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Environmental Statement Document 5.23 Habitat Regulations Assessment Report

National Grid (North Wales Connection Project)

Regulation 5(2)(g) of the Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009



North Wales Connection Project

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1 Introduction

1.1 INTRODUCTION

- 1.1.1 This Habitat Regulations Assessment (HRA) Report has been prepared under The Conservation of Habitat and Species Regulations 2017 (Ref 1.1) which transposes the requirements of Article 6(3) of the Habitats Directive (92/43/EEC) (Ref 1.2). This HRA report is provided by National Grid in support of the application for a Development Consent Order (DCO) for the North Wales Connection Project (referred to hereinafter as the 'Proposed Development').
- 1.1.2 A draft of this report was initially prepared and issued to stakeholders to help inform Statements of Common Ground (SoCG) prior to publication of the Court of Justice of the European Union's ruling on Case C323/17 (People over Wind, Peter Sweetman v Coillte Teoranta). This ruling has resulted in a fundamental change to the approach previously taken in respect of the use of avoidance and reduction measures when screening for likely significant effects and therefore whether it is necessary to undertake appropriate assessment. In the draft of this report it had been possible to identify avoidance and reduction measures to address all likely significant effects, and the report was therefore issued in the form of a "No Significant Effects Report". However, following this ruling a number of potential effects that would previously have been screened out have been taken through to Appropriate Assessment stage. As such this report is now issued as a "Habitat Regulations Assessment Report".

1.2 PROPOSED DEVELOPMENT NEED

- 1.2.1 The UK is facing a major challenge to meet projected energy needs over the coming decades, whilst at the same time tackling climate change. A significant challenge for National Grid and the UK energy industry is to deliver low carbon energy in an affordable, secure and sustainable way.
- 1.2.2 The majority of electricity is currently generated by burning gas or coal or by the use of nuclear power stations or renewable generation such as solar and wind. However, there is potential for around 20 per cent of generating capacity to be removed from the electricity transmission network by 2020, as a proportion of existing power stations close because they have reached the end of their operating lives or are unable to meet the requirements of climate

change legislation. This means that a major investment in new electricity generation is needed to replace power stations due for closure and to meet future energy demand.

- 1.2.3 Under the Climate Change Act 2008 (Ref 1.3), the UK government is committed to reducing CO_2 emissions by at least 80% of 1990 levels by 2050.
- 1.2.4 The UK energy market therefore needs to supply electricity from renewable sources such as wind power, and also from nuclear power, to help tackle climate change and enable the country to meet its national and international obligations. The introduction of new wind and nuclear power generation over the next few years will require the reinforcement and extension of the existing electricity transmission system.
- 1.2.5 National Grid has a statutory duty to promote competition in the supply of electricity and is obliged to offer a connection to the system to anyone who applies for a connection (a 'customer'). Horizon Nuclear Power (HNP) has applied to National Grid to connect their proposed new nuclear power station (2940 MW) at Wylfa on Anglesey (referred to hereafter as Wylfa Newydd Power Station) to the national transmission system. The proposed Wylfa Newydd Power Station would be within a site already identified for this type of development in the UK government's National Policy Statement (NPS) EN-6 'Nuclear Power Generation' (Ref 1.4).
- 1.2.6 National Grid owns and operates an existing substation at Wylfa, which the proposed Wylfa Newydd Power Station would connect to. This substation is connected to the main transmission system on the mainland in North Wales via a 400 kV overhead electricity line, connecting at the existing National Grid substation at Pentir, Gwynedd.
- 1.2.7 In addition to the Wylfa Newydd Power Station, National Grid has signed connection agreements to connect a further five 'customers' with proposed generation projects in North Wales; a total of 5,419 MW. Further details are provided in the Need Case (**Document 7.1**).
- 1.2.8 National Grid assessed whether there was sufficient capacity available in the existing transmission system in North Wales to accommodate the changes resulting from new customer connections. From the assessment, National Grid forecasted that without reinforcement, the transmission system would not be compliant with the National Electricity Transmission System Security and Quality of Supply Standard (NETS SQSS) (Ref 1.5) from 2026 onwards. The NETS SQSS is a document that sets out certain criteria with which National Grid must comply in planning, developing and operating the transmission system. To ensure compliance a second 400 kV connection is

required between the Wylfa and Pentir Substations. Further details about the need for this second connection are set out in full in the North Wales Connection Project, Project Need Case (**Document 7.1**).

1.3 THE PROPOSED DEVELOPMENT

- 1.3.1 The Proposed Development would provide a new 400 kilovolt (kV) connection between the existing substations at Wylfa and Pentir and includes the following principal components:
 - Extension to the existing substation at Wylfa;
 - Sections of new 400 kV overhead line (OHL) between Wylfa substation and Braint Tunnel Head House (THH) and Cable Sealing End Compound (CSEC) on Anglesey including modifications to parts of the existing 400 kV OHL between Wylfa and Pentir;
 - Braint THH and CSEC on Anglesey;
 - Tunnel between Braint and Tŷ Fodol THHs;
 - Tŷ Fodol THH and CSEC in Gwynedd;
 - New section of 400 kV OHL between Tŷ Fodol THH and CSEC and Pentir Substation;
 - Extension to the existing substation at Pentir; and
 - Temporary construction compounds, access tracks, construction working areas, localised widening of the public highway and third party works required to construct the infrastructure listed above.
- 1.3.2 A more detailed description of the Proposed Development is provided in Section 4 Description of the Proposed Development and Section 5 Construction, Operation, Maintenance and Decommissioning.

1.4 POLICY CONTEXT

National Policy Statements

- 1.4.1 The Overarching NPS for Energy (EN-1) (Ref 1.6) and NPS for Electricity Networks Infrastructure (EN-5) (Ref 1.7) were adopted by Parliament in July 2011. The following section provides details of the elements of NPS EN-1 and NPS EN-5 that are relevant to this HRA Report.
- 1.4.2 The Overarching NPS for Energy (EN-1) is part of a suite of NPSs laid before Parliament for approval by the Secretary of State (SoS) for Energy

and Climate Change. This NPS (EN-1) approved by Parliament on 18th July 2011, makes specific reference to the need for transmission infrastructure to evolve, paragraph 3.7.2 states that:

1.4.3 Paragraph 3.7.3 goes on to say:

"It is important to note that new electricity network infrastructure projects, which will add to the reliability of national energy supply, provide crucial national benefits, which are shared by all users of the system."

1.4.4 The NPS states that a smarter electricity grid will be needed to support a more complex system of electricity supply and demand with generation occurring in a greater diversity of locations. Paragraph 3.7.7 states:

".....Accordingly, new lines will have to be built, and the location of renewable energy sources and designated sites for nuclear power stations makes it inevitable that a significant proportion of those new lines will have to cross areas where there is little or no transmission infrastructure at present, or which it may be claimed should be protected from such intrusions. The urgency of need for new generating capacity means that the need for new transmission infrastructure that is required to connect that capacity will be similar."

1.4.5 Part 4 of EN-1 sets out the general policies in accordance with which applications relating to energy infrastructure are to be decided. Paragraphs 4.1.3 and 4.1.4 state that:

"In considering any proposed development, and in particular when weighing its adverse impacts against the benefits, the IPC 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 of environmental, social and economic benefits and adverse impacts, at national, regional and local levels...."

1.4.6 Paragraph 4.1.5 references development plan policies as being 'other matters' which could potentially be taken into account by the relevant decision making authority in determining a DCO application. Paragraph 4.1.5 states that:

"... matters that the IPC may consider both important and relevant to its decision-making may include Development Plan Documents and other documents in the Local Development Framework. In the event of a conflict between these or any other documents and an NPS, the NPS prevails for purposes of IPC decision making given the national significance of the infrastructure."

- 1.4.7 The NPS for Electricity Networks Infrastructure (EN-5) provides specific guidance relevant to 'electricity networks infrastructure'.
- 1.4.8 This NPS highlights that transitioning electricity generation infrastructure in the UK to a low carbon economy, whilst maintaining security of supply, will be dependent on the availability of a reliable electricity network. Paragraph 2.2.2 states that:
- 1.4.9 "The general location of electricity network projects is often determined by the location, or anticipated location, of a particular generating station and the existing infrastructure taking electricity to centres of energy use. This gives a locationally specific beginning and end to a line. On other occasions the requirement for a line may not be directly associated with a reinforcement of the network. In neither circumstance is it necessarily the case that the connection between the beginning and end points should be via the most direct route (indeed this may be practically impossible), as the applicant will need to take a number of factors, including engineering and environmental aspects, into account."
- 1.4.10 Paragraph 2.8.9 goes onto state that:

"The impacts and costs of both overhead and underground options vary considerably between individual projects (both in absolute and relative terms). Therefore, each project should be assessed individually on the basis of its specific circumstances and taking account of the fact that Government has not laid down any general rule about when an overhead line should be considered unacceptable. The IPC should, however only refuse consent for overhead line proposals in favour of an underground or sub-sea line if it is satisfied that the benefits from the non-overhead line alternative will clearly outweigh any extra economic, social and environmental impacts and the technical difficulties are surmountable."

Planning Policy Wales (Edition 9)

1.4.11 The Welsh Government (2016) Planning Policy Wales (Edition 9) (Ref 1.8) sets out the land use planning policies of the Welsh Government and is supplemented by a series of Technical Advice Notes (TANs). Paragraph 4.4.3 of Planning Policy Wales states that planning policies and proposals should:

".....support the need to tackle the causes of climate change by moving towards low carbon economy. This includes facilitating development that reduces emissions of greenhouses gases in a sustainable manner, provides for renewable and low carbon energy sources at all scales and facilitates low and zero carbon development."

1.4.12 The Welsh Government's objectives are to promote the generation of energy from renewable and low carbon energy sources for all developments in order to meet national targets. The proposed Wylfa Newydd Power Station supports these objectives as a low carbon energy source.

Marine Policy Statement and Marine Plans

- 1.4.13 The Marine and Coastal Access Act 2009 (Ref 1.9) introduced marine planning, with the aim of ensuring a sustainable future for seas around the UK. The first step in marine planning was the development of The UK Marine Policy Statement (Ref 1.10). The UK MPS was adopted in March 2011 and sets the framework and high level policy context for the marine planning system, in order to deliver the UK Government's vision of "clean, healthy, safe, productive and biologically diverse oceans and seas". The UK MPS sets policy objectives for key offshore activities, and provides the context and considerations that should be taken into account in the next stage of marine planning (regional level inshore and offshore Marine Plans).
- 1.4.14 In Wales, marine planning is being taken forward by the Welsh Assembly Government. Marine Plans aim to inform and guide decisions by regulators

managing the development of industry in marine and coastal areas, while conserving and enhancing the environment. The Initial draft of The Welsh National Marine Plan (Ref 1.11) was published in November 2015 and is of relevance to the intertidal elements of the Proposed Development.

1.5 REQUIREMENT FOR A HABITAT REGULATIONS ASSESSMENT

Legislative Requirement

1.5.1 European Directive 92/43/EEC on the 'Conservation of Natural Habitats and Wild Fauna and Flora', referred to as the 'Habitats Directive', and Council Directive 2009/147/EC (Birds Directive) the Conservation of Wild Birds (the codified version of Council Directive 79/409/EEC on the conservation of wild birds) (Ref 1.12), provide legal protection for habitats and species of European importance. Article 2 of the European Directive 92/43/EEC requires the maintenance or restoration of habitats and species of European Community interest, at a favourable conservation status. Articles 3 - 9 provide the legislative means to protect habitats and species of Community interest. In particular, Article 6 (3) of the Directive states:

"Any plan or project not directly connected with, or necessary to, the management of the [European] site, but likely to have a significant effect thereon, either individually or in combination with other plans or projects, shall be subject to appropriate assessment of its implications for the site in view of the site's conservation objectives".

- 1.5.2 These directives are transposed into domestic law by the Conservation of Habitats and Species Regulations 2017 (England and Wales) (as amended).
- 1.5.3 The Regulations enable the protection of sites that host habitats and species of European Importance. These sites are listed below and are collectively referred to as Natura 2000 Sites;
 - Special Area of Conservation (SAC);
 - Special Protection Area (SPA); and
 - Ramsar Sites.

Special Areas of Conservation

1.5.4 Special Areas of Conservation (SAC) are high quality conservation sites that have been given strict protection under the European Habitats Directive (92/43/EEC). These important sites are selected to conserve rare and vulnerable animals, plants and habitats (excluding birds) that are listed in Annexes I and II of the Directive (as amended).

Special Protection Areas

- 1.5.5 Special Protection Areas (SPA) are strictly protected sites that have been implemented to protect rare and vulnerable bird species and their habitats. They are classified in accordance with the Council Directive 2009/147/EC (Birds Directive) the Conservation of Wild Birds (the codified version of Council Directive 79/409/EEC on the conservation of wild birds) and aim to safeguard bird species and populations that are listed in Annexes I and II of the Directive.
- 1.5.6 Part II, Paragraph 10 of The Conservation of Habitat and Species Regulations 2017 (England and Wales) provides a definition of the term "European Site" which it identifies as including SAC and SPA sites, as well as candidate/proposed sites (cSAC and pSPA) which are being consulted on or are pending a European Commission decision. However, the Habitats Regulations do not provide statutory protection for pSPAs or to cSACs before they are agreed with the European Commission. For the purpose of considering development proposals and their likely impacts on such sites, as a matter of policy, the UK Government wishes those pSPAs and cSACs that have been included in a list sent to the European Commission, to be considered in the same way as if they have already been classified or designated.

<u>Ramsar</u>

1.5.7 Ramsar sites are wetlands of international importance that have been designated under the Ramsar Convention (1971) (Ref 1.13). Sites are selected for their international significance relating to all ecology, botany, zoology, limnology or hydrology wetland components. The designation recognises the importance of wetlands as economic, social and environmental entities and the need to conserve them.

HRA within the Planning Act 2008 (Ref 1.13)

1.5.8 Certain nationally important infrastructure projects (NSIPs) require consent, under the Planning Act 2008; this takes the form of a DCO. The 2017 Habitat Regulations apply equally to NSIPs and therefore require the competent authority (in this case the Secretary of State) before authorising a project likely to have a significant effect on a Natura 2000 sites and Ramsar sites (referred to collectively hereafter as 'Natura 2000 sites'), to make an 'appropriate assessment' of the implications for that site in view of the site's conservation objectives. In order for the competent authority to be able to confirm whether there is likely to be a significant effect on a European Site, and therefore whether they need to make an appropriate assessment, the applicant must provide the competent authority with such information as the

competent authority may reasonably require to make a determination; this stage is referred to as screening.

- 1.5.9 This HRA Report details the work that has been undertaken to determine if the Proposed Development is likely to either have significant effect or an adverse effect on site integrity. In order to fulfil the screening requirements the HRA Report identifies the Natura 2000 sites that may be affected by the Proposed Development and their interest features and conservation objectives; it then provides sufficient information to demonstrate whether the Proposed Development is likely to have significant effects on the interest features and conservation objectives of the Natura 2000 sites, either alone or in combination with other plans and projects. (N.B. Interest features include other Annex I or Annex II species present on the sites but not as a qualifying feature for site selection)
- 1.5.10 The screening work undertaken has demonstrated that there would be potential for likely significant effects on some of the Natura 2000 sites and, as such, this report takes the form of a "Habitat Regulations Assessment (HRA) report" (as defined within the Planning Inspectorate's Advice Note 10: Habitat Regulation Assessment (Ref 1.14)). Screening Matrices for each of the individual sites have been prepared, following the example provided in Appendix 1 of Advice Note 10: Habitat Regulations Assessment; copies of these screening matrices are provided in Appendix 1 (**Document 5.23.2.1**).
- 1.5.11 Where a likely significant effect on a designated site cannot be discounted it has been carried forward to assess whether the effects identified from the Proposed Development would adversely affect the integrity of the site in view of its conservation objectives. Integrity Matrices have been prepared for each of the individual sites where a likely significant effect cannot be discounted, following the example provided in Appendix 2 of Advice Note 10: Habitat Regulations Assessment; copies of these integrity matrices are provided in Appendix 2 (**Document 5.23.2.2**).

1.6 CONSULTATION ON THE HRA

1.6.1 Section 42 of the Planning Act 2008 places a statutory duty on applicants to undertake pre-application consultation (Stage 3 Consultation) with a wide range of prescribed bodies. Under The Infrastructure Planning (Environmental Impact Assessment) Regulations 2009 (as amended) (Ref 1.14), there is a requirement to publish Preliminary Environmental Information to help inform this statutory consultation. For the Proposed Development this information was provided in the form of a Preliminary Environmental Information Report (PEIR) (Ref 1.15). Of the responses received during the Stage 3 Consolation, a number referenced HRA

matters. A draft of this HRA was not available at the time of the Stage 3 Consultation; however a meeting and site visit were held with Natural Resources Wales (NRW) on 11 July 2017 to outline the proposed HRA methodology, to set out work done to date and to outline the next steps.

- 1.6.2 Subsequent to the Stage 3 Consultation a draft No Significant Effects Report (NSER) was provided to NRW, Isle of Anglesey County Council (IACC) and Gwynedd Council. Since comments were received on the draft NSER a decision at the Court of Justice of the European Union (CJEU) 'People Over Wind' ruled that mitigation cannot be taken into account when considering the screening test for Likely Significant Effects. As such this report now takes the form of a Habitat Regulations Assessment Report.
- 1.6.3 Table 1.1 below summarises the responses and explains how comments received have been addressed.

Table 1.1 Summary of Consultation Responses			
Consultee and Section Reference	Summary of Response	How it has been addressed	
Responded unde	er Section 42 for Stage 3 Statutory Consultation		
National Resource Wales	Ecology and Nature Conservation – The proposal as identified in the PEIR has possible implications for both European and National Protected Sites. The ES needs to identify and assess all possible impact pathways and where impacts are considered likely, full details of the appropriate mitigation and/or compensation measures that are included as part of the proposal need to be provided in the ES. At this stage we are not able to confirm if the proposal is likely to have a significant effect on protected sites. We recommend that National Grid scope the HRA with us at the earliest convenience.	Further meetings have been held with NRW to help define the scope of work undertaken in relation to HRA. This report considers all potential impact pathways and mitigation measures. Compensation measures are not identified as they are not considered to be requited. Please see response to detailed comments provided below.	
2 Ecology and Nature Conservation: <i>Protected Sites</i> <i>Habitat</i> <i>Regulation</i> <i>Assessment</i>	As the proposal has possible implications for Special Areas of Conservation (SAC), Special Protection Areas (SPA) and Ramsar sites, the Secretary of State (SoS) will need to carry out a test of likely significant effects (either alone or in-combination) under Regulation 61 of the Conservation of Habitats and Species Regulations 2010 (as amended) before determining the Order. If that assessment concludes there is likely to be a significant effect, we can advise on the further, appropriate assessment that would be required under the Regulations.	This report has been prepared to assist the Secretary of State to carry out an Appropriate Assessment.	

Table 1.1 Summary of Consultation Responses			
Consultee and Section Reference	Summary of Response	How it has been addressed	
(HRA)	To support the assessment under the Conservation of Habitats and Species Regulations, the ES will need to identify all potential impact pathways for European protected sites and clearly assess the possible levels of impact. Where impacts are likely the submission needs to provide full details of the appropriate mitigation measures that are included to address the identified impacts. NRW can provide further advice with regard to predicted impacts or on the suitability of mitigation measures once full and detailed designs are available.	The requirement to comply with the Habitats Regulations was identified at the commencement of the design process. This requirement has been taken into account during the design process to avoid potential impacts. This report is consistent with the Environmental Statement (ES) (Documents 5.1 - 5.22), but provides a standalone assessment to clearly demonstrate compliance with the Regulations. It has been based upon a review of all available survey data, detailed desk study and assessment of potential pathways and mechanisms. Pre-application discussions have been held with NRW.	
	We note that Chapter 8, paragraph 6.3.7 confirms that the ES will be	This report has been prepared to	

Table 1.1 Summary of Consultation Responses			
Consultee and Section Reference	Summary of Response	How it has been addressed	
	supported by information to inform a HRA to an agreed scope with NRW in respect of the Corsydd Mon Special Area of Conservation (SAC) and where relevant other European Wildlife Sites.	fulfil the agreed scope up to screening of the HRA, based on discussions held with NRW. The report considers the Corsydd Mon SAC as well as other Natura 2000 sites agreed with NRW.	
	NRW advise National Grid to consult with NRW on the scope and preparation of the HRA report at the earliest convenience.	Pre-submission discussions have been held with NRW to agree the scope of the HRA.	
Protected Species European Protected Species Licence	 Where a European Protected Species is likely to be affected, a development may only proceed under licence issued by NRW having satisfied the derogation provisions of Article 16 of the Habitats Directive. The relevant Article 16 derogation in respect of development is: Evidencing an appropriate derogation purpose Demonstrating no satisfactory alternatives; Demonstrating no likely detriment to the maintenance of the favourable conservation status of each local population of EPS 	No response required	
Biosecurity	We note that PEIR Appendix 4.2 Draft CEMP includes details of Biosecurity control at section 2.8. The details confirm that general techniques will be employed to avoid the spread of invasive non-native species (INNS) during	Section 10 of the Construction Environmental Management Plan (CEMP) (Document 7.4) requires	

Table 1.1 Summary of Consultation Responses			
Consultee and Section Reference	Summary of Response	How it has been addressed	
	construction. We acknowledge that the National Grid intend to provide further details with regards to Biosecurity Control within an INNS Method Statement which needs to be included within the ES. We advise that any subsequent biosecurity risk assessment also includes consideration for non-native flora, fauna and identified diseases e.g. Phytopthora, Chytrid Fungus and Chalara. This information is also required to inform the HRA.	an invasive non-native species method statement (INNSMS) to be produced and sets out the specific controls that need to be included in the INNSMS. The CEMP is secured by Requirement 6 of the draft DCO (Document 2.1).	
Significance of the road in combination and cumulatively	As part of the EIA, a cumulative assessment is required. For both Natura 2000 sites and SSSIs this is essentially similar to the further check described in the in combination assessment above. It can be completed at the same time as the in combination assessment. The models used to undertake the air quality assessments will need to include the final design details and a more accurate reflection of the Proposed Activities, prior to completion of the ES and HRA.	Cumulative effects on Natura 2000 sites are reported in both this HRA Report and in section 10 of ES Chapter 9 Ecology and Nature Conservation (Document 5.9).	
Isle of Anglesey County Council Ecology And	The PEIR confirms that a tunnelled solution is being taken forward for the crossing of the Menai Strait; overall this avoids many ecological impacts, including those that could affect the SAC. However, there are still potential impacts associated with the construction of a tunnel. In the absence of suitable mitigation, adequately demonstrated by a project level Habitats	Potential effects on Annex 1 and other features as a consequence of tunnel construction have been addressed in ES Chapter 9 Ecology and Nature Conservation	

Table 1.1 Summary of Consultation Responses			
Consultee and Section Reference	Summary of Response	How it has been addressed	
Nature Conservation (Chapter 8) 10.1 Menai Strait & Conwy Bay SAC	Regulation Assessment (HRA), there is a risk that these impacts could have a significant adverse effect on this internationally important site, notably the Annex 1 habitats present such as marine reefs. At this stage, the PEIR includes no detailed mitigation measures for the SAC; whilst the PEIR states that the predicted magnitude of effect is very low, until proposals are developed further this cannot be confirmed. It should be noted that no draft HRA has been included with the PEIR information pack. The Council would expect to receive a draft of this document when available and consult with Natural Resources Wales to ensure mitigation measures set out are adequate. The Council expects that an appropriate assessment will be required.	 (Document 5.9). Potential effects on Annex 1 and other features as a consequence of tunnel construction are addressed in the EIA and in this HRA Report. Where mitigation is required, further information is provided. A draft of both ES Chapter 9, Ecology and Nature Conservation (Document 5.9) and also this HRA Report (Document 5.23) were provided to IACC, Gwynedd Council and NRW in February 2018. 	
10.2 Anglesey Fens SAC	The PEIR indicates that, in the absence of mitigation, a range of adverse/negative impacts could occur to the Anglesey Fens SAC, including direct habitat loss and changes to hydrology. Baseline surveys are ongoing and no detailed results are presented in the PEIR to allow full risk quantification. In the absence of suitable mitigation, adequately demonstrated by a project level Habitats Regulation Assessment (HRA).	Through design iteration to avoid potential impacts (e.g. reduction of the Order Limits and limitation of works that can be undertaken), and through further investigation and assessment it has been	

Table 1.1 Summary of Consultation Responses			
Consultee and Section Reference	Summary of Response	How it has been addressed	
	there is a risk that these impacts could have a significant adverse effect on this internationally important site on Anglesey.	demonstrated that there would be no adverse effect on the site integrity of Anglesey Fens SAC (or any other Natura 2000 site) through habitat loss or changes to hydrology.	
	It is understood from conversations with National Grid's representative during the site visit on 13th October 2016 that direct impacts are likely to be limited to tree pruning, but this needs confirmation along with detailed proposals as to how hydrological impacts will be avoided during the construction of the OHL near the SAC. It should be noted that no draft HRA has been included with the PEIR information pack. The IACC would expect to see the draft of this document when available in order to consult with Natural Resources Wales (NRW) to ensure the mitigation measures set out are adequate. There must be no significant negative effect on the integrity of the SAC as a result of this project, either alone or in combination.	This HRA Report confirms that there are is no potential for an adverse effect on site integrity either alone or in combination.	
NRW Response	to HRA Meeting and Site Visit 11 July 2017		
	Further to the meeting that took place on the 11th July 2017 where we were provided with a presentation on the Habitats Regulation Assessment (HRA) for the National Grid North Wales Connection Project and the subsequent	No response required	

Table 1.1 Summary of Consultation Responses			
Consultee and Section Reference	Summary of Response	How it has been addressed	
	site visit that took place in the afternoon to the areas within Section C where the Order Limits either extend into or borders the Anglesey Fens SAC and Anglesey and Llyn Fens Ramsar, we have now had the opportunity to review the content of the presentation.		
	We note that the assessment work is ongoing and therefore elements of the conclusions reached to date may be subject to change.	No response required	
	In terms of the proposed works in Section C that has the likely potential to effect the features of the Corsydd Mon SAC and Corsydd Mon and Llyn Ramsar, as identified in the presentation there are eight areas within Section C where the Order Limits extends or border these designations for drainage mitigation and one area which is in the order limits because it is over sailed by the conductors. We note that these sites are automatically screened in stage 1b as all sources/causes of an effect and pathways and mechanisms to effect the individual interest features need to be identified.	No response required	
	The presentation confirms that 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 into a perimeter drain. We note (HRA presentation page 11) that a Drainage Management Plan and a site specific drainage management plan for any temporary outfalls into the parameter drain, is to be agreed with NRW prior to commencement of works and will form a	The proposed drainage has been considered in more detail since the meeting of 11 th July 2017, and this is reported in both Chapters 9 and 12 of the ES (Document 5.9 and Document 5.12 respectively) and	

Table 1.1 Summary of Consultation Responses			
Consultee and Section Reference	Summary of Response	How it has been addressed	
	requirement of the draft DCO. NRW confirmed during the site visit and in our email dated 22nd September 2017, that summarised our recommendations following the site visit, that it is essential that the proposed site specific drainage scheme is based on a sound understanding of the existing drainage pathways within/adjacent the protected site areas. This is to ensure that the proposed drainage scheme does not have an adverse effect on the site features. We will be seeking for the ES to confirm the principles of the proposed site specific drainage scheme and this will be required to inform the HRA process.	is addressed in section 8 of the CEMP (Document 7.4).	
	We are satisfied that the sources of possible effects have been identified (page 13 of presentation) as well as the pathways of possible effects (presentation pages 15-35).	Noted	
	We note that summary of the Screening Stage 1bB and are satisfied with the sites screened in and out at Stage 1bB.	Noted	
	In terms of the mechanisms and pathways identified in stage 1b we are satisfied that all potential mechanisms and pathways have been identified.	Noted	
	We are satisfied with the Sites and Interest Features that are to be taken through to Screening Stage 1C. We would wish to see this screening assessment at the earliest convenience.	The screening assessment was provided to NRW in the form of a draft No Significant Effects Report (NSER).	

Table 1.1 Summary of Consultation Responses		
Consultee and Section Reference	Summary of Response	How it has been addressed
	At the meeting on the 11 July 2017, you asked for our views as to how many birds make an assemblage. We will address this matter in a separate email to you.	An email was received (see below), however this stated that, "there is no clear guidance (in the absence of specific conservation objectives) and each case will have to be judged on its merits, considering the likely effect of a proposal on the components of an assemblage".
	As discussed last week, following the site visit in July to Cors Erddreiniog, located within Section C of the proposed project, we set out below our recommendations following the site visit and our review of HRA presentation.	No response required
	The HRA presentation (page 10) confirms that there are 8 areas within Section C where the Order Limits either extend into or border the Anglesey Fens SAC and Anglesey and Llyn Fens Ramsar and confirms the existing flows and field drains in these sections.	No response required
	The presentation confirms that there may be a need to convey flows into perimeter drains by means of a temporary outfall.	No response required
	We summarise below our recommendations in terms of developing your	With respect to the proposal to

Table 1.1 Summary of Consultation Responses			
Consultee and Section Reference	Summary of Response	How it has been addressed	
Reference	 specific drainage proposals in this area; We recommend that the construction of swales/wetlands/reed beds are explored further, in particular in areas where there is an existing drainage problem, such as areas where water enriched with nitrates from agricultural fields is entering the protected site and causing enrichment. We would welcome that these drainage features are permanent and are offered as enhancement measures once construction has ceased and the access tracks removed. We note (HRA presentation page 11) that a Drainage Management Plan and a site specific drainage management plan for any temporary outfalls into the parameter drain, is to be agreed with NRW prior to commencement of works and will form a requirement of the DCO. NRW confirmed that it is essential that the proposed site specific drainage pathways within/adjacent the protected site area. This is to ensure that the proposed site area. 	leave drainage features in place, this is not considered necessary in order to address likely significant effects of the Proposed Development. Enhancement measures are set out in the Enhancement Strategy (Document 7.13) The principles of the temporary site drainage areas are outlined in section 8 (Drainage Management) of the CEMP (Document 7.4), which includes methods proposed to prevent either increased flow or increased sediment entering the designated site	
	features. We will be seeking for the ES to confirm the principles of the proposed site specific drainage scheme and this will be required to inform the HRA process.	uesignaleu sile.	
	- We note that surface water and siltation methods will be implemented to prevent both increased flow or silt laden runoff from entering the		

Table 1.1 Summary of Consultation Responses			
Consultee and Section Reference	Summary of Response	How it has been addressed	
	designated site.		
	Please find attached two plans. One plan identifies the locations of our most recent SAC NVC Monitoring locations and confirms that monitoring locations 11, 28 and 29 are in unfavourable condition due to nutrient enrichment induced impacts. The second plan identifies the locations where we consider that further consideration should be given to the construction of wetlands/swales/reed beds as part of the drainage scheme in this area.	No response required.	
NRW Email Response to bird assemblages 04 January 2018			
	NRW considers that the relevant species of the assemblage requiring substantive assessment as part of the HRA are the "main components" - In this case, common scoters, red-throated divers, little gulls, red-breasted merganser and great cormorant.	All of these main components are taken into consideration in both Chapter 9 of the ES (Document 5.9) and also in this HRA Report.	
	Unfortunately, as discussed in our meeting in mid November, with regard to the minimum numbers or proportion of each, there is no clear guidance (in the absence of specific conservation objectives) and each case will have to be judged on its merits, considering the likely effect of a proposal on the components of an assemblage.	The assessment presented in Chapter 9 of the ES (Document 5.9) and also in this HRA Report has been based upon professional judgement regarding the components of an assemblage.	

Table 1.1 Summary of Consultation Responses			
Consultee and Section Reference	Summary of Response	How it has been addressed	
IACC & Gwynedd	Council Draft DCO Environmental Statement Review, Batch 3 Documents, 14	4 March 2018	
Headline Response to Batch 3	IACC considers that the No Significant Effects Report appears to be lacking in some areas and incorrect in others, for example the approach to in- combination assessment appears incorrect, relying on spatial overlap only between projects.	Section 8 of this report considers whether there is a spatial overlap of the study areas (zones of influence) for Natura 2000 sites between the Proposed Development and the other developments considered in the in- combination assessment.	
Annex 2 Document 5.23 No Significant Effects Report (NSER) Overall conclusion of factual assessment:	IACC: As this is the first opportunity IACC has been offered to comment on the NSER, it is suggested that discussion is had with NRW who have previously commented on drafts of this document to explore any areas of joint concern before completing the SoCG process.	Noted	
	IACC: In general, the NSER covers the range of European Sites expected, using zones of influence that appear adequate for the receptors present.	Noted	
	IACC: The methodology for assessing NSE appears adequate, following accepted guidance for this type of assessment.	Noted	
	IACC: There are a number of potential inconsistencies and applications of approach in places where specific comments have been made.	The draft document has been updated to remove potential	

Table 1.1 Summary of Consultation Responses			
Consultee and Section Reference	Summary of Response	How it has been addressed	
		inconsistencies and applications of approach.	
	IACC: Embedded mitigation is presented, but lack details in key areas, notably the Drainage Management Plan and associated information that will be required to ensure water quality effects are controlled around the Anglesey Fens SAC / Anglesey and Llyn Fens Ramsar Site.	The requirement for a drainage management plan is set out in section 8 of the CEMP (Document 7.4). This is secured by Requirement 6 of the draft DCO (Document 2.1).	
	IACC: The approach to in-combination assessment appears incorrect, relying on spatial overlap only between projects.	The in-combination assessment presented in section 8 of this report considered whether there is a spatial overlap of the study areas (zones of influence) for Natura 2000 sites between the Proposed Development and the other developments considered in the in- combination assessment.	
Question 1:	IACC & Gwynedd Council: The proposals for the NWCP are set out in this	Noted	
Does the	and related documents, including construction, operation, maintenance and		
information	decommissioning information; therefore these are considered adequate to		

Table 1.1 Summary of Consultation Responses		
Consultee and Section Reference	Summary of Response	How it has been addressed
provide sufficient detail/clarity on National Gird's proposal/positio n?	allow effects on European Sites (SPA, pSPA, SAC, cSAC and Ramsar sites) to be assessed later in the NSER report.	
Question 2: Is the detail submitted adequate (ie, in order to make an assessment)?	IACC & Gwynedd Council: It should be noted that this is the first opportunity the Council has had to view the draft NSER; as detailed in 1.6.1, a draft of this NSER was not available at the time of the Section 42 consultation. It is helpful that National Grid has included HRA related responses that IACC and other parties made within Table 1.1 as part of Section 42 consultation, but it IACC notes that to date National Grid has only shared a draft of the NSER with NRW.	Noted
	IACC & Gwynedd Council: Overall, the NSER covers the expected European Sites and assessed effects, alone and in combination as expected. The zones of influence appear correct when considering potential receptors and pathways for effect.	Noted
	IACC & Gwynedd Council: However, as detailed in comments in subsequent sections of this document review form, there are some areas of potential weakness, centred around lack of detail provided around	All mitigation measures relied on are secured by the draft DCO (Document 2.1). The draft

Table 1.1 Summary of Consultation Responses			
Consultee and Section Reference	Summary of Response	How it has been addressed	
	mitigation measures along with some methodological / consistency matters that should be discussed with NRW and National Grid.	document has been updated to remove potential inconsistencies and applications of approach.	
	IACC: The approach to in-combination assessment appears incorrect, relying on spatial overlap only between projects.	Section 8 of this report considers whether there is a spatial overlap of the study areas (zones of influence) for Natura 2000 sites between the Proposed Development and the other developments considered in the in- combination assessment.	
Question 3: Is there anything missing? What are the gaps? Do you have any views on the impact assessment by National Grid?	IACC & Gwynedd Council: The following are a list of observations on the NSER where it is considered clarifications are required or further information should be supplied:	Noted, this test has now been removed.	
	Section 1.5.10: This appears to be extraneous text that could be removed.	Section 10 of the CEMP	
	now; relying on this to be delivered at some future date as part of the CEMP (which is in itself too generic and lacking detail, see later comments) adds uncertainty and areas of potential challenge to the conclusions of the NSER.	(Document 7.4) requires an Invasive Non-Native Species Method Statement (INNSMS) to be produced in line with the Outline	

Table 1.1 Summary of Consultation Responses			
Consultee and Section Reference	Summary of Response	How it has been addressed	
	IACC: Moreover, at present the CEMP requirement of the DCO does not provide a future approval of the CEMP beyond examination (other than to be certified by the SoS). There is therefore a missing layer of control on the approval of the INNSMS. The CEMP requirement ought to be amended such that the final version of the CEMP (including the INNSMS) is amended to be approved by the relevant LPA (in consultation with NRW) prior to commencement of the development.	INNSMS (which includes a Biosecurity Risk Assessment (BRA)) as set out in the Biodiversity Mitigation Strategy (Document 7.7). Requirement 7 of the draft DCO (Document 2.1), requires an INNMS to be produced' submitted to' and approved by the Local Planning Authority, to minimise the impacts of construction works have been submitted to and approved by the relevant planning authority or other discharging authority prior to the commencement of the relevant stage of construction.	
	IACC: Table 1.1. "10.1 Menai Strait & Conwy Bay SAC" entry page 5 – here NRW are asking for a plan containing detailed mitigation measures to prevent significant effects on the SAC. NGET's response does not address that request, and this plan appears to be currently missing. IACC considers that it should be added.	All mitigation measures relied on are secured by the draft DCO (Document 2.1). The draft document has been updated to remove potential inconsistencies	

Table 1.1 Summary of Consultation Responses			
Consultee and Section Reference	Summary of Response	How it has been addressed	
		and applications of approach.	
	IACC: Table 1.1, p7: Regarding 10.1 Anglesey Valley Fens SAC and Anglesey and Llyn Fens Ramsar, it would appear that NRW are asking for a Drainage Management Plan containing detailed mitigation measures to prevent significant effects on the site. National Grid's response does not address that request, and this plan appears to be currently missing. The CEMP does not provide the level of detail NRW appear to be asking for.	The requirement of a drainage management plan is set out in section 8 of the CEMP (Document 7.4). This is secured by Requirement 6 of the draft DCO (Document 2.1).	
	IACC: 3.3.4 The drafting of the final line indicates the proposed development is only located in the upland fringes of Snowdonia. That of course is not the case, and this ought to be amended.	Noted.	
	IACC & Gwynedd Council: 3.7 and 4.2.102: Although the NSER states 206,880 tonnes of arisings will be produced from tunnel works, the disposal or reuse of this significant amount of material is not covered in detail; if all is simply to be taken away by road this should be stated and confirmation provided that air quality, noise and wider environmental effects associated with the disposal have been taken into account for both scenarios (arisings generated in either Anglesey or Gwynedd).	The assessment of air quality and noise effects takes into account the tunnel arisings.	
	IACC: 4.2.99 The reference (at line 11 onwards) to the ability to reuse the natural rock or substrate excavated as part of the tunnel construction reinforces the suggestion that the tunnel works ought to take place	Noted, as the construction of the tunnel is the longest temporal element of construction this would	

Table 1.1 Summary of Consultation Responses			
Consultee and Section Reference	Summary of Response	How it has been addressed	
	sufficiently early in the scheme of works to allow all such material to be reused as part of the proposed development. IACC & Gwynedd Council: Related to the point above, if excavated natural rock is to be reused, details of what this will involve, including locations and timings need to be clarified.	commence at the start of construction, refer to the indicative construction programme in section 4.	
	IACC: 4.2.129, bullet point 6 under sub-heading "placing the overhead line underground" refers to works by third parties being carried out in accordance with standard soil management and safety requirements. Why is it not considered necessary for these third party works to be subject to the controls of the CEMP? NGET ought to be securing third party compliance to those standards on a uniform basis across the proposed development.	Third party works would be undertaken in accordance with CEMP (Document 7.4) subject to paragraph 3 of Requirement 6 of the draft DCO (Document 2.1).	
	IACC: Table 4.4. page 104 contains NGET's proposed "stages" of the works as identified within the staging requirements. No flexibility (see table 5.1) appears to have been allowed to those stages (other than the scenarios considered at 5.2.7) and IACC therefore expects NG to amend the drafting of its "stages" requirement to reflect that this staged construction programme must be the one followed by NG. In the case of likely significant effects on Habitats protected sites and species, it does not appear that any other sequence of works has been assessed.	Refer to Requirement 5 of the draft DCO (Document 2.1).	
Table 1.1 Summary of Consultation Responses			
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Consultee and Section Reference	Summary of Response	How it has been addressed	
	IACC: Table 5.1: We take it that National Grid has assumed habitats, where pylon footprints will be located outside the SAC boundary, are not contributing habitat to main site features and on this basis National Grid has excluded them in this table; agreement on this approach should be sought and confirmed as acceptable with NRW.	All pylon footprints would be located outside of the SAC boundary.	
	IACC: Table 5.2: It is unclear why the different scenarios around the A5025 alignments which would not alter NSER assessments is required here; if this relates to air quality distance effects, this should be inserted here.	Section 5 of this report sets out how the flexibility afforded by the DCO has been taken into account in this report.	
	IACC & Gwynedd Council: 6.3.5: This refers to DCO Requirement 8 imposing a control relating to the Schedule of Environmental Commitments. This was not within the DCO issued to IACC as part of batch 2 and is requested for clarity	The Schedule of Environmental Commitments (Document 7.4.2.1) forms part of the CEMP which is secured through Requirement 6 of the draft DCO (Document 2.1).	
	IACC: Table 6.1: Regarding operational phase loss of habitat / fragmentation effects, this states: The Proposed Development could result in loss or fragmentation of supporting habitat during operation. However due to the small permanent area of habitat affected the Proposed Development would not result in the significant direct loss or fragmentation of supporting habitat during the	Any loss would occur during the construction stage and has been assessed under that stage. Text has been amended in Table 6.1.	

