years. However, as displacement of curlew from nesting and feeding areas would be expected to result in them moving into the significant potential resource located nearby which could provide alternative nesting and foraging habitat of similar value, the sensitivity of curlew to temporary disturbance and displacement is considered **Low**.
- 9.7.230 The **County** value of curlew, **Very Low** severity and **Low** sensitivity of curlew to the potential residual impacts of temporary disturbance and displacement during construction, operation, maintenance and decommissioning of the

Proposed Development means this would have a **Negligible** effect (**not significant**).

- 9.7.231 The number of recorded curlew flights (123) involving 1,082 individuals in flocks ranging from one to 70 individuals (mean nine), indicates a regular presence in the study area. Although the distribution of observed curlew flights shows some potential for interaction with the proposed OHL, as there is a high degree of spatial separation between the Proposed Development, with the majority of flights more than 1 km from the Order Limits in the baseline data and in the context of an estimated UK winter population of 140,000 birds, the severity of collision is considered **Low**.
- 9.7.232 Curlews are slow-flying birds with a tendency towards direct flights at low height. This species shows limited manoeuvrability in flight and is therefore not able to change height and/or direction rapidly to avoid collision. Whilst 65% of recorded flights (80) were at collision risk height for at least some of, or all of, the flight duration, only a small number of such flights were adjacent to and/or across the Proposed Development. No collisions with the existing OHL were recorded during the VP surveys which totalled 2,515 hours across the whole of the survey area and no carcasses were recorded. This, combined with the design of the OHL being parallel with and close to the existing OHL increasing visibility for birds traversing the line, indicates the sensitivity to collision is **Low**.
- 9.7.233 The **County** value of curlew, **Low** severity and **Low** sensitivity to collision with the OHL during operation of the Proposed Development means this would have a **Negligible** effect (**not significant**).
- 9.7.234 The overall effect on curlew as a result of the construction, operation, maintenance and decommissioning of the Proposed Development would be **Not Significant** on the conservation status of this species.
- 9.7.235 The above assessment applies to both Options A and B as although there are slight differences in the areas, they would make no difference to the outcome of the assessment.

#### Snipe

9.7.236 The data search and survey work showed snipe is a widespread wading bird associated primarily with coastal and inland wetlands across the study area. Third party records indicate breeding at Cors Erddreiniog and regular presence at Llyn Alaw as the closest relevant records to the Proposed Development. Surveys undertaken for the Proposed Development did not

detect breeding for this species, though it was recorded as present in CBC Survey Areas 1 and 10.

- 9.7.237 Observations of this species were made predominantly during VP surveys, during which 102 flights involving 330 individuals in flocks ranging from one to 39 birds (mean three) were recorded. Of these, 81 flights (79.4%) were at collision risk height for some or all of the time. There were no records of display flights or other breeding behaviours during the VP surveys, with all but three of the flights recorded between September and March inclusive (the nonbreeding season).
- 9.7.238 The distribution of recorded flight activity matches quite closely to that of small ponds, drains, pools, damp, marshy and waterlogged grasslands across the survey area, especially:
  - Close to Tregele (SH365 925 and immediate surroundings), where flights between the coast and inland feeding areas were recorded. This area is immediately adjacent to the Order Limits;
  - Up to 1.5 km south-east of Llyn Alaw, on wet grasslands within approximately 500 m of the Order Limits, between the shore of Llyn Alaw and Cae Mawr;
  - Wet grasslands and pools between Bryn Dyfrydog and Bodneithior (SH442 860), immediately adjacent to the Order Limits;
  - Cors Erddreiniog, some flights occurring adjacent to and across the Order Limits;
  - Waterlogged (in winter) grasslands at Hendre Farm south of Cors Erddreiniog (SH467 796), around 500 m west of the Order Limits; and
  - Grasslands south of Talwrn (SH490 761), within approximately 55 m of the Order Limits.
- 9.7.239 Snipe activity recorded elsewhere is unlikely to be affected due to the distance from the Order Limits.
- 9.7.240 Potential impacts on snipe are as follows:
  - Direct loss of foraging habitat during construction, maintenance and decommissioning.

- Temporary disturbance during construction, maintenance and decommissioning of the Proposed Development potentially leading to displacement of wintering birds from feeding areas.
- Collision with the OHL during operation of the Proposed Development.
- 9.7.241 Mitigation measures required are set out below; full details are provided in the BMS (**Document 7.7**):

Mitigation measures for potential impacts on snipe:

• CEMP Measures all relevant General Principle measures, NV11 to NV14, BNC11 to BNC13, BNC211, R1 to R3.

- Phase work so that vegetation clearance within the Order Limits where they
  pass the southern end of Cors Erddreiniog is completed and working areas are
  established outside of the breeding bird season (March September) in areas
  that support habitat suitable for breeding snipe and where snipe have been
  reported as breeding. If this is not possible all potential breeding habitat to be
  removed from these areas would be checked by an experienced ornithologist
  prior to removal to ensure that snipe are not breeding. This would ensure
  compliance with the Wildlife and Countryside Act 1981 (as amended).
- Working areas set up at the onset of construction should be strictly adhered to in order to prevent additional loss of breeding and wintering bird habitat. ECoW to advise operations during the construction phase and temporary exclusion zones imposed on work should a high likelihood of impacts be detected.
- Reinstatement of habitats removed for temporary access tracks and working areas.
- 9.7.242 The nearest recorded foraging areas used by snipe were immediately adjacent to the Order Limits, including in fields and wetlands close to Tregele, between Bryn Dyfrydog and Bodneithior, and south of Talwrn. The absence of foraging habitat within the Order Limits indicates the severity of the potential residual loss of foraging habitat during construction, maintenance and decommissioning of the Proposed Development is **Low**.
- 9.7.243 The absence of foraging habitat suitable for snipe within the Order Limits and availability of suitable foraging habitat for this species elsewhere on Anglesey, as well as potentially north Gwynedd, indicates the sensitivity of this species to the potential loss of foraging habitat is **Very Low**.

- 9.7.244 The Local value of snipe, Low severity and Very Low sensitivity to loss of foraging habitat during construction, maintenance and decommissioning of the Proposed Development means this would have a Negligible effect (not significant).
- 9.7.245 Temporary disturbance or displacement of snipe could occur where construction, maintenance or decommissioning works occur close to habitats used regularly by this species. These include grasslands adjacent to the Order Limits at Tregele, the southern end of Cors Erddreiniog, the wet grasslands and pools near Bodneithior and the grasslands to the south of Talwrn. This indicates the severity of the impact of temporary disturbance and displacement during construction, maintenance and decommissioning on winter feeding snipe is **Medium**.
- 9.7.246 Snipe can be very site faithful and use the same area for foraging for many years. Temporary disturbance and displacement from potential foraging sites could therefore occur during construction, maintenance and decommissioning of the Proposed Works. This could potentially result in the abandonment of foraging habitat in response to noise, vibration, vehicle movements and the presence of personnel. As a secretive, highly camouflaged bird, that spends much of its time in the cover of tall, marshy vegetation, snipe tend not to be flushed unless the activities are very close by. Such displacement from feeding areas would be expected to result in them moving into the significant potential resource located nearby which could provide alternative foraging habitat of similar value. This indicates that the sensitivity of this species to temporary disturbance and/or displacement is **Low**.
- 9.7.247 The **Local** value of snipe, **Medium** severity and **Low** sensitivity to the potential residual impacts of temporary disturbance and displacement during construction, operation, maintenance and decommissioning of the Proposed Development means this would have a **Negligible** effect (**not significant**).
- 9.7.248 The number of recorded snipe flights (102) involving 330 individuals in flocks ranging from one to 39 individuals (mean three), indicates a regular presence of this species in the study area. Although the distribution of observed snipe flights shows some potential interaction with a new OHL could occur, the majority of flights (including all recorded flights close to Hendre Farm, most of the flights at Llyn Alaw and Cors Erddreiniog and those close to Talwrn) were not at risk of collision by virtue of their distance from the Proposed Development (mostly more than 1 km from the Order Limits). The high degree of spatial separation between the distribution of the recorded flights of this species and the Proposed Development, and in the context of an estimated

UK winter population of 1 million birds, the severity of collision is considered **Low**.

- 9.7.249 Snipe is a small, highly manoeuvrable bird with a low wing loading enabling it to change height and/or direction rapidly to avoid hazards. Whilst 79.4% of flights (81) were at collision risk height for some or all of the time, this species is considered not especially vulnerable to collision with static landscape features including OHLs. No collisions with the existing OHL were recorded during the VP surveys which totalled 2,515 hours across the whole of the survey area and no carcasses recorded. This, combined with observations of snipe in flight showing a degree of habituation to the existing OHL, and the design of the Proposed Development being parallel with and close to the existing OHL increasing visibility for birds traversing the line, indicates the sensitivity to collision is **Low**.
- 9.7.250 The **Local** value of snipe, **Low** severity and **Low** sensitivity to collision with the OHL during operation of the Proposed Development means this would have a **Negligible** effect (**not significant**).
- 9.7.251 The overall effect on snipe as a result of the construction, operation, maintenance and decommissioning of the Proposed Development would be **Not Significant** on the conservation status of this species.
- 9.7.252 The above assessment applies to both Options A and B as although there are slight differences in the areas, they would make no difference to the outcome of the assessment.

## Barn Owl

- 9.7.253 The data search and survey work showed key sites for this species within the study area on Anglesey include potential nest sites near Mynydd Mechell and Talwrn (approximately 1.6 km and 200 m respectively from the Order Limits) and confirmed nest sites in 2013 and 2016 at Cafnan and Mynydd Ithell on northern Anglesey (both over 1 km from the Order Limits).
- 9.7.254 On the mainland of North Gwynedd, there was a probable nest site near Hafod Lane, approximately 800 m north of the proposed Tŷ Fodol THH/CSEC, though this may be as close as 100 – 200 m from the THH/CSEC depending on the exact location of the nest site, over which there was some uncertainty.
- 9.7.255 All recorded flight activity was over the disused oil storage site near Rhosgoch, approximately 1 km north-east of the Order Limits. This represents a key feeding resource for this species. All of the flight activity here was at low level

(1 - 2 m above ground level) and would not be at risk of collision by virtue of its spatial separation from the Order Limits.

- 9.7.256 The observed flight activity puts this species at no risk of collision with the proposed OHL and there would be no loss of any of the foraging habitats that barn owls have been observed using. Potential impacts on barn owl are therefore limited to the construction and decommissioning phases of the development and are as follows:
  - Potential for destruction/damage of nests during the breeding season.
  - Temporary loss habitat with the potential to support breeding by this species during construction, maintenance and decommissioning.
  - Temporary disturbance during construction, maintenance and decommissioning of the Proposed Development potentially leading to displacement of birds at breeding sites and/or roosts, particularly close to the proposed Tŷ Fodol THH/CSEC.
- 9.7.257 Mitigation measures required are set out below; full details are provided in the BMS (**Document 7.7**):

Mitigation measures for populations of barn owl:

• CEMP measures: all relevant General Principle measures, NV11 to NV14, NV31, NV32, BNC11 to BNC13, R1 to R4.

- Pre-construction survey of potential breeding sites within 100 m of the Order Limits where possible and visual and noise screening measures put in place around working areas adjacent to any active nests or roosts that are found.
- Vegetation management/clearance at Tŷ Fodol would be completed outside of the breeding season (March – September), and where possible, the establishment of working areas;
- Where landowner access can be agreed, for each confirmed nest site within 100 m of the Order Limits, at least one barn owl box would be installed, in advance of all site clearance and construction work, in an undisturbed location to be determined by the ECoW appointed by National Grid. This measure is not relied on within the assessment.
- Working areas set up at the onset of construction would be strictly adhered to in order to prevent additional loss of breeding and wintering bird habitat.
   ECoW to advise operations during the construction phase and temporary exclusion zones imposed on work should a high likelihood of impacts be detected.

- 9.7.258 With the above mitigation measures in place to avoid works in the nesting season where possible, or the implementation of a pre development inspection of suitable habitat by an experienced ornithologist, there would be no potential for destruction/damage of nests during the breeding season. This impact is therefore not discussed further.
- 9.7.259 With the above mitigation measures in place to limit the loss of potential breeding habitat, and in the context of the baseline for this species as described above and an estimated UK breeding population of 4,000 pairs, the severity of the potential residual temporary loss of breeding habitat during construction. maintenance and decommissioning of the Proposed Development is **Very Low**. If there are no nest sites within 100 m of the Order Limits then the severity of the potential residual loss of breeding habitat during construction. maintenance and decommissioning of the Proposed Development is considered Negligible.
- 9.7.260 There are extensive areas of suitable foraging habitat across Anglesey which are at present apparently unoccupied by barn owl and an absence of suitable nest sites may be one of the reasons why this species occurs in low numbers. The limited breeding habitat suitable for barn owl within the Order Limits and availability of suitable breeding habitat for this species elsewhere within the study area, indicates the sensitivity of barn owl to the potential loss of breeding habitat is **Very Low**.
- 9.7.261 The **County** value of barn owl (acknowledging its inclusion on both the Anglesey and Gwynedd Biodiversity Action Plans), **Very Low/Negligible** severity and **Very Low** sensitivity to the potential residual impacts of loss of breeding habitat during construction, maintenance and decommissioning of the Proposed Development means this would have a **Negligible** effect (**not significant**).
- 9.7.262 Temporary disturbance or displacement of barn owl in response to noise, vibration, vehicle movements and the presence of personnel could occur where construction, maintenance or decommissioning works occur close to habitats used regularly by this species. As all recorded flight activity was over the disused oil storage site near Rhosgoch, approximately 1 km north-east of the Order Limits, the severity of the impact of temporary disturbance and displacement during construction, maintenance and decommissioning on barn owl is considered **Very Low/Negligible**.
- 9.7.263 While barn owls are generally tolerant of human activity, the introduction of disturbance to which they are not accustomed could have adverse effects on feeding and breeding success. The sensitivity of barn owls to temporary disturbance and displacement during construction, maintenance and

decommissioning of the Proposed Development is therefore considered **Medium**.

- 9.7.264 The **County** value of barn owl, **Very Low** severity and **Moderate** sensitivity to the potential residual impacts of temporary disturbance and displacement during construction, operation, maintenance and decommissioning of the Proposed Development means this would have a **Negligible** effect (**not significant**).
- 9.7.265 The overall effect on barn owl as a result of the construction, operation, maintenance and decommissioning of the Proposed Development would be **Not Significant** on the conservation status of this species.
- 9.7.266 The above assessment applies to both Options A and B as, although there are slight differences in the areas, they would make no difference to the outcome of the assessment.

### Chough

- 9.7.267 The desk study showed there are approximately 35 pairs of chough resident on Anglesey, equating to around 12% of the UK population. These breed and roost almost exclusively on Anglesey's north-west coast and this is reflected by the distribution of third party and survey records for this species. All of the 14 known nest sites within 5 km of the Order Limits are on the north Anglesey coastal cliffs or on buildings immediately adjacent to the coast, with one exception approximately 3 km into the interior of Anglesey, at a location approximately 4 km east of Section A of the Order Limits. A potential nest site was also identified on the north Anglesey coastal cliffs about 2 km east of the Order Limits. Known feeding areas within the study area are all within 2 - 3km of the north coast, or a similar distance from the inland nest site.
- 9.7.268 This species was rarely recorded during surveys, however a foraging family group comprising two adults and two juvenile birds was recorded close to CBC Survey Area 3 in June 2016, about 1 km north-west of Rhosgoch. A single chough flight, involving two adult birds at collision risk height, was also recorded close to the disused oil storage site near Rhosgoch during VP surveys in November 2015. There were no other records of this species during the surveys for the Proposed Development.
- 9.7.269 The spatial separation between feeding/nesting sites and the proposed OHL negates the potential for nest destruction, disturbance or displacement of chough to occur. Potential impacts of the Proposed Development on chough are therefore limited to:

- Collision with the OHL during operation of the Proposed Development.
- 9.7.270 It is likely that the majority of chough movements between nest sites and feeding areas close to the north coast are predominantly along coastal routes and the evidence from VP surveys strongly suggests that movements across the OHL north of Tregele are extremely rare events. However, as the baseline data provide evidence for occasional flights, possibly to and from occasional feeding sites, west of Bodewryd, there is a risk of interaction with the OHL infrastructure of the Proposed Development in this area. Such potential interactions of chough with the proposed OHL would be limited to Section A of the Proposed Development. This, combined with the low number of recorded chough flights (two) and low number of individuals (six) in the baseline data in the context of an estimated breeding population of between 250 350 pairs in Great Britain, indicates the severity of collision is Very Low.
- 9.7.271 Chough show considerable agility and manoeuvrability in flight and are therefore able to change height and/or direction rapidly to avoid collision. Whilst one of the recorded flights was at collision risk height for at least some of, or all of, the flight duration, no collisions with the existing OHL were recorded during the VP surveys which totalled 2,515 hours across the whole of the survey area and no carcasses recorded. This, combined with the design of the OHL being parallel with and close to the existing OHL increasing visibility for birds traversing the line, indicates the sensitivity to collision is Low.
- 9.7.272 The **County** value of chough (acknowledging the importance of Anglesey as a key component of the wider UK population), **Very Low** severity and **Low** sensitivity of this species to collision with the OHL during operation of the Proposed Development means this would have a **Negligible** effect (**not significant**) and that no mitigation is required in relation to collision avoidance for this species.
- 9.7.273 The overall effect on chough as a result of the construction, operation, maintenance and decommissioning of the Proposed Development would be **Not Significant** on the conservation status of this species.
- 9.7.274 The above assessment applies to both Options A and B as although there are slight differences in the areas, they would make no difference to the outcome of the assessment.

#### Assemblages

#### <u>Woodland Breeding Bird Assemblage (Passerines of High Conservation</u> <u>Concern) – Wylfa</u>

- 9.7.275 The data search and survey work showed the breeding bird assemblage within the woodlands at Wylfa includes seven passerine species of high conservation concern. The minimum numbers of breeding pairs of these species recorded in either the 2016 and 2017 nesting seasons were 16 dunnock, 12 song thrush, four mistle thrush, two spotted flycatcher, 15 willow warbler, one bullfinch and three lesser redpoll. This assemblage of breeding birds of high conservation concern within an area of woodland measuring 9.0 ha is considered to be of **County** value.
- 9.7.276 Potential impacts on the woodland breeding bird assemblage at Wylfa could occur during construction, maintenance and decommissioning of the Proposed Development are as follows:
  - Potential for destruction/damage of nests during the breeding season.
  - Temporary direct loss of foraging and breeding habitat.
  - Temporary disturbance during construction, maintenance and decommissioning of the Proposed Development potentially leading displacement of breeding birds.
- 9.7.277 Mitigation measures required are set out below; full details are provided in the BMS (**Document 7.7**):

Mitigation measures for populations of Woodland Breeding Bird Assemblage (Passerines of High Conservation Concern) – Wylfa:

• CEMP measures all relevant General Principle measures, NV11 to NV14, BNC11 to BNC13, TH11 – 14, TH21, R1 to R4.

- Phase work in this area so that vegetation clearance, establishment of working areas and habitat restoration are completed outside of the breeding bird season (March September for most bird species). Where this is not possible all potential breeding habitat to be removed would be checked by an experienced ornithologist prior to removal to ensure that no active nests are present prior to removal. This would ensure compliance with the Wildlife and Countryside Act 1981 (as amended).
- Woodland habitat planting within the Order Limits to replace woodland lost.

- Working areas set up at the onset of construction would be strictly adhered to in order to prevent additional loss of breeding bird habitat. ECoW to advise operations during the construction phase and temporary exclusion zones imposed on work should a high likelihood of impacts be detected.
- 9.7.278 With the above mitigation measures in place to avoid works in the nesting season where possible, and watching briefs where not, there would be no potential for destruction/damage of nests during the breeding season. This impact is therefore not discussed further.
- 9.7.279 Temporary woodland habitat loss is predicted to amount to approximately 1 ha, with a further area of woodland affected amounting to approximately 2.5 ha beneath the oversail of the proposed conductors and conductor pulling locations. Consequently, approximately 9% of the available woodland habitat would be lost to make way for permanent infrastructure. Whilst this is expected to have a **Low** short-term impact on the assemblage of breeding birds of high conservation concern, with the proposed replacement planting, in the long term, the severity of habitat loss is considered **Very Low**.
- 9.7.280 The dependence of each species of the assemblage of breeding birds of high conservation concern on the existing habitats available as a breeding and foraging resource indicates the sensitivity to habitat loss is **High**.
- 9.7.281 The **County** value of the assemblage of breeding birds of high conservation concern at Wylfa, **Very Low** severity and **High** sensitivity to the potential residual impacts of loss of breeding habitat during construction, maintenance and decommissioning of the Proposed Development means this would have a **Minor Adverse** effect (**not significant**).
- 9.7.282 Temporary disturbance and/or displacement of the assemblage of breeding birds of high conservation concern at Wylfa could occur in response to noise, vibration, vehicle movements and the presence of personnel where construction, maintenance and/or decommissioning works occur within or close to habitats used regularly by this assemblage. The extent of the disturbance would be limited to the pylon working areas and access tracks within and immediately adjacent to the woodland, and to the conductor pulling positions. This amounts to approximately 20% of the remaining woodland habitat expected to be impacted through temporary disturbance during construction, maintenance and decommissioning of the Proposed Development. Disturbance effects would be short-lived, affecting no more than one breeding season during each of the construction and decommissioning phases, with the impacts of maintenance likely to be highly localised and short-lived. Taking into account the proposed mitigation

measures to control noise, visual disturbance, working areas and light pollution and the likely duration and spatial scale of potential impacts, the severity of disturbance/displacement is considered **Low**.

- 9.7.283 Successful breeding by the assemblage of birds of high conservation concern at Wylfa is initially reliant on a male bird being able to attract a mate and defend a territory. Anthropogenic activity could potentially cause disturbance or displacement from breeding habitat by reducing the efficacy of song and/or disrupting territorial behaviour. Consequently the sensitivity of breeding woodland birds to temporary disturbance/displacement is **Moderate/High**.
- 9.7.284 The **County** value of the assemblage of breeding birds of high conservation concern at Wylfa, **Low** severity and **Moderate/High** sensitivity to the potential residual impacts of temporary disturbance and displacement during construction, operation, maintenance and decommissioning of the Proposed Development means this would have a **Minor Adverse** effect (**not significant**).
- 9.7.285 The overall effect on the breeding bird assemblage within the woodlands at Wylfa as a result of the construction, operation, maintenance and decommissioning of the Proposed Development would be **Not Significant** on the conservation status of this assemblage.
- 9.7.286 The above assessment applies to both Options A and B as although there are slight differences in the areas, they would make no difference to the outcome of the assessment.

### Woodland Breeding Bird Assemblage (Passerines of High Conservation Concern) – Gylched Covert

- 9.7.287 The data search and survey work showed the breeding bird assemblage within Gylched Covert includes five passerine species of high conservation concern. The numbers of breeding pairs of these species recorded in either of the 2016 and 2017 nesting seasons were five dunnock, three song thrush, two mistle thrush, one willow warbler and one bullfinch, within an area of woodland measuring 5.6 ha. The assemblage of breeding birds of high conservation concern at Gylched Covert is of Local value.
- 9.7.288 Potential impacts on the woodland breeding bird assemblage at Gylched Covert during construction, operation, maintenance and decommissioning of the Proposed Development are as follows:
  - Potential for destruction/damage of nests during the breeding season.

- Permanent and temporary direct loss of foraging and breeding habitat during construction, operation, maintenance and decommissioning of the Proposed Development.
- Temporary disturbance during construction, maintenance and decommissioning of the Proposed Development potentially leading to displacement of breeding birds.
- 9.7.289 Mitigation measures required are set out below; full details are provided in the BMS (**Document 7.7**):

Mitigation measures for woodland breeding bird assemblage (passerines of high conservation concern) within Gylched Covert:

• CEMP measures all relevant General Principle measures, NV11 to NV14, BNC11 to BNC13, TH11 – 14, R1 to R4.

- Phase work in this area so that vegetation clearance, establishment of working areas and habitat restoration are completed outside of the breeding bird season (March September for most bird species). Where this is not possible all potential breeding habitat to be removed would be checked by an experienced ornithologist prior to removal to ensure that that no active nests are present prior to removal. This would ensure compliance with the Wildlife and Countryside Act 1981 (as amended). This would ensure compliance with the Wildlife and Countryside Act 1981 (as amended).
- Woodland habitat planting (3,160 m<sup>2</sup>) within the Order Limits to replace woodland lost where possible.
- Working areas set up at the onset of construction would be strictly adhered to in order to prevent additional loss of breeding bird habitat. ECoW to advise operations during the construction phase and temporary exclusion zones imposed on work should a high likelihood of impacts be detected.
- Future habitat management of Gylched Covert in line with maintaining and improved the quality of this CWS woodland to be agreed as part of the draft DCO (**Document 2.1**). Outline of this is provided in the BMS (**Document 7.7**), but full details would be provided in a management plan.
- 9.7.290 With the above mitigation measures in place to avoid works in the nesting season there would be no potential for destruction/damage of nests during the breeding season. This impact is therefore not discussed further.
- 9.7.291 Permanent woodland habitat loss is predicted to amount to approximately 0.45 ha, with a further area of woodland potentially affected or affected managed amounting to approximately 0.61 ha beneath the oversail of the proposed

conductors. Consequently, approximately 8% (2.3% after planting) of the available woodland habitat would be lost to make way for permanent infrastructure. Whilst this is expected to have a **Low** short-term impact on the assemblage of breeding birds of high conservation concern, with the proposed replacement planting with a smaller extent of higher quality woodland, in the long term, the severity of habitat loss is considered no greater than **Very Low**.

- 9.7.292 The dependence to a greater of lesser degree of each species of the assemblage of breeding birds of high conservation concern on the existing habitats available as a breeding and foraging resource indicates the sensitivity to habitat loss is **High**.
- 9.7.293 The **Local** value of the assemblage of breeding birds of high conservation concern at Gylched Covert, **Very Low** severity and **High** sensitivity to the potential residual impacts of loss of breeding habitat during construction, operation, maintenance and decommissioning of the Proposed Development means this would have a **Minor Adverse** effect (**not significant**).
- 9.7.294 Temporary disturbance and/or displacement of the assemblage of breeding birds of high conservation concern at Gylched Covert could occur in response to noise, vibration, vehicle movements and the presence of personnel where construction, maintenance and/or decommissioning works occur within or close to habitats used regularly by this assemblage. The extent of the disturbed area would be limited to a single corner of the woodland, measuring approximately 1.1 ha in total, adjacent to a pylon working area, a bridge working area and an access track. This amounts to for a worst case scenario there would be 12% affected (17.8% prior to mitigation) of the woodland habitat that could be impacted through temporary disturbance during construction, maintenance and decommissioning of the Proposed Development. Disturbance effects would be short-lived, affecting no more than one breeding season during each of the construction and decommissioning phases, with the impacts of maintenance likely to be highly localised and short-lived. Taking into account the proposed mitigation measures to control noise, visual disturbance, working areas and light pollution and the likely duration and spatial scale of potential impacts, the severity of disturbance/displacement is considered Low.
- 9.7.295 Successful breeding by the assemblage of birds of high conservation concern at Gylched Covert is initially reliant on a male bird being able to attract a mate and defend a territory. Anthropogenic activity could potentially cause disturbance or displacement from breeding habitat by reducing the efficacy of song and/or disrupting territory behaviour. Consequently the sensitivity of

breeding woodland birds to temporary disturbance/displacement is **Moderate/High**.

- 9.7.296 The Local value of the assemblage of breeding birds of high conservation concern at Gylched Covert, Low severity and Moderate/High sensitivity to the potential residual impacts of temporary disturbance and displacement during construction, maintenance and decommissioning of the Proposed Development means this would have a Minor Adverse effect (not significant).
- 9.7.297 The overall effect on the breeding bird assemblage within Gylched Covert as a result of the construction, operation, maintenance and decommissioning of the Proposed Development would be **Not Significant** on the conservation status of this assemblage.
- 9.7.298 The above assessment applies to both Options A and B as although there are slight differences in the areas, they would make no difference to the outcome of the assessment.

Farmland and Hedgerow Breeding Bird Assemblage (Passerines of High Conservation Concern) – Braint Tunnel Compound and Tunnel Head House/Cable Sealing End Compound

- 9.7.299 The data search and survey work showed the breeding bird assemblage at the Braint Tunnel Compound and THH/CSEC includes five species of high conservation concern. The numbers of breeding pairs of these species recorded in either of the 2016 and 2017 nesting seasons were five dunnock, one house sparrow; one mistle thrush, two song thrush and one willow warbler. The assemblage of breeding birds of high conservation concern at Braint Tunnel Compound and THH/CSEC is of **Local** value.
- 9.7.300 During operation of the Proposed Development the Braint THH/CSEC would not be permanently staffed or lit (other than security) and would generate very low levels of noise as only stairwell fans would be in use at Braint and only when staff are on site, therefore operational disturbance impacts would not be expected to occur and have not been discussed further.
- 9.7.301 Within the survey area of the Braint Compound and THH/CSEC, construction, operation, maintenance and decommissioning of the Proposed Development is expected to result in the following habitat losses:
  - Approximately 617 m of hedgerow would be lost around the perimeter of the THH/CSEC construction compound (permanent habitat loss).

- The construction compound would occupy 5.7 ha of grassland habitat during the construction and decommissioning periods (temporary habitat loss).
- The THH/CSEC would, for the operational phase of the Proposed Development, occupy 1.5 ha of what was previously improved and semi improved grassland (permanent habitat loss).
- 9.7.302 The above would be mitigated by the proposed development wide habitat planting and mitigation which includes: 11,985 m<sup>2</sup> of woodland; 4,820 m<sup>2</sup> of low scrub mix under the proposed OHL; 840 m of hedgerow planting (on Cloddiau); 660 m<sup>2</sup> of marginal aquatic vegetation; 6,045 m<sup>2</sup> of unimproved neutral meadow; 24,995 m<sup>2</sup> of tussock grassland; and reinstatement of 11,345 m<sup>2</sup> of improved neutral grassland in the local area through landscape planting.
- 9.7.303 Potential impacts on these receptors during all stages of the Proposed Development are as follows:
  - Potential for destruction/damage of nests during the breeding season.
  - Temporary direct loss of foraging and breeding habitat as a result of construction and/or decommissioning the Braint Tunnel Compound, THH/CSEC and associated access tracks.
  - Permanent direct loss of foraging habitat resulting from the operation of the Braint THH/CSE and associated access tracks.
  - Temporary disturbance during construction, maintenance and decommissioning of the Braint Tunnel Compound and THH/CSEC potentially leading to displacement of breeding birds.
- 9.7.304 Mitigation measures required are set out below; full details are provided in the BMS (**Document 7.7**):

Mitigation measures for farmland/hedgerow breeding bird assemblage (passerines of high conservation concern) within Braint Tunnel Compound and THH/CSEC:

• CEMP measures all relevant General Principle measures, NV11 to NV14, NV31, NV32, BNC11 to BNC13, TH11 – 14, TH21, R1 to R4.

The following additional measures would be implemented:

 Phase work in this area so that vegetation clearance, establishment of working areas and habitat restoration are completed outside of the breeding bird season (March – September for most bird species). Where habitat cannot be removed during this period it would be checked prior to removal by an experienced ornithologist to ensure that no active nests are present prior to removal. This would ensure compliance with the Wildlife and Countryside Act 1981 (as amended).

- Reinstatement of all hedgerow and grassland habitats removed to accommodate the temporary construction/decommissioning compound and working areas other than where there is permanent infrastructure.
- Replacement of hedgerows lost permanently to ensure no net loss of hedgerow habitat within the Order Limits.
- Planting of hedgerows around the perimeter of the Braint Tunnel Compound and THH/CSEC to provide a net habitat gain and/or to offset hedgerow losses elsewhere.
- Working areas set up at the onset of construction would be strictly adhered to in order to prevent additional loss of breeding bird habitat. ECoW to advise operations during the construction phase and temporary exclusion zones imposed on work should a high likelihood of impacts be detected.
- 9.7.305 With the above mitigation measures in place to avoid works in the nesting season where possible or a pre-development inspection of suitable habitat by an experienced ornithologist, there would be no potential for destruction/damage of nests during the breeding season. This impact is therefore not discussed further.
- 9.7.306 The Braint Tunnel Compound and THH/CSEC required during construction/decommissioning of the Proposed Development would temporarily occupy 5.7 ha of grassland habitat. Whilst the footprint of the Braint Tunnel Compound and THH/CSEC does not overlap with existing hedgerows, approximately 617 m of hedgerow around the perimeter would be potentially impacted during construction and decommissioning of the It has been assumed this could result in the Proposed Development. temporary loss of both of these habitats to breeding and foraging passerines. This is expected to have a short-term (up to approximately six breeding construction and one breeding seasons during season during decommissioning) impact on the assemblage of farmland and hedgerow breeding birds of high conservation concern in the area. Taking into account the proposed reinstatement of all hedgerow and grassland habitats in this area, in the long term, the severity of habitat loss is considered no greater than Low.
- 9.7.307 The dependence to a greater or lesser degree of each species of the assemblage of breeding birds of high conservation concern in this area on the existing habitats available as a breeding and foraging resource indicates the sensitivity to temporary habitat loss is **High**.

- 9.7.308 The Local value of the assemblage of breeding birds of high conservation concern at Braint Tunnel Compound and THH/CSEC, Very Low severity and High sensitivity to the potential residual impacts of loss of breeding habitat during construction, operation, maintenance and decommissioning of the Proposed Development means this would have a Negligible effect (not significant).
- 9.7.309 The Braint THH/CSEC would occupy approximately 1.5 ha of what was previously improved and semi-improved grassland, resulting in the permanent loss of this habitat. The baseline data showed that this area is not used by nesting birds, but is used as a foraging resource by a small number of the breeding birds present. The severity of the potential residual impact of this grassland habitat loss in the long term, taking into account the area and small number of birds recorded using this habitat and the mitigation measures proposed, is considered **Low**.
- 9.7.310 The permanent loss of grassland habitat is considered likely to have a limited impact on the assemblage of breeding birds of high conservation concern in this area since the area of this habitat to be lost appears to provide limited foraging habitat but no nesting opportunities, and there is a significant remaining habitat resource located nearby which could provide alternative foraging of similar value. This indicates the sensitivity of the assemblage of breeding birds of high conservation concern in this area to the proposed permanent loss of this foraging resource is **Low**.
- 9.7.311 The Local value of the assemblage of breeding birds of high conservation concern in this area, Low severity and Low sensitivity to the potential residual impacts of permanent loss of grassland as a foraging resource during operation of the Proposed Development means this would have a Negligible effect (not significant).
- 9.7.312 With the proposed replacement of breeding and foraging habitat of higher quality than the habitat that is lost there could be a **Minor Positive** effect (**not significant**) in the long term on the assemblage of breeding birds of high conservation concern in this area.
- 9.7.313 Temporary disturbance and/or displacement of the assemblage of breeding birds of high conservation concern could occur in the vicinity of the Braint Tunnel Compound and THH/CSEC during construction and/or decommissioning in response to noise, vibration, visual intrusion, lighting, the presence of personnel and blasting activities at the tunnel shafts. Whilst not currently possible to quantify the level of the disturbance given the flexibility over the likely periods of activity and irregular nature of the impacts, it has been assumed this is likely to reduce the breeding success of birds in the area

for a period of up to approximately six breeding seasons during construction and a single breeding season during decommissioning. Maintenance activities could happen at any time of year but are unlikely to have an effect on more than a short period within a single breeding season. Taking into account the proposed mitigation measures to control noise, visual disturbance, working areas and light pollution, likely duration and spatial scale of potential impacts and the small number of species and breeding pairs likely to be impacted, the severity of temporary disturbance/displacement is considered **Low**.

- 9.7.314 Successful breeding by the assemblage of birds of high conservation concern at the Braint Tunnel Compound and THH/CSEC is reliant on a male bird initially being able to attract a mate and defend a territory. Anthropogenic activity could potentially cause disturbance or displacement from breeding habitat by reducing the efficacy of song and/or disrupting territory behaviour. The degree to which breeding success may be reduced is difficult to determine, however it is likely that some breeding would continue especially in the context of the highly localised nature of the impacts combined with the ability of many farmland and hedgerow birds to habituate to anthropogenic presence and activity. Taking into account the proposed mitigation measures, the sensitivity of breeding bird assemblage at the Braint Tunnel Compound and THH/CSEC to temporary disturbance/displacement is **Medium**.
- 9.7.315 The Local value of the assemblage of breeding birds of high conservation concern at the Braint Tunnel Compound and THH/CSEC, Low severity and Medium sensitivity to the potential residual impacts of temporary disturbance and displacement during construction, maintenance and decommissioning of the Proposed Development means this would have a Minor Adverse effect (not significant).
- 9.7.316 The overall effect on the breeding bird assemblage at the Braint THH/CSEC as a result of the construction, operation, maintenance and decommissioning of the Proposed Development would be **Not Significant** on the conservation status of this assemblage.
- 9.7.317 The above assessment applies to both Options A and B as although there are slight differences in the areas, they would make no difference to the outcome of the assessment.

Farmland, Scrub and Hedgerow Breeding Bird Assemblage (Passerines of High Conservation Concern) – Tŷ Fodol Tunnel Compound and Tunnel Head House/Cable Sealing End Compound

- 9.7.318 The data search and survey work showed the breeding bird assemblage at the Tŷ Fodol Tunnel Compound and THH/CSEC includes six species of high conservation concern. The numbers of breeding pairs of these species recorded in either of the 2016 and 2017 nesting seasons were three dunnock, five linnet, two mistle thrush, one song thrush, two whitethroat and two willow warbler. The assemblage of breeding birds of high conservation concern at Tŷ Fodol Tunnel Compound and THH/CSEC is of Local value.
- 9.7.319 During operation of the Proposed Development the Tŷ Fodol Tunnel Compound and THH/CSEC would not be permanently staffed or lit (other than security) and would generate very low levels of noise, therefore operational disturbance impacts are not expected to occur.
- 9.7.320 Within the survey area of the Tŷ Fodol Tunnel Compound and THH/CSEC, construction, operation, maintenance and decommissioning of the Proposed Development is expected to result in the following habitat losses:
  - 70 m of hedgerow would be removed permanently.
  - 779 m of hedgerow would be otherwise affected temporarily.
  - Eight linear strips and small patches of field edge mature trees measuring 575.18 m<sup>2</sup> (0.06 ha) would be temporarily affected, with a further 150 m<sup>2</sup> (0.02ha) being removed permanently.
  - 5 ha of grassland would be temporarily removed for the Tŷ Fodol Tunnel Compound and THH/CSEC construction compound and one of the pylon working areas.
  - 0.45 ha of grassland would be temporarily removed for the other two pylon working areas.
  - 1.5 ha of grassland would be permanently removed for the Tŷ Fodol Tunnel Compound and THH/CSEC.
  - 1.5 ha of grassland would be removed for the access tracks.
- 9.7.321 The above would be mitigated by planting 12,555 m<sup>2</sup> of woodland, planting 3,860 m<sup>2</sup> of low scrub mix under the proposed OHL, 525 m of hedgerow planting (on Cloddiau), 610 m<sup>2</sup> of marginal aquatic vegetation planting, 2,240 m<sup>2</sup> of unimproved neutral meadow, 27,690 m<sup>2</sup> of tussock grassland and

reinstatement of 9,160 m<sup>2</sup> of improved neutral grassland in the local area through landscape planting.

- 9.7.322 Potential impacts on these receptors during all stages of the Proposed Development are as follows:
  - Potential for destruction/damage of nests during the breeding season.
  - Temporary direct loss of foraging and breeding habitat during construction and/or decommissioning as a result of the Tŷ Fodol Tunnel Compound and THH/CSEC and associated access tracks.
  - Permanent direct loss of foraging and breeding habitat resulting from operation the Tŷ Fodol Tunnel Compound and THH/CSEC and associated access tracks.
  - Temporary disturbance during construction, maintenance and decommissioning of the Tŷ Fodol Tunnel Compound and THH/CSEC potentially leading to displacement of breeding birds.
- 9.7.323 Mitigation measures required are set out below; full details are provided in the BMS (**Document 7.7**):

Mitigation measures for farmland/hedgerow breeding bird assemblage (passerines of high conservation concern), Tŷ Fodol Tunnel Compound and Head House/Sealing End Compound:

• CEMP measures all relevant General Principle measures, NV11 to NV14, NV31, NV32, BNC11 to BNC13, TH11 – 14, TH21, R1 to R4.

- Phase work in this area so that vegetation clearance, establishment of working areas and habitat restoration are completed outside of the breeding bird season (March September for most bird species). Where habitat cannot be removed during this period it would be checked prior to removal by an experienced ornithologist to ensure that no active nests are present prior to removal. This would ensure compliance with the Wildlife and Countryside Act 1981 (as amended).
- Full reinstatement of all hedgerow and grassland habitats removed to accommodate the temporary construction compound and working areas other than where there is permanent infrastructure.
- Replacement of hedgerows lost permanently to ensure no net loss of hedgerow habitat.

- Planting of hedgerows around the perimeter of the THH/CSEC to provide a net habitat gain and/or to offset hedgerow losses elsewhere.
- Working areas set up at the onset of construction would be strictly adhered to in order to prevent additional loss of breeding bird habitat. ECoW to advise operations during the construction phase and temporary exclusion zones imposed on work should a high likelihood of impacts be detected.
- 9.7.324 With the above mitigation measures in place to avoid works in the nesting season where possible or an inspection of suitable habitat by an experienced ornithologist, there would be no potential for destruction/damage of nests during the breeding season. This impact is therefore not discussed further.
- 9.7.325 The Tŷ Fodol Tunnel Compound and THH/CSEC required during construction/decommissioning of the Proposed Development is located on an area of short-grazed improved pasture of limited value as a foraging or breeding resource for the breeding bird assemblage. The temporary loss of this habitat is expected to have a short-term (up to approximately six breeding seasons during construction and one breeding season during decommissioning) impact on the assemblage of farmland and hedgerow breeding birds of high conservation concern in the area. Taking into account the proposed reinstatement of all hedgerow and grassland habitats in this area, in the long term, the severity of temporary habitat loss is considered Very Low.
- 9.7.326 The temporary loss of the short-grazed improved grassland habitat is considered likely to have limited impact on the assemblage of breeding birds of high conservation concern in this area since there appears to be limited foraging dependence on the area of habitat to be lost and there is a significant remaining habitat resource located nearby which could provide alternative foraging of similar value. This indicates the sensitivity of the assemblage of breeding birds of high conservation concern in this area to the proposed temporary loss of this foraging resource is **Low**.
- 9.7.327 The **Local** value of the assemblage of breeding birds of high conservation concern in this area, **Very Low** severity and **Low** sensitivity to the potential residual impacts of temporary loss of grassland as a foraging resource during construction and/or decommissioning of the Proposed Development means this would have a **Negligible** effect (**not significant**).
- 9.7.328 The Tŷ Fodol Tunnel Compound and THH/CSE would occupy a small area of improved and semi-improved grassland, mature trees and hedgerows, resulting in the permanent loss of these habitats. The baseline data showed that the habitats to be lost are used as a nesting and foraging resource by a

small number of the breeding birds present. The severity of the potential residual impact of this permanent grassland habitat loss, taking into account the small area, the small number of species and breeding pairs recorded using this habitat and the proposed mitigation measures, including the replacement of mature trees and hedgerow through additional planting on field edges that are otherwise unaffected by the Proposed Development and, in the case of hedgerow, around the edges of the Tŷ Fodol Tunnel Compound and THH/CSEC, is considered **Very Low**.

- 9.7.329 The permanent loss of grassland habitat is considered likely to have limited impact on foraging by the assemblage of breeding birds of high conservation concern in this area as there is a significant remaining habitat resource located nearby which could provide alternative foraging of similar value. However, the likely dependence of the assemblage of breeding birds of high conservation concern on the hedgerows and mature trees for nesting and foraging, taking into account the proposed mitigation measures, indicates the sensitivity to the proposed permanent loss of this resource is **Medium**.
- 9.7.330 The **Local** value of the assemblage of breeding birds of high conservation concern in this area, **Very Low** severity and **Medium** sensitivity to the potential residual impacts of permanent loss of habitats as both a breeding and foraging resource during operation of the Proposed Development, means this would have a **Negligible** effect (**not significant**).
- 9.7.331 With the proposed replacement of breeding and foraging habitats lost to the proposed development, with higher quality breeding and foraging habitats, there could be a **Minor Positive** effect (**not significant**) in the long term on the assemblage of breeding birds of high conservation concern in this area.
- 9.7.332 Temporary disturbance and/or displacement of the assemblage of breeding birds of high conservation concern could occur in the vicinity of the Tŷ Fodol THH/CSEC Tunnel Compound and during construction and/or decommissioning in response to noise, vibration, visual intrusion, lighting, the presence of personnel and blasting activities at the tunnel shafts. Whilst it is not currently possible to quantify the level of the disturbance given the flexibility over the likely periods of activity and irregular nature of the impacts, it has been assumed this is likely to reduce the breeding success of birds in the area for up to approximately six breeding seasons during construction and a single breeding season during decommissioning. Maintenance activities could happen at any time of year but are unlikely to have an effect on more than a short period within a single breeding season. Taking into account the proposed mitigation measures to control noise, visual disturbance, working areas and light pollution, likely duration and spatial scale of potential impacts
and the small number of species and breeding pairs likely to be impacted, the severity of temporary disturbance/displacement is considered **Low**.

- 9.7.333 Successful breeding by the assemblage of birds of high conservation concern at the Tŷ Fodol Tunnel Compound and THH/CSEC is reliant on a male bird initially being able to attract a mate and defend a territory. Anthropogenic activity could potentially cause disturbance or displacement from breeding habitat by reducing the efficacy of song and/or disrupting territory behaviour. The degree to which breeding success may be reduced is difficult to determine, however it is likely that some breeding would continue, especially in the context of the highly localised nature of the impacts combined with the ability of many farmland and hedgerow birds to habituate to anthropogenic presence and activity. Taking into account the proposed mitigation measures, the sensitivity of breeding bird assemblage at the Braint Tunnel Compound and THH/CSEC to temporary disturbance/displacement is **Medium**.
- 9.7.334 The Local value of the assemblage of breeding birds of high conservation concern at the Tŷ Fodol Tunnel Compound and THH/CSEC, Low severity and Medium sensitivity to the potential residual impacts of temporary disturbance and displacement during construction, maintenance and decommissioning of the Proposed Development means this would have a Minor Adverse effect (not significant).
- 9.7.335 The overall effect on the breeding bird assemblage at the Tŷ Fodol Tunnel Compound and THH/CSEC as a result of the construction, operation, maintenance and decommissioning of the Proposed Development would be **Not Significant** on the conservation status of this assemblage.
- 9.7.336 The above assessment applies to both Options A and B as although there are slight differences in the areas, they would make no difference to the outcome of the assessment.

Breeding Bird Assemblage (passerines of high conservation concern) – Pentir Substation

9.7.337 The data search and survey work showed the breeding bird assemblage at the Pentir Substation includes predominantly woodland passerines breeding within the plantation woodland surrounding the existing substation infrastructure. Open habitats adjacent to these woodlands include grassland and a mix of dry dwarf shrub heath and gorse scrub, the latter of which occurs immediately to the south of the existing substation access track. There are seven species of passerine of high conservation concern breeding within the woodlands. The minimum numbers of breeding pairs of these species recorded in 2017 were: 16 dunnock, 12 song thrush, four mistle thrush, two spotted flycatcher, 15 willow warbler, one bullfinch and three lesser redpoll. In addition to this, the adjacent hedgerow and scrub habitats supported one pair of willow warbler; and the dry dwarf shrub heath/gorse scrub supported one pair of willow warbler and one pair of linnet. The assemblage of breeding birds of high conservation concern at Pentir Substation is of **County** value.

- 9.7.338 The baseline for this area includes the presence of the existing substation and associated infrastructure (including storage and administrative facilities, access tracks and parking areas). The following assessments have therefore taken into account habituation to human presence and current levels of anthropogenic activity.
- 9.7.339 Within the survey area of Pentir, construction, operation, maintenance and decommissioning of the Proposed Development is expected to result in approximately:
  - 186 m of hedgerow would be removed permanently.
  - 692 m of hedgerow would be otherwise affected temporarily and may be subject to some form of management.
  - 4.8 ha of grassland would be temporarily lost to the Pentir Substation works compound, temporary bridge working areas, temporary access tracks and scaffold working areas.
  - 3.7 ha of grassland would be lost permanently to the expansion of the Pentir Substation and the permanent access tracks.
  - 0.7 ha of dry dwarf shrub heath and gorse scrub would be lost temporarily to the access tracks during construction.
  - 3.05 ha of the 11.05 ha of woodland present would be removed permanently, 0.49 ha would be affected or managed temporarily and 2.2 ha would be permanently affected. The remaining 5.3 ha would be unaffected.
- 9.7.340 The above would be mitigated by planting 40,659 m<sup>2</sup> of woodland, planting a low scrub mix under the proposed OHL, 470 m of hedgerow planting (on Cloddiau) and 64,840 m<sup>2</sup> of tussock grassland through landscape planting.
- 9.7.341 Potential impacts on these receptors during all stages of the Proposed Development are as follows:
  - Potential for destruction/damage of nests during the breeding season.

- Temporary direct loss of foraging and breeding habitat during construction and/or decommissioning the proposed Pentir Substation, as a result of the site compound, scaffold working areas, bridge working areas and access tracks.
- Permanent direct loss of foraging and breeding habitat resulting from the operation of the Pentir Substation infrastructure.
- Temporary disturbance during construction, maintenance and decommissioning of the Proposed Development potentially leading to displacement of breeding birds at the Pentir Substation.
- Permanent disturbance during operation of the Proposed Development potentially leading to displacement of breeding birds at the Pentir Substation.
- 9.7.342 Mitigation measures required are set out below; full details are provided in the BMS (**Document 7.7**):

Mitigation measures for breeding bird assemblage (passerines of high conservation concern) within woodland and open habitats, Pentir Substation:

• CEMP measures all relevant General Principle measures, NV11 to NV14, BNC11 to BNC13, TH11 – 14, TH21, R1 to R4.

The following additional measures would be implemented:

- Phase work in this area so that vegetation clearance, establishment of working areas and habitat restoration are completed outside of the breeding bird season (March September for most bird species). Where habitat cannot be removed during this period it would be checked prior to removal by an experienced ornithologist to ensure that no active nests are present prior to removal. This would ensure compliance with the Wildlife and Countryside Act 1981 (as amended).
- Full reinstatement or replacement of all woodland, hedgerow, dry dwarf shrub heath and grassland habitats removed or managed to accommodate the temporary construction compounds, temporary access and working areas, other than where there is permanent infrastructure.
- Replacement of hedgerows lost permanently within the Order Limits to ensure no net loss of hedgerow habitat.
- Planting of hedgerows where there are currently none around the perimeter of the substation, on field boundaries and along the edges of access tracks to provide a net habitat gain and/or to offset hedgerow losses elsewhere.
- Planting of additional woodland over land that is currently improved pasture and subject to compulsory land acquisition.

- Working areas set up at the onset of construction should be strictly adhered to in order to prevent additional loss of breeding bird habitat. ECoW to advise operations during the construction phase and temporary exclusion zones imposed on work should a high likelihood of impacts be detected.
- 9.7.343 With the above mitigation measures in place to avoid works in the nesting season where possible, or a pre-development inspection of suitable habitat by an experienced ornithologist, there would be no potential for destruction/damage of nests during the breeding season. This impact is therefore not discussed further.
- 9.7.344 The working areas temporarily required to construct and/or decommissioning the proposed Pentir Substation would primarily be located on areas of short-grazed improved pasture of limited value as a foraging or breeding resource by the bird assemblage and a small area of dry dwarf shrub heath and gorse scrub. Some lengths of hedgerow and an area of woodland would also be affected. The temporary loss of these habitats is expected to have a short-term (up to approximately six breeding seasons during construction and one breeding season during decommissioning) impact on the assemblage of passerine breeding birds of high conservation concern in the area. Taking into account the proposed planting of hedgerow and woodland habitats in this area, in the long term, the severity of habitat loss is considered **Low**.
- 9.7.345 The temporary loss of the short-grazed improved grassland habitat is considered to have limited impact on the assemblage of breeding birds of high conservation concern in this area since there appears to be limited foraging dependence on the area of habitat to be lost and there is a significant remaining habitat resource located nearby which could provide alternative foraging of similar value. The temporary loss of hedgerows and an area of woodland is considered likely to have a short-term impact as these habitats offer both a foraging and breeding resource in the local area. Taking into account the proposed planting of hedgerow and woodland habitats in this area, in the long term, the sensitivity to habitat loss is considered **Low**.
- 9.7.346 The **County** value of the assemblage of breeding birds of high conservation concern in this area, **Low** severity and **Low** sensitivity to the potential residual impacts of temporary loss of habitats as a foraging and breeding resource during construction and/or decommissioning of the Proposed Development means this would have a **Negligible** effect (**not significant**).
- 9.7.347 The majority of the permanent infrastructure proposed at the Pentir Substation would result in the loss of short-grazed improved pasture of limited value as a feeding or breeding resource by the assemblage of breeding birds of high

conservation concern in this area. The hedgerows to be lost permanently would be replaced through additional planting of hedgerows on field edges that are otherwise unaffected by the Proposed Development and around the perimeter of the Pentir Substation where hedgerows currently do not exist. The predicted loss of woodland would account for approximately 27.5% of the woodland habitat currently available within the survey area. Replacement planting would reduce the permanent loss of woodland to approximately 0.8 ha (approximately 7% of the current available habitat). The severity of the potential residual impact of this permanent habitat loss, taking into account the quality and area of habitats, number of species and breeding pairs recorded using these habitats and the proposed mitigation measures, including the replacement of mature trees and hedgerows, is considered **Low**.

- 9.7.348 The permanent loss of grassland habitat is considered likely to have limited impact on foraging by the assemblage of breeding birds of high conservation concern in this area as there is a significant remaining habitat resource located nearby which could provide alternative foraging of similar value. However, the likely dependence of the assemblage of breeding birds of high conservation concern on the hedgerows, mature trees and woodland in the area for nesting and foraging and taking into account the proposed mitigation measures, indicates the sensitivity to the proposed permanent loss of this resource is **Medium**.
- 9.7.349 The **County** value of the assemblage of breeding birds of high conservation concern in this area, **Low** severity and **Medium** sensitivity to the potential residual impacts of permanent loss of habitats during operation of the Proposed Development, means this would have a **Minor Adverse** effect (**not significant**).
- 9.7.350 Temporary and permanent disturbance and/or displacement of the assemblage of breeding birds of high conservation concern could occur in the vicinity of the Pentir Substation during construction, maintenance, operation and decommissioning of the Proposed Development in response to noise, vibration, visual intrusion, lighting, and the presence of personnel. Whilst not currently possible to quantify the level of the disturbance given the flexibility over the likely periods of activity and irregular nature of the impacts, it has been assumed this is likely to reduce the breeding success of birds in the area for up to approximately six breeding seasons during construction and a single breeding season during decommissioning. Maintenance and operation activities could happen at any time of year but are unlikely to have an effect on more than a short period within a single breeding season. Taking into account the proposed mitigation measures to control noise, visual disturbance, working areas and light pollution, likely duration and spatial scale

of potential impacts and the small number of species and breeding pairs likely to be impacted, the severity of temporary and permanent disturbance/displacement on the assemblage of birds of high conservation concern at Pentir Substation is considered **Low**.

- 9.7.351 Successful breeding by the assemblage of birds of high conservation concern at the Pentir Substation is reliant on a male bird initially being able to attract a mate and defend a territory. During construction, maintenance, operation and decommissioning of the Proposed Development, the Pentir Substation would be staffed and lit, with regular vehicle movements to, from and around the substation and the daily presence of site staff. Such anthropogenic activity could potentially cause disturbance or displacement from breeding habitat by reducing the efficacy of song and/or disrupting territory behaviour. Whilst the degree to which breeding success may be reduced is difficult to determine, as levels of disturbance are likely to be low and can be assessed against a baseline that includes similar activities at the existing substation, it is likely that some breeding would continue, especially in the context of the highly localised nature of the impacts and the ability of many passerine birds to habituate to anthropogenic presence and activity. The sensitivity of the assemblage of birds of high conservation concern at the Pentir Substation to temporary and permanent disturbance/displacement is considered Very Low.
- 9.7.352 The **County** value of the assemblage of breeding birds of high conservation concern at the Pentir Substation, **Low** severity and **Very Low** sensitivity to the potential residual impacts of temporary and permanent disturbance and displacement during construction, operation, maintenance and decommissioning of the Proposed Development means this would have a **Negligible** effect (**not significant**).
- 9.7.353 The overall effect on the breeding bird assemblage at Pentir Substation as a result of the construction, operation, maintenance and decommissioning of the Proposed Development would be **Not Significant** on the conservation status of this assemblage.
- 9.7.354 The above assessment applies to both Options A and B as although there are slight differences in the areas, they would make no difference to the outcome of the assessment.

Waterfowl utilising Menai Strait marine and inter-tidal habitat within the Order Limits

9.7.355 The data search and survey work showed that within the study area west of the Britannia Bridge, the Menai Strait supports a waterfowl assemblage that regularly includes the following species (peak counts provided in parentheses for count sectors overlapping the Order Limits): Canada goose (32), great crested grebe (one), little grebe (two), mute swan (seven), cormorant (13), shag (six), grey heron (11), little egret (nine), coot (six), curlew (13), oystercatcher (eight), shelduck (five), wigeon (14), mallard (76), herring gull (68), black-headed gull (81), lesser black-backed gull (four) and great blackbacked gull (six) which feed and roost on the Menai Strait. Red-breasted merganser (one), pale-bellied brent goose (six), great northern diver (one), arevlag goose (six) and kingfisher (one) were recorded only once during the surveys and can therefore be regarded as occasional species within or adjacent to the Order Limits. Red-breasted merganser is an interest feature of Lavan Sands SPA, however it occurred as a minor part of the waterbird assemblage within the survey area, occurring just once to the west of the Britannia Bridge. All other species recorded occurred regularly, but infrequently, and in small numbers. The waterfowl assemblage in this area is of Local value.

- 9.7.356 Due to the tunnelling of the Proposed Development in this area, potential impacts on the waterfowl assemblage are limited to:
  - The unlikely event of an emission of slurry to the water column as a result of blowouts triggered by tunnel boring/blasting activities during construction.
- 9.7.357 Mitigation measures required are set out below; full details are provided in the BMS (**Document 7.7**):

Mitigation measures for populations of waterfowl utilising Menai Strait marine and inter-tidal habitat within the Order Limits:

- CEMP measures WE511.
- 9.7.358 Blowouts of drilling slurry are rare events and there is a very low likelihood of this potential impact occurring in the context of a well-managed tunnel boring operation. Such an event could potentially occur if drilling fluids and lubricants injected into the bedrock under pressure ahead of the TBM drilling face or blasting activities, cause slurry to track along fissures in the bedrock, resulting in releases to the water column at the seabed interface. This impact would be restricted to the construction phase and would be short-term and might result in indirect effects on waterfowl through direct impacts on intertidal habitats or prey species. Such effects may cause birds to alter their behaviour and distribution, putting greater feeding pressure on unaffected habitats and thus potentially reducing the capacity of the Menai Strait to sustain the bird populations that use it regularly. The very low likelihood of this occurring, highly localised spatial scale and short-lived duration of potential impacts due

to the currents and dilution capacity of the Menai Strait, indicates the severity of disturbance/displacement is **Very Low**.

- 9.7.359 The temporary loss of a small area of foraging habitat within the Menai Strait on the highly mobile waterfowl assemblage in the context of significant potential resource located nearby which could provide alternative foraging of similar value during construction of the Proposed Development indicates the sensitivity to unlikely event of slurry blowout is **Low**.
- 9.7.360 The Local value of the waterfowl assemblage on the Menai Strait west of Britannia Bridge, Very Low severity and Low sensitivity to the unlikely event of a slurry blowout during construction of the Proposed Development means this would have a Negligible effect (not significant).
- 9.7.361 The overall effect on waterfowl utilising the Menai Strait marine and inter-tidal habitat within the Order Limits as a result of the construction, operation, maintenance and decommissioning of the Proposed Development would be **Not Significant** on the conservation status of this assemblage.
- 9.7.362 The above assessment applies to both Options A and B as although there are slight differences in the areas, they would make no difference to the outcome of the assessment.

Farmland, Hedgerow, Woodland and Scrub Breeding Bird Assemblage (Passerines of High Conservation Concern) – Entirety of Order Limits

- 9.7.363 This section covers the assessment of potential effects on breeding passerines of high conservation concern within the Order Limits, but excluding the specific areas assessed in previous sections of this chapter, within which permanent above ground infrastructure would be sited and/or woodland clearance would be necessary for the construction and operation of the Proposed Development. It also excludes consideration of individual species receptors for which assessments are provided elsewhere, except for kestrel, lapwing and curlew, which are known to occur on open mixed farmland in the British countryside.
- 9.7.364 A summary of the areas of habitat present and number of breeding birds recorded within survey areas, and the Order Limits as a whole, predicted breeding numbers across the whole of the Order Limits, habitat losses (both permanent and temporary) and proportionate habitat losses expressed as a percentage of the total available habitat within the Order Limits is provided in Table 9.27. The proportionate habitat loss is used as a surrogate to predict the number of breeding birds that would be deterred from breeding through displacement from territories and from direct losses of nesting habitat i.e. for

a given species, if 10% of the breeding habitat is lost it is assumed that there would be a corresponding 10% reduction in breeding numbers across the Order Limits as a whole.

- 9.7.365 The list of potential receptors is derived from the results of the CBC surveys, which were carried out in sample areas representative of the range of habitats present within the Order Limits. The method by which breeding numbers were estimated is set out in paragraphs 7.8.143 – 7.8.145.
- 9.7.366 In Table 9.27, while the numbers of each species present and potentially impacted by the Proposed Development have been adjusted upwards by between 0.8% and 1.5% to account for the slightly larger footprint of the recently revised Order Limits, the individual habitat area figures are unadjusted as the differences between the current and previous proposed designs would be below relevant levels when considered for each habitat type in isolation.
- 9.7.367 The predicted number of breeding pairs of each species potentially impacted by Option B of the Proposed Development (which has the larger overall footprint of the two designs) adjusted upwards to account for recent changes to the proposed design are: bullfinch (seven), cuckoo (two), curlew (two), dunnock (105), grasshopper warbler (three), house sparrow (12), kestrel (two), lapwing (two), lesser redpoll (four), linnet (18), mistle thrush (23), reed bunting (10), skylark (four), song thrush (56), spotted flycatcher (seven), starling (two), whitethroat (35) and willow warbler (91). The breeding bird assemblage in the entirety of the Order Limits is of **County** value.
- 9.7.368 Potential impacts on these species are as follows:
  - Potential for destruction/damage of nests during the breeding season.
  - Temporary direct loss of foraging and breeding habitat during construction and/or decommissioning of the Proposed Development.
  - Permanent direct loss of foraging and breeding habitat during operation of the Proposed Development.
  - Temporary disturbance during construction, maintenance and decommissioning of the Proposed Development potentially leading to displacement of breeding birds.
- 9.7.369 Mitigation measures required are set out below; full details are provided in the BMS (**Document 7.7**):

Mitigation measures for farmland, hedgerow, woodland and scrub breeding bird assemblage (passerines of high conservation concern) – Order Limits:

• CEMP measures all relevant General Principle measures, NV11 to NV14, BNC11 to BNC13, TH11 – 14, TH21, R1 to R4.

The following additional measures would be implemented:

- Phase work so that vegetation clearance, establishment of working areas and habitat restoration are completed outside of the breeding bird season (March – September for most bird species). Where habitat cannot be removed during this period it would be checked prior to removal by an experienced ornithologist to ensure that no active nests are present prior to removal. This would ensure compliance with the Wildlife and Countryside Act 1981 (as amended).
- Full reinstatement or replacement of all woodland, scrub hedgerow, grassland, wetland, hedgerow and grassland habitats removed or managed to accommodate the temporary construction compounds, temporary access and working areas.
- Replacement of hedgerows lost permanently to ensure no net loss of hedgerow habitat and planting of an additional 3,893 m<sup>2</sup> of woodland in areas other than the THH/CSECs or Gylched Covert.
- Habitat reinstatement and replacement to be initiated upon completion of works in a given section or area of the Proposed Development. Where possible, new habitat creation should occur in advance of or at the same time as construction work.
- Working areas set up at the onset of construction should be strictly adhered to in order to prevent additional loss of breeding bird habitat. ECoW to advise operations during the construction phase and temporary exclusion zones imposed on work should a high likelihood of impacts be detected.
- 9.7.370 With the above mitigation measures in place to avoid works in the nesting season where possible, or an inspection of suitable habitat by an experienced ornithologist, there would be no potential for destruction/damage of nests during the breeding season. This impact is therefore not discussed further.
- 9.7.371 The areas of habitat temporarily lost to construction and/or decommissioning of the Proposed Development have been predicted to result in the following corresponding losses to the breeding bird assemblage (rounded to the nearest whole number of breeding pairs): one pair of bullfinch; one pair of cuckoo; one pair of curlew; 20 pairs of dunnock; one pair of grasshopper warbler; five pairs of house sparrow; one pair of lesser redpoll; 11 pairs of linnet; three pairs of mistle thrush; five pairs of reed bunting; two pairs of skylark; six pairs of song thrush; one pair of spotted flycatcher; one pair of starling; 19 pairs of

whitethroat and 16 pairs of willow warbler. The temporary loss of these habitats is expected to have a short-term (up to approximately six breeding construction and one breeding season seasons during during decommissioning) impact on the assemblage of passerine breeding birds of high conservation concern in the area. Taking into account the loss of the habitats would have a short-term (up to approximately six breeding seasons during construction and one breeding season during decommissioning) impact, the likely size of the populations of each of these species in the survey area and the proposed mitigation measures, the severity of this impact on the farmland, hedgerow, woodland and scrub breeding bird assemblage in the entirety of the Order Limits is considered Very Low.

- 9.7.372 Temporary loss of habitats, notably hedgerows and woodlands, which offer foraging and/or a nesting resource within the Order Limits, is considered likely to have a short-term impact on the farmland, hedgerow, woodland and scrub breeding bird assemblage in the entirety of the Order Limits. Taking into account the availability of suitable foraging habitat for this species elsewhere in the study area, the proposed mitigation measures, including reinstatement of habitats and planting of new hedgerow and woodland habitats, and the high likelihood of re-establishment of breeding territories upon completion of reinstatement, indicates the sensitivity of the farmland, hedgerow, woodland and scrub breeding bird assemblage to the impact of temporary habitat loss in the entirety of the Order Limits in the long term is considered Low.
- 9.7.373 The County value of the farmland, hedgerow, woodland and scrub breeding bird assemblage in the entirety of the Order Limits, Very Low severity and Low sensitivity to the potential residual impacts of temporary loss of habitats as a foraging and breeding resource during construction and/or decommissioning of the Proposed Development means this would have a Negligible effect (not significant).
- 9.7.374 The majority of permanent habitat loss as a result of the Proposed Development would be short-grazed improved pasture of limited value as a feeding or breeding resource to farmland, hedgerow, woodland and scrub breeding bird assemblage in the entirety of the Order Limits. Permanent losses of hedgerow would be replaced through additional hedgerow planting and areas of woodland to be lost would be at least partially replaced where possible. The impacts of the overall permanent direct habitat loss are predicted to result in the following reductions in the breeding bird assemblage (rounded to the nearest whole number of breeding pairs): one pair of dunnock; one pair of whitethroat and one pair of willow warbler. The severity of the potential residual impact of this permanent habitat loss, taking into account the quality and area of habitats to be lost, number of species and breeding

pairs recorded using these habitats, proposed mitigation measures, including the replacement of mature trees and hedgerows and predicted overall reductions in the farmland, hedgerow, woodland and scrub breeding bird assemblage in the entirety of the Order Limits, is considered **Low**.

- 9.7.375 The permanent loss of primarily improved and semi-improved grassland habitats is considered likely to have limited impact on the foraging or nesting activities of farmland, hedgerow, woodland and scrub breeding bird assemblage in the entirety of the Order Limits due to the limited use made of these habitats. Despite the small number of breeding pairs predicted to be lost from the breeding bird assemblage and the significant remaining habitat resource located nearby which could provide alternative foraging of similar value, the permanent loss of woodland habitats is considered likely to have an impact on foraging by the farmland, hedgerow, woodland and scrub breeding bird assemblage in the entirety of the Order Limits due to the likely dependence of the individuals concerned on the hedgerows, mature trees and areas of woodland to be lost. Taking into account the proposed mitigation measures, the sensitivity of the farmland, hedgerow, woodland and scrub breeding bird assemblage in the entirety of the Order Limits to the proposed permanent loss of habitats is considered **Medium**.
- 9.7.376 The County value of the farmland, hedgerow, woodland and scrub breeding bird assemblage in the entirety of the Order Limits, Low severity and Medium sensitivity to the potential residual impacts of permanent loss of habitats as a foraging and breeding resource during construction and/or decommissioning of the Proposed Development means this would have a Minor Adverse effect (not significant).
- 9.7.377 Temporary disturbance and/or displacement of the farmland, hedgerow, woodland and scrub breeding bird assemblage in the entirety of the Order Limits could occur during construction, maintenance and decommissioning of the Proposed Development. Whilst not currently possible to quantify the level of the disturbance given the flexibility over the likely periods of activity and irregular nature of the impacts, it has been assumed that this is likely to reduce the breeding success of birds in the area for up to approximately six breeding seasons during construction and a single breeding season during decommissioning. Maintenance and operation activities could happen at any time of year but are unlikely to have an effect on more than a short period within a single breeding season. Taking into account the proposed mitigation measures, likely duration and spatial scale of potential impacts and the small number of species and breeding pairs likely to be impacted, the severity of temporary and permanent disturbance/displacement on the farmland,

hedgerow, woodland and scrub breeding bird assemblage in the entirety of the Order Limits is considered **Very Low**.

- 9.7.378 Successful breeding by the farmland, hedgerow, woodland and scrub breeding bird assemblage within the Order Limits is initially reliant on a male bird being able to attract a mate and defend a territory. Anthropogenic activity during construction, maintenance and decommissioning of the Proposed Development could potentially cause disturbance or displacement from breeding habitat by reducing the efficacy of song and/or disrupting territory behaviour. Whilst the degree to which breeding success may be reduced is difficult to determine, it is likely that some breeding would continue, especially in the context of the highly localised nature of the impacts and the ability of many passerine birds to habituate to anthropogenic presence and activity. The sensitivity of the farmland, hedgerow, woodland and scrub breeding bird assemblage in the entirety of the Order Limits to temporarv disturbance/displacement is considered Low.
- 9.7.379 The County value of the farmland, hedgerow, woodland and scrub breeding bird assemblage in the entirety of the Order Limits, Very Low severity and Low sensitivity to the potential residual impacts of temporary disturbance and displacement during construction, maintenance and decommissioning of the Proposed Development means this would have a Negligible effect (not significant).
- 9.7.380 The overall effect on the farmland, hedgerow, woodland and scrub breeding bird assemblage along the entirety of Order Limits as a result of the construction, operation, maintenance and decommissioning of the Proposed Development would be **Not Significant** on the conservation status of this assemblage.
- 9.7.381 The above assessment applies to both Options A and B, as although there are slight differences in the areas affected, they would make no difference to the outcome of the assessment. The figures shown in Table 9.27 are for Option B because habitat losses for this option are marginally greater and this represents the probable worst case scenario. However the difference between the two options is generally less than 0.1 % in terms of habitat availability and habitat loss, therefore the differences between the two options with respect to this impact are not significant.

	Within C Survey A	BC Areas	Within C	Vithin Order Limits												
Species	Area of Breeding Habitat (ha)	Number of breeding pairs recorded during surveys	Predicted Area of Breeding Habitat (ha)	Predicted number of breeding pairs	Permanent loss of breeding habitat incl Environmental	Mitigation Areas	Permanent loss of breeding habitat excl Environmental Mitigation Areas (ha)		Predicted number of breeding pairs impacted by permanent habitat loss Temporary habitat loss		(National Grid)	Temporary habitat loss (Third Party)		Total Temporary habitat loss		Predicted number of breeding pairs impacted by temporary habitat loss
Bullfinch	38.21	5	53.38	7	0.55	1.03	0.01	0.02	0.07	3.45	6.46	3.82	7.16	7.27	13.62	0.96
Cuckoo	294.81	1	580.99	2	5.6	0.96	1.75	0.30	0.02	129.3	22.26	86.53	14.89	215.8 3	37.15	0.75
Curlew	244.75	1	514.41	2	4.94	0.96	1.74	0.34	0.02	122.21	23.76	78.99	15.36	201.2	39.11	0.79
Dunnock	36.42	75	49.93	105	0.59	1.18	0.01	0.02	1.24	4.74	9.49	4.91	9.83	9.65	19.33	20.21
Grass- hopper warbler	35.96	3	34.22	3	0.59	1.72	0.15	0.44	0.05	8.63	25.22	6.63	19.37	15.26	44.59	1.36

	Within C Survey A	BC Areas	Within C	Vithin Order Limits												
Species	Area of Breeding Habitat (ha)	Number of breeding pairs recorded during surveys	Predicted Area of Breeding Habitat (ha)	Predicted number of breeding pairs	Permanent loss of breeding habitat incl Environmental	Mitigation Areas	Permanent loss of breeding habitat excl Environmental Mitigation Areas (ha)		Predicted number of breeding pairs impacted by permanent habitat loss	Temporary habitat loss (National Grid)		Temporary habitat loss (Third Party)		Total Temporary habitat loss		Predicted number of breeding pairs impacted by temporary habitat loss
House sparrow	11.88	11	13.37	12	0.23	1.72	0.00	0.00	0.21	2.78	20.79	3.04	22.74	5.82	43.53	5.30
Kestrel	31.12	1	54.02	2	0.40	0.74	0.01	0.02	0.01	2.89	5.35	3.65	6.76	6.54	12.11	0.24
Lapwing	246.11	1	528.63	2	4.94	0.93	1.74	0.33	0.02	23.68	4.48	80.87	15.30	104.5 5	19.78	0.41
Lesser redpoll	25.21	4	22.31	4	0.40	1.79	0.00	0.00	0.07	2.95	13.22	2.96	13.27	5.91	26.49	1.08
Linnet	10.68	20	9.43	18	0.23	2.44	0.00	0.00	0.45	2.65	28.10	2.46	26.09	5.42	57.48	10.51

North Wales Connection Project

	Within C Survey A	BC Areas	Within C	/ithin Order Limits												
Species	Area of Breeding Habitat (ha)	Number of breeding pairs recorded during surveys	Predicted Area of Breeding Habitat (ha)	Predicted number of breeding pairs	Permanent loss of breeding habitat incl Environmental	Mitigation Areas	Permanent loss of breeding nabitat excl Environmental Mitigation Areas (ha)		Predicted number of breeding pairs impacted by permanent habitat loss	Predicted number of breeding pairs impacted by permanent habitat loss Temporary habitat loss		Femporary habitat loss (Third		Total Temporary habitat loss		Predicted number of breeding pairs impacted by temporary habitat loss
Mistle thrush	29.92	14	50.08	23	0.40	0.80	0.01	0.02	0.18	2.75	5.49	3.07	6.13	5.82	11.62	2.71
Reed bunting	27.96	8	34.22	10	0.59	1.72	0.15	0.44	0.17	8.63	25.22	6.63	19.37	15.26	44.59	4.53
Skylark	254.11	2	520.98	4	4.94	0.95	1.74	0.33	0.04	123.62	23.73	80.87	15.52	204.4 9	39.25	1.59
Song thrush	29.92	33	50.08	56	0.40	0.80	0.01	0.02	0.45	2.75	5.49	3.07	6.13	5.82	11.62	6.49

	Within C Survey A	BC Areas	Within C	/ithin Order Limits												
Species	Area of Breeding Habitat (ha)	Number of breeding pairs recorded during surveys	Predicted Area of Breeding Habitat (ha)	Predicted number of breeding pairs	Permanent loss of breeding habitat incl Environmental	Mitigation Areas	Permanent loss of breeding habitat excl Environmental Mitigation Areas (ha)		Predicted number of breeding pairs impacted by permanent habitat loss	Temporary habitat loss	(National Grid)	Temporary habitat loss (Third	Party)	Total Tomorary bahitat loco	i utar i erripurary riabitat iuss	Predicted number of breeding pairs impacted by temporary habitat loss
Spotted fly- catcher	31.12	4	54.02	7	0.40	0.74	0.01	0.02	0.05	2.89	5.35	3.65	6.76	6.54	12.11	0.86
Starling	31.12	4	54.02	7	0.40	0.74	0.01	0.02	0.05	2.89	5.35	3.65	6.76	6.54	12.11	0.86
White- throat	10.68	38	9.43	35	0.23	2.44	0.00	0.00	0.84	2.65	28.10	2.46	26.09	5.11	54.19	18.70
Willow warbler	39.59	62	57.26	91	0.62	1.08	0.01	0.02	0.98	4.78	8.35	4.96	8.66	9.74	17.01	15.54
Bullfinch	38.21	5	53.38	7	0.55	1.03	0.01	0.02	0.07	3.45	6.46	3.82	7.16	7.27	13.62	0.96

North Wales Connection Project

	Within C Survey A	BC Areas	Within Order Limits									
Species	Area of Breeding Habitat (ha)	Number of breeding pairs recorded during surveys	Predicted Area of Breeding Habitat (ha)	Predicted number of breeding pairs	Permanent loss of breeding habitat incl Environmental Mitigation Areas	Permanent loss of breeding habitat excl Environmental Mitigation Areas (ha)	Predicted number of breeding pairs impacted by permanent habitat loss	Temporary habitat loss (National Grid)	Temporary habitat loss (Third Party)	Total Temporary habitat loss	Predicted number of breeding pairs impacted by temporary habitat loss	
*Based on	*Based on Option B. Habitat losses expressed in hectares (Ha) and proportion (%) of all available habitat within the Order Limits. Please											
refer to pa	ragraphs	9.7.188	3 and 9.7	.185 for	<sup>-</sup> more details	. Predicted n	umber of	breeding pairs pr	esent and poter	ntially impacted b	by the	
proposed :	scheme ha	ave be	en adjust	ed to a	ccount for rec	ent changes	to the pro	posed design tha	t increase the o	verall habitat are	a within	

the Order Limits by a maximum of 1.5%. Individual habitat losses are unadjusted.

# Designated Sites

- 9.7.382 Sites within the study area designated partly or wholly for ornithological interest features, the reasons for designation and their distances from the Proposed Development are set out in Appendix 9.2 (Document 5.9.2.2). They include sites relating to ornithological receptors, comprising 12 statutory designations (7 SPAs, 3 SSSIs and 2 LNRs) and 11 non statutory sites (9 Candidate Wildlife Sites, CWSs; and 2 North Wales Wildlife Trust Reserves (NWWTRs)). Those sites considered necessary to take account of in this assessment are included within Section 7, Tables 13 and 14, and assessments are provided in the following paragraphs. Those not considered relevant are discussed within Appendix 9.2 (Document 5.9.2.2). Effects relating to non-ornithological designated sites and their receptors are reported in section 9.3.
- 9.7.383 Potential effects on the interest features of the designated sites could occur through the following mechanisms:
  - Temporary disturbance/ displacement/ degradation noise and/or visual disturbance causing displacement of birds from regularly used habitats;
  - Temporary disturbance/ displacement/ degradation pollution to water/land causing alterations to habitat quality, reducing food availability and detrimental effects on the ornithological interest features; and
  - Collision effects collision of interest features with the proposed OHL.
- 9.7.384 Blowout of drilling slurry and subsequent pollution of water and/or land would be very unlikely to occur, and is considered to have a **Negligible** significance of effect as the measures described the CEMP would reduce the potential for this impact to occur to a negligible probability.
- 9.7.385 Some designated sites have been excluded from further assessment based on one or more of the following principles:
  - The distance of the designated site from the Proposed Development exceeds the likely foraging and/or breeding range of its interest features, and precludes direct or indirect impacts on the designated sites through disturbance;
  - The habitat requirements of the interest features would preclude any chance of interaction with the Proposed Development; and

- The observed distribution and habitat use of avian receptors that could be partially or totally dependent on one or more designated sites infers no risk to that species.
- 9.7.386 Consequently only those sites and species for which the interest features are vulnerable to disturbance during construction/decommissioning of the Proposed Development, and those sites who's interest features are likely to range over a wide enough distance to interact with the Proposed Development are included in the assessments below. A summary of the designated sites and the reasons for including or excluding them from the assessment is provided in Appendix 9.2 (**Document 5.9.2.2**).
- 9.7.387 The sites carried forward for assessment are:
  - Dyfi Estuary SPA;
  - Liverpool Bay SPA;
  - Lavan Sands and Conwy Bay SPA;
  - Puffin Island SPA;
  - Cemlyn Bay SSSI;
  - Llyn Alaw SSSI;
  - Malltraeth Marsh (Cors Ddyga) SSSI;
  - Cors Tregarnedd Fawr CWS; and
  - Cemlyn NWWTR.
- 9.7.388 For the purposes of this assessment all SPAs are of International value; all SSSIs are of National value; and CWSs and NWWTRs are of County value.