Table 1.1 Summary of Consultation Responses		
Consultee and Section Reference	Summary of Response	How it has been addressed
	operation of the Proposed Development. This appears to say there could be an effect, but this will not be significant, thus 'No' is selected in the right hand column. However, we assume that at this stage of the assessment, the purpose of this table is to simply identify potential for effect, rather than to determine if this is significant. Agreement on this approach should be sought and confirmed as acceptable with NRW.	
	IACC: Table 6.2: Regarding works in the Menai Strait we note that the potential for introduction of marine INNS is ruled out as no works are planned. If there were an issue with site drilling fluid release or other construction phase problems, the Council seeks confirmation that the use of vessels would not be required.	Section 10 of the CEMP (Document 7.4) requires an Invasive Non-Native Species Method Statement (INNSMS) to 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).
		Requirement 7 of the draft DCO (Document 2.1), requires an INNMS to be produced submitted to and approved by the Local Planning Authority, to minimise the

Table 1.1 Summary of Consultation Responses		
Consultee and Section Reference	Summary of Response	How it has been addressed
		impacts of construction works have been submitted to and approved by the relevant planning authority or other discharging authority prior to the commencement of the relevant stage of construction.
	IACC: Table 6.2: It is not clear why disturbance effects have been scoped out for Puffin Island SPA for Cormorant, when they have been included for similar features of other SPAs, given that results show this species occupies habitats on site. Later on in the NSER there is discussion on this matter relating to core ranges, but at this stage it is considered that this effect should remain valid.	Puffin Island has now been taken through to stage 2 for potential collision risk on Cormorant. The stage 2 assessment has concluded no adverse effect on site integrity either alone or in- combination.
	IACC & Gwynedd Council: Table 6.2: Given the fact that the Dyfi Estuary SPA is 69.5km south of the Order Limits, it is not clear why this site is part of the assessment. IACC requests clarity on whether there is any evidence to suggest that the geese using the Dyfi Estuary use habitats within the project area at any point.	This site is designated for Greenland White-fronted Goose which is known to utilise supporting habitat on Anglesey therefore this site has been considered within this assessment.
	IACC: Table 6.4 (p264): This states that the macroinvertebrate surveys did	Noted.

Table 1.1 Summary of Consultation Responses		
Consultee and Section Reference	Summary of Response	How it has been addressed
	not record Geyer's whorl snail. It should be noted that no dedicated surveys for this species were undertaken and it is assumed unlikely that this tiny species would be adequately captured by conventional survey methods, so limited reliance should be based on such statements.	
	IACC & Gwynedd Council: Table 6.4 (p318): We note that reef habitat has been excluded from consideration of effect from release of drilling fluid, yet is included for mudflat and sand flat habitats within the Menai Strait and Conwy Bay SAC. IACC requests justification for this, as this habitat occurs within the Order Limits and we assume would be at least as sensitive to any such effects as mudflats and sand flats.	This habitat has now been included from consideration of effect from release of drilling fluid. Please refer to section 6 and section 7.
	IACC & Gwynedd Council: Table 6.4 (p319): It would be helpful to state where the nearest shallow inlets and bays features are within the Menai Strait and Conwy Bay SAC to support the contention that no pathway is present.	The nearest SAC shallow inlets and bays features to the project boundary are located approximately 6 km to the east, where the Menai Strait opens out at Porth Penrhyn.
	IACC & Gwynedd Council: 7.3.2: Regarding the application of reduction and mitigation measures, it should be noted that this refers to the Biodiversity Mitigation Strategy (Documents 7.9) that has not been provided to date. Other documents referred to here may also be missing. As the	The Biodiversity Mitigation Strategy (Documents 7.7) is secured through Requirement 6 of the draft DCO (Document 2.1).

Table 1.1 Summary of Consultation Responses		
Consultee and Section Reference	Summary of Response	How it has been addressed
	report places reliance on these in reaching conclusions on NSE, the Council is unable to agree with such conclusions at this stage.	
	IACC & Gwynedd Council: Table 7.1 (p371): This contains various references to measures set out in the CEMP; however, at present the CEMP includes general principles and industry standard practices, potentially lacking details needed within a NSER to reach firm conclusions regarding effects on European Sites. As per earlier comment, the INNSMS should be available now to support the NSER, not at some point in the future.	All mitigation measures relied on are secured by the draft DCO (Document 2.1).
	IACC & Gwynedd Council: Table 7.1 (p376): It is unclear why monitoring of slurry level is a measure that will prevent incidents. The Council considers this to simply be a measure that will identify when such an event has happened, rather than a preventative measure.	Should the pressure decrease this could indicate pressure imbalances and the slurry has entered surrounding rock therefore by monitoring this action can be taken to reduce the risk of a blow out of drilling fluid occurring.
	IACC: Table 8.1 (p385): Regarding water quality and other effects on the Anglesey and Llyn Fens Ramsar Site / Anglesey Fens, the in-combination assessment relies on the argument that, because there is no spatial overlap with other projects, there would be no likely significant in-	Section 8 of this report considers whether there is a spatial overlap of the study areas (zones of influence) for Natura 2000 sites

able 1.1 Summary of Consultation Responses		
Consultee and Section Reference	Summary of Response	How it has been addressed
	combination effects. This argument appears incorrect for potential effects such as air quality impacts or changes to water quality from sources in varying locations around the European Site.	between the Proposed Development and the other developments considered in the in- combination assessment.
	IACC: It is requested that National Grid look at each and every project and plan that could have similar effects on the European Site and then make a judgement around if these, in- combination with the predicted effect of the project, could lead to significant effects and where such effects could occur. Please see comments on the cumulative impact assessment provided on the ecology chapter of the ES (Document 5.9) for further concerns over National Grid's approach to such assessment.	Section 8 of this report considers whether there is a spatial overlap of the study areas (zones of influence) for Natura 2000 sites between the Proposed Development and the other developments considered in the in- combination assessment. This assessment has considered those projects where there is a spatial overlap of the study areas (zones of influence).
	IACC: Likewise, for acoustic effects, the Table states that "in-combination effects would be small and no mitigation would be required." The NSER should avoid such statements where effects are clearly quantified, or cross refer to appropriate sources.	Noted.

Table 1.1 Summary of Consultation Responses		
Consultee and Section Reference	Summary of Response	How it has been addressed
Question 4: Are the mitigation proposals adequate and fit for purpose?	IACC & Gwynedd Council: As detailed in Section 3, in some areas, notably around the CEMP and associated missing documents, there appears to be a lack of location specific details necessary to support the conclusions of the NSER at this point. Further discussions on this matter should be held with NRW to confirm if this is a major cause for concern.	All mitigation measures relied on are secured by the draft DCO (Document 2.1).
	IACC & Gwynedd Council: National Grid is reminded that conclusions on the potential to affect European Sites should be beyond reasonable scientific doubt, as indicated via various case law relating to the Habitats Regulations.	Noted.
Question 5: Are there any changes or	IACC & Gwynedd Council: In terms of details relevant to European Sites, project details are as expected and reflect discussions at the ecology TWG meetings to date.	Noted.
inconsistencies in the project detail following on from s42 or any Thematic Working Group?	IACC & Gwynedd Council: Note that as identified in Section 2, the NSER was not shared with IACC at s42 stage. IACC: However, as a result of this additional information, IACC notes the following issues:	Noted.
	Lack of detail provided around mitigation – the embedded mitigation referred to in NSER is often generic and lacks details needed to support conclusion around no significant effects.	All mitigation measures relied on are secured by the draft DCO (Document 2.1).

Table 1.1 Summary of Consultation Responses		
Consultee and Section Reference	Summary of Response	How it has been addressed
	NSER approach to in-combination assessment – the approach taken appears inadequate; may lead to underestimation of effect significance on key European Sites.	Section 8 of this report considers whether there is a spatial overlap of the study areas (zones of influence) for Natura 2000 sites between the Proposed Development and the other developments considered in the in- combination assessment. This assessment has considered those projects where there is a spatial overlap of the study areas (zones of influence).
	Alignment with NRW - IACC was not provided with a draft NSER at s42 consultation; NRW had sight of an earlier draft and it would be helpful to discuss areas of concern with them ahead of SoCG/LIR finalisation.	Noted.
Overall Conclusion Of Factual Assessment	Gwynedd Council: In general, the NSER covers the range of European Sites expected, using zones of influence that appear adequate for the receptors present.	Noted
	Gwynedd Council: The methodology for assessing NSE appears adequate, following accepted guidance for this type of assessment.	Noted

Table 1.1 Summary of Consultation Responses		
Consultee and Section Reference	Summary of Response	How it has been addressed
	Gwynedd Council: There are a number of potential inconsistencies and applications of approach in places where specific comments have been made.	The draft document has been updated to remove potential inconsistencies and applications of approach.
	Gwynedd Council: Embedded mitigation is presented, but lack details in key areas, notably the Drainage Management Plan and associated information that will be required to ensure water quality effects are controlled around the Anglesey Fens SAC / Anglesey and Llyn Fens Ramsar Site.	The requirement of a drainage management plan is set out in section 8 of the CEMP (Document 7.4). This is secured by Requirement 6 of the draft DCO (Document 2.1).
	Gwynedd Council: The approach to in-combination assessment appears incorrect, relying on spatial overlap only between projects (though this appears less relevant in Gwynedd than has been noted in Anglesey).	Section 8 of this report considers whether there is a spatial overlap of the study areas (zones of influence) for Natura 2000 sites between the Proposed Development and the other developments considered in the in- combination assessment. This assessment has considered those projects where there is a spatial overlap of the study areas (zones

Table 1.1 Summary of Consultation Responses		
Consultee and Section Reference	Summary of Response	How it has been addressed
		of influence).
NRW WYLFA TC	PENTIR GRID CONNECTION DRAFT ES CHAPTERS- BATCH 3, 20 March	2018
Protected Sites:	The construction compound at SH482751 is in an area which may have significant Himalayan balsam, spreading down the stream which flows from Caeau Talwrn SSSI. An intensive programme of balsam control should be executed in order to prevent balsam from being spread to new locations along the powerline. From this compound the route northwards passes through an area with abundant balsam. The potential for movement of INNS along the construction route must be given appropriate weight and avoidance and mitigation measures detailed within the HRA.	Section 10 of the CEMP (Document 7.4) requires an Invasive Non-Native Species Method Statement (INNSMS) to 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).
		Requirement 7 of the draft DCO (Document 2.1), requires an INNMS to be produced submitted to and approved by the Local Planning Authority, to minimise the impacts of construction works have been submitted to and approved by the relevant planning authority

Table 1.1 Summary of Consultation Responses		
Consultee and Section Reference	Summary of Response	How it has been addressed
		or other discharging authority prior to the commencement of the relevant stage of construction.
5.23 No Significant Effects Report:	NRW flag that the 'site column' in many of the tables in this section should be clearer as it currently refers to a number of sites in the one row. This reduces clarity on which site and feature is being affected/or not.	Noted, this has now been amended within this document.
Table 6.1	Page 140, Introduction of INNS during operation- NRW consider that there is potential for effects as INNS may be introduced during routine maintenance visits on boots, tyres, etc. as such NRW consider that there is a potential for an effect here (change from N to Y). Simple biosecurity protocol including cleaning boost can be introduced to minimise any risk during operation. This should be reflected in 6.3.7 summary.	The introduction of INNS has now been taken through to the stage 2 assessment.
Table 6.2	Page 149 In what appear to be introductory sentences (the first paragraph), it doesn't seem to be the correct location to screen out effects (no hydrological linkages to a site). NRW would recommend the table is altered to ensure clarity (this could be achieved by screening out a pathway as the next row in the table).	This paragraph is referring to the Corsydd Llyn/Llyn Fens part of the Corsydd Môn a Llyn/Anglesey and Llyn Fens Ramsar site which is located on the Llyn Peninsular.
	Page 153 Surface and ground waters are combined as an issue. NRW would recommend it would be clearer to split these topics (throughout the document) as the measures required to regulate any potential changes will	Potential effects on the hydrogeological regime have been considered separately.

Table 1.1 Summary of Consultation Responses		
Consultee and Section Reference	Summary of Response	How it has been addressed
	be different.	
	Page 156 Conclusion regarding Invasive Non Native Species (INNS) is correct providing there are no plans to use any kind of safety boat, drilling rig or other equipment in the Strait moving forward. However, if vessels are required, this should be re-assessed	Mitigation measures for marine mammals and fish may require the use of a boat. Additional measures have been added to section 10 of the CEMP (Document 7.4) which requires an Invasive Non-Native Species Method Statement (INNSMS) to 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). Consideration of INNS has been taken through to the stage 2 assessment.
	Page 167 NRW consider the main likely pathway for marine mammals to	This has been updated and the

Table 1.1 Summary of Consultation Responses			
Consultee and Section Reference	Summary of Response	How it has been addressed	
	be vibration/noise. This is screened out relying on two 'likely' statements (likely that noise/vibration would not be too great, and likely that the species would avoid the area). NRW would not consider this to be a sufficiently robust assessment to screen this receptor out and would request more robust approach to determining the noise/vibration likely to be experienced in the water column, and as a result the extent of the area of concern (if any). The ES text should detail how this conclusion was reached. Note this has been requested previously with regard to the CEMP and fish species in the response to Batch 2 documents.	consideration of vibration/noise on marine mammals has been taken through to the stage 2 assessment.	
Table 6.4	There are repeated references to temporary introduction of INNS. Such introductions are seldom temporary as any introduction may not be immediately apparent, or may spread from the order limits prior to being discovered/managed. The matrix and screening assessment should be amended accordingly to reflect that this is not temporary.	This has been amended.	
	Page 254 Text referring to specific drainage area 5 Maps should reference the specific chapters where these plans are held (and these should be a sufficient resolution to assess detail). Such references should be added throughout the table where required.	The numbered drainage areas are shown on Figure 3 (Document 5.23.1.3), cross references to this figure have been added into the text.	
	Page 293 Alkaline fens- Fen meadow with Juncus subnodulosus is also	The potential for a likely significant	

Table 1.1 Summary of Consultation Responses			
Consultee and Section Reference	Summary of Response	How it has been addressed	
	present beyond the site boundary immediately north of Caeau Talwrn SSSI in an area where a pylon is proposed. This should be regarded as supporting habitat for the SAC since any loss of this scarce habitat may lead to loss of connectivity which should be assessed. This should also be considered in Page 363.	effect on the supporting habitat for mobile interest features has been considered in this HRA Report.	
Table 7.1	Page 369 first para in 3rd column Table 7.1 is unclear (as generally flagged at the start of this section). NRW assume it refers to Cors Erddreiniog but as the site is the whole SAC and RAMSAR this needs clarification.	This section is now section 8 and the Caeau Tlwrn part of the SAC has been identified as a shared receptor with the Grŵp Llandrillo Menai Llangefni Campus development. Section 8 concludes that there is no potential for an in- combination effect with this development.	
	Page 373 There is no mention of <i>Azolla filiculoides</i> although it may be encountered. This should be added to the text.	This species is now included in CEMP measures BS81-BS83 (Document 7.4) which is secured by Requirement 6 of the draft DCO (Document 2.1).	
Overall	Gwynedd Council: In general, the NSER covers the range of European	Noted	

Table 1.1 Summary of Consultation Responses			
Consultee and Section Reference	Summary of Response	How it has been addressed	
Conclusion Of Factual Assessment	Sites expected, using zones of influence that appear adequate for the receptors present.		
	Gwynedd Council: The methodology for assessing NSE appears adequate, following accepted guidance for this type of assessment.	Noted	
	Gwynedd Council: There are a number of potential inconsistencies and applications of approach in places where specific comments have been made.	The draft document has been updated to remove potential inconsistencies and applications of approach.	
	Gwynedd Council: Embedded mitigation is presented, but lack details in key areas, notably the Drainage Management Plan and associated information that will be required to ensure water quality effects are controlled around the Anglesey Fens SAC / Anglesey and Llyn Fens Ramsar Site.	The requirement of a drainage management plan is set out in section 8 of the CEMP (Document 7.4). This is secured by Requirement 6 of the draft DCO (Document 2.1).	
	Gwynedd Council: The approach to in-combination assessment appears incorrect, relying on spatial overlap only between projects (though this appears less relevant in Gwynedd than has been noted in Anglesey).	Section 8 of this report considers whether there is a spatial overlap of the study areas (zones of influence) for Natura 2000 sites between the Proposed Development and the other	

Table 1.1 Summary of Consultation Responses			
Consultee and Section Reference	Summary of Response	How it has been addressed	
		developments considered in the in- combination assessment. This assessment has considered those projects where there is a spatial overlap of the study areas (zones of influence).	
Planning Inspectorate			
1.5.6	The definition of European sites is in Part 1, paragraph 8 of the 2017 Habitats Regulations and does not directly refer to the status of pSPAs. It would be helpful to explain that the policy approach to the treatment of pSPAs is supported by the NPS EN-1 and TAN-5 (so by both UK and Welsh government policy).	This Report has been updated to address this comment.	
1.5.7	As the protection given under planning policy for pSPAs is referred to in paragraph 1.5.6 of the NSER, should there also be a reference to the protection under the same policies for listed Ramsar sites?	This Report has been updated to address this comment.	
4.2.37	It is unclear what a bespoke foundation is likely to entail or if/how any effects associated with its construction have been taken into account. The NSER needs to address this point.	A bespoke pylon foundation is a non-standard type of foundations. The potential effects associated with bespoke foundations would be no worse than a standard type.	

Table 1.1 Summary of Consultation Responses			
Consultee and Section Reference	Summary of Response	How it has been addressed	
Table 5.1	This is a really useful table (notwithstanding the comments below) which helps the reader to understand the assumptions that have been taken into account in the assessment of the effects from the Proposed Development.	Noted	
Table 5.1	The table doesn't provide any justification as to why the height shown on the Schedule is a reasonable proxy for pylons that could actually be up to 6 m taller than those shown.	This text has been updated.	
Table 5.1	Locating permanent infrastructure outside a Natura 2000 site could still lead to significant effects on designated features through loss of foraging/roosting/commuting areas or routes.	Noted – where habitat is 'supporting habitat' this is considered within the assessment	
5.3.2	The reference to 'accessible areas' is a concern because it suggests that survey coverage could have been decided by which land the Applicant could access rather than ecological requirements. The NSER should provide a justification (with reference to the relevant chapter of the ES if appropriate) that survey coverage has been adequate.	Wintering Bird surveys have been sufficiently comprehensive to allow the assessment to be undertaken.	
5.3.9	This paragraph describes the areas covered by the relevant surveys but there is no justification for the extent of the study areas until paragraph6.3.11 of the NSER. It would be helpful for the reader if paragraph 5.3.9 provided a justification or cross-referred to one elsewhere in the document.	A cross reference has now been added into section 5.5.9 to section 6.	

Table 1.1 Summary of Consultation Responses		
Consultee and Section Reference	Summary of Response	How it has been addressed
5.3.9	It isn't clear what is meant by 'NRW ascribed habitats'. This description needs more explanation.	This has been referred to paragraph 7.9.4 which outlines that it is based on NRW survey data
5.3.9	Survey results should be reported in the NSER or in the relevant chapter of the ES and cross-referenced in the HRA.	Survey results are reported in Chapter 9 Ecology and Nature Conservation (Document 5.9) and its appendices. These are cross referenced where necessary.
Table 6.1	It would be helpful if the NSER quantified the area of habitat that would be affected as it allows the reader to decide if they agree that only a small area would be affected.	Text has been updated, however it is not possible to specify an exact area of habitat loss and it is also habitat that is not specifically identified as supporting habitat. The losses are mostly only losses under the legs of pylons.
6.3.29	Should NRW also be consulted so that they are satisfied that the study areas are adequate to capture effects on ecological receptors?	NRW were also consulted on the study area and the text has been updated accordingly.
6.3.34	Is there any published report or paper that captures this experience that could be referred to here?	NRW confirmed at meeting that usually the organisation in whose

Table 1.1 Summary of Consultation Responses		
Consultee and Section Reference	Summary of Response	How it has been addressed
		area the development is situated takes the lead where designations cross organisational boundaries
6.3.57	This SPA is partly within England. Have Natural England been consulted about potential effects on this site?	NRW confirmed during a meeting that usually the organisation in whose area the development is situated takes the lead where designations cross organisational boundaries.
Table 6.3	For grey seal, bottlenose dolphin and otter under 'Range', the first bullet point reads 'As part of this objective it should be noted that for bottlenose dolphin, otter and grey seal' – is there some missing text here?	Unable to find this text, This is no longer in the ES.
Table 6.4	For several of the interest features considered in this table (eg Geyer's whorl snail, otter and great crested newt), particularly in relation to Corsydd Môn a Llyn Ramsar site, the text in the table seems to suggest that there could be a mechanism for an effect and it isn't always clear how the conclusion has been reached that there is no such mechanism.	This table has been updated to provide greater clarity.
Table 6.4	This statement refers to terrestrial invertebrates rather than specifically to marsh fritillaries which is the feature under consideration. Is there specific evidence available which supports this statement?	Additional information regarding marsh fritillary is provided in section 7.7.77 to 7.7.80 of ES

Table 1.1 Summary of Consultation Responses			
Consultee and Section Reference	Summary of Response	How it has been addressed	
		Chapter 9 Ecology and Nature Conservation (Document 5.9) and Appendix 9.14 (Document 5.9.2.14).	
Table 6.4	It isn't clear from the text what the justification is for relying on the mean maximum foraging range reported in Thaxter rather than that in the Natural England report. Is there any evidence available to support the assumption about cormorant behaviour?	Further details have been provided in ecology chapter 5.9, Ecology and Nature Conservation (Document 5.9) and associated Appendix 9.15 Ornithological Assessment Report (Document 5.9.2.15).	
Appendix 1 Screening matrices	The qualifying feature 'Sandbanks which are slightly covered by sea water all the time' has not been included in the matrix.	As outlined in Table 9.12, this site is distant from the Order Limit so only the mobile designated receptors are considered.	
Appendix 1 Screening matrices	Some of the footnotes refer back to Table 6.4 of the NSER but as Table 6.4 doesn't always explain where evidence has been derived from it would make more sense to refer to the relevant sections of the ES where the evidence is presented. It is not particularly helpful to refer simply to an ES chapter – the footnotes should clearly identify the relevant sections of the	Cross references have been added into table 6.4 to identify the relevant baseline information in the appendices to ES Chapter 9 Ecology and Nature Conservation	

Table 1.1 Summary of Consultation Responses		
Consultee and Section Reference	Summary of Response	How it has been addressed
	chapter which contain the evidence supporting the conclusions in the screening matrices.	(Document 5.9).
Appendix 1 – Screening matrices, Matrix 1, footnote g	It would assist the reader in understanding the reasoning behind the exclusion of significant in-combination effects if it was stated here that no mechanism for the effect to occur had been identified and therefore there in- combination effects can be excluded.	This comment is no longer relevant as the in combination assessment is now undertaken at the appropriate assessment stage.

2 HRA Process

2.1 INTRODUCTION

- 2.1.1 The methodology for HRA takes cognisance of the EU guidance document 'Assessment of plans and projects significantly affecting Natura 2000 sites, Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC' (Ref 1.2).
- 2.1.2 It has become generally accepted that a staged approach should be followed for HRA, as proposed by the latest European Commission guidance (Ref 2.1) and as set out in The Planning Inspectorate's Advice Note 10 Habitat Regulations Assessment (Ref 1.14). These stages are:
 - Stage 1 Screening the process which identifies whether there are likely to be any effects upon a Natura 2000 site as a result of a project, either alone or in combination¹ with other projects, and considers whether these effects are likely to be significant.
 - Stage 2 Appropriate Assessment the consideration of the effect on the integrity of the Natura 2000 site, with respect to the site's structure and function and its conservation objectives. Additionally, where significant adverse effects on site integrity exist, an assessment of potential mitigation will be made.
 - Stage 3 Assessment of Alternative Solutions the process which examines alternative ways of achieving the objectives of a project that avoids significant adverse effects on the integrity of the Natura 2000 site identified at Stage 2.
 - Stage 4 Assessment of IROPI where no alternative solutions exist and where significant adverse effects remain an assessment of

¹ Note that the Stage 1 Screening is now limited to the identification of whether there is a mechanism for effects and does not the potential for likely significant effects taking into account proposed mitigation. If there is no mechanism for effects alone then it can be concluded that there is no potential for in-combination effects with other developments. As such, consideration of the potential for in-combination effects is now only considered necessary for those sites/interest features taken through to Stage 2 Appropriate Assessment.

compensatory measures where, in the light of an assessment of imperative reasons of overriding public interest (IROPI), it is deemed that a project should proceed.

2.1.3 The conclusion of each stage determines whether a further stage in the process is required. If, for example, the conclusions at the end of Stage 1 are that there are no likely significant effects on a European Site, there is no requirement to proceed to further stages. This process is illustrated in Image 2.1 below, with each stage being broken down into a number of steps.

Inage 2.1: HRA Process



3 Description of the Proposed Development

3.1 INTRODUCTION

- 3.1.1 This section provides a description of the Proposed Development in terms of what infrastructure is proposed, where it would be located, what size it would be, permanent access requirements and its likely appearance.
- 3.1.2 Section 4 (*Construction, Operation, Maintenance and Decommissioning of the Proposed Development*) describes how the Proposed Development would be constructed, operated, maintained and decommissioned.
- 3.1.3 A description of the development is also provided in Schedule 1 of the draft DCO (**Document 2.1**).
- 3.1.4 The following documents should be referred to when reading this section:
 - Environmental Statement (ES) Appendix 3.1 Indicative Pylon Schedule (Document 5.3.2.1);
 - ES Appendix 3.2 Indicative Watercourse Crossing Schedule (Document 5.3.2.2);
 - ES Appendix 3.3 Indicative Road, Rail and Public Rights of Way (PRoW) Crossing Schedule (**Document 5.3.2.3**); and
 - ES Appendix 3.4 Indicative Utilities Crossing Schedule (Document 5.3.2.4).
- 3.1.5 The following Plans should be referred to when reading this section:

400 kV OHL (Volume 4 (**Document 4.13**))

- DCO_DE/PS/08_01 Sheet 1 of 4 Illustrative Lattice Pylons;
- DCO_DE/PS/08_02 Sheet 2 of 4 Illustrative Lattice Pylon Footprints;

- DCO_DE/PS/08_03 Sheet 3 of 4 Illustrative Lattice Pylon Foundations;
- DCO_DE/PS/09_04 Sheet 4 of 4 Indicative Maximum and Minimum Lattice Pylon Heights; and
- DCO_DE/PS/10_03 Sheet 3 of 3 Indicative OHL Limits of Deviation.

Tunnel and Tunnel Head House and Cable Sealing End Compound (Volume 4 (**Document 4.13**))

- DCO_DE/PS/07_01 Sheet 1 of 3 Illustrative Tunnel Longitudinal Section;
- DCO_DE/PS/07_02 Sheet 2 of 3 Illustrative Tunnel Cross Section;
- DCO_DE/PS/07_03 Sheet 3 of 3 Illustrative Tunnel Cross Section;
- DCO_DE/PS/09_01 Sheet 1 of 8 Parameter Plan for Braint Tunnel Head House and Cable Sealing End Compound;
- DCO_DE/PS/09_02 Sheet 2 of 8 Indicative Final Arrangement for Braint Tunnel Head House and Cable Sealing End Location;
- DCO_DE/PS/09_03 Sheet 3 of 8 Indicative Finished Surface Levels for Braint Tunnel Head House and Cable Sealing End Location;
- DCO_DE/PS/09_04 Sheet 4 of 8 Indicative Final Arrangement for Braint Tunnel Head House and Cable Sealing End Compound;
- DCO_DE/PS/09_05 Sheet 5 of 8 Parameter Plan for Tŷ Fodol Tunnel Head House and Cable Sealing End Compound;
- DCO_DE/PS/09_06 Sheet 6 of 8 Indicative Final Arrangement for Tŷ Fodol Tunnel Head House and Cable Sealing End Location;
- DCO_DE/PS/09_07 Sheet 7 of 8 Indicative Finished Surface Levels for Tŷ Fodol Tunnel Head House and Cable Sealing End Location; and

 DCO_DE/PS/09_08 Sheet 8 of 8 – Indicative Final Arrangement for Tŷ Fodol Tunnel Head House and Cable Sealing End Compound.

Substations (Volume 4 (Document 4.13))

- DCO_DE/PS/01_01 Sheet 1 of 10 Substation Parameter Plan – Wylfa;
- DCO_DE/PS/01_02 Sheet 2 of 10 Indicative Substation Layout – Wylfa;
- DCO_DE/PS/01_03 Sheet 3 of 10 Indicative Substation Elevation – Wylfa;
- DCO_DE/PS/01_04 Sheet 4 of 10 –Substation Parameter Plan Pentir;
- DCO_DE/PS/01_05 Sheet 5 of 10 Indicative Substation Layout – Pentir;
- DCO_DE/PS/01_06 Sheet 6 of 10 Indicative Substation Elevation – Pentir; and
- DCO_DE/PS/01 Sheets 7 of 10 to 10 of 10 Illustrative Substation Equipment.

3.2 LOCATION OF THE PROPOSED DEVELOPMENT

- 3.2.1 The Proposed Development is located in North West Wales and crosses the administrative boundaries of the Isle of Anglesey County Council and Gwynedd Council. The location of the Proposed Development is illustrated on ES Figure 1.1 (**Document 5.1.1.1**).
- 3.2.2 For ease of reference Sections have been identified along the route of the Proposed Development. The Sections are illustrated on ES Figure 3.1 (**Document 5.3.1.1**) and comprise:
 - Section A Wylfa to Rhosgoch;
 - Section B Rhosgoch to Llandyfrydog;
 - Section C Llandyfrydog to B5110 north of Talwrn;
 - Section D B5110 north of Talwrn to Ceint;
 - Section E Ceint to the Afon Braint; and

- Section F Afon Braint to Pentir.
- 3.2.3 The Proposed Development would be located within an area which is predominately rural comprising primarily of agricultural land. Built development is dispersed comprising of predominately small settlements and isolated dwellings located within or adjacent to the Proposed Development area. The larger settlements are located towards the south of Anglesey and include Llangefni to the west of the Proposed Development and Llanfairpwll to the east. In Gwynedd, Caernarfon is to the south-west and Bangor is to the north-east of the Proposed Development.
- 3.2.4 The landform on the island of Anglesey typically falls from north-east to south-west, with ridgelines generally following the same pattern. There are two large water supply reservoirs. Llyn Alaw lies to the north of the island, located approximately 550 metres (m) from the Proposed Development and Cefni Reservoir is in the centre of the island, located approximately 2.25 kilometres (km) from the Proposed Development. The island is separated from the Welsh mainland by the Menai Strait, which is a narrow stretch of tidal water approximately 25 km long and 250 m wide at the narrowest point.
- 3.2.5 Anglesey's rural coastline has mostly been designated as an Area of Outstanding Natural Beauty (AONB).
- 3.2.6 The landform of area of Gwynedd within which the Proposed Development would be located generally rises from the coast and estuaries, in the north and west of the county, to the Snowdonia mountain range. The rolling landform transitions from the Menai Strait to the upland fridges of Snowdonia.
- 3.2.7 The A55 is the primary road route that links Holyhead to the coastal towns along the North Wales Coast. The A55 is crossed by the Proposed Development to the west of Llanfairpwll. Other main roads include the A5, A5025, A4080, A4087, A487 and the A4244. The local road network comprises minor roads which connect the main roads.
- 3.2.8 Environmental designations are illustrated on the Other Environmental Features Plans (**Document 4.6**), Statutory or Non-Statutory Sites or Features of Nature Conservation, Habitats and Water Bodies Plans (**Document 4.7**) and Statutory or Non-Statutory Sites or Features of the Historic Environment Plans (**Document 4.10**).

3.2.9 Section 7 of each of the technical chapters (**Documents 5.7 to 5.18**) provide full details of the baseline environment within which the Proposed Development would be constructed, operated, maintained and eventually decommissioned.

3.3 SUMMARY OF THE PROPOSED DEVELOPMENT

- 3.3.1 The Proposed Development would provide a new 400 kilovolt (kV) connection between the existing substations at Wylfa and Pentir and includes the following principal components:
 - Extension to the existing substation at Wylfa;
 - Sections of new 400 kV overhead line (OHL) between Wylfa substation and Braint Tunnel Head House (THH) and Cable Sealing End Compound (CSEC) on Anglesey including modifications to parts of the existing 400 kV OHL between Wylfa and Pentir;
 - Braint THH and CSEC on Anglesey;
 - Tunnel between Braint and Tŷ Fodol THHs;
 - Tŷ Fodol THH and CSEC in Gwynedd;
 - New section of 400 kV OHL between Tŷ Fodol THH and CSEC and Pentir Substation;
 - Extension to the existing substation at Pentir; and
 - Temporary construction compounds, access tracks, construction working areas, localised widening of the public highway and third party works required to construct the infrastructure listed above.

3.4 ORDER LIMITS

3.4.1 The Order Limits delineate the extent of the 'authorised development' for which development consent is being sought; and are the full extent of area required to locate and construct the Proposed Development. The Order Limits are all encompassing of the components listed in Section 3.3.1 and are illustrated on ES Figure 3.1 (Document 5.3.1.1).

3.5 OVERHEAD LINE

3.5.1 The proposed 400 kV connection would be achieved through the construction of approximately 33 km of new 400 kV OHL between

Wylfa Substation on the north coast of Anglesey to Braint THH/CSEC to the south-west of Llanfairpwll. The connection would then be placed in a tunnel for approximately 4 km to the proposed T \hat{y} Fodol THH/CSEC south of A4087 in north-west Gwynedd. There would then be a further approximate 1 km section of new 400 kV OHL from T \hat{y} Fodol THH/CSEC to Pentir Substation. Where practicable the new 400 kV OHL would parallel the existing 400 kV OHL.

- 3.5.2 In order to achieve the close parallel and to minimise environmental effects, some sections of the existing 400 kV OHL would need to be dismantled and a section of new build constructed at the transposition points as described in section 3.3. In view of this, the Proposed Development also includes approximately 3 km of new sections of 400 kV OHL in parallel. ES Figure 3.2 (**Document 5.3.1.2**) illustrates the sections of new and existing 400 kV OHL.
- 3.5.3 The proposed 400 kV OHL is described in more detail in the following sections.

Options

3.5.4 Two options are being applied for in relation to the 400 kV OHL on Anglesey. Option A would oversail a residential property at Talwrn (R4/01483) and remove proposed pylon 4AP065 and Option B would avoid oversailing the same property. Proposed pylons 4AP064 and 4AP066 are in different locations for Option A and Option B; all other proposed pylons are broadly contiguous for both options. Options A and B are illustrated on Figure 3.2 (**Document 5.3.1.2**). The reasons for the inclusion of these options are set on in section 5 of ES Chapter 2 Alternatives and Proposed Development History (**Document 5.2**).

Transpositions Points

3.5.5 Transposition points are a reconfiguration of the existing 400 kV OHL to allow OHL routes to remain parallel without the need for a line 'duck-under' or cross-over. Transposition points allow for the continuation of a route from a section of new pylons to a section of existing pylons, whilst the parallel route is a continuation of a route from a section of new pylons. Transpositions are achieved by removing a section of the existing line forming two unconnected ends, which are then each connected to a new line approaching from either side. A transposition point is illustrated schematically in Image 3.1 below.



Image 3.1 Transposition Process

3.5.6

- 3.5.7 In routeing the new connection, to reduce environmental effects there would be three transposition points with the existing 400 kV OHL. The location of these are between Rhosgoch and Rhosybol, near Llandyfrydog and close to Maenaddwyn. At these locations there would be two parallel sections of new 400 kV OHL as illustrated on ES Figure 3.2 (**Document 5.3.1.2**).
- 3.5.8 As a result of the transpositions both the new and the existing connection would contain sections of new 400 kV OHL and sections of existing 400 kV OHL. ES Figure 3.2 (**Document 5.3.1.2**) illustrates where the new and existing sections would be located.

Overhead Line Details

3.5.9 The OHL component of the 400 kV connection would comprise conductors supported by steel lattice pylons. Pylons are either suspension pylons, from which the conductor is simply suspended, or tension pylons, which are more robust structures that hold conductors in tension where the alignment of an OHL changes direction or to maintain tension in long straight sections of the route. The conductors are connected to the pylon by a set of insulators (components made from a material with a high resistance to the flow of electric current such as glass or porcelain) and steel fittings.

Additional fittings, such as spacers and vibration dampers, may be fitted to the conductors. Spacers prevent the conductors from touching each other and vibration dampers prevent oscillations from the overhead conductors from reaching the insulator fitting and minimise the effects of fatigue loading.

<u>Alignments</u>

- 3.5.10 The western alignment is referred to as the 4AP and the eastern alignment is referred to as the 4ZA². Option A as illustrated on the Works Plans (**Document 4.4**) would consist of 65 new pylons on the 4AP alignment and 35 new pylons on the 4ZA alignment giving 100 in total³. Option B as illustrated on the Works Plans (**Document 4.4**) would consist of 66 new pylons on the 4AP alignment and 35 new pylons on the 4AP alignment (giving 101 pylons in total⁴). Both options include modifications to five existing pylons. The Proposed Development includes four new gantries at Wylfa Substation, two new full line tension (FLT) gantries at Braint CSEC, two new FLT gantries at Tŷ Fodol CSEC and two new FLT gantries at Pentir Substation. A gantry is a structure which supports the conductors as they transition from an OHL to equipment within a substation or CSEC. ES Appendix 3.1 'Indicative Pylon Schedule' (Document 5.3.2.1) lists the proposed pylons for the 4AP and the 4ZA, including the proposed Pylon numbers are shown on ES Figure 3.2 pylon height. (Document 5.3.1.2) and the Works Plans (Document 4.4), for identification purposes only.
- 3.5.11 Where work is required to an existing pylon, such as the installation of fibre optic earthwire, this is included within the Order Limits and has been assessed as part of this Environmental Impact Assessment (EIA) of the Proposed Development. Where no works are required to an existing pylon, or section of existing 400 kV OHL, this is not

² The existing OHL is known as the 4ZA, however this reference and subsequent references in this chapter (unless specified) refer to the 4ZA as proposed by the Proposed Development (i.e. the new eastern alignment) which includes sections of existing pylons and conductors and sections of new pylons and conductors.

³ This reflects the centre line as shown on the Works Plans, and is subject to the Limits of Deviation (LOD) see Section 5.3 below.

⁴ This reflects the centre line as shown on the Works Plans, and is subject to the LOD.

included within the Order Limits and does not form part of the Proposed Development.

Parallel and Synchronised Design

3.5.12 The detailed design work undertaken to identify the 400 kV OHL design of the Proposed Development has set out to develop a synchronised design wherever practicable. Localised constraints to siting of individual pylons have precluded this where an unpaired or less synchronised design would be locally preferable, based upon the nature of the receptors local to a given pylon. The Design Report (**Document 7.17**) provides an explanation as to how the evolution of the design has resulted in the Proposed Development for which a development consent order is being sought; this is also summarised in ES Chapter 2 Alternatives and Proposed Development History (**Document 5.2**).

Existing Pylons

3.5.13 The existing 400 kV OHL was constructed using lattice pylons with a quad conductor arrangement (i.e. four conductors in each bundle and one bundle per pylon arm). These are typical lattice pylons with three arms on either side of a central pylon body, the longest arm being the middle of the three. The arms have a flat bottom and taper from the pylon body down to the end of each arm. A standard pylon of this type is 50 m in height with an 11 m x 11 m base dimension; however the pylons of this type on the existing 400 kV OHL average 54 m in height.

Proposed Pylons

- 3.5.14 The proposed pylons are also typical lattice pylons, with three arms on either side of a central pylon body, the longest arm being the middle of the three, but with a slightly different form to the existing 400 kV OHL, as the arms taper from the pylon body along the bottom and the top down to the end of each arm and they are, overall the steelwork is slightly lighter and slimmer in appearance. The pylons are illustrated on Design Plan DCO_DE/PS/08 Sheet 1 of 4 (**Document 4.13**). The standard height is 46.5 m with a 7.1 m x 7.1 m base dimension. The proposed pylons of this type average 51 m in height.
- 3.5.15 As the 4ZA and 4AP alignments would include both existing and proposed pylons, the average pylon height on the 4ZA would be 52.9

m and the 4AP 52.4 m. The indicative pylon schedules for both the 4ZA and 4AP are provided in ES Appendix 3.1 (**Document 5.3.2.1**).

Conductors and Insulators

- 3.5.16 The existing connection is strung with Quad conductor which consists of four conductors per bundle each conductor having a cross sectional area of 400 mm² (referred to as 'Zebra' conductor). The new connection would be strung with Twin conductor, which would consist of two conductors per bundle each conductor having a cross sectional area of 850 mm² (41 mm diameter conductor) (referred to as 'Redwood' conductor). At transposition points where there would be a change from Quad conductor to Twin conductor or vice versa an adaptor plate would be used.
- 3.5.17 Insulators can be made of different types of material, but the most common industry standard is either glass or porcelain.
- 3.5.18 Suspension pylons would typically have a single insulator string hanging vertically downwards from each crossarm end to carry the conductor bundle. A tension pylon would typically have one insulator string per conductor (i.e. two insulator strings for a conductor bundle consisting of two conductors) and these are orientated horizontally outwards from the crossarm ends and take the tension of the conductors.

Above Ground Limits of Deviation

- 3.5.19 As recognised by the Planning Inspectorate's Advice Note 9 (Ref 3.1) a necessary and proportionate degree of flexibility often needs to be incorporated into the design of a development so that unforeseen issues encountered after a development has been consented can be addressed. In this instance, for example, previously unidentified poor ground conditions, or the identification of significant unrecorded archaeological remains, may require a pylon to be re-sited. Therefore, to allow for this the 400 KV OHL would be constructed within the specified limits of deviation (LOD). The proposed alignment of the new build 400 kV OHL sections are subject to LOD to provide this necessary and proportionate degree of flexibility. The above ground LOD provides a maximum distance or measurement of variation within which every element of the 400 kV OHL would be located.
- 3.5.20 In respect of the 400 kV OHL, LOD are applied horizontally and vertically.

- 3.5.21 The proposed above ground LOD for the Proposed Development are in summary:
 - Horizontal: The Horizontal LOD is 100 m (50 m either side of the centre line). In certain locations this has been pulled in to less than 100 m to avoid a particular receptor. Where the LOD is 100 m the extent of movement of any pylon is limited by the span length and conductor swing. The potential for pylon movement is reduced in long spans with large conductor sags as the swing of the conductor can be up to 20-30 m in plan either side of the centreline. It is possible for individual spans to have smaller conductor swings, conversely allowing respective pylon bases to move further towards the edge of the LOD. At a maximum span length the centre of a pylon could move approximately 20 m either side of the centreline subject to topography and local The horizontal LOD is shown on ES Figure 3.1 conditions. (Document 5.3.1.1) and the Works Plans (Document 4.4). There is no limit placed on the movement of a pylon horizontally along the centreline with the exception of the pylons listed and shown on the Schedule of Environmental Commitments (Document 7.4.2.1). The horizontal movement along the alignment of all other pylons is constrained by the number of pylons and the distance a single pylon could move whilst still maintaining ground clearance and not exceeding the vertical LOD described below.
 - Vertical: The upwards vertical LOD of the pylon height is 6 m. Standard extension panels for lattice pylons are typically in 3 m increments, hence the LOD allows for two such panels. This height has been chosen as a vertical increase of 3 m typically allows a 25 m increase of horizontal movement subject to localised factors such as topography; given the design objective to maintain a 25 m clearance distance from hedges, fences and roads, a total of 50 m of horizontal movement is therefore required to move a pylon from one field to the next, which could equate to up to a 6 m vertical increase albeit this is dependent on local topography. The final design of a pylon may be lower in height, if the LOD was used, as such there is no restriction placed on a reduction in height. Minimum safety clearances for all OHLs are strictly prescribed⁵ and are legally binding (Ref The statutory safety clearances must be maintained 3.2).

⁵ Energy Networks Association – Technical Specification 43-8

between conductors and the ground as well as trees, buildings and any other structures such as street lighting columns. To maintain the safety clearances, the height of any pylon must allow for the sag of the conductor (wires), the swing (how conductors perform in windy conditions) and the span (i.e. the distance) between two pylons. There is no below ground LOD in respect of the 400 kV OHL.

3.5.22 The flexibility introduced by the LOD has been assessed as part of the EIA; this is explained in ES Chapter 6 EIA Methodology and Basis of Assessment (**Document 5.6**).

Section A Wylfa to Rhosgoch

Section Description

3.5.23 Section A of the Proposed Development is shown on ES Figure 3.2 Sheet 1 of 6 (**Document 5.3.1.2**). It commences at Wylfa Substation and extends easterly towards Rhosgoch, passing to the north and east of the villages of Tregele and Llanfechell, the two lines run in close parallel for the extent of the section. The majority of new 400 kV OHL is to the east of the existing OHL and is on the 4ZA alignment, however there is a short section of new 400 kV OHL on the 4AP alignment between 4AP001 and 4AP002. Both alignments cross the A5025 and head south-east to the end of the section north of the settlement of Rhosgoch.

<u>Pylons</u>

- 3.5.24 This section would comprise of 21 new pylons made up of one new pylon on the 4AP (4AP001) and 20 new pylons on the 4ZA (4ZA005 4ZA025). There is no proposed 4ZA011. These are illustrated on the Works Plans, DCO_A/WO/PS/01 to DCO_A/WO/PS/05 (Document 4.4).
- 3.5.25 This section would also include four new gantries at Wylfa Substation (included as part of the Wylfa Substation modifications). These are included on the Indicative Pylon Schedules for both the 4ZA and 4AP, ES Appendix 3.1 (**Document 5.3.2.1**) and illustrated on ES Figure 3.2 Sheet 1 of 6 (**Document 5.3.1.2**) and Works Plan DCO_A/WO/PS/01 (**Document 4.4**).

Options

3.5.26 Options A and B are contiguous in this section.
<u>Conductors</u>

3.5.27 On the 4AP there would be a short section of new Twin Redwood conductor bundles between the gantry at Wylfa Substation and 4AP002, for the remainder of this section the 4AP 400 kV OHL would comprise of the existing Quad Zebra conductor bundles. On the 4ZA 400 kV OHL there would be new Twin Redwood conductor bundles for the entire section.

Removal of Existing Assets

3.5.28 All the existing gantries at Wylfa Substation and the section of existing conductor bundles between these gantries and 4AP002 would be removed. This is illustrated on Works Plan DCO_A/WO/PS/01 (Document 4.4).

Existing Assets to be Modified

3.5.29 Modifications are required to existing pylon 4AP002 and the earthwire on the existing 4AP pylons would be replaced along the whole of this section. These are illustrated on Works Plan DCO_A/WO/PS/01-06 (**Document 4.4**).

Summary of the Permanent Works for the Proposed Development in Section A

3.5.30 Table 3.1 provides a summary of the Proposed Development in this section.

Table 3.1 Summary of the Permanent Works for the Proposed

Development in Section A		
	4AP	4ZA
Number of New Pylons	1 (+2 New Gantries at Wylfa)	20 (+2 New Gantries at Wylfa)
Number of Retained Pylons	20 (1 Modified, 19 Not Affected)	1 (Modified)
Number of Dismantled Pylons		2 Gantries at Wylfa
Total Length of New 400 kV OHL Build	233 m (4AP001 – 4AP002)	6.8 km (4ZA004 – 4ZA025)
	76 m Downleads (Wylfa – 4AP001)	75 m Downleads (Wylfa – 4ZA004)
Length of Existing	6.55 km (Modified	

Table 3.1 Summary of the Permanent Works for the ProposedDevelopment in Section A		
	4AP	4ZA
Retained Line	(4AP002 – 4AP021))	
Length of Line to be	279 m (4ZA004 – 4AP002)	
Dismantled	86 m Downleads (Wylfa – 4ZA004)	
Height of Tallest	59.2 m (4AP008,	55.3 m (4ZA004)
Retained Pylon	4AP016 & 4AP018)	
Height of Tallest Proposed Pylon	46 m (4AP001)	55.5 m (4ZA017)
Height of Shortest Retained Pylon	48.6 m (4AP004 & 4AP014)	55.3 m (4ZA004)
Height of Shortest Proposed Pylon	46 m (4AP001)	45.3 m (4ZA007)

Section B Rhosgoch to Llandyfrydog

Section Description

- 3.5.31 Section B of the Proposed Development is shown on ES Figure 3.2 Sheet 2 of 6 (Document 5.3.1.2). It runs in a north-west to southeast direction along the route of the existing 400 kV OHL from a location south of Bodewryd, where Section A changes into Section B. The Proposed Development then heads south-east to pass immediately south of Rhosgoch and Rhosybol and crosses the B5111 before reaching Llandyfrydog where Section B ends and Section C begins.
- 3.5.32 This section includes two of the three transposition points between Rhosgoch and Rhosybol and near Llandyfrydog therefore this section includes sections of two new 400 kV OHLs. These are illustrated on ES Figure 3.2 Sheet 2 of 6 (Document 5.3.1.2).

Options

3.5.33 Options A and B are contiguous in this section.

Pylons

3.5.34 This section would comprise of 25 new pylons made up of 14 new pylons on the 4AP (4AP024 - 4AP037) and 11 new pylons on the 4ZA (4ZA026 – 4ZA034 and 4ZA041 – 4ZA042). These are illustrated on ES Figure 3.2 Sheet 2 of 6 (**Document 5.3.1.2**) and the Works Plans, DCO_B/WO/PS/01 to DCO_B/WO/PS/04 (**Document 4.4**).

Conductors

3.5.35 On the 4AP there would be two short sections of line utilising existing Quad Zebra conductor bundles between the start of the section and 4AP023 and between 4AP037 and the end of this section. The remainder of the 4AP 400 kV OHL in this section would consist of new Twin Redwood conductor bundles. On the 4ZA, 4ZA034 to 4ZA040 would consist of Quad Zebra conductor bundles with the remainder of the 4ZA in this section comprising of new Twin Redwood conductor bundles.

Removal of Existing Assets

3.5.36 In order to reduce environmental effects throughout this section an existing section of the 4ZA 400 kV OHL would be dismantled and two new sections of OHL constructed in parallel to the south of Rhosybol. This would require the removal of approximately 2.64 km of existing 400 kV OHL including eight pylons (X4ZA027 – X4ZA033 and X4ZA040) on the existing 400 kV OHL. In addition the existing conductor bundles between 4AP023 and 4ZA034 and between 4ZA040 and 4AP037 would also be removed. These removals are illustrated on Works Plans DCO_B/WO/PS/01 to DCO_B/WO/PS/04 (**Document 4.4**).

Existing Assets to be Modified

3.5.37 Modifications would be required to the existing 400 kV OHL between the start of this section up to and including pylon 4AP023, between pylons 4ZA034 and 4ZA036, a modification to pylon 4ZA040 and modifications between pylon 4AP037 and the end of this section. These modifications are illustrated on Works Plans DCO_B/WO/PS/01 to DCO_B/WO/PS/04 (**Document 4.4**).

Summary of the Permanent Works for the Proposed Development in Section B

3.5.38 Table 3.2 provides a summary of the Proposed Development in this section.

Table 3.2 Summary of the Permanent Works for the ProposedDevelopment in Section B		
	4AP	4ZA
Number of New Pylons	14	11
Number of Retained Pylons	3 (1 Modified)	6 (1 Modified)
Number of Dismantled Pylons	8 (Existing 4ZA)	
Number of Temporary Pylons	None	2
Total length of New Line Build	4.91 km (4AP023 – 4AP037)	3.64 km (4ZA025 – 4ZA034 & 4ZA040 – 4ZA042)
Length of Existing Retained Line	0.94 km (Modified (4AP021 – 4AP023 & 4AP037 – 4AP038))	1.42 km Existing (4ZA036 – 4ZA040) 0.79 km Modified (4ZA034 – 4ZA036)
Length of Line to be Dismantled	2.64 km (4AP023 – 4ZA035 & 4ZA040 – 4AP037)	
Length of Temporary OHL	2.43 km (4ZA028 – 4ZA035 & 4AP036 – 4AP037)	
Height of Tallest Retained Pylon	65.3 m (4AP038)	59.2 m (4AP036, 4AP037, 4AP038 & 4AP039)
Height of Tallest Proposed Pylon	57.3 m (4AP036)	58.5 m (4ZA042)
Height of Smallest Retained Pylon	48.6 m (4AP023)	48.6 m (4ZA040)
Height of Smallest Proposed Pylon	43.5 m (4AP026 & 4AP035)	43.5 m (4ZA030)

Temporary Pylons

3.5.39 In order to realign the existing 400 kV OHL and construct the new 400 KV OHL, two temporary pylons would be required during construction to maintain the electricity supply to Anglesey. The temporary pylons

would be 4ZA030T to the south of Pen-yr-orsedd and 4ZA034T directly east of the B5111. These temporary pylons would be removed on completion of the construction of this section of work. The temporary pylons are illustrated on Works Plans DCO_B/WO/PS/01 to DCO_B/WO/PS/03 (**Document 4.4**).

Section C Llandyfrydog to B5110 north of Talwrn

Section Description

- 3.5.40 Section C of the Proposed Development is shown on ES Figure 3.2 Sheet 3 of 6 Options A and B (**Document 5.3.1.2**). It commences east of the settlement of Llandyfrydog and extends in parallel with the existing 400 kV OHL in a south-easterly direction towards the hamlet of Maenaddwyn, passing to the west of Hebron and then to the north of the village of Capel Coch. To the north-east of Capel Coch the existing 400 kV OHL continues south-east through the Anglesey Fens Special Area of Conservation (SAC); the new 400 kV OHL is routed south to the east of Capel Coch adjacent to the Anglesey Fens SAC. After crossing the Afon Erddreiniog the new 400 kV OHL turns southeast where it converges back to close parallel with the existing 400 kV OHL at Maen Eryr. The two OHLs then run in close parallel for the remainder of this section to a point south of the B5110. The two OHLs are not in close parallel for approximately 2.6 km through this section to avoid direct effects from the new 400 kV OHL on the Anglesey Fens SAC.
- 3.5.41 This section includes the third transposition point close to Maenaddwyn. Therefore this section includes a section of two new 400 kV OHLs. This is illustrated on ES Figure 3.2 Sheet 3 of 6 Options A and B (**Document 5.3.1.2**).

Options

3.5.42 The proposed pylon positions are broadly contiguous between the two options A and B. In this section however there are very slight variations in the locations of pylons 4AP057 to 4AP062 (approximately 1 m) and as a result there are also slight variations in both the LOD and Order Limits from south-east of Maen Eryr to the end of this section where Section D commences. The differences between the two options in this section are shown on ES Figure 3.2 Sheet 3 of 6 Options A and B (**Document 5.3.1.2**).

<u>Pylons</u>

3.5.43 This section would comprise 26 new pylons, made up of 22 new pylons on the 4AP (4AP041 – 4AP062) and four new pylons on the 4ZA (4ZA043 – 4ZA046). These are illustrated on Figure 3.2 Sheet 3 of 6 Options A and B (Document 5.3.1.2) and the Works Plans DCO_C/WO/PS/01_A to DCO_C/WO/PS/07_A and DCO_C/WO/PS/01_B to DCO_C/WO/PS/07_B (**Document 4.4**).

Conductors

3.5.44 On the 4AP approximately 600 m between the start of the section and 4AP041 would be the existing Quad Zebra conductor bundles. The remainder of the 4AP in this section would comprise of the new Twin Redwood conductor bundles. On the 4ZA there would be a section of approximately 1.5 km between the start of the section and 4ZA047 of new Twin Redwood conductor bundles, the remainder of the 4ZA in this section is not included in the Proposed Development and would remain as the existing Quad Zebra conductor bundles.

Removal of Existing Assets

3.5.45 In order to reduce environmental effects throughout this section the design incorporates a longer transposition point over two spans between Clorach-fawr and Maenaddwyn. This would require the removal of two existing pylons (X4ZA044 and X4ZA045) on the existing 400 kV OHL. In addition the existing conductor between 4AP041 and 4ZA047 would also be removed. These removals are DCO C/WO/PS/01 A illustrated Works Plans on to DCO_C/WO/PS/02_A and DCO_C/WO/PS/01_B to DCO_C/WO/PS/02_B (Document 4.4).

Existing Assets to be Modified

3.5.46 Modifications are required to the existing alignment from the start of the section to 4AP041 and to pylon 4ZA047. These modifications are illustrated on Works Plans DCO_C/WO/PS/01_A to DCO_C/WO/PS/02_A and DCO_C/WO/PS/01_B to DCO_C/WO/PS/02_B (**Document 4.4**).

Section of No Works

3.5.47 No works are proposed to the existing 400 kV OHL for approximately 6.45 km from pylons 4ZA048 to 4ZA064 inclusive. These are illustrated on Works Plans DCO_C/WO/PS/01_A to DCO_C/WO/PS/07_A and DCO_C/WO/PS/01_B to DCO_C/WO/PS/07_B (**Document 4.4**). Whilst this does not form part of the Proposed Development it has been provided in Table 3.3 below for context.

Summary of the Permanent Works for the Proposed Development in Section C

3.5.48 Table 3.3 provides a summary of the Proposed Development in this section.

Table 3.3 Summary of the Permanent Works for the ProposedDevelopment in Section C		
	4AP	4ZA
Number of New Pylons	22	4
Number of Retained Pylons	2	18 (1 is Modified)
Number of Dismantled Pylons	2 (Existing 4ZA)	
Total Length of New Line Build	7.3 km (4AP041 – 4AP062)	1.75 km (4ZA042 – 4ZA047)
Total Length of Existing Line to be Retained	1.04 km (Modified (4AP038 – 4AP041)	6.45 km (4ZA047 – 4ZA064)
Length of Line to be Dismantled	0.68 km (4AP041 – 4ZA047)	
Height of Tallest Retained Pylon	57.7 m (4AP039)	59.2 m (4ZA048, 4ZA051, 4ZA059, 4ZA061 & 4ZA064)
Height of Tallest Proposed Pylon	61.5 m (4AP044)	54.3 m (4ZA043)
Height of Smallest Retained Pylon	50 m (4AP040)	51.6 m (4ZA056 & 4ZA058)
Height of Smallest Proposed Pylon	45.8 m (4AP052)	48.3 m (4ZA045)

Section D B5110 north of Talwrn to the Ceint

Section Description

3.5.49 Section D of the Proposed Development is shown on ES Figure 3.2 Sheet 4 of 6 Options A and B (**Document 5.3.1.2**). This section is approximately 3.5 km and commences to the south of the B5110. The two lines continue in a south-easterly direction crossing the B5109 to the west of Talwrn and the B5420 to the east of Llangefni where the section ends. The two lines are in close parallel for the entire section.

Options

3.5.50 The proposed pylon positions are different for Option A and Option B in this section. Option A is shown on ES Figure 3.2 Sheet 4 of 6 Option A (Document 5.3.1.2) and Works Plans DCO_D/WO/PS/01_A to DCO_D/WO/PS/04_A (Document 4.4) and Option B is shown on ES Figure 3.2 Sheet 4 of 6 Option B (**Document 5.3.1.2**) and Works Plans DCO_D/WO/PS/01_B to DCO_D/WO/PS/04_B (Document 4.4). There is also an associated variation between the LOD and Order Limits between the two options from the start of this section, to a point south-east of Hendre Hywel. The LOD and Order Limits for Option A are shown on Works Plans DCO_D/WO/PS/01_A to DCO_D/WO/PS/04_A (Document 4.4) and for Option B they are shown Works Plans DCO D/WO/PS/01 B on to DCO_D/WO/PS/04_B (Document 4.4). The differences between the two options in this section are show on ES Figure 3.2 Sheet 4 of 6 Option A and Option B (Document 5.3.1.2).

<u>Pylons</u>

3.5.51 This section would comprise of 10 new pylons for Option A and 11 new pylons for Option B all of which are on the 4AP (4AP063 – 4AP073). Option A does not include pylon 4AP065 and proposed pylons 4AP064 and 4AP066 are in different locations compared to Option B, all other proposed pylons are broadly contiguous for both. The pylons are illustrated on Figure 3.2 Sheet 4 of 6 Option A and Option B (**Document 5.3.1.2**) and Works Plans DCO_D/WO/PS/01_A to DCO_D/WO/PS/04_A for Option A and DCO_D/WO/PS/01_B to DCO_D/WO/PS/04_B for Option B (**Document 4.4**).

Conductors

3.5.52 On the 4AP the whole of this section would comprise of new Twin Redwood conductor bundles. The 4ZA is outside of the Proposed

Development and the whole section comprises of the existing Quad Zebra conductor bundles.

Section of No Works

3.5.53 No works are proposed to the entirety of the 4ZA 400 kV OHL throughout this section and it is outside of the Proposed Development. Whilst this does not form part of the Proposed Development information has been provided in Table 3.4 below for context.

Summary of the Permanent Works for the Proposed Development in Section D

3.5.54 Table 3.4 provides a summary of the Proposed Development in this section.

Table 3.4 Summary of the Permanent Works for the Proposed Development in Section D		
	4AP	4ZA
Number of New Pylons	Option A = 10 Option B =11	None
Number of Retained Pylons	N/A?	10
Number of Dismantled Pylons	N/A	N/A
Total Length of New Line Build	3.59 km (4AP062 – 4AP073)	None
Total Length of retained 400 kV OHL	N/A	3.52 km (4ZA064 – 4ZA074)
Height of Tallest Retained Pylon	N/A	59.2 m (4ZA071)
Height of Tallest Proposed Pylon	58.5 m (4AP069)	N/A
Height of Smallest Retained Pylon	N/A	50 m (4ZA068)
Height of Smallest Proposed Pylon	46.5 m (4AP063 & 4AP071)	N/A

Section E Ceint to the Afon Braint

Section Description

3.5.55 Section E of the Proposed Development is shown on ES Figure 3.2 Sheet 5 of 6 (**Document 5.3.1.2**). This section is 4.36 km and commences south of the B5420 to the east of Llangefni. The two lines continue south south-east in close parallel to pylon 4ZA078 at which point the new 4AP 400 kV OHL diverts away from the existing 4ZA 400 kV OHL. The new 4AP 400 kV OHL continue south-east crossing the A55, A5 and railway between Garnedd fawr and Tyddynisaf continuing to the end of this section where the 400 kV OHL crosses the Afon Braint.

Options

3.5.56 Options A and B are contiguous in this section.

<u>Pylons</u>

3.5.57 This section would comprise of 13 new pylons all of which would be on the 4AP 400 kV OHL (4AP074 – 4AP086). Proposed pylons 4AP085 and 4AP086 would be a low height lattice pylon. These are illustrated on ES Figure 3.2 Sheet 5 of 6 (**Document 5.3.1.2**) and on Works Plans DCO_E/WO/PS/01 to DCO_E/WO/PS/04 (**Document** 4.4).

Conductors

3.5.58 On the 4AP the whole of this section would comprise of new Twin Redwood conductor bundles. The 4ZA is outside of the Proposed Development and the whole section would comprise of the existing Quad Zebra conductor bundles.

Section of No Works

3.5.59 No works are proposed to any elements of the existing 4ZA 400 kV OHL throughout this section and it is outside of the Proposed Development. Whilst this does not form part of the Proposed Development it has been provided in Table 3.5 below for context.

Summary of the Permanent Works for the Proposed Development in Section E

3.5.60 Table 3.5 provides a summary of the Proposed Development in this section.

Table 3.5 Summary of the Permanent Works for the ProposedDevelopment in Section E		
	4AP	4ZA
Number of New Pylons	13	None
Number of Retained Pylons	N/A	12
Number of Dismantled Pylons	N/A	N/A
Length of New Line Build	4.36 km (4AP073 – 4AP086)	N/A
Length of Existing Line Retained	N/A	4.29 km (4ZA074 – 4ZA086)
Height of Tallest Retained Pylon	N/A	56.1 m (4ZA077 & 4ZA086)
Height of Tallest Proposed Pylon	52.5 m (4AP076 & 4AP081)	N/A
Height of Smallest Retained Pylon	N/A	50 m (4ZA081, 4ZA083 & 4ZA085)
Height of Smallest Proposed Pylon	38.4 m (4AP086)	N/A

Section F Afon Braint to Pentir (Overhead Line)

Section Description

3.5.61 The 400 kV OHL in Section F comprises of one low height pylon (4AP087) on Anglesey to the proposed 400 kV gantries at Braint CSEC. In Gwynedd there is a section of 400 kV OHL, comprising of four pylons (one of which is low height (4AP088)) from the proposed 400 kV gantries at Tŷ Fodol CSEC south across Coed Nant y Garth to Pentir Substation.

Options

3.5.62 Options A and B are contiguous in this section.

<u>Pylons</u>

3.5.63 This section would comprise of five new pylons all of which would be on the 4AP 400 kV OHL (4AP087 – 4AP091) and six new FLT gantries, two each at Braint CSEC, Tŷ Fodol CSECs and Pentir Substation. Proposed pylons 4AP087 and 4AP088 would be low height lattice pylons. These are illustrated on Works Plans DCO_F/WO/PS/01 to DCO_F/WO/PS/05 (**Document 4.4**).

Conductors

3.5.64 On the 4AP the whole of this section would comprise of new Twin Redwood conductor bundles. The 4ZA is outside of the Proposed Development and the whole section would comprise of the existing Quad Zebra conductor bundles.

Section of No Works

3.5.65 No works are proposed to any elements of the existing 4ZA 400 kV OHL throughout this section and it is outside of the Proposed Development. Whilst this does not form part of the Proposed Development it has been provided in Table 3.6 below for context.

Summary of the Permanent Works for the Proposed Development in Section F

3.5.66 Table 3.6 provides a summary of the Proposed Development in this section.

Table 3.6 Summary of the Permanent Works for the Proposed Development in Section F		
	4AP	4ZA
Number of New Pylons	5 (six Gantries)	None
Number of Retained Pylons	N/A	23 (twoGantries at Pentir)
Number of Dismantled Pylons	N/A	N/A
Total Length of New Line Build	1.84 km (4AP086 – Braint & Tŷ Fodol – Pentir)	N/A
Total Length of	N/A	6.63 km (4ZA086 –

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Table 3.6 Summary of the Permanent Works for the ProposedDevelopment in Section F		
	4AP	4ZA
Existing Line to be retained		4ZA109) 55 m Downleads (4ZA109 – Pentir)
Height of Tallest Retained Pylon	N/A	62.2 m (4ZA095 & 4ZA096)
Height of Tallest Proposed Pylon	55.5 m (4AP090)	N/A
Height of Smallest Retained Pylon	N/A	43.9 m (4ZA107)
Height of Smallest Proposed Pylon	35.4 m (4AP088)	N/A
Height of Gantries	14.9 m (Tŷ Fodol, Braint & Pentir)	M/A

Foundations

3.5.67 The foundations of the proposed pylons would either be standard column and pad, mini pile or tube pile, or a bespoke design if Typical drawings for the three standard types of necessary. foundation are illustrated on Design Plan DCO_DE/PS/08 Sheet 3 of 4 – Illustrative Lattice Pylon Foundations (Document 4.13). The selection of foundation type would depend upon the ground conditions ES Appendix 3.1 (Document 5.3.2.1) details the encountered. indicative foundation type for each of the new proposed pylons on the 4AP and 4ZA.

Temporary Construction Compounds

3.5.68 Two construction compounds would be required to facilitate the construction of the 400 kV OHL elements of the connection. These are required for site offices, welfare facilities and storage during the construction period. They would be used from the commencement of construction of the 400 kV OHL through to the end of construction of the 400 kV OHL elements of the Proposed Development. A generic layout for a construction compound is illustrated on Design Plan DCO_DE/PS/12 sheet 1 of 5 (**Document 4.13**).

Penmynydd Road Construction Compound

3.5.69 This compound would be located on Anglesey, approximately 1.5 km to the east of Llangefni, centred on Grid Reference SH 482 751 and would be accessed off the B5420 (Penmynydd Road (Link 7)). This is illustrated Works Plans DCO_D/WO/PS/03_A on to DCO_D/WO/PS/04 A and DCO D/WO/PS/03 B to DCO D/WO/PS/04 B (Document **4.4**) and ES Figure 4.1 Construction Plans (Document 5.4.1.1).

Pentir Construction Compound

3.5.70 This compound would be located in Gwynedd directly south of Pentir Substation, centred on Grid Reference SH 559 674, and would be accessed off the B4547 (Link 19). This is illustrated on Works Plan DCO_F/WO/PS/05 (**Document 4.4**) and ES Figure 4.1 Construction Plans (**Document 5.4.1.1**).

Temporary Working Areas

- 3.5.71 In addition to the OHL construction compounds, temporary working areas and access tracks would be required to construct individual pylons, string the conductors, dismantle existing pylons and to access these working areas and compounds. These areas would be temporary and could extend up to the Order Limits. These temporary working areas are illustrated on ES Figure 4.1 Construction Plans (**Document 5.4.1.1**).
- 3.5.72 These areas can be split down into a number of types, Table 3.7 describes each and ES Chapter 6 EIA Methodology and Basis of Assessment (**Document 5.6**) explains how each has been assessed by the technical chapters (**Documents 5.7 to 5.18**).

Table 3.7: 400 kV OHL Temporary Work Areas	
Temporary Working Area	Description
Temporary Access	
Access Tracks	These would provide access to and between pylon locations providing access for personnel and equipment required to

Table 3.7: 400 kV OHL Temporary Work Areas	
Temporary Working Area	Description
	construct individual pylons and string conductors. The access tracks would typically be 4.5 m wide and 9 m wide at passing places. The total width including drainage and fencing would be a maximum of 12 m. Access tracks would either be stone laid on a geotextile, or formed of interlocking panels, depending on ground conditions and the duration and type of use. Typical stone and interlocking panel access tracks are shown on Design Plans DCO_DE/PS/11 sheet 2 of 6 and sheet 3 of 6 (Document 4.13) respectively. The proposed locations of the temporary stone and interlocking panel access tracks are shown on ES Figure 4.1 Construction Plans (Document 5.4.1.1). The temporary access tracks would be reinstated to the previous land use following completion of construction.
Bellmouths	A bellmouth would be required where a temporary access track connects to the public highway. An illustrative bellmouth layout is shown on Design Plan DCO_DE/PS/11 sheet 1 of 6 (Document 4.13) and the locations of the proposed bellmouths are shown on the Access and Rights of Way Plans (Document 4.2) and ES Figure 4.1 Construction Plans (Document 5.4.1.1). ES Appendix 4.1 the Temporary Access Principles Note (Document 5.4.2.1) provides a bellmouth schedule. Temporary bellmouths would be reinstated to the previous land use following completion of construction.
Visibility Splays	Visibility splays would be required to ensure sufficient line of sight for users of a

Table 3.7: 400 kV OHL Temporary Work Areas	
Temporary Working Area	Description
	bellmouth to see traffic and other road users in both directions. Visibility splays allow users to safely turn on to the public or un-adopted highway and to ensure other road users have time to react to any potential incident. Within the visibility splay vegetation would need to be cut to a specified height or visual obstacles removed depending on local conditions, the speed rating of the road and whether traffic management is in place. Visibility splays would be reinstated to the previous land use following completion of construction.
Crossings	
Culverts	Culvert installations would be required for access tracks to cross ditches and waterways. The size of the culvert would vary per crossing depending on the dimensions of the crossing. Illustrative culvert construction details are shown on Design Plan DCO_DE/PS/11 Sheet 4 of 6 (Document 4.13). On completion of construction the temporary culverts would be removed. ES Appendix 3.2 (Document 5.3.2.2) sets out the Indicative Watercourse Crossing Schedule which details the location and type of crossing.
Bridges	Where culverts are not suitable for a particular crossing due to either the sensitivity of the watercourse or engineering requirements a temporary bridge would be installed. Illustrative bridge details for 400 kV OHL construction are shown on Design Plan DCO_DE/PS/11 Sheet 5 of 6 (Document 4.13). On completion of construction the temporary

Table 3.7: 400 kV OHL Temporary Work Areas	
Temporary Working Area	Description
	bridges would be removed. ES Appendix 3.2 (Document 5.3.2.2) sets out the Indicative Watercourse Crossing Schedule which details the location and type of crossing.
Pylon Working Areas	
New Pylon Work Area	The stoned working area for a proposed new pylon would typically be a 50 m by 50 m or 2500 square metre (sq m) for both suspension and tension pylons. Working areas at tension pylons would typically be larger (4250 sq m), but the full area would not be stoned, these are illustrated on Design Plan DCO_DE/PS/10_01 Sheet 1 of 3 (Document 4.13). The locations of the proposed pylon working areas are illustrated on ES Figure 4.1 Construction Plans (Document 5.4.1.1).
	Working areas would be reinstated to the previous land use following completion of construction.
Existing Pylon Work Area	The working area for an existing suspension pylon would typically be 40 m by 40 m or 1600 sq m (50 m by 50 m for an existing tension pylon) and would not be stoned. The locations of the working areas at the existing pylons are illustrated on ES Figure 4.1 Construction Plans (Document 5.4.1.1).
	Working areas would be reinstated to the previous land use following completion of construction.
Existing Pylon Dismantling Area	The working area for a pylon dismantling area would typically be 50 m by 50 m or 2500 sq m. The locations of the dismantling areas for existing pylons are

Table 3.7: 400 kV OHL Temporary Work Areas		
Temporary Working Area	Description	
	illustrated on ES Figure 4.1 Construction Plans (Document 5.4.1.1).	
	Working areas would be reinstated to the previous land use following completion of construction.	
Pylon Conductor Pulling Positions	An illustrative conductor pulling position is shown on Design Plan DCO_DE/PS/10_02 Sheet 2 of 3 (Document 4.13). The areas available would be approximately 23000sq m; however this allows for micro siting of the pulling positions within these wider areas. The locations of the proposed conductor pulling positions are illustrated on ES Figure 4.1 Construction Plans (Document 5.4.1.1). The access track leading up to the pulling position could be stoned or have an interlocking panel form. The pulling position itself would typically be interlocking panels. Pulling positions would be reinstated to the	
	previous land use following completion of construction.	
Scaffolding		
Scaffold Work Area	Temporary scaffolding would be installed to protect roads and railways and could be used to protect hedgerows that would be crossed/affected by the construction of the 400 kV OHL. The proposed scaffold working areas are illustrated on ES Figure 4.1 Construction Plans (Document 5.4.1.1).	
Drainage		
Drainage	Drainage areas are illustrated on ES Figure 4.1 Construction Plans (Document 5.4.1.1). These areas have been identified to allow appropriate drainage management	

Table 3.7: 400 kV OHL Temporary Work Areas	
Temporary Working Area	Description
	during construction of the 400 kV OHL.