#### **Dyfi Estuary SPA**

9.7.389 There would be no direct effects on the SPA, however there is a recently established colony of Greenland white–fronted geese that overwinters regularly at Malltraeth Marsh. The possibility of Greenland white–fronted geese that overwinter within the SPA also visiting Anglesey, particularly during migration to and from Arctic breeding areas, cannot be ruled out. Four individuals were recorded on Llyn Alaw on one occasion during the field surveys. There is therefore potential for this species to collide with the proposed OHL.

- 9.7.390 Nevertheless this species was recorded only once at Llyn Alaw over the course of two winters' survey and was never recorded in flight. Its known distribution is restricted almost exclusively to the western half of Anglesey and especially at Malltraeth Marsh, with potential for some movement between Malltraeth Marsh and the Dyfi Estuary. The baseline data therefore suggest that there is very little risk of this species interacting with the Proposed Development and therefore the severity of the potential impact of collision risk is **Very Low**.
- 9.7.391 The potential impact on the Dyfi Estuary SPA is therefore a **Negligible** effect (**not significant**).

### Liverpool Bay SPA

- 9.7.392 At its closest point this designation is more than 5 km from the Proposed Development, therefore direct impacts on the site would not occur. None of the principal interest features/reasons for designation occur inland, and nor do most of the species that form part of the SPA bird assemblage. However the following main components of the assemblage feature do occur inland and would be likely to interact with the Proposed Development by virtue of their distribution and habitat preferences:
  - Cormorant occurs predominantly at Llyn Alaw and was recorded in flight across the existing OHL to and from Llyn Alaw and across the airspace between Llangefni and Cors Erddreiniog, along the Afon Lligwy, suggesting some potential movements of SPA birds in a broad south–west/north-east front across Anglesey to and from Llyn Alaw in particular and to a lesser extent across the southern end of Cors Erddreiniog.
- 9.7.393 Cormorant form part of the over-winter assemblage feature of the SPA. Although cormorant is primarily a coastal species, Stroud *et al.*, (Ref 9.61) report that birds are known to move inland to feed on inland waters. Natural England reports that cormorant have a mean maximum foraging range of 25 km from breeding sites (Ref 9.62); however Thaxter *et al.* (Ref 9.63), report that the mean foraging range of cormorant is 5.2 km. As the SPA, at its closest point, is 5.04 km to the closest point of the Order Limits, there is limited potential for cormorant associated with the Liverpool Bay SPA to encounter the OHL. It is assumed for the purposes of this assessment that cormorants behave similarly outside of the breeding season.
- 9.7.394 The amount and distribution of cormorant flight activity is described in paragraphs 7.8.69 and 9.7.49. The potential impacts on cormorant have been identified in paragraphs 9.7.49 9.7.52 as being restricted to collision with the OHL. Cormorants are reported (Ref 9.60) to be of low collision risk with

windfarms, which generally present a greater collision risk than static powerlines, even under adverse weather conditions. In addition, the proposed OHL has been routed alongside the existing OHL to which a high degree of avian habituation is likely (given that the existing OHL has been in place since the 1960s). This would also maximise the visibility of conductors to approaching birds, given the increased overall wire-scape.

9.7.395 Considering the distance of the Proposed Development from the SPA in relation to the mean foraging range, the very low risk of collision associated with the species, the likely habituation of cormorant to the existing OHL and the increased visibility due to the presence of two parallel OHLs, the Proposed Development would result in **Negligible** effect (**not significant**) on cormorant which form part of the over-winter assemblage feature of the SPA. This **Negligible** effect (**not significant**) on cormorant, which is associated with the SPA over-winter assemblage, would not significantly affect the integrity or function of the assemblage as a whole, and therefore have no potential to affect the integrity of the SPA.

#### Lavan Sands and Conwy Bay SPA

- 9.7.396 There would be no direct effects on the SPA due to its distance from the Proposed Development. However wintering curlew occurs regularly on land and/or inland freshwaters away from the SPA, so a functional link may exist between the SPA and regularly used terrestrial habitats.
- 9.7.397 More detailed baseline narrative and impact assessments for curlew are provided in paragraphs 7.8.119 7.8.124 and 9.7.117 9.7.135. The potential impacts and key locations identified for wintering curlew are :
  - Disturbance/displacement of wintering and breeding birds during construction, maintenance and decommissioning, which would be restricted to feeding areas near Cemaes (Section A), Llyn Alaw (Section B) and Cors Erddreiniog (Section C); and
  - Collision with the proposed OHL during operation of the Proposed Development, which is most likely to occur where significant curlew activity has been recorded on feeding areas near Cemaes (Section A), Llyn Alaw (Section B) and Cors Erddreiniog (Section C).
- 9.7.398 However curlew typically feed on coastal habitat including intertidal mudflats and grasslands within about 500 m of the coast and very rarely more than 2.5 km inland from coastal feeding areas (Ref 9.63). The closest regularly used terrestrial habitat to the SPA was on wet grasslands near Four Crosses, within 2 km of the Menai Strait, however this is around 4.7 km from the SPA. Curlew activity recorded inland where above ground infrastructure is proposed is

therefore highly unlikely to be related to the SPA population. Consequently there is expected to be **no impact** on the SPA.

# Puffin Island SPA

- 9.7.399 There would be no direct effects on the SPA due to the distance of the SPA from the Proposed Development; however it is important to also consider the potential for indirect effects on species outside of the SPA. Cormorant is the only species for which this site is designated; the designated site supports 776 pairs of cormorant during the breeding season. SPA. Although cormorant is primarily a coastal species, Stroud et al. (Ref 9.61) report that birds are known to move inland to feed on inland waters. Natural England report that cormorant have a mean maximum foraging range of 25 km from breeding sites (Ref 9.62); however Thaxter et al. (Ref 9.63), report that the mean foraging range of cormorant is 5.2 km. As the SPA is 15.53 km from the closest point of the Order Limits, there is limited potential for cormorant associated with Puffin Island SPA to encounter the OHL. The amount and distribution of cormorant flight activity is described in paragraphs 7.8.68 and 7.8.73. The potential impacts on cormorant have been identified in paragraphs 9.7.105 - 9.7.111 as being restricted to collision with the OHL. Cormorants are reported (Ref 9.64) to be of low collision risk with windfarms, which generally present a greater collision risk than static powerlines, even under adverse weather conditions. In addition, the proposed OHL has been routed alongside the existing OHL to which a high degree of avian habituation is likely (given that the existing OHL has been in place since the 1960s). This would also maximise the visibility of conductors to approaching birds, given the increased overall wire-scape.
- 9.7.400 Considering the distance of the Proposed Development from the SPA in relation to the mean foraging range of breeding cormorant, the very low risk of collision associated with the species, the likely habituation of cormorant to the existing OHL and the increased visibility due to the presence of two parallel OHLs, the Proposed Development would result in **Negligible** effect (**not significant**) on cormorant which form part of the over-winter assemblage feature of the SPA. This **Negligible** effect (**not significant**) on cormorant, which is associated with the SPA over-winter assemblage, would not significantly affect the integrity or function of the assemblage as a whole, and therefore have no potential to affect the integrity of the SPA.

#### Cemlyn Bay SSSI

9.7.401 There would be no direct impact on the designated site, however movements of the species for which it is designated, over land to and from the SSSI may

result in their interaction with the Proposed Development, resulting in indirect impacts on the SSSI through effects on the species.

- 9.7.402 All of the species of tern that breed within the SSSI are strictly coastal around Anglesey and do not occur over the interior of Anglesey or Gwynedd, therefore there is no potential for impacts on the key special ornithological features of the SSSI. The baseline surveys show that, in over 135 hours of survey at VP 5, overlooking Wylfa and facing Cemlyn Bay, there were no recorded flights of any of the wintering wildfowl species that are listed in the SSSI citation, except for mallard. The only potential impact to Cemlyn Bay SSSI is therefore through impacts on mallard.
- 9.7.403 The baseline, impacts and mitigation for mallard are set out in detail in paragraphs 7.8.34 7.8.38 and 9.7.51. Flight activity recorded from VP5 in particular, the viewshed of which covers the area between approximately Llanfechell, Cemaes, Wylfa and Porth y Pistyll, would be expected to account for flights to and from the SSSI within what is likely to be a core foraging area for SSSI birds. Furthermore mallards moving between the SSSI and the vicinity of the Proposed Development would have been detected from this location.
- 9.7.404 The recorded mallard flight activity within the viewshed of VP5 involved only two wintering flights, (one of which was at risk height). It is possible that these birds are associated to some extent with the SSSI. Impacts identified for mallard throughout the Proposed Development that would apply to this area in isolation include:
  - Collision with the OHL during all stages of the Proposed Development; and
  - Temporary disturbance or displacement of birds from feeding habitats within and adjacent to the Proposed Development.
- 9.7.405 Taking into account the proposed mitigation to reduce disturbance and, through design, to reduce the potential for collisions, the extremely limited flight activity of bird species listed on the SSSI citation (mallard only) and low potential for wintering mallard to be adversely affected by the Proposed Development, the severity of these impacts on potential SSSI birds would be **Very Low**, resulting in a **Negligible** effect (**not significant**) on Cemlyn Bay SSSI.

# Llyn Alaw SSSI

9.7.406 There would be no direct effects on the designated site. However the Proposed Development would be less than 500 m from the site boundary and

is within the foraging range of a number of species for which the site is designated:

- Overwintering whooper swan;
- Overwintering teal;
- Overwintering wigeon;
- Overwintering mallard;
- Overwintering shoveler;
- Overwintering and breeding tufted duck;
- Migratory curlew;
- Migratory lapwing; and
- Migratory golden plover.
- 9.7.407 There is therefore the potential for these species to interact with the Proposed Development and for the potential impacts on them to affect the condition of the designated site through changes in distribution and reduction of numbers of the interest features. The potential residual impacts on these species, accounting for the mitigation measures set out for each, are:
  - Overwintering whooper swan: Observations have shown a habituation of this species to the existing line and no collisions have been recorded during surveys during the few instances when whooper swans were observed to cross the line. In addition the routeing of the proposed OHL alongside the existing for the majority of its length maximises visibility of the conductors to approaching birds which would restrict the potential for collisions to extremely low levels. Minor Adverse effect (not significant) for collision during operation of the proposed development. Whooper swans recorded feeding on land have been on habitat areas to the west of the existing OHL and therefore all recorded movements between roosts and terrestrial feeding areas have not involved a crossing of the existing OHL; Negligible effect (not significant) for temporary losses of feeding habitat away from the SSSI, Negligible effect (not significant) for temporary disturbance and displacement of feeding birds during construction and decommissioning;
  - Overwintering teal; Negligible effect (not significant) for collision; Negligible effect (not significant) for disturbance;

- Overwintering wigeon: Negligible effect (not significant) for collision;
  Negligible (not significant) for disturbance;
- Overwintering mallard: **Negligible** effect (**not significant**) for disturbance at feeding areas; **Minor Adverse** effect (**not significant**) for collision;
- Overwintering shoveler; **Negligible** effect (**not significant**) for collision;
- Overwintering and breeding tufted duck; **Negligible** effect (**not significant**) for collision;
- Migratory curlew; Negligible effect (not significant) for collision; Negligible effect (not significant) for disturbance;
- Migratory lapwing; **Negligible** effect (**not significant**) for collision; and
- Migratory golden plover: the baseline data show that this species occurs infrequently at Llyn Alaw and in small numbers, with third party data including counts of up to 35 birds. Surveys across the survey area recorded only three golden plover flights, one of which was close to Llyn Alaw. Greater numbers are known to occur at Cemlyn Bay and Malltraeth Marsh. Since there is very little potential for interaction with the Proposed Development, there would be no impact on migratory golden plover.
- 9.7.408 Common terns were not recorded at Llyn Alaw and have not nested there in recent years with the most recent record of breeding being from 1992, therefore this species would not be impacted. No evidence of breeding black-headed gull was found at Llyn Alaw during the surveys, although breeding has been reported there historically and it is assumed this could still occur. However there would be no direct impact on breeding sites. The potential for this species to collide with the proposed OHL is low considering the habituation of this species to the existing OHL, as observed during vantage point surveys, the design of the proposed development (routeing of the proposed OHL alongside the existing OHL for the majority of its length maximises visibility of the conductors to approaching birds) and the proposed mitigation measures.
- 9.7.409 The impact on Llyn Alaw SSSI is dependent on the potential impacts of the Proposed Development on a number of its ornithological interest features individually where they occur in the landscape surrounding the SSSI. The impacts on all of the species individually are not significant. The impact on whooper swan would be a **Minor Adverse** effect (**not significant**), and would not result in a significant adverse effect on the numbers of this species

regularly using the SSSI and adjacent feeding habitats, resulting in an impact on the SSSI of a **Minor Adverse** effect (**not significant**).

# Malltraeth Marsh SSSI

- 9.7.410 There would be no direct impact on the designated site, and the Proposed Development would be sufficiently distant from it to rule out disturbance of birds that occur there or any damage or destruction of their nests or other habitats on which they depend within the SSSI. However movements to and from the SSSI of some of the species that form the SSSI's special features, could result in collisions with the proposed OHL during all stages of the Proposed Development, resulting in indirect impacts on the designated site through population effects on the species.
- 9.7.411 Given the distribution and frequency of observed flights (paragraphs 7.8.113 7.8.118), this impact would be likely only for breeding lapwing, which was recorded flying along the Afon Nodwydd corridor, at risk height, toward and away from the SSSI on three occasions in April and May 2016. These observations suggest there is a corridor of occasional lapwing movement to and from the designated site that passes directly over/through the existing OHL and the Proposed Development.
- 9.7.412 The potential impact on the designated site would therefore be through collision risk for breeding lapwing flying along the Afon Nodwydd, past Talwrn. This potential impact would be limited as the proposed OHL is routed alongside the existing OHL for the majority of its length; which maximises visibility of the conductors to approaching birds.
- 9.7.413 The severity of the impact of collision on lapwings across the whole survey area is predicted to be no greater than **Low** and a **Minor Adverse** effect (**not significant**). However the whole–development impact assessment takes into account the effects at core flight areas recorded near the north Anglesey Coast, Llyn Alaw and Cors Erddreiniog. Surveys from VPs overlooking the Afon Nodwydd (VPs 39 and 64) amount to 138 hours, in which time three flights (4 birds) along Afon Nodwydd were recorded during the breeding season and six flights (8 birds) were recorded in total. The collision risk and therefore impact severity of collision for breeding lapwing in this area, taking into account mitigation by design, would therefore be **Very Low** and the collision risk for Malltraeth Marsh SSSI would be a **Negligible** effect (**not significant**).

# Cors Tregarnedd Fawr CWS

9.7.414 There would be no direct impact on the designated site, and the Proposed Development would be sufficiently distant from it to rule out disturbance of birds that occur there. However movements of the species for which it is designated, to and from the CWS, may result in collisions with the proposed OHL during all stages of the Proposed Development, resulting in indirect impacts on the designated site through population effects on the species. Detailed baseline and impact assessments for these species are presented in Sections 8 and 9.

- 9.7.415 Given the distribution and frequency of observed flights (paragraphs 7.8.113 7.8.118), this impact is likely only for breeding lapwing, which was recorded flying along the Afon Nodwydd corridor, at risk height, toward and away from the CWS on three occasions in April and May 2016. These observations suggest there is a corridor of occasional lapwing movement to and from the designated site that passes directly over/through the existing OHL and the Proposed Development.
- 9.7.416 The potential impact on the designated site would therefore be through collision risk for breeding lapwing flying along the Afon Nodwydd, past Talwrn. This potential impact has been minimised through the design of the proposed OHL with respect to routeing of the proposed OHL alongside the existing for the majority of its length which maximises visibility of the conductors to approaching birds
- 9.7.417 The severity of the impact of collision on lapwing across the whole survey area is predicted to be no greater than Low and a Minor Adverse effect (not significant). However the whole–development impact assessment takes into account the effects at core flight areas recorded near the north Anglesey Coast, Llyn Alaw and Cors Erddreiniog. Surveys from VPs overlooking the Afon Nodwydd (VPs 39 and 64) amount to 138 hours, in which time three flights (4 birds) along Afon Nodwydd were recorded during the breeding season and six flights (8 birds) were recorded in total. The collision risk and therefore impact severity of collision for breeding lapwing in this area, taking into account mitigation by design, is therefore Very Low and the impact significance of collision on Cors Tregarnedd Fawr CWS would be Negligible (not significant).

Cemlyn NWWTR.

- 9.7.418 There would be no direct impact on the designated site, however movements of the species for which it is designated, over land to and from the reserve may result in their interaction with the Proposed Development, resulting in indirect impacts on the designated site through effects on the species.
- 9.7.419 Baseline descriptions and impact assessments for individual species are provided in Section 8 and earlier in Section 9. All of the species of tern that

occur within the designated site are strictly coastal around Anglesey and do not occur over the interior of Anglesey or Gwynedd. The baseline surveys show that, in over 135 hours of survey at VP 5 overlooking Wylfa and facing Cemlyn Bay, there were no recorded flights of any of the other species for which the site is designated, except for oystercatcher (1 flight below risk height in winter) and black–headed gull, for which a mean winter pass rate of 3.83 birds per hour was recorded, of which 2.56 per hour were at risk height. The former is excluded from further assessment in relation to the designated site on the basis that it occurs irregularly and infrequently within the survey area. The only potential impact to the designated site is therefore through impacts on black–headed gull.

- 9.7.420 Potential impacts on black-headed gulls include their displacement from terrestrial feeding areas during construction, maintenance and decommissioning of the Proposed Development; and collision with the proposed OHL during all stages of the Proposed Development.
- 9.7.421 Disturbance of gulls is unlikely to impact the designated site adversely since the footprint of the Proposed Development does not directly impact any of the wetland sites that are visited regularly by this species and affects a small proportion of the terrestrial feeding habitat available within the wider area on a temporary basis only. The impact of disturbance and displacement of blackheaded gulls is therefore likely to be of **Low Severity** and the sensitivity of the Anglesey population will be **Low** in the context of extensive observed habitat use away from the proposed development. Disturbance of blackheaded gulls will therefore be a **Negligible** effect (**not significant**) in terms of its impact on the designated site.
- 9.7.422 The sensitivity of black-headed gulls to collision with the proposed OHL is limited by the relatively low wing loading and high maneuvrability of this species combined with the observed habitation of gulls to the existing OHL. The risk of black-headed gulls colliding with the proposed OHL is low close to the Wylfa area of the North Anglesey coast, where activity of gulls associated with the designated site is most likely. Sensitivity of this species to collision with the proposed OHL is Low.
- 9.7.423 The design of the Proposed Development (i.e. routeing of the proposed OHL alongside the existing for the majority of its length would reduce the potential for collision across the whole of the Proposed Development. The impact severity of collision risk on black-headed gulls is therefore expected to be Very Low and the impact of gull collision risk on Cemlyn NWWTR is likely to have a Negligible effect (not significant).

9.7.424 The indirect impacts on Cemlyn NWWTR would therefore have a **Negligible** effect (**not significant**) overall.

## 9.8 MARINE HABITATS AND SPECIES

#### Overview of Effects and Mitigation

- 9.8.1 Potential impacts on marine habitats and species would occur during construction and operation of the cable tunnel under the Menai Strait. Maintenance and decommissioning effects are not expected to occur.
- 9.8.2 The potential impacts during construction include:
  - Habitat loss and contamination through destruction as a result of a blowout of drilling slurry during construction, or water quality contamination leading to mortality, disturbance or smothering of fauna; and
  - Disturbance of individuals or direct effects from noise and vibration generated during construction of the tunnel, i.e. behavioural and/or physiological changes in fish and/or marine mammals.
- 9.8.3 During operation, power transmission through cables generates localised EMFs. EMFs affect species that use the earth's magnetic field for orientation during navigation. As a consequence, certain species may be attracted or repelled by the presence of an EMF, leading to disorientation. EMFs therefore have the potential to affect a range of marine organisms, including fish, mammals and crustaceans and the following potential effect during operation is therefore included:
  - Disorientation of individuals owing to EMF generation when the transmission cables are energised during operation, resulting in behavioural changes in fauna.
- 9.8.4 Mitigation measures required are set out below; full details are provided within the BMS (**Document 7.7**):
  - CEMP Measures in Table 9.24; WE511, BNC28, NV32, NV33.

The following additional measure would be implemented:

• Mitigation for EMF is provided through mitigation by design, as the tunnel is a minimum of 10 m below the bed of the Menai Strait.

#### Intertidal habitats and species

- 9.8.5 The only potential effect that could occur on intertidal habitats and species is during construction, from:
  - Habitat loss and contamination from the unlikely event of a blowout of drilling slurry containing drilling fluids.
- 9.8.6 However, the minimum depth of the tunnel at 10 m below the sea bed means that the risk of a blowout of drilling slurry is limited. Measures put in place in the CEMP (WE511), as well as the relatively short period that construction activities would occur beneath the wetted area of the Menai Strait (i.e. approximately three months), would ensure that both the risk of occurrence and the severity should such an event occur would be lowered further. In addition, even if a blowout of drilling fluid were to occur the volume of fluid released during a blowout event would likely be very small in comparison to the volume of the receiving water, especially within the context of a well monitored drilling operation.
- 9.8.7 The severity of the residual effect would therefore be low based on the further reduction of the risk of a blowout event occurring owing to the CEMP measures. Sensitivity of these habitats to this effect would also be low. Owing to the **High** value of intertidal habitats of conservation importance, **Low** value of other intertidal habitats and species and the **Low** severity of residual impact, it is therefore predicted that effects would be **Negligible** (not significant) on intertidal habitats and species.

# Subtidal habitats and species

- 9.8.8 As with intertidal receptors stated above, the only potential effect that could occur on subtidal habitats (including Annex I rocky reef habitat and Section 7 subtidal sands and gravels habitat) and associated species is from:
  - Habitat loss and contamination from the unlikely event of a blowout of drilling slurry containing drilling fluids.
- 9.8.9 However, as outlined above, the design in terms of tunnel depth would ensure the probability of an event would be very low. Measures put in place in the CEMP (WE511), as well as the relatively short period that construction activities would occur beneath the wetted area of the Menai Strait (i.e. approximately three months), would ensure that both the risk of occurrence and the severity should such an event occur would be lowered further. In addition, even if a blowout of drilling fluid were to occur the volume of fluid released during a blowout event would likely be very small in comparison to

the volume of the receiving water, especially within the context of a well monitored drilling operation.

- 9.8.10 As a result of the above, the severity of the residual effect would be Low based on the low risk of an event occurring owing to mitigation measures. The sensitivity of these habitats to this effect would therefore also be Low. Owing to the High value of subtidal habitats of conservation importance, Low value of other subtidal habitats and species and the Low severity of residual effect, it is therefore predicted that effects would be Negligible (not significant) on subtidal habitats and species, including the Annex I rocky reef habitat feature of the Menai Strait and Conwy Bay SAC.
- 9.8.11 It should be noted that as a result of CEMP measures BNC28, a small amount of scour may be expected at the base of buoy-mounted acoustic devices (if used) within the Order Limits. Owing to the nature of the sediment here (likely to be sand, gravels and mussel shells), effects would be localised to a few square metres and would be temporary in nature, and as such subtidal habitats and species would not be significantly affected by this mitigation. This is therefore not considered further in terms of a potential effect.

### Shellfish

- 9.8.12 As with intertidal and subtidal receptors, shellfish and therefore shellfisheries have the potential to be affected during the construction stage only by:
  - Habitat contamination from the unlikely event of a blowout of drilling slurry containing drilling fluids.
- 9.8.13 However, as outlined above, these are relatively rare events, and the design in terms of tunnel depth and measures put in place in the CEMP (WE511), as well as the relatively short period that construction activities would occur beneath the wetted area of the Menai Strait (i.e. approximately 3 months), would ensure that the risk of occurrence would be extremely low. Furthermore, even in the unlikely event of a blowout, the volume of drilling fluid released would likely be very small in comparison to the volume of the receiving water, especially within the context of a well monitored drilling operation.
- 9.8.14 As a result of the above, the severity of the residual effect would therefore be Low and shellfish would have a Low sensitivity to this. Therefore, owing to the High value of commercial shellfisheries and the Low severity of residual impact coupled with the Low sensitivity to the blowout effects, it is predicted that effects would be Negligible (not significant) on shellfisheries.

#### Marine mammals

- 9.8.15 The potential effect on marine mammals which are Annex II of the Habitats Directive features of the Lleyn Peninsular and Sarnau SAC and Cardigan Bay SAC, and the North Anglesey Marine and West Wales cSACs, would be from:
  - Disturbance of individuals or direct effects from noise and vibration generated during construction of the tunnel, i.e. behavioural and/or physiological changes to marine mammals during construction; and
  - Disorientation of individuals from EMFs (See Section 9.3) which could affect cetacean<sup>15</sup> individuals during migration.
- 9.8.16 The baseline data indicate that there is only a very low utilisation of the Menai Strait by marine mammals, with only one record of bottlenose dolphin in the vicinity of the Order Limits within a ten-year period since 2004. There would be a relatively short period that construction activities would occur beneath the wetted area of the Menai Strait (i.e. approximately three months). Furthermore, in terms of drill and blast, CEMP measures such as the frequency (i.e. a maximum of six separate blasts per 24 hours) and very short duration of blast events (i.e. seconds), the zone of potential noise effect (based on noise modelled (see Document 5.9.2.18)) and the very low utilisation of the area by marine mammals indicate there would be an extremely low likelihood of any marine mammals being present in the area defined as having noise levels that would have an effect during a blast. The severity of this effect is subsequently assessed as low. Therefore, for the purposes of this tunnelling method, CEMP measures, duration, and likely depth (>10 m) below the seabed suggest that the sensitivity of marine mammals present off the Anglesey coast to the potential noise and vibration generated would be Low. Therefore, it is considered that, owing to the High value of marine mammals and the Low severity of impact coupled with the Low sensitivity to the noise and vibration generated by the Proposed Development, the effects would be Negligible (not significant) on marine mammal populations and their designated SACs/cSACs.
- 9.8.17 In terms of TBM operations, the short duration of construction works under the Strait (in the order of three months) would mean that the severity of the impact would be **Low** and the sensitivity of marine mammals to the noise and

<sup>&</sup>lt;sup>15</sup> EMF sensitivity is only described in terms of effects on cetaceans, therefore this does not apply to other designated marine mammal species such as grey seal (a feature of the Lleyn Peninsular and Sarnau SAC and Cardigan Bay SAC).

vibration generated would also be **Low** as acoustic energy would fall outside the hearing range of marine mammals (see Section 9.3). Therefore, owing to the **High** value of marine mammals and the **Low** severity of impact coupled with the **Low** sensitivity to the noise and vibration generated by the Proposed Development, it is therefore predicted that effects of TBM operations would be **Negligible** (**not significant**) on marine mammals and their designated SACs/cSACs.

9.8.18 As stated earlier, there is only a low utilisation of the Menai Strait by marine mammals. Furthermore, the predicted low levels of EMF as a consequence of the likely depth (>10 m) of the tunnel below the seabed suggest that the severity of the effect would be Low. Sensitivity of marine mammals to the EMFs generated would also be Low. Therefore, owing to the High value of marine mammals and the Low severity of impact coupled with the Low sensitivity to the EMFs generated by the Proposed Development, it is therefore predicted that effects would be Negligible (not significant) on cetaceans and their designated SACs/cSACs.

#### Fish (migratory and marine)

- 9.8.19 The potential effects that could affect fish are:
  - Habitat loss and contamination from the unlikely event of a blowout of drilling slurry during construction;
  - Disturbance of individuals or direct effects from noise and vibration generated during construction of the tunnel – i.e. behavioural and/or physiological changes to fish during construction; and
  - Disorientation of individuals from EMFs during operation, which may affect migratory behaviour.
- 9.8.20 In terms of blowout of drilling slurry, such events have the potential to affect fish through contamination of the water column. Blowouts are rare events, and the risk of an event has been reduced by the depth of the tunnel alignment, overlying ground conditions and measures put in place in the CEMP (WE511). Furthermore, the duration of risk is relatively short; in the order of three months.
- 9.8.21 Pelagic fish (both migratory and marine) are likely to avoid areas of contamination, whereas benthic fish species may be at a higher risk. As stated previously, the blowout of drilling slurry would be a rare event and the volume of drilling fluid released during such an event is likely to be very small in comparison to the volume of the receiving water, especially within the context of a well monitored tunnel boring operation. Furthermore, measures

put in place by the CEMP (WE511) would further reduce the risk of any effects materialising.

- 9.8.22 Owing to the low probability of occurrence over a relatively short duration and the large dilution capacity of the receiving waters, the severity of the residual impact on migratory and marine fish would be Low. The sensitivity of marine and migratory fish would therefore overall also be Low. Therefore, owing to the High value of migratory fish (including Atlantic salmon as part of the Afon Gwyrfai a Llyn Cwellyn SAC), High value of Environment (Wales) Act Section 7 marine fish, Low value of other marine fish, the Low severity of residual impact and Low sensitivity to the impact it is therefore predicted that effects would be Negligible (not significant) on fish and the associated Afon Gwyrfai a Llyn Cwellyn SAC.
- 9.8.23 In terms of the effects of drill and blast methods on migratory fish, it is estimated that as a worst case, the maximum possible range at which mortality or potential mortal injury could occur is 14 m from the point of blast at the seabed (i.e. a dome of 28 m diameter into the water column above), as set out in **Document 5.9.2.18**. CEMP measures such as the frequency and very short duration of blast events (i.e. a maximum of six separate blasts per 24 hours, lasting a few seconds) and the small size of the near-field area defined as having noise levels that would have an injurious effect during a blast, i.e. the noise effect zone (see Section **Error! Reference source not ound.** and **Document 5.9.2.18**), indicate there would be a low likelihood of any migratory fish being present/affected.
- 9.8.24 If there was a presence of migratory fish, this would only comprise a very low number of individuals as returning sea-phase adult Atlantic salmon to the Afon Gwyrfai a Llyn Cwellyn SAC, for example, would not form close-knit shoals as with other species such as herring. A study (Ref 9.65) indicates that adult salmon can appear loosely aggregated whilst at sea. However, the authors infer that it is likely that any appearance of a shoal of adults (i.e. as evident in catches) may be owing to fish following a common route. Taking this into account, it is likely that, as a worst case, any presence of aggregated individuals would be very low density, and subsequently the potential for multiple adult fish to be injured during blast events is extremely low.
- 9.8.25 In terms of the smolt lifestage, which can form shoals, timing of the run out to the sea would be from spring-early summer. The analysis of movements of acoustically-tagged Atlantic salmon smolts, after release in the coastal waters of New Brunswick, Canada, have shown that they initially left the area rapidly (i.e. over a few tidal cycles) to move towards open waters. The smolts studied moved seaward on the ebb tides, holding position on the flood. They moved into open waters during the day and corresponded to their movements

through a narrow channel with the tide. Overall their movement was active and directed swimming, relying on ebb tide transport through the areas of high tidal currents (Ref 9.66). Other studies have also shown that smolt tend towards migration on an ebbing tide (Ref 9.67).

- 9.8.26 The tidal patterns in Menai Strait are such that to the west of Menai Bridge the ebbing tide moves towards the west. It is therefore considered that smolts undergoing their downstream migration from the Afon Seiont will be carried to the west into Caernarfon Bay and away from the development site. Therefore, the likelihood of shoals remaining in and around the noise effect zone is greatly reduced. Those fish that do move to the east are expected to move quickly out to open water and given the high tidal flow in the area (i.e. up to 3.6 m/s), they would utilise this to move past the noise effect zone very quickly.
- 9.8.27 The early marine migration of post-smolts has a high mortality rate, both from natural and anthropogenic causes. It is estimated that in coastal waters there is a median mortality rate of 1.4 per km in coastal waters, with a total mortality (5 230 km from the mouth of the home river) of 8 71% (Ref 9.68). Ref 9.69 states that Atlantic salmon natural mortality rate in the marine phase is 65 95 %, although the author also states that estimation of natural mortality rates in the marine-phase is difficult owing to life strategies (i.e. they can return to their spawning river at different ages and those that do return have not succumbed to mortality from both natural and anthropogenic causes). Any mortality of Atlantic salmon individuals owing to this construction phase of the project would therefore fall well within these natural mortality rates.
- 9.8.28 Further out from this near-field zone, any behavioural effects in the mid-field (i.e. up to 1 km away; see **Document 5.9.2.18**) would be undetectable, owing to the low densities of migratory fish, and extremely short duration of blast events, interspersed by long periods of no blast noise generation). Furthermore, measures put in place by the CEMP (BNC28) would further reduce the risk of any effects materialising.
- 9.8.29 Therefore, for this tunnelling method, the severity of the effect on migratory fish present off the Anglesey coast to the potential noise generated would be Low, i.e. this construction method would not contribute towards the formation of an acoustic barrier to fish migration. The sensitivity of migratory fish to the noise effect zone generated would correspondingly also be Low. It is considered that, owing to the High value of migratory fish and the Low severity of impact coupled with the Low sensitivity to the noise effect zone generated by the Proposed Development, the effects would be Negligible (not significant) on migratory fish populations and their designated SACs.
- 9.8.30 In terms of the effects of drill and blast methods on other marine fish, any individuals passing or resident within the noise effect zone (see paragraph above) at the time of blast could be subject to injurious noise related effects. However, these effects would be very small in scale owing to the small noise effect zone and reversible within a short time frame (i.e. individuals would readily recolonise areas previously affected). Furthermore, this habitat is not likely to support high densities of marine fish species. The habitat identified as present in this area during baseline surveys was Environment (Wales) Act S7 habitat Subtidal sands and gravels. The JNCC description of this habitat states that "...there tend to be fewer animals where waves and tides are strong, and the communities there will be characterised by rapid burrowers such as bristleworms, tube worms, bivalve shells and shrimp-like creatures, and perhaps by crabs, hermit crabs and sea snails on the surface of the seabed". In terms of sand eel, which are both species of conservation concern and prey species of bird species of conservation concern (e.g. terns), the UK BAP Habitat description of this habitat indicates that coarse sand sediment in tide-swept coasts is occasionally typified by sand eels (Ammodytes spp). Sand eel densities are typically patchy and their habitat preference is for sandy seabeds ranging from fine sand to coarse shell sand. However, it should be noted that in the sublittoral sediment broken shell was also present, particularly at sites within the Order Limits where large numbers of mussel shells were recorded. This would render these areas of habitat above the Order Limits unsuitable for sand eels, which spend much of their life burrowed into the sediment. Taking these factors into account, any sand eel losses in the near-field (noise effect) zone are likely to be very small. Furthermore, measures put in place by the CEMP (BNC28) would further reduce the risk of any effects materialising.
- Further out from this near-field zone of greatest effect, there could be 9.8.31 temporary behavioural effects on fish species in the intermediate-field, i.e. up to a distance of up to 1 km up/down the Menai Strait (i.e. 100s of metres in length, Document 5.9.2.18). However, it is expected that as the blast duration would be so short (seconds) and the frequency of blast events would be low, those fish being present in the intermediate field would only temporarily be disturbed. There would be a low risk of any behavioural effects in the far field (i.e. ≥1 km up or down the Strait). Impacts from pile driving have been examined in terms of the behaviour and physiology of salmonids in the marine environment in Ref 9.70. This evidence shows that from a source level of 194 dB re 1µPa, brown trout held in cages positioned at distances of up to 400 m away, did not show any reaction to impact piling at distances of 400 m nor to vibropiling, even at close range (<50 m). There was no gross physical injury (e.g. swimbladder rupture or haemorrhaging) to trout at 400 m from the piling. Therefore, taking into account the near-field and

intermediate injury and behaviour risks, the severity of the effect on marine fish present in the Menai Strait to the potential noise generated would be **Moderate**. Sensitivity of marine fish to this effect would also be **Moderate**. It is considered that, owing to the High value of Environment (Wales) Act S7 marine fish and **Low** value of other marine fish and the **Moderate** severity of impact coupled with the **Moderate** sensitivity to the noise generated by the Proposed Development, the effects would be **Minor adverse** (**not significant**) on other marine fish populations within the Menai Strait.

9.8.32 EMFs have the potential to affect fish during the operational phase. However, as stated previously, studies have shown effects would be non-significant, with the depth (>10 m) of the tunnel below the seabed providing sufficient mitigation from the effects of EMF. It is therefore predicted that severity of the residual impact on migratory and marine fish would be Low and corresponding sensitivity of marine and migratory fish would also be Low. Therefore, owing to the High value of migratory fish (including Atlantic salmon as part of the Afon Gwyrfai a Llyn Cwellyn SAC), High value of Environment (Wales) Act S7 marine fish, Low value of other marine fish and the Low severity of potential impact and sensitivity of fish to it, it is predicted that effects would be Negligible (not significant) on marine and migratory fish and the associated Afon Gwyrfai a Llyn Cwellyn SAC.

#### Tunnel construction options assessment - marine receptors

9.8.33 Consideration has been given to the differences in the level effect of each of the tunnel construction scenarios (i.e. TBM from Braint, TBM from Ty Fodol and Drill and blast from Braint and Ty Fodol) on the marine receptors presented in this section and consequently any designated sites that they support. As the residual effect on each marine receptor has been assessed as negligible for each option, there is no overall difference between the level of effects of each of these construction options on any of the marine receptors.

# 10 Cumulative Effects

### 10.1 INTRODUCTION

10.1.1 This section of the assessment considers the cumulative effects of the various elements of the Proposed Development and the accumulated effects of the proposals with other developments proposed in the vicinity.

#### **10.2 INTRA-PROJECT CUMULATIVE EFFECTS**

10.2.1 Intra-project effects are reported in Chapter 19, Intra-Project Effects (**Document 5.19**).

#### **10.3 INTER PROJECT CUMULATIVE EFFECTS**

- 10.3.1 Inter-project cumulative effects occur when two or more planned developments have an effect on the same receptor leading to an overall effect of greater significance. Note that these 'other developments' are developments that have not yet been constructed and are not operational; where developments are constructed and operational they are considered to form part of the existing baseline.
- 10.3.2 Chapter 20 Inter-Project Cumulative Effects (**Document 5.20**) presents a methodology for determining whether inter-project cumulative effects could occur as a result of these 'other developments' being built and/or operated at the same time as the Proposed Development. This methodology is based upon the Planning Inspectorate Advice Note 17, which deals with cumulative effects assessment. A long list of other developments needs to be developed and agreed initially. Once this is agreed, the methodology consists of four main stages as follows:
  - Stage 1: a long list of other developments is identified and outline information gathered. Consideration is given to whether the other development is within the zone of influence (ZOI) for each topic; if it is, then the assessment progresses to stage 2.
  - Stage 2: consideration is given to the potential temporal overlap i.e. whether the construction or operational effects of the other development could coincide with those of the Proposed Development. Consideration is also given to the scale and nature of the other development, the nature of the receiving environment and whether there are shared receptors,

and whether there is a 'pathway' for a cumulative effect to occur. At the end of stage 2 a shortlist of other developments is considered in stages 3 and 4.

- Stage 3: detailed information is gathered about each of the shortlisted other developments, typically in the form of ESs or Scoping Reports.
- Stage 4: cumulative effects are assessed and mitigation identified, and apportioned, where necessary. The securing mechanism for any necessary mitigation is identified.
- 10.3.3 The potential for cumulative effects to occur is considered for any effects that are minor, moderate or major. However, where the residual effects on a shared receptor are concluded to be negligible for either the Proposed Development or the other development, it is not considered possible for there to be a resulting inter-project cumulative effect. Where all effects related to a particular topic are negligible, for either the proposed Development or other development is screened out at stage 2.
- 10.3.4 Details about the 'other developments' on the long list considered at stage 1 are provided in Chapter 20 Inter-Project Cumulative Effects (**Document 5.20**) and its appendices.