3.6 TUNNEL

- 3.6.1 National Grid has committed to the use of underground cables through the Anglesey AONB, and across the Menai Strait, to reduce effects on the landscape of the AONB, to reduce effects on the Menai Strait and Conway Bay SAC and to protect iconic views along the Menai Strait (further explained in ES Chapter 2 Alternatives and Proposed Development History (**Document 5.2**) and the Menai Strait Crossing Report (**Document 9.6**)). In order to place the connection underground in this section (within Section F) the following permanent components are proposed:
 - Braint THH/CSEC on Anglesey;
 - Tunnel containing the underground cables between Braint and Tŷ Fodol THHs; and
 - Tŷ Fodol THH/CSEC in Gwynedd.

Cable

3.6.2 The proposed cables would be likely to be a cross linked polyethylene (XLPE) single core cable.

Tunnel

- 3.6.3 The tunnel would have an internal diameter of up to 4 m and would be approximately 4 km in length. An example alignment of the tunnel is illustrated on the Illustrative Tunnel Longitudinal Section, Design Plan DCO_DE/PS/07_01 Sheet 1 of 3 (**Document 4.13**) and an illustrative cross section on Design Plan DCO_DE/PS/07_02 Sheet 2 of 3 and Design Plan DCO_DE/PS/07_03 Sheet 3 of 3 (**Document 4.13**).
- 3.6.4 The tunnel would include service tunnels and either a launch/reception chamber or niches depending on the tunnel construction method. The launch chamber would be approximately 120 m in length with an excavation area of approximately 35m² and would provide an area for assembling the sections of a tunnel boring

machine (TBM) should this construction technique be used. Should the tunnel be constructed using drill and blast niches would also be required along the length of the tunnel during construction for the storage and equipment and for use by personnel. The niches would be approximately 2-3 m away from the tunnel excavation face approximately 5 m in height and approximately every 200 m. The service tunnels would provide additional working and storage space at the bottom of the shaft and would be approximately 20 m in length. Storing materials such as segments and small plant in these tunnels allows the shaft bottom to be kept clear for the lifting operations.

3.6.5 The Proposed Development includes a tunnel shaft at Braint of approximately 75 m in depth and one at Tŷ Fodol approximately 95 m in depth. Both shafts would have an internal diameter of up to 15 m. An illustrative shaft cross section is shown on Design Plan DCO_DE/PS/07_02 Sheet 2 of 3 (Document 4.13).

Below Ground Limits of Deviation

3.6.6 The final route of the tunnel would be subject to below ground LOD which would provide a necessary and proportionate degree of flexibility as to the final alignment of the works. There are two types of below ground LOD which are described in the following sections:

Horizontal Limit of Deviation

3.6.7 The horizontal LOD is shown on ES Figure 3.1 Sheet 6 of 6 (**Document 5.3.1.1**) and Works Plans DCO_F/WO/PS/01 to DCO_F/WO/PS/05 (Document 4.4). This LOD provides the maximum distance of variation horizontally within which all the permanent works would be constructed. This is required to provide the necessary flexibility to adjust the alignment of the tunnel should problematic ground conditions be identified.

Vertical Limit of Deviation

- 3.6.8 The top of the tunnel would maintain a minimum of 10 m of bedrock cover to either the surface level or Menai Strait. No lowest vertical LOD has been specified.
- 3.6.9 The flexibility introduced by the LOD has been assessed as part of the EIA; this is explained in ES Chapter 6 EIA Methodology and Basis of Assessment (**Document 5.6**).

Typical Equipment

3.6.10 Table 3.8 details the typical equipment which would be permanently located within the tunnel and the shafts.

Table 3.8 List of Typical Equipment – Tunnel and Shafts		
Equipment	Description	
Monorail / guide rail	To provide access along the length of the tunnel	
Internal Lighting	To provide illumination in the shafts for maintenance staff.	
Lift	To take equipment and personnel into the tunnel for maintenance in the event that the cables need to be repaired	
Internal Communication System ('Leaky Feeder')	Communication system	
Generators ((Permanent or Temporary) (located within or on the edge of the THH	The facility requires power supply. In the event of the power supply failing a backup system that uses generators will be used.	
Battery Back-Up (within the THH)	Will require permanent self-contained area and will be ventilated	
Tunnel Inspection Vehicle	To carry out inspections/maintenance along the tunnel	
Pump	Located at the base of each shaft to pump any water which seeps into the tunnel and shafts	
Stairwell fans	To provide ventilation in the shafts	

Tunnel Head Houses and Cable Sealing Ends

3.6.11 Where the connection transitions from an OHL to underground cable a CSEC is required to provide a point of connection.

- 3.6.12 THHs are required to provide maintenance access to the tunnel and tunnel shafts. They contain ventilation equipment to regulate the temperature in the tunnel and shafts.
- 3.6.13 To reduce environmental effects each CSEC has been sited adjacent to each of the associated THHs and they are collectively referred to as THH/CSECs. Works Plan DCO_F/WO/PS/01 (Document 4.4) shows the location of Braint THH/CSEC and DCO_F/WO/PS/04 (Document 4.4) shows the location of Tŷ Fodol THH/CSEC.

Braint Tunnel Head House and Cable Sealing End Compound

Site Description

- 3.6.14 This proposed site is centred on Grid Reference SH 517 710, and is approximately 47,700 sq m (79,000 sq m hectares (ha) inclusive of the area within which the permanent access track would be located the permanent access track would be approximately 4 m wide and located within the wider swathe)). The proposed site is shown on ES Figure 3.2 Sheet 5 of 6 (**Document 5.3.1.2**). The site is located at approximately 35 m Above Ordnance Datum (AOD), on relatively flat ground within an existing agricultural field. An unnamed track which connects Unnamed Road 22 (Link 15) (**Document 5.13.1.7**) with Tyddyn Fadog borders the south-east of the site.
- 3.6.15 The Afon Braint is approximately 400 m to the north and west of the site and the A4080 is approximately 670 m to the south-east of the site.
- 3.6.16 The settlement of Llanfairpwll is located approximately 1 km to the north-east of the site and Llanddaniel Fab 2 km to the south-west.
- 3.6.17 The site is approximately 1 km from the Menai Strait.

Site Use

3.6.18 The site would contain two gantries, cable sealing end (CSE) equipment which would provide the transition from an OHL to underground cable, underground cables in concrete troughs, the THH which is required to provide maintenance access to the tunnel and tunnel shafts, ventilation for the stairwells and landscaping areas.

Parameters

3.6.19 Design Plan DCO_DE/PS/09_01 Sheet 1 of 8 (Document 4.13) shows the maximum parameters within which Braint THH/CSEC

would be developed. This parameter plan shows the maximum height and volume of the THH building, the zones within which the THH and gentries would be located within the site and the zone within which the permanent access road would be located.

<u>Design</u>

<u>Layout</u>

- 3.6.20 The site layout is illustrated on Design Plan DCO_DE/PS/09_02 Sheet 2 of 8 (**Document 4.13**) and Design Plan DCO_DE/PS/09_04 Sheet 4 of 8 (**Document 4.13**).
- 3.6.21 The illustrative footprint and layout has been determined by the operational requirements as well as environmental and safety considerations. Further information about the design process is contained within the Design Report (**Document 7.17**) and the Design and Access Statement (**Document 7.16**).
- 3.6.22 The THH/CSEC would be surrounded by a 2.4 m mesh or palisade security fence topped with an electric pulse fence to a height of 3.4 m, this is illustrated on Design Plan DCO_DE/PS/09_03 Sheet 3 of 8 and Design Plan DCO_DE/PS/09_04 Sheet 4 of 8 (**Document 4.13**).
- 3.6.23 The area inside of the security fence would comprise the gantries, CSE equipment, Distribution Network Operator's (DNO) supply and compound, portable relay room, THH, 400 kV underground cables, firefighting water tank if required and internal vehicular access.
- 3.6.24 The attenuation ponds and water storage tank would be located within the site boundary perimeter fence but beyond the security fence. The indicative alignment of the tunnel means that any seepage into the tunnel during operation would be pumped out through Braint shaft, this could include saline water. The site layout includes an area for saline water treatment, if required, this is illustrated on Design Plan DCO_DE/PS/09_02 Sheet 2 of 8 (**Document 4.13**).

Appearance

- 3.6.25 The Design Guide (**Document 7.19**) sets out the building form and key design principles proposed and suggested approaches to the materials and colour palette.
- 3.6.26 The site under normal operational conditions would not be lit. Lighting would be required during planned or unplanned maintenance activities. Lighting would be required to allow the safe movement of

vehicles and pedestrians at night within the operational boundary. The minimum exterior lighting requirements are:

- Maintained average illuminance: 6.0 lux; and
- Maintained minimum point illuminance: 2.5 lux.
- 3.6.27 These requirements apply to all perimeter fencing and gates and permanent access roads, verges, footpaths, designated walkways and areas occupied by plant or other equipment contained by the operational fence line.
- 3.6.28 Additional portable lighting would be used for both planned and unplanned maintenance activities. This would be brought to site when required and removed on completion of the maintenance activity.

<u>Scale</u>

3.6.29 The site, inclusive of the area within which the permanent access track will be located, would be approximately 79,0000 sq m. Table 3.9 below sets out the dimensions which make up Braint THH/CSEC subject to the parameters shown on DCO_DE/PS/09_01 Sheet 1 of 8 (**Document 4.13**).

Table 3.9: Braint THH/CSEC Compound Dimensions and CSECTypical Equipment				
Component	Length	Width	Height	Area/Volume
Site	N/A	N/A	N/A	79,0000 sq m inclusive of the area within which the permanent access track would be located.
Compound	N/A	N/A	N/A	8,640 sq m
Tunnel Head House	N/A	N/A	8 m (maximum parameter)	4,350 m ³ (maximum parameter)
Gantries	N/A	N/A	14.9 m	
Cable Sealing End Equipment	Down LeaDown Dro	ads oppers		

Table 3.9: B Typical Equip	Braint THH/CS ment	SEC Cor	npound Dime	ensions and CSEC
Component	Length	Width	Height	Area/Volume
	 Terminations and Support Including Foundations, Post Insulators, Disconnection/Earth Switches, Link Boxes, Surge Arrester, and Current Transformers 			

<u>Access</u>

3.6.30 A new permanent 4 m wide access track would connect Braint THH/CSEC to the public highway at Unnamed Road 22 (Link 15) which connects the A5 west of Llanfairpwll with the A4080 (Brynsiencyn Road) at Victoria Cottages. The new junction with the Unnamed Road 22 (Link 15) (**Document 5.13.1.7**) would allow appropriate visibility splays. The location of the permanent access track is shown on Design Plan DCO_DE/PS/09_01 Sheet 1 of 8 and Design Plan DCO_DE/PS/09_02 Sheet 2 of 8 (**Document 4.13**).

Landscaping

3.6.31 Landscaping is proposed around the operational compound within the site boundary perimeter fence; the indicative area within which landscape planting would be located is illustrated on DCO_DE/PS/09_01 Sheet 1 of 8 (**Document 4.13**). The indicative landscaping proposals for this area are shown on ES Figure 7.14 (**Document 5.7.1.14**) and are summarised in the Design Guide (**Document 7.6**).

Tŷ Fodol Tunnel Head House and Cable Sealing End Compound

Site Description

- 3.6.32 This proposed site is centred on Grid Reference SH 546 683, and is approximately 34,200 sq m which is inclusive of the permanent access track and shown on ES Figure 3.2 (**Document 5.3.1.2**). The site is located at approximately 80 m AOD, on relatively flat ground and within two existing agricultural fields. The site is bordered to the north by Ffordd Fodolydd Lane and to the south by Coed Nant y Garth Local Wildlife Site.
- 3.6.33 The A487 is located approximately 400 m to the north-west of the site and the B4547 approximately 450 m to the south. A tributary of the

Nant Cefn flows in a westerly direction, approximately 170 m south of the site.

3.6.34 The site is approximately 2.35 km from the Menai Strait.

Site Use

3.6.35 The site would contain two gantries, CSE equipment which provides the transition from an OHL to underground cable, underground cable in concrete troughs and the THH, which is required to house the tunnel ventilation and provide maintenance access to the tunnel and tunnel shafts, ventilation for the stairwells and landscaping areas.

Parameters **Parameters**

3.6.36 Design Plan DCO_DE/PS/09_05 Sheet 5 of 8 (**Document 4.13**) shows the maximum parameters within which Tŷ Fodol THH and CSEC would be developed. This parameter plan shows the maximum height and volume of the THH building and the zones within which the THH and gentries would be located within the site.

<u>Design</u>

<u>Layout</u>

- 3.6.37 A site layout is illustrated on Design Plan DCO_DE/PS/09_06 Sheet 6 of 8 (**Document 4.13**).
- 3.6.38 The footprint and layout has been determined by the operational requirements as well as environmental and safety considerations. Further information about the design process is contained within the Design Report (**Document 7.17**) and the Design and Access Statement (**Document 7.16**).
- 3.6.39 The THH/CSEC would be surrounded by a 2.4 m mesh or palisade security fence topped with an electric pulse fence to a height of 3.4 m, this is illustrated on Design Plan DCO_DE/PS/09_07 Sheet 7 of 8 and Design Plan DCO_DE/PS/09_08 Sheet 8 of 8 (**Document 4.13**).
- 3.6.40 The area inside of the security fence comprises of the gantries, CSE equipment, DNO supply and compound, portable relay room, THH, firefighting water tank and internal vehicular access.
- 3.6.41 The attenuation ponds and water storage tank would be located within the site boundary perimeter fence but beyond the security fence.
- 3.6.42

<u>Appearance</u>

- 3.6.43 The Design Guide (**Document 7.19**) sets out the building form and key design principles and suggested approaches to the materials and colour palette.
- 3.6.44 The site under normal operational conditions would not be lit. Lighting would be required during planned or unplanned maintenance activities. Lighting would be required to allow the safe movement of vehicles and pedestrians at night within the operational boundary. The minimum exterior lighting requirements are:
 - Maintained average illuminance: 6.0 lux; and
 - Maintained minimum point illuminance: 2.5 lux.
- 3.6.45 These requirements apply to all perimeter fencing and gates and permanent access roads, verges, footpaths, designated walkways and areas occupied by plant or other equipment contained by the operational fence line.
- 3.6.46 Additional portable lighting would be used for both planned and unplanned maintenance activities. This would be brought to site when required and removed on completion of the maintenance activity.

<u>Scale</u>

- 3.6.47 The site, inclusive of the permanent access track, would be approximately 34,200 sq m. Table 3.10 below sets out the dimensions which make up Tŷ Fodol THH and CSEC subject to the parameters shown on DCO_DE/PS/09 Sheet 5 of 8 (Document 4.13).
- 3.6.48 The Tunnel Head House at Tŷ Fodol THH/CSEC would be taller than Braint THH/CSEC because it would house the main tunnel ventilation fans to draw air though the tunnel in order to maintain the correct temperature in the shaft and tunnel needed to ensure the cables would not overheat.

Table 3.10: T Equipment	ŷ Fodol T	HH and	CSEC Dimensior	ns and CSEC Typical
Component	Length	Width	Height	Area/Volume

Equipment				
Component	Length	Width	Height	Area/Volume
Site	N/A	N/A	N/A	34,200 sq m inclusive of the permanent access track
Operational Compound	N/A	N/A	N/A	8,640 sq m
Tunnel Head House	N/A	N/A	11 m (maximum parameter)	9,300 m ³ (maximum parameter)
Full Line Tension Gantry (x2)	N/A	N/A	14.9 m	
Cable	Down Leads			
Sealing End	Down Droppers			
	 Terminations and Support Including Foundations, Post Insulators, Disconnection/Earth Switches, Link Boxes, Surge Arrester, and Current Transformers. 			

Table 3.10: Tŷ Fodol THH and CSEC Dimensions and CSEC Typical

Access

- 3.6.49 A new permanent 4 m wide access track would connect Tŷ Fodol THH/CSEC to the public highway at Ffordd Fodolydd Lane (Link 30) which connects with the B4547. The new junction with Ffordd Fodolydd (Document 5.13.1.3) would allow appropriate visibility splays. The location of the permanent access track is shown on Design Plan DCO DE/PS/09 05 Sheet 5 of 8 and Design Plan DCO_DE/PS/09_06 Sheet 6 of 8 (Document 4.13).
- 3.6.50 In addition to the permanent access track to Tŷ Fodol THH/CSEC shown on Design Plan DCO DE/PS/09 05 Sheet 5 of 8 and Design Plan DCO DE/PS/09 06 Sheet 6 of 8 (Document 4.13) permanent access rights would be maintained over the temporary access track from bellmouth F4 as illustrated on Figure 4.1 Construction Plans (Document 5.4.1.1). These rights are required to access the THH and CSEC for a 1 in 40 year maintenance or unplanned event. Should this access be required it may be possible to use a temporary

access track and the land would be reinstated on completion of the works.

Landscaping

3.6.51 Landscaping is proposed around the operational compound within the site boundary perimeter fence, the indicative area within which landscape planting would be located is illustrated on DCO_DE/PS/09_05 Sheet 5 of 8 (**Document 4.13**). The indicative landscaping proposals for this area are shown on ES Figure 7.15 (**Document 5.7.1.15**) and are summarised in the Design Guide (**Document 7.19**).

Temporary Construction Compounds

3.6.52 Two construction compounds are proposed to facilitate the construction of the tunnel (including shafts) and the THH/CSECs. These are areas extended beyond the operational site boundary to accommodate site offices, welfare facilities and material and plant storage during the construction period. They would be used from the commencement of construction of the tunnel shafts through to commissioning when the construction compound boundary would be withdrawn to the operational site boundary and the temporary land reinstated.

Braint Construction Compound

3.6.53 Braint Construction Compound would be located within and adjacent to the proposed operational compound for Braint THH/CSEC. This site centred on Grid Reference SH 517 710, is approximately 56,800 sq m and shown on Works Plan DCO_F/WO/PS/01 Sheet 1 of 5 (Document 4.4) and ES Figure 4.1 Construction Plans (Document 5.4.1.1). Design Plan DCO_DE/PS/12_02 Sheet 2 of 5 (Document 4.13) provides the illustrative layout of the Braint Construction Compound.

Tŷ Fodol Construction Compound

3.6.54 Tŷ Fodol Construction Compound would be located within and adjacent to the proposed operational compound for Tŷ Fodol THH/CSEC. This site centred on Grid Reference SH 546 683, is approximately 49,900 sq m and shown on Works Plan DCO_F/WO/PS/04 Sheet 4 of 5 (Document 4.4) and ES Figure 4.1 Construction Plans (**Document 5.4.1.1**). Design Plan DCO_DE/PS/12_03 Sheet 3 of 5 (**Document 4.13**) provides the illustrative layout of the $T\hat{y}$ Fodol Construction Compound.

Temporary Working Areas

- 3.6.55 Temporary working areas are required in addition to the construction compounds, to allow the construction of the tunnel (including the shafts) and THH/CSECs. These temporary working areas are illustrated on ES Figure 4.1 Construction Plans (**Document 5.4.1.1**).
- 3.6.56 These areas can be split down into a number of types and each of these is described in Table 3.11. ES Chapter 6 EIA Methodology and Basis of Assessment (**Document 5.6**) explains how each has been assessed by the technical chapters (**Documents 5.7 to 5.18**).

Table 3.11: Tunnel and THH/CSECs Temporary Work Areas		
Temporary Working Area	Description	
Temporary Access		
Access Tracks	These would provide access from the construction traffic routes to the tunnel construction compounds. The access tracks would be up to 7 m wide and would be stone laid on a geotextile at passining places this would increase to 9 m wide. The total width including drainage and fencing would be a maximum of 25 m. A typical stone access road is shown on Design Plans DCO_DE/PS/11_02 sheet 2 of 6 (Document 4.13). The proposed locations of the access tracks are shown on ES Figure 4.1 Construction Plans (Document 5.4.1.1). The access tracks, with the exception of proposed permanent accesses, would be reinstated to the previous land use following completion of construction.	
Bellmouths	A bellmouth would be required where an access track connects to the public highway. An illustrative bellmouth layout is shown on Design Plan DCO_DE/PS/11_06	

Table 3.11: Tunnel and	THH/CSECs Temporary Work Areas
Temporary Working Area	Description
	sheet 1 of 6 (Document 4.13) and the locations of the proposed bellmouths are shown on the Access and Rights of Way Plans (Document 4.2) and ES Figure 4.1 Construction Plans (Document 5.4.1.1). ES Appendix 4.1 the Temporary Access Principles note (Document 5.4.2.1) provides a bellmouth schedule. Temporary bellmouths with the exception of proposed permanent bellmouths would be reinstated to the previous land use following completion of construction.
Visibility Splays	Visibility splays are required to ensure sufficient line of sight for users of a bellmouth to see traffic and other road users in both directions. Visibility splays allow users to safely turn on to the public or un-adopted highway and to ensure other road users have time to react to any potential incident. Within the visibility splay vegetation would need to be cut to a specified height or visual obstacles removed depending on local conditions, the speed rating of the road and whether traffic management is in place. Temporary visibility splay with the exception of those required for the proposed permanent bellmouths would be reinstated to the previous land use following completion of construction.
Crossings	
Culverts	Culvert installations would be required for temporary access tracks to cross ditches and waterways. The size of the culvert would vary per crossing depending on the dimensions of the crossing, sensitivity and importance of the watercourse. Illustrative

Table 3.11: Tunnel and THH/CSECs Temporary Work Areas		
Temporary Working Area	Description	
	culvert construction details are shown on Design Plan DCO_DE/PS/11_04 Sheet 4 of 6 (Document 4.13). On completion of construction the temporary culverts would be removed. ES Appendix 3.2 (Document 5.3.2.2) sets out the Indicative Watercourse Crossing Schedule which details the location and type of crossing.	
Bridges	Where culverts are not suitable for a particular crossing due to either the sensitivity of the watercourse or engineering requirements a temporary bridge would be installed. Illustrative bridge details for tunnel construction are shown on Design Plan DCO_DE/PS/11_06 Sheet 6 of 6 (Document 4.13). On completion of construction the temporary bridges would be removed. ES Appendix 3.2 (Document 5.3.2.2) sets out the Indicative Watercourse Crossing Schedule which details the location and type of crossing.	
Drainage		
Drainage	Drainage areas are illustrated on ES Figure 4.1 Construction Plans (Document 5.4.1.1). These areas identified allow appropriate drainage management during construction of the tunnel (including shafts) and THH/CSECs.	

3.7 SUBSTATIONS

3.7.1 In order to facilitate the new connection, work would be required to modify and extend Wylfa Substation and Pentir Substation. The following sections provide a description of the work which would be required including the additional equipment to be installed and any equipment which would need to be removed.

Wylfa Substation

3.7.2 Wylfa Substation is located adjacent to the existing Wylfa Nuclear Power Station and is centred on Grid Reference SH 352 938. The potential extension size to the existing substation is approximately 508 sq meters. Items of existing equipment would need to be removed and new equipment installed within the site boundary. The parameter plan within which the modified equipment would be located is shown on Design Plan DCO_DE/PS/01_01 Sheet 1 of 10 and the proposed layout is shown on Design Plan DCO_DE/PS/02 Sheet 2 of 10 (Document 4.13). The proposed elevations are shown on Design Plan DCO_DE/PS/01_03 Sheet 3 of 10 (**Document 4.13**). Table 3.12 lists the equipment that would be installed and removed from Wylfa Substation as part of the Proposed Development.

Substation	
Equipment	Description
Equipment to be Installed	b
Gantries (x4)	A structure which supports electrical conductors as they transition from an OHL pylon to busbars and equipment within a substation. The proposed location of the gantries are shown on Design Plan DCO_DE/PS/01_02 Sheet 2 of 10 (Document 4.13) and an illustrative gantry is shown on Design Plan DCO_DE/PS/01_08 Sheet 8 of 10 (Document 4.13)
400 kV Voltage Transformers (12)	Transformers convert system voltage to levels which can be safely measured by control and protection equipment. The proposed location of the voltage transformers are shown on Design Plan DCO_DE/PS/01_02 Sheet 2 of 10 (Document 4.13) and an illustrative voltage transformer is shown on Design Plan DCO_DE/PS/01_07 Sheet 7 of 10 (Document 4.13)
Single Post Insulators (x27)	A post insulator is a structure that supports

Table 3.12 List of Equipment to be Installed / Removed at Wylfa Substation

Substation	
Equipment	Description
	the connection of different sections of busbar/conductors. It provides a solid attachment point whilst maintaining electrical clearance. The proposed location of the post insulators are shown on Design Plan DCO_DE/PS/01_02 Sheet 2 of 10 (Document 4.13) and an illustrative post insulator is shown on Design Plan DCO_DE/PS/01_07 Sheet 7 of 10 (Document 4.13)
Section of Perimeter Fence	A section of palisade fencing (2.4 m) with electric fence (3.4 m), would be installed along the south-eastern site boundary. The proposed new section is shown on Design Plan DCO_DE/PS/01_02 Sheet 2 of 10 (Document 4.13)
Equipment to be Remove	ed
The following equipment	would be removed:

Table 3.12 List of Equipment to be Installed / Removed at Wylfa

• 2 existing line landing gantries;

- 2 Super Grid Transformer (SGT) transformer bunds;
- Redundant equipment foundations in the former SGT bays; and
- Ancillary equipment such as ducts, power and signalling cables.

Pentir Substation

3.7.3 Pentir Substation is located in north-west Gwynedd and is centred on Grid Reference to SH 559 677. The substation would be extended to the north-west, south-east and to the north-east with a total extension area of approximately 40,000 sq m, to accommodate the additional equipment required for the new connection. Design Plan DCO_DE/PS/09_04 Sheet 4 of 10 (Document 4.13) shows the maximum parameters within which Pentir Substation extension would be developed. An indicative layout which is subject to the parameters is shown on Design Plan DCO_DE/PS/01_05 Sheet 5 of 10 (Document 4.13) and the proposed elevations are shown on Design Plan DCO_DE/PS/01_06 Sheet 6 of 10 Plans (**Document 4.13**). Table 3.13 lists the equipment to be installed and removed from Pentir Substation as part of the Proposed Development.

Table 3.13 List of Indicative Equipment which would be Installed /Removed at Pentir Substation	
Equipment	Description
Equipment to be Installed	
Busbars and Connectors	Busbars are connections which carry electrical power around the substation to various equipment
400 kV Cable Sealing Ends (CSE) (x12)	Used where high voltage underground cable joins onto an OHL. The proposed locations are shown on Design Plan DCO_DE/PS/01_05 Sheet 5 of 10 (Document 4.13) and an illustrative CSE is shown on Design Plan DCO_/DE/PS/01_09 Sheet 9 of 10 (Document 4.13)
Circuit Breakers (x24)	A circuit breaker is an automatically operated electrical switch designed to protect an electrical circuit from damage caused by overload or short circuit. Its basic function is to clear a fault condition by interrupting continuity, which would immediately discontinue electrical flow. The proposed locations are shown on Design Plan DCO_DE/PS/01_05 Sheet 5 of 10 (Document 4.13) and an illustrative circuit breaker is shown on Design Plan DCO_DE/PS/01_07 Sheet 7 of 10 (Document 4.13)
Current Transformers (X36)	Convert system current to levels which can be safely measured by control and protection equipment. Positioned so that no part of the network is left un- monitored by protection systems. The proposed locations are shown on

Removed at Pentir Substation	
Equipment	Description
	Design Plan DCO_DE/PS/01_05 Sheet 5 of 10 (Document 4.13) and an illustrative current transformer is shown on Design Plan DCO_DE/PS/01_06 Sheet 7 of 10 (Document 4.13)
Pantograph Disconnectors (X18)	Are used to make sure that an electrical circuit can be completely de- energised for service or maintenance. The proposed locations are shown on Design Plan DCO_DE/PS/01_05 Sheet 5 of 10 (Document 4.13) and an illustrative pantograph disconnector is shown on Design Plan DCO_/DE/PS/01_09 Sheet 9 of 10 (Document 4.13)
Full Line Tension Gantry (x2)	A structure which supports electrical conductors as they transition from an OHL pylon to busbars and equipment within a substation. The proposed locations are shown on Design Plan DCO_DE/PS/01_05 Sheet 5 of 10 (Document 4.13) and the parameters within which the landing gantries could be located is shown on Design Plan DCO_DE/PS/01_04 Sheet 4 of 10 (Document 4.13). An illustrative line landing gantry is shown on Design Plan DCO_DE/PS/01_08 Sheet 8 of 10 (Document 4.13)
Portable Relay Rooms (x8)	Pre-fabricated unit containing protection relays and metering equipment. The proposed locations are shown on Design Plan DCO_DE/PS/01_05 Sheet 5 of 10 (Document 4.13) and an illustrative portable relay room is shown on Design Plan DCO_DE/PS/01_08 Sheet 8 of 10

Table 3.13 List of Indicative Equipment which would be Installed /
Removed at Pentir Substation			
Equipment	Description		
	(Document 4.13)		
400 kV Shunt Reactor (x1)	This is reactive compensation equipment which controls and regulates the voltage. The proposed locations are shown on Design Plan DCO_DE/PS/01_05 Sheet 5 of 10 (Document 4.13) and the parameters within which the shunt reactor could be located is shown on Design Plan DCO_DE/PS/01_04 Sheet 4 of 10 (Document 4.13).		
Voltage Transformer (x9)	Converts system voltage to levels which can be safely measured by control and protection equipment. The proposed locations are shown on Design Plan DCO_DE/PS/01_05 Sheet 5 of 10 (Document 4.13) and an illustrative voltage transformer is shown on Design Plan DCO_DE/PS/01_07 Sheet 7 of 10 (Document 4.13)		
400 kV Surge Arresters (x3)	A Surge Arrester provides a path to the earth when triggered by an abnormal voltage condition (e.g. lightning strike) to protect important equipment. The proposed locations are shown on Design Plan DCO_DE/PS/01_05 Sheet 5 of 10 (Document 4.13) and an illustrative surge arrester is shown on Design Plan DCO_DE/PS/01_09 Sheet 9 of 10 (Document 4.13)		
Earth Switches (x13)	An earth switch is a safety device. This provides a low impedance path to earth for currents allowing equipment that forms part of the high voltage system to be safely maintained. The proposed locations are shown on Design Plan		

Removed at Pentir Substation			
Equipment	Description		
	DCO_DE/PS/01_05 Sheet 5 of 10 (Document 4.13) and an illustrative earth switch is shown on Design Plan DCO_DE/PS/01_07 Sheet 6 of 9 (Document 4.13)		
Disconnector with Earth Switch (x8)	The proposed locations are shown on Design Plan DCO_DE/PS/01_05 Sheet 5 of 10 (Document 4.13) and an illustrative disconnector with earth switch is shown on Design Plan DCO_DE/PS/01_07 Sheet 7 of 10 (Document 4.13)		
Post Insulators including Single Post Insulators (x25) and 3 Phase Post Insulators (x17)	A post insulator is a structure that supports the connection of different sections of busbar/conductors. It provides a solid attachment point whilst maintaining electrical clearance. The proposed location of the post insulators are shown on Design Plan DCO_DE/PS/01_05 Sheet 5 of 10 (Document 4.13) and an illustrative post insulator is shown on Design Plan DCO_DE/PS/01_07 Sheet 7 of 10 (Document 4.13)		
Gantry (x1)	A structure which supports electrical conductors as they transition from an OHL pylon to busbars and equipment within a substation. The proposed location of the gantries are shown on Design Plan DCO_DE/PS/01_05 Sheet 5 of 10 (Document 4.13) and an illustrative gantry is shown on Design Plan DCO_DE/PS/01_08 Sheet 8 of 10 (Document 4.13)		
ST Pylon	The proposed location of the ST pylon is shown on Design Plan		

Table 3.13 List of Indicative Equipment which would be Installed /

Removed at Pentir Substation				
Equipment	Description			
	DCO_DE/PS/01_05 Sheet 5 of 10 (Document 4.13) and the parameters within which the ST pylon g could be located is shown on Design Plan DCO_DE/PS/01_04 Sheet 4 of 10 (Document 4.13). An illustrative ST pylon is shown on Design Plan DCO_DE/PS/01_10 Sheet 10 of 10 (Document 4.13).			
400 kV Cable	This would be buried in the ground. The proposed location of the cable is shown on Design Plan DCO_DE/PS/01_05 Sheet 5 of 10 (Document 4.13)			
Equipment to be Removed				
 The following equipment would substation: 1 x Gantry; 6 x Circuit Breaker; 3 x Disconnector; 3 x 400 kV Earth Switches 	ld be removed from the existing s; and			
 Ancillary equipment such 	as ducts, power and signalling cables.			

Table 3.13 List of Indicative Equipment which would be

Landscaping

3.7.4 The indicative landscaping proposals for Pentir Substation are shown on ES Figure 7.16 (Document 5.7.1.16).

Temporary Construction Compounds

3.7.5 The construction compounds to facilitate the works required at the substations would be located adjacent to each of the substations.

Wylfa Substation Construction Compound

3.7.6 The proposed Wylfa Substation Construction Compound is located adjacent to the north-western boundary of Wylfa Substation. The proposed construction compound is approximately 0.28 ha and is shown on Design Plan DCO_DE/PS/01_02 Sheet 2 of 10 (**Document 4.13**) and ES Figure 4.1 Construction Plans (**Document 5.4.1.1**).

Pentir Substation Construction Compound

3.7.7 The proposed Pentir Substation Construction Compound would be located to the north of the substation. The proposed construction compound is approximately 0.17 ha and is shown on Design Plan DCO_DE/PS/01_05 Sheet 5 of 10 (Document 4.13) and ES Figure 4.1 Construction Plans (Document 5.4.1.1). The Pentir Substation Construction Compound as described in section 3.13.3 of the ES (Document 5.3) would also be utilised for the construction of the Pentir Substation.

3.8 THIRD PARTY SERVICES

- 3.8.1 In order to construct the 400 kV connection safely and efficiently, sections of existing overhead or underground third party services (for example Distribution Network Operator (DNO) low voltage power lines, or communication lines) would be modified (undergrounded or relocated). These sections are included within the Order Limits and form part of the Proposed Development.
- 3.8.2 The proposed area within which the modified third party asset would be located and the proposed accesses are shown on ES Figure 4.2 Third Party Construction Plans (**Document 5.4.1.2**).
- 3.8.3 ES Chapter 4 Construction, Operation, Maintenance and Decommissioning of the Proposed Development (Document 5.4) describes how the third party services would be modified and ES Chapter 6 EIA Methodology and Basis of Assessment (Document 5.6) explains how these have been assessed by the technical chapters (Documents 5.7 to 5.18).

4 Construction, Operation, Maintenance and Decommissioning of the Proposed Development

4.1 INTRODUCTION

- 4.1.1 This section provides information about how the Proposed Development would be constructed, how it would operate, any maintenance that may routinely be required and, if necessary, how it would be decommissioned if the connection were no longer needed.
- 4.1.2 Section 3 above provides a description of the Proposed Development in terms of what infrastructure is proposed, where it would be located, what size it would be and its likely appearance.
- 4.1.3 This section is supported by a number of appendices as listed below:
 - ES Appendix 4.1 (**Document 5.4.2.1**) Temporary Access Principles Note.
- 4.1.4 The following Plans should be referred to when reading this section:

National Grid Construction Works

- ES Figure 4.1 National Grid Construction Plan (Document 5.4.1.1);
- Figure 4.2 Third Part Construction Plan (**Document 5.4.1.2**)
- DCO_DE/PS/08_02 Sheet 2 of 4 (Document 4.13) Illustrative Lattice Pylon Footprints;
- DCO_DE/PS/08_03 Sheet 3 of 4 (Document 4.13) Illustrative Lattice Pylon Foundations;
- DCO_DE/PS/10_01 Sheet 1 of 3 (Document 4.13) Illustrative Lattice Pylon Working Areas;

- DCO_DE/PS/10_02 Sheet 2 of 3 (Document 4.13) Illustrative Lattice Pylon Conductor Pulling Positions;
- DCO_DE/PS/11)_01 Sheet 1 of 6 (Document 4.13) Illustrative Bellmouth Layout;
- DCO_DE/PS/11_02 Sheet 2 of 6 (Document 4.13) Illustrative Stone Access Road;
- DCO_DE/PS/11_03 Sheet 3 of 6 (**Document 4.13**) Illustrative Interlocking Panel Access For Overhead Line Construction;
- DCO_DE/PS/11_04 Sheet 4 of 6 (Document 4.13) Illustrative Culvert Construction Details;
- DCO_DE/PS/11_05 Sheet 5 of 6 (Document 4.13) Illustrative Bridge Details for Overhead Line Construction;
- DCO_DE/PS/11_06 Sheet 6 of 6 (Document 4.13) Illustrative Bridge Details for Tunnel Construction;
- DCO_DE/PS/12_01 Sheet 1 of 5 (Document 4.13) Illustrative Overhead Line Construction Compound;
- DCO_DE/PS/12_02 Sheet 2 of 5 (**Document 4.13**) Illustrative Tunnel and cable Sealing End Construction Compound Braint;
- DCO_DE/PS/12_03 Sheet 3 of 5 (Document 4.13) Illustrative Tunnel and cable Sealing End Construction Compound – Tŷ Fodol;
- DCO_DE/PS/12_04 Sheet 4 of 5 (Document 4.13) Illustrative Substation Construction Compound – Wylfa; and
- DCO_DE/PS/12_04 Sheet 5 of 5 (Document 4.13) Illustrative Substation Construction Compound – Pentir.

4.2 CONSTRUCTION

4.2.1 This section describes how the various elements of the Proposed Development would be constructed.

Overhead Line

4.2.2 This section sets out construction information related to the overhead line (OHL). It is the intention that the third party asset works would be undertaken in advance of 400 kV OHL construction work. It is

anticipated that these works would be undertaken by the relevant statutory undertaker for example the Distribution Network Operator (DNO) (in this case SP Manweb) or Open Reach; however National Grid would also have the rights to undertake this work if needed.

Construction Compounds

4.2.3 Construction activities would begin with the preparation and installation of the two construction compounds. This activity would take approximately 5 months for each Construction Compound.

Penmynydd Road Construction Compound

4.2.4 This compound is located on Anglesey, approximately 1.5 kilometres (km) to the east of Llangefni, centred on Grid Reference SH 482 751 and would be accessed off the B5420 (Penmynydd Road (Link 7)). This is illustrated on Works Plans DCO_D/WO/PS/03_A to DCO_D/WO/PS/04_A and DCO_D/WO/PS/03_B to DCO_D/WO/PS/04_B (Document 4.4) and ES Figure 4.1 Construction Plan (Document 5.4.1.1).

Pentir Construction Compound

4.2.5 This compound is located in Gwynedd directly south of Pentir Substation, centred on Grid Reference SH 559 674, and would be accessed off the B4547 (Link 19). This is illustrated on Works Plan DCO_F/WO/PS/05 (Document 4.4) and ES Figure 4.1 Construction (Document 5.4.1.1).

Overhead Line Construction Compound Layout

- 4.2.6 A generic layout for a construction compound is illustrated on Design Plan DCO_DE/PS/12_01 Sheet 1 of 5 (**Document 4.13**) and typically includes the following:
 - Security gate house;
 - Plant and construction vehicle parking area;
 - Site office parking area;
 - Site offices and welfare facilities;
 - Laydown area;
 - Storage area;

- Wheel wash;
- Collection, storage and disposal of surface water, in addition to water from within the compound including grey and foul water;
- Soil bund;
- Spoil storage area;
- Diesel generator; and
- Fuel storage.

Overhead Line Construction Sequence

- 4.2.7 The construction of the 400 kV OHL would generally follow the sequence of events outlined below:
 - Survey;
 - Ground Investigation;
 - Installation of bellmouths and creation of visibility splays;
 - Installation of stock proof fencing and gates or equivalent;
 - Topsoil stripping, temporary drainage installation where required;
 - Installation of access tracks (including culverts and bridges) and demarcated pylon working areas;
 - Installation of pylon foundations (pad and column, mini pile, tube pile or bespoke);
 - Layout of steelwork in preparation for erection;
 - Assembly (painting if required) and erection of steelwork;
 - Installation of protection prior to stringing of conductors, including scaffolding;
 - Installation of insulators;
 - Establishment of machine sites for conductor stringing;
 - Conductor stringing;

- Removal of construction equipment and reinstatement of ground and restoration of soils;
- Removal of access tracks and bellmouths; and
- Removal of construction compounds and reinstatement of ground.
- 4.2.8 Activities such as surveys, archaeological investigation, ground investigation, construction of bellmouths and access tracks could commence without the full construction compounds in place. Nominal office and welfare facilities would suffice for an initial period until the full construction compounds were available.
- 4.2.9 Vegetation clearance may be undertaken prior to or during any of the activities identified above, in accordance with ecological requirements as outlined within the CEMP (**Document 7.4**) and the Biodiversity Mitigation Strategy (**Document 7.7**).
- 4.2.10 The following sections provide summary information about the activities listed above.

<u>Survey</u>

4.2.11 Detailed topographical surveys would be undertaken in order to undertake the detailed design of the temporary and permanent works.

Ground Investigation

4.2.12 Ground investigation work, such as boreholes and trial pits, would be undertaken to ensure that ground conditions at pylon locations were suitable.

Installation of Bellmouths and Creation Visibility Splays

4.2.13 Where new accesses or widening of existing accesses from the public highway are required bellmouths would be installed; an illustrative bellmouth is shown on DCO_DE/PS/11_01 Sheet 1 of 6 (Document 4.13). The installation of bellmouths may require realignment of existing underground services and the creation of visibility splays to create a line of sight for the safe use of the junction. Within the visibility splay vegetation would need to be cut to a specified height or visual obstacles removed depending on local conditions, the speed rating of the road and whether traffic management was in place. The creation of visibility splays and the realignment of existing underground services would be undertaken within the Order Limits.

- 4.2.14 The locations of the proposed bellmouths are shown on the Access and Rights of Way Plans (**Document 4.5**) and the Construction Plans provided as ES Figure 4.1 (**Document 5.4.1.1**). ES Appendix 4.1, The Temporary Access Principles Note (**Document 5.4.2.1**) provides a bellmouth schedule. Temporary bellmouths would be reinstated to the previous land use following completion of construction.
- 4.2.15 Each bellmouth and visibility splay would take approximately 10 days to install subject to the need to realign or protect any existing services encountered. The number of bellmouths in each section is as follows:
 - Section A 11;
 - Section B 11;
 - Section C 10;
 - Section D 4;
 - Section E 8; and
 - Section F 13.

Installation of Stock Proof Fencing and Gates

4.2.16 Once a new or widened access point had been created the proposed access tracks and pylon working areas would be fenced off using approximately 1.2 metre (m) high stock proof fencing or equivalent. Gates or equivalent would be incorporated into the fencing to maintain access to farmland where agreed and to maintain access to Public Rights of Way (PROWs) where agreed. The Access and Rights of Way Plans (**Document 4.5**) shows the PROWs that would be affected and which ones would be temporarily stopped up or diverted. The PROW Management Plan (**Document 7.6**) provides details of how these would be managed during construction.

Topsoil Stripping

- 4.2.17 The topsoil would be stripped from the access tracks and pylon working areas. The topsoil would be stored carefully to one side; typically topsoil would be stored in bunds approximately 4 m wide by 1.2 m high. Temporary drainage would be installed as required, with silt fences installed where required.
- 4.2.18 Topsoil stripping would be undertaken at a rate of approximately 50 m to 100 m per day per construction gang for access tracks and

approximately three days per construction gang for a typical pylon working area.

Temporary and Permanent Drainage

4.2.19 Temporary drainage would be required during construction, to deal with rainfall and water encountered during excavation where appropriate. The drainage design would be prepared in accordance with a Drainage Management Plan (DMP), as set out in the CEMP (Document 7.4), which includes a variety of potential measures to address silt runoff. Construction sustainable drainage systems (SuDS) would be used if necessary and where appropriate to do so.

Installation of Access Tracks (including Culverts and Bridges) and Pylon Working Areas

- 4.2.20 The access tracks would typically be 4.5 m wide, and up to 9 m wide at passing places, which, coupled with the area for soil storage and drainage between the track and the fence line, would give a maximum swathe of 12 m. They would either be stone laid on a geotextile, or formed of interlocking panels, depending on ground conditions and the duration and type of use. Typical stone and interlocking panel access tracks are shown on Design Plan DCO_DE/PS/11_02 Sheet 2 of 6 and DCO_DE/PS/11_03 Sheet 3 of 6 (**Document 4.13**). The proposed location of access tracks and the pylon working areas are shown on ES Figure 4.1 (**Document 5.4.1.1**). Illustrative lattice pylon working areas are also shown on DCO_DE/PS/10_01 Sheet 1 of 3 (**Document 4.13**).
- 4.2.21 The installation of the access tracks would be undertaken at a rate of approximately 50 m per day per construction gang and a typical pylon working area would take one week per construction gang to install.
- 4.2.22 The stone access tracks would be constructed using secondary or primary aggregates. The total amount of aggregate material that would be needed for the construction of the stone access tracks (including bellmouths) and pylon working areas is approximately 450,000 tonnes (t). On completion of construction the access tracks would be removed and aggregates taken to an appropriate facility which could include recycling, or onward use, for example as secondary aggregate in the construction industry.
- 4.2.23 Plate 4.1 below illustrates a temporary stone access track and pylon working area.



Plate 4.1 temporary stone access track and pylon working area

- 4.2.24 Culvert installations would be required for temporary access tracks to cross ditches and watercourses. The size of the culvert would vary per crossing depending on the dimensions of the crossing, sensitivity and importance of the watercourse. Illustrative culvert construction details are shown on Design Plan DCO_DE/PS/11_06 Sheet 4 of 6 (Document 4.13).
- 4.2.25 To install a culvert, typically the banks are first strimmed at the proposed culvert location. Bunds would then be installed upstream and downstream to prevent water from entering the work site, water contained between the two bunds would be pumped downstream to clear the work area.
- 4.2.26 To maintain the flow of the watercourse during installation of the culvert, a pump is used to pump water from upstream to downstream, bypassing the work site.
- 4.2.27 The bottom of the ditch or watercourse would be excavated to the size of the proposed foundation and, if required lined with a geotextile separation membrane overlain by bedding material. If required, a geotextile separation membrane would be placed on top of the ditch banks, prior to backfilling. The culvert would then be installed and backfilling commenced.

- 4.2.28 The backfill would be laid to provide minimum cover over the culvert based on maximum loadings. A sand bag (or concrete bag) headwall and temporary fencing would subsequently be installed after which the bunds upstream and downstream would be removed and the over-pumping stopped to allow water to flow through the culvert.
- 4.2.29 The installation of culverts would take approximately two days per culvert.
- 4.2.30 Should culverts not be suitable for a particular crossing, due to either the sensitivity of the watercourse or engineering requirements, a temporary bridge would be installed. Illustrative bridge details for the 400 kV OHL construction are shown on Design Plan DCO_DE/PS/11_05 Sheet 5 of 6 (**Document 4.13**) and the locations of the bridge crossings are shown on ES Figure 4.1 Construction Plans (**Document 5.4.1.1**).
- 4.2.31 Temporary bridges would need to accommodate a 250 t capacity mobile crane and the temporary bridge support requirements would be assessed on a site by site basis. Most bridge crossings would be of a short span and flat deck construction; however Bailey style bridges may also be used. All bridges would be clear span and the foundations would be placed clear of the banks of the watercourse.
- 4.2.32 Once the foundations were in place the temporary bridge would be fitted. Although the installation method is dependent on the type of bridge being installed, a typical bridge would be delivered in sections. Each bridge component would be assembled on site and lifted into position by crane.
- 4.2.33 With the bridge in position, decking panels would be lifted and fixed into position.
- 4.2.34 The installation of a typical short span, flat deck bridge would take approximately four to five days. If concrete or if required piled bridge foundations were needed a further ten to fifteen days per bridge would be required. A list of the bridge crossings is set out in Table 4.1 below.

Table 4.1: Bridge Crossing Locations			
Crossing ID Watercourse Name			
Section A			
NG-RVX A/32 Foel Fawr			

Table 4.1: Bridge Crossing Locations			
Crossing ID	Watercourse Name		
NG-RVX A/48	Maddanen		
NG-RVX A/51	Unnamed		
NG-RVXX A/70	Unnamed		
Section B			
NG-RVX B/94	Glasgraig Fawr		
NG-RVX B/134	Llandyfrydog		
NG-RVX B/135			
Section C			
NG-RVX C/129	Ynys Fawr		
NG-RVX C/156	Erddreiniog		
NG-RVX C/166	Clai		
Section D			
NG-DRX D/192	Unnamed		
NG-DRX D/193	Unnamed		
NG-RVX D/196	Glyched		
NG-RVX D/206	Ceint West		
Section E			

Table 4.1: Bridge Crossing Locations				
Crossing ID	Watercourse Name			
NG-RVX E/229	Unnamed			
NG-RVX E/241	Braint			
Section F				
NG-RVX F/243	Braint Bifurcation			
NG-RVX F/256	Unnamed			

Installation of Pylon Foundations (Pad and Column, Mini Pile or Tube Pile)

- 4.2.35 The foundations of the proposed pylons would either be pad and column, mini pile or tube pile (or bespoke if required). Typical drawings for these three types of foundations are illustrated on Design Plan DCO_DE/PS/08_03 Sheet 3 of 4 Illustrative Lattice Pylon Foundations (**Document 4.13**). The selection of foundation type would depend upon the ground conditions encountered. Foundation types for gantries would also be dependent upon ground conditions encountered. ES Appendix 3.1 (**Document 5.3.2.1**) details the indicative foundation type for each of the new proposed pylons on the 4AP and 4ZA.
- 4.2.36 The installation of pad foundations would take approximately three weeks for each pylon (four pads). Mini pile or tube pile foundations would take approximately four weeks for each pylon.
- 4.2.37 For pylon locations where ground conditions did not easily permit the installation of pad and column, mini-pile or tube pile foundations, a bespoke foundation would be required. The design for each bespoke foundation would be subject to the ground conditions encountered.

Layout of Steelwork in Preparation for Erection

4.2.38 The steel work would be brought to each pylon working area and laid out in pre-constructed sections or in numbered parts prior to assembly and erection of the pylon.

4.2.39 Laying out of the steelwork would take approximately three days per pylon.

Erection of Steelwork

- 4.2.40 The numbered steelwork parts would be bolted together on the ground. The pylon would be assembled in sections beginning with each bottom leg section being fastened to the foundation steelwork. The pylon would be erected using a mobile crane which would lift the assembled steelwork into position. Linesmen⁶ would bolt together the pylon, climbing to each part to help guide the next section into place and fasten the bolts. The number of pylon sections required would vary according to the size of the pylon being built and the lifting capacity of the crane.
- 4.2.41 To lift the topmost sections of the taller pylons crane with a capacity of up to 250 t may be required for the reach and weight of the sections to be positioned into place. A smaller capacity crane could be used to lift pylon sections up to the limit of reach of the crane considering load to be lifted. Though in this instance the larger capacity crane would still be required to complete the pylon.
- 4.2.42 The average weight of steelwork within the existing pylons is approximately 25.5 t; it is likely that the proposed pylons would be of a similar or lower weight.
- 4.2.43 Plate 4.2 below illustrates the construction of a pylon in sections. Photo 4.2 below illustrates the construction of a pylon in sections.

⁶ A generic name given to operatives engaged on above ground OHL work.

Plate 4.2 Pylon Construction



Installation of Scaffolding Protection Prior to Stringing of Conductors

- 4.2.44 Temporary scaffolding and nets would be installed during construction where required as a safety measure to protect assets such as roads, railways, a water treatment works and distribution network OHLs (where not already moved underground) and could include hedgerows which would be crossed by the proposed 400 kV OHL. This is required to protect these features during conductor stringing from the accidental dropping of conductors and any of the associated equipment. The proposed scaffold working areas are shown on ES Figure 4.1 Construction Plans (**Document 5.4.1.1**). Temporary closures of some affected asset, such as roads, may be required during these works to install the protective netting, or indeed may be used instead of installing scaffolding.
- 4.2.45 The scaffolding would be transported to site using a lorry or tractor and trailer and assembled by hand either side of the feature being protected. Approximately 8 m² of scaffolding would be installed per day.

Installation of Insulators

4.2.46 The insulators would be fastened to the cross arms of the pylons, with running wheels hung from the end of the insulators to carry the pilot

wires in preparation for installing the conductors. The installation of the insulators would take approximately two days per pylon.

Establishment of Machine Sites for Conductor Stringing

- 4.2.47 The machine sites for conductor stringing would normally be located within the pylon conductor pulling positions. A typical pylon conductor pulling position is illustrated on Design Plan DCO_DE/PS/10_02 Sheet 2 of 3 (**Document 4.13**) and the locations of the proposed conductor pulling positions are illustrated on ES Figure 4.1 Construction Plans (**Document 5.4.1.1**). The machine sites would be micro sited within pylon conductor pulling positions and would be sited on interlocking panels laid directly onto the ground surface reducing disturbance to the underlying soils. The machine sites would be sited within the pylon conductor pulling positions to avoid individual trees where possible however some trees within groups may need to be removed.
- 4.2.48 It would take approximately one day to establish the area to receive materials and equipment at each conductor stringing site.

Conductor Stringing

- 4.2.49 The wires (conductors) of the 400 kV OHL would be delivered to the pulling positions, illustrated on ES Figure 4.1 Construction Plans (Document 5.4.1.1), using lorries, or tractor and trailer. The conductors are wound onto large cable drums and, depending on the conductor type, each completed drum could weigh up to 8 t, although larger and heavier drums are possible depending on the supplier and the length of conductor. The drums containing the conductors would be delivered to the construction compound first, and would be distributed from there. Tractors with trailers and other smaller vehicles can also be used to transport the drums and other materials to site. Tension pylons are used where the OHL changes direction. The conductors are usually installed from tension pylon to tension pylon, often termed a 'section'. A conductor pulling position would be established at each end of the section with a winching machine ('winch') and empty steel reels to accept pilot wires. At the other end of the section the full conductor drums would be arranged in close proximity to the tensioning machine ('tensioner').
- 4.2.50 Light pilot wires would be laid at ground level (and over temporary scaffolding protecting assets such as roads and railway lines) along the length of the section between the pulling positions (note that it is not typically necessary to clear hedgerows specifically for this activity,

though some vegetation management could be required). The pilot wires would be lifted and fed through running wheels on the cross arms of all the pylons in the section, and then fed around the winch at the pulling position. The light pilot wires are used to pull through heavier, stronger pilot wires which are in turn used to pull conductors through from their drums. The tensioning machine would keep the wires off the ground and prevent the conductors running freely when the winch pulls the pilot wire. When the conductor is fully 'run out', it would be fastened at its finished tension and height above ground by a linesman working from platforms on the pylons which are suspended beneath the conductors. Additional fittings, such as spacers, if required and vibration dampers, would be fitted to the conductors.

- 4.2.51 To counter balance the out of balance loading at the tension pylons at the end of a conductor stringing section, it is normal to install temporary backstays or concrete blocks for safety of installation. The temporary backstays or concrete blocks are removed as the conductor stringing process starts on the next section. Temporary backstays might also be required at other locations such as connecting new conductor to existing conductor, temporary diversions and temporary spans.
- 4.2.52 Stringing the conductors would take approximately four weeks per section.
- 4.2.53 Where the existing earthwire is to be replaced with an earthwire containing optical fibres it may be possible to use the existing earthwire as the equivalent of the pilot wire during the installation.
- 4.2.54 Plate 4.3 below illustrates a conductor pulling position and drums.



Plate 4.3 conductor pulling position and drums

- 4.2.55 The construction sequence is dictated to some extent by the need for 'transposition' points as described in section 3). A transposition point is, in effect, a continuation of a route from a section of new pylons to a section of existing pylons, whilst the other route is in effect a continuation of a route from a section of existing pylons to a section of new pylons. Transpositions may also require the use of temporary pylons; a temporary pylon would require the same construction and operational land take as a permanent pylon. In order to ensure there is always a connection in operation it is necessary to work to a programme of planned outages⁷. A schematic of a transposition is provided in Plate 3.1.
- 4.2.56 Where transpositions occur it is likely that modifications to the existing 4ZA route infrastructure would be required such as pylon modifications / strengthening, foundation modifications / strengthening or new pylons and conductor bundles. This in turn develops a construction scenario whereby there would be: dismantling works;

Works to the Existing Line

⁷ A temporary suspension in the transmission of electricity

temporary diversion works; works to the existing 4ZA route; as well as the proposed new build works, all occurring in the same location.

4.2.57 As part of the Proposed Development, ten existing 4ZA pylons would be removed. It is most likely that pylon foundations would be cut off typically 1.5 m below ground level and subsoil and topsoil reinstated; however in exceptional circumstances the entire foundation may have to be removed.

<u>Removal of Construction Equipment and Reinstatement of Ground</u> <u>and Restoration of Soils</u>

4.2.58 Once the 400 kV OHL is constructed, the access tracks and working areas at the pylon site would be removed and the ground reinstated by removing stone and trackways. Soils would be restored to their previous condition. Other surfaces would be reinstated and widened accesses would be restored to the condition they were in at the commencement of the works.

Tunnel

- 4.2.59 The construction of the tunnel would generally follow the following sequence of events:
 - Installation of bellmouths and creation of visibility splays;
 - Installation of stock proof fencing and gates or equivalent;
 - Topsoil stripping, temporary drainage would be installed where required;
 - Installation of access tracks (including culverts and bridges);
 - Installation of the construction compounds at the drive and reception shafts;
 - Shaft construction;
 - Tunnel construction;
 - Installation of cables; and
 - Removal of construction equipment and reinstatement of ground and restoration of soils.
- 4.2.60 The following sections summarise the activities listed above.

Installation of Bellmouths and Creation Visibility Splays

- 4.2.61 Where new accesses or widening of existing accesses from the public highway are required bellmouths would be installed, in the same way as described above for the 400 kV OHL.
- 4.2.62 The locations of the proposed bellmouths are shown on the Access and Rights of Way Plans (**Document 4.5**) and the Figure 4.1 Construction Plans (**Document 5.4.1.1**). Appendix 4.1, The temporary access principle note (**Document 5.4.2.1**) also provides a bellmouth schedule. Temporary bellmouths would be reinstated to the previous land use following completion of construction.
- 4.2.63 Each bellmouth and visibility splay would take up to four weeks to install.
- 4.2.64 The following bellmouths are required for the construction of the tunnel.
- 4.2.65 Braint:
 - E7, F1, F1C and F2.
- 4.2.66 Tŷ Fodol:
 - F3, F4, F5, F6, F7, F8, F9 and F14.

Installation of Fencing and Gates

- 4.2.67 Once a new or widened access point has been created the access track can be fenced off using approximately 1.2 m high stock proof fencing or equivalent. Gates or equivalent would be incorporated into the fencing to maintain access to farm tracks where required and maintain access to PROWs where agreed. The Access and Rights of Way Plans (**Document 4.5**) shows the PROW that would be affected and which ones would be temporarily stopped up or diverted. The PROW Management Plan (**Document 7.6**) provides details of how these would be managed during construction.
- 4.2.68 Approximately 100 m of fencing would be erected per day per construction gang. For example 300 m of access track with fencing either side would take one gang six days or three days with two gangs working.

Topsoil Stripping

- 4.2.69 The topsoil would be stripped from the access tracks. The topsoil would be stored carefully to one side; typically topsoil would be stored in bunds 4 m wide by 1.2 m high. Temporary drainage would be installed as required.
- 4.2.70 Topsoil stripping would typically be undertaken at a rate of approximately 10 m per day per construction gang.

Installation of Temporary Access Tracks (including Culverts and Bridges)

- 4.2.71 The access tracks would be up to 7 m wide, within a swath of land up to 25 m wide to allow for drainage, fencing and topsoil bund. The stone would be laid on a geotextile membrane (note that where tracks have to be built across ground which is wet or weak then the foundation subgrade may have to be installed using coarser sized rock and stone). Typical stone access tracks are shown on Design Plan DCO_DE/PS/11_02 Sheet 2 of 6 (**Document 4.13**). The proposed location of the temporary stone access tracks are shown on Figure 4.1 (**Document 5.4.1.1**).
- 4.2.72 The installation of the access tracks would typically take approximately 40 m per day per construction gang.
- 4.2.73 Culvert installation would be the same as for the 400 kV OHL.
- 4.2.74 Where culverts are not suitable for a particular crossing due to either the sensitivity of the watercourse or engineering requirements a temporary bridge would be installed. Illustrative bridge details for tunnel construction are shown on Design Plan DCO_DE/PS/11_06 Sheet 6 of 6 (Document 4.13) and the locations of the bridge crossings are shown on Figure 4.1 Construction Plans (Document 5.4.1.1).
- 4.2.75 The bridge abutments would first be marked out and the ground excavated to the desired level. Where practicable, excavated material would be laid and compacted to form the approach ramps to the bridge.
- 4.2.76 A layer of stone would be laid and compacted on top of a geotextile membrane to provide a solid base for the concrete abutments. Shuttering would be delivered and installed inside the excavation, providing the formwork for the concrete abutments.

- 4.2.77 A steel reinforcing cage would then be positioned after which the concrete would be poured. The final foundation design would be dependent on the ground conditions.
- 4.2.78 Once the abutments are cured the temporary bridge can be fitted. Although the installation method is dependent on the type of bridge being installed, a typical bridge would be delivered in sections. Each bridge component would be assembled on site and lifted into position by crane. For the heavy loads involved, additional measures may be required to provide a suitable foundation for the crane and crane outriggers.
- 4.2.79 Once the bridge is in position, decking panels would be lifted and fixed into position.
- 4.2.80 The installation of each bridge would take approximately up to 15 days. A list of the bridge crossings for the tunnel construction access tracks is set out in Table 4.2 below.

Table 4.2: Bridge Crossing Locations			
Crossing ID	Watercourse Name		
NG-RVX E/241	Braint		
NG-RVX F/243	Braint Bifurcation		
NG-RVX F/256	Unnamed		

Proposed Use of Access Tracks

4.2.81 Table 4.3 sets out the proposed use of the access tracks for the tunnel, and Tunnel Head House (THH)/Cable Sealing End Compound (CSEC) construction.

Table 4.3: Proposed Use of Temporary Access Tracks					
Access Track from Proposed Use Bellmouth					
Braint	F1C	Main construction access			

Table 4.3: Proposed Use of Temporary Access Tracks				
	Access Track from Bellmouth	Proposed Use		
Construction Compound	F1	Enabling / emergency use only and would become the permanent access		
	F2	Enabling / Contingency use only and likely access for abnormal indivisible loads		
	E7	Contingency use only and would be used for the construction of the 400 kV OHL		
Tŷ Fodol Construction	F14 (via F9, F8, F7, F6, F5, F4)	Main construction access		
Compound	F3	Enabling / emergency use only and would become the permanent access		

Installation of the Construction Compounds

- 4.2.82 Construction compounds would be established at the drive and reception shafts for the tunnel and are referred to as the Braint Construction Compound and the Tŷ Fodol Construction Compound.
- 4.2.83 The topsoil would be stripped from the compound sites. The topsoil would be stored carefully; typically topsoil would be stored in bunds 2 m in height. Temporary drainage would be installed as required.
- 4.2.84 Temporary drainage proposals would be developed in line with an agreed Drainage Management Plan (DMP) and would achieve green field run off rates in line with SuDS principles. Any seepage into the tunnel during construction would be pumped out through the shafts, and could include saline water. The construction compounds would both include a separate area for saline water treatment if required.
- 4.2.85 The construction compounds would typically include:
 - Site offices and welfare facilities;
 - Power supply

- Car parking;
- Wheel wash;
- Holding areas for Heavy Goods Vehicles (HGVs) and other vehicles;
- Storage containers;
- Site vehicles;
- Welfare facilities;
- Crawler crane;
- Construction machinery;
- Segment storage/aggregate bins;
- Gantry crane;
- Temporary spoil storage;
- Material storage;
- Slurry screening plant/concrete batching plant;
- Generators (for backup use);
- Water tank;
- Tunnel boring machine (TBM) cooling plant;
- Grouting plant;
- Fire hydrant and firefighting equipment;
- Acoustic enclosures as required;
- Waste water treatment plant;
- Oil separator; and
- Surface water treatment/settlement.

Braint Construction Compound

4.2.86 This site is centred on Grid Reference SH 517 710, is approximately 5.64 hectares (ha) and is shown on Works Plan DCO_F/WO/PS/01

Sheet 1 of 5 (**Document 4.13**) and ES Figure 4.1 Construction Plan (**Document 5.4.1.1**). DCO Design Plan DCO_DE/PS/12_02 sheet 2 of 5 (**Document 4.13**) provides an illustrative layout for the Braint Construction Compound.

4.2.87 The establishment of Braint Construction Compound would take approximately four months.

Tŷ Fodol Construction Compound

- 4.2.88 This site centred on Grid Reference SH 546 683, is approximately 5. ha and shown on Works Plan DCO_F/WO/PS/01 Sheet 4 of 5 (Document 4.13) and ES Figure 4.1 Construction Plan (Document 5.4.1.1). DCO Design Plan DCO_DE/PS/12_03 sheet 3 of 5 (Document 4.13) provides an illustrative layout for the Tŷ Fodol Construction Compound.
- 4.2.89 The establishment of Tŷ Fodol Construction Compound would take approximately four months.

Tunnelling Scenarios

- 4.2.90 There are three scenarios for tunnel construction, these are:
 - Scenario 1 TBM from Braint to Tŷ Fodol;
 - Scenario 2 TBM from Tŷ Fodol to Braint; and
 - Scenario 3 Drill and Blast from both shafts.
- 4.2.91 The scenarios are referred to as appropriate in the following sections.
- 4.2.92 All three scenarios have been considered within the Environmental Impact Assessment (EIA) as explained in ES Chapter 6 EIA Methodology and Basis of Assessment (**Document 5.6**). Whilst all three scenarios have been considered there is a preference the TBM scenarios for scenario 1.

Shaft Construction

- 4.2.93 Construction of the tunnel would require the sinking of vertical shafts at each end of the tunnel, to enable access for tunnelling.
- 4.2.94 Shaft construction would be split into two phases; phase 1 would be the sinking of shafts to enable the tunnelling works to commence and phase 2 would be works to the shafts themselves.

Phase 1

- 4.2.95 The tunnel shaft at Braint would be approximately 75 m deep and Tŷ Fodol approximately 95 m deep. Both shafts would have an internal diameter of 15 m. An illustrative shaft cross section is shown on Design Plan DCO_DE/PS/07_02 Sheet 2 of 2 (**Document 4.13**).
- 4.2.96 Due to the softer material overlying bedrock in both of the proposed shaft locations, the shafts would be excavated in two stages. Construction methods for each stage are outlined below.
- 4.2.97 Stage 1 through soft ground (likely to be segmental caisson construction): In the caisson method, the precast concrete rings are erected at the surface and are then lowered into the ground whilst excavation progresses. It is assumed that this technique would be suitable for the top c.15 m at Braint and top c.20 m at Tŷ Fodol based on the known geology. Other options that could be considered include secant piling or diaphragm walling, but these are considered unlikely.
- 4.2.98 Stage 2 through rock: Drill and blast of the shaft would be the likely approach and work would progress over a 24 hour working day. Drilling preparation would be expected every other day (drilling and placing charges) followed by the 'blast'. A specially designed blast mat would be used to confine the blast fumes and rock fragments. It is also used to reduce the noise generated. A blast mat is generally placed at the top of the shaft.
- 4.2.99 Post blast, time is given to allow the area to become safe to re-enter. The face of the shaft would then be examined in each sequence of rock excavation; the lithology of the exposed rock face (shaft wall) would then be mapped by the site geologist to enable the necessary support requirements to be determined. Highly strong and competent rock may only require spot bolting, where necessary, without the need to apply any sprayed concrete. However, weaker rocks may require the use of a combination of rock bolts and sprayed concrete lining (the sprayed concrete would be reinforced with either steel fibre or steel bar to provide the sufficient tensile strength and crack resistance).
- 4.2.100 The rock material would be removed using cranes/hoists/buckets and stored within the construction compound prior to being loaded onto HGVs for transport off site.

- 4.2.101 If a Tunnel Boring Machine (TBM) were used to construct the tunnel, a TBM launch chamber would also need to be excavated at the base of the launch shaft; the launch chamber would be approximately 120 m in length with an excavation area of approximately 35 m². Single or twin service tunnels would be excavated in both shafts regardless of tunnelling method for shunting of spoil locomotives and general storage as required; these would be approximately 20 m in length. The base of each shaft would be grouted to prevent water seepage and a concrete base slab would be installed.
- 4.2.102 Table 4.4 provides the approximate durations of the phase 1 shaft sinking for the three tunnelling scenarios.

Table 4.4: Approximate durations of the phase 1 shaft sinking				
Shaft	Scenario 1	Scenario 2	Scenario 3	
Braint	240 days	225 days	205 days	
Tŷ Fodol	225 days	245 days	210 days	

Shaft Arisings

4.2.103 The shaft arisings from Braint would be approximately 15,400 cubic metres and from Tŷ Fodol 19,224 cubic metres.

Phase 2

- 4.2.104 On completion of the tunnelling work a secondary lining would be applied to the completed shaft. Geotextile membranes may be used between the rock and the concrete lining. The shaft lining would be installed by casting the concrete in situ working from the base of the shaft upwards. Once any required lining had been completed the internal works would be carried out to line the shafts, install internal walls, install cable support structures, stairs and lift enclosures.
- 4.2.105 Table 4.5 provides the approximate durations of the phase 2 shaft construction for the three tunnelling scenarios.

Table 4.5: App construction	roximate durat	ions of	the	phase	2	shaft
Shaft	Scenario 1	Scenario	2	Scena	ario	3
Braint	245 days	373 days	6	220 d	lays	6

Table4.5:Appconstruction	roximate durat	ions of	the	phase	2	shaft
Shaft	Scenario 1	Scenario	2	Scena	ario	3
Tŷ Fodol	388 days	295 days	6	255 d	ays	;

Tunnel Construction

4.2.106 The tunnel would be constructed using either a TBM or the Drill and Blast method. Both these methods are described below.

TBM Construction Method

- 4.2.107 The TBM would be delivered in large sections and lowered into the shafts using a mobile crane of up to 500 t capacity. The TBM would then be assembled at the base of the drive shaft. The TBM would be launched from one shaft (the drive shaft) and exit by the other (the reception shaft). The excavated material would consist of a mixture of the natural rock or substrate, bentonite or clay, and water (slurry) which provides the face support inside the cutting head chamber. It is considered likely that the TBM used would either be a slurry TBM or an Earth Pressure Balance (EPB) TBM.
- 4.2.108 Using a slurry TBM the pressurised slurry is used in the face of the TBM to balance the ground and ground water pressures. Minimum and maximum pressures would be developed prior to the commencement of tunnelling. The pressures would be monitored continuously so that flows into or away from the face do not occur. Using a slurry TBM the excavated material would be pumped to a separation plant (also referred to as slurry screening plant) located on the surface within the construction compound. The separation plant enables the slurry to be recycled and the excavated natural rock or substrate to be reused.
- 4.2.109 Using the EPB method the TBM would use excavated material, modified using drilling fluids to balance the ground and water pressures. The drilling fluids used would be dependent on the ground conditions present and pressures would be continually monitored and adjusted for the conditions. Using an EPB TBM the excavated material would be taken to the surface using a conveyor system or in muck cars/skips where the excavated natural rock or substrate would be separated.

4.2.110 For either type of TBM grouting ahead may be carried out and precast concrete segments would be used to line the tunnel and these would be installed behind the cutting head.

Drill and Blast Construction Method

- 4.2.111 The drill and blast tunnelling method would be the same as used for the stage 2 shaft construction. It would involve drilling multiple holes in the rock of the progressive tunnel face, setting of the explosives, and finally the blasting itself. Once the blasting had been carried out, blasted rock fragments would be transported out of the tunnel using a conveyor system or similar before further blasting could commence. It is anticipated that three blasts per day would be carried out at each end (six blasts per day in total).
- 4.2.112 Advanced probing would be used to provide information on the ground conditions ahead of the face to allow working methods to be varied as appropriate which could include charge weights and blast patterns. Grouting ahead may also be carried out if required dependent on the ground conditions.
- 4.2.113 Methods of supporting the rock after excavation vary widely. Typically the rock face and tunnel wall would be supported by installing primary support/lining which would support the temporary rock loads. This would be followed by installation of secondary lining which would form the permanent tunnel wall. The typical rock primary support/lining system can include installation of rock bolts or rock dowels with sprayed concrete, or lattice girder arch ribs in conjunction with steel mesh reinforcement. The secondary support/lining system can include casting of reinforced or un-reinforced insitu concrete or steel fibre reinforced sprayed concrete lining. In some instances, the primary and secondary lining are combined into 'one pass lining'. The sprayed concrete lining may require a concrete batching plant on site comprising storage silos, conveyors and mixing equipment.
- 4.2.114 Table 4.6 provides the approximate durations of the three tunnelling scenarios, which include tunnel cleanout.

Table 4.6: Approximate durations of tunnelling		
Scenario 1	Scenario 2	Scenario 3
478 days	478 days	455 days

Tunnel Arisings

- 4.2.115 The tunnel arisings resulting from the TBM scenarios would be approximately 80,553 cubic metres inclusive of the TBM launch and reception chambers. The excavated material would arise at the drive shaft. For Scenario 1 this would be Braint and for Scenario 2 this would be Tŷ Fodol.
- 4.2.116 The tunnel arisings resulting from the Drill and Blast scenario would be approximately 112,500 cubic metres. Excavated material would be removed through both of the shafts.
- 4.2.117 The arising from the service tunnels would be approximately 7,000 cubic metres per tunnel and would arise at the associated shaft.
- 4.2.118 Overall depending on the method of tunnelling and including the shafts between 350,000 and 440,000 tonnes of material would be produced.

Dewatering

4.2.119 During construction both the shafts and tunnel would be subject to water ingress and would therefore need to be dewatered. This water would be pumped out of the tunnel and shafts to the attenuation ponds within the construction compounds. There is the potential that water from sections of the tunnel close to the Menai Strait could be saline and, if so, temporary sumps would be used within the tunnel to prevent saline and fresh water mixing. Once the full depths of the shafts had been excavated the anticipated dewatering rates would be 30 m³/day from each shaft. Should a TBM be used there could be a further 5 m³/day from the tunnel which would be pumped to the Braint Construction Compound under scenario 1 or Tŷ Fodol Construction Compound under scenario 2. Should drill and blast be used as the tunnelling method the peak anticipated rate of dewatering from the tunnel once, the full length is constructed, would be 900 m^3/day , which would be pumped to Braint Construction Compound. This rate would decrease as the secondary lining was installed. Once the secondary lining had been completed the dewatering requirement at Braint would be 35 m³/day and 30 m³/ at Tŷ Fodol.

Installation of Cables

- 4.2.120 Once the tunnelling work had been completed, cables would be delivered to site on cable drums and specialist cable pulling machines would be used to tow the cables into position.
- 4.2.121 The installation of the cables would take approximately 300 days

Reinstatement

4.2.122 Following completion of the tunnel and installation of the cables, the construction compounds and the temporary access tracks would be reinstated subject to the proposed THH and CSECs, including the permanent accesses discussed in section 4 of ES Chapter 3 Description of the Proposed Development (**Document 5.3**).

Tunnel Head Houses and Cable Sealing End Compounds

- 4.2.123 The construction of both Braint and Tŷ Fodol THHs and CSECs would be undertaken after completion of the tunnel and would utilise the same construction compound and temporary access tracks as the tunnel; these are described above. The layout of the two construction compounds may require alteration to accommodate the construction of the proposed permanent above ground infrastructure. This would remain within the boundaries of the construction compounds shown on Works Plan DCO_F/WO/PS/01 Sheet 1 of 5 (**Document 4.13**) and ES Figure 4.1 Construction Plan (**Document 5.4.1.1**)
- 4.2.124 Drainage proposals would be developed for both of the THH/CSECs in line with an agreed DMP and would achieve green field run off rates in line with SuDS principles.

Tunnel Head Houses

- 4.2.125 Tunnel Head Houses would be constructed over both shafts. These would contain the typical equipment listed in Table 3.8 in ES Chapter 3 Description of the Proposed Development (**Document 5.3**). These would be installed over the shafts within the parameters shown on Design Plan DCO_DE/PS/09_01 Sheet 1 of 8 (**Document 4.13**) for Braint THH and Design Plan DCO_DE/PS/09_05 Sheet 5 of 8 (**Document 4.13**) for Tŷ Fodol THH. The sequence of events to construct the THHs would be construction of the building envelope, fit out and finish, installation of services and creation of hard and soft landscaping.
- 4.2.126 Each THH would take approximately 145 days to construct.