## Stage 1 and Stage 2

10.3.5 Table 9.28 provides a summary of stages 1 and 2 of the ecology and nature conservation inter-project cumulative effects assessment. Where the effects of other developments are either outside the ZOI or outside the temporal scope of the Proposed Development, they have not been included in this table.

Table 9.28 Summarising Stage 1 and Stage 2 of the Inter-Project CEA							
Development Name	Stage 1		Stage 2				
	Within ZOI?	Progress to Stage 2?	Overlap in Temporal Scope?	Is the Scale and Nature of Development likely to have a Significant Cumulative Effect? Relevant Shared Receptors and/or Pathways?	Progress to Stage 3/4?		
Wylfa Newydd Nuclear Power Station	Yes	Yes	Potential overlap between both the construction and operational phases.	Shared receptors: North Anglesey Marine candidate Special Area of Conservation (cSAC), Cemlyn Bay Site of Special Scientific Interest (SSSI), Tre'r Gof SSSI, Caeau Talwrn SSSI, ancient woodland, scrub, hedgerows, grassland, freshwater fish, terrestrial invertebrates, great crested newts, other amphibians, reptiles, marine mammals, brown hare, polecat, otter, water vole, red squirrel, bats, chough, ornithology (breeding birds and over-winter/passage birds). The Proposed Development would result in <b>negligible</b> effects on the North Anglesey Marine cSAC, Cemlyn Bay SSSI, Tre'r Gof SSSI, Caeau Talwrn SSSI, scrub, non-Important Hedgerows, grassland, terrestrial invertebrates, great crested newts, other amphibians, reptiles in relation to poor quality habitat, marine mammals, bats, brown hare, polecat, otter, water vole, red squirrel in areas of poor quality habitat, chough, ornithology (breeding birds) during operation, maintenance and decommissioning and ornithology (over-winter/passage birds). In addition Wylfa Newydd Power Station further reported <b>negligible</b> effects on Important Hedgerows (none reported present) and reptiles. As <b>negligible</b> effects from the Proposed Development or Wylfa Newydd Power Station have been predicted at each of these shared receptors, potential significant cumulative effects are considered unlikely and therefore these receptors are not considered further in this assessment. In view of the timescale, location of this 'other development' and that the Proposed Development concludes that <b>minor</b> adverse effects are likely on ancient woodland, freshwater fish, red squirrel in areas of high quality habitat and ornithology (breeding birds) during construction there remains the potential for significant cumulative effects and these receptors have hear to hear to hear enceptors	Yes for ancient woodland, freshwater fish, red squirrel in areas of high quality habitat and breeding birds		
Wylfa Nuclear Power Station Decommissioning	Yes	Yes	Overlap between all phases of the Wylfa Nuclear Power Station Decommissioning and the construction and operation of the Proposed Development.	Shared receptors: North Anglesey Marine cSAC, Cemlyn Bay SSSI, Tre'r Gof SSSI, reptiles, marine mammals, bats, chough and ornithology (breeding birds and over-winter/passage birds). The Proposed Development would result in <b>negligible</b> effects on the North Anglesey Marine cSAC, Cemlyn Bay SSSI, Tre'r Gof SSSI, reptiles in relation to poor quality habitat, marine mammals, bats, chough and ornithology (breeding birds during operation, maintenance and decommissioning and over-winter/passage birds). In addition, Wylfa Nuclear Power Station Decommissioning has further reported <b>negligible</b> effects on reptiles and breeding birds other than a gull colony. Breeding gulls are not identified as an ecological receptor for the Proposed Development.	No		

Table 9.28 Summarising Stage 1 and Stage 2 of the Inter-Project CEA						
Development Name	Stage 1		Stage 2			
	Within ZOI?	Progress to Stage 2?	Overlap in Temporal Scope?	Is the Scale and Nature of Development likely to have a Significant Cumu Relevant Shared Receptors and/or Pathways?		
				As <b>negligible</b> effects from the Proposed Development or Wylfa Nuclear F Decommissioning have been predicted at each of the shared receptors p cumulative effects are considered unlikely and therefore are not consider		
Penrhos Leisure Village	Yes	Yes	Overlap between the full build out of the sites and the Proposed Development's construction and also an overlap between the operational phases of the developments.	Shared receptors: none.		
Anglesey Eco Park	Yes	Yes	The first phases of the Eco Park would be constructed by 2018 however full development would run to 2020/2021 therefore there is an overlap between the construction phases of this development and the Proposed Development. There would also be an overlap in the operational phases.	Shared receptor: Llyn Alaw SSSI. As <b>negligible</b> effects from the Proposed Development have been predict effects are reported from the 'other development' at this shared receptor cumulative effects are considered unlikely and therefore are not consider		
Parc Cybi	No	No				
Rhyd-y-Groes Re-power	Yes	Yes	Construction works have commenced and are expected to have been completed prior to the construction of the Proposed Development. There	Shared receptors: Cemlyn Bay SSSI, Llyn Alaw SSSI, non-ancient woodl hedgerows, ponds, watercourses and drains, water vole, otter, bats, brow crested newt, reptiles, terrestrial invertebrates and ornithology (breeding a winter/passage birds). Collision risk modelling undertaken in relation to the Rhyd-y-Groes Re-po concluded collision mortality was probable, but not significant, for lapwing relevant for any other species. Although both curlew and lapwing are pot		

Progress to Stage 3/4?
Progress to Stage 3/4?
Progress to Stage 3/4?
No
No
Yes – breeding birds

Table 9.28 Summarising Stage 1 and Stage 2 of the Inter-Project CEA							
Development Name	Stage 1		Stage 2				
	Within ZOI?	Progress to Stage 2?	Overlap in Temporal Scope?	Is the Scale and Nature of Development likely to have a Significant Cumulative Effect? Relevant Shared Receptors and/or Pathways?	Progress to Stage 3/4?		
			would be an overlap in the operational phases.	vulnerable to collision with the OHL of the Proposed Development once operational, the potential for this impact to occur was assessed as very low and therefore a <b>negligible</b> effect. The reasons for this are the spatial distribution and small number of recorded flights of both species adjacent to and/or across the Proposed Development.			
			The Proposed Development would result in <b>negligible</b> effects on all shared receptors with the exception of Important Hedgerows, reptiles in relation to good quality habitat ( <b>minor</b> adverse) and ornithology (breeding birds) during construction ( <b>minor</b> adverse). In addition, Rhyd-y-Groes Re-power reported <b>negligible</b> effects on all shared receptors with the exception of bats and ornithology (breeding birds).				
				Where <b>negligible</b> effects from the Proposed Development or the 'other development' have been predicted on shared receptors potential significant cumulative effects are considered unlikely and therefore are not considered further.			
				Therefore, only potential significant cumulative effects on the shared receptor of ornithology (breeding birds during construction) have been taken forward in this assessment.			
Holyhead Waterfront Redevelopment	No	No					
			Construction is expected to last four years with the development	Shared receptors: Afon Gwyrfai a Llyn Cwellyn SAC, Menai Strait and Conwy Bay SAC, semi- natural woodland, coniferous woodland, semi-improved/marshy grassland, acid grassland, dry heath/ acid grassland, marine habitats, marine species, otter reptiles, bats and breeding birds.			
Glyn Rhonwy Pumped Storage	Yes	Yes	operational by 2019. However as construction does not appear to have started yet, it is assumed that there could be an overlap between construction and operational phases.	Gwyrfai a Llyn Cwellyn SAC, Menai Strait and Conwy Bay SAC, semi-natural woodland, coniferous woodland, semi-improved/marshy grassland, marine habitats, marine species, otter and bats. In addition the Glyn Rhonwy Pumped Storage project further reported <b>negligible</b> effects on acid grassland. Where <b>negligible</b> effects from the Proposed Development or 'other development' have been predicted on shared receptors, potential significant cumulative effects are considered unlikely and therefore are not considered further. Therefore, potential significant cumulative effects on the shared receptors for dry heath/acid grassland, reptiles and ornithology (breeding birds) have been taken forward in this assessment are not considered further	Yes for dry heath/acid grassland, reptiles and breeding birds		
Underground Grid Connection between Glyn Rhonwy Pumped Storage	Yes	Yes	The connection is expected to take less than a year however as the start date is not currently known, it is	Shared receptors: grassland, otter and breeding birds. The Proposed Development is expected to have <b>negligible</b> effects during construction, operation, maintenance and decommissioning on the potential shared receptors of grassland and otter. Where <b>negligible</b> effects from the Proposed Development or the 'other	Yes – breeding birds		

Table 9.28 Summarising Stage 1 and Stage 2 of the Inter-Project CEA						
Development Name	Stage 1		Stage 2			
	Within ZOI?	Progress to Stage 2?	Overlap in Temporal Scope?	Is the Scale and Nature of Development likely to have a Significant Cumu Relevant Shared Receptors and/or Pathways?		
Development and Pentir Substation			assumed there could be overlap in the construction and operational phases.	development' have been predicted on shared receptors, potential significate effects are considered unlikely and therefore are not considered further. Therefore, only potential significant cumulative effects on the shared rece (breeding birds) have been taken forward in this assessment.		
West Anglesey Demonstration Project	No	No				
Holyhead Deep	No	No				
A487 Caernarfon to Bontnewydd Bypass	No	No				
Menai Science Park	Yes	Yes	The first phase of the development would be completed prior to the construction phase of the Proposed Development however the remainder of the development would take approximately 10 years to complete (more detailed timescale currently unknown) therefore is likely to overlap with both the construction and operation phases of the proposed development.	Shared receptors: hedgerows, standing water, scattered trees, buildings a and breeding birds including barn owl. The Proposed Development would result in <b>negligible</b> effects on all share exception of Important Hedgerows and breeding birds during construction Where <b>negligible</b> effects from the Proposed Development have been pre receptors, potential significant cumulative effects are considered unlikely considered further. Therefore, the only potential significant cumulative effects are on the shar Important Hedgerows and ornithology (breeding birds during construction therefore been taken forward in this assessment.		
Third Menai Crossing	Yes	Yes	Potential for the construction phases to overlap (construction timescale currently unknown anticipated to be 2020/2021 to	Potential shared receptors: Menai Strait and Conwy Bay SAC, Afon Gwyr SAC, Pen Llyn a`r Sarnau/Lleyn Peninsula and the Sarnau SAC, North A cSAC, West Wales Marine cSAC, Cardigan Bay SAC, Coedydd Afon Mer Porthaethwy SSSI, ancient woodland, non-ancient woodland, grassland, marine ecology (marine mammals and Atlantic salmon), freshwater fish, r bats and ornithology.		

nulative Effect?	Progress to Stage 3/4?
icant cumulative	
ceptor of ornithology	
s and potential for bats ared receptors with the on ( <b>minor</b> adverse). oredicted on shared y and are not ared receptors of on) which have	Yes – Important Hedgerows and breeding birds during construction
yrfai a Llyn Cwellyn Anglesey Marine Ienai SSSI, Glannau I, marine habitats, , red squirrel, otter,	Yes - ancient woodland, Important Hedgerows, freshwater fish, red squirrel in

Table 9.28 Summarising Stage 1 and Stage 2 of the Inter-Project CEA								
Development Name	Stage 1		Stage 2					
	Within ZOI?	Progress to Stage 2?	Overlap in Temporal Scope?	Is the Scale and Nature of Development likely to have a Significant Cumulative Effect? Relevant Shared Receptors and/or Pathways?	Progress to Stage 3/4?			
			2022/2023). The operations phases would also overlap.	As <b>negligible</b> effects from the Proposed Development have been predicted on the Menai Strait and Conwy Bay SAC, Afon Gwyrfai a Llyn Cwellyn SAC ,Pen Llyn a`r Sarnau/Lleyn Peninsula and the Sarnau SAC, North Anglesey Marine cSAC, West Wales Marine cSAC, Cardigan Bay SAC, Coedydd Afon Menai SSSI, Glannau Porthaethwy SSSI, non-ancient woodland, non-Important Hedgerows, grassland, marine habitats, marine ecology (marine mammals and Atlantic salmon but excluding other marine fish), red squirrel in areas of poor quality habitat, otter, bats and ornithology (breeding birds during operation and over- winter/passage birds) significant cumulative effects on these shared receptors are considered unlikely and therefore are not considered further.	areas of high quality habitat, breeding birds and other marine fish during construction			
				Although detailed information is currently not publically available regarding the potential residual effects of the Third Menai Crossing on these shared receptors, there is considered to be the potential for significant cumulative effects on ancient woodland, Important Hedgerows, freshwater fish, red squirrel in areas of high quality habitat, ornithology (breeding birds) other marine fish during construction.				
A55 - Junction 15 & Junction 16 Improvement	No	No						
A55 Abergwyngregyn to Tai'r Meibion Improvement	No	No						
Nant y Garth Landfill Site	Yes	Yes	Overlap of operation of landfill (time-limited to the end of July 2021) and construction of the Proposed Development.	Shared receptors: woodland and badger. Nant y Garth Landfill Site proposals comprise minor amendments to restoration conditions to allow ease of reinstatement and create a landform to reinstate woodland. As <b>negligible</b> effects from the Proposed Development have been predicted on woodland and badger, significant cumulative effects on this shared receptor are considered unlikely and therefore are not considered further.	No			
Caernarfon Brickworks Quarry	No	No						
Amlwch Liquid Natural Gas (LNG)	Yes	Yes	The construction phase may coincide with that of the Proposed Development depending on planning consent (construction	Shared receptors: Cemlyn Bay SSSI, marine habitats, intertidal habitats, marine ecology (marine mammals and Atlantic salmon) and bats. As either the Proposed Development or 'other development' have reported <b>negligible</b> effects on all of the shared receptors significant cumulative effects on are considered unlikely and therefore are not considered further.	No			

Table 9.28 Summarising Stage 1 and Stage 2 of the Inter-Project CEA								
Development Name	Stage 1		Stage 2					
	Within ZOI?	Progress to Stage 2?	Overlap in Temporal Scope?	Is the Scale and Nature of Development likely to have a Significant Cumulative Effect? Relevant Shared Receptors and/or Pathways?	Progress to Stage 3/4?			
			start date currently unknown). Likely to be an overlap in operation phases.					
Green Wire	Yes	Yes	Timescales currently unknown. If connection in place as per the agreement (completed by end of 2020) there would be an overlap with the OHL and tunnel construction however not with works at Pentir. Likely to be an overlap in operation phases.	Shared receptors: non-ancient woodland, acid grassland, heathland, badger, red squirrel and ornithology (breeding birds). Potential shared marine ecology receptors, dependent on the location of the cable landfall. The Proposed Development has predicted <b>negligible</b> effects on non-ancient woodland, badger, red squirrel in areas of poor quality habitat areas, marine ecology receptors and breeding birds during operation, maintenance and decommissioning. Therefore, cumulative effects on these receptors are considered unlikely and therefore are not considered further. The proposed convertor station for the Green Wire development is potentially to be located adjacent to the proposed Pentir Substation Extension and would involve underground cabling works. Whilst detailed information is currently not publically available regarding the potential residual effects of this 'other development' on these shared receptors, as the Proposed Development has identified a <b>minor</b> adverse effect on acid grassland, heathland, red squirrel in areas of high quality habitat and ornithology (breeding birds) during construction, there is the potential for significant cumulative effects.	Yes - acid grassland, heathland, red squirrel in areas of high quality habitat and breeding birds during construction			
Llanbadrig Solar Farm	Yes	Yes	It is likely that this development would be constructed before the construction phase of the Proposed Development. There would be an overlap with the operational phases.	Shared receptors: grassland, great crested newts and brown hare. As either the Proposed Development or 'other development' have reported <b>negligible</b> effects on all of the shared receptors significant cumulative effects are considered unlikely and therefore are not considered further.	No			
Codling Wind Park	No	No						
Grŵp Llandrillo Menai Llangefni Campus	Yes	Yes	Although some elements would be completed prior to the construction phase of the Proposed Development there is	<ul> <li>Shared receptors: Corsydd Môn/Anglesey Fens SAC, Caeau Talwrn SSSI, Cors Tregarnedd Fawr CWS, non-ancient woodland, scrub, hedgerows, grassland, red squirrel, bats and ornithology (breeding birds).</li> <li>Although the Grŵp Llandrillo Menai Llangefni Campus development is located approximately 400 m from the Order Limits, as either the Proposed Development or 'other development' have reported <b>negligible</b> effects on Corsydd Môn/Anglesey Fens SAC, Caeau Talwrn SSSI,</li> </ul>	Yes – red squirrel in areas of high quality habitat and breeding birds			

Table 9.28 Summarising Stage 1 and Stage 2 of the Inter-Project CEA							
Development Name	Stage 1		Stage 2				
	Within ZOI?	Progress to Stage 2?	Overlap in Temporal Scope?	Is the Scale and Nature of Development likely to have a Significant Cumulative Effect? Relevant Shared Receptors and/or Pathways?	Progress to Stage 3/4?		
			the potential for overlap between the full build out of the site (timescale currently unknown) and the construction of the Proposed Development. There is also overlap between the operational phases of the developments.	Cors Tregarnedd Fawr CWS, non-ancient woodland, scrub, hedgerows, grassland, red squirrel in areas of poor quality habitat, bats and ornithology (breeding birds during operation, maintenance and decommissioning), significant cumulative effects on these receptors are considered unlikely and therefore are not considered further. As the Proposed Development has identified a <b>minor</b> adverse effect on red squirrel in areas of high quality habitat and ornithology (breeding birds) during construction, there is the potential for significant cumulative effects.	during construction		
Dinorwig Cables	Yes	Yes	Potential overlap between construction phases (cable installation is programmed for between 2019 and 2025) along with overlap in the operational phases.	Shared receptors: non-ancient woodland, hedgerows, grassland, heathland, badger, red squirrel and ornithology (breeding birds). The Proposed Development has predicted <b>negligible</b> effects on non-ancient woodland, non-Important Hedgerows, improved, semi-improved and marshy grassland, badger, red squirrel in areas of poor quality habitat and ornithology (breeding birds) during operation, maintenance and decommissioning, therefore cumulative effects on these receptors are considered unlikely and therefore are not considered further. Whilst no information is currently publically available regarding the potential residual effects of the 'other development' on these shared receptors, there is the potential for significant cumulative effects on Important Hedgerows and a very small area of unimproved acid grassland to the south of Pentir Substation, heathland, red squirrel in areas of high quality habitat and ornithology (breeding birds) during construction.	Yes - Important Hedgerows acid grassland, heathland, red squirrel and breeding birds during construction		
Holyhead Port Expansion	Yes	Yes	Planning consent is not currently in place. Therefore timescales are unknown. Potential overlap between construction phases. Overlap between the operational phases.	Potential shared receptors: Atlantic salmon, marine mammals, North Anglesey Marine cSAC. Effects as a result of the Proposed Development are <b>negligible</b> , therefore potential significant cumulative effects are considered unlikely.	No		

Page intentionally blank

#### Stage 3 and Stage 4

- 10.3.6 At the end of Stage 2 the original long list of other developments was reduced to a short list of other development where there would be potential for a significant cumulative effect to occur. The short list of other developments is as follows:
  - Wylfa Newydd Nuclear Power Station;
  - Wylfa Nuclear Power Station Decommissioning
  - Rhyd-y-Groes Re-power;
  - Underground Grid Connection between Glyn Rhonwy Pumped Storage Development and Pentir Substation;
  - A487 Caernarfon to Bontnewydd Bypass;
  - Menai Science Park;
  - Third Menai Crossing;
  - Green Wire;
  - Llanbadrig Solar Farm;
  - Grŵp Llandrillo Menai Llangefni Campus; and
  - Dinorwig Cables.
- 10.3.7 Stage 3 requires the gathering of detailed information; however, a substantial amount of information about the other developments had already been gathered to support stages 1 and 2.
- 10.3.8 The results of the Stage 4 assessment of cumulative effects and mitigation are presented in Table 9.29 below.
- 10.3.9 Professional judgement has been applied in determining whether the combination of effects from two developments could result in a significant effect overall. In the case of minor effects, it is considered highly unlikely that effects could prove to be additive; however, professional judgement has been applied to check that two or more minor effects do not have potential to accumulate, thereby resulting in a potentially significant effect.

Page intentionally blank

Table 9.28 Ecology and Nature Conservation CEA								
Develop ment Name	Effects on shared receptors from the Proposed Development	Effects on shared receptors from the 'other development'	Assessment of Cumulative effect with Proposed Development	Proposed Mitigation applicable to the Proposed Development including any apportionment	Residual Cumulative Effect			
Wylfa Newydd Power Station	Ancient woodland – Minor Adverse (not significant).	<u>Ancient</u> woodland – <b>Major</b> Adverse (significant).	Although Wylfa Newydd Power Station reports a <b>major</b> adverse (significant) effect and the Proposed Development reports a <b>minor</b> adverse (not significant) effect in relation to ancient woodland, these are not considered likely to have a cumulative effect of greater significance. The potential residual effect of the Wylfa Newydd Power Station on ancient woodland was reported as <b>major</b> adverse (significant) due to the removal of 0.8 ha of this habitat to facilitate construction of the Power Station. This was in relation to the loss of two small areas of ancient woodland (Simdda-Wen and The Firs Hotel) located within the footprint of the proposed Power Station site, the restricted range of this habitat on Anglesey and in recognition of its irreplaceability. Whilst listed on the Ancient Woodland huventory, surveys found both sites did not present features or species considered representative of ancient woodland but did present a high frequency of non-native species. The two areas were also reported to not be linked by connecting habitats and to not form part of a larger complex of woodland habitat. All other effects of this 'other development' on ancient woodland, including construction activities located within close proximity to the retained woodland at Manor Garden were considered <b>negligible</b> . Residual effects of the Proposed Development on ancient woodland are assessed as <b>minor</b> adverse. This effect is considered to be on the cusp of negligible adverse due to the limited areas impacted, notably narrow strips alongside existing trackways, and the poor existing quality of these areas. Whilst indirect effects of the Proposed Development are predicted on the Simda-Wen area of ancient woodland which would be indirectly affected by the Proposed Development is 2.5 km from the Wylfa Newydd Power Station site. As this is not functionally linked to either the Simdda-Wen or The Firs Hotel areas of ancient woodland to this 'other development' within the Order Limits are alongside the Menai Strait and within Vaynol Park	No additional mitigation is considered necessary.	Although there is likely to be some cumulative effect, the overall significance is unlikely to be any greater than the effects considered separately. <b>Not significant</b>			

Table 9.28 Ecology and Nature Conservation CEA									
Develop ment Name	Effects on shared receptors from the Proposed Development	Effects on shared receptors from the 'other development'	Assessment of Cumulative effect with Proposed Development	Proposed Mitigation applicable to the Proposed Development including any apportionment	Residual Cumulative Effect				
	<u>Freshwater</u> <u>fish</u> – <b>Minor</b> Adverse (not significant).	<u>Freshwater</u> <u>fish</u> – <b>Minor</b> Adverse (not significant).	Although both the Proposed Development and Wylfa Newydd Power Station report <b>minor</b> adverse (not significant) effects in relation to freshwater fish, these are not considered likely to have a cumulative effect of greater significance. This is because the potential residual effects of the Wylfa Newydd Power Station on freshwater fish are limited to habitat loss/fragmentation in relation to loss of an approximately 200 m section of the Nant Porth-y-pistyll supporting a small population of European eel and realignment of a section of the Nant Caerdegog Isaf. All other effects of this 'other development' on freshwater fish were considered <b>neutral</b> (in the case of A5025 Off-line Highway Improvements) or <b>negligible</b> . Residual effects of the Proposed Development on freshwater fish are limited to very small scale, temporary direct loss of habitat, temporary disturbance/displacement/ degradation of fish habitat during construction and small scale severance and fragmentation of fish habitat at localised locations on watercourses across the Order Limits rather than at a particular location. As such, the impacts are on very small sections of watercourse in catchments mainly not connected to those impacted by the Wylfa Newydd Power Station development. As the impacts are very small scale and temporary, with continuity of flow ensured throughout and clear-span bridges used where appropriate, the resulting <b>minor</b> adverse effect of the Proposed Development to contribute to a significant cumulative effect.	No additional mitigation is considered necessary.	Although there is likely to be some cumulative effect, the overall significance is unlikely to be any greater than the effects considered separately. <b>Not Significant</b>				
	<u>Red squirrel</u> in areas of high quality habitat – <b>Minor</b> Adverse (not significant) during construction.	<u>Red squirrel</u> – <b>Minor</b> Adverse (not significant)	Although the Proposed Development and the development of Wylfa Newydd Power Station both report <b>minor</b> adverse residual effects on red squirrel, these are not considered likely to have a cumulative effect of greater significance. The potential residual effects of the Wylfa Newydd Power Station on red squirrel are assessed as a short term risk of disturbance. All other effects, including habitat loss/fragmentation and risk of mortality and injury, are reported to be <b>negligible</b> . Targeted surveys undertaken in 2016 for this 'other development' recorded evidence of red squirrels within seven areas of woodland habitat. Surveys undertaken for the Proposed Development also confirmed red squirrel drey (calling squirrels heard) in Section A within coniferous forest within the Wylfa Newydd Power Station site. Additional mitigation for red squirrel in relation to the Wylfa Newydd Development Area would comprise the enhancement of existing habitats on Dame Sylvia Crowe's Mound by erecting artificial dreys (maximum of ten boxes) and providing a supplementary food resource (on a monthly basis during construction). The residual effects of construction, maintenance and decommissioning of the Proposed Development are assessed as having a <b>negligible</b> effect on the conservation status of red squirrel, which is considered of County value. The <b>minor</b> adverse effect is in relation to the loss of high quality habitat for red squirrel. Such	No additional mitigation is considered necessary.	Although there is likely to be some cumulative effect, the overall significance is unlikely to be any greater than the effects considered separately. <b>Not Significant</b>				

Table 9.28 Ecology and Nature Conservation CEA								
Develop ment Name	Effects on shared receptors from the Proposed Development	Effects on shared receptors from the 'other development'	Assessment of Cumulative effect with Proposed Development	Proposed Mitigation applicable to the Proposed Development including any apportionment	Residual Cumulative Effect			
			areas of habitat are avoided wherever possible as part of the design process. One of the main areas for this species is in the woodlands alongside the Menai Strait. As the Proposed Development would be within a tunnel at this location, these woodlands would not be subject to direct or long term effects. As a result, impacts on areas of habitat suitable for red squirrel are restricted to substation areas where woodland would require removal and where the OHL would pass through or near to areas of woodland. The small scale extent of loss, together with the availability of alternative habitat locally, low levels of red squirrel activity found during surveys and mitigation planting which means in the long term there would be replacement habitat, means the effect is considered to be on the cusp of negligible adverse. As the cumulative impact would need to be substantially greater in order for a moderate adverse effect to be reported, it is considered unlikely for the Proposed Development to contribute to a significant cumulative effect.					
	<u>Ornithology</u> (breeding birds) – <b>Minor</b> Adverse (not significant) during construction.	<u>Ornithology</u> ( <u>breeding</u> <u>birds)</u> – <b>Minor</b> Adverse (significant).	Although the assessment of the Proposed Development reports a <b>minor</b> adverse residual effect and the Wylfa Newydd Power Station development reports a potential <b>moderate</b> adverse effect on breeding birds during construction, these are not considered likely to have a cumulative effect of greater significance. The potential residual effects of this 'other development' on breeding birds are reported as <b>negligible</b> in relation to mortality and injury, direct loss of foraging, nesting and roosting habitat and hydrological changes. The minor adverse effect of the Wylfa Newydd Power Station development on breeding birds is reported solely in relation to disturbance at or near the development area. To ensure the long-term presence of notable species in this area, it is reported that an off-site enhancement area approximately 15 ha in size secured by the developer to the west of the Wylfa Newydd Development Area would be managed to support a range of species including breeding birds. The residual minor adverse residual effects of the Proposed Development on the County value of the assemblage of breeding birds of high conservation concern in the vicinity of Wylfa are in relation to the small areas of potential bird nesting habitat loss during construction, maintenance and decommissioning and potentially disturbing activities within or close to the Order Limits during construction, operation, maintenance and decommissioning. As the Wylfa Newydd Power Station development reports a potential residual <b>negligible</b> effect in relation to loss of habitat, there is considered to be no potential for a cumulative effect with this impact. The residuel effects of the Proposed Development in relation to disturbance and displacement of breeding birds are considered to be on the cusp of negligible adverse due to the short-term, localised and small scale nature of the impacts. These would be limited to when potentially disturbing activities are underway, which would not always be in the vicinity of this 'other development' throughout	No additional mitigation is considered necessary.	Although there is likely to be some cumulative effect, the overall significance is unlikely to be any greater than the effects considered separately. <b>Not Significant</b>			

Table 9.28 Ecology and Nature Conservation CEA						
Develop ment Name	Effects on shared receptors from the Proposed Development	Effects on shared receptors from the 'other development'	Assessment of Cumulative effect with Proposed Development	Proposed Mitigation applicable to the Proposed Development including any apportionment	Residual Cumulative Effect	
			of year but are unlikely to have an effect on more than a short period, during any given breeding season. As the cumulative impact would need to substantially greater for a moderate adverse effect to be reported, it is therefore considered unlikely for the Proposed Development to contribute to a significant cumulative effect.			
Rhyd-y- Groes Re- power	Ornithology (breeding birds) – <b>Minor</b> Adverse (not significant) during construction.	<u>Ornithology</u> ( <u>breeding</u> <u>birds</u> ) – (not significant) during construction.	Although the assessment of the Proposed Development reports a <b>minor</b> adverse residual effect and the Rhyd-y-Groes Re-power development reports a potential not significant effect on breeding birds during construction, these are not considered likely to have a cumulative effect of greater significance. The potential residual effects of the Rhyd-y-Groes Re-power project on breeding birds during construction are assessed as not significant. A total of 12 Species of Conservation Concern were assessed as probably breeding and a further 12 Species of Conservation Concern assessed as possibly breeding within the Rhyd y Groes site and the 500 m survey buffer during breeding bird surveys in 2011. The baseline data indicated it was unlikely that the study area would become occupied by Schedule1 nesting birds. The residual effects of this 'other development' on breeding birds during construction are reported to be localised and temporary habitat loss totalling just over 20 ha of pasture and arable habitat and just over 500 m of field boundaries equating to approximately 1.2% of the available resource for farmland birds. The residual effects other in the entirety of the Order Limits are considered <b>negligible</b> for all effects other than a <b>minor</b> adverse residual effect for permanent loss of habitats as a foraging and breeding resource. This impact is considered to be on the cusp of negligible adverse due to the areas of potential permanent bird nesting habitat loss being very small at a number of locations across the Order Limits rather than a more specific loss at a specific location. As the 'other development' is over 850 m from the Order Limits there is considered to be no overlap in nesting habitat and limited overlap in foraging habitat between the two breeding bird communities. As the cumulative impact would need to be substantially greater than it was for a moderate adverse residual effect to be reported, it is considered unlikely for the Proposed Development to contribute to a significant cumulative effect.	No additional mitigation is considered necessary.	Although there is likely to be some cumulative effect, the overall significance is unlikely to be any greater than the effects considered separately. <b>Not Significant</b>	
Glyn Rhonwy Pumped Storage	<u>Acid dry</u> <u>heath</u> – <b>Minor</b> Adverse (not significant) during construction.	<u>Dry heath/acid</u> grassland – <b>Minor</b> Adverse (not significant).	Although the assessments of the Proposed Development and Glyn Rhonwy Pumped Storage development report a <b>minor</b> adverse residual effect on dry heath/acid grassland during construction, these are not considered likely to have a cumulative effect of greater significance. Construction of the Glyn Rhonwy Pumped Storage development was reported to have a potential <b>minor</b> adverse residual effect on dry heath/acid grassland. This was in relation to the temporary disturbance and removal of 0.3 ha (1.7%) of this habitat for construction compounds etc., and permanent disturbance and removal of 2.1 ha (12.3%) for the construction of a dam. The potential residual effects on other areas of dry	No additional mitigation is considered necessary.	Although there is likely to be some cumulative effect, the overall significance is unlikely to be any greater than the	

Table 9.2	Table 9.28 Ecology and Nature Conservation CEA							
Develop ment Name	Effects on shared receptors from the Proposed Development	Effects on shared receptors from the 'other development'	Assessment of Cumulative effect with Proposed Development	Proposed Mitigation applicable to the Proposed Development including any apportionment	Residual Cumulative Effect			
			heath/acid grassland habitat from damage through vehicles or machinery tracking over this habitat, repeated foot traffic or pollution/run-off during operation of this 'other development' were reported as <b>negligible</b> with good site working practices including protective fencing of retained areas of habitat. There were reported to be no operational effects on these retained areas. Remnants of acid dry heath and their characteristic species have been identified within the study area of the Proposed Development (within the Order Limits and land up to 50 m beyond this boundary). These remnants are on the boundaries of improved fields and within hedgerows and cloddiau indicating a previously more widespread occurrence of this habitat. The only more extensive area within the study area is in Section F to the south of Pentir Substation. The total area of this habitat within the survey area is 5.66 ha, of which 1.38 ha (25%) is within the Order Limits. Impacts of the Proposed Development on acid dry heath, which is considered to be of County value, relate to temporary disturbance/ displacement/ degradation and potential loss. The residual effect on this habitat of temporary disturbance/ displacement/ degradation has been assessed as <b>negligible</b> for all stages of the Proposed Development. The <b>minor</b> adverse effect relates to the small amounts of temporary loss during construction and potentially decommissioning, notably for the access track at Pentir Substation. This is considered to be on the cusp of negligible adverse because there would be no permanent loss of acid dry heath habitat as the area of this habitat used for the access track at Pentir Substation would be reinstated following completion of the works. Whilst reinstatement of acid dry heath may be more difficult than for some other habitats, it is expected that through the application of restoration techniques based on best practice ecological principles that reestablishment of the required vegetation communities would be achieved. It is likely that the onl		effects considered separately. Not Significant			
		Dry beath/acid	it is therefore considered unlikely for the Proposed Development to contribute to a significant cumulative effect.					
	<u>Acia</u> <u>grassland</u> – <b>Minor</b> Adverse (not significant)	grassland – Minor Adverse (not significant).	report a <b>minor</b> adverse residual effect on dry heath/acid grassland during construction, these are not considered likely to have a cumulative effect of greater significance. Construction of the Glyn Rhonwy Pumped Storage development was reported to have a potential <b>minor</b> adverse residual effect on dry heath/acid grassland. This was in relation to the temporary disturbance and	No additional mitigation is considered necessary.	Although there is likely to be some cumulative effect, the overall significance is			

Table 9.28	Table 9.28 Ecology and Nature Conservation CEA						
Develop ment Name	Effects on shared receptors from the Proposed Development	Effects on shared receptors from the 'other development'	Assessment of Cumulative effect with Proposed Development				
	during construction.		removal of 0.3 ha (1.7%) of this habitat for construction compounds etc., and permanent disturbance and removal of 2.1 ha (12.3%) for the construction of a dam. The potential residual effects on other areas of dry heath/acid grassland habitat from damage through vehicles or machinery tracking over this habitat, repeated foot traffic or pollution/run-off during operation of this 'other development' were reported as <b>negligible</b> with good site working practices including protective fencing of retained areas of habitat. There were reported to be no operational effects on these retained areas.				
			A total of 1.23 ha of acid grassland was recorded inside the Order Limits and land up to 50 m beyond this boundary (referred to as the 'study area') of the Proposed Development, with 0.58 ha present within the Order Limits. Of this, a very small area (0.07 ha) to the south of Pentir Substation accounted for around 12% of the Order Limit total. The <b>minor</b> adverse effect relates to the potential small scale temporary loss of this habitat, which is considered to be of Local value, during construction and potentially decommissioning, notably for the access track at Pentir Substation during construction, maintenance and decommissioning. This is considered to be on the cusp of negligible adverse because there would be no permanent loss of acid grassland as the area of this habitat used for the access track at Pentir Substation of restoration would be reinstated following completion of the works. Whilst reinstatement of acid grassland may be more difficult than for some other habitats, it is expected that through the application of restoration techniques based on best practice ecological principles that reestablishment of the required vegetation communities would be achieved. It is likely that the only access required at the Pentir Substation during operation and maintenance would be via the existing substation access road. As the cumulative impact would need to be substantially greater than it was for a moderate adverse residual effect to be reported, it is considered unlikely for the Proposed Development to contribute to a significant cumulative effect.				
	Reptiles in areas of high quality habitat – <b>Minor</b> Adverse (not significant) during construction, maintenance, and	<u>Reptiles</u> – <b>Minor</b> Adverse (not significant).	Although the assessments of the Proposed Development and Glyn Rhonwy Pumped Storage development report a minor adverse residual effect on reptiles during construction, maintenance, and decommissioning, these are not considered likely to have a cumulative effect of greater significance. Construction of the Glyn Rhonwy Pumped Storage development was reported to have a potential <b>minor</b> adverse residual effect on reptiles with low numbers of slow worm recorded around a quarry and low numbers of common lizard recorded across the whole of the development area Order Limits, but mainly associated with a quarry. This was due to the removal of terrestrial habitat (quarries, heath/acid grassland mosaic, scrub, woodland edges and dry stone walls) with the potential to support reptiles, as well as the predicted impacts from noise and vibration. It was reported that a large proportion of habitats with the potential to support reptiles would be retained within the site boundary of this 'other development' and that there are similar				

Proposed Mitigation applicable to the Proposed Development including any apportionment	Residual Cumulative Effect
	unlikely to be any greater than the effects considered separately. <b>Not Significant</b>
No additional mitigation is considered necessary.	Although there is likely to be some cumulative effect, the overall significance is unlikely to be any greater than the effects considered separately. <b>Not Significant</b>

Table 9.28	Table 9.28 Ecology and Nature Conservation CEA					
Develop ment Name	Effects on shared receptors from the Proposed Development	Effects on shared receptors from the 'other development'	Assessment of Cumulative effect with Proposed Development			
	decommissio n.		habitats of equal or greater value to reptiles in the immediate surroundings. Proposed mitigation included retaining hand searching and strimming of access tracks, avoiding potential refugia within the quarries to prevent disturbance to hibernating reptiles and the creation of additional spoil piles.			
			The residual effects of the Proposed Development on the shared receptor of reptiles are assessed as <b>minor</b> adverse (not significant) for the temporary and permanent loss of high quality potential reptile habitat. As the Proposed Development is designed to ensure habitat loss would be limited where possible, replaced, improved or repositioned in as close proximity as possible to that lost and designed to prevent fragmentation, the severity of severance and fragmentation of habitat suitable to support reptiles during construction, maintenance and decommission would be Low and Very Low during operation. Whilst residual severance and fragmentation of habitat suitable to occur any standard fencing installed during construction, maintenance and decommission for the OHL working areas would not prevent the movement of reptiles other than where temporary fencing would be installed as part of the licenced mitigation to move or exclude great crested newts from the working areas, though no reptiles have been found in these areas to date. Habitat would be replaced, or improved where possible in as close proximity as possible and designed to prevent fragmentation. This, together with the Proposed Development and Glyn Rhonwy Pumped Storage being over 6 km apart such that the two areas of this habitat can be considered ecologically isolated, means the cumulative impact would need to be substantially greater for a moderate adverse residual effect to occur, and it is therefore considered unlikely for the Proposed Development to contribute to a significant cumulative effect.			
			Although the assessments of the Proposed Development and the Glyn Rhonwy Pumped Storage development conclude <b>minor</b> adverse residual effects on breeding birds, these are not considered likely to have a cumulative effect of greater significance.			
	<u>Ornithology</u> (breeding <u>birds)</u> – <b>Minor</b> Adverse (not significant).	<u>Ornithology</u> (breeding <u>birds)</u> – <b>Minor</b> Adverse (not significant).	The potential residual effects of the Glyn Rhonwy Pumped Storage project on breeding birds was reported as <b>minor</b> adverse in relation to removal of potential nesting quarry habitat for Schedule 1 species of birds. It was however also reported that there would be no direct impact on Schedule 1 species due to habitat loss as they were found not to be using the quarries during the bird surveys. The potential residual effects of this 'other development' on breeding birds were reported as <b>minor</b> adverse in relation to removal of potential quarry and woody vegetation nesting habitat for Red and Amber listed species. It was reported these effects were expected to be temporary as a number of quarries and woody habitats would be retained within the site boundary of this 'other development' and because there was an abundance of similar habitats of equal or greater value with the potential to support breeding birds in the immediate surroundings. Although it was reported that a number of bird species had been recorded breeding in and around the quarries, the woodland,			

	Proposed Mitigation applicable to the Proposed Development including any apportionment	Residual Cumulative Effect
-		
s s d	No additional mitigation is considered necessary.	Although there is likely to be some cumulative effect, the overall significance is unlikely to be any greater than the effects considered separately. <b>Not Significant</b>

Table 9.28	Table 9.28 Ecology and Nature Conservation CEA						
Develop ment Name	Effects on shared receptors from the Proposed Development	Effects on shared receptors from the 'other development'	Assessment of Cumulative effect with Proposed Development				
			heathland and scrub of the site of this 'other development', disturbance was reported to have a <b>negligible</b> effect on both Schedule 1 and Red or Amber listed species.				
			The residual effects of the Proposed Development on the farmland, hedgerow, woodland and scrub breeding bird assemblage of species of high conservation concern in the entirety of the Order Limits are considered <b>negligible</b> for all effects other than a potential <b>minor</b> adverse residual effect for permanent loss of habitats as a foraging and breeding resource. This impact is considered to be on the cusp of negligible adverse due to the areas of potential permanent bird nesting habitat loss being very small at a number of locations across the Order Limits rather than at a more specific loss at a specific location. This, together with the Proposed Development and Glyn Rhonwy Pumped Storage being over 6 km apart such that the two areas of this breeding bird habitat can be considered ecologically isolated, means the cumulative impact would need to be substantially greater for a moderate adverse residual effect to occur, and it is therefore considered unlikely for the Proposed Development to contribute to a significant cumulative effect.				
Undergro und Grid Connecti on between Glyn Rhonwy Pumped Storage Develop ment and Pentir Substatio n	<u>Ornithology</u> (breeding birds) – <b>Minor</b> Adverse (not significant).	No information available.	The residual effects of the Proposed Development on the shared receptor of breeding bird assemblage of species of high conservation concern at the Pentir Substation are assessed as <b>negligible</b> in relation to temporary loss of habitats during construction and/or decommission and temporary and permanent disturbance and displacement during construction, operation, maintenance and decommissioning. The <b>minor</b> adverse effect relates to the loss of habitat as a foraging and breeding resource for birds during operation of the Proposed Development. This impact of the Proposed Development is considered to be on the cusp of negligible adverse due to the area of potential permanent bird nesting habitat loss being very small. As areas of nesting habitat are avoided wherever possible as part of the design process, permanent loss is limited to where this habitat is within the footprint of proposed infrastructure. Provided the existing Pentir Substation entrance road would be used during operation and maintenance of the Proposed Development, the expectation is that the majority of any loss of bird breeding habitat during construction and/or decommissioning would be reinstated following the completion of works. It is also expected that through the application communities and the breeding bird community they support would be achieved. The Underground Grid Connection would similarly be expected to apply measures to ensure that loss of breeding bird habitat would be reduced to a level where it would be acceptable in planning terms. Furthermore, the location of this 'other development' predominantly within the verges of the adopted highway network, would limit the potential for loss of breeding bird thabitat. It would also limit the potential for physical overlap of the two developments. As the cumulative impact would need to be substantially greater than it was for a moderate adverse residual				

	Proposed Mitigation applicable to the Proposed Development including any apportionment	Residual Cumulative Effect
r	No additional mitigation is considered necessary.	Although there is likely to be some cumulative effect, the overall significance is unlikely to be any greater than the effects considered separately. <b>Not Significant</b>

Table 9.28 Ecology and Nature Conservation CEA							
Develop ment Name	Effects on shared receptors from the Proposed Development	Effects on shared receptors from the 'other development'	Effects on shared eceptors from he 'other Jevelopment'		Residual Cumulative Effect		
			effect to be reported, it is considered unlikely for the Proposed Development to contribute to a significant cumulative effect.				
Menai Science Park	Important Hedgerows – <b>Minor</b> Adverse (not significant) during construction.	<u>Hedgerows</u> – Not significant.	Although the assessment of the Proposed Development reports a <b>minor</b> adverse residual effect on Important Hedgerows, the Menai Science Park development is reported to not have a significant effect on hedgerows, and these are not considered likely to have a cumulative effect of greater significance. The 'other development' is accompanied by an Ecological Appraisal that concludes that whilst on-site habitats are not of significant conservation interest, several ecological assets were present including hedgerows. Natural Resources Wales (NRW) has made suggestions in respect of features to be incorporated at detailed design stage and the IACC requires a Wildlife and Habitat Management Plan for the site. The effects of this 'other development' on hedgerows could therefore be expected to be localised and mitigated by the proposed extensive on-site landscaping incorporating ecological features aimed at increasing biodiversity, including replacing any hedgerows lost as a result of the development. The residual effects from the Proposed Development on hedgerows in the entirety of the Order Limits are considered <b>negligible</b> for all effects other than a <b>minor</b> adverse residual effect for the temporary loss and severance/fragmentation of Important Hedgerows. This impact is considered to be on the cusp of negligible adverse due to the small lengths of Important Hedgerows impacted by the Proposed Development and temporary nature of these impacts taking into account the proposed landscape planting. In view of the very low severity of permanent direct loss and severance and fragmentation of this habitat the Proposed Development is assessed as having a <b>negligible</b> effect (not significant) effect on the conservation status of this habitat as a result of permanent loss and fragmentation of the habitat during operation. As the cumulative impact would need to be substantially greater than it was for a moderate adverse residual effect to be reported, it is considered unlikely for the Proposed Development to contribute to a signi	No additional mitigation is considered necessary.	Although there is likely to be some cumulative effect, the overall significance is unlikely to be any greater than the effects considered separately. <b>Not Significant</b>		
	<u>Ornithology</u> (breeding birds) – <b>Minor</b> Adverse (not significant) during construction.	<u>Ornithology</u> (breeding <u>birds)</u> – Not significant	Although the assessment of the Proposed Development reports a <b>minor</b> adverse residual effect and the Menai Science Park development reports a potential not significant effect on breeding birds, these are not considered likely to have a cumulative effect of greater significance. The 'other development' is accompanied by an Ecological Appraisal that concludes that whilst on-site habitats are not of significant conservation interest, several assets including hedgerows, scattered trees and buildings had potential to support breeding birds. NRW has made suggestions in respect of features to be incorporated at the detailed design stage and the IACC requires a Wildlife and Habitat Management Plan for the site. The effects of this 'other development' on breeding birds are therefore expected to be localised and mitigated by	No additional mitigation is considered necessary.	Although there is likely to be some cumulative effect, the overall significance is unlikely to be any greater than the		

Table 9.28	Table 9.28 Ecology and Nature Conservation CEA							
Develop ment Name	Effects on shared receptors from the Proposed Development	Effects on shared receptors from the 'other development'	Assessment of Cumulative effect with Proposed Development	Proposed Mitigation applicable to the Proposed Development including any apportionment	Residual Cumulative Effect			
			the proposed extensive on-site landscaping incorporating ecological features aimed at increasing biodiversity, including tree planting and retaining hedgerows and buildings that may be used by breeding birds, including potentially barn owl. The residual effects on the farmland, hedgerow, woodland and scrub breeding bird assemblage of species of high conservation concern in the entirety of the Order Limits are considered <b>negligible</b> for all effects other than a <b>minor</b> adverse residual effect for permanent loss of habitats as a foraging and breeding resource. This impact is considered to be on the cusp of negligible adverse due to the areas of potential permanent bird nesting habitat loss being very small at a number of locations across the Order Limits rather than a more specific loss at a specific location. As the cumulative impact would need to be substantially greater than it was for a moderate adverse residual effect to be reported, it is considered unlikely for the Proposed Development to contribute to a significant cumulative effect.		effects considered separately. <b>Not Significant</b>			
Third Menai Crossing	<u>Ancient</u> <u>woodland</u> – <b>Minor</b> Adverse (not significant).	No information available	There is insufficient information as yet about the effects of the other development, and as such the potential cumulative effects with the Proposed Development would need to be a consideration during the relevant assessment and consenting for that development. The predicted effects of the Proposed Development on potential shared receptors of ancient woodland, freshwater fish, red squirrel (areas of high quality babitat only) and ornithology (breeding birds) during	n/a	n/a			
	Important Hedgerows – Minor Adverse (not significant) during construction.	No information available.	construction effects are assessed as <b>minor</b> adverse (not significant). Residual effects of the Proposed Development on ancient woodland are assessed as <b>minor</b> adverse. The reasons for this are the limited areas impacted, notably narrow strips alongside existing trackways, and the poor existing quality of these areas. As the impact would need to be substantially greater than it was for a moderate adverse residual effect to be reported, it is considered not possible for the Proposed Development to contribute to a significant cumulative effect. This is because whilst the nearest areas of ancient woodland to this 'other development' within the Order Limits are alongside the Menai Strait and within Vaynol Park CWS within section F, as the Proposed Development would be within a tunnel at this location, these areas of ancient woodland would not be subject to direct effects. The nearest area of woodland to this 'other development' which would be directly impacted by the Proposed Development would be at the Pentir Substation. As this is Gwynedd, this area of ancient woodland is considered not functionally linked to either	n/a	n/a			
	<u>Freshwater</u> <u>fish</u> – <b>Minor</b> Adverse (not significant).	No information available.		n/a	n/a			

Table 9.28	able 9.28 Ecology and Nature Conservation CEA					
Develop ment Name	Effects on shared receptors from the Proposed Development	Effects on shared receptors from the 'other development'	Assessment of Cumulative effect with Proposed Development			
	<u>Red squirrel</u> (areas of high quality habitat only) - <b>Minor</b> Adverse (not significant) Construction.	No information available.	the Simdda-Wen or The Firs Hotel areas of ancient woodland in the north-west of Anglesey. There is therefore considered to be no potential for a cumulative effect in relation to ancient woodland. The residual effects on hedgerows in the entirety of the Order Limits are considered <b>negligible</b> for all effects other than a <b>minor</b> adverse residual effect for the temporary loss and severance/fragmentation of Important Hedgerows. This impact is considered to be at the lower end of <b>minor</b> adverse due to the small lengths of Important Hedgerows impacted by the Proposed Development and temporary nature of these impacts taking into account the proposed landscape planting. In view of the very low severity of permanent direct loss and			
	Ornithology (breeding birds) – <b>Minor</b> Adverse (not significant) during construction.	No information available.	severance and fragmentation of this habitat the Proposed Development is assessed as having a <b>negligible</b> effect (not significant) effect on the conservation status of this habitat as a result of permanent loss and fragmentation of the habitat during operation. The nearest Important Hedgerow on Anglesey within the Order Limits of the Proposed Development is over 900 m from the Menai Strait. The nearest Important Hedgerow in Gwynedd within the Order Limits of the Proposed Development is over 900 m from the Menai Strait. The nearest Important Hedgerows, it is considered the cumulative impact would need to be substantially greater than it was for a moderate adverse residual effect to be reported, it is considered unlikely for the Proposed Development to contribute to a significant cumulative effect. Residual effects of the Proposed Development on freshwater fish are assessed as <b>minor</b> adverse. The reasons for this are the limited to very small scale, temporary direct loss of habitat, temporary disturbance/displacement/ degradation of fish habitat during construction and small scale severance and fragmentation. As such, the impacts are on very small sections of watercourse in catchments mainly not connected to those impacted by the proposed Development on freshwater fish is considered to be on the cusp of negligible adverse. As the impact would need to be substantially greater than at a particular location. As such, the impacts are on very small sections of watercourse in catchments mainly not connected to those impacted by the proposed Development on freshwater fish is considered to be on the cusp of negligible adverse. As the impact would need to be substantially greater for a moderate adverse effect of the Proposed Development on freshwater fish is considered to be on the cusp of negligible adverse. As the impact would need to be substantially greater for a moderate adverse effect to be reported by the proposed Development on freshwater fish is considered to be on the cusp of negligible adverse. As the impact w			

	Proposed Mitigation applicable to the Proposed Development including any apportionment	Residual Cumulative Effect
	n/a	n/a
	n/a	n/a
5		

Table 9.28	Table 9.28 Ecology and Nature Conservation CEA			
Develop ment Name	Effects on shared receptors from the Proposed Development	Effects on shared receptors from the 'other development'	Assessment of Cumulative effect with Proposed Development	
			tunnel at this location, these woodlands would not be subject to direct or long term effects. As a result, impacts on areas of habitat suitable for red squirrel are restricted to substation areas where woodland would require removal and where the OHL would pass through or near to areas of woodland. The small scale extent of loss, together with the availability of alternative habitat locally, low levels of red squirrel activity found during surveys and mitigation planting which means in the long term there would be replacement habitat, means the effect is considered to be on the cusp of negligible adverse. As the cumulative impact would need to be substantially greater in order for a moderate adverse effect to be reported, it is considered unlikely for the Proposed Development to contribute to a significant cumulative effect.	
			Residual effects of the Proposed Development on farmland and hedgerow bird assemblages of species of high conservation concern during construction of the Braint and Tŷ Fodol Construction Compounds and THH/CSECs are assessed as <b>negligible</b> for all effects other than a <b>minor</b> adverse effect for disturbance and displacement during construction, maintenance and decommissioning. These impacts are considered to be on the cusp of negligible adverse due to the short-term, localised and small scale nature of the impacts. These would be limited to when potentially disturbing activities are underway, which would not always be in the vicinity of this 'other development' throughout construction, maintenance and decommissioning. Maintenance activities in particular could happen at any time of year but are unlikely to have an effect on more than a short period of time during any given breeding season. There would be further limited potential for a cumulative effect with this 'other development' because the Proposed Development would be within a tunnel in the location of the nearest habitats within the Order Limits to the Menai Strait supporting breeding birds. As the cumulative impact would need to be substantially greater for a moderate adverse effect to be reported, it is therefore considered unlikely for the Proposed Development to contribute to a significant cumulative effect.	
	Other marine fish species (i.e. non- migratory) - <b>Minor</b> Adverse (not significant) during construction.	No information available.	There is insufficient information as yet about the effects of the other development, and as such the potential cumulative effects with the Proposed Development would need to be a consideration during the relevant assessment and consenting for that development. However, due to the nature of the habitat in areas affected within the Menai Strait and localised effects, it is unlikely that high densities of other marine fish would be affected by the Proposed Development and it is therefore deemed unlikely that this would result in a significant effect in-combination with any effects of moderate (or greater) nature from the Third Menai Crossing.	

Proposed Mitigation applicable to the Proposed Development including any apportionment	Residual Cumulative Effect
No additional mitigation is proposed.	Not significant

Table 9.28	Table 9.28 Ecology and Nature Conservation CEA						
Develop ment Name	Effects on shared receptors from the Proposed Development	Effects on shared receptors from the 'other development'	Assessment of Cumulative effect with Proposed Development	Proposed Mitigation applicable to the Proposed Development including any apportionment	Residual Cumulative Effect		
Green Wire	<u>Acid</u> grassland – <b>Minor</b> Adverse (not significant) during construction.	No information available.	here is insufficient information as yet about the effects of the other development, and as such the potential umulative effects with the Proposed Development would need to be a consideration during the relevant ssessment and consenting for that development. he predicted effects of the Proposed Development on potential shared receptors of acid grassland, eathland, red squirrel (areas of high quality habitat only) and ornithology (breeding birds) during construction ffects are assessed as <b>minor</b> adverse (not significant).		n/a		
	<u>Acid dry</u> <u>heath</u> – <b>Minor</b> Adverse (not significant) during construction.	No information available.	boundary (referred to as the 'study area') of the Proposed Development, with 0.58 ha within the Order Limits. Of this, a very small area (0.07 ha) to the south of Pentir Substation accounted for around 12% of the total within the Order Limits. The <b>minor</b> adverse effect relates to the potential small scale temporary and permanent loss of this habitat, which is considered to be of Local value, during construction and potentially decommissioning, notably for the access track at Pentir Substation if it is not possible to avoid such loss, and temporary disturbance/ displacement/ degradation during construction, maintenance and decommissioning. This is considered to be on the cusp of negligible adverse because there would be no permanent loss of acid	n/a	n/a		
	<u>Red squirrel</u> (areas of high quality habitat) - <b>Minor</b> Adverse (not significant) during construction.	No information available.	grassiand as the area of this habitat used for the access track at Pentir Substation would be reinstated following completion of the works. Whilst reinstatement of acid grassland may be more difficult than for some other habitats, it is expected that through the application of restoration techniques based on best practice ecological principles that reestablishment of the required vegetation communities would be achieved. It is likely that the only access required at the Pentir Substation during operation and maintenance would be via the existing substation access road. As the cumulative impact would need to be substantially greater than it was for a moderate adverse residual effect to be reported, it is considered unlikely for the Proposed Development to contribute to a significant cumulative effect.		n/a		
	<u>Ornithology</u> (breeding birds) - <b>Minor</b> Adverse (not significant) during construction.	No information available.	Remnants of acid dry heath and their characteristic species have been identified within the study area of the Proposed Development (within the Order Limits and land up to 50 m beyond this boundary). These remnants are on the boundaries of improved fields and within hedgerows and cloddiau indicating a previously more widespread occurrence of this habitat. The only more extensive area within the study area is in Section F to the south of Pentir Substation. The total area of this habitat within the survey area is 5.66 ha, of which 1.38 ha (25%) is within the Order Limits. Impacts of the Proposed Development on acid dry heath, which is considered to be of County value, relate to temporary disturbance/ displacement/ degradation and potential loss. The residual effect on this habitat of temporary disturbance/ displacement/ degradation has been assessed as <b>negligible</b> for all stages of the Proposed Development. The <b>minor</b> adverse effect relates to the	n/a	n/a		

Table 9.28	Table 9.28 Ecology and Nature Conservation CEA			
Develop ment Name	Effects on shared receptors from the Proposed Development	Effects on shared receptors from the 'other development'	Assessment of Cumulative effect with Proposed Development	
			potential small amounts of temporary loss of this habitat type during construction and potentially decommissioning, notably for the access track at Pentir Substation, and is considered to be on the cusp of negligible adverse. This is because there would be no permanent loss of acid dry heath habitat as the area of this habitat used for the access track at Pentir Substation would be reinstated following completion of the works. Whilst reinstatement of acid dry heath may be more difficult than for some other habitats, it is expected that through the application of restoration techniques based on best practice ecological principles that reestablishment of the required vegetation communities would be achieved. It is likely that the only access required at the Pentir Substation during operation and maintenance would be via the existing substation access road. There are therefore considered to be no effects during operation or maintenance. As the cumulative impact would need to be substantially greater than it was for a moderate adverse residual effect to be reported, it is considered unlikely for the Proposed Development to contribute to a significant cumulative effect. The minor adverse effect relates to the loss of high quality habitat for red squirrel. Such areas of habitat are avoided wherever possible as part of the design process. One of the main areas for this species is in the woodlands alongside the Menai Strait. As the Proposed Development would be within a tunnel at this location, these woodlands would not be subject to direct or long term effects. As a result, impacts on areas of habitat suitable for red squirrel are restricted to substation areas where woodland would require removal and where the OHL would pass through or near to areas of woodland. Whilst there was evidence of red squirrel presence in the wider study area of Gwynedd, there was only evidence of grey squirrel in the vicinity of the Pentir Substation. Impacts on woodland at this location from the Proposed Development were therefore conside	

Proposed Mitigation applicable to the Proposed Development including any apportionment	Residual Cumulative Effect

Table 9.28	Table 9.28 Ecology and Nature Conservation CEA			
Develop ment Name	Effects on shared receptors from the Proposed Development	Effects on shared receptors from the 'other development'	Assessment of Cumulative effect with Proposed Development	
			adverse effect relates to the loss of habitat as a foraging and breeding resource for birds during operation of the Proposed Development. This impact of the Proposed Development is considered to be on the cusp of negligible adverse due to the area of potential permanent bird nesting habitat loss being very small. As areas of nesting habitat are avoided wherever possible as part of the design process, permanent loss is limited to where this habitat is within the footprint of proposed infrastructure. The expectation is that the majority of any loss of bird breeding habitat during construction and/or decommissioning would be reinstated following the completion of the works. It is also expected that through the application of restoration techniques based on best practice ecological principles that reestablishment of the vegetation communities and the breeding bird community they support would be achieved. The Green Wire development would similarly be expected to apply measures to ensure that loss of breeding bird habitat would be reduced to a level where it would be acceptable in planning terms. As the cumulative impact would need to be substantially greater than it was for a moderate adverse residual effect to be reported, it is considered unlikely for the Proposed Development to contribute to a significant cumulative effect.	
Grŵp Llandrillo Menai Llangefni Campus	Red squirrel (areas of high quality habitat) - <b>Minor</b> Adverse (not significant) during construction.	<u>Red squirrel</u> - <b>Minor</b> Adverse (not significant) – Minor Beneficial (not significant).	Although the assessments of both the Proposed Development and Grŵp Llandrillo Menai Llangefni Campus both report <b>minor</b> adverse residual effect on red squirrel, these are not considered likely to have a cumulative effect of greater significance. The 'other development' is accompanied by an ES that concludes the main impact to local red squirrel populations is considered to be the increase in traffic associated with the new development. However, survey data presented indicate that the site of this 'other development' is not a stronghold for this species with only a red squirrel observed during the breeding bird survey in woodland. Therefore, it is reported such impacts are considered unlikely and would not have a significant effect upon the local population. In addition, it is reported there is likely to be short term construction indirect impacts to red squirrels during site clearance, earth works, site enabling works and construction of this 'other development'. These impacts are all considered to be <b>minor</b> negative (adverse) within a regional context. It is further reported that the woodland within this site would be retained and could be enhanced for red squirrels by sensitive planting and management where possible. It is reported that this, together with the suggested potential enhancement of other areas of the site to attract red squirrel once the development is constructed, may result in a <b>minor</b> positive (beneficial) effect within the local context. The residual effects of construction, maintenance and decommissioning of the Proposed Development are assessed as having a <b>negligible</b> effect on the conservation status of red squirrel, which is considered of County value. The <b>minor</b> adverse effect relates to the loss of high quality habitat for red squirrel. Such areas of habitat are avoided wherever possible as part of the design process. One of the main areas for this	

	Proposed Mitigation applicable to the Proposed Development including any apportionment	Residual Cumulative Effect
S		
ý		
r		
е		
y a ed ;,	No additional mitigation is considered necessary.	Although there is likely to be some cumulative effect, the overall significance is unlikely to be any greater than the effects considered
<b>;</b>		separately. Not Significant
S		

Table 9.28	Table 9.28 Ecology and Nature Conservation CEA			
Develop ment Name	Effects on shared receptors from the Proposed Development	Effects on shared receptors from the 'other development'	Assessment of Cumulative effect with Proposed Development	
			species is in the woodlands alongside the Menai Strait. As the Proposed Development would be within a tunnel at this location, these woodlands would not be subject to direct or long term effects. As a result, impacts on areas of habitat suitable for red squirrel are restricted to substation areas where woodland would require removal and where the OHL would pass through or near to areas of woodland. The small scale extent of loss, together with the availability of alternative habitat locally, low levels of red squirrel activity found during surveys and mitigation planting which means in the long term there would be replacement habitat, means the effect is considered to be on the cusp of negligible adverse. With the <b>minor</b> negative (adverse) effects of the 'other development' reported being in relation to potential increases in road traffic collisions once this development is complete and disruption during site clearance and site enabling works, and a potential <b>minor</b> positive (beneficial) residual effect reported through habitat enhancement in the long term, and the <b>minor</b> adverse effect of the Proposed Development to contribute to a significant cumulative effect.	
	<u>Ornithology</u> (breeding birds) – <b>Minor</b> Adverse (not significant) during construction.	<u>Ornithology</u> (breeding birds) – <b>Major/Modera</b> <b>te</b> Adverse (not significant) – <b>Negligible/Ne</b> <b>utral</b>	Although the assessments of both the Proposed Development and Grŵp Llandrillo Menai Llangefni Campus report a <b>minor</b> adverse residual effect on breeding birds, these are not considered likely to have a cumulative effect of greater significance. The 'other development' is accompanied by an ES that concludes the main impacts to breeding birds are disturbance and loss of habitat. Short-term disturbance during site clearance, earth works, site enabling works and construction of this 'other development' is reported as likely to have a <b>major</b> negative (adverse) impact within a local context. Loss of the majority of the grassland areas on the site, together with removal of some trees and scrub resulting in the loss of nesting areas is considered to have a <b>moderate</b> negative (adverse) impact within a local context. Survey data presented indicate that the general density and diversity of the breeding bird community in the study area of this 'other development' is fairly typical of semi-rural woodland and pasture habitat adjacent to residential housing. This comprised two confirmed breeding species (blackbird and robin), three probable breeding and six possible breeding species on residential sites 1 – 3 and four confirmed breeding species (blue tit, jackdaw, robin and starling), ten probable breeding and five possible breeding species on residential site 4 and hotel site 5. It is also reported that: the retention of the woodland within the site; retention and protection of boundary features; potential replacement at the earliest possible opportunity either on site within the landscape design or where possible off site of trees, scrub and grassland habitats which are to be lost; and the potential enhancement of other areas of the site to attract breeding birds once this 'other development' is constructed, may result in a <b>negligible/neutral</b> effect within the local context.	

	Proposed Mitigation applicable to the Proposed Development including any apportionment	Residual Cumulative Effect
nt g		
e f , 1	No additional mitigation is considered necessary.	Although there is likely to be some cumulative effect, the overall significance is unlikely to be any greater than the effects considered separately. <b>Not Significant</b>

Table 9.28	Table 9.28 Ecology and Nature Conservation CEA			
Develop ment Name	Effects on shared receptors from the Proposed Development	Effects on shared receptors from the 'other development'	Assessment of Cumulative effect with Proposed Development	
			The residual effects on the farmland, hedgerow, woodland and scrub breeding bird assemblage of species of high conservation concern in the entirety of the Order Limits are considered <b>negligible</b> for all effects other than a <b>minor</b> adverse residual effect for permanent loss of habitats as a foraging and breeding resource. This impact is considered to be on the cusp of negligible adverse due to the areas of potential permanent bird nesting habitat loss being very small at a number of locations across the Order Limits rather than at a more specific loss at a specific location. As the 'other development' is over 400 m from the Order Limits there is considered to be no overlap in nesting habitat and limited overlap in foraging habitat between the two breeding bird communities. As the cumulative impact would need to be substantially greater than it was for a moderate adverse residual effect to be reported, it is considered unlikely for the Proposed Development to contribute to a significant cumulative effect.	
Dinorwig Cables	<u>Important</u> <u>Hedgerows</u> – <b>Minor</b> Adverse (not significant) during construction <u>.</u>	No information available.	There is insufficient information as yet about the effects of the 'other development', and as such the potential cumulative effects with the Proposed Development would need to be a consideration during the relevant assessment and consenting for that development. The predicted effects of the Proposed Development on potential shared receptors of acid grassland, acid dry heath, red squirrel (in areas of high quality habitat) and ornithology (breeding birds during construction) are assessed as <b>minor</b> adverse (not significant).	
	<u>Acid</u> <u>grassland</u> – <b>Minor</b> Adverse (not significant) during construction.	No information available.	The residual effects of the Proposed Development on hedgerows in the entirety of the Order Limits are considered <b>negligible</b> for all effects other than a <b>minor</b> adverse residual effect for the temporary loss and severance/fragmentation of Important Hedgerows. This impact is considered to be on the cusp of negligible adverse due to the small lengths of Important Hedgerows impacted by the Proposed Development and temporary nature of these impacts taking into account the proposed landscape planting. Depending on the eventual route, design and installation methodology of the proposed cable of this 'other development' there is a risk of potentially shared Important Hedgerows. However, in view of the very low severity of permanent direct loss and severance and fragmentation of this habitat the Proposed Development is assessed as having	
	<u>Acid dry</u> <u>heath</u> – <b>Minor</b> Adverse (not significant) during construction.	No information available.	a <b>negligible</b> effect (not significant) effect on the conservation status of this habitat as a result of permanent loss and fragmentation of the habitat during operation. As the cumulative impact would need to be substantially greater than it was for a moderate adverse residual effect to be reported, it is considered unlikely for the Proposed Development to contribute to a significant cumulative effect. A total of 1.23 ha of acid grassland was recorded within the Order Limits and land up to 50 m beyond this boundary (referred to as the 'study area') of the Proposed Development, with 0.58 ha present within the Order Limits. Of this a very small area (0.07 ha) to the south of Pentir Substation accounted for around 12% of the	

Proposed Mitigation applicable to the Proposed Development including any apportionment	Residual Cumulative Effect
n/a	n/a
n/a	n/a
n/a	n/a

Table 9.28 Ecology and Nature Conservation CEA			
Develop ment Name	Effects on shared receptors from the Proposed Development	Effects on shared receptors from the 'other development'	Assessment of Cumulative effect with Proposed Development
	Red squirrel (areas of high quality habitat only) - <b>Minor</b> Adverse (not significant) during construction.	No information available.	total within the Order Limits. The <b>minor</b> adverse effect relates to the potential small scale temporary loss of this habitat, which is considered to be of Local value, notably for the access track at Pentir Substation if it is not possible to avoid such loss and temporary disturbance/ displacement/ degradation during construction, maintenance and decommissioning. This is considered to be on the cusp of negligible adverse. This is because there would be no permanent loss of acid grassland as the area of this habitat used for the access track at Pentir Substation would be reinstated following completion of the works. Whilst reinstatement of acid grassland may be more difficult than for some other habitats, it is expected that through the application of restoration techniques based on best practice ecological principles that reestablishment of the required
	<u>Ornithology</u> (breeding birds) - <b>Minor</b> Adverse (not significant) during construction.	No information available.	vegetation communities would be achieved. It is likely that the only access required at the Pentir Substation during operation and maintenance would be via the existing substation access road. As the cumulative impact would need to be substantially greater than it was for a moderate adverse residual effect to be reported, it is considered unlikely for the Proposed Development to contribute to a significant cumulative effect, especially as there unlikely to be a significant temporal overlap with construction of the 'other development'. Remnants of acid dry heath and their characteristic species have been identified within the study area of the Proposed Development (within the Order Limits and land up to 50 m beyond this boundary). These remnants are on the boundaries of improved fields and within hedgerows and cloddiau indicating a previously more widespread occurrence of this habitat. The only more extensive area within the survey area is in Section F to the south of Pentir Substation. The total area of this habitat within the survey area is 5.66 ha, of which 1.38 ha (25%) is within the Order Limits. Impacts of the Proposed Development on acid dry heath, which is considered to be of County value, relate to temporary disturbance/ displacement/ degradation and potential loss. The residual effect on this habitat of temporary disturbance/ displacement/ degradation has been assessed as a <b>negligible</b> for all stages of the Proposed Development. The <b>minor</b> adverse effect relates to the potential small amounts of temporary loss of this habitat type during construction and potentially decommissioning, notably for the access track at Pentir Substation, and is considered to be on the cusp of negligible adverse. This is because there would be no permanent loss of acid dry heath as the area of this habitat used for the access track at Pentir Substation would be reinstated following completion of the works. Whilst reinstatement of acid dry heath and may be more difficult than for some other habitats, it i

Proposed Mitigation applicable to the Proposed Development including any apportionment	Residual Cumulative Effect
n/a	n/a
n/a	n/a

Table 9.28 Ecology and Nature Conservation CEA			
Develop ment Name	Effects on shared receptors from the Proposed Development	Effects on shared receptors from the 'other development'	Assessment of Cumulative effect with Proposed Development
			be reported, it is considered unlikely for the Proposed Development to contribute to a significant cumulative effect, especially as there is unlikely to be a significant temporal overlap with construction of the 'other development'.
			The residual impacts of construction, maintenance and decommissioning of the Proposed Development are assessed as having a <b>negligible</b> effect on the conservation status of red squirrel, which is considered to be of County value. The <b>minor</b> adverse effect is relates to the loss of high quality habitat for red squirrel. Such areas of habitat are avoided wherever possible as part of the design process. One of the main areas of this species is in the woodlands alongside the Menai Strait. As the Proposed Development would be within a tunnel at this location, these woodlands would not be subject to direct or long term effects. As a result, impacts on areas of habitat suitable for red squirrel are restricted to substation areas where woodland would require removal and where the OHL would pass through or near to areas of woodland. The small scale extent of loss, together with the availability of alternative habitat locally, low levels of red squirrel activity found during surveys and mitigation planting which means in the long term there would be replacement habitat, means the effect is considered to be on the cusp of negligible adverse. As the cumulative impact would need to be substantially greater in order for a moderate adverse effect to be reported, it is considered unlikely for the Proposed Development to contribute to a significant cumulative effect, especially as there is unlikely to be a significant temporal overlap with construction of the 'other development'.
			The residual effects of the Proposed Development on the shared receptor of breeding bird assemblage of species of high conservation concern at the Pentir Substation are assessed as <b>negligible</b> in relation to temporary loss of habitats during construction and/or decommission and temporary and permanent disturbance and displacement during construction, operation, maintenance and decommissioning. The <b>minor</b> adverse effect relates to the loss of habitat as a foraging and breeding resource for birds during operation of the Proposed Development. This impact of the Proposed Development is considered to be on the cusp of negligible adverse due to the area of potential permanent bird nesting habitat loss being very small. As areas of nesting habitat is within the footprint of proposed infrastructure. The expectation is that the majority of any loss of bird breeding habitat during construction and/or decommissioning would be reinstated following the completion of works. It is also expected that through the application of restoration techniques based on best practice ecological principles that reestablishment of the vegetation communities and the breeding bird community they support would be achieved. The Dinorwig Cables development would be expected to similarly apply measures to ensure that loss of breeding bird habitat would need to be substantially greater than

Proposed Mitigation applicable to the Proposed Development including any apportionment	Residual Cumulative Effect

Table 9.28 Ecology and Nature Conservation CEA				
Develop ment Name	Effects on shared receptors from the Proposed Development	Effects on shared receptors from the 'other development'	Assessment of Cumulative effect with Proposed Development	
			it was for a moderate adverse residual effect to be reported, it is considered unlikely for the Proposed Development to contribute to a significant cumulative effect.	

Proposed Mitigation applicable to the Proposed Development including any apportionment	Residual Cumulative Effect

#### Conclusion

- 10.3.10 Whilst it is predicted that some residual adverse ecological effects that could arise during the construction or operation of the 'other developments' considered, could also affect sites, habitats or species potentially affected by the Proposed Development, there is no potential for cumulative effects of greater overall significance than the effects of each development alone. As such, there is no need for the Proposed Development to provide additional mitigation.
- 10.3.11 This conclusion takes into account the potential for cumulative effects between more than one of these 'other developments'.

## 11 Summary

## 11.1 TERRESTRIAL AND FRESHWATER ECOLOGY

- 11.1.1 The area covered by the Proposed Development contains a variety of habitats typical of rural pastoral farmland. These are largely characterised by improved grassland, grazed by cattle and sheep, although some areas of arable land are also present. Field boundaries are typically formed by fences, hedgerows, dry stone walls and cloddiau. Areas of semi-natural vegetation present include grassland types such as semi-improved, marshy (including fen habitat), neutral and acid grassland; scrub and heathland are mostly scattered and fragmented and interspersed with improved grasslands.
- 11.1.2 Extensive tree cover is generally uncommon, particularly within the north of the Proposed Development, although woodland habitat is more extensive within southern areas. Areas of ancient semi-natural woodlands, including restored examples, are present along the Menai Strait and within Vaynol Park, and small pockets are also located throughout the Proposed Development. Plantation woodlands, including plantation on ancient woodland site are also more frequent in the southern part of the Proposed Development, particularly in Gwynedd.
- 11.1.3 Watercourses, drains and ponds are scattered throughout the Proposed Development. Areas with more extensive networks of wetland features include Cors Erddreiniog SSSI/NNR (also within the Anglesey Fens SAC). Larger waterbodies present outside of, but close to, the Proposed Development, include Llyn Alaw and Cefni Reservoir.
- 11.1.4 The presence and conservation value of protected and notable species have been determined. These have included badger, otter, water vole, bats, red squirrel, brown hare, polecat, GCN and other amphibians, reptiles, birds, fish and terrestrial and aquatic invertebrates. The potential effects of the Proposed Development on these ecological features have then been assessed.

## Potential Effects

11.1.5 Potential effects on designated sites, habitats and species were identified, including:
- Direct loss of habitat;
- Temporary disturbance/ displacement/ degradation;
- Hydrological alteration;
- Severance and fragmentation;
- Operational noise; and
- Risk of direct impact/harm.

## Designated Sites

- 11.1.6 There would be no significant effects as a result of the Proposed Development on statutory or non statutory designated sites, with the exception of a **Moderate** effect on Gylched Covert due to habitat loss. All indirect effects such as temporary disturbance/ displacement/ degradation resulting from minor changes in air quality or water quality and drainage mitigation/alteration are mitigated for within the CEMP and bespoke mitigation measures where required. Drainage mitigation for the Proposed Development adjacent to Anglesey Fens SAC (and associated Ramsar/NNR/SSSI) would be designed with agreement with NRW to retain the hydrological regime of the designated site.
- 11.1.7 Management plans would be in place for Gylched Covert CWS (affected through habitat loss due to conductor swing) and the ancient woodland adjacent to Pentir cCWS where an existing access track would be widened. These would aim to improve the condition of both woodlands to further mitigate for the small areas affected directly.

### Habitats

- 11.1.8 Almost all the effects of the Proposed Development are temporary in terms of both habitat lost and/affected other than trees and woodland, and the more important/valuable habitats have been avoided where possible during the development of the design. Habitats would be replaced, or improved where possible such as hedgerows, and all culverts/bridges required for construction of the Proposed Development would be removed on completion. No ponds would be permanently lost as part of the OHL element of the Proposed Development; however Pond A254 at Braint THH may be lost during construction and replaced as part of the mitigation plans.
- 11.1.9 With the exception of the small scale footings of the proposed pylons, the only permanent land take/loss of habitat results from the THH/CSEC

and Pentir Substation. The areas affected by the THH/CSECs largely comprise improved grassland. Mitigation in the area around the infrastructure including the planting of trees, hedgerows, scrub and grassland, means there would be an overall improvement in biodiversity at the local level in these locations, although it would not be significant.

- 11.1.10 Overall, it is considered there would be no significant effects on these habitats.
- 11.1.11 The tunnel crossing methodology avoids the potential loss of trees and woodland on both sides of the Menai Strait where woodland is in far greater abundance than elsewhere in the Proposed Development. There would be a loss of woodland and trees beneath the OHL in these areas due to conductor swing. Where possible, these would be replanted in as close proximity to that lost, outside of the scope of the conductor swing, for example further along a hedgerow or for Gylched Covert on the opposite side of the Covert to the area to be lost. As a result there would be no net loss of trees overall, though some of the replacement planting may lie elsewhere in the Order Limits or outside of the Order Limits. Planting mixes to be used would attempt to improve on those lost, focusing on native species appropriate to the local area, those of benefit for species, and those in keeping with the habitats affected. Management plans would be in place for Gylched Covert and the ancient woodland adjacent to Pentir. Overall, it is considered there would be no significant effect on trees or woodland as a result of the Proposed Development.

## Species

- 11.1.12 There would be no significant effect on any protected or notable species as a result of the Proposed Development. Individuals or small numbers of some species would though be temporarily affected during construction, maintenance and decommissioning. The habitats supporting these species would, as stated in the habitats section above, be replaced, or improved ecologically where possible. The planting would also comprise native species which provide a range of fruit and nut food sources for local species. Protected species licences would be required for the following species;
  - GCN during construction to move GCN from terrestrial habitat only for the temporary duration of the construction period. Comprising low and medium populations; and

- Bats potential loss of one roost, and disturbance of three further roosts within trees. Considered to be transitional roosts of common and widespread species and therefore of local value.
- 11.1.13 Mitigation included within the CEMP would reduce potential disturbance and risk of direct harm to not significant effects.
- 11.1.14 As the permanent habitat loss is limited to the pylon footings, THHs and conductor swing for the OHL, it is considered that the mitigation planting would reduce all effects to not significant. Permanent habitat loss within the THH/CSEC would be limited to the buildings with landscape planting improving the habitat for a wide range of species.
- 11.1.15 Operational effects would be not significant for all species.

## 11.2 BIRDS

- 11.2.1 There would be no significant effect on any bird species as a result of the Proposed Development. Some breeding birds would be temporarily displaced during construction, maintenance and decommissioning but mitigation planting would provide additional habitat for the majority of breeding species recorded across the Proposed Development including priority species and species of conservation concern.
- 11.2.2 Collision risk has been minimised for all species through the design of the Proposed Development which would maximise visibility and take advantage of the habituation of those species at highest risk of collision including whooper swan to the existing line. There are no operational effects that would be significant on breeding or wintering species.