Cable Sealing End Compounds

- 4.2.127 Both CSECs would be installed within the parameters shown on Design Plan DCO_DE/PS/09_01 Sheet 1 of 8 (Document 4.13) for Braint CSEC and Design Plan DCO_DE/PS/09_05 Sheet 5 of 8 (Document 4.13) for Tŷ Fodol CSEC. The piled foundations for the gantry would be installed, as would some of the electrical equipment, including troughs for the underground cables. A series of copper earth tapes would be installed below the ground to create an "earth mat" to make the CSE electrically safe.
- 4.2.128 Once the troughs had been completed the underground cables would be channelled, via the troughs, from the tunnel into the CSE structures. The CSE terminations, line gantries and other electrical equipment that would protect and control the power connection, would be lowered onto their foundations and support structures by a mobile crane. The CSEs would require a clean and controlled environment whilst being installed. To create a clean environment, a scaffold structure would be erected over the installation area and covered with weather-proof material. The electrical installation would be completed with connections of the 400 kV OHL to the underground electrical cables via downleads. Downleads would bring the conductors down to join on to the ends of the underground cables at the top of the CSE structures.
- 4.2.129 Each of the CSECs would take approximately 125 days to construct.

Reinstatement

4.2.130 The temporary site installation facilities would be removed and temporary working area would be restored to their original condition. The area around the THH/CSEC would be landscaped including land re-profiling and planting. The indicative landscaping proposals for these areas are shown on ES Figures 7.14 and 7.15 (Documents 5.7.1.14 and 5.7.1.15).

Substations

Wylfa Substation

4.2.131 Wylfa Substation is located adjacent to the existing Wylfa Nuclear Power Station and is centred on Grid Reference SH 352 938. A small extension would be required to the site boundary and items of existing equipment would need to be removed and new equipment installed. Works would include:

- dismantling and removal of redundant substation structures, equipment and plant, including cables, steelwork, foundations, firewall, support structures, cable ducts and troughs;
- earthworks including to provide a suitable base for structures, roads and compounds;
- construction of foundations to support all new structures and equipment;
- installation of four gantries for the termination of overhead electric line connections into the substation (4AP and 4ZA);
- installation of equipment between the new gantries and switchgear;
- installation of support structures;
- installation of switchgear and equipment;
- installation of electrical control panels;
- installation of troughs and below ground services; and
- installation of a section of new fence line
- 4.2.132 A small construction compound would be established within the existing site boundary to the north-east of the existing substation. This is shown on Design Plan DCO_DE/PS/01_02 Sheet 2 of 10 (**Document 4.13**) and on the Construction Plans included as ES Figure 4.1 Construction Plan (**Document 5.4.1.1**). The construction compound would include temporary offices, welfare facilities, security cabin and fencing and gates, emergency electrical generator, construction and security lighting, material laydown and storage (including storage for tools, fuel, plant and equipment), construction waste management facilities, drainage works, parking areas and hard standing.
- 4.2.133 Drainage proposals would be developed in line with the DMP.
- 4.2.134 The construction works at Wylfa Substation would be undertaken over approximately 16 months, undertaken in stages to suit outages and circuit commissioning and re-energisation.

Pentir Substation

- 4.2.135 Pentir Substation is located in north-west Gwynedd and is centred on Grid Reference to SH 559 677. The proposed layout is shown on Design Plan DCO_DE/PS/01_05 Sheet 5 of 10 (**Document 4.13**).
- 4.2.136 The main construction compound would be located within the Pentir Construction Compound described in section 3.3.4 and a small satellite construction compound would be established at the northwestern extent of the proposed extension this are shown on Design Plan DCO_DE/PS/01_05 Sheet 5 of 10 (**Document 4.13**) and included on ES Figure 4.1 Construction Plans (**Document 5.4.1.1**).
- 4.2.137 The Pentir Construction Compound would include temporary project offices, welfare facilities, security cabin and fencing and gates, utility service connections for electricity and potable water and/or connection of power supply to temporary generators, utility service connections or on site storage for later disposal of grey water and sanitation, emergency electrical generator, construction and security lighting, material laydown and storage (including storage for tools, fuel, plant and equipment), construction waste management facilities, assembly areas, earthworks, drainage works and discharge to watercourses, ground improvement, wheel cleaning facilities, parking areas and hard standing.
- 4.2.138 The primary construction access on to construction traffic routes would be via bellmouth F14 shown on ES Figure 4.1 Construction Plan (**Document 5.4.1.1**). However Light Goods Vehicles (LGV) site traffic may also use bellmouths F11 shown on ES Figure 4.1 Construction Plan (**Document 5.4.1.1**).
- 4.2.139 The initial preparatory works would comprise the temporary removal and storage of topsoil and the installation of a temporary stone capping in the substation construction area to provide a clean and stable working platform. An earth grid would be installed below the ground to create an 'earth mat' to make the compound electrically safe. The substation support structures and electrical equipment would then be installed within the parameters shown on Design Plan DCO_DE/PS/01_04 Sheet 4 of 10 (**Document 4.13**).
- 4.2.140 Works undertaken would include:
 - dismantling and removal of redundant substation structures, equipment and plant, including cables, steelwork, foundations,
firewall, support structures, cable ducts, troughing and vegetation;

- earthworks, including to create platforms for the new substation equipment, structures, landscaping, roads and compounds;
- construction of foundations to support all new structures and equipment;
- construction of gantries for the termination of overhead electric line connections into the substation;
- installation of equipment between gantries and switchgear;
- installation and replacement of underground 400 kV cables, including to facilitate the connection of new overhead line electric connections into the substation;
- installation of a 400 kV shunt reactor including means of enclosure;
- the reconfiguration of existing substation equipment;
- the installation of new ST pylon (4ZB001A) including foundations, steelwork and associated conductors, insulators and fittings and the modification of existing pylon 4ZB001;
- installation of new portable relay rooms;
- installation of support structures;
- installation of switchgear and equipment;
- installation of electrical control panels;
- installation of troughs and below ground services;
- extension of the substation perimeter fence;
- modifications to existing site access roads, hardstanding, and drainage;
- landscaping at either end of the existing substation; and
- installation of other site furniture;
- 4.2.141 The construction works at Pentir Substation would be undertaken over approximately 33 months although work would not be continuous

and may need to be undertaken in stages to suit outages and circuit commissioning and re-energisation.

Reinstatement

4.2.142 The temporary site installation facilities would be removed and temporary working areas would be restored to their original condition where landscape planting is not proposed. The indicative landscaping proposals for this area are shown on ES Figure 7.16 (Document 5.7.1.16).

Construction Traffic Routes

- 4.2.143 Construction traffic routes are the public roads upon which construction vehicles would travel to site having left the Strategic Road Network, in this case the A55. The proposed construction traffic routes for the construction of the Proposed Development are shown on ES Figure 13.2 (Document 5.13.1.2).
- 4.2.144 These are categorised in to eight types:
 - Primary HGV and LGV Construction Traffic Route (LGV = vehicles 3.5 t or below in gross weight; and HGV = vehicles above 3.5 t in gross weight);
 - LGV/Tractor Trailer Only Construction Traffic Route;
 - Primary LGV Construction Traffic Route;
 - HGV and LGV Enabling Works Construction Traffic Route;
 - HGV/LGV Contingency Construction Traffic Route;
 - Emergency Access Route;
 - THH/CSEC Operation and Maintenance Route; and
 - Abnormal Indivisible Load Construction Traffic Route.
- 4.2.145 The construction traffic routes have been split down into links; Table 4.4 below describes the links and how they would be used. The links are illustrated on Figures 13.2 and 13.8 (Documents 5.13.1.2 and 5.13.1.8). Chapter 13 (Document 5.13) provides predicted volumes of traffic on each link during the construction of the Proposed Development. The Outline Construction Traffic Management Plan (OCTMP) (Document 7.5) details the mitigation measures which have been included within the Proposed Development and would be

implemented to mitigate, so far as reasonably practicable, the impact of traffic generated during the construction phase of the Proposed Development.

4.2.146 As part of the Wylfa Newydd Power Station development proposals, they are proposing a number of offline works to the A5025 (Link 1), these are shown on Chapter 20, Figure 1 (**Document 5.20.1.1**).

Table 4. Routes	.4: Highway	Link Descriptior	for LG	/ / HGV / AIL Con	struction Traffic
Link Refere nce	Highway Link	Description	HGV / LGV / AIL	Proposed Development Element	Category
1	A5025	A5025 between A5 at Valley Crossroads and Wylfa.	HGV	23 New Pylons and Wylfa Substation.	Primary HGV / LGV
2	A5	A5 between A55 J3 and Valley Crossroads.	HGV	Access to the A5025.	Primary HGV / LGV
3	Unnamed Road (UR) 4	UR 4 between B5111 and B2	HGV	13 New Pylons.	Primary HGV / LGV
4	B5111	B5111 between B5110 and B5112	HGV	33 New Pylons.	Primary HGV / LGV
4.1	B5111	B5111 between the B5110 and access B8.	HGV	33 New Pylons.	Primary HGV / LGV
5	B5110	B5110 between Llangefni and access C8.	HGV	20 New Pylons.	Primary HGV/LGV

Link Refere nce	Highway Link	Description	HGV / LGV / AIL	Proposed Development Element	Category
6	B5420	B5420 between LLR and B5110	HGV	Access to B5110 and B5111.	Primary HGV/LGV
7	B5420	Between Llangefni Link Road and Access D4	HGV	9 New Pylons and OHL Penmynydd Road Construction Compound.	Primary HGV/LGV
7.1	B5420	Between Access D4 and Four Crosses Roundabout.	HGV	9 New Pylons and Penmynydd Road Construction Compound.	HGV/LGV Contingency Route
8	A5114	Between A55 J6 Llangefni Link Road.	HGV	Access to Llangefni Link Road.	Primary HGV/LGV
8.1	Industrial Estate Road	Between A5114 via existing carriageway to Llangefni Link Road	HGV	Access to Llangefni Link Road, B5420, B5110 and B5111.	Primary HGV/LGV
8.2	Llangefni Link Road (LLR)	LLR between Llangefni Industrial Estate and the B5420.	HGV	Access to B5420, B5110 and B5111.	Primary HGV/LGV
9	A5025	A5025 between A55 J8 to B5420.	HGV	9 New Pylons and OHL Penmynydd Road Construction	HGV/LGV Contingency Route

Link Refere nce	Highway Link	Description	HGV / LGV / AIL	Proposed Development Element	Category
				Compound.	
11	Unnamed Road 21	Unnamed Road between Star and access E5.	HGV	8 New Pylons.	Primary HGV/LGV
11.1	Unnamed Road 21	UR between Star Crossroads and Unnamed Road Star	HGV	8 New Pylons.	Primary HGV/LGV
12	A5152	Between A55 J7 and A5.	HGV	Access to A5 and access E5A.	Primary HGV/LGV
13	A5	A5 between A5152 and A55 J7a.	HGV	Access to Pont Ronwy Link, NCR 8 and Unnamed Road 21.	Primary HGV/LGV
14	NCR8	Between A5 and access E7	HGV	5 New Pylons, Braint THH/CSEC.	Primary HGV/LGV Route for OHL construction HGV/LGV Contingency Route for tunnel construction Primary LGV Route

Table 4.4: Highway Link Description for	LGV / HGV / AIL	Construction Tra	ffic
Routes			

Link Refere nce	Highway Link	Description	HGV / LGV / AIL	Proposed Development Element	Category
					LGV/Tractor Trailer Route
					Primary HGV/LGV Route for tunnel construction
15 F L	Pont Ronwy Link (PRL)	PRL between A5 and access F1	HGV	5 New Pylons, Braint THH/CSEC .	HGV/LGV Enabling Works
					Access Route
					THH/CSEC Operation and Maintenance Route
		Pont Ronwy			HGV/LGV Enabling Works
15.1	Pont Ronwy	Link (PRL) / Unnamed Road 22	HGV	Enabling works to facilitate the	Emergency Access Route
	Link (PRL)	Between Access F1 and A4080		F1C	THH/CSEC Operation and Maintenance Route
16	A4080	A4080 between A5 at	HGV / AIL	AIL route to Braint Tunnel	Abnormal

Link Refere nce	Highway Link	Description	HGV / LGV / AIL	Proposed Development Element	Category
		tollgate and F2.		Head House (THH).	Indivisible Load
					HGV/LGV Enabling Works
					HGV/LGV Contingency Route
					Abnormal Indivisible Load
17	A5	A5 Between A55 J8a and A4080	HGV / AIL	Access to A4080.	HGV/LGV Enabling Works
					HGV/LGV Contingency Route
18	A487	A487 Between B4547 and A55 J9.	HGV	3 New Pylons, Tŷ Fodol THH/CSEC and Pentir Substation.	Primary HGV/LGV
18.1	A4087	A4087 Between A55 J10 and A487	HGV	3 New Pylons, Tŷ Fodol THH, SEC and Pentir Substation.	HGV/LGV Contingency Route
19	B4547	B4547 between A4244 and	HGV / AIL	3 New Pylons, Tŷ Fodol THH/ CSEC and Pentir	Primary HGV/LGV

Link Refere nce	Highway Link	Description	HGV / LGV / AIL	Proposed Development Element	Category
		A487.		Substation and Pentir Construction Compound.	
20	A4244	A4244 between A5	HGV /	Primary HGV and AIL route	Primary HGV/LGV
20		and B4547	AIL	between the A55 and B4547.	Abnormal Indivisible Load
24	AEE	Britannia Bridge	HGV /	Link of strategic importance and access to Proposed	Primary HGV/LGV
21	ASS	J9 and A55 J8a	AIL	Development elements on Anglesey and Gwynedd.	Abnormal Indivisible Load
22	B5109	B5109 between LLR and access D2	LGV	Alternative LGV access route to OHL.	LGV/Tractor Trailer Route
23	Ffordd y Felin	Ffordd y Felin between A5025 and Brynddu Road	LGV	Alternative LGV access route to OHL.	Primary LGV Route
24	B5110	B5110 between access C8 and UR 19	LGV	Alternative LGV access route to OHL.	LGV/Tractor Trailer Route
25	Brynddu Road	Brynddu Road Between	LGV	Alternative LGV access route to	LGV/Tractor Trailer Route

Link Refere nce	Highway Link	Description	HGV / LGV / AIL	Proposed Development Element	Category
		Ffordd y Felin and access B2		OHL.	
26	B5112	B5112 between A55 J5 and B5111	LGV	Alternative LGV route access to B5111.	Primary LGV Route
27	UR 1	UR 1 between Brynddu Road and UR 4	LGV	Alternative LGV access route to OHL.	LGV/Tractor Trailer Route
28	UR 8	UR8 between B5111 and access B11	LGV	Alternative LGV access route to OHL.	LGV/Tractor Trailer Route
29	UR 9	UR9 between B5111 and access C2	LGV	Alternative LGV access route to OHL.	Primary LGV Route
30	Fodolydd Lane	Fodolydd Lane between B4547 and access F3	LGV	Alternative LGV access route to Tŷ Fodol THH, SEC and 400 kV OHL.	HGV/LGV Enabling Works Primary LGV Route Emergency Access Route THH/CSEC Operation and Maintenance Route
31	UR 10	UR10 between B5111 and	LGV	Alternative LGV access route to	LGV/Tractor Trailer Route

Table 4.4: Highway Link Description for LGV / HGV / AIL Construction Traffic Routes Link HGV / Proposed

Link Refere nce	Highway Link	Description	HGV / LGV / AIL	Proposed Development Element	Category
		access C4		OHL.	
32	UR 16	UR 16 between B5420 and access E1	LGV	Alternative LGV access route to OHL.	LGV/Tractor Trailer Route
33	UR 19	UR 19 between B5110 and access C6	LGV	Alternative LGV access route to OHL.	LGV/Tractor Trailer Route
34	Fodolydd Lane	Fodolydd Lane between B4547 and access F7	HGV	Access for bridge construction during enabling	HGV/LGV Enabling Works Primary LGV Route Emergency Access Route
		(enabling works only)		works.	THH/CSEC Operation and Maintenance Route
35	UR 3	UR 3 between Brynddu Road and access A9	、	Alternative LGV access route to OHL.	LGV/Tractor Trailer Route
36	North of J7	North of J7 between A55 and access E5A	HGV	8 New Pylons.	LGV/Tractor Trailer Route

Third Party Assets

- 4.2.147 In order to construct the Proposed Development it is proposed to modify a number of existing third party services, (for example low voltage power lines operated by the Distribution Network Operator (DNO) or telephone lines). This would be done by either placing an existing above ground third party service underground or re routeing an existing underground third party service. The location of the assets to be modified and the proposed area within which the third party asset would be modified are shown on ES Figure 4.2 Third Party Construction Plans (**Document 5.4.1.2**).
- 4.2.148 The works would most likely be undertaken by the asset owners prior to construction of the relevant section of the Proposed Development, however the Draft DCO (**Document 2.1**) would grant National Grid the power to undertake this work. The following sections set out the principles which would be applied to the works and which have been assessed by the technical Chapters of the ES(**Documents 5.7 to 5.18**).

Distribution Network Operator (DNO) Overhead Lines of Voltages up to and Including 33 kV and British Telecom (BT) Overhead Lines

Temporary Access

- likely to take access using existing farm access gates.
- most of the work would be done in advance of the National Grid access tracks being in place and the third party access tracks on ES Figure 4.2 Third Party Construction Plans (Document 5.4.1.2) would therefore be utilised. Where a National Grid access track was already in place, and if it were appropriate to do so, these would be used.
- the works would not require stone access track construction and would use all-terrain or low pressure bearing vehicles to drive over existing field surfaces. However, in wet ground an interlocking track mat may be used to protect the ground, this would only be in place for the duration of the works.
- any damage would be repaired on leaving site by agreement with the land owner.

Placing the Overhead Line Underground

- electricity supply would be switched off remotely, the circuit isolated and permit to work issued
- access would be taken in line with the principles set out above.
- the existing overhead line system would be physically disconnected from the wood pole structures to be removed.
- aA cable trench of approximately 300 millimetres (mm) wide and 600 mm deep would be excavated, by use of a mini digger within a working area of up to 1.5 m either side of the trench.
- the cable would be laid on a bed of sandy type material, covered with tile and tape and more sandy material and the trench backfilled.
- the works would be carried out in accordance with standard soil management and safety requirements.
- an all-terrain vehicle would be used to remove the existing overhead line cable.
- the circuit would then be tested, de-isolated and returned to service.
- the existing wood poles would be removed generally by excavating down one side of the structure, to allow room for movement, and then part pulling the structure over and then lifting it out. By excavating down the side of the pole, the type of foundation and soil condition would be exposed to ascertain the potential to fully remove the pole. In instances where the full removal of the pole would be problematic the usual solution would be to excavate around the base of the pole and then cut it off below ground level. In all cases the redundant poles, conductor, insulators and fittings would be removed from site and the disturbed foundation area reinstated.
- each existing OHL asset that requires modification would be likely to take five days to complete however this may not be continuous.

Connections onto the Existing Circuits

- where the asset is placed underground and requires transition from buried cable back onto the existing overhead line this would take place via an existing wood pole but additional equipment, including some back stay support, would be likely to be required. The back stay support would be provided to transfer any out of balance load on the pole down and into the ground.
- where the connection was to an existing cable this would be via a cable joint. A joint bay of approximately 600 mm deep and 2 m wide would be installed, and there would be a 1.5 m working areas around the bay.

Distribution Network Operator (DNO) Removal of a Section of Existing 132 kV Overhead Line

- 4.2.149 This applies to one crossing on Anglesey near to Rhosgoch, crossing IDs AP-OHLX A/65, NG-OHLX A/77 & ZA-OHLX A/71 as illustrated on Figure 1 of ES Appendix 3.4 (**Document 5.3.2.4**). Works would involve removal of the conductors and existing wood poles. All-terrain vehicles would be used to remove the infrastructure.
 - the existing wood poles would be removed generally by excavating down one side of the structure, to allow room for movement, and then part pulling the structure over and then lifting it out. By excavating down the side of the pole, the type of foundation and soil condition would be exposed to ascertain the potential to fully remove the pole. In instances where the full removal of the pole was considered to be problematic the usual solution would be to excavate around the base of the pole and then cut it off below ground level. In all cases the redundant poles, conductor, insulators and fitting would be removed from site and the disturbed foundation area reinstated.
 - back stay of wood poles may be required at each side of the conductor removal. The back stay support would be provided to transfer any out of balance load on the pole down and into the ground.
 - access would be taken as described for the 33 kV line above.

Construction Programme

4.2.150 The high level construction programme for the Proposed Development is shown in Table 4.5.

Tunnel scenario 1 (TBM Anglesey to Gwynedd)	
Tunnel scenario 2 (TBM Gwynedd to Anglesey)	
Tunnel scenario 3 (Drill and Blast)	
Overhead Line	
Wylfa Substation	
Pentir Substation	

Table 4.5 High Level Construction Programme																										
Year	2	02	0	20	02 [,]	1		20	2022			2023			2024				20)25	5		20)26	;	
Quarter	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3
Tunnel																										
Temporary access tracks to Braint Construction Compound																										
Establishment of Braint																										
Construction Compound																										
Temporary access tracks to																										
Construction																										
Establishment of Tŷ Fodol																										
Construction Compound																										
Braint Shaft (Phase 1)																										

Table 4.5 High Level Construction Programme																										
Year	20)2()	20	021	1		20)22	2		20)23	3		20)24	1		20)25	5		20)26	3
Quarter	2	3	4	1	1 2 3 4 1		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	
Tŷ Fodol Shaft (Phase 1)																										
Braint Shaft (Phase 2)																										
Tŷ Fodol Shaft (Phase 2)																										
Tunnelling (including tunnel cleanout)																										
Braint Tunnel Head House																										
Tŷ Fodol Tunnel Head House																										
Cable installation																										
Braint Cable Sealing End Compound																										
Tŷ Fodol Cable Sealing End																										

Table 4.5 High Level Construction Programme																										
Year	20	020	0	20	02 [,]	1		2022				2023				2024				2025				2026		
Quarter	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3
Compound																										
Site Reinstatement																										
Overhead Line																										
Installation of Penmynydd Road Construction Compound																										
Installation of Pentir Construction Compound																										
Installation of bellmouths and temporary access tracks																										
Section A Pylon Construction																										
Section A Stringing																										
Section B Pylon Construction																										
Section B Stringing																										
Section C Pylon Construction																										
Section C Stringing																										
Section D Pylon Construction																										

Table 4.5 High Level Construction Programme																										
Year	2020			2021				2022				2023				2024				2025				2026		
Quarter	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3
Section D Stringing																										
Section E Pylon Construction																										
Section E Stringing																										
Section F Pylon Construction																										
Section F Stringing																										
Reinstatement																										
Wylfa Substation																										
Mobilisation																										
Substation works																										
Commissioning																										
Pentir Substation	-	-	-		-	-																				
Mobilisation																										
Substation works																										
Reinstatement																										

Workforce Numbers

4.2.151 The following images illustrate the number of workers for each element of the Proposed Development over the construction programme.





Image 4.3 Construction programme (Scenario 1)





Image 4.4 Construction programme (Scenario 2)

Image 4.5 Construction programme (Scenario 3)



4.3 REINSTATEMENT

4.3.1 All temporary working areas and accesses would be removed when construction of that stage of the works had been completed. Plant,

temporary cabins and vehicles would be removed from the site. Save for the actual Proposed Development and works forming part thereof, and also anything associated (e.g. ground strengthening) all temporary land, including highways and public rights of way crossed by the works or other land temporarily occupied, would be made good in consultation with landowners and/or the relevant highways authority. Reinstatement would be in accordance with the indicative Reinstatement Plans (**Document 7.4.1.1**).

4.4 MAINTENANCE AND OPERATION

4.4.1 This section describes how the elements of the Proposed Development will be operated and maintained.

Overhead Line

Maintenance

- 4.4.2 The 400 kV OHL would be subject to annual inspection from the ground or by helicopter. The inspection would identify if there are any visible faults or signs of wear and would also indicate if changes in plant or tree growth or development had occurred that could risk infringing safety clearances. Inspections would provide input as to when refurbishment was required.
- 4.4.3 The 400 kV OHL could support telecommunication equipment such as small mobile telephone antennae and would contain optical fibres within the earthwire.
- 4.4.4 Independent companies would require access for maintenance purposes using pickup trucks and vans. Access for the optical fibres will usually be at the joint box positions located just above the anticlimbing devices on certain pylons. Position and frequency of joint boxes is subject to design by the successful contractor.
- 4.4.5 Access for vegetation management, telecommunications and fibre optic maintenance would be along routes agreed with the landowners and may require interlocking track mat panels.
- 4.4.6 The 400 kV OHL would be made up of a variety of materials, including concrete and steel for the foundations, steelwork for the pylon and aluminium for the conductors. All these materials have an expected lifespan, which would vary depending on how the 400 kV OHL was used and where it is located. Typically, pylon steelwork and foundations have a life expectancy of approximately 80 years, the conductors have a life expectancy of approximately 40 to 60 years

and the insulators and fittings have a life expectancy of approximately 25 to 40 years. The lifespan of the 400 kV OHL may be longer than the anticipated 80 years, depending on its condition, the environment to which it is exposed, refurbishments and transmission network requirements.

4.4.7 Minor repairs or modifications may be required from time to time for local earthwire damage, addition of jumper weights, local conductor damage, broken insulator units, damaged or broken spacers, broken or damaged vibration dampers, damaged or broken anti climbing guards. Minor repairs would be programmed locally by a maintenance team using pickup trucks and vans to access site along routes agreed with landowners. Access may require interlocking track mat panels.

Refurbishment

- 4.4.8 Refurbishment work would be undertaken typically on one side of the pylon at a time, so that the other side could be kept 'live' or in use.
- 4.4.9 Refurbishment work could involve:
 - o the replacement of conductors and earth wires;
 - the replacement of insulators and steelwork that holds the conductors and insulators in place, insulator fittings and conductor fittings;
 - o painting or replacement of the pylon steelwork and
 - replacement of telecommunication equipment (by separate companies).
- 4.4.10 During refurbishment there would be activity along the 400 kV OHL, especially at tension pylons when a new conductor is installed and an old conductor taken down.
- 4.4.11 Vans would be used to carry workers in and out of the site and trucks would be used to bring new materials and equipment to site and remove old equipment. Temporary works including access tracks and scaffolding to protect roads may be required as for construction.

Cable Tunnel

Operation

4.4.12 The tunnel would be unmanned during normal operation. Ventilation fans located within the T \hat{y} Fodol Tunnel Head House would draw air

through the tunnel in order to maintain the required temperature in the shafts and tunnel to ensure the cables did not overheat.

- 4.4.13 The tunnel ventilation fans would operate according to tunnel cooling demand. During normal operating conditions the fans would be expected to operate as follows:
 - one or both fans working concurrently towards their peak capacity would only occur during emergency conditions or during testing;
 - during normal operation, the tunnel ventilation fans would be operating in a duty/standby arrangement, with only one tunnel ventilation fan operating at any one time; and
 - during normal operation, the circuit loadings would be shared between the cables on the new connection and the existing connection, meaning that the duty fan would not be required to operate towards its peak capacity.
- 4.4.14 It is therefore expected that a typical operating condition would consist of one tunnel ventilation fan operating up to 50% of peak capacity, assisted by natural ventilation and the tunnel's thermal inertia. During this time the other tunnel ventilation fan would be on standby. This condition could occur at any period during the day or night for extended periods of time.
- 4.4.15 During operation the tunnel would also be cleared regularly, as required, of excess water using sump pumps.

Maintenance

- 4.4.16 The cables in the tunnel would be subjected to maintenance inspections over the length of the tunnel comprising at least one annual inspection. The inspection would report on any defects or changes, identifying any additional requirements such as repairs/replacements. The tunnel ventilation fans and staircase fans would be run prior to entry until the shafts and tunnel are safe to enter by personnel. Whilst the tunnel ventilation fans would run during normal operation it is anticipated that the stairwell fans would only operate when personnel are using the stairwells.
- 4.4.17 It is anticipated the ventilation fans would be tested on a monthly basis. This would likely occur during the day and each fan would be manually run up to 100% for a short period of time.

4.4.18 For routine maintenance activities tunnel would be accessed via the permanent access roads at Braint and Tŷ Fodol THH/CSEC.

Refurbishment

4.4.19 Any replacements of cables within the tunnel, or larger equipment within the tunnel head houses, would require a temporary construction compound in proximity to the Tunnel Head House, the exact size of which would depend on a number of factors. Access would be gained via the permanent access road, subject to a 1 in 40 year maintenance or unplanned event. At Braint this would be via the permanent access road, at Tŷ Fodol this would be taken from bellmouth F4 as illustrated on ES Figure 4.1 Construction Plans (**Document 5.4.1.1**). Should this access be required a temporary access track would be installed and the land reinstated on completion of the works. At the end of their life expectancy (approximately 40 years) the cables would require replacing, assuming the connection was still required. If the old cables needed to be removed then a similar method could be followed as for installation of the cables within the completed tunnel.

Tunnel Head Houses and Cable Sealing End Compounds

Tunnel Head Houses

Operation

4.4.20 The THHs would be unmanned during normal operation. The tunnel ventilation fans would operate as described in section 3.3 above.

Maintenance

4.4.21 Maintenance checks would be undertaken at regular intervals and would cover elements including the fans, lighting, pumps and gas detection. Where access to the shaft or tunnel was not required, the THH building would be inspected and maintained as per any National Grid Electricity Transmission System building.

Cable Sealing End Compounds

Operation

4.4.22 The CSEC would be unmanned during normal operation.

<u>Maintenance</u>

4.4.23 Maintenance activities would include infrequent visits to the CSECs to monitor the outdoor sealing end terminations and carry out periodic maintenance and checks on electrical equipment within the compound.

Refurbishment

4.4.24 When the Cable Sealing End required refurbishment and/or replacement works, vans would be used to carry workers in and out of the site and larger vehicles (possibly HGVs and small mobile cranes) would be used to bring new materials and equipment to site and remove old equipment. Temporary scaffolding may be required to protect any infrastructure around the compound.

Substations

4.4.25 The operation of the substations would continue to be operated as they are at present.

Maintenance

4.4.26 Maintenance of the substations would continue to be, undertaken on an ongoing basis with individual equipment subject to a three year maintenance cycle. Visual checks would be undertaken on a monthly inspection visit to the site.

Refurbishment

4.4.27 If the substations require refurbishment or replacement works, vehicles would be used to carry workers in and out of site and suitable vehicles would be used to bring new materials and equipment to site and remove old equipment.

Landscaping

4.4.28 Any reinstatement and landscape mitigation planting would be maintained until it was established and any tree or shrub planted as part of an approved mitigation planting scheme that, within a period of 5 years after planting, was removed, died or was seriously damaged or diseased, would be replaced in the first available planting season with a specimen of the same species and size as that originally planted.

4.5 DECOMMISSIONING

4.5.1 This section describes how the various elements of the Proposed Development would be decommissioned.

Overhead Line

- 4.5.2 If the connection was no longer required and the 400 kV operating requirements allowed, one connection may be removed. A connection would need to remain to bring electricity onto Anglesey. Upon removal of one of the connections, much of the material would be taken for recycling. Similar access would be required as outlined for construction.
- 4.5.3 Fittings, such as dampers and spacers would be removed from the conductors. The conductors would be cut into manageable lengths or would be winched onto drums in a reverse process to that described for construction. The fittings would be removed from the pylons and lowered to the ground.
- 4.5.4 Each pylon would most likely be dismantled by crane, with sections cut and lowered to the ground for further dismantling and removal from site. Depending on the access and space available, it may be possible to cut the pylon legs and then pull the pylon to the ground using a tractor. The pylon could then be cut into sections on the ground. Unless there was a compelling need for removal of all the foundations, these would be removed to approximately 1.5 m deep and subsoil and topsoil reinstated.

Tunnel & Tunnel Head Houses

4.5.5 If the 4AP connection were no longer required, the underground cable would be decommissioned. Cables would be removed from the tunnel and the shafts either capped or backfilled. The THH and associated equipment could be removed and materials would be taken for recycling. The tunnel itself would remain in-situ. Should the site no longer be required for operational purposes the land would be reinstated to an appropriate end use.

Cable Sealing End compounds

4.5.6 Upon decommissioning any materials would be removed and taken for recycling. Should the site no longer be required for operational purposes the land would be reinstated to an appropriate end use.

4.5.7 Similar methods and equipment would be required for dismantling as outlined for construction above.

Substations

4.5.8 The lifespan of substation equipment is approximately 40 years. If the elements of either the Wylfa or Pentir substation that form part of the Proposed Development were no longer required, the equipment would be safely disconnected from the transmission system and carefully dismantled. Much of the material would be taken for recycling. Similar methods and equipment would be required for dismantling as for construction.

5 Methodology

5.1 INTRODUCTION

5.1.1 This section presents the screening methodology that has been used to determine whether the Proposed Development would result in a likely significant effect. It then presents the Appropriate Assessment (AA) methodology that has been used to determine whether effects of the Proposed Development would adversely affect the integrity of a designated site in view of its conservation objectives, where a likely significant effect cannot be discounted.

5.2 STAGE 1 - SCREENING METHODOLOGY

- 5.2.1 The screening methodology considers the sources, pathways, and receptors of effects. Each of these elements is considered, and used to screen out/in sources/pathways and receptors.
- 5.2.2 The process commences with the identification of possible sources or causes of effects relating to the Proposed Development. These sources or causes of effects are considered without the application of any reduction or avoidance measures (avoidance in this sense is considered to be a situation where an effect could happened as a result of the Proposed Development, however it would be avoided through a secured mechanism, as opposed to avoidance through decisions taken in earlier stages of the development of the North Wales Connection Project.
- 5.2.3 The screening methodology takes these causes/sources into account when screening in/out sites and interest features. The screening methodology is set out on Image 5.1 below; this is based on The Habitats Regulations Assessment Handbook 2013 (Ref 5.1), European Commission guidance (Ref 2.1) and Scottish Natural Heritage guidance (Ref 5.2). Whilst screening constitutes Stage 1 of the overall HRA process, as illustrated on Image 2.1, screening has been broken down into a series of sub stages, which help to clearly demonstrate how conclusions have been reached.
- 5.2.4 When screening in/out sites and interest features it needs to be established whether there is a potential pathway between the possible

sources/causes of effects and the features of the Natura 2000 site. Where there are no sources or pathways to affect a Natura 2000 Site that could result from the construction, operation or decommissioning of the Proposed Development, the site is considered no further. For example a SAC remote from the Proposed Development, where the only pathway to affect the interest features would be from air quality/deposition, does not have a source/pathway link from the Proposed Development so would be screened out.

5.2.5 Where a source of effect, a pathway and a receptor are identified, consideration is then given to whether there is a 'mechanism' for an effect. This takes into account the sensitivity of the interest feature to the source of effect.



*Adapted from Scottish Natural Heritage guidance (Ref 5.2) Figure 2: 13 Key Stages Of The Habitats Regulations Appraisal Process For Plans

5.3 STAGE 2 - APPROPRIATE ASSESSMENT METHODOLOGY

- 5.3.1 The Appropriate Assessment (AA) utilises the information from Stage 1b of the screening assessment, for designated sites where a potential mechanism exists and therefore a likely significant effect cannot be ruled out, and assess the potential effects upon the integrity of the identified designated sites.
- 5.3.2 Measures that form part of the design or construction proposals that would reduce or avoid any harmful effects are described and considered within the AA to determine whether any of these residual effects would lead to an adverse effect on the integrity of European sites, either alone or in combination with other plans or projects.

5.4 BASIS OF ASSESSMENT

5.4.1 This assessment has been based on the detailed assessments presented in the ES technical chapters (**Documents 5.7 – 5.18**).

Each of the technical chapters takes account of the flexibility allowed for in the draft DCO in determining the residual effects on habitats and species. Section 5 of each of the technical chapters describes how this flexibility has been taken into account in. As this assessment draws on the conclusions of these technical chapters the flexibility allowed for in the draft DCO has already been taken into account when concluding whether the Proposed Development would result in an adverse effect on site integrity.

5.5 DATA SOURCES AND SURVEYS

- 5.5.1 This screening assessment has used a combination of desk based data collection and site surveys undertaken to inform the Ecological Impact Assessment (EcIA) as part of the EIA as presented in ES Chapter 9 Ecology and Nature Conservation (Document 5.9).
- 5.5.2 Information sources have included a high level desk study review, extended Phase 1 Habitat surveys and wintering bird surveys within accessible areas, Great Crested Newt (GCN)(*Triturus cristatus*) surveys comprising environmental DNA (eDNA) surveys undertaken in 2015 (Ref 5.3), intertidal biotype mapping and subtidal faunal grabs and dropdown camera habitat survey.

Desk Study

- 5.5.3 The following online ecological resources were consulted to gain information on designated sites and their associated interest features:
 - NRW website (<u>www.naturalresources.wales</u>) was consulted to identify statutory designated sites of nature conservation interest;
 - The 'Multi-Agency Geographic Information for the Countryside' (MAGIC) website (<u>www.magic.gov.uk</u>) was consulted to confirm the location of designated sites of nature conservation interest;
 - Joint Nature Conservation Committee (JNCC) website (<u>http://jncc.defra.gov.uk</u>) was consulted to obtain information regarding any European designations within the high level desk study search area;
 - National Biodiversity Network's Gateway (<u>http://data.nbn.org.uk</u>) was searched for records of protected and notable species in the initial desk study search area;

- British Trust for Ornithology (BTO) Wetland Bird Survey (WeBS) WeBS online website (<u>https://www.bto.org/volunteer-surveys/webs</u>);
- The Greenland white fronted goose website (<u>http://greenlandwhitefront.org/</u>); and
- Wildfowl and Wetlands Trust (WWT) website (<u>http://www.wwt.org.uk/</u>).
- 5.5.4 A number of the groups contacted either do not hold data for the desk study search area or provide their records to national or regional record centres, thus their records have been obtained via those sources. Records were requested from those specialist species/habitat groups where it was concluded that they held records relevant to the Proposed Development, but that the records would not have been available through the data centre. These were:
 - NRW;
 - Welsh Government;
 - Isle of Anglesey Council (IACC);
 - Gwynedd Council (GC);
 - Cofnod, the Local Environmental Records Centre for North Wales;
 - Royal Society for the Protection of Birds (RSBP);
 - HNP Project third party data;
 - Cross and Stratford Welsh Chough Project (Chough *Pyrrhocorax pyrrhocorax* data);
 - The Wales Raptor Study Group Chairman; and
 - Sea Watch Foundation.
- 5.5.5 In addition to the data sources listed above, 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 additional data sources is included within ES Chapter 9 Ecology and Nature Conservation (**Document 5.9**).

Data Search Areas

Terrestrial/Avian

- 5.5.6 A 2 km study area from the Order Limits was used when requesting species records from the Cofnod and other sources (shown above) of ecological data. This included records for protected and notable species and information on locally designated nature conservation sites. This has been extended for red squirrel where the context of the wider habitat on Anglesey needs to be considered. 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 Carnaerfonshire where appropriate;
 - BTO WeBS online (<u>https://app.bto.org/webs-reporting/</u>) All Anglesey Core Count sectors monitored in the last 10 years within approximately 5 km of the Order Limits (8 sectors); and Core Count Sectors with counts of whooper swan (*Cygnus cygnus*) and / or Greenland white–fronted goose (*Anser albifrons flavirostris*) across the whole of Anglesey (inland and coast) in the last 10 years (19 sectors);
 - RSPB Data Unit Order Limits plus 5 km for Greenland whitefronted goose and whooper swan; Order Limits plus 500 m for breeding curlew (*Numenius arquata*) and lapwing (*Vanellus vanellus*); Menai Strait between the Menai and Britannia Bridges for breeding records of common tern (*Sterna hirundo*);
 - The Greenland white–fronted goose website (<u>http://greenlandwhitefront.org/</u>) – All of Anglesey and North Wales;
 - 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 no specific Study Area.