## 11.3 MARINE ECOLOGY

- 11.3.1 The Menai Strait is a narrow body of coastal water that is characterised by a diverse array of intertidal and subtidal habitats. Many of the habitats present are Annex 1 of the Habitats Directive features and habitats included in S7 of The Environment (Wales) Act, 2016, including rocky reefs, sheltered muddy gravels and tidal swept channels.
- 11.3.2 The Strait also provides habitat for many fish species, including being an important migratory route for species such as Atlantic salmon and sea trout. Marine mammals, which are designated as features in SACs and cSACs <40 km from the crossing zone, also sporadically utilise the Strait.
- 11.3.3 Potential effects were identified, including:

- direct habitat loss through destruction as a result of a tunnel blowout during construction;
- water quality contamination leading to mortality or disturbance of individuals of species as a result of a blowout of drilling slurry during construction;
- noise and vibration leading to disturbance of individuals of species; and
- EMF generation when the transmission cables are energised during operation.
- 11.3.4 No potential effects were assessed as being significant following the application of mitigation.
- 11.3.5 The overall effects are summarised in Table 9.28.

# 11.4 SUMMARY TABLE

Table 9.28 Summary of Ecological Effects of the Proposed Development						
Resource/Receptor	Value	Potential effects and sensitivity	Mitigation	Residual Severity	Significance	
Designated Sites						
Corsydd Mon / Anglesey Fens SAC; Corsydd Môn a Llyn / Anglesey and Llyn Fens Ramsar	International	Direct loss of habitat Low sensitivity Hydrological alteration	CEMP measures as identified in section 9. In addition to the measures set out in Chapter 11, Geology, Hydrogeology and Ground Conditions ( <b>Document 5.11</b> ), Chapter 12, Water Quality, Resources and Flood Risk ( <b>Document 5.12</b> ), Chapter 13, Traffic and Transport ( <b>Document</b> <b>5.13</b> ), and Chapter 14, Air Quality ( <b>Document 5.14</b> ), the following additional measures would be implemented: • Where habitat within the designated sites is required to be removed/managed due to conductor swing, this would be done with care to avoid damaging ground habitats, such as by soft felling the trees and avoiding taking vehicles on the designated site where possible. • The permanent drainage in effect during the operation of the Proposed Development would be designed to maintain the existing hydrological regime. • Low During construction maintenance and decommissioning: Low During construction maintenance and decommissioning: Low During construction maintenance and decommissioning: Low During construction maintenance and decommissioning: Low During construction maintenance and decommissioning: Low During construction maintenance and decommissioning: Low During construction maintenance and decommissioning: Low	During construction, maintenance and decommissioning: Low During operation: Very Low During construction,	Negligible (not significant) Negligible (not	
		Low sensitivity		maintenance and decommissioning: Low During operation: Very Low	significant)	
Cors Erddreiniog SSSI and NNR		Temporary disturbance/ displacement/ degradation – changes in air quality Low sensitivity		During construction, maintenance and decommissioning: Low	Negligible (not significant)	
and NNR		Temporary disturbance/ displacement/ degradation Temporary indirect disturbance <b>Low sensitivity</b>		During construction, maintenance and decommissioning: Low During operation: Very Low	Negligible (not significant)	
Eryri/Snowdonia SAC	International	Temporary disturbance/ displacement/ degradation – changes in air quality <b>Very Low sensitivity</b>	CEMP measures as identified in section 9. The measures set out in Chapter 13, Traffic and Transport ( <b>Document 5.13</b> ), and Chapter 14, Air Quality ( <b>Document 5.14</b> ) would be implemented.	During construction, maintenance and decommissioning: <b>Very Low</b> During operation: <b>No effects</b>	Negligible (not significant)	

Table 9.28 Summary of Ecological Effects of the Proposed Development							
Resource/Receptor	Value	Potential effects and sensitivity	Mitigation	Residual Severity	Significance		
Tre'r Gof SSSI	National	Temporary disturbance /displacement/degradation Low sensitivity	CEMP measures as identified in section 9. The measures set out in Chapter 11, Geology, Hydrogeology and Ground Conditions ( <b>Document 5.11</b> ), Chapter 12, Water Quality, Resources and Flood Risk ( <b>Document 5.12</b> ), Chapter 13, Traffic and Transport ( <b>Document 5.13</b> ), and Chapter 14, Air Quality ( <b>Document 5.14</b> ) would be implemented.	During construction, maintenance and decommissioning: <b>Very Low</b> During operation: <b>No effects</b>	Negligible (not significant)		
Llyn Alaw SSSI	National	Temporary disturbance/ displacement/degradation Low sensitivity	CEMP measures as identified in section 9. The measures set out in Chapter 11, Geology, Hydrogeology and Ground Conditions ( <b>Document 5.11</b> ), Chapter 12, Water Quality, Resources and Flood Risk ( <b>Document 5.12</b> ), Chapter 13, Traffic and Transport ( <b>Document 5.13</b> ), and Chapter 14, Air Quality ( <b>Document 5.14</b> ) would be implemented.	During construction, maintenance and decommissioning: Very Low During operation: No effects	Negligible (not significant)		
		Temporary disturbance/ displacement/degradation Low sensitivity	CEMP measures as identified in section 9. The measures set out in Chapter 11, Geology, Hydrogeology and Ground Conditions ( <b>Document 5.11</b> ), Chapter 12, Water Quality, Resources and Flood Risk ( <b>Document 5.12</b> ), Chapter 13, Traffic and Transport ( <b>Document 5.13</b> ), and Chapter 14, Air Quality ( <b>Document 5.14</b> ) would be implemented.	During construction, maintenance and decommissioning: Low/Very Low During operation: No effects	Negligible (not significant)		
	National	Hydrological alteration Low sensitivity		During construction, maintenance and decommissioning: Very Low During operation: No effects	Negligible (not significant)		
SSSIs Indirect Effects only	National	Temporary disturbance/ displacement/degradation through changes in air quality Low sensitivity	CEMP measures as identified in section 9. The measures set out in Chapter 11, Geology, Hydrogeology and Ground Conditions ( <b>Document 5.11</b> ), Chapter 12, Water Quality, Resources and Flood Risk ( <b>Document 5.12</b> ), Chapter 13, Traffic and Transport ( <b>Document 5.13</b> ), and Chapter 14, Air Quality ( <b>Document 5.14</b> ) would be implemented.	During construction, maintenance and decommissioning: Low	Negligible (not significant)		
Cors Ddyga (inc Malltraeth Marsh); Coedydd Afon Menai	National	Temporary disturbance/ displacement/degradation through changes in water quality Low sensitivity		During construction, maintenance and decommissioning: Very Low	Negligible (not significant)		

North Wales Connection Project

Table 9.28 Summary of Ecological Effects of the Proposed Development							
Resource/Receptor	Value	Potential effects and sensitivity	Mitigation	Residual Severity	Significance		
Gylched Covert CWS		Direct loss of habitat <b>Medium sensitivity</b>	CEMP measures as identified in section 9. In addition to the measures set out in Chapter 11, Geology, Hydrogeology and Ground Conditions ( <b>Document 5.11</b> ), Chapter 12, Water Quality, Resources and Flood Risk ( <b>Document 5.12</b> ), Chapter 13, Traffic and Transport ( <b>Document 5.13</b> ), and Chapter 14, Air Quality ( <b>Document 5.14</b> ), the following additional measures would be implemented:	During construction, operation and maintenance decommissioning: <b>Medium</b> During decommissioning:	Moderate Adverse (significant) Minor Adverse (not significant)		
	County	Temporary disturbance/         displacement/degradation         Low sensitivity         Severance and fragmentation through permanent loss of habitat         Low sensitivity         Changes to water quality or hydrological alteration         Low sensitivity	<ul> <li>The existing seed bank in the woodland top soil would be maintained through being stored separately from soils of other habitats.</li> <li>Mitigation planting would included within the gap in the west side of the woodland.</li> <li>Mitigation planting mixes would be tailored to the existing CWS and Annex 1 of the Habitats Directive woodland community for both the replacement woodland planting, and the planting beneath the OHL, including scrub habitat, to provide good connectivity to other woodland blocks in the locations available. These would comprise native species of local provenance where possible and tailored to support LBAP targets where possible</li> <li>Future habitat management of Gylched Covert in line with maintaining and improved the quality of this CWS woodland (maintaining this W8e community where possible) to be agreed as part of the draft DCO (Document 2.1). Outline of this is provided in the BMS (Document 7.7), but full details would be provided in a management plan.</li> </ul>	Minor During construction, maintenance and decommissioning: Very Low During operation: No effects During construction, maintenance and decommissioning: Low During construction, maintenance and decommissioning:	Negligible (not significant)         Negligible (not significant)         Negligible (not significant)		
				Low During operation: No effects			
<u>CWS</u> Coed Nant Y Garth. <u>cCWS</u> Coed Rhos-fawr; Pentir Substation; Coed Ty'n-llwyn.	County	Direct loss of cCWS/CWS habitat <i>Pentir Substation</i> <b>Medium sensitivity</b> <i>Other sites</i> <b>Low sensitivity</b>	CEMP measures as identified in section 9. In addition to the measures set out in Chapter 11, Geology, Hydrogeology and Ground Conditions ( <b>Document 5.11</b> ), Chapter 12, Water Quality, Resources and Flood Risk ( <b>Document 5.12</b> ), Chapter 13, Traffic and Transport ( <b>Document</b>	During construction, operation, maintenance and decommissioning: Low	Pentir Substation Minor Adverse (not significant) Other sites Negligible (not significant)		

Table 9.28 Summary of Ecological Effects of the Proposed Development							
Resource/Receptor	Value	Potential effects and sensitivity	Mitigation	Residual Severity	Significance		
		Temporary disturbance/ displacement/degradation through pollution Low sensitivity	<ul> <li>5.13), and Chapter 14, Air Quality (Document 5.14), the following additional measures would be implemented:</li> <li>Habitat replacement of CWS/cCWS habitats and improvement where appropriate in quality and mix of species , maintaining existing seed bank in top soil, in particular for areas of ancient woodland</li> </ul>	During construction, maintenance, operation and decommissioning: Low During construction, operation, maintenance and decommissioning: Low	Negligible (not significant)		
		Severance and fragmentation Low sensitivity	<ul> <li>Mitigation planting would ensure no net loss of trees, with as much replacement planting as possible within the Order Limits.</li> <li>Maintain existing seed bank and soil type by storage of the</li> </ul>		Negligible (not significant)		
			top soil of each grassland habitat kept separate to that of other habitat. Avoid use of weed killer on these top soil areas where appropriate, with hand pulling of weeds being considered.				
			<ul> <li>Seed mixes would comprise native species, and would be of mixes appropriate to each grassland type in each location.</li> <li>Mitigation planting mixes would be tailored to the existing habitats, including scrub habitat, to provide good connectivity to other woodland blocks in the locations available. These would comprise native species of local provenance where possible.</li> </ul>				
			<ul> <li>Management of the ancient woodland section of the Pentir Substation cCWS where it falls within the Order Limits to maintain and improve the quality of this cCWS woodland. This would be tailored to support LBAP targets where possible.</li> </ul>				
			<ul> <li>Maintain existing drainage on completion where the drainage mitigation area falls within the cCWS Coed Ty'n-llwyn.</li> </ul>				
<u>CWS</u> Maen Eryr, Tir Pori Talwrn,	County	Temporary disturbance/ displacement/degradation through air quality Low sensitivity	CEMP measures as identified in section 9. The measures set out in Chapter 11, Geology, Hydrogeology and Ground Conditions ( <b>Document 5.11</b> ), Resources and Flood Risk Chapter 12 ( <b>Document 5.12</b> ), Chapter 13, Traffic and	During construction, maintenance and decommissioning: Low	Negligible (not significant)		

Table 9.28 Summary of Ecological Effects of the Proposed Development							
Resource/Receptor	Value	Potential effects and sensitivity	Mitigation	Residual Severity	Significance		
	County	Changes to water quality or hydrology alteration Low sensitivity	Transport ( <b>Document 5.13</b> ), and Chapter 14, Air Quality ( <b>Document 5.14</b> ) would be implemented.	During construction, maintenance and decommissioning: Low	Negligible (not significant)		
<u>CWS</u> Arfordir Mynydd y Wylfa - Trwyn Penrhyn; Afon Wygyr; Coed Cefn-Du; Graigfryn and Rhostir; Ponciau; Cors Tregarnedd Fawr; Coed Pont Ladi-wen; Fodol Ganol; Railway cuttings (Treborth).	County	Temporary disturbance/ displacement/ degradation through air quality and water quality <b>Low sensitivity</b>	CEMP measures as identified in section 9. The measures set out in Chapter 11, Geology, Hydrogeology and Ground Conditions ( <b>Document 5.11</b> ), Chapter 12, Water Quality, Resources and Flood Risk ( <b>Document 5.12</b> ), Chapter 13, Traffic and Transport ( <b>Document 5.13</b> ), and Chapter 14, Air Quality ( <b>Document 5.14</b> ) would be implemented.	During construction, maintenance and decommissioning: Low During operation: No effects	Negligible (not significant)		
<u>cCWS</u> Parc Nant-y-garth; Coed Tyddyn Badyn; Glan-rhyd reservoir; Vaynol Park woodlands and lake; Parc Menai woodlands; Coed Pant-y-cyff; Treborth Road Woodlands; Rhydau Duon; Felin Hen & Cycle Track; Cororion Rough; Parc Lon Isaf; Parc Siambragwynion; Coed Rhos Uchaf	County	Temporary disturbance/ displacement/ degradation through air quality and water quality <b>Low sensitivity</b>	CEMP measures as identified in section 9. The measures set out in Chapter 11, Geology, Hydrogeology and Ground Conditions ( <b>Document 5.11</b> ), Chapter 12, Water Quality, Resources and Flood Risk ( <b>Document 5.12</b> ), Chapter 13, Traffic and Transport ( <b>Document 5.13</b> ), and Chapter 14, Air Quality ( <b>Document 5.14</b> ) would be implemented.	During construction, maintenance and decommissioning: Low During operation: No effects	Negligible (not significant)		
Habitats				Disconstanting			
Ancient woodland, and Plantation Ancient Woodland	County	Medium sensitivity	In addition to the measures set out in Chapter 7, Landscape Assessment ( <b>Document 5.7</b> ), Chapter 11, Geology, Hydrogeology and Ground Conditions ( <b>Document 5.11</b> ),	operation, maintenance and decommission:	significant)		

Table 9.28 Summary of Ecological Effects of the Proposed Development							
Resource/Receptor	Value	Potential effects and sensitivity	Mitigation	Residual Severity	Significance		
		Temporary disturbance/ displacement/degradation through potential impacts from dust/emission and pollution Low sensitivity Severance and fragmentation Low sensitivity	<ul> <li>Chapter 12, Water Quality, Resources and Flood Risk</li> <li>(Document 5.12), and Chapter 14, Air Quality (Document 5.14), the following additional measures would be implemented:</li> <li>The importance of protecting ancient woodland would be highlighted in tool box talks given to construction staff.</li> <li>Replacement of loss with woodland habitat where appropriate, including use of top-soil with existing seed bank from lost areas, as well as allowing natural regeneration.</li> <li>Replacement planting of trees on previously planted areas of ancient woodlands, and to provide good shelter and food sources for notable species.</li> <li>Management of the ancient woodland section of the Pentir Substation cCWS, where it falls within the Order Limits, to maintain and improve the quality of this cCWS woodland. This would be tailored to support LBAP targets where possible. Outline details of this are provided in the BMS (Document 7.7), but full details would be provided in a management plan.</li> </ul>	Low During construction, maintenance and decommission: Low During construction, operation, maintenance and decommission: Low	Negligible (not significant) Negligible (not significant)		
Non-ancient Broadleaved Woodland, Mixed Plantation woodland and Coniferous Plantation (see Annex 1 section for woodland types which fall under this category).	Local	Direct loss of habitat Medium sensitivity Temporary disturbance/ displacement/ degradation through potential impacts from pollution and dust Low sensitivity	<ul> <li>CEMP measures as identified in section 9.</li> <li>In addition to the measures set out in Chapter 7, Landscape Assessment (Document 5.7), Chapter 11, Geology, Hydrogeology and Ground Conditions (Document 5.11), Chapter 12, Water Quality, Resources and Flood Risk</li> <li>(Document 5.12), and Chapter 14, Air Quality (Document 5.14),the following additional measures would be implemented:</li> <li>Habitat replacement and improvement where appropriate.</li> <li>Maintaining existing seed bank in top soil of woodland by keeping it separate from topsoil of other habitats.</li> <li>Where trees and woodland would be lost beneath the OHL,</li> </ul>	During construction, operation, maintenance and decommissioning: Low During construction, maintenance and decommissioning: Low	Negligible (not significant) Negligible (not significant)		
	So te	Severance and fragmentation through temporary and permanent loss Low sensitivity	replacement planting would be located as close to that lost as possible, with alternative planting in these areas to include scrub in order to prevent fragmentation , provide food sources for notable species of wildlife, and good connectivity to other woodland blocks.	During construction, operation, maintenance and decommissioning: Low	Negligible (not significant)		

Table 9.28 Summary of	Table 9.28 Summary of Ecological Effects of the Proposed Development						
Resource/Receptor	Value	Potential effects and sensitivity	Mitigation	Residual Severity	Significance		
			<ul> <li>Landscape mitigation planting would ensure no net loss of trees, with as much of the replacement planting as possible being within the Order Limits.</li> <li>Planting mixes would comprise native species, and designed to provide good shelter and food sources for notable species. This would be tailored to support BAP targets where possible.</li> </ul>				
Improved Grassland and Arable	Site Level	Direct loss of habitat Low sensitivity	<ul> <li>CEMP measures as identified in section 9.</li> <li>In addition to the measures set out in Chapter 14, Air Quality (Document 5.14), the following additional measures would be implemented:</li> <li>Habitat replacement and improvement where appropriate.</li> </ul>	During construction, operation, maintenance and decommissioning: <b>Very Low</b>	Negligible (Not significant)		
		Temporary disturbance/ displacement/ degradation through potential changes from pollution and dust <b>Very Low sensitivity</b>		During construction, maintenance and decommissioning: <b>Very Low</b>	Negligible (not significant)		
		Severance and fragmentation Low sensitivity		During construction, operation, maintenance and decommissioning: <b>Very Low</b>	Negligible (not significant)		
Marshy Grassland, Semi-Improved Neutral, Poor and Acid Grassland, and Unimproved Grassland	<b>County</b> for MG5 and M23b, <b>Local</b> for all others	Direct loss of habitat Low sensitivity Temporary disturbance/ displacement/degradation through potential changes from pollution and dust	<ul> <li>CEMP measures as identified in section 9.</li> <li>In addition to the measures set out in Resources and Flood Risk Chapter 12 (Document 5.12) and Chapter 14, Air Quality (Document 5.14), the following additional measures would be implemented:</li> <li>Maintain existing seed bank and soil type by storage of top soil of each grassland habitat kept separate to that of others where appropriate. Avoid use of weed killer on these top soil areas during construction where appropriate, with hand pulling of weeds being considered.</li> <li>Habitat replacement and improvement where appropriate.</li> </ul>	During construction, operation, maintenance and decommissioning: Low During construction, maintenance and decommissioning: Low	MG5 and M23b and unimproved Minor Adverse (not significant) All others Negligible (not Significant) MG5 and M23b and unimproved Minor Adverse (not significant)		

Table 9.28 Summary of	Table 9.28 Summary of Ecological Effects of the Proposed Development						
Resource/Receptor	Value	Potential effects and sensitivity	Mitigation	Residual Severity	Significance		
			<ul> <li>Seed mixes would comprise native species, and would be of mixes appropriate to each grassland type.</li> <li>Protect habitats during installation of the pilot wire where this occurs outside of main areas of works including those areas protected by the Schedule of Environmental Commitments (Document 7.4.2.1).</li> </ul>		Negligible (not Significant)		
		Severance and fragmentation through temporary loss <b>Low sensitivity</b>		During construction, operation, maintenance and decommissioning: Low	Negligible (not Significant)		
		Hydrological alteration through working within and adjacent to areas of marshy grassland <b>Low sensitivity</b>		During construction, operation, maintenance and decommissioning: <b>Low</b>	Negligible (not Significant)		
Scrub	Local	Direct loss of habitat Low sensitivity	CEMP measures as identified in section 9. In addition to the measures set out in Chapter 7, Landscape Assessment ( <b>Document 5.7</b> ) and Chapter 14, Air Quality ( <b>Document 5.14</b> ), the following additional measures would be implemented:	During construction, operation, maintenance and decommissioning: <b>Very Low</b>	Negligible (not significant)		
		Temporary disturbance/ displacement/ degradation through potential changes from pollution and dust Low sensitivity	<ul> <li>Habitat replacement and improvement where appropriate.</li> <li>Use of scrub and short tree species within the landscape mitigation planting where woodland habitat is fragmented due to the OHL to maintain connectivity and provide continued cover.</li> </ul>	During construction, maintenance and decommissioning: Very Low	Negligible (not significant)		
		Severance and fragmentation Low sensitivity	<ul> <li>Replacement planting to comprise mixes of native species, and designed to provide good shelter and food sources for notable species.</li> </ul>	During construction, operation, maintenance and decommissioning: <b>Very Low</b>	Negligible (not significant)		
Acid Dry Dwarf Shrub Heath	County	Direct loss of habitat Medium sensitivity	<ul> <li>CEMP measures as identified in section 9.</li> <li>In addition to the measures set out in Chapter 12, Water Quality, Resources and Flood Risk (<b>Document 5.12</b>) and Chapter 14, Air Quality (<b>Document 5.14</b>), the following additional measures would be implemented:</li> <li>Habitat replacement and improvement where appropriate.</li> </ul>	During construction and decommissioning: Low	Minor Adverse (not significant)		
		I emporary disturbance/ displacement/ degradation through		During construction, operation,	Negligible (not significant)		

Table 9.28 Summary of	Table 9.28 Summary of Ecological Effects of the Proposed Development							
Resource/Receptor	Value	Potential effects and sensitivity	Mitigation	Residual Severity	Significance			
		potential changes from pollution and dust <b>Low sensitivity</b>	<ul> <li>If required, seed mixes would comprise native species of local provenance where possible, and would be of a mix appropriate to this habitat. Natural regeneration is the preference for recolonisation of areas temporarily affected, but planting/seeding may be required to assist regeneration or for new areas of permanent planting.</li> <li>Ensure heathland top soil is kept separate from top soil of other habitats.</li> <li>If presence of species which are sensitive to correct orientations are identified through pre-construction surveys then scattered boulders would be carefully moved to outside of the area of works under a watching brief by the ECoW and should be laid in the same orientation as existing.</li> </ul>	maintenance and decommissioning: Low				
Ruderal	Local	Direct loss of habitat Very Low sensitivity	<ul> <li>CEMP measures as identified in section 9.</li> <li>In addition to the above, specific measures required include:</li> <li>Habitat replacement and improvement where appropriate, which may be through allowed natural regeneration.</li> </ul>	During construction, operation, maintenance and decommissioning: <b>Very Low</b>	Negligible (not significant)			
		Temporary disturbance/ displacement/ degradation through potential changes from pollution and dust <b>Very Low sensitivity</b>		During construction, maintenance and decommissioning: <b>Very Low</b>	Negligible (not significant)			
		Severance and fragmentation Very Low sensitivity		During construction, maintenance and decommissioning: <b>Very Low</b>	Negligible (not significant)			
Important and Non- Important hedgerows	Important hedgerows <b>County</b> Non- Important hedgerows <b>Local</b>	Direct temporary loss of habitat Low sensitivity	<ul> <li>CEMP measures as identified in section 9.</li> <li>In addition to the measures set out in Chapter 7, Landscape Assessment (<b>Document 5.7</b>) and Chapter 14, Air Quality (<b>Document 5.14</b>), the following additional measures would be implemented:</li> <li>Habitat replacement and improvement where appropriate.</li> </ul>	During construction, maintenance and decommissioning: Low	Important hedgerows Minor Adverse (not significant) Non-Important hedgerows Negligible (not significant)			

North Wales Connection Project

Table 9.28 Summary of Ecological Effects of the Proposed Development							
Resource/Receptor	Value	Potential effects and sensitivity	Mitigation	Residual Severity	Significance		
		Direct permanent loss of habitat Low sensitivity	<ul> <li>Maintain existing seed bank for hedgerows in separate top soil spoils heaps.</li> <li>Plant hedgerows along the inside of the visibility splays to minimise the gaps where safe to do so.</li> <li>Cut back hedgerows on visibility splays to above ground level to maintain/protect the hedgerow and ground flora, allowing them to grow back on completion.</li> <li>Protect hedgerows from damage during construction such as through installing scaffolding and when passing the pilot wire over the hedgerow.</li> <li>Replace defunct and species-poor hedgerows with intact and species-rich hedgerows with trees, to replace and improve connectivity.</li> <li>Hedgerows included within the landscape planting scheme of</li> </ul>	Operation: Very Low	Negligible (not significant)		
		Temporary disturbance/ displacement/ degradation of hedgerows through potential changes from pollution and dust <b>Low sensitivity</b> Severance and fragmentation through temporary loss <b>Low sensitivity</b>		<ul> <li>Plant hedgerows along the inside of the visibility splays to minimise the gaps where safe to do so.</li> <li>Cut back hedgerows on visibility splays to above ground level to maintain/protect the hedgerow and ground flora, allowing them to grow back on completion.</li> <li>Protect hedgerows from damage during construction such as through installing scaffolding and when passing the pilot wire over the hedgerow.</li> <li>Replace defunct and species-poor hedgerows with intact and species-rich hedgerows with trees, to replace and improve connectivity.</li> <li>Hedgerows included within the landscape planting scheme of</li> </ul>	Negligible (not significant) <i>Important hedgerows</i> Minor Adverse (not significant) <i>Non-Important</i> <i>hedgerows</i> Negligible (not significant)		
	Severance and fragmentation through permanent loss Low sensitivity	Replace all cloddiau.	Operation: Very Low	Negligible (not significant)			
Ponds	Local	Direct loss of habitat Low sensitivity	CEMP measures as identified in section 9. In addition to the measures set out in Chapter 11, Geology, Hydrogeology and Ground Conditions ( <b>Document 5.11</b> ) and Chapter 12, Water Quality, Resources and Flood Risk ( <b>Document 5.12</b> ), the following additional measures would be implemented:	During construction:	Negligible (not significant)		
		Temporary disturbance/ displacement/degradation through potential changes to water quality. Low sensitivity		During construction, maintenance and decommissioning: <b>Very Low</b>	Negligible (not significant)		
		Hydrological alteration where construction works occur adjacent to ponds. <b>Low sensitivity</b>	<ul> <li>Replacement of Fond A234 at Braint Thirribilowing construction as part of the landscape mitigation. Mitigation planting in this area will avoid fully surrounding this habitat and overshading.</li> <li>Although created as part of the drainage mitigation (SuDS), the new ponds would be planted/ allowed to colonise naturally with aquatic vegetation.</li> </ul>	During construction, maintenance and decommissioning: <b>Very Low</b>	Negligible (not significant)		
Watercourses - streams/rivers and drains	Streams/ rivers	Direct temporary loss of habitat. Low sensitivity	CEMP measures as identified in section 9. In addition to the measures set out in Chapter 11, Geology, Hydrogeology and Ground Conditions ( <b>Document 5.11</b> ) and	During construction, maintenance and decommissioning:	Negligible (not significant)		

Table 9.28 Summary of Ecological Effects of the Proposed Development							
Resource/Receptor	Value	Potential effects and sensitivity	Mitigation	Residual Severity	Significance		
	County		Chapter 12, Water Quality, Resources and Flood Risk	Very Low			
	Drains Local	Temporary disturbance/ displacement/degradation <b>Low</b> <b>sensitivity</b>	<ul> <li>(Document 5.12), the following additional measures would be implemented:</li> <li>Inclusion of importance of protection of watercourses within tool box talks.</li> <li>Reinstatement of the habitat on removal of the temporary crossings to maintain the existing course and watercourse</li> </ul>	During construction, maintenance and decommissioning: <b>Very Low</b>	Negligible (not significant)		
		Severance and fragmentation		During construction,	Negligible (not		
		Low sensitivity	habitat and bed.	maintenance and	significant)		
			Replacement of temporary loss of habitat through planting or natural regeneration or improved where appropriate,	Very Low			
		Hydrological alteration where construction works occurs adjacent to watercourses.	including the bed, morphology and in channel functioning of the watercourse.	During construction, maintenance and decommissioning:	Negligible (not significant)		
		Low sensitivity		Very Low			
Annex 1 of the Habitats [	Directive Habita	ats	·	•			
W8e Woodland <i>Fraxinus excelsior-Acer</i> <i>campestre-Mercurialis</i> <i>perennis</i> Brynddu and Gylched	County	Direct loss of habitat (Gylched Covert) (removed) Medium sensitivity	CEMP measures as identified in section 9.In addition to the measures set out in Chapter 7, LandscapeIn addition to the measures set out in Chapter 7, LandscapeCAssessment ( <b>Document 5.7</b> ), Chapter 11, Geology,InHydrogeology and Ground Conditions ( <b>Document 5.11</b> ),CChapter 12, Water Quality, Resources and Flood RiskL	During construction, operation, maintenance and decommissioning: Low	Minor Adverse (not significant)		
Covert		Temporary disturbance/	( <b>Document 5.12</b> ), and Chapter 14, Air Quality ( <b>Document 5.14</b> ), the following additional measures would be implemented:	During construction,	Negligible (not		
W6 and 6d Alnus glutinosa-Urtica dioica Carrog Isa and Pentreheulyn		displacement/degradation through potential changes from pollution and dust Low sensitivity	<ul> <li>Habitat replacement and improvement where appropriate, maintaining existing seed bank in top soil of woodland.</li> <li>Where trees and woodland would be lost beneath the OHL,</li> </ul>	maintenance and decommissioning: Low	significant)		
	Severance and Fragmentation Low sensitivity	<ul> <li>replacement planting would be located as close to that lost as possible, with alternative planting in these areas to include scrub in order to prevent fragmentation , provide food sources for notable species of wildlife, and good connectivity to other woodland blocks.</li> <li>Landscape mitigation planting would ensure no net loss of trees, with as much replacement planting as possible within the Order Limite.</li> </ul>	During construction, operation, maintenance and decommissioning: Low	Negligible (not significant)			

Table 9.28 Summary of Ecological Effects of the Proposed Development							
Resource/Receptor	Value	Potential effects and sensitivity	Mitigation	Residual Severity	Significance		
			<ul> <li>Planting would occur within Gylched Covert and Carrog Isa woodlands. Planting mixes would be tailored to the existing CWS and Annex 1 communities and comprise native species of local provenance where possible. This would be tailored to help support LBAP targets where possible.</li> <li>Management of Gylched Covert in line with maintaining this W8e community (see section 9.3.115).</li> </ul>				
Mire Habitats - M24 <i>Cirsio-Molinietum</i> fen meadow and M22 <i>Juncus subnodulosus-</i> <i>Cirsium palustre</i> fen- meadow	County       Direct loss of habitat         Medium sensitivity         Temporary disturbance/         displacement/ degradation through         potential changes from pollution and         dust         Low sensitivity         Hydrological alteration through         working close to M24 Molinia         caerulea-Cirsium dissectum fen-         meadow         Medium sensitivity	Direct loss of habitat Medium sensitivity	CEMP measures as identified in section 9. In addition to the measures set out in Chapter 12, Water Quality, Resources and Flood Risk ( <b>Document 5.12</b> ) and Chapter 14, Air Quality ( <b>Document 5.14</b> ), the following additional measure	CEMP measures as identified in section 9.During corIn addition to the measures set out in Chapter 12, Water Quality, Resources and Flood Risk ( <b>Document 5.12</b> ) and Chapter 14,During corAir Quality ( <b>Document 5.14</b> ), the following additional measureLow	During construction, maintenance, and decommissioning: Low	Minor Adverse (not significant)	
		<ul> <li>would be implemented:</li> <li>Habitat replacement and improvement where appropriate, maintaining existing seed bank in top soil of each type kept separate to that of other habitats.</li> <li>Ensure continuity of hydrological connectivity with this</li> </ul>	During construction, maintenance, operation and decommissioning: Low	Negligible (not significant)			
		Hydrological alteration through working close to M24 <i>Molinia</i> <i>caerulea-Cirsium dissectum</i> fen- meadow <b>Medium sensitivity</b>		During construction, maintenance, and decommissioning: Low	Minor Adverse (not significant)		
Species					1		
Badger	LocalDirect temporary loss of potential foraging habitat and commuting routes.Very Low sensitivity	CEMP measures as identified in section 9. In addition to the measures set out in Chapter 15, Construction Noise and Vibration ( <b>Document 5.15</b> ) and Chapter 16, Operational Noise and Vibration ( <b>Document 5.16</b> ), the following additional measures would be implemented:	During construction, operation, maintenance and decommissioning: Low	Negligible (not significant)			
		Direct permanent loss of potential foraging and commuting habitat - restricted to the THH/CSECs and the Pentir Substation extension areas. <b>Very Low sensitivity</b>	• Pre-construction surveys would be required throughout the Proposed Development to ensure no new setts are created. A revised mitigation strategy and a licence from NRW would be required for new setts or changes to the existing situation.	During construction, maintenance, operation and decommissioning: Low	Negligible (not significant)		

Table 9.28 Summary of Ecological Effects of the Proposed Development							
Resource/Receptor	Value	Potential effects and sensitivity	Mitigation	Residual Severity	Significance		
		Temporary disturbance/ displacement/ degradation through noise and light disturbance. <b>Medium sensitivity</b> for those at Pentir and Tŷ Fodol THH <b>Low sensitivity</b> for all other locations	<ul> <li>Replacement of temporary loss of habitat, improved where appropriate for example replacing with intact hedgerows where defunct hedgerows are temporarily lost, would be of benefit to badger.</li> <li>Trees within the Order Limits through the ravine at Coed Nant Y Garth would be managed to above ground level only and not fully removed where possible but in particular within 30 m of a badger sett.</li> <li>Replacement planting of trees and woodland would be located as close to that lost as possible, with alternative planting in these areas to include scrub in order to prevent fragmentation of habitats or loss of food sources potentially used by badger.</li> <li>Landscape planting around the THH/CSECs and Pentir Substation has been designed to improve on existing habitats where possible. The habitats would provide more suitable foraging habitat than the existing, for example hedgerows and scrub.</li> </ul>	During construction, maintenance, and decommissioning: Low	Negligible (not significant)		
		Severance and fragmentation through temporary and permanent habitat loss. Very Low sensitivity		During construction, operation, maintenance, and decommissioning: Low	Negligible (not significant)		
		Operational noise would occur at Pentir Substation due to the shunt rector, from ventilation fans at the THH (only stairwell at Braint), and the OHL. <b>Very Low sensitivity</b>		During operation: <b>Very Low</b>	Negligible (not significant)		
		Risk of direct impact such as through collision with construction vehicles or falling into excavations or open trenches, during removal of a sett. Low sensitivity		During construction, maintenance and decommissioning: Very Low	Negligible (not significant)		
		Loss or damage to shelter, protection and/or breeding habitat Low sensitivity		During construction: Low	Negligible (not significant)		
Water Vole	County	Temporary direct loss of habitat (non breeding). Very Low sensitivity	CEMP measures as identified in section 9. In addition to the measures set out in Chapter 11, Geology, Hydrogeology and Ground Conditions ( <b>Document 5.11</b> ) and Chapter 12, Water Quality, Resources and Flood Risk ( <b>Document 5.12</b> ), the following additional measures would be implemented:	During construction, maintenance and decommissioning: Low	Negligible (not significant)		
		Temporary disturbance/ displacement/ degradation of breeding or feeding habitat. Low sensitivity		During construction, maintenance and decommissioning: <b>Very Low</b>	Negligible (not significant)		
			<u> </u>				

Table 9.28 Summary of Ecological Effects of the Proposed Development							
Resource/Receptor	Value	Potential effects and sensitivity	Mitigation	Residual Severity	Significance		
		Severance and fragmentation could occur only temporarily at proposed watercourse crossings. Low sensitivity	<ul> <li>Pre-construction surveys. If further burrows were discovered, a revised mitigation strategy could be required and could require a licence from NRW.</li> <li>Vegetation removal/degradation would include staged habitat degradation to encourage water voles stay out of the working area and within suitable remaining habitat. Maintenance of the habitat throughout construction would ensure it remained unsuitable for water voles under the supervision of the ECoW.</li> </ul>	During construction, maintenance and decommissioning: <b>Very Low</b>	Negligible (not significant)		
		<ul> <li>Risk of direct impact through construction vehicles, installation of culverts/bridges or entrapment in open trenches/excavations.</li> <li>Very Low sensitivity</li> <li>The risk of loss or damage to shelter, protection and/or breeding habitat.</li> <li>Very Low sensitivity</li> <li>Consent for the detailed culvert design would be sought from NRW post grant of the DCO, therefore culverts would be designed to allow the safe passage of water voles.</li> <li>No works would be conducted within 3 m of a watercourse unless a crossing is being installed, with a buffer of 5 m required for sections of watercourse found to have presence of water voles prior to construction in addition to that already known.</li> <li>Watching brief by an ECoW would be undertaken during vegetation removal/degradation, reinstating habitats and during maintenance and decommission works.</li> <li>Replacement of temporary loss of habitat through planting or natural regeneration. This includes that the bed, morphology and in channel functioning of the watercourse should be</li> </ul>		During construction, maintenance and decommissioning: <b>Very Low</b>	Negligible (not significant)		
			During construction, maintenance and decommissioning: <b>Very Low</b>	Negligible (not significant)			
Otter	Local Te Ve Te dis an Lo	Temporary direct loss of habitat. Very Low sensitivity Temporary disturbance/ displacement/ degradation of foraging	CEMP measures as identified in section 9. In addition to the measures set out in Chapter 11, Geology, Hydrogeology and Ground Conditions ( <b>Document 5.11</b> ), Chapter 12, Water Quality, Resources and Flood Risk ( <b>Document 5.12</b> ), Chapter 15, Construction Noise and Vibration ( <b>Document 5.15</b> ), and Chapter 16, Operational Noise and	During construction, maintenance and decommissioning: <b>Low</b> During construction, maintenance and	Negligible (not significant) Negligible (not significant)		
		and commuting otter habitat. Low to Very Low sensitivity.	Vibration ( <b>Document 5.16</b> ), the following additional measures would be implemented:	decommissioning: Low			

Table 9.28 Summary of Ecological Effects of the Proposed Development								
Resource/Receptor	Value	Potential effects and sensitivity	Mitigation	Residual Severity	Significance			
		Severance and fragmentation of potential otter habitat. Very Low sensitivity Risk of direct impact such as through collision with construction vehicles installation of culverts/ bridge or entrapment in open trenches/ excavations. Very Low sensitivity	<ul> <li>Pre-construction surveys. If holts/ resting places were discovered, a revised mitigation strategy could be required and could require a licence from NRW.</li> <li>Vegetation removal/degradation would include habitat degradation to encourage otter to stay out of the working area and within suitable remaining habitat. Maintenance of the habitat throughout construction would ensure it remained unsuited to otter under the supervision of the ECoW.</li> <li>Watching brief by an ECoW would be undertaken during vegetation removal/degradation, reinstating habitats and during maintenance and decommission works.</li> <li>No works would be conducted within 3 m of a watercourse unless a crossing is being installed, with a buffer of 5 m required for sections of watercourse found to have presence of otter prior to construction in addition to that already known. Larger buffers would apply should and otter resting place or holt be found.</li> <li>Replacement of temporary loss of habitat through planting or natural regeneration. This includes that the bed morphology and in channel functioning of the</li> </ul>	During construction, maintenance and decommissioning: <b>Very Low</b>	Negligible (not significant)			
				During construction, maintenance and decommissioning: <b>Very Low</b>	Negligible (not significant)			
Bats	Local         Direct loss of roosting habitat           Low sensitivity	CEMP measures as identified in section 9. In addition to the measures set out in Chapter 7, Landscape	During construction: Low to Very Low	Negligible (not significant)				
		Temporary disturbance of roosting habitat <b>Low to Medium sensitivity</b>	Assessment ( <b>Document 5.7</b> ), Chapter 14, Air Quality ( <b>Document 4.14</b> ), Chapter 15, Construction Noise and Vibration ( <b>Document 5.15</b> ), and Chapter 16, Operational Noise and Vibration ( <b>Document 5.16</b> ), the following additional measures would be implemented:	During construction, maintenance and decommissioning: Low to Very Low	Negligible (not significant)			
		Direct loss of foraging and commuting bat habitat through temporary loss <b>Low sensitivity</b>	<ul> <li>A European Protection Species Mitigation Licence from NRW would be required prior to the potential loss of one bat roost and possible disturbance of three others.</li> </ul>	During construction, maintenance and decommissioning: Low to Very Low	Negligible (not significant)			