Marine

5.5.7 A wider search area was used when obtaining species records for highly transient marine species, based on their distributions and behaviour. These included the whole length of the Menai Strait, and the wider Irish Sea, as identified as applicable in ES Chapter 9 Ecology and Nature Conservation (**Document 5.9**) and within ES Appendices 9.3 to 9.17 (**Documents 5.9.2.3 to 5.9.2.17**). NB – the term 'transient' refers to mobile interest features that make use of surrounding habitats, which are themselves not protected as a Natura 2000 site.

Ecological Survey

- 5.5.8 A Phase 1 Habitat Survey has been conducted in addition to a number of protected species surveys for the Proposed Development. In all cases the aim has been to ensure that the collated baseline ecological data is sufficiently robust and widespread to fully inform the EcIA and this HRA Screening Assessment.
- 5.5.9 The following lists the surveys (refer to section 6 for the extent of the study/survey areas) that relate to species and habitats forming interest features of Natura 2000 sites and which have therefore been used to inform this HRA Screening Assessment. Detailed information on the surveys summarised below can be found in ES Appendices 9.3, 9.4, 9.5, 9.6, 9.7, 9.8, 9.9, 9.10, 9.11, 9.12, 9.13, 9.14, 9.15, 9.16,9.17 and 9.18 (Documents 5.9.2.3, and 5.9.2.18).
 - Phase 1 survey has been undertaken within the Order Limits of the Proposed Development plus 50 m buffer in accordance with the JNCC Handbook for phase 1 habitat survey – a technique for environmental audit (Ref 5.4). The Phase Habitat 1 survey also includes mapping of any instances of non-native 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. ES Appendix 9.3 Phase 1 Habitat Report (Documents 5.9.2.3)
 - National Vegetation Classification (NVC) survey has been undertaken in areas where the Phase 1 Habitat survey identified potentially interesting/diverse areas of vegetation throughout the Order Limits that could potentially be affected by the Proposed Development. The NVC surveys were carried out using the methodology outlined in the "*National Vegetation Classification: Users' Handbook*" published by the JNCC (2006) (Ref 5.5). Data was anaylsed using a combination of survey experience

and the keys in Rodwell British Plant Communities (2000) (Ref 5.6). ES Appendix 9.4 National Vegetation Classification (NVC) Report (**Documents 5.9.2.4**)

- Great Crested Newt surveys used a range of surveys methods including Habitat Suitability Index (HSI) in accordance with Oldham et al (2000) (Ref 5.7), eDNA surveys following the methodology and guidance provided in Defra Project WC 1067 (accepted by NRW) (Ref 5.8) and presence/likely absence surveys following guidance provided in English Nature Great Crested Newt Mitigation Guidelines (Ref 5.9). Other amphibian species identified during the surveys were also recorded. ES Appendix 9.6 Great Crested Newt Report (**Documents 5.9.2.6**)
- Otter (*Lutra lutra*) surveys were undertaken on watercourses within and adjacent to the Order Limits that could be affected by the Proposed Development. The banks and margins of suitable watercourses have been surveyed up to 250 m either side of the area likely to be affected i.e. a 500 m section, with both banks being surveyed where habitat is suitable. The surveys have been conducted paying due regard to the publication Monitoring the Otter (Ref 5.10) and have been specifically aimed at identifying any potential resting sites or holt locations along suitable watercourses. Evidence of other riparian mammals such as mink (*Neovision vison*), bank vole (*Clethrionomys glareolus*) and water vole (*Arvicola amphibious*) were also recorded where observed. ES Appendix 9.8 Otter and Water Vole Report (**Documents 5.9.2.8**)
- Bird Surveys. 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 Scottish Natural Heritage guidance (2014 and 2016), adapted as required to the specific needs of the Proposed Development (Ref 5.11 and Ref 5.12). 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. ES Appendix 9.15 Ornithological Assessment Report (Documents 5.9.2.15)
 - Bird Surveys Vantage Point (VP) Surveys. VP Surveys were undertaken to monitor avian flight activity throughout the Order Limits and immediate

surroundings, covering the Order Limits and up to approximately 500 m around them. VP surveys were undertaken following the methodology set out in Scottish Natural Heritage (SNH, 2014) (Ref 5.11) as recommended in SNH's guidance (2016) (Ref 5.12).

- Breeding Common Birds Census (CBC) surveys, using 0 an amended CBC methodology described in Marchant (1983) (Ref 5.13) and Gilbert et al. (1998) (Ref 5.15), were undertaken to determine breeding bird within 11 discrete assemblages habitat areas corresponding to areas of permanent habitat loss at the THH/CSEC and Pentir Substation extension and sample survey areas representative of the range of habitats likely to be affected temporarily.
- Inland Water Bird Counts to quantify the use of the key inland freshwaters (Llyn Alaw and Cefni Reservoir) by whooper swans, the areas being sites known to support whooper swans on a regular basis and between which whooper swan movements might have crossed or passed close to the OHL. In addition to this, ad hoc searches for common terns nesting on the islands at the eastern end of Llyn Alaw were carried out during routine VP surveys and further species–specific searches for this species were carried out covering the whole of Llyn Alaw.
- Schedule 1 and Annex 1 Bird Surveys. Surveys were 0 carried out to identify breeding and roosting sites of a number of species sensitive to and legally protected from disturbance, principally including the following Annex 1 and Schedule 1 species This was done in two stages, Stage 1: Preliminary Habitat Assessments and Stage 2:Surveys for Nest Locations. The preliminary habitat assessments (Stage 1) identified areas of semi-natural habitat (predominantly woodland, cliffs and quarries) potentially suitable for the above species within all habitat up to 500 m either side of the Order Limits requiring more detailed survey for Schedule 1 birds nesting. A Schedule 1 survey licence was obtained from NRW prior to Stage 2 (Surveys for Nest Locations) being undertaken. As part of Stage 2 Raptor surveys were undertaken under licence number

71217:OTH:DBE:2016, areas suitable to support Annex 1 and Schedule 1 species were identified from previous survey results, transects were walked through suitable habitats and ad hoc VPs were used to observe activity at regular intervals.

- Incidental Records. Casual sightings of key species (typically Schedule 1 and Annex 1 waterfowl, chough, owls and raptors) outside of formal survey periods and originating from surveyors working on other ecology surveys were collated and are referred to where they can provide any useful insight into the distribution of ornithological receptors.
- Invertebrate surveys included a habitat appraisal scoping survey and transect surveys. Surveys were designed to target butterflies and dragonflies, as these are listed as qualifying features for designated sites situated within 2 km of the Order Limits, and consideration was given to other invertebrate groups and survey methodologies. Surveys were completed in general accordance with the UK Butterfly Monitoring Scheme (UKBMS) methodology (Ref 5.14). This involved determining a route (transect walk) that provided a fair representation of the habitats and other features present within each survey area. ES Appendix 9.14 Terrestrial Invertebrate Report (**Documents 5.9.2.14**)
- Aquatic Macroinvertebrate surveys were undertaken on watercourses that could be affected by the Proposed Development within and adjacent to the Order Limits. implemented during the collection Methodologies and preservation of samples in the field and during the sorting and analysis of samples in the laboratory were undertaken in accordance with the recommended current guidance (Ref 5.15 ES Appendix 9.13 Freshwater Report and Ref 5.16). (Documents 5.9.2.13)
- Intertidal habitat surveys were undertaken to determine presence/ absence of NRW ascribed habitats, and to assess any changes in their extent. The survey area extent was the Menai Suspension Bridge to Y Felinheli. The survey method followed Procedural Guideline No. 3-1: in situ intertidal biotope recording (Ref 5.17). ES Appendix 9.16 Intertidal Report (Documents 5.9.2.16)
- Subtidal benthic habitats epibenthic communities survey and a subtidal habitats infaunal sediment communities survey were undertaken using a drop down camera method at thirteen survey sites between the Britannia Bridge and Y Felinheli. The habitats were ascribed to the Marine Habitat Classification Hierarchy, and taxa were semi-quantitatively enumerated using the SACFOR scale. ES Appendix 9.17 Subtidal Report (Documents 5.9.2.17)
- Subtidal benthic habitats Infaunal sediment communities survey was undertaken using a 0.1 m² mini-Hamon grab at eight sites between the Britannia Bridge and Y Felinheli. ES Appendix 9.18 Underwater Construction Noise Modelling Report (Documents 5.9.2.17)

6 Stage 1 Screening

6.1 INTRODUCTION

6.1.1 This section identifies the Natura 2000 sites that could potentially be affected by the Proposed Development, comprising Screening Stages 1a and 1b as set out on Image 3.1.

6.2 STAGE 1A

- 6.2.1 A long list of Natura 2000 sites considered to have any potential for direct or indirect effects are identified. There are three Natura 2000 sites within the Order Limits and therefore have the potential for direct effects, these are:
 - Corsydd Môn a Llyn/Anglesey and Llyn Fens Ramsar;
 - Corsydd Mon/Anglesey Fens SAC; and
 - Y Fenai a Bae Conwy/Menai Strait and Conwy Bay SAC.
- 6.2.2 The following sites are those that are outside of the Order Limits, that could conceivably have an indirect pathway for effects related to the Proposed Development, these are:
 - Bae Cemlyn/Cemlyn Bay SAC
 - Eryri/Snowdonia SAC
 - Afon Gwyrfai a Llyn Cwellyn SAC
 - Glannau Môn: Cors heli/Anglesey Coast: Saltmarsh SAC
 - Y Twyni o Abermenai i Aberffraw/Abermenai to Aberffraw Dunes SAC
 - Llyn Dinam SAC
 - Pen Llyn a'r Sarnau/Lleyn Peninsula and the Sarnau SAC
 - Cardigan Bay SAC

- North Anglesey Marine/Gogledd Môn Forol cSAC
- West Wales Marine cSAC
- Anglesey Terns/Morwenoliaid Ynys Môn SPA (this has replaced the Ynys Feurig, Cemlyn Bay and The Skerries SPA)
- Liverpool Bay/Bae Lerpwl SPA
- Traeth Lafan/Lavan Sands, Conway Bay SPA
- Glannau Ynys Gybi/Holy Island Coast SPA
- Ynys Seiriol/Puffin Island SPA
- Migneint Arenig Dduallt SPA
- Dyfi Estuary SPA
- 6.2.3 The sites identified above have been progressed to Stage 1b of the HRA Screening methodology.

6.3 STAGE 1B

6.3.1 Stage 1b can be broken down into a number of further stages these are illustrated on Image 6.1. Each stage of the process seeks to screen out either whole sites or interest features of the site where it is concluded that there would be no potential for a likely significant effect.

Image 6.1 Screening Methodology



Screening Stage 1bA

- 6.3.2 This section identifies the potential sources of effects which could occur as a result of the construction, operation, maintenance and decommissioning of the Proposed Development.
- 6.3.3 Potential sources of effects on Natura 2000 sites have been categorised into the following:

- Habitat Loss or Fragmentation Direct loss of habitat or supporting habitat, either temporary or permanent, due to the placement of works, structures or machinery within the habitat.
- **Predation** The implementation of OHLs and pylons has the potential to increase a risk of predation by providing additional hunting lookouts for use by predators, such as raptor species.
- Collision Risk The implementation of OHLs and pylons has the potential to present a collision risk to the movement of European qualifying features.
- Disturbance Sites that are designated for fauna (birds/fish/mammals) could be affected by disturbance/injury arising from construction, maintenance and decommissioning. General construction works (noise, vehicles, vibration, lighting, and presence of construction workers) has the potential to cause displacement of qualifying features from the affected areas. Disturbance/injury could result from maintenance activities, such as movement of people and machines and any associated noise or lighting requirements.
- **Pollution** The release of pollutants (for example through fuel/hydraulic oil spills/drilling fluid) generated during construction, maintenance and decommissioning activities could have adverse effects on qualifying features by changing, for example, the oxygen/chemical levels of their habitat. Pollutants may also be airborne and cause effects associated with deposition levels or result from the disturbance of contaminated soils during construction.
- **Hydrological Alteration** There would be localised excavation for pylon bases and cable trenching. There would be potential for the dewatering of habitats which could alter the physical regime of habitats which support European qualifying features.
- **Invasive non-native species and biosecurity** The introduction of invasive and non-native species (for example Japanese knotweed (*Fallopia japonica*) during construction, maintenance or decommissioning activities could have adverse effects on the qualifying features.
- **EMFs** Power transmission through cables generates localised electromagnetic fields (EMFs). The introduction of EMFs have the potential to affect a range of marine organisms, including

fish, mammals and crustaceans 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.

- 6.3.4 The design of the Proposed Development, for example the sensitive routeing of the OHL and careful siting of the THH/CSECs, in accordance with section 2.5 of EN-5 has been critical in avoiding or reducing a number of potential environmental effects. The design of the Proposed Development would ensure some of the sources of effects described above would be avoided completely and where this is the case these have been taken into account at this stage of the screening process.
- 6.3.5 Where the design of the Proposed Development has been unable to resolve potentially significant effects, mitigation measures have been applied. Where mitigation has been applied the relevant site/interest feature has been taken through to stage 2.

Table 6.1 Potential for the Proposed Development to result in an effect.				
Source/Cause	Potential effect	Proposed Development	Potential for effect? Y/N	
Habitat Loss or Fragmentation	Direct loss or fragmentation of habitat within a Natura 2000 site during the construction, maintenance and decommissioning of the Proposed Development	Three Natura 2000 sites are located within the Order Limits of the Proposed Development. The Proposed Development has been designed so that the Menai Strait and Conwy Bay SAC is avoided as the connection would be placed in a tunnel beneath this site. However potential minor emission of drilling mud and bentonite may occur as a result of drilling fluids being injected into the bedrock under pressure ahead of the TBM drilling face. Therefore there would be potential that a blowout of drilling slurry could result in direct loss or fragmentation of habitats present on the bed of the Menai Strait. The Proposed Development could result in loss or fragmentation of habitat of the Anglesey Fens SAC and Anglesey and Llyn Fens Ramsar during the construction, maintenance and decommissioning of the Proposed Development.	Y	
	Direct loss or fragmentation of habitat within a Natura 2000 site during operation of the Proposed Development	The Proposed Development has been designed to avoid Natura 2000 sites as far as possible and no permanent infrastructure would be located within Natura 2000 sites.	Ν	
	Direct loss or fragmentation of	Interest features may use supporting habitat within and	Y	

Table 6.1 Potential for the Proposed Development to result in an effect.				
Source/Cause	Potential effect	Proposed Development	Potential for effect? Y/N	
	supporting habitat during the construction, maintenance and	adjacent to the Order Limits for commuting, feeding, foraging, breeding and roosting.		
	decommissioning of the Proposed Development	The Proposed Development could result in loss or fragmentation of supporting habitat during construction, maintenance and decommissioning.		
	Direct loss or fragmentation of supporting habitat during the operation of the Proposed	Interest features may use supporting habitat within and adjacent to the Order Limits for feeding, foraging, breeding and roosting.	N	
	Development	been assessed under that stage.		
Predation	Increased predation from additional predator vantage	Interest features may use supporting habitat within and adjacent to the Order Limits.		
	points	Interest features could be subjected to a potential increase in predation from the additional pylons implemented as part of the operation of the Proposed Development.	N	
		It is considered that the Proposed Development is highly unlikely to alter the predator, or prey, numbers or distribution to an extent that increased predation would occur.		

Table 6.1 Potential for the Proposed Development to result in an effect.					
Source/Cause	Potential effect	Proposed Development	Potential for effect? Y/N		
Collision Risk	Injury or fatality of Interest features	Interest features may use supporting habitat within and adjacent to the Order Limits.			
		Interest features which may be commuting or foraging within the area may collide with the pylons, conductors and supporting structures, including ancillary structures implemented as part of the Proposed Development.			
		Potential risk of collision is higher where pylons are erected on or adjacent to foraging habitats and commuting routes or close to roost/breeding sites.	Y		
		Temporary equipment may also pose a small and infrequent collision risk.			
		There would be a potential for the Proposed Development to result in increased collision risk, which may result in the injury or fatality of interest features during its operation.			
Disturbance / Displacement	Disturbance/injury (noise, vibration, lighting, presence of	Interest features may use supporting habitat within and adjacent to the Order Limits.			
	personnel) and/or displacement of species during construction, maintenance and decommissioning of the Proposed Development	The Proposed Development could result in disturbance as a result of noise, vibration, lighting and presence of personnel upon interest features foraging, commuting or resting during the construction, maintenance and decommissioning of the Proposed Development.	Y		

Table 6.1 Potential for the Proposed Development to result in an effect.					
Source/Cause	Potential effect	Proposed Development	Potential for effect? Y/N		
	Disturbance/injury (noise, lighting, presence of personnel) and/or displacement of interest	The Proposed Development would be unmanned and permanent lighting at the THH/CSECs and Substations would only be in use during periods of maintenance.			
	features using adjacent supporting habitat from operation of the Proposed Development.	The magnitude of noise impacts during operation of the THH, CSEC and substation at Pentir and Wylfa would be low, due to the localised nature of the impact and the relatively small increase in noise above background levels for interest features in the wider area. The noise of the substation would be reduced where the woodland surrounds elements, and interest features would habituate to the low levels of noise.	N		
		The operation of the Proposed Development would not result in vibration effects.			
		The Proposed Development would not result in significant disturbance/displacement of interest features using supporting habitat during its operation.			
Pollution	Change in water quality through mobilisation of sediment and accidental contamination during	The Proposed Development could result in release of pollutants and silt laden runoff into surface water during the construction, maintenance and decommissioning.	Y		
	and decommissioning of the Proposed Development	Natura 2000 sites and supporting habitat of interest features, within and adjacent to the Order Limits could be affected by any pollutants generated during construction, maintenance			

Table 6.1 Potential for the Proposed Development to result in an effect.				
Source/Cause	Potential effect	Proposed Development	Potential for effect? Y/N	
		and decommissioning.		
	Disturbance of contaminated soils releasing pollutants to surface and groundwater during the construction of the Proposed Development.	The Proposed Development could result in the disturbance of contaminated soils releasing pollutants to surface and groundwater during the construction, maintenance and decommissioning of the Proposed Development. Natura 2000 sites and supporting habitat of interest features, within and adjacent to the Order Limits may be affected by contaminated soils releasing pollutants to surface and groundwater during construction.	Y	
	Release of drilling fluid during the construction of the Proposed Development (tunnel).	The Proposed Development could result in the release of drilling fluid during the construction of the Proposed Development (tunnel). This may cause contamination which could affect Natura 2000 sites, interest features and supporting habitat of interest features, within and adjacent to the Order Limits.	Y	
	Temporary effects on the air quality/deposition during construction, maintenance and decommissioning of the Proposed Development	The Proposed Development could result in temporary air quality/deposition effects on the habitat and supporting habitats and interest features, during construction, maintenance and decommissioning. Construction vehicle movements have the potential to increase short-term and long-term airborne concentrations of	Y	

Table 6.1 Potential for the Proposed Development to result in an effect.				
Source/Cause	Potential effect	Proposed Development	Potential for effect? Y/N	
		nitric oxide (NO_X) and long-term nutrient nitrogen and acid deposition rates, which could harm the habitat and supporting habitat.		
		Dust generated from construction and track out has the potential to harm the habitat and supporting habitat.		
		Natura 2000 sites and supporting habitat of interest features, within and adjacent to the Order Limits, could be affected by air quality/deposition during construction.		
	Change in water quality through mobilisation of sediment and accidental contamination during the operation of the Proposed Development.	There will be no ground disturbance during the operation of the Proposed Development. There are no potential effects from pollution of surface water during the operation of the Proposed Development.	N	
	Disturbance of contaminated soils releasing pollutants to surface and groundwater during the operation of the Proposed Development.	There will be no ground disturbance during the operation of the Proposed Development and therefore no disturbance of contaminated soils releasing pollutants to surface and groundwater would occur during the operation of the Proposed Development.	N	

Table 6.1 Potential for the Proposed Development to result in an effect.					
Source/Cause	Potential effect	Proposed Development	Potential for effect? Y/N		
	Effects on air quality/deposition during the operation of the Proposed Development.	The operation of the Proposed Development is not anticipated to generate dust or emissions from vehicles or energy generation plant in sufficient quantities to have a significant effect).	N		
Invasive Species and Biosecurity	Introduction of invasive non- native species (INNS) and diseases during the construction, maintenance and decommissioning of the Proposed Development.	Natura 2000 sites and supporting habitat of interest features, within and adjacent to the Order Limits may be affected by the introduction of INNS and diseases during the construction, maintenance and decommissioning of the Proposed Development.	Y		
	Introduction of INNS and diseases during the operation of the Proposed Development.	There will be no ground disturbance during the operation of the Proposed Development and therefore the introduction of INNS and diseases would not occur during the operation of the Proposed Development.	N		
Alteration in hydrological (fluvial/ groundwater) regime	Alteration of hydrological regime from construction, maintenance and decommissioning of the Proposed Development.	The Proposed Development could result in groundworks, dewatering activities associated with the excavations for foundations for pylons and tunnel construction, and the removal of vegetation. This could directly affect Natura 2000 sites, and supporting habitat of interest features, within and adjacent to the Order Limits. There would be potential for the alteration of hydrological	Y		

Table 6.1 Potential for the Proposed Development to result in an effect.				
Source/Cause	Potential effect	Proposed Development	Potential for effect? Y/N	
		regime from construction, maintenance and decommissioning of the Proposed Development.		
	Alteration of hydrological regime from the operation of the Proposed Development.	There will be no ground disturbance during the operation of the Proposed Development and therefore the operation of the Proposed Development is not anticipated to alter the hydrological regimes of Nature 2000 sites in sufficient quantities to have a significant effect.	N	
EMFs	Disorientation of species due to the introduction of EMFs from the operation of the Proposed Development.	Interest features may use supporting habitat within and adjacent to the Order Limits. There would be a potential for the Proposed Development to result in the introduction of EMFs and therefore potential for disorientation of interest features during its operation.	Y	

- 6.3.6 In summary, the Proposed Development has the potential to affect Natura 2000 sites through the following means:
 - Direct loss or fragmentation of habitat within a Natura 2000 site during the construction, maintenance and decommissioning of the Proposed Development;
 - Direct loss or fragmentation of supporting habitat during the construction, maintenance and decommissioning of the Proposed Development;
 - Injury or fatality of interest features through collision;
 - Disturbance/injury (noise, vibration, lighting, presence of personnel) and/or displacement of species during construction, maintenance and decommissioning;
 - Change in water quality through mobilisation of sediment and accidental contamination during the construction, maintenance and decommissioning of the Proposed Development;
 - Disturbance of contaminated soils releasing pollutants to surface and groundwater during the construction of the Proposed Development;
 - Release of drilling fluid during the construction of the Proposed Development (tunnel);
 - Temporary effects on the air quality/deposition during construction, maintenance and decommissioning of the Proposed Development;
 - Introduction of invasive non-native species (INNS) and diseases during the construction, maintenance and decommissioning of the Proposed Development;
 - Alteration of hydrological regime (fluvial/groundwater) from construction, maintenance and decommissioning of the Proposed Development; and
 - Disorientation of species due to the introduction of EMFs from the operation of the Proposed Development.
- 6.3.7 All other potential effects set out in Table 6.1 have been identified as not having a source/and or pathway through which the Proposed Development could affect a Natura 2000 site and will not be considered any further.

Screening Stage 1bB

- 6.3.8 This section identifies those Sites where a pathway exists between the sources of effects, as defined in Table 6.1, and a Natura 2000 Site. It was established at Stage 1a that three Natura 2000 sites are located within the Order Limits of the Proposed Development.
- 6.3.9 In order to identify the sites and interest features that could reasonably be affected, Zones of Influence (ZOI) have been identified for the relevant environmental topics; these are listed in the following paragraphs. The ZOI for each environmental topic correlates to the Study Area set out in section 6 of each of the following ES Chapters; Ecology and Nature Conservation (**Document 5.9**), Geology, Hydrogeology and Ground Conditions (Document 5.11), Water Quality, Resources and Flood Risk (Document 5.12), Air Quality (Document 5.14), Construction Noise and Vibration (Document 5.15) and Operational Noise and Vibration (Document 5.15). These ZOI are considered to be appropriate to effectively assess the potential effects upon Natura 2000 sites and their interest features as, outside of the ZOI it is considered that there would be no potential for likely significant effects to occur, as there would be no functional link (pathways) between the source of effects and the qualifying interest features. The relevant environmental topics and their ZOI are detailed below.

ES Chapter 9 Ecology and Nature Conservation (Document 5.9);

- 6.3.10 When defining the study area for each interest feature, consideration was has been given to the likely ZOI of the Proposed Development on that particular interest feature, 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.
- 6.3.11 As such, for the assessment of likely significant effects there are different study areas for different receptors, in particular as some are more transient or susceptible over greater distances than others.

Natura 2000 Sites (SPA, SAC and Ramsar)

- 6.3.12 A 2 km study area from the Order Limits has been used to identify the presence of Natura 2000 sites. In line with guidance, this has been widened to 10 km for bat related SACs given they are a highly transient species.
- 6.3.13 The study area for SPAs was defined through consideration of sites that are designated for qualifying species which could use supporting habitat within the Order Limits.

6.3.14 Within the Menai Strait, a 2 km study area from the below ground Order Limits has been used to identify the presence of Natura 2000 sites that do not contain highly transient interest features (e.g. migratory fish and marine mammals). A wider search area has been required to capture other sites with transient qualifying interest features that could use the Menai Strait based on their distribution and behaviour. This wider search area therefore included the wider Irish Sea and tributaries to the Menai Strait. All Natura 2000 sites within the marine environment considered in relation to the assessment of the Proposed Development are shown in Figure 1 of this report (**Document 5.23.1.1**).

ES Chapter 11 Geology, Hydrogeology and Ground Conditions (Document 5.11)

6.3.15 In general the receptors and sources of contamination have been limited to areas within the Order Limits or within 1 km of the Order Limits, as interaction between the Proposed Development and receptors or sources of contamination beyond 1 km would generally not occur, given the ground conditions present in and around the Proposed Development. Table 11.9 in ES Chapter 11 (**Document 5.11**) shows the study area for each source or receptor.

ES Chapter 12 Water Quality, Resources And Flood Risk (Document 5.12)

- 6.3.16 The study area identifies the spatial extent for which baseline characterisation, identification of potential receptors and the assessment of effects is necessary. The study area is displayed in ES Figure 12.1 (Document 5.12.1.1).
- 6.3.17 A two-tier approach has been used to identify the study area for baseline characterisation, identification of potential receptors and the assessment of water quality, resources and flood risk effects.
- 6.3.18 The Local Hydrological Study Area (LHSA; first tier) includes water bodies directly traversed by the Proposed Development. It is within the LHSA that effects are most likely to occur and it forms the primary search area for characterisation of baseline conditions.
- 6.3.19 The LHSA is based on the Order Limits for the Proposed Development plus the application of a 250 m buffer to take account of the limited potential for direct hydrological and flood risk effects to be propagated over a large distance. The LHSA is then extended to the boundary of any contiguous Water Framework Directive (WFD) river water bodies in recognition of the WFD being the most overarching applicable regulatory framework for these

studies (management and monitoring of the hydrological environment is most commonly assessed at a water body scale).

- 6.3.20 The Wider Hydrological Study Area (WHSA; second tier) covers areas downstream of the LHSA (i.e. beyond the immediate WFD water bodies that are traversed by the Proposed Development) but that still have a flow pathway from the Proposed Development through which they could be indirectly affected.
- 6.3.21 The WHSA consists of the Cefni Transitional WFD waterbody GB521010207500 as this is the only classified WFD waterbody which has baseline data and lies downstream of the LHSA.

ES Chapter 14 Air Quality (Document 5.14)

6.3.22 The air quality and emissions study area varies depending on the source of impact being considered.

Construction Dust Emissions Study Area

6.3.23 Potential construction dust and particulate matter (particles with an aerodynamic diameter of less than 10 micrometres (PM₁₀)) impacts are only likely to occur at locations where there are sensitive human receptors within 350 m of the Order Limits (taken to represent the construction site boundary in this assessment, though noting that construction works for the Proposed Development will not always extend to the full 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. 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 site access point. These assessment study areas are compliant with Institute of Air Quality Management guidance (Ref 6.1)

Construction Road Traffic Emissions Study Area

6.3.24 Potential road traffic emissions impacts are only likely to occur where there are sensitive human and/or ecologically sensitive receptors within 200 m of an 'affected' road link (as defined by Highways England guidance (Ref 6.2)) which has been adopted by the Welsh Government. 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, as defined within Highways England guidance (Ref 6.2).

Construction Phase Energy Plant Emissions Study Area

6.3.25 The area within which potential worst case emergency generator emissions impacts are likely to occur is dependent on the emissions characteristics of the emergency generator (location, height of release, and the volume and temperature of gas released). Although there is no fixed guidance on distances between source to receptor, significant emergency generator emissions impacts are considered unlikely to occur at distances of more than 1 kilometre (km) from individual sources, and this has therefore been set as the study area. The exception to this is the consideration of emergency generator emissions on sensitive ecological site. In line with the Environment Agency guidance (Ref 6.3), sensitive ecological sites with an international designation within 10 km of the emergency generators and nationally designated sites located within 2 km of the emergency generators are considered in this assessment.

ES Chapter 15 Construction Noise and Vibration (Document 5.15)

- 6.3.26 For the assessment of construction noise impacts, the study area is dependent upon the source of noise or vibration, the duration of works and the times of day at which works are likely to take place. This was considered necessary as some works are likely to generate higher levels of noise over distance, and the time and duration of work has been taken into account when determining the threshold at which a significant noise effect is likely to occur.
- 6.3.27 The following study areas for noise generating works have therefore been adopted.
 - Construction compounds with daytime use only 500 m from the construction compound site boundary. These are identified in ES Figure 15.2 (Document 5.15.1.2).
 - OHL pylon construction, pylon dismantling and pulling positions 250 m from the edge of the working areas. This is identified in ES Figure 15.3 (Document 5.15.1.3).
 - Construction compounds and tunnelling sites with 24 hr use 1000 m from the construction compound site boundary. This is identified in ES Figure 15.4 (Document 5.15.1.4).
 - Underground tunnelling works 20 m from the lateral LOD for the tunnel. This is identified in ES Figure 15.5 (Document 5.15.1.5).
 - Construction access tracks 250 m from the order limits. This is identified in ES Figure 15.6 (Document 5.15.1.6).

- Construction Traffic Routes 250 m from either side of each road link on which construction traffic is likely to be generated, i.e. a 500 m corridor. This is identified in ES Figure 15.7 (Document 5.15.1.7).
- 6.3.28 These study areas align with standard practice for construction projects.
- 6.3.29 Vibration levels attenuate very rapidly within the ground. Therefore, smaller study areas have been defined for sites where activities may include significant vibration sources. These have been identified as follows:
 - Construction compounds and tunnel construction compounds 100 m from the construction compound site boundary. These are identified in ES Figure 15.2 (Document 5.15.1.2).
 - OHL pylon construction 100 m from the edge of the working areas. This is identified in ES Figure 15.3 (Document 5.15.1.3) where piling may be required.
 - Vibratory compaction for construction of access tracks, culverts and bridges – 100 m from the edge of the access tracks. This is identified in ES Figure 15.6 (Document 5.15.1.6).
 - Underground tunnelling works 50 m from the lateral LOD for the tunnel. This is identified in ES Figure 15.5 (**Document 5.15.1.5**).

ES Chapter 16 Operational Noise and Vibration (Document 5.16)

6.3.30 There is no national UK or Welsh government legislation or guidance that provides guidance on the extent or size of study area to adopt for the assessment of noise effects from electrical infrastructure or the construction or operation of industrial facilities. The study areas in this section have been selected on the basis of professional judgement of the distances over which potentially significant noise effects may occur, and consideration of the sensitivity of receptors.

Overhead Line and Cable Sealing End Compound Study Area

- 6.3.31 The level of operational noise from OHL and the CSECs falls quickly with distance (over tens of metres), hence the distance between the OHL/CSEC and the noise sensitive receptor being assessed is an important factor. The study areas for the CSECs are included within the OHL study area.
- 6.3.32 The study area for the proposed 400 kV OHL operational noise extends approximately 200 m either side of the LOD. National Grid's experience of operating the existing high voltage transmission system in England and

Wales shows that there are no significant audible noise effects beyond this distance for the proposed technology option.

Pentir Substation and Tunnel Head House Study Areas

- 6.3.33 Potentially significant noise effects from Pentir Substation, and both Braint and Tŷ Fodol THHs are only likely to occur at distances well within a 1,000 m radius. The exact study areas for Pentir, Braint and Tŷ Fodol are defined by the noise contours for each source; however, it is considered to be a robust approach to identify all receptors within a 1,000 m radius search area. Allowances have been made based on the sensitivity of the surrounding receptors and directionality of the noise source in order to identify the receptors likely to be most susceptible to noise effects.
- 6.3.34 The draft DCO does not propose any additional noise sources at Wylfa Substation and therefore a study area for the potential effects of operational noise from this site has not been considered.
- 6.3.35 Given that levels of vibration attenuate very rapidly through the ground within a few metres, residual vibrational effects from the proposed operation of either the THH or substation sites are not likely to be perceptible or significant beyond a few metres from the source. It is therefore considered that a significant effect would not occur at any identified receptors.

Wylfa Substation

6.3.36 The Proposed Development includes no additional noise sources at Wylfa Substation and therefore a study area for the potential effects of operational noise from this site has not been considered.

Summary

6.3.37 A review of Natura 2000 sites in proximity of the Proposed Development, utilising these ZOIs has been undertaken and those sites that are in proximity of the Proposed Development and are designated for interest features that could use supporting habitat within the Order Limits for feeding, roosting and breeding or are up/downstream or along the coast from the Proposed Development are set out in Table 6.2 below. The sites listed in Table 6.2 are illustrated on Figure 1 (**Document 5.23.1.1**).