Table 9.28 Summary of	able 9.28 Summary of Ecological Effects of the Proposed Development						
Resource/Receptor	Value	Potential effects and sensitivity	Mitigation	Residual Severity	Significance		
		Direct loss of foraging and commuting bat habitat through permanent loss Medium sensitivity to loss of high quality habitat Low sensitivity to loss of poor quality habitat	<ul> <li>Mitigation required would be replacement as close as possible to the existing roost sites.</li> <li>A European Protected Species Mitigation Licence from NRW would be required should buildings B2 and B4 be affected. Mitigation required would be replacement of these roosts by means of installation of bat boxes within the Order Limits, located as close as possible to the existing roost sites.</li> </ul>	<ul> <li>Mitigation required would be replacement as close as possible to the existing roost sites.</li> <li>A European Protected Species Mitigation Licence from NRW would be required should buildings B2 and B4 be affected. Mitigation required would be replacement of these roosts by means of installation of bat boxes within the Order Limits, located as close as possible to the existing roost sites.</li> </ul>	<ul> <li>Mitigation required would be replacement as close as possible to the existing roost sites.</li> <li>A European Protected Species Mitigation Licence from NRW would be required should buildings B2 and B4 be affected. Mitigation required would be replacement of these roosts by means of installation of bat boxes within the Order Limits, located as close as possible to the existing roost sites.</li> </ul>	During operation: Low	High quality habitat Minor Adverse (not significant) Low quality habitat Negligible (not significant)
<ul> <li>Temporary disturbance/ displacement/degradation through noise, light disturbance.</li> <li>Low sensitivity</li> <li>Severance and fragmentation of roosting, foraging and commuting bat habitat</li> <li>Low sensitivity</li> <li>Operational noise and light disturbance to roosting, foraging and commuting bats.</li> <li>Bat boxes provided with the roosts (tree removies) woodland management within short term change which the habitats and would improvies)</li> <li>Replacement of lost wood habitat management within short term change which the habitats and would improvies)</li> <li>Habitat placement and in replacement planting would with alternative planting to fragmentation and maintain features for bats.</li> <li>Bat boxes provided within short term change which the habitats and would improvies)</li> <li>Hedgerows and linear streat maintained as lines of scr by OHL to maintain or improvies)</li> </ul>	<ul> <li>Habitat replacement and improvement where appropriate. Replanting of woodland near as possible to that lost and creating links between areas of woodland to maintain or improve ferging and commuting corridors/linear features for</li> </ul>	During construction, maintenance and decommissioning: Low to Very Low	significant)				
	Severance and fragmentation of roosting, foraging and commuting bat habitat Low sensitivity	<ul> <li>Where trees and woodland would be lost beneath the OHL, replacement planting would be located as close to that lost, with alternative planting to include scrub in order to prevent</li> </ul>	During construction, maintenance and decommissioning: Low	Negligible (not significant)			
		Operational noise and light disturbance to roosting, foraging and commuting bats. <b>Low sensitivity</b>	<ul> <li>fragmentation and maintain foraging and commuting corridors features for bats.</li> <li>Bat boxes provided would be installed prior to the loss of the roosts (tree removal) and maintained via the BMS and woodland management plans during post development.</li> <li>Replacement of lost woodland within Gylched Covert and the habitat management within the woodland would result in a</li> </ul>	During operation: Low	Negligible (not significant)		
			<ul> <li>short term change which would create edge and glade habitats and would improve for foraging and commuting bats.</li> <li>Hedgerows and linear stretches of vegetation would be maintained as lines of scrub where such features are crossed by OHL to maintain or improve foraging and commuting corridors/linear features for bats.</li> </ul>				
			<ul> <li>Landscape planting for the THH/CSEC and substation designed to improve on existing quality of habitats for bats. Both THH areas are currently improved grassland and although a smaller area of replacement habitat would be provided, the mitigation planting would include woodland, hedgerows scrub and species-rich grassland.</li> </ul>				

Table 9.28 Summary o	Table 9.28 Summary of Ecological Effects of the Proposed Development							
Resource/Receptor	Value	Potential effects and sensitivity	Mitigation	Residual Severity	Significance			
Red Squirrel	County	Direct temporary loss of habitat with	<ul> <li>All hedgerow, woodland and trees planted and all woodland areas coppiced would be maintained for 5 years.</li> <li>The bat boxes would be monitored by checking annually for five years as part of the bat licence and management plans.</li> <li>CEMP measures as identified in section 9.</li> </ul>	During construction,	Negligible (not			
		the potential to support red squirrel. Low sensitivity	In addition to the measures set out in Chapter 7, Landscape Assessment (Document 5.7), Chapter 14, Air Quality (Document 4.14), Chapter 15, Construction Noise and Vibration (Document 5.15), and Chapter 16, Operational Noise and 	maintenance and decommissioning: Low	significant)			
		Direct permanent loss of habitat with the potential to support red squirrel. Medium sensitivity to loss of high quality habitat Very Low sensitivity to loss of poor quality habitat		During operation: Low	High quality habitat Minor Adverse (not significant) Low quality habitat Negligible (not significant)			
		Temporary disturbance/ displacement/ degradation of habitat with the potential to support red squirrel through noise generation and light disturbance <b>Low sensitivity</b>		During construction, maintenance and decommissioning: Low	Negligible (not significant)			
		Severance and fragmentation of red squirrel habitat - temporary. Low sensitivity		During construction, maintenance and decommissioning: Low	Negligible (not significant)			
		Severance and fragmentation of red squirrel habitat - permanent. Medium sensitivity to loss of high quality habitat Very Low sensitivity to loss of poor quality habitat		During operation: Low	High quality habitat Minor Adverse (not significant) Low quality habitat Negligible (not significant)			

Table 9.28 Summary of Ecological Effects of the Proposed Development							
Resource/Receptor	Value	Potential effects and sensitivity	Mitigation	Residual Severity	Significance		
		Sensitivity of red squirrel to noise generation. Very Low sensitivity	habitat would be provided due to presence of structures, the landscaping would include suitable habitat for red squirrel such as woodland, hedgerows, scrub and species-rich	During operation: Low	During operation: Negligible (not significant)		
		Risk of direct impact through collision with vehicles and during removal of trees. Low sensitivity	During construction, maintenance and decommissioning: Low	During construction and operational maintenance: Negligible (not significant)			
Brown Hare and Polecat	Local	Direct loss of habitat and temporary removal. Low sensitivity	<ul> <li>CEMP measures as identified in section 9.</li> <li>In addition to the set out in Chapter 7, Landscape Assessment (Document 5.7), Chapter 14, Air Quality (Document 4.14), Chapter 15, Construction Noise and Vibration (Document 5.15), and Chapter 16, Operational Noise and Vibration (Document 5.16), the following additional measures would be implemented:</li> <li>Pre-construction surveys throughout suitable habitat to check the working areas for presence prior to vegetation removal, in particular for leverets.</li> <li>Stock proof fencing design would not prevent access for mammals such as brown hare for the duration of construction.</li> <li>Programme of works would include for appropriate timing of clearance of vegetation where possible.</li> <li>Replacement of temporary loss of habitat, improved where appropriate. Replanting of woodland near as possible to that lost (e.g. Gylched Covert) and creating stepping stones between areas of woodland.</li> <li>Where trees and woodland would be lost beneath the OHL, replacement planting would be located as close to that lost as possible, with alternative planting in these areas to include scrub in order to prevent fragmentation of habitats.</li> <li>Landscape planting around the THH/CSEC and substation has been designed to improve on existing habitats where possible. Both Braint and Tŷ Fodol THH areas are currently improved grassland and although a smaller area of</li> </ul>	During construction, maintenance and decommissioning: <b>Low</b>	Negligible (not significant)		
		Direct permanent loss of habitat. Low sensitivity		During operation: Low	Negligible (not significant)		
		Risk of temporary disturbance/ displacement/degradation of habitats through dust, noise and light disturbance. Low sensitivity		During construction, maintenance and decommissioning: Low	Negligible (not significant)		
		Operational noise. Very Low sensitivity		During operation: Very Low	Negligible (not significant)		
		Severance and fragmentation of habitat. Low sensitivity		During construction, maintenance and decommissioning: Low	Negligible (not significant)		
		Risk of direct impact through ground and vegetation clearance, and collision with vehicles. <b>Low sensitivity</b>		During construction, maintenance and decommissioning: Low	Negligible (not significant)		

Table 9.28 Summary of Ecological Effects of the Proposed Development							
Resource/Receptor	Value	Potential effects and sensitivity	Mitigation	Residual Severity	Significance		
			replacement habitat would be provided due to presence of structures, the landscaping would provide suitable habitat for brown hare and polecat such as woodland, hedgerows, scrub and species-rich grassland.				
Great Crested Newt	County	Direct temporary loss of habitat suitable to support GCN. Low sensitivity to loss of high quality habitat Very Low sensitivity to loss of poor quality habitat	<ul> <li>CEMP measures as identified in section 9.</li> <li>In addition to the set out in Chapter 7, Landscape Assessment (Document 5.7), Chapter 12, Water Quality, Resources and Flood Risk (Document 5.12), Chapter 14, Air Quality (Document 4.14), and Chapter 15, Construction Noise and Vibration (Document 5.15), the following additional measures would be implemented: <ul> <li>Pre-construction GCN surveys on ponds within 250 m of the Proposed Development to check the populations prior to construction.</li> <li>European protected species mitigation licences would be secured from NRW to enable GCN fencing to be installed where working areas only fall within 250 m of known GCN ponds. Stage strimming and pit fall traps would be used to clear GCN.</li> </ul> </li> </ul>	During construction, maintenance and decommissioning: Low	Negligible (not significant)		
	Direct perma to support GO Very Low se Risk of tempo displacement suitable to su and through disturbance.	Direct permanent loss of habitat able to support GCN. Very Low sensitivity		During operation: <b>Very Low</b>	Negligible (not significant)		
		Risk of temporary disturbance/ displacement/degradation of habitats suitable to support GCN due to dust and through noise and light disturbance.		During construction, maintenance and decommissioning: Low	Negligible (not significant)		
		<ul> <li>Very Low sensitivity</li> <li>Severance and fragmentation of habitat that supports, or is able to support GCN due to temporary fencing and loss of habitats.</li> <li>Low sensitivity</li> <li>Severance and fragmentation of habitat that supports, or is able to support GCN due to temporary fencing and loss of habitats.</li> <li>Replacement of tempor Replanting of woodlar that lost and creating s woodland and rebuildi movement of GCN.</li> <li>Where trees and wood</li> </ul>	<ul> <li>Investigation of the use of gated sections within a long stretch of GCN fencing to allow dispersal.</li> <li>Hand searches and watching brief by an ECoW would be undertaken during vegetation removal and working in key habitats in mitigation areas.</li> </ul>	During construction, maintenance and decommissioning: Low	Negligible (not significant)		
			<ul> <li>Replacement of temporary loss of habitat or improved. Replanting of woodland and scrub near as possible to that lost and creating stepping stones between areas of woodland and rebuilding of cloddiau to facilitate movement of GCN.</li> <li>Where trees and woodland are lost beneath the OHL, replacement planting would be located as close to that lost as possible, with alternative to include scrub in order to prevent fragmentation.</li> </ul>	During operation: Very Low	Negligible (not significant)		
		Risk of direct impact through ground and vegetation clearance, and run over with vehicles. Low sensitivity		During construction maintenance and decommissioning: Low	Negligible (not significant)		

Table 9.28 Summary of Ecological Effects of the Proposed Development								
Resource/Receptor	Value	Potential effects and sensitivity	Mitigation	Residual Severity	Significance			
			<ul> <li>Landscape planting around the THH/CSEC and substation has been designed to improve on existing habitats where possible, and include SuDS.</li> </ul>					
Other Amphibians	Local	Direct temporary loss of habitat. Low sensitivity	CEMP measures as identified in section 9. In addition to the set out in Chapter 7, Landscape Assessment (Document 5.7), Chapter 12, Water Quality, Resources and Flood Risk (Document 5.12), Chapter 14, Air Quality L	During construction maintenance and decommissioning: Low	Negligible (not significant)			
		Direct permanent loss of habitat. Low sensitivity	( <b>Document 4.14</b> ), and Chapter 15, Construction Noise and Vibration ( <b>Document 5.15</b> ), the following additional measures would be implemented:	During operation: Low	Negligible (not significant)			
		Risk of temporary disturbance/ displacement/degradation of habitats. Low sensitivity	<ul> <li>GCN specific European protected species mitigation would benefit other amphibian species in these areas.</li> <li>Habitat replacement and improvement where appropriate, for example replacing with intact hedgerows where defunct hedgerows are temporarily lost Replanting of woodland and scrub near as possible to that lost and creating stepping stones between areas of woodland. Rebuilding of cloddiau.</li> <li>Avoidance of loss if possible/replacement if loss would be unavoidable, of Pond A254 at Braint THH following construction as part of the landscape mitigation. Mitigation</li> </ul>	During construction maintenance and decommissioning: Low	Negligible (not significant)			
		Severance and fragmentation of habitat throughout the Proposed Development including where fencing would be installed as part of the GCN mitigation areas. Low sensitivity		During construction maintenance and decommissioning: Low	Negligible (not significant)			
		Severance and fragmentation of habitat.planting in this area we overshading this habitatVery Low sensitivitywhere trees and wood replacement planting we	<ul> <li>planting in this area would avoid fully surrounding and overshading this habitat.</li> <li>Where trees and woodland are lost beneath the OHL, replacement planting would be located as close to that lost as</li> </ul>	During operation: <b>Very Low</b>	Negligible (not significant)			
		Risk of direct impact through ground and vegetation clearance, and run over with vehicles. <b>Low sensitivity</b>	<ul> <li>replacement planting would be located as close to that lost as possible, with alternative to include scrub suitable for other amphibians in order to prevent fragmentation.</li> <li>Landscape planting around the THH/CSEC and substation has been designed to improve on the suitability of existing habitats of other amphibians where possible, and include installation of SuDS.</li> <li>Hibernacula and refuges would be created along the edges of woodland such as Gylched covert, Pentir CWS (where within the Order Limits), and within the THH/CSEC sites.</li> </ul>	During construction maintenance and decommissioning: Low	Negligible (not significant)			

Table 9.28 Summary of Ecological Effects of the Proposed Development								
Resource/Receptor	Value	Potential effects and sensitivity	Mitigation	Residual Severity	Significance			
Reptiles	Local	Direct temporary loss of habitat and loss or damage to shelter, protection and/or breeding habitat. Medium sensitivity to loss of high quality potential habitat Very Low sensitivity to loss of poor quality potential habitat	<ul> <li>CEMP measures as identified in section 9.</li> <li>In addition to the set out in Chapter 7, Landscape Assessment (Document 5.7), Chapter 12, Water Quality, Resources and Flood Risk (Document 5.12), Chapter 14, Air Quality</li> <li>(Document 4.14), Chapter 15, Construction Noise and Vibration (Document 5.15), and Chapter 16, Operational Noise and Vibration (Document 5.16), the following additional measures would be implemented:</li> <li>Pre-construction reptile surveys would be required in the high quality areas of potential habitat that would be directly affected within the Order Limits, to establish if there is a change in the reptile species present and their estimated populations.</li> <li>Vegetation removal would include staged habitat degradation to encourage reptiles to vacate the area and move towards suitable areas of retained habitat where presence of reptiles has heap confirmed. Meintenance of the habitat degraded</li> </ul>	During construction, maintenance and decommissioning: Low	High quality potential habitat Minor Adverse (not significant) Low quality potential habitat Negligible (not significant)			
		to support reptiles and loss or damage to shelter, protection and/or breeding habitat. Medium sensitivity to loss of high quality potential habitat Low sensitivity to loss of poor quality potential habitat		<ul> <li>Pre-construction replice surveys would be required in the high quality areas of potential habitat that would be directly affected within the Order Limits, to establish if there is a change in the reptile species present and their estimated populations.</li> <li>Vegetation removal would include staged habitat degradation to encourage reptiles to vacate the area and move towards suitable areas of retained habitat where presence of reptiles has been confirmed. Maintenance of the habitat degraded</li> </ul>	habitat Minor Adverse (not significant) Low quality potential habitat Negligible (not significant)			
		Risk of temporary disturbance/ displacement/ degradation of habitats suitable to support reptiles through dust, and noise and light disturbance. <b>Low sensitivity</b>	<ul> <li>would be undertaken throughout construction to ensure that it remained unsuitable for reptiles under the supervision of an ECoW.</li> <li>Hand searches and watching brief would be undertaken by an ECoW during vegetation removal and when working in key habitats. This would also include when dismantling of cloddiau, and when replacing them following completion of</li> </ul>	During construction, , maintenance and decommissioning: Low During operation: Very Low	Negligible (not significant)			
		Severance and fragmentation of habitat. Low sensitivity	<ul> <li>construction works.</li> <li>Replacement of temporary loss of habitat suitable for reptiles, improved where possible, for example replacing with intact hedgerows where defunct hedgerows are temporarily lost. Rebuilding of cloddiau.</li> <li>Where trees and woodland would be lost beneath the OHL, replacement planting would be located as close to that lost as possible, with alternative to include scrub in order to prevent fragmentation.</li> <li>Landscape planting for the THH, CSEC and substation is designed to improve on existing habitats.</li> </ul>	<ul> <li>construction works.</li> <li>Replacement of temporary loss of habitat suitable for reptiles, improved where possible, for example replacing with intact hedgerows where defunct hedgerows are temporarily lost.</li> <li>During construction, maintenance and decommissioning:</li> <li>Low</li> </ul>	During construction, maintenance and decommissioning: Low	Negligible (not significant)		
		Risk of direct impact through ground and vegetation clearance and run over by vehicles. Low sensitivity		During construction, maintenance and decommissioning: Low	Negligible (not significant)			

Table 9.28 Summary of Ecological Effects of the Proposed Development							
Resource/Receptor	Value	Potential effects and sensitivity	Mitigation	Residual Severity	Significance		
			Hibernacula and refugia would be created within edges of woodland such as Gylched covert, Pentir cCWS (where within the Order Limits), and within the THH/CSEC sites.				
Terrestrial Invertebrates (butterflies, damselflies and dragonflies)       Local         Image: Local structure       Image: Local structure         Image: Local structure       Image: Local structure	Local	Direct temporary loss of habitat and loss or damage to shelter, protection and/or breeding habitat. Low sensitivity	CEMP measures as identified in section 9. In addition to the set out in Chapter 7, Landscape Assessment ( <b>Document 5.7</b> ), Chapter 12, Water Quality, Resources and Flood Risk ( <b>Document 5 12</b> ), Chapter 14, Air Quality	During construction, maintenance and decommissioning: Low	Negligible (not significant)		
		<ul> <li>Direct permanent loss of habitat able to support terrestrial invertebrates and loss or damage to shelter, protection and/or breeding habitat.</li> <li>Low sensitivity</li> <li>Risk of temporary disturbance/ displacement/degradation of habitats suitable to support terrestrial invertebrates.</li> <li>Low sensitivity</li> <li>(Document 4.14), Chapter (Document 5.15), and Charter (Document 5.16), and Charter (Document 5.16), would be implemented:</li> <li>Habitat replacement and suitable for terrestrial in with intact hedgerows we temporarily lost. Replant to that lost (e.g. Gylched cCWS) and creating ster woodland where possible</li> </ul>	<ul> <li>(Document 4.14), Chapter 15, Construction Noise and Vibration (Document 5.15), and Chapter 16, Operational Noise and Vibration (Document 5.16), the following additional measures would be implemented:</li> <li>Habitat replacement and improvement where possible</li> </ul>	Construction and operation: Low	Negligible (not significant)		
			with intact hedgerows where defunct hedgerows are temporarily lost. Replanting of woodland as near as possible to that lost (e.g. Gylched Covert CWS and Pentir Substation cCWS) and creating stepping stones between areas of woodland where possible.	During construction, maintenance and decommissioning: Low	Negligible (not significant)		
		Severance and fragmentation of habitat. Low sensitivity	• Where trees and woodland would be lost beneath the OHL, replacement planting would be located as close to that lost, with alternative planting to include scrub in order to prevent fragmentation.	During construction, maintenance and decommissioning: Low	Negligible (not significant)		
		Risk of direct impact through ground and vegetation clearance. Low sensitivity	<ul> <li>Landscape planting around the THH/CSEC and substation has been designed to improve on existing habitats where possible. Both Braint and Tŷ Fodol THH areas are currently mainly improved grassland and although a smaller area of replacement habitat would be provided due to presence of structures, the landscaping would provide suitable habitat for terrestrial invertebrates such as woodland, hedgerows, scrub and species-rich grassland as well as SuDs.</li> </ul>	During construction, maintenance and decommissioning: Low	Negligible (not significant)		
Aquatic Invertebrates	Local	Temporary direct loss of habitat. Low sensitivity	CEMP measures as identified in section 9. In addition to the set out in Chapter 11, Geology, Hydrogeology and Ground Conditions ( <b>Document 5.11</b> ) and Chapter 12,	During construction, maintenance and decommissioning: Low	Negligible (not significant)		

Table 9.28 Summary of Ecological Effects of the Proposed Development							
Resource/Receptor	Value	Potential effects and sensitivity	Mitigation	Residual Severity	Significance		
		Temporary disturbance/ displacement/ degradation where works are located in close proximity to watercourses. Low sensitivity	<ul> <li>Water Quality, Resources and Flood Risk (Document 5.12), the following additional measures would be implemented:</li> <li>Consent for the detailed culvert design would be sought from NRW post grant of the DCO, therefore culverts would be designed to allow the safe passage of aquatic invertebrates.</li> </ul>	During construction, maintenance and decommissioning: Low	Negligible (not significant)		
	Severance and fragmentation of aquatic invertebrate habitat.• Replacement of temp habitat through plantin includes that the bed, and design of the wat the existing.Risk of direct harm through habitat clearance and crossing installation.• Replacement of temp habitat through plantin includes that the bed, and design of the wat the existing.	Severance and fragmentation of aquatic invertebrate habitat. Very Low sensitivity	<ul> <li>Replacement of temporary loss of of aquatic invertebrate habitat through planting or natural regeneration. This includes that the bed, morphology and in channel functioning and design of the watercourse would be reinstated to at least the existing.</li> </ul>	During construction, maintenance and decommissioning: Low	Negligible (not significant)		
			During construction, maintenance and decommissioning: Low	Negligible (not significant)			
Freshwater Fish	County	Temporary direct loss of habitat used by fish for foraging, shelter and/or breeding and direct harm during removal of habitat. <b>Medium sensitivity</b> within sensitive seasons or habitats <b>Low sensitivity</b> outside sensitive seasons or habitats	CEMP measures as identified in section 9.InIn addition to the set out in Chapter 11, Geology, Hydrogeology and Ground Conditions ( <b>Document 5.11</b> ), Chapter 12, Water Quality, Resources and Flood Risk ( <b>Document 5.12</b> ) and Chapter 15, Construction Noise and Vibration ( <b>Document 5.15</b> ), the following additional measures would be implemented:In• Pre-construction fish habitat surveys may be required on watercourses crossing points throughout the Proposed Development to assess the importance of working areas prior to construction. If suitable habitat were discovered at that time on watercourses with known populations of fish, a revised mitigation strategy could be required, which could amend the permitted location/ method of construction activities.In• Consent for the detailed culvert design would be sought from NRW post grant of the DCO, therefore culverts would be designed to allow the safe passage of fish.In	During construction, maintenance and decommissioning: Low	Minor Adverse (not significant) within sensitive seasons or habitats Negligible (not significant) outside sensitive seasons or habitats		
		Temporary disturbance/ displacement/ degradation of fish habitat. <b>Medium sensitivity</b>		During construction, maintenance and decommissioning: Low	Minor Adverse (not significant)		
		Severance and fragmentation of fish habitat. Low sensitivity		During construction, maintenance and decommissioning: Low	Negligible (not significant)		
		Risk of direct harm through habitat clearance and crossing installation.	• Watching brief by an ECoW would be undertaken during vegetation removal/degradation, and crossing installation, reinstating habitats potentially suitable for freshwater fish and during maintenance and decommission works.	During construction, maintenance and decommissioning:	Minor Adverse (not significant) within		

Table 9.28 Summary of Ecological Effects of the Proposed Development							
Resource/Receptor	Value	Potential effects and sensitivity	Mitigation	Residual Severity	Significance		
		Medium sensitivity within sensitive seasons or habitats Low sensitivity outside sensitive seasons or habitats	<ul> <li>Replacement of temporary loss of fish habitat through reinstatement of channel sediments, planting of bankside habitat or natural regeneration. This includes the reinstatement of the bed, morphology and in channel functioning of the watercourse to at least the existing condition.</li> </ul>	Low	sensitive seasons or habitats <b>Negligible</b> ( <b>not</b> <b>significant</b> ) outside sensitive seasons or habitats		
Overall Ornithology Poter	ntial Ecological						
Whooper swan	National	<ul> <li>Collision with the OFL where it passes through Section B of the proposed development, with the greatest potential for collision to occur where whooper swan have been recorded regularly flying been a roost at Llyn Alaw and a feeding area close to the proposed development (between pylons 4AP032 and 4AP034):</li> <li>Medium sensitivity</li> <li>Temporary habitat loss due to access tracks and working areas where the OHL is installed through an area of wet grassland in Section B:</li> <li>Low sensitivity</li> </ul>	<ul> <li>In addition to the above, specific measures required include:</li> <li>Phasing of work in the area of Bryn Dyfrydog (between pylons 4AP032 and 4AP034) so that vegetation clearance, establishment of working areas and habitat restoration as much as possible are completed outside of the months September – April. Where work cannot be avoided during this period, a watching brief by an experienced ornithologist would be undertaken to monitor potential impacts on whooper swan which would record vigilance levels of foraging birds and flight/startle responses using standard methods to record percentage time feeding/preening/observing and if applicable recording triggers to flight responses including proximity to source; temporary exclusion zones would be imposed on work should adverse impacts be detected.</li> </ul>	Low During construction maintenance and decommissioning: Low	Negligible (not significant)		
		Temporary disturbance and displacement from a regularly used feeding area near Bryn Dyfrydog (Section B): Low sensitivity		During construction, maintenance and decommissioning: Low	Negligible (not significant)		
Mute Swan	Local	Collision with OHL, particularly in Section B, where the route passes closest to Llyn Alaw: Low sensitivity	None proposed.	During operation: Very Low	Negligible (not significant)		

Table 9.28 Summary of Ecological Effects of the Proposed Development						
Resource/Receptor	Value	Potential effects and sensitivity	Mitigation	Residual Severity	Significance	
Greenland White- fronted Goose	County	Collision with OHL, particularly in Section B, where the route passes closest to Llyn Alaw during the operation of the Proposed Development; Low sensitivity	None proposed.	During operation: Very Low	Negligible (not significant)	
Greylag Goose	Local	Direct habitat loss from feeding areas during construction and decommissioning of the Proposed Development: Low sensitivity	CEMP measures as identified in Section 9.	During construction and decommissioning: <b>Low</b>	Negligible (not significant)	
		Collision with the proposed OHL during operation of the Proposed Development:		During operation: <b>Medium</b>	Minor adverse (not significant)	
		Low sensitivity				
		Temporary disturbance and displacement from feeding areas:		During construction and maintenance:	Negligible (not significant)	
		Low sensitivity		Low		
Shelduck	Local	Collision with the proposed OHL: Low sensitivity	None proposed.	During operation: Very Low	Negligible (not significant)	
Mallard	Local	Collision with the proposed OHL: Low sensitivity	CEMP measures as identified in Section 9.	During operation: Medium	Minor Adverse (not significant)	
		Temporary disturbance or displacement of birds from breeding and feeding habitats: Low sensitivity		During construction, maintenance and decommissioning: <b>Low</b>	Negligible (not significant)	
Shoveler	Local	Collision with the proposed OHL: Low sensitivity	None proposed	During operation: <b>Very Low</b>	Negligible (not significant)	
Wigeon	Local	Collision with the proposed OHL: Low sensitivity	CEMP measures as identified in Section 9.	During operation: Very Low	Negligible (not significant)	

Table 9.28 Summary of Ecological Effects of the Proposed Development						
Resource/Receptor	Value	Potential effects and sensitivity	Mitigation	Residual Severity	Significance	
		Temporary disturbance or displacement of birds from breeding and feeding habitats: Low sensitivity		During construction, operation, maintenance and decommissioning: <b>Low</b>	Negligible (not significant)	
Teal	Local	Collision with the proposed OHL: Low sensitivity	<ul> <li>CEMP measures as identified in Section 9.</li> <li>In addition to the above, specific measures required include:</li> <li>Phase work so that vegetation clearance, establishment of working areas and habitat restoration within 500 m of inland waterbodies at Wylfa, Bryn Dyfrydog and Cors Erddreiniog are completed outside of the breeding bird season (March – September for most bird species). Where this is not possible all potential breeding habitat to be removed would be checked by an experienced ornithologist prior to removal to ensure that teal are not breeding. This would ensure compliance with the Wildlife and Countryside Act 1981 (as amended). This would ensure compliance with the Wildlife and Countryside Act 1981 (as amended).</li> </ul>	During operation: Low	Negligible (not significant)	
		Temporary disturbance or displacement of birds from breeding and feeding habitats: Low sensitivity		During construction, operation, maintenance and decommissioning: Low	Negligible (not significant)	
Tufted Duck	Local	Collision with the proposed OHL: Low sensitivity	None proposed.	During operation: <b>Very Low</b>	Negligible (not significant)	
Gadwall	Local	Collision with the proposed OHL: Low sensitivity	None proposed.	During operation: <b>Very Low</b>	Negligible (not significant)	
Cormorant	Local	Collision with the proposed OHL: Low sensitivity	None proposed.	During operation: Low	Negligible (not significant)	
Little Egret	Local	Collision with the proposed OHL: Low sensitivity	None proposed.	During operation: Low	Negligible (not significant)	
Grey Heron	Local	Direct habitat loss at breeding sites: Medium sensitivity	<ul> <li>CEMP measures as identified in Section 9.</li> <li>In addition to the above, specific measures required include:</li> <li>Phase work so that vegetation clearance, establishment of working areas and habitat restoration are completed</li> </ul>	During construction, maintenance and decommissioning: <b>Very Low</b>	Negligible (not significant)	

Table 9.28 Summary of Ecological Effects of the Proposed Development						
Resource/Receptor	Value	Potential effects and sensitivity	Mitigation	Residual Severity	Significance	
	Tempor displace Low ser	Temporary disturbance and displacement from the nest at Wylfa: Low sensitivity	outside of the grey heron breeding season (February – July). Where this is not possible all potential breeding habitat to be removed would be checked by an experienced ornithologist prior to removal to ensure that grey heron are not breeding. This would ensure	During construction, operation, maintenance and decommissioning: <b>Very Low</b>	Negligible (not significant)	
		Collision with the proposed OHL: Medium sensitivity	<ul> <li>(as amended). This would ensure compliance with the Wildlife and Countryside Act 1981 (as amended).</li> <li>Working areas set up at the onset of construction should be strictly adhered to in order to prevent additional losses of breeding habitat. ECoW to advise operations during the construction phase and temporary exclusion zones imposed on work should a high likelihood of impacts be detected.</li> </ul>	During operation: Low	Minor adverse (not significant)	
Red Kite	Local	Collision with the proposed OHL: Medium sensitivity	None proposed.	During operation: Very Low	Negligible (not significant)	
Marsh Harrier	Local	Collision with the proposed OHL: Medium sensitivity	None proposed.	During operation: Very Low	Negligible (not significant)	
Hen Harrier	Local	Collision with the proposed OHL: Medium sensitivity	None proposed.	During operation: Very Low	Negligible (not significant)	
Kestrel	Local       Temporary habitat loss at possible breeding sites:         Low sensitivity       Permanent habitat losses from nesting areas:         Low sensitivity       Temporary disturbance and displacement from nests:         Low sensitivity       Temporary disturbance and displacement from nests:	<ul> <li>CEMP measures as identified in Section 9.</li> <li>In addition to the above, specific measures required include:</li> <li>Phase work so that vegetation clearance, establishment of working areas and habitat restoration are completed</li> </ul>	During construction, maintenance and decommissioning: <b>Very Low</b>	Negligible (not significant)		
		Permanent habitat losses from nesting areas: Low sensitivity	<ul> <li>outside of the breeding bird season (March – September). Where this is not possible all potential breeding habitat to be removed would be checked by an experienced ornithologist prior to removal to ensure that kestrel are not breeding. This would ensure compliance with the Wildlife and Countryside Act 1981 (as amended).</li> <li>Working areas set up at the onset of construction should be strictly adhered to in order to prevent additional losses of breeding habitat. ECoW to advise operations during</li> </ul>	During operation: <b>Very Low</b>	Negligible (not significant)	
		Temporary disturbance and displacement from nests: Low sensitivity		During construction, operation, maintenance and decommissioning: Low	Negligible (not significant)	

Table 9.28 Summary of Ecological Effects of the Proposed Development						
Resource/Receptor	Value	Potential effects and sensitivity	Mitigation	Residual Severity	Significance	
		Destruction and / or damage of the nests: Moderate sensitivity	the construction phase and temporary exclusion zones imposed on work should a high likelihood of impacts be detected.	No impact	No impact	
		Collision with the proposed OHL: Very Low sensitivity		During operation: Medium	Negligible (not significant)	
Hobby	Local	Collision with the proposed OHL: Very Low sensitivity	None proposed.	During operation: Low	Negligible (not significant)	
Peregrine falcon	Local	Collision with the proposed OHL: Very Low sensitivity	None proposed.	During operation: Medium	Negligible (not significant)	
Merlin	Local	Collision with the proposed OHL: Low sensitivity	None proposed.	During operation: Low	Negligible (not significant)	
Lapwing	County	Temporary habitat loss at possible breeding sites: Very Low sensitivity	<ul> <li>CEMP measures as identified in Section 9.</li> <li>In addition to the above, specific measures required include:</li> <li>Phase work so that vegetation clearance within the Order Limits where the Proposed Development passes the southern end of Cors Erddreiniog is completed and working areas are established outside of the breeding bird season (March – September). Where this is not possible all potential breeding habitat to be removed would be checked by an experienced ornithologist prior to removal to ensure that lapwing are not breeding. This would ensure compliance with the Wildlife and Countryside Act 1981 (as amended). This would ensure compliance with the Wildlife and Countryside Act 1981 (as amended).</li> <li>Working areas set up at the onset of construction should be strictly adhered to in order to prevent additional loss of breeding and wintering bird habitat. ECoW to advise operations during the construction phase and temporary exclusion zones imposed on work should a high likelihood of impacts be detected.</li> </ul>	During construction, decommissioning and maintenance: Very Low	Negligible (not significant)	
		Potential for destruction/damage of nests: Moderate sensitivity		During construction, decommissioning and maintenance: <b>No impact</b>	No impact	
		Collision with the proposed OHL: Low sensitivity		During operation: Very Low	Negligible (not significant)	
		Disturbance and displacement of wintering and breeding birds: Low sensitivity		During construction, operation, maintenance and decommissioning : <b>Very Low</b>	Negligible (not significant)	

Table 9.28 Summary of Ecological Effects of the Proposed Development						
Resource/Receptor	Value	Potential effects and sensitivity	Mitigation	Residual Severity	Significance	
Curlew	County	Potential for destruction/damage of nests, which could occur near Cors Erddreiniog (Section C): Moderate sensitivity	<ul> <li>CEMP measures as identified in Section 9.</li> <li>In addition to the above, specific measures required include:</li> <li>Pre – construction survey of the very small number of potential breeding sites within section C within 800 m of the Order Limits and visual and noise screening measures put in place around working areas adjacent to any active nests that are found.</li> <li>Phase work so that vegetation clearance within the Order Limits where they pass the southern end of Cors Erddreiniog is completed and working areas are established outside of the breeding bird season (March – September) in areas that support breeding curlew. Where this is not possible all potential breeding habitat to be removed would be checked by an experienced ornithologist prior to removal to ensure that curlew are not breeding. This would ensure compliance with the Wildlife and Countryside Act 1981 (as amended).</li> <li>Reinstatement of habitats removed for temporary access tracks and working areas.</li> <li>Working areas set up at the onset of construction should be strictly adhered to in order to prevent additional loss of breeding and wintering bird habitat. ECoW to advise operations during the construction phase and temporary exclusion zones imposed on work should a high likelihood of impacts be detected.</li> </ul>	During construction, maintenance and decommissioning: <b>Very Low</b>	Negligible (not significant)	
		Temporary habitat loss at possible breeding sites which could occur near Cors Erddreiniog (Section C): Very Low sensitivity		During construction, maintenance and decommissioning: Very Low	Negligible (not significant)	
		Direct loss of foraging habitat, which could occur at feeding areas close to Cemaes (Section A), Llyn Alaw (Section B) and Cors Erddreiniog (Section C): Very Low sensitivity		During construction, maintenance and decommissioning: Very Low	Negligible (not significant)	
		Collision with the proposed OHL, which could occur anywhere but would be most likely to occur where significant curlew activity has been recorded on feeding areas near Cemaes (Section A), Llyn Alaw (Section B) and Cors Erddreiniog (Section C): Low sensitivity		During operation: Low	Negligible (not significant)	
		Disturbance / displacement of wintering and breeding birds, which would be restricted to feeding areas near Cemaes (Section A), Llyn Alaw (Section B) and Cors Erddreiniog (Section C): Low sensitivity		During construction, operation, maintenance and decommissioning: <b>Very Low</b>	Negligible (not significant)	
Snipe	Local	Disturbance/ displacement of wintering birds from feeding areas: Low sensitivity	CEMP measures as identified in Section 9. In addition to the above, specific measures required include:	During construction, operation, maintenance and decommissioning:	Negligible (not significant)	

Table 9.28 Summary of Ecological Effects of the Proposed Development					
Resource/Receptor	Value	Potential effects and sensitivity	Mitigation	Residual Severity	Significance
		Losses of foraging habitat Very Low sensitivity Collision with the proposed OHL: Low sensitivity	<ul> <li>Phase work so that vegetation clearance within the Order Limits where they pass the southern end of Cors Erddreiniog is completed and working areas are established outside of the breeding bird season (March – September) in areas that support habitat suitable for breeding snipe and where snipe have been reported as breeding. If this is not possible all potential breeding habitat to be removed from these areas would be checked by an experienced ornithologist prior to removal to ensure that snipe are not breeding. This would ensure compliance with the Wildlife and Countryside Act 1981 (as amended). This would ensure compliance with the Wildlife and Countryside Act 1981 (as amended).</li> <li>Working areas set up at the onset of construction should be strictly adhered to in order to prevent additional loss of breeding and wintering bird habitat. ECoW to advise operations during the construction phase and temporary exclusion zones imposed on work should a high likelihood of impacts be detected.</li> <li>Reinstatement of habitats removed for temporary access tracks and working areas.</li> </ul>	Medium During construction, maintenance and decommissioning: Low During operation: Low	Negligible (not significant)         Negligible (not significant)
Barn Owl	County	Destruction of nests: High sensitivity Temporary habitat loss at possible breeding sites: Very Low sensitivity Disturbance/displacement of birds at breeding sites and / or roosts:	<ul> <li>CEMP measures as identified in Section 9.</li> <li>In addition to the above, specific measures required include:</li> <li>Pre-construction survey of potential breeding sites within 100 m of the Order Limits and visual and noise screening measures put in place around working areas adjacent to any active nests or roosts that are found.</li> <li>Vegetation management/clearance at Tŷ Fodol would be completed outside of the breeding season (March – September), and where possible, the establishment of working areas;</li> <li>Where landowner access can be agreed, for each confirmed nest site within 100 m of the Order Limits, at least one pair of</li> </ul>	During construction, maintenance, operation and decommissioning: <b>No impact</b> During construction, maintenance and decommissioning: <b>Very Low</b> During construction, operation, maintenance and	No impact Negligible (not significant) Negligible (not significant)
		Medium sensitivity	barn owl box would be installed, in advance of all site clearance and construction work, in an undisturbed location	maintenance and decommissioning: Very Low	

Table 9.28 Summary of Ecological Effects of the Proposed Development					
Resource/Receptor	Value	Potential effects and sensitivity	Mitigation	Residual Severity	Significance
			to be determined by the ECoW appointed by National Grid. This measure is not relied on within the assessment.		
			• Working areas set up at the onset of construction would be strictly adhered to in order to prevent additional loss of breeding and wintering bird habitat. ECoW to advise operations during the construction phase and temporary exclusion zones imposed on work should a high likelihood of impacts be detected.		
Chough	County	Collision with the proposed OHL in Section A only: Low sensitivity	None proposed.	During operation: Very Low	Negligible (not significant)
Woodland Breeding Bird Assemblage (Passerines of High Conservation Concern) – Wylfa	County       Potential for nests during         High sensitiv         Direct losses         habitat:         High sensitiv         Temporary di         displacement         Medium/High	Potential for destruction/damage of nests during the breeding season: High sensitivity	<ul> <li>CEMP measures as identified in Section 9.</li> <li>In addition to the above, specific measures required include:</li> <li>Phase work in this area so that vegetation clearance, establishment of working areas and habitat restoration are completed outside of the breeding bird season (March – September for most bird species). Where this is not possible all potential breeding habitat to be removed would be checked by an experienced ornithologist prior to removal to ensure that no active nests are present prior to removal. This would ensure compliance with the Wildlife and Countrylide</li> </ul>	During construction, maintenance and decommissioning: <b>No impact</b>	No impact
		Direct losses of foraging and breeding habitat: High sensitivity		During construction, operation, maintenance and decommissioning: Short-term:	Short-term: Minor Adverse (not significant)
			<ul> <li>Act 1981 (as amended).</li> <li>Woodland habitat planting within the Order Limits to replace woodland lost.</li> </ul>	Low Long-term: Very Low	Negligible (not significant)
		Temporary disturbance / displacement of breeding birds: Medium/High sensitivity	• Working areas set up at the onset of construction would be strictly adhered to in order to prevent additional loss of breeding bird habitat. ECoW to advise operations during the construction phase and temporary exclusion zones imposed on work should a high likelihood of impacts be detected.	During construction, maintenance and decommissioning: Low	Minor Adverse (not significant)
Woodland Breeding Bird Assemblage (Passerines of High	Local	Potential for destruction/ damage of nests during the breeding season: High sensitivity	<ul> <li>CEMP measures as identified in Section 9.</li> <li>Phase work in this area so that vegetation clearance, establishment of working areas and habitat restoration are completed outside of the breeding bird season (March –</li> </ul>	During construction, maintenance and decommissioning: <b>No impact</b>	No impact

Table 9.28 Summary of Ecological Effects of the Proposed Development					
Resource/Receptor	Value	Potential effects and sensitivity	Mitigation	Residual Severity	Significance
Conservation) – Gylched Covert		Direct losses of foraging and breeding habitat: High sensitivity	<ul> <li>September for most bird species). Where this is not possible all potential breeding habitat to be removed would be checked by an experienced ornithologist prior to removal to ensure that that no active nests are present prior to removal. This would ensure compliance with the Wildlife and Countryside Act 1981 (as amended).</li> <li>Woodland habitat planting within the Order Limits to replace woodland lost where possible.</li> <li>Working areas set up at the onset of construction would be strictly adhered to in order to prevent additional loss of breeding bird habitat. ECoW to advise operations during the construction phase and temporary exclusion zones imposed on work should a high likelihood of impacts be detected.</li> <li>Future habitat management of Gylched Covert in line with maintaining and improved the quality of this CWS woodland to be agreed as part of the draft DCO (Document 2.1). Outline of this is provided in the BMS (Document 7.7), but full details would be provided in a management plan.</li> </ul>	During construction, operation, maintenance and decommissioning: Short term: Low Long term: Very Low	Short term: Minor Adverse (Not Significant) Long term: Negligible (not significant)
		Disturbance/ displacement of breeding birds: Medium/High sensitivity		During construction, maintenance and decommissioning: Low	Minor Adverse (not significant)
Farmland and Hedgerow Breeding Bird Assemblage (Passerines of High Conservation Concern) – Braint Tunnel Head House/Cable Sealing End Compound	LocalDirect loss of foraging and breeding habitat on a temporary basis as a result of the construction compound and associated access tracks: High sensitivityDirect permanent loss of habitat resulting from the construction and operation of the THH/CSEC and associated access tracks: Low sensitivityDisturbance / displacement of breeding birds: Medium sensitivity	<ul> <li>CEMP measures as identified in Section 9.</li> <li>In addition to the above, specific measures required include:</li> <li>Phase work in this area so that vegetation clearance, establishment of working areas and habitat restoration are completed outside of the breeding bird season (March – September for most bird species). Where habitat cannot be removed during this period it would be checked prior to removal by an experienced ornithologist to ensure that no active nests are present prior to removal. This would ensure compliance with the Wildlife and Countryside Act 1981 (as amanded)</li> </ul>	During construction, maintenance and decommissioning: <b>Very Low</b>	Negligible (not significant)	
			During operation: Low	Negligible (not significant)	
		Disturbance / displacement of breeding birds: Medium sensitivity	<ul> <li>Reinstatement of all hedgerow and grassland habitats removed to accommodate the temporary</li> </ul>	During construction, maintenance and decommissioning: Low	Minor Adverse (not significant)
Table 9.28 Summary of Ecological Effects of the Proposed Development					
--	-------	--	---	---	---
Resource/Receptor	Value	Potential effects and sensitivity	Mitigation	Residual Severity	Significance
		Potential for destruction/damage of nests: High sensitivity	<ul> <li>construction/decommission compound and working areas other than where there is permanent infrastructure.</li> <li>Replacement of hedgerows lost permanently to ensure no net loss of hedgerow habitat within the Order Limits.</li> <li>Planting of hedgerows around the perimeter of the Braint Tunnel Compound and THH/CSEC to provide a net habitat gain and/or to offset hedgerow losses elsewhere.</li> <li>Working areas set up at the onset of construction would be strictly adhered to in order to prevent additional loss of breeding bird habitat. ECoW to advise operations during the construction phase and temporary exclusion zones imposed on work should a high likelihood of impacts be detected.</li> </ul>	During construction, maintenance and decommissioning: <b>No impact</b>	No impact
Farmland Scrub and Hedgerow Breeding Bird Assemblage (Passerines of High Conservation Concern)	Local	Direct loss of foraging and breeding habitat on a temporary basis as a result of the construction compound and associated access tracks: Low sensitivity	<ul> <li>CEMP measures as identified in Section 9.</li> <li>In addition to the above, specific measures required include:</li> <li>Phase work in this area so that vegetation clearance, establishment of working areas and habitat restoration are completed outside of the breeding bird season (March-September for most bird species). Where habitat cannot be removed during this period it would be checked prior to removal by an experienced ornithologist to ensure that no active nests are present prior to removal. This would ensure compliance with the Wildlife and Countryside Act 1981 (as amended).</li> <li>Full reinstatement of all hedgerow and grassland habitats removed to accommodate the construction compound and working areas.</li> <li>Replacement of hedgerows lost permanently to ensure no net loss of hedgerow habitat.</li> <li>Planting of hedgerows around the perimeter of the TUM/02E0 to ensure the prior to remove for the prior to remove to active and the perimeter of the the term of the perimeter of the term of term of the term of term of term of term of term of the term of the term of term of the term of the term of the term of term of term of the term of term of the term of the term of the term of term of term of the term of term of</li></ul>	During construction and decommissioning: Very Low	Negligible (not significant) Minor Positive effect (not significant) in the long term with planting
Head House / Cable Sealing End Compound		Direct permanent loss of habitat: Medium sensitivity		During operation: Very Low	Negligible (not significant)
		Temporary disturbance / displacement of breeding birds: Medium sensitivity		During construction, maintenance and decommissioning: Low	Minor Adverse (not significant)
		Potential for destruction/damage of nests: High sensitivity		During construction, maintenance and decommissioning: <b>No impact</b>	No impact
			hedgerow losses elsewhere. Working areas set up at the onset of construction should be strictly adhered to in order to prevent additional loss of breeding and wintering bird habitat. ECoW to advise operations during the construction phase and temporary		

Table 9.28 Summary of Ecological Effects of the Proposed Development						
Resource/Receptor	Value	Potential effects and sensitivity	Mitigation	Residual Severity	Significance	
			exclusion zones imposed on work should a high likelihood of impacts be detected.			
Woodland Breeding Bird Assemblage (Passerines of High Conservation Concern)	County	Potential for destruction / damage of nests: High sensitivity	<ul> <li>CEMP measures as identified in Section 9.</li> <li>In addition to the above, specific measures required include:</li> <li>Phase work in this area so that vegetation clearance, ostablishment of working areas and babitat restoration area</li> </ul>	During construction and decommissioning. <b>No impact</b>	No impact	
- Pentir Substation		Direct permanent loss of habitat: Medium sensitivity	completed outside of the breeding bird season (March – September for most bird species). Where habitat cannot be	During operation: Low	Minor Adverse (not significant)	
	To di Vo D ha re so w Lo	Temporary disturbance / displacement of breeding birds: Very Low sensitivity	<ul> <li>removed during this period it would be checked prior to removal by an experienced ornithologist to ensure that no active nests are present prior to removal. This would ensure compliance with the Wildlife and Countryside Act 1981 (as amended). Full reinstatement or replacement of all woodland, hedgerow, dry dwarf shrub heath and grassland habitats removed or managed to accommodate the temporary construction compounds, temporary access and working areas, other than where there is permanent infrastructure.</li> <li>Replacement of hedgerows lost permanently within the Order Limits to ensure no net loss of hedgerow habitat.</li> <li>Planting of hedgerows where there are currently none around the perimeter of the substation, on field boundaries and along the edges of access tracks to provide a net habitat gain and/or to offset hedgerow losses elsewhere.</li> </ul>	During construction, operation, maintenance and decommissioning: Low	Negligible (not significant)	
		Direct loss of foraging and breeding habitat on a temporary basis as a result of the construction compound, scaffold working areas, bridge working areas and access tracks: Low sensitivity		During construction and decommissioning: Low	Negligible (not significant)	
			<ul> <li>Planting of additional woodland over land that is currently improved pasture and subject to compulsory land acquisition.</li> <li>Working areas set up at the onset of construction should be strictly adhered to in order to prevent additional loss of breeding bird habitat. ECoW to advise operations during the construction phase and temporary exclusion zones imposed on work should a high likelihood of impacts be detected.</li> </ul>			
Waterfowl utilising Menai Strait marine and inter-tidal habitat within the Order Limits	Local	<ul> <li>Minor emissions of drilling mud and bentonite to the water column during occurrences of blow – out:</li> <li>Low sensitivity</li> </ul>	CEMP measures as identified in Section 9.	During construction: Very Low	Negligible (not significant)	

Table 9.28 Summary of Ecological Effects of the Proposed Development					
Value	Potential effects and sensitivity	Mitigation	Residual Severity	Significance	
County	<ul> <li>Temporary disturbance/displacement of breeding birds:</li> <li>Low sensitivity</li> </ul>	<ul> <li>CEMP measures as identified in Section 9.</li> <li>In addition to the above, specific measures required include:</li> <li>Phase work so that vegetation clearance, establishment of working areas and habitat restoration are completed outside of the breeding bird season (March – September for most bird species). Where habitat cannot be removed during this period it would be checked prior to removal by an experienced ornithologist to ensure that no active nests are present prior to removal. This would ensure compliance with the Wildlife and Countryside Act 1981 (as amended).</li> <li>Full reinstatement or replacement of all woodland, scrub hedgerow, grassland, wetland, hedgerow and grassland habitats removed or managed to accommodate the temporary construction compounds, temporary access and working areas.</li> <li>Replacement of hedgerows lost permanently to ensure no net loss of hedgerow habitat and planting of an additional 3,893 m2 of woodland in areas other than the THH/CSECs or Gylched Covert.</li> <li>Habitat reinstatement and replacement to be initiated upon completion of works in a given section or area of the Proposed Development. Where possible, new habitat creation should occur in advance of or at the same time as construction work.</li> <li>Working areas set up at the onset of construction should be strictly adhered to in order to prevent additional loss of breeding bird habitat. ECoW to advise operations during the construction phase and temporary exclusion zones imposed on work should a high likelihood of impacts he detected</li> </ul>	During construction, maintenance and decommissioning: Very Low	Negligible (not significant)	
	<ul> <li>Potential for destruction / damage of nests: High sensitivity</li> </ul>		During construction and decommissioning: <b>No impact</b>	No impact	
	<ul> <li>Permanent loss of foraging and nesting habitat:</li> <li>Medium sensitivity</li> <li>Temporary loss of foraging and nesting habitat:</li> <li>Low sensitivity</li> </ul>		During construction, operation, maintenance and decommissioning: Low	Minor Adverse (not significant)	
			During construction and decommissioning: <b>Very Low</b>	Negligible (not significant)	
S	<u> </u>		<u> </u>	<u> </u>	
International	Collision of interest features (Greenland White – Fronted Goose) with proposed OHL: Low sensitivity	Mitigation by design – proposed OHL will be close to and alongside the existing.	During operation: only: <b>Very low</b>	Negligible (not significant)	
	Ecological Ed Value County	Ecological Effects of the Proposed Development         Value       Potential effects and sensitivity         County       • Temporary disturbance/displacement of breeding birds: • Low sensitivity         • Potential for destruction / damage of nests: High sensitivity         • Permanent loss of foraging and nesting habitat: • Medium sensitivity         • Temporary loss of foraging and nesting habitat: Low sensitivity         • Temporary loss of foraging and nesting habitat: Low sensitivity         • Temporary loss of foraging and nesting habitat: Low sensitivity         • International	Ecological Effects of the Proposed Development           Value         Potential effects and sensitivity         Mitigation           County              • Temporary disturbance/displacement of breeding birds: • Low sensitivity               CEMP measures as identified in Section 9. In addition to the above, specific measures required include: • Phase work so that vegetation clearance, establishment of working areas and habitat restoration are completed outside of the Streeding bird season (March – September for most brid species). Where habitat cannot be removed during this period it would be checked prior to removal by an experienced omithologist to ensure that no active nests are premanent loss of foraging and nesting habitat: • Medium sensitivity               Full reinstatement or replacement of all woodland, scrub hedgerow grassland, wetland, hedgerow and grassland habitats removed or managed to accommodate the temporary construction compounds, temporary access and working areas. • Replacement of hedgerow habitat and planting of an additional 3.883 modificient areas other than the THH/CSECs or Gylched Covert. Habitat reinstatement and replacement to be initiated upon completion of works in a given section or area of the Proposed Development. Where possible, new habitat creation should occur in advance of or at the same time as construction phase and temporary exclusion zones imposed on work should a high likelihood of impacts be detected.            s              temporany basis of interest features	Ecological Effects of the Proposed Development         Mitigation         Residual Severity           Value         Potential effects and sensitivity         Mitigation         Residual Severity           County              • Temporary distribance/displacement of breeding pix/sis: • Low sensitivity          CEMP measures as identified in Section 9. In addition to the above, specific measures required include: • Phase work so that vegetation clearance, establishment of very Low          During construction, maintenance and decommissioning: Very Low          During construction, maintenance and decommissioning: very Low          During construction maintenance and decommissioning: very Low          During construction nesting habitat: • Medium sensitivity          - Permanent loss of foraging and nesting habitat: • Medium sensitivity          - Permanent loss of foraging and nesting habitat: Low sensitivity          - Replacement of hedgerow lost permanently to ensure no net loss of hedgerow habitat and planing of an additional 3.883 maintenance and decommissioning: Very Low            s              Temporary loss of foraging and nesting habitat: Low sensitivity          - Replacement of hedgerows lost permanent to be initiated upon competion of works in a given section or area of the propaced Development. Where possible, new habita	

Table 9.28 Summary of Ecological Effects of the Proposed Development					
Resource/Receptor	Value	Potential effects and sensitivity	Mitigation	Residual Severity	Significance
Liverpool Bay SPA	International	Collision of interest features (Cormorant only) with proposed OHL: Low sensitivity	Mitigation by design – proposed OHL will be close to and alongside the existing.	During operation: only: <b>Very low</b>	Negligible (not significant)
Lavan Sands and Conwy Bay SPA	International	No effects			
Puffin Island SPA	International	Collision of interest features (Cormorant only) with proposed OHL: Low sensitivity	Mitigation by design – proposed OHL will be close to and alongside the existing.	During operation: only: Very low	Negligible (not significant)
<u>Cemlyn Bay SSSI;</u>	National	Collision of interest features (Mallard only) with proposed OHL:	Mitigation by design – proposed OHL will be close to and alongside the existing.	During operation: only: Very Low	Negligible (not significant)
	National	Temporary disturbance or displacement of mallard from feeding habitats within and adjacent to the Proposed Development: Low sensitivity	CEMP measures in Section 9	During construction, maintenance and decommissioning: Very Low	Negligible (not significant)
		Collision of whooper swan with the proposed OHL: <b>Medium sensitivity</b>	Mitigation by design – proposed OHL will be close to and alongside the existing.	During operation: Low	Minor Adverse (not significant)
		Temporary loss of foraging habitat for whooper swan: Low sensitivity	CEMP measures in Section 9	During construction, maintenance and decommissioning: Low	Negligible (not significant)
<u>Llyn Alaw SSSI;</u>	National	Temporary disturbance and displacement of whooper swan: <b>Low sensitivity</b>	CEMP measures in Section 9 Phasing of work in the area of Bryn Dyfrydog (between pylons 4AP032 and 4AP034) so that vegetation clearance, establishment of working areas and habitat restoration as much as possible are completed outside of the months September – April. Where work cannot be avoided during this period, a watching brief by an experienced ornithologist would be undertaken to monitor potential impacts on whooper swan which would record vigilance levels of foraging birds and flight/startle responses using standard methods to record percentage time	During construction, maintenance and decommissioning: Low	Negligible (not significant)

Table 9.28 Summary of Ecological Effects of the Proposed Development						
Resource/Receptor	Value	Potential effects and sensitivity	Mitigation	Residual Severity	Significance	
			feeding/preening/observing and, if applicable, recording triggers to flight responses including proximity to source. Temporary exclusion zones would be imposed on work should adverse impacts be detected.			
		Collision of Teal with the proposed OHL: Low sensitivity	Mitigation by design – proposed OHL will be close to and alongside the existing.	During operation: only: Low	Negligible (not significant)	
	Temporary of displacement Low sensiti		CEMP measures in Section 9 Phase work so that vegetation clearance, establishment of working areas and habitat restoration within 500 m of inland waterbodies at Wylfa, Bryn Dyfrydog and Cors Erddreiniog are completed outside of the breeding bird season (March – September for most bird species). Where this is not possible all potential breeding habitat to be removed would be checked by an experienced ornithologist prior to removal to ensure that no active nests are present prior to removal. This would ensure compliance with the Wildlife and Countryside Act 1981 (as amended).	During construction, maintenance and decommissioning: Low	Negligible (not significant)	
		Collision of Wigeon with the proposed OHL:	Mitigation by design – proposed OHL will be close to and alongside the existing.	During operation: only: <b>Very Low</b>	Negligible (not significant)	
		Temporary disturbance and displacement of Wigeon:	CEMP measures in Section 9	During construction, maintenance and decommissioning: Very Low	Negligible (not significant)	
		Collision of Mallard with the proposed OHL: Low sensitivity	Mitigation by design – proposed OHL will be close to and alongside the existing.	During operation: only: <b>Medium</b>	Minor Adverse (not significant)	
		Temporary disturbance and displacement of Mallard: Low sensitivity	CEMP measures in Section 9	During construction, maintenance and decommissioning: Low	Negligible (not significant)	

Table 9.28 Summary of Ecological Effects of the Proposed Development					
Resource/Receptor	Value	Potential effects and sensitivity	Mitigation	Residual Severity	Significance
		Collision of Shoveler with the proposed OHL	Mitigation by design – proposed OHL will be close to and alongside the existing.	During operation: only:	Negligible (not significant)
		Low sensitivity		Very Low	
		Collision of breeding and overwintering tufted duck with the proposed OHL:	Mitigation by design – proposed OHL will be close to and alongside the existing.	During operation: only: Very Low	Negligible (not significant)
		Low sensitivity			
		Collision of Curlew with the proposed OHL:	Mitigation by design – proposed OHL will be close to and alongside the existing.	During operation: only:	Negligible (not significant)
		Low sensitivity		Low	
		Collision of Lapwing with the proposed OHL:	Mitigation by design – proposed OHL will be close to and alongside the existing.	During operation: only:	Negligible (not significant)
		Low sensitivity		Low	
Malltraeth Marsh (Cors	National	Collision of Lapwing with the proposed OHL:	Mitigation by design – proposed OHL will be close to and alongside the existing.	During operation: only:	Negligible (not significant)
		Low sensitivity		Very Low	
<u>Cors Tregarnedd Fawr</u> CWS	County	Collision of Lapwing with the proposed OHL:	Mitigation by design – proposed OHL will be close to and alongside the existing.	During operation: only:	Negligible (not significant)
		Low sensitivity		Very Low	
		Collision of Black – headed gull with the proposed OHL:	Mitigation by design – proposed OHL will be close to and alongside the existing.	During operation: only:	Negligible (not significant)
		Low sensitivity		Low	
<u>Cemlyn NWWTR.</u>	County	Temporary disturbance and displacement of Black – headed gull:	CEMP measures in Section 9	During construction, maintenance and decommissioning:	Negligible (not significant)
		Low sensitivity		Low	
Overall Marine Ecologica	I Effects of the	Proposed Development	1	1	1
Menai Strait Conwy Bay SAC	International	Habitat loss and/or degradation Low sensitivity	Mitigation by design (DM) (Tunnel depth and tunnelling technique) and commitment CEMP Measures as identified in section 9 e.g. WE511 relating to the control of blowout.	During construction: Low	<b>Negligible</b> (Not significant)

Table 9.28 Summary of Ecological Effects of the Proposed Development						
Resource/Receptor	Value	Potential effects and sensitivity	Mitigation	Residu		
LLeyn Peninsular and the Sarnau SAC North Anglesey Marine cSAC West Wales Marine cSAC Cardigan Bay SAC	International	Displacement of individuals Low sensitivity Disorientation of individuals Low sensitivity	Mitigation by design (DM) (Tunnel depth- Policy Statement (NPS) EN-3 which states that a cable housed in a tunnel greater than 1.5m or more below the seabed should provide sufficient mitigation from the effects of EMF). CEMP measures NV33 relating to reduction in noise and vibration. CEMP measure BNC28 relating to the surveillance of marine mammals and setting up exclusion zones.	During Low		
Afon Gwyrfai a Llyn Cwellyn SAC: Atlantic salmon Otter	International	Habitat loss and contamination Low sensitivity Disturbance of individuals or direct effects Low sensitivity Disorientation of individuals Low sensitivity	Mitigation by design (DM) (Tunnel depth and tunnelling technique) and commitment to CEMP measures as identified in section 9 e.g. WE511 relating to the control of blowout. Mitigation by design (DM) (Tunnel depth- Policy Statement (NPS) EN-3 which states that a cable housed in a tunnel greater than 1.5m or more below the seabed should provide sufficient mitigation from the effects of EMF). CEMP measures NV32 relating to reduction in noise and vibration. CEMP measure BNC28 relating to deflecting fish away from noise injury zones.	During and op		
Porth Glannau SSSI	National	No potential effects.				
Priority intertidal habitats and species; Priority subtidal habitats and species;	National	Habitat loss and contamination Low sensitivity	Mitigation by design (DM) (Tunnel depth and tunnelling technique) and commitment to CEMP Measures as identified in section 9, e.g. WE511 relating to the control of blowout.	During Low		
Other intertidal habitats and species; and Other subtidal habitats and species	Local					

al Severity	Significance
operation:	<b>Negligible</b> (Not significant)
construction eration: <b>Low</b>	<b>Negligible</b> (Not significant)
construction:	<b>Negligible</b> (Not significant)

Table 9.28 Summary of Ecological Effects of the Proposed Development						
Resource/Receptor	Value	Potential effects and sensitivity	Mitigation	Residual Severity	Significance	
Shellfish	National	Habitat contamination Low sensitivity	Mitigation by design (DM) (Tunnel depth and tunnelling technique) and commitment to CEMP Measures as identified in section 9, e.g. WE511 relating to the control of blowout.	During construction: Low	<b>Negligible</b> (Not significant)	
Marine mammals	International	Disturbance of individuals Low sensitivity	Mitigation by design (DM) (Tunnel depth- Policy Statement (NPS) EN-3 which states that a cable housed in a tunnel greater than 1.5m or more below the seabed should provide sufficient mitigation from the effects of EMF). CEMP measures NV32 relating to reduction in noise and vibration and BNC28 relating to the surveillance of marine mammals and setting up exclusion zones.	During operation: Low	<b>Negligible</b> (Not significant)	
Migratory fish	International /National	Habitat loss and contamination <b>Low sensitivity</b> Disturbance of individuals <b>Low sensitivity</b> Disorientation of individuals	<ul> <li>Mitigation by design (DM) (Tunnel depth and tunnelling technique) and commitment to CEMP Measures as identified in section 9.</li> <li>Mitigation by design (DM) (Tunnel depth- Policy Statement (NPS) EN-3 which states that a cable housed in a tunnel greater than 1.5m or more below the seabed should provide sufficient mitigation from the effects of EMF).</li> </ul>	During construction: Medium/Low During operation: Low	Negligible/Minor Adverse (Not significant)	
Marine fish	National/ Local	Medium/Low sensitivity	CEMP measures NV32 relating to reduction in noise and vibration. BNC28 relating to deflecting fish away from noise injury zones.			

## References

Ref 9.1: IACC and Gwynedd Council (2017); Anglesey and Gwynedd Joint Local Development Plan 2011-2026

Ref 9.2: Scottish Natural Heritage (2016); 'Assessment and mitigation of impacts of power lines and guyed meteorological masts on birds (Version 1, July 2016)'. SNH guidance.

Ref 9.3: CIEEM (2016); Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, freshwater and coastal, 2nd Edition. Chartered Institute of Ecology and Environmental Management.

Ref 9.4: Elliott. M., Nedwell, S., Jones, N.V., Read, S.J., Cutts N.D. and Hemingway K.L. (1998); intertidal sand and mudflats and subtidal mobile sandbanks. An overview of dynamic and sensitivity characteristics for conservation management of marine SACs. Scottish Association for Marine Science Report.

Ref 9.5: Joint Nature Conservation Committee (2010) Handbook for phase 1 habitat survey – a technique for environmental audit. Joint Nature Conservation Committee, Peterborough.

Ref 9.6: Rodwell J.S. (2006) National Vegetation Classification: Users' Handbook, Joint Nature Conservation Committee.

Ref 9.7: Rodwell, J. S. (ed) British Plant Communities. Cambridge University Press.

Ref 9.8: Bickmore C.J. (2007). Hedgerow Survey Handbook: A standard procedure for local surveys in the UK, 2nd edition.

Ref 9.9: Oldham R. S., Keeble J., Swan M. J. S & Jeffcote M. (2000). Evaluating the suitability of habitat for the Great Crested Newt. Herpetological Journal 10 (4), 143-155.

Ref 9.10: Biggs J, Ewald N, Valentini A, Gaboriaud C, Griffiths RA, Foster J, Wilkinson J, Arnett A, Williams P and Dunn F (2014). Analytical and methodological development for improved surveillance of the Great Crested Newt. Defra Project WC1067. Freshwater Habitats Trust: Oxford.

Ref 9.11: English Nature (2001) Great Crested Newt Mitigation Guidelines.

Ref 9.12: Harris S, Cresswell P and Jefferies D (1989) 'Surveying Badgers' Mammal Society.

Ref 9.13: Chanin P (2003). Monitoring the Otter *Lutra lutra*. Conserving Natura 2000 Rivers Monitoring Series No. 10, English Nature, Peterborough.

Ref 9.14: Strachan, Moorhouse and Gelling (2011). The Water Vole Conservation Handbook (3rd edition).

Ref 9.15: The Mammal Society (2016) The Water Vole Mitigation Handbook. The Mammal Society Mitigation Guidance Series.

Ref 9.16: The Herpetological Conservation Trust (2007) National Amphibian and Reptile Recording Scheme Reptile Habitat Guide. Bournemouth.

Ref 9.17: Froglife (1999). Froglife Advice Sheet 10: reptile survey. Froglife, London.

Ref 9.18: Gent, A.H. & Gibson, S.D., eds (1998) Herpetofauna workers' manual. Peterborough. Joint Nature Conservation Committee.

Ref 9.19: Collins, J (ed.) (2016) Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd Edition). The Bat Conservation Trust, London.

Ref 9.20: British Standard (2015) Surveying for bats in trees and woodland – Guide BSI Standards Publication BS 8596:2015.

Ref 9.21: Gurnell J, Lurz P and Pepper H (2009). Practical Techniques for Surveying and Monitoring Squirrels. Forestry Commission, Surrey.

Ref 9.22: UK Butterfly Monitoring Scheme methodology. http://www.ukbms.org/methods.aspx.

Ref 9.23: Environment Agency (last issue: 2012) Freshwater macroinvertebrate sampling in rivers. Operational instruction 018\_08.

Ref 9.24: Environment Agency (last issue: 2014) Freshwater macro-invertebrate analysis of riverine samples. Operational instruction 024\_08.

Ref 9.25: Scottish Natural Heritage (2014) Guidance: Recommended bird survey methods to inform impact assessment of onshore wind farms.

Ref 9.26: Wyn, G., Brazier, D. P. and McMath, A. J. (2000). CCW handbook for marine intertidal Phase 1 survey and mapping. CCW Marine Sciences Report: 00/06/01.

Ref 9.27: Treweek J. (1999), Ecological Impact Assessment, Blackwell Science.

Ref 9.28: British Standards Institution (2013). BS 42020:2013 Biodiversity – Code of practice for planning and development. British Standards Institution, London.

Ref 9.29: McLeod, CR, Yeo, M, Brown, AE, Burn, AJ, Hopkins, JJ, & Way, SF (eds.) (2005) The Habitats Directive: selection of Special Areas of Conservation in the UK. 2nd edn. Joint Nature Conservation Committee, Peterborough. www.jncc.gov.uk/SACselection Ref 9.30: JNCC, Guidelines for selection of biological SSSIs, [Accessed: 1 December 2017].

Ref 9.31: Cambrian Ornithological Society (2016). Cambrian Bird Report 2015. CMP, Poole, Dorset.

Ref 9.32: Stevens, D.P., Smith, S.L.N., Blackstock, T.H., Bosanquet, S.D.S. and Stevens, J.P. 2010. Grasslands of Wales: A Survey of Lowland Species-rich Grasslands, 1987-2004. University of Wales Press, Cardiff.

Ref 9.33: Menter Mon (2017) The Water Vole Project. http://www.mentermon.com/water-vole-project.htm

Ref 9.34: Gwynedd Council (2004) Water Vole Species Action Plan. https://www.gwynedd.llyw.cymru/en/Council/Documents---Council/Strategies-and-policies/Environment-and-planning/Biodiversity/Species-Action-Plans/Water-Vole-SAP.pdf

Ref 9.35: Isle of Anglesey County Council (2017) Wildlife Highlights – Otter. <u>http://www.visitanglesey.co.uk/en/things-to-do/activities/wildlife-highlights-otter/#.WZGs0k2ovml</u>

Ref 9.36: Gwynedd Council (2004) Otter Species Action Plan. https://www.gwynedd.llyw.cymru/en/Council/Documents---Council/Strategies-andpolicies/Environment-and-planning/Biodiversity/Species-Action-Plans/Otter-SAP.pdf

Ref 9.37: Natural Resources Wales (2015) Otter Survey of Wales 2009-10 / Arolwg Dyfrgwn yng Nghymru 2009-10. Rob Strachan

Ref 9.38: ARUP (2012) Horizon Nuclear Power. Wylfa New Nuclear. Polecat Survey Report 2012. Ref No: 210623-02/REP/3.

Ref 9.39: ARUP (2013) Horizon Nuclear Power Wylfa Ltd – Wylfa New Nuclear Power Station – Freshwater Invertebrate Report 2012.

Ref 9.40: Robinson, JA, K Colhoun, JG McElwaine & EC Rees. 2004. Whooper Swan Cygnus cygnus (Iceland population) in Britain and Ireland 1960/61 – 1999/2000. Waterbird Review Series, The Wildfowl & Wetlands Trust/Joint Nature Conservation Committee, Slimbridge.

Ref 9.41: Musgrove A., Aebischer N., Eaton M., Hearn R., Newson S., Noble D., Parsons M., Risely K., & Stroud D. (2013) Population estimates of birds in Great Britain and the United Kingdom, British Birds, 106, 64-100.

Ref 9.42: Hall C., Crowe O., Mcelwaine G., Einarsson O., Calbrade N., Rees E. (2016) Population size and breeding success of the Icelandic Whooper Swan *Cygnus*: results of the 2015 international census, Wildfowl, 66, 75-97.

Ref 9.43: Brenchley, A., Gibbs, G, Pritchard, R. and Spence, I.M. (2013). The Breeding Birds in North Wales (2013). Liverpool University Press.

Ref 9.44: Fox, T., Francis, I., Norriss, D. and Walsh, A. (2016). Report of the 2015/2016 International Census of Greenland White-Fronted Geese. Final Report (October 2016) by Greenland White-Fronted Goose Study (c/o Department of Bioscience, Aarhus University, Kalø, Grenåvej 14, DK-8410 Rønde, Denmark) and National Parks and Wildlife Service (Department of the Arts, Heritage and the Gaeltacht, Wexford Wildfowl Reserve, North Slob, Wexford, Ireland).

Ref 9.45: Jones, P.H. and Whalley, P. (2004). Birds of Anglesey. Menter Mon, Llangefni. Referenced in The Breeding Birds of North Wales.

Ref 9.46: Holling, M. and the Rare Breeding Birds Panel (2016). Rare Breeding Birds in the United Kingdom in 2014. British Birds 109, September 2016: 491 – 545.

Ref 9.47: Jacobs (2013). Barn Owl (Tyto alba) Baseline Surveys 2013. Horizon Nuclear Power (Wylfa) Ltd.

Ref 9.48: Jacobs (2018) Wylfa Newydd Project: 6.4.45 ES Volume D – WNDA Development App D9-12 – Barn Owl Technical Summary Report. Horizon Nuclear Power.

Ref 9.49: NRA. (1993). Menai Strait Catchment Management Plan Consultation Report. National Rivers Authority report. 100pp.

Ref 9.50: CCW. (2009). Menai Strait and Conwy Bay European Marine Site comprising: Menai Strait and Conwy Bay Special Area of Conservation, Traeth Lafan Special Protection Area, Puffin Island Special Protection Area. Advice provided by the countryside council for wales in Fulfilment of Regulation 33 Of The Conservation (Natural Habitats, &C.) Regulations 1994. 74 pp.

Ref 9.51: Evans, P.G.H., James, K. and Lohrengel, K. (2015). Cetaceans in north Wales. Sea Watch Foundation Report. 35 pp.

Ref 9.52: Marine Scotland. (2015). Grey and harbour seal usage maps. 2015. [Online]. Available at:

http://www.gov.scot/Topics/marine/science/MSInteractive/Themes/seal-density (Accessed 2 February 2015).

Ref 9.53: Environment Agency (2010) Managing invasive non-native plants in or near fresh water.

Ref 9.54: Greenpeace (2005) 'Offshore wind: Implementing a new powerhouse for Europe, grid connection, environmental impact and political framework', Brussels, Belgium.

Ref 9.55: NPS-EN3 (2011). National Policy Statement for Renewable Energy Infrastructure (EN-3). Department of Energy and Climate Change report. The London Stationery Office. 82 pp.

Ref 9.56: Sutton MA, Howard CM, Erisman JW, Billen G, Bleeker A, Grennfelt P, van Grinsven H, Grizzetti B. 2013. The European Nitrogen Assessment: Sources, Effects and Policy Perspectives. Page 414. Cambridge University Press. 664pp. ISBN-10: 1107006120

Ref 9.57: CIRIA (2010) (CIRIA (2010) The Culvert Design and Operation Guide (C689).

Ref 9.58: Dean, M., Strachan, R., Gow, D. and Andrews, R. (2016). The Water Vole Mitigation Handbook (The Mammal Society Mitigation Guidance Series) Eds Fiona Mathews and Paul Chanin. The Ammal Society, London.

Ref 9.59 Russell L, Starnes T and Wilkinson J (2017). Spatial Action Plan for Great Crested Newts in Anglesey, A Manual for Achieving Favourable Conservation Status. NRW Science Report Series. Report 76 pp 69, NRW, Bangor

Ref 9.60: Langston, R.H.W. & Pullan, J.D. 2003 Windfarms and birds: an analysis of the effects of wind farms on birds, and guidance on environmental assessment criteria and site selection issues. Report T-PVS/Inf (2003) 12, by BirdLife International to the Council of Europe, Bern Convention on the Conservation of European Wildlife and Natural Habitats. RSPB/BirdLife in the UK.

Ref 9.61: Stroud, D.A., Chambers, D., Cook, S., Buxton, N., Fraser, B., Clement, P., McLean, I., Baker, H. and Whitehead, S. (2001). The UK SPA network: its scope and content. Three vols. JNCC, Peterborough, UK.

Ref 9.62: Natural England (2012). Great cormorant: species information for marine Special Protection Area consultations. Natural England Technical Information Note TIN140.

Ref 9.63: Thaxter, C.B., Lascelles, B., Sugar, K., Cook, A.S.C.P., Roos, S., Bolton, M., Langston, R.H.W., Burton, N.H.K. (2012). Seabird foraging ranges as a preliminary tool for identifying candidate Marine Protected Areas. Biological Conservation 156: 53–61.

Ref 9.64: Bright, J.A., Langston, R.H.W., Bullman, R., Evans, R.J., Gardner, S., Pearce-Higgins, J. and Wilson, E. (2008). Map of bird sensitivities to wind farms in Scotland: a tool to aid planning and conservation. Biological Conservation, 141, 2342–2356.

Ref 9.65: Palm, S., Dannewitz, J., Järvi, T., Koljonen, M-L., Prestegaard, T. and Håkan Olsén, K. (2014). No indications of Atlantic salmon (*Salmo salar*) shoaling with kin in the Baltic Sea. Canadian Journal of Fisheries and Aquatic Sciences, 2008, 65(8): 1738-1748.

Ref 9.66: Lacroix, G. L and McCurdy, P. (1996). Migratory behaviour of post-smolt Atlantic salmon during initial stages of seaward migration. Journal of Fish Biology 49 (6).1086-1101

Ref 9.67: Moore, A., Ives, S., Mead, T.A., and Talks, L. (1998). The migratory behaviour of wild Atlantic salmon (Salmo salar L.) smolts in the River Test and Southampton Water, southern Englnd. Hydrobiologia 271/371: 295-304.

Ref 9.68: Thorstad E. B., Whoriskey F., Uglem, I., Moore, A., Rikardsen, A. H. and Finstad, B. (2012). A critical life stage of the Atlantic salmon Salmo salar: behaviour and survival during the smolt and initial post-smolt migration. Journal of Fish Biology 81, 500–542.

Ref 9.69: Chaput, G. (2012). Overview of the status of Atlantic salmon (Salmo salar) in the North Atlantic and trends in marine mortality. ICES Journal of Marine Science 69. (9). 1538–1548.

Ref 9.70: Nedwell, J., Turnpenny, A., Langworthy, J. and Edwards, B. (2003). Measurements of underwater noise during piling at the Red Funnel Terminal, Southampton, and observations of its effect on caged fish. Subacoustech Report Reference 558 R 0207. 35pp.

Websites

Gwynedd Council: <u>https://www.gwynedd.gov.uk/en/Council/Strategies-and-policies/Environment-and-planning/Planning-policy/Joint-Local-Development-Plan.aspx</u>.

Isle of Anglesey County Council: <u>http://www.anglesey.gov.uk/planning-and-waste/planning-policy/joint-local-development-plan-anglesey-and-gwynedd/</u>

International Union for Conservation of Nature (IUCN) Red List (also known as the Red List of Threatened Species) <u>http://www.iucnredlist.org/</u> (accessed May 2018)

http://www.emfs.info/sources/overhead/specific/400-kv/

http://magic.defra.gov.uk/

http://greenlandwhitefront.org/

http://monitoring.wwt.org.uk/publications/

http://jncc.defra.gov.uk/smp/

http://monitoring.wwt.org.uk/publications/