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Table 6.2 Screer	ning Step 1bB - does an effect	pathway exist between the Proposed Development ar	nd a Natura 2000 site?
Site and Proximity to the Order Limits	Potential effects identified	Pathway to result in a potential to effect?	Pathway taken through to Stage 1bC (Yes/No)
Corsydd Môn a Llyn/Anglesey and Llyn Fens Ramsar and Corsydd Môn/Anglesey Fens SAC - Within the Order Limits in Section C	The Corsydd Môn a Llyn/Angle SAC and Corsydd Llyn/Llyn Fe transient interest features, the therefore there would be no pa The Corsydd Môn/Anglesey Fe Cors Bodeilio, Cors y Farl, Gw Scientific Interest (SSSIs) whic Cors y Farl and Cors Goch SS divides the Corsydd Môn/Angle features, objectives, and mana In order to facilitate construction SAC and Corsydd Môn/Angles connection to the perimeter dra shown in Figure 3). The Order described above fall within ma contains transient interest feature Direct loss or fragmentation of habitat within a Natura 2000 site during the construction, maintenance	esey and Llyn Fens Ramsar site is covered by the Corsyde ens SAC. As the Corsydd Llyn/Llyn Fens part of the Rams site is outside of the ZOI for deposition and there are no h athway to affect any of the interest features of this site. ens SAC management plan (Ref 6.4) covers the Cors Erdor enfro Rhos y Gad, Waun Eurad and part of Caeau Talwrn ch are included in the SAC. Of these sites, the Cors Erdor SIs form the Corsydd Môn/Anglesey Fens Ramsar site. T esey Fens SAC into management units to enable practical agement (see Figure 2 and Figure 3 (Documents 5.23.1.2 on, the Order Limits extend into the boundary of the Corsyde eavy Fens Ramsar designated sites. This is to facilitate a te ain (numbered from north to south as "Drainage Areas" 1 t r Limits also allow for a small area of oversail by the condu- nagement units 3, 6, 22 and 26 of the Anglesey Fens SAC ures which may utilise supporting habitat within and adjace A potential pathway for a likely significant effect exists for direct loss or fragmentation of habitat during construction, maintenance of decommissioning of the Proposed Development as the Order Limits extend into	d Môn/Anglesey Fens sar site contains no ydrological linkages dreiniog, Cors Goch, Sites of Special einiog, Cors Bodeilio, the management plan communication about and 5.23.1.3). dd Mon/Anglesey Fens emporary drainage o 7 respectively and are actors. The areas 2. The site also ent to the Order Limits. Yes

Table 6.2 Screen	ing Step 1bB - does an effect	pathway exist between the Proposed Development an	d a Natura 2000 site?
Site and Proximity to the Order Limits	Potential effects identified	Pathway to result in a potential to effect?	Pathway taken through to Stage 1bC (Yes/No)
	and decommissioning of the Proposed Development	the boundary of the Corsydd Mon/Anglesey Fens SAC and Corsydd Môn/Anglesey Fens Ramsar designated sites. This is to facilitate a temporary drainage connection to the perimeter drain (numbered from north to south as "Drainage Areas" 1 to 7 respectively and are shown in Figure 3 (Document 5.23.1.3)). The Order Limits also allow for a small area of oversail by the conductors. The areas described above fall within management units 3, 6, 22 and 26 of the Anglesey Fens SAC.	
	Direct loss or fragmentation of supporting habitat during construction, maintenance and decommissioning of the Proposed Development.	A potential pathway for a likely significant effect exists for direct loss or fragmentation of supporting habitat during construction, maintenance of decommissioning of the Proposed Development as the Order Limits extend into the boundary of the Corsydd Mon/Anglesey Fens SAC and Corsydd Môn/Anglesey Fens Ramsar designated sites. This is to facilitate a temporary drainage connection to the perimeter drain (numbered from north to south as "Drainage Areas" 1 to 7 respectively and are shown in Figure 3 (Document 5.23.1.3). The Order Limits also allow for a small area	Yes

Table 6.2 Screen	ing Step 1bB - does an effect	pathway exist between the Proposed Development an	nd a Natura 2000 site?
Site and Proximity to the Order Limits	Potential effects identified	Pathway to result in a potential to effect?	Pathway taken through to Stage 1bC (Yes/No)
		of oversail by the conductors. The areas described above fall within management units 3, 6, 22 and 26 of the Anglesey Fens SAC.	
	Injury or fatality of interest features through collision	There would be no potential pathway through collision.	No
	Disturbance/injury (noise, vibration, lighting, presence of personnel) and/or displacement of species during construction, maintenance and decommissioning of the Proposed Development	A potential pathway for a likely significant effect exists to disturb interest features during construction, maintenance of decommissioning of the Proposed Development as the Order Limits extend into the boundary of the Corsydd Mon/Anglesey Fens SAC and Corsydd Môn/Anglesey Fens Ramsar designated sites and due to the proximity of works outside of these designated sites.	Yes
	Change in water quality through mobilisation of sediment and accidental contamination during the	A potential pathway for a likely significant effect exists to result in changes in water quality, through mobilisation of sediment and accidental contamination, during construction, maintenance of decommissioning of the	Yes
	construction, maintenance and decommissioning of the	Proposed Development from works within the Drainage Areas and due to the proximity of works outside of these	

Table 6.2 Screen	ing Step 1bB - does an effect	pathway exist between the Proposed Development an	nd a Natura 2000 site?
Site and Proximity to the Order Limits	Potential effects identified	Pathway to result in a potential to effect?	Pathway taken through to Stage 1bC (Yes/No)
	Proposed Development.	designated sites.	
	Disturbance of contaminated soils releasing pollutants to surface and groundwater during the construction of the Proposed Development	No land affected by contamination has been identified in proximity to these sites which could be disturbed, see ES Figure 11.5, 11.7, 11.8 and 11.9 (Documents 5.11.1.5, 5.11.1.7, 5.11.1.8 and 5.11.1.9), therefore no source and thus no pathway for this effect exists.	No
	Release of drilling fluid during the construction of the Proposed Development (tunnel)	There would be no potential pathway due to the distance from these sites and the tunnel section of the Proposed Development.	No
	Temporary effects on the air quality/deposition during construction, maintenance and decommissioning of the Proposed Development	A potential pathway for a likely significant effect exists to for dust and emissions during construction, maintenance of decommissioning of the Proposed Development from works within the Drainage Areas and due to the proximity of works outside of these designated sites.	Yes
	Introduction of invasive non- native species (INNS) and diseases during the	A potential pathway for a likely significant effect exists for the introduction of INNS and diseases during construction, maintenance of decommissioning of the	Yes

Table 6.2 Screen	Table 6.2 Screening Step 1bB - does an effect pathway exist between the Proposed Development and a Natura 2000 site?			
Site and Proximity to the Order Limits	Potential effects identified	Pathway to result in a potential to effect?	Pathway taken through to Stage 1bC (Yes/No)	
	construction, maintenance and decommissioning of the Proposed Development	Proposed Development from works within the Drainage Areas and due to the proximity of works outside of these designated sites.		
	Alteration of hydrological regime (fluvial/groundwater) from construction, maintenance and decommissioning of the Proposed Development	Proposed pylons 4AP047 to 4AP057 would be in closest proximity to the Ramsar site. However only 4AP051 is situated within the same geology as these sites. Therefore a potential pathway for a likely significant effects exists for the alteration of the groundwater regime from the construction, maintenance and decommissioning of pylon 4AP051. A potential pathway for a likely significant effect exists from the alteration of the fluvial regime during construction, maintenance of decommissioning of the Proposed Development from works within the Drainage Areas and due to the proximity of works outside of these designated sites.	Yes	
	Disorientation of species due to the introduction of EMFs during operation of the Proposed Development.	There would be no potential pathway due to the introduction of EMFs.	No	

Table 6.2 Screening Step 1bB - does an effect pathway exist between the Proposed Development and a Natura 2000 site?			
Site and Proximity to the Order Limits	Potential effects identified	Pathway to result in a potential to effect?	Pathway taken through to Stage 1bC (Yes/No)
Y Fenai a Bae Conwy/Menai Strait and Conwy Bay SAC - Within the Order Limits in Section F.	Between the Braint THH/CSEC and Tŷ Fodol THH/CSEC the Order Limits cross the Menai Strait and Conwy Bay SAC within the Menai Strait, shown on Figure 2 (Document 5.23.1.2). The Proposed Development includes a tunnel beneath the Menai Strait and Conwy Bay SAC.		
	Direct loss or fragmentation of habitat within a Natura 2000 site during the construction, maintenance and decommissioning of the Proposed Development	The Proposed Development includes a tunnel beneath the Menai Strait and Conwy Bay SAC; however minor emission of drilling mud and bentonite may occur as a result of drilling fluids being injected into the bedrock under pressure ahead of the TBM drilling face. There is therefore a potential that a blowout of drilling slurry could result in direct loss or fragmentation of habitats present on the bed of the Menai Strait. Therefore a potential pathway for a likely significant effect exists for direct loss or fragmentation of habitat during the construction of the Proposed Development (tunnel).	Yes
	Direct loss or fragmentation of supporting habitat during construction, maintenance and decommissioning of the Proposed Development.	This site contains no interest features which may utilise supporting habitat therefore there would be no potential pathway.	No

Table 6.2 Screen	Table 6.2 Screening Step 1bB - does an effect pathway exist between the Proposed Development and a Natura 2000 site?			
Site and Proximity to the Order Limits	Potential effects identified	Pathway to result in a potential to effect?	Pathway taken through to Stage 1bC (Yes/No)	
	Injury or fatality of interest features through collision	There would be no potential pathway through collision.	No	
	Disturbance/injury (noise, vibration, lighting, presence of personnel) and/or displacement of species during construction, maintenance and decommissioning of the Proposed Development	This site contains no interest features which could be disturbed, injured or displaced from the construction of the Proposed Development therefore there would be no potential pathway.	No	
	Change in water quality through mobilisation of sediment and accidental contamination during the construction, maintenance and decommissioning of the Proposed Development.	The site is downstream of a number of watercourses which are crossed by works required to construct the Proposed Development. Therefore a potential pathway for a likely significant effect exists for a change in water quality, through mobilisation of sediment and accidental contamination, during the construction, maintenance and decommissioning of the Proposed Development.	Yes	
	Disturbance of contaminated soils releasing pollutants to surface and groundwater	No land affected by contamination has been identified in proximity to this site which could be disturbed, see ES Figure 11.5, 11.7, 11.8 and 11.9 (Documents 5.11.1.5 ,	No	

Table 6.2 Screening Step 1bB - does an effect pathway exist between the Proposed Development and a Natura 2000 site?			
Site and Proximity to the Order Limits	Potential effects identified	Pathway to result in a potential to effect?	Pathway taken through to Stage 1bC (Yes/No)
	during the construction of the Proposed Development	5.11.1.7, 5.11.1.8 and 5.11.1.9); therefore no source and thus no pathway for this effect exists.	
	Release of drilling fluid during the construction of the Proposed Development (tunnel)	The Proposed Development includes a tunnel beneath the Menai Strait and Conwy Bay SAC; however minor emission of drilling mud and bentonite may occur as a result of drilling fluids being injected into the bedrock under pressure ahead of the TBM drilling face. There is therefore a potential path for the release of drilling fluids to cause contamination which could affect interest features in the vicinity during the construction of the Proposed Development (tunnel).	Yes
	Temporary effects on the air quality/deposition during construction, maintenance and decommissioning of the Proposed Development	This site contains no interest features which are sensitive to traffic emissions, therefore there would be no potential pathway.	No
	Introduction of invasive non- native species (INNS) and diseases during the construction, maintenance	No works are proposed within the site, however buoys and boats may be required to mitigate potential effects on marine mammals and fish during tunnelling activities	Yes

Table 6.2 Screen	Table 6.2 Screening Step 1bB - does an effect pathway exist between the Proposed Development and a Natura 2000 site?			
Site and Proximity to the Order Limits	Potential effects identified	Pathway to result in a potential to effect?	Pathway taken through to Stage 1bC (Yes/No)	
	and decommissioning of the Proposed Development	which could introduce INNS.		
	Alteration of hydrological regime (fluvial/groundwater) from construction, maintenance and decommissioning of the Proposed Development	There would be no pathway for the alteration of the hydrological regimes (fluvial/groundwater) of this site from construction, maintenance and decommissioning of the Proposed Development.	No	
	Disorientation of species due to the introduction of EMFs during operation of the Proposed Development.	This site contains no interest features which are sensitive to EMFs therefore there would be no potential pathway.	No	
Bae Cemlyn/Cemlyn Bay SAC - 1.4 km west of the Order Limits	All potential effects identified within Table 6.1	The site contains no transient interest features, the site is outside of the ZOI for deposition and there are no hydrological linkages therefore there would be no pathway to affect any of the interest features of this site. No potential Likely Significant Effect and the site can be screened out.	No	

Table 6.2 Screening Step 1bB - does an effect pathway exist between the Proposed Development and a Natura 2000 site?				
Site and Proximity to the Order Limits	Potential effects identified	Pathway to result in a potential to effect?	Pathway taken through to Stage 1bC (Yes/No)	
Eryri/Snowdonia SAC - 2.5 km south of the Order Limits and 780 m from a Construction Traffic Route (Link 20- A4244)	Direct loss or fragmentation of habitat within a Natura 2000 site during the construction, maintenance and decommissioning of the Proposed Development	The site is outside of the Order Limits therefore there would be no potential pathway for direct loss or fragmentation of habitat during the construction, maintenance and decommissioning of the Proposed Development.	No	
	Direct loss or fragmentation of supporting habitat during construction, maintenance and decommissioning of the Proposed Development.	This site contains no interest features which may utilise supporting habitat therefore there would be no potential pathway.	No	
	Injury or fatality of interest features through collision	There would be no potential pathway through collision.	No	
	Disturbance/injury (noise, vibration, lighting, presence of personnel) and/or displacement of species during construction, maintenance and decommissioning of the	This site contains no interest features which could be disturbed from the construction of the Proposed Development therefore there would be no potential pathway.	No	

Table 6.2 Screening Step 1bB - does an effect pathway exist between the Proposed Development and a Natura 2000 site?			
Site and Proximity to the Order Limits	Potential effects identified	Pathway to result in a potential to effect?	Pathway taken through to Stage 1bC (Yes/No)
	Proposed Development		
	Change in water quality through mobilisation of sediment and accidental contamination during the construction, maintenance and decommissioning of the Proposed Development.	There is no hydrological link from the Proposed Development to this site therefore there is no pathway.	No
	Disturbance of contaminated soils releasing pollutants to surface and groundwater during the construction of the Proposed Development	No works are proposed within or adjacent to the site and therefore there would be no source and thus no potential pathway.	No
	Release of drilling fluid during the construction of the Proposed Development (tunnel)	There would be no potential pathway due to the distance from these sites and the tunnel section of the Proposed Development.	No
	Temporary effects on the air quality/deposition during	This site is sensitive to changes in air quality and in line with Environment Agency guidance (Ref) is within 10	Yes

Table 6.2 Screen	Table 6.2 Screening Step 1bB - does an effect pathway exist between the Proposed Development and a Natura 2000 site?			
Site and Proximity to the Order Limits	Potential effects identified	Pathway to result in a potential to effect?	Pathway taken through to Stage 1bC (Yes/No)	
	construction, maintenance and decommissioning of the Proposed Development	km of emergency generators therefore there is a potential pathway.		
	Introduction of invasive non- native species (INNS) and diseases during the construction, maintenance and decommissioning of the Proposed Development	No works are proposed within the site and therefore there would be no source and thus no potential pathway.	No	
	Alteration of hydrological regime (fluvial/groundwater) from construction, maintenance and decommissioning of the Proposed Development	There would be no pathway for the alteration of the hydrological regimes (fluvial/groundwater) of this site from construction, maintenance and decommissioning of the Proposed Development.	No	
	Disorientation of species due to the introduction of EMFs during operation of the Proposed Development.	This site contains no interest features which are sensitive to EMFs therefore there would be no potential pathway.	No	

Table 6.2 Screen	ing Step 1bB - does an effect	pathway exist between the Proposed Development ar	nd a Natura 2000 site?	
Site and Proximity to the Order Limits	Potential effects identified	Pathway to result in a potential to effect?	Pathway taken through to Stage 1bC (Yes/No)	
Afon Gwyrfai a Llyn Cwellyn SAC - 8.6 km	The site is outside of the ZOI for air quality/deposition and upstream of the Proposed Development. However a pathway exists with the site's transient interest features (otter and Atlantic Salmon (<i>Salmo salar</i>)) which could use the Menai Strait.			
south-west of the Order Limits	Direct loss or fragmentation of habitat within a Natura 2000 site during the construction, maintenance and decommissioning of the Proposed Development	The site is outside of the Order Limits therefore there would be no potential pathway for direct loss or fragmentation of habitat during the construction, maintenance and decommissioning of the Proposed Development.	No	
	Direct loss or fragmentation of supporting habitat during construction, maintenance and decommissioning of the Proposed Development.	There is no supporting habitat for interest features within the Order Limits which would be affected by the construction, maintenance and decommissioning of the Proposed Development. Therefore there would be no potential pathway.	No	
	Injury or fatality of interest features through collision	There would be no potential pathway through collision.	No	
	Disturbance/injury (noise, vibration, lighting, presence of personnel) and/or	The Proposed Development includes a tunnel beneath the Menai Strait therefore there would therefore be a potential pathway for disturbance/injury to mobile	Yes	

Table 6.2 Screen	ing Step 1bB - does an effect	pathway exist between the Proposed Development ar	nd a Natura 2000 site?
Site and Proximity to the Order Limits	Potential effects identified	Pathway to result in a potential to effect?	Pathway taken through to Stage 1bC (Yes/No)
	displacement of species during construction, maintenance and decommissioning of the Proposed Development.	interest features of this site from noise/vibration during tunnelling.	
	Change in water quality through mobilisation of sediment and accidental contamination during the construction, maintenance and decommissioning of the Proposed Development.	The site is upstream of the Proposed Development and therefore no pathway exists from a potential change in water quality, through mobilisation of sediment and accidental contamination, during the construction, maintenance and decommissioning of the Proposed Development.	No
	Disturbance of contaminated soils releasing pollutants to surface and groundwater during the construction of the Proposed Development	No land affected by contamination has been identified in proximity to the Menai Strait which could be disturbed, see ES Figure 11.5, 11.7, 11.8 and 11.9 (Documents 5.11.1.5, 5.11.1.7, 5.11.1.8 and 5.11.1.9); therefore no source and thus no pathway for this effect exists.	No
	Release of drilling fluid during the construction of the	The Proposed Development includes a tunnel beneath the Menai Strait; however minor emission of drilling	Yes

Table 6.2 Screen	ning Step 1bB - does an effect	pathway exist between the Proposed Development ar	nd a Natura 2000 site?	
Site and Proximity to the Order Limits	Potential effects identified	Pathway to result in a potential to effect?	Pathway taken through to Stage 1bC (Yes/No)	
	Proposed Development (tunnel)	mud and bentonite may occur as a result of drilling fluids being injected into the bedrock under pressure ahead of the TBM drilling face. There is therefore a potential pathway for a likely significant effect from the release of drilling fluids which could affect interest features that are known to utilise the Menai Strait.		
	Temporary effects on the air quality/deposition during construction, maintenance and decommissioning of the Proposed Development	The site is outside of the ZOI for air quality/deposition therefore there would be no potential pathway.	No	
	Introduction of invasive non- native species (INNS) and diseases during the construction, maintenance and decommissioning of the Proposed Development	The site is outside of the Order Limits therefore there would be no potential pathway for the introduction of INNS and diseases during the construction, maintenance and decommissioning of the Proposed Development.	No	
	Alteration of hydrological regime (fluvial/groundwater) from construction,	The site is upstream of the Proposed Development and therefore no pathway exists from alteration of the hydrological regime (fluvial/groundwater) from	No	
Table 6.2 Screening Step 1bB - does an effect pathway exist between the Proposed Development and a Natura 2000 site?				
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Site and Proximity to the Order Limits	Potential effects identified	Pathway to result in a potential to effect?	Pathway taken through to Stage 1bC (Yes/No)	
	maintenance and decommissioning of the Proposed Development	construction, maintenance and decommissioning of the Proposed Development.		
	Disorientation of species due to the introduction of EMFs during operation of the Proposed Development.	This site contains interest features which are known to use the Menai Strait and are sensitive to EMFs therefore a potential pathway for a likely significant effect exists.	Yes	
Glannau Môn: Cors heli/Anglesey Coast: Saltmarsh SAC - 9.1 km south- west of the Order Limits	All potential effects identified within Table 6.1	The site contains no transient interest features. Whilst there is a theoretical hydrological linkage to the Menai Strait and potential blow out of drilling fluid from tunnel construction the site is 9.1 km away and therefore there would be no pathway to affect any of the interest features of this site. No potential Likely Significant Effect and the site can be screened out.	No	
Y Twyni o Abermenai i Aberffraw/Aberm enai to Aberffraw	All potential effects identified within Table 6.1	The site contains no transient interest features and there are no hydrological linkages including potential blow out of drilling fluid from tunnel construction therefore there would be no pathway to affect any of the	No	

Table 6.2 Screening Step 1bB - does an effect pathway exist between the Proposed Development and a Natura 2000 site?				
Site and Proximity to the Order Limits	Potential effects identified	Pathway to result in a potential to effect?	Pathway taken through to Stage 1bC (Yes/No)	
Dunes SAC - 9.4 km south-west of Order Limits		interest features of this site. No potential Likely Significant Effect and the site can be screened out.		
Llyn Dinam SAC - 14.1 km west of Order Limits & 1.3 km south of a construction traffic route (Link 2- A5 between A55 junction 3 and Valley)	All potential effects identified within Table 6.1	The site contains no transient interest features, the site is outside of the ZOI for air quality / deposition and there are no hydrological linkages therefore there would be no pathway to affect any of the interest features of this site. No potential Likely Significant Effect and the site can be screened out.	No	
Pen Llyn a'r Sarnau/Lleyn Peninsula and the Sarnau SAC - 36.7 km south- west of the Order Limits	The site is outside of the ZOIs however this site contains transient interest features (bottlenose dolphin (<i>Tursiops truncatus</i>), otter and grey seal (<i>Halichoerus grypus</i>)) which may use supporting habitat within the Menai Strait; therefore there is a pathway between these interest features which use the Menai Strait. Due to the transient nature of this interest feature a pathway for direct loss or fragmentation of supporting habitat and potential for disturbance (noise, vibration, lighting, presence of personnel) and/or displacement of species during construction of the Proposed Development, associated with the release of drilling fluid exists.			
	Direct loss or fragmentation	The site is outside of the Order Limits therefore there	No	

Table 6.2 Screening Step 1bB - does an effect pathway exist between the Proposed Development and a Natura 2000 site?			
Site and Proximity to the Order Limits	Potential effects identified	Pathway to result in a potential to effect?	Pathway taken through to Stage 1bC (Yes/No)
	of habitat within a Natura 2000 site during the construction, maintenance and decommissioning of the Proposed Development	would be no potential pathway for direct loss or fragmentation of habitat during the construction, maintenance and decommissioning of the Proposed Development.	
	Direct loss or fragmentation of supporting habitat during construction, maintenance and decommissioning of the Proposed Development.	There is no supporting habitat for interest features within the Order Limits which would be affected by the construction, maintenance and decommissioning of the Proposed Development. Therefore there would be no potential pathway.	No
	Injury or fatality of interest features through collision	There would be no potential pathway through collision.	No
	Disturbance/injury (noise, vibration, lighting, presence of personnel) and/or displacement of species during construction, maintenance and decommissioning of the	The Proposed Development includes a tunnel beneath the Menai Strait therefore there is a potential pathway for disturbance/injury to mobile interest features of this site from noise/vibration during tunnelling.	Yes

Table 6.2 Screening Step 1bB - does an effect pathway exist between the Proposed Development and a Natura 2000 site?				
Site and Proximity to the Order Limits	Potential effects identified	Pathway to result in a potential to effect?	Pathway taken through to Stage 1bC (Yes/No)	
	Proposed Development.			
	Change in water quality through mobilisation of sediment and accidental contamination during the construction, maintenance and decommissioning of the Proposed Development.	Due to the distance of this site from the Proposed Development there would be no potential pathway for a change in water quality through mobilisation of sediment and accidental contamination during the construction, maintenance and decommissioning of the Proposed Development.	No	
	Disturbance of contaminated soils releasing pollutants to surface and groundwater during the construction of the Proposed Development	No land affected by contamination has been identified in proximity to the Menai Strait which could be disturbed, see ES Figure 11.5, 11.7, 11.8 and 11.9 (Documents 5.11.1.5, 5.11.1.7, 5.11.1.8 and 5.11.1.9); therefore no source and thus no pathway for this effect exists.	No	
	Release of drilling fluid during the construction of the Proposed Development (tunnel)	Due to the distance of this site from the Proposed Development there would be no potential pathway to affected interest features from the release of drilling fluid during the construction of the Proposed Development (tunnel).	No	
	Temporary effects on the air	Due to the distance of this site from the Proposed	No	

Table 6.2 Screening Step 1bB - does an effect pathway exist between the Proposed Development and a Natura 2000 site?			
Site and Proximity to the Order Limits	Potential effects identified	Pathway to result in a potential to effect?	Pathway taken through to Stage 1bC (Yes/No)
	quality/deposition during construction, maintenance and decommissioning of the Proposed Development	Development there would be no potential pathway from air quality/deposition during construction, maintenance and decommissioning.	
	Introduction of invasive non- native species (INNS) and diseases during the construction, maintenance and decommissioning of the Proposed Development	The site is outside of the Order Limits therefore there would be no potential pathway for the introduction of INNS and diseases during the construction, maintenance and decommissioning of the Proposed Development.	No
	Alteration of hydrological regime (fluvial/groundwater) from construction, maintenance and decommissioning of the Proposed Development	Due to the distance of the Proposed Development from this site no potential pathway exists from alteration of the hydrological regime (fluvial/groundwater) from construction, maintenance and decommissioning of the Proposed Development.	No
	Disorientation of species due to the introduction of EMFs during operation of the	This site contains interest features which are known to use the Menai Strait and are sensitive to EMFs therefore a potential pathway for a likely significant	Yes

Table 6.2 Screening Step 1bB - does an effect pathway exist between the Proposed Development and a Natura 2000 site?				
Site and Proximity to the Order Limits	Potential effects identified	Pathway to result in a potential to effect?	Pathway taken through to Stage 1bC (Yes/No)	
	Proposed Development.	effect exists.		
Cardigan Bay SAC - 85.5 km south-west of the Order Limits	The site is outside of the ZOIs however this site contains transient interest features (grey seal, river lamprey (<i>Lampetra fluviatilis</i>), sea lamprey (<i>Petromyzon marinus</i>), bottlenose dolphin, harbour porpoise (<i>Phocoena phocoena</i>), allis shad (<i>Alosa alosa</i>) and twait shad (<i>Alosa fallax</i>)) which may use supporting habitat within the Menai Strait; therefore there would be a pathway between these interest features which use the Menai Strait. Due to the transient nature of this interest feature a pathway for direct loss or fragmentation of supporting habitat and potential for disturbance (noise, vibration, lighting, presence of personnel) and/or displacement of species during construction of the Proposed Development, associated with the release of drilling fluid exists.			
	Direct loss or fragmentation of habitat within a Natura 2000 site during the construction, maintenance and decommissioning of the Proposed Development	The site is outside of the Order Limits therefore there would be no potential pathway for direct loss or fragmentation of habitat during the construction, maintenance and decommissioning of the Proposed Development.	No	
	Direct loss or fragmentation of supporting habitat during construction, maintenance and decommissioning of the Proposed Development.	There is no supporting habitat for interest features within the Order Limits which would be affected by the construction, maintenance and decommissioning of the Proposed Development. Therefore there would be no potential pathway.	No	

Table 6.2 Screening Step 1bB - does an effect pathway exist between the Proposed Development and a Natura 2000 site?				
Site and Proximity to the Order Limits	Potential effects identified	Pathway to result in a potential to effect?	Pathway taken through to Stage 1bC (Yes/No)	
	Injury or fatality of interest features through collision	There would be no potential pathway through collision.	No	
	Disturbance/injury (noise, vibration, lighting, presence of personnel) and/or displacement of species during construction, maintenance and decommissioning of the Proposed Development.	The Proposed Development includes a tunnel beneath the Menai Strait therefore there is a potential pathway for disturbance/injury to mobile interest features of this site from noise/vibration during tunnelling.	Yes	
	Change in water quality through mobilisation of sediment and accidental contamination during the construction, maintenance and decommissioning of the Proposed Development.	Due to the distance of this site from the Proposed Development there would be no potential pathway for a change in water quality through mobilisation of sediment and accidental contamination during the construction, maintenance and decommissioning of the Proposed Development.	No	
	Disturbance of contaminated soils releasing pollutants to surface and groundwater	No land affected by contamination has been identified in proximity to the Menai Strait which could be disturbed, see ES Figure 11.5, 11.7, 11.8 and 11.9 (Documents	No	

Table 6.2 Screening Step 1bB - does an effect pathway exist between the Proposed Development and a Natura 2000 site?				
Site and Proximity to the Order Limits	Potential effects identified	Pathway to result in a potential to effect?	Pathway taken through to Stage 1bC (Yes/No)	
	during the construction of the Proposed Development	5.11.1.5, 5.11.1.7, 5.11.1.8 and 5.11.1.9); therefore no source and thus no pathway for this effect exists.		
	Release of drilling fluid during the construction of the Proposed Development (tunnel)	Due to the distance of this site from the Proposed Development there would be no potential pathway to affected interest features from the release of drilling fluid during the construction of the Proposed Development (tunnel).	No	
	Temporary effects on the air quality/deposition during construction, maintenance and decommissioning of the Proposed Development	Due to the distance of this site from the Proposed Development there would be no potential pathway from air quality/deposition during construction, maintenance and decommissioning.	No	
	Introduction of invasive non- native species (INNS) and diseases during the construction, maintenance and decommissioning of the Proposed Development	The site is outside of the Order Limits therefore there would be no potential pathway for the introduction of INNS and diseases during the construction, maintenance and decommissioning of the Proposed Development.	No	
	Alteration of hydrological regime (fluvial/groundwater)	Due to the distance of the Proposed Development from this site no potential pathway exists from alteration of	No	

Table 6.2 Screening Step 1bB - does an effect pathway exist between the Proposed Development and a Natura 2000 site?				
Site and Proximity to the Order Limits	Potential effects identified	Pathway to result in a potential to effect?	Pathway taken through to Stage 1bC (Yes/No)	
	from construction, maintenance and decommissioning of the Proposed Development	the hydrological regime (fluvial/groundwater) from construction, maintenance and decommissioning of the Proposed Development.		
	Disorientation of species due to the introduction of EMFs during operation of the Proposed Development.	This site contains interest features which are known to use the Menai Strait and are sensitive to EMFs therefore a potential pathway for a likely significant effect exists.	Yes	
North Anglesey Marine/Gogledd Môn Forol cSAC - 230 m north of the Order Limits	The site is located 230 m north of the Order Limits at Wylfa head and approximately 31.5 km north of the Order Limits at the Menai Strait. The site contains transient interest features (harbour porpoise) which may use supporting habitat within the Menai Strait; therefore there would be a pathway between these interest features which use the Menai Strait. Due to the transient nature of this interest feature a pathway for direct loss or fragmentation of supporting habitat and potential for disturbance (noise, vibration, lighting, presence of personnel) and/or displacement of species during construction of the Proposed Development, associated with the release of drilling fluid exists.			
	Direct loss or fragmentation of habitat within a Natura 2000 site during the construction, maintenance and decommissioning of the	The site is outside of the Order Limits therefore there would be no potential pathway for direct loss or fragmentation of habitat during the construction, maintenance and decommissioning of the Proposed Development.	No	

Table 6.2 Screening Step 1bB - does an effect pathway exist between the Proposed Development and a Natura 2000 site?				
Site and Proximity to the Order Limits	Potential effects identified	Pathway to result in a potential to effect?	Pathway taken through to Stage 1bC (Yes/No)	
	Proposed Development			
	Direct loss or fragmentation of supporting habitat during construction, maintenance and decommissioning of the Proposed Development.	There is no supporting habitat for interest features within the Order Limits which would be affected by the construction, maintenance and decommissioning of the Proposed Development. Therefore there would be no potential pathway.	No	
	Injury or fatality of interest features through collision	There would be no potential pathway through collision.	No	
	Disturbance/injury (noise, vibration, lighting, presence of personnel) and/or displacement of species during construction, maintenance and decommissioning of the Proposed Development.	The Proposed Development includes a tunnel beneath the Menai Strait therefore there is a potential pathway for disturbance/injury to mobile interest features of this site from noise/vibration during tunnelling.	Yes	
	Change in water quality through mobilisation of sediment and accidental	Due to the distance of this site from the Proposed Development there would be no potential pathway for a change in water quality through mobilisation of sediment	No	

Table 6.2 Screening Step 1bB - does an effect pathway exist between the Proposed Development and a Natura 2000 site?				
Site and Proximity to the Order Limits	Potential effects identified	Pathway to result in a potential to effect?	Pathway taken through to Stage 1bC (Yes/No)	
	contamination during the construction, maintenance and decommissioning of the Proposed Development.	and accidental contamination during the construction, maintenance and decommissioning of the Proposed Development.		
	Disturbance of contaminated soils releasing pollutants to surface and groundwater during the construction of the Proposed Development	No land affected by contamination has been identified in proximity to the Menai Strait which could be disturbed, see ES Figure 11.5, 11.7, 11.8 and 11.9 (Documents 5.11.1.5, 5.11.1.7, 5.11.1.8 and 5.11.1.9); therefore no source and thus no pathway for this effect exists.	No	
	Release of drilling fluid during the construction of the Proposed Development (tunnel)	Due to the distance of this site from the Proposed Development there would be no potential pathway to affected interest features from the release of drilling fluid during the construction of the Proposed Development (tunnel).	No	
	Temporary effects on the air quality/deposition during construction, maintenance and decommissioning of the Proposed Development	Due to the distance of this site from the Proposed Development there would be no potential pathway from air quality/deposition during construction, maintenance and decommissioning.	No	

Table 6.2 Screening Step 1bB - does an effect pathway exist between the Proposed Development and a Natura 2000 site?				
Site and Proximity to the Order Limits	Potential effects identified	Pathway to result in a potential to effect?	Pathway taken through to Stage 1bC (Yes/No)	
	Introduction of invasive non- native species (INNS) and diseases during the construction, maintenance and decommissioning of the Proposed Development	The site is outside of the Order Limits therefore there would be no potential pathway for the introduction of INNS and diseases during the construction, maintenance and decommissioning of the Proposed Development.	No	
	Alteration of hydrological regime (fluvial/groundwater) from construction, maintenance and decommissioning of the Proposed Development	Due to the distance of the Proposed Development from this site no potential pathway exists from alteration of the hydrological regime (fluvial/groundwater) from construction, maintenance and decommissioning of the Proposed Development.	No	
	Disorientation of species due to the introduction of EMFs during operation of the Proposed Development.	This site contains interest features which are known to use the Menai Strait and are sensitive to EMFs therefore a potential pathway for a likely significant effect exists.	Yes	
West Wales Marine cSAC - 36.7 km south-	The site is outside of the ZOIs however this site contains transient interest features (harbour porpoise) which may use supporting habitat within the Menai Strait; therefore there would be a pathway between these interest features which use the Menai Strait. Due to the transient nature of this interest feature a pathway for direct loss			

Table 6.2 Screening Step 1bB - does an effect pathway exist between the Proposed Development and a Natura 2000 site?				
Site and Proximity to the Order Limits	Potential effects identified	Pathway to result in a potential to effect?	Pathway taken through to Stage 1bC (Yes/No)	
west of the Order Limits	or fragmentation of supporting personnel) and/or displacemer the release of drilling fluid exist	or fragmentation of supporting habitat and potential for disturbance (noise, vibration, lighting, presence of personnel) and/or displacement of species during construction of the Proposed Development, associated with the release of drilling fluid exists.		
	Direct loss or fragmentation of habitat within a Natura 2000 site during the construction, maintenance and decommissioning of the Proposed Development	The site is outside of the Order Limits therefore there would be no potential pathway for direct loss or fragmentation of habitat during the construction, maintenance and decommissioning of the Proposed Development.	No	
	Direct loss or fragmentation of supporting habitat during construction, maintenance and decommissioning of the Proposed Development.	There is no supporting habitat for interest features within the Order Limits which would be affected by the construction, maintenance and decommissioning of the Proposed Development. Therefore there would be no potential pathway.	No	
	Injury or fatality of interest features through collision	There would be no potential pathway through collision.	No	
	Disturbance/injury (noise, vibration, lighting, presence of personnel) and/or	The Proposed Development includes a tunnel beneath the Menai Strait therefore there is a potential pathway for disturbance/injury to mobile interest features of this	Yes	

Table 6.2 Screen	Table 6.2 Screening Step 1bB - does an effect pathway exist between the Proposed Development and a Natura 2000 site?				
Site and Proximity to the Order Limits	Potential effects identified	Pathway to result in a potential to effect?	Pathway taken through to Stage 1bC (Yes/No)		
	displacement of species during construction, maintenance and decommissioning of the Proposed Development.	site from noise/vibration during tunnelling.			
	Change in water quality through mobilisation of sediment and accidental contamination during the construction, maintenance and decommissioning of the Proposed Development.	Due to the distance of this site from the Proposed Development there would be no potential pathway for a change in water quality through mobilisation of sediment and accidental contamination during the construction, maintenance and decommissioning of the Proposed Development.	No		
	Disturbance of contaminated soils releasing pollutants to surface and groundwater during the construction of the Proposed Development	No land affected by contamination has been identified in proximity to the Menai Strait which could be disturbed, see ES Figure 11.5, 11.7, 11.8 and 11.9 (Documents 5.11.1.5, 5.11.1.7, 5.11.1.8 and 5.11.1.9); therefore no source and thus no pathway for this effect exists.	No		
	Release of drilling fluid during the construction of the Proposed Development	Due to the distance of this site from the Proposed Development there would be no potential pathway to affected interest features from the release of drilling fluid	No		

Table 6.2 Screening Step 1bB - does an effect pathway exist between the Proposed Development and a Natura 2000 site?				
Site and Proximity to the Order Limits	Potential effects identified	Pathway to result in a potential to effect?	Pathway taken through to Stage 1bC (Yes/No)	
	(tunnel)	during the construction of the Proposed Development (tunnel).		
	Temporary effects on the air quality/deposition during construction, maintenance and decommissioning of the Proposed Development	Due to the distance of this site from the Proposed Development there would be no potential pathway from air quality/deposition during construction, maintenance and decommissioning.	No	
	Introduction of invasive non- native species (INNS) and diseases during the construction, maintenance and decommissioning of the Proposed Development	The site is outside of the Order Limits therefore there would be no potential pathway for the introduction of INNS and diseases during the construction, maintenance and decommissioning of the Proposed Development.	No	
	Alteration of hydrological regime (fluvial/groundwater) from construction, maintenance and decommissioning of the Proposed Development	Due to the distance of the Proposed Development from this site no potential pathway exists from alteration of the hydrological regime (fluvial/groundwater) from construction, maintenance and decommissioning of the Proposed Development.	No	

Table 6.2 Screening Step 1bB - does an effect pathway exist between the Proposed Development and a Natura 2000 site?				
Site and Proximity to the Order Limits	Potential effects identified	Pathway to result in a potential to effect?	Pathway taken through to Stage 1bC (Yes/No)	
	Disorientation of species due to the introduction of EMFs during operation of the Proposed Development.	This site contains interest features which are known to use the Menai Strait and are sensitive to EMFs therefore a potential pathway for a likely significant effect exists.	Yes	
Anglesey Terns/Morwenoli aid Ynys Môn SPA (replacing the Ynys Feurig, Cemlyn Bay and The Skerries SPA) - 230 m north of the Order Limits	All potential effects identified within Table 6.1	This site contains transient interest features (common tern, arctic tern (<i>Sterna paradisaea</i>), roseate tern (<i>Sterna dougallii</i>), sandwich tern (<i>Sterna sandvicensis</i>)), the foraging ranges of some of the interest features of this site utilise inland rivers and inland waterbodies. The interest features are strictly/pelagic and the closest breeding site at Cemlyn Bay is too distant for disturbance therefore there would be no pathway to affect any of the interest features of this site. No potential Likely Significant Effect and the site can be screened out.	No	
Liverpool Bay/Bae Lerpwl SPA - 5 km east of the Order	This site contains transient interest features (red-throated diver (<i>Gavia stellate</i>), little tern (<i>Sternula albifrons</i>), common tern, little gull (<i>Hydrocoloeus minutus</i>), common scoter (<i>Melanitta nigra</i>) and waterfowl), the terrestrial and marine home ranges and feeding areas of some of the interest features of this site are within and adjacent to Order Limits			

Table 6.2 Screening Step 1bB - does an effect pathway exist between the Proposed Development and a Natura 2000 site?				
Site and Proximity to the Order Limits	Potential effects identified	Pathway to result in a potential to effect?	Pathway taken through to Stage 1bC (Yes/No)	
Limits	Direct loss or fragmentation of habitat within a Natura 2000 site during the construction, maintenance and decommissioning of the Proposed Development	The site is outside of the Order Limits therefore there would be no potential pathway for direct loss or fragmentation of habitat during the construction, maintenance and decommissioning of the Proposed Development.	No	
	Direct loss or fragmentation of supporting habitat during construction, maintenance and decommissioning of the Proposed Development.	None of the principle interest features/reasons for the designation of this site occur inland and nor do most of the species that form part of the SPA bird assemblage. In addition, the Proposed Development would require a relatively small area of supporting habitat in comparison to the availability of similar habitat which is prevalent in the wider locality.	No	
	Injury or fatality of interest features through collision	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 where the infrastructure is adjacent to foraging habitats and regularly used commuting routes. Therefore a potential pathway for a likely significant effect for injury or fatality through collision exists.	Yes	

Table 6.2 Screening Step 1bB - does an effect pathway exist between the Proposed Development and a Natura 2000 site?			
Site and Proximity to the Order Limits	Potential effects identified	Pathway to result in a potential to effect?	Pathway taken through to Stage 1bC (Yes/No)
	Disturbance/injury (noise, vibration, lighting, presence of personnel) and/or displacement of species during construction, maintenance and decommissioning of the Proposed Development.	Due to the distance of this site from the Proposed Development there would be no potential pathway for disturbance (noise, vibration, lighting, and presence of personnel) and/or displacement of species during construction, maintenance and decommissioning of the Proposed Development.	No
	Change in water quality through mobilisation of sediment and accidental contamination during the construction, maintenance and decommissioning of the Proposed Development.	Due to the distance of this site from the Proposed Development and the interest features which are listed as part of this designated site there would be no potential pathway for a change in water quality through mobilisation of sediment and accidental contamination during the construction, maintenance and decommissioning of the Proposed Development.	No
	Disturbance of contaminated soils releasing pollutants to surface and groundwater during the construction of the Proposed Development	Due to the distance of this site from the Proposed Development and the interest features which are listed as part of this designated site there would be no potential pathway for disturbance of contaminated soils releasing pollutants to surface and groundwater during	No

Table 6.2 Screening Step 1bB - does an effect pathway exist between the Proposed Development and a Natura 2000 site?			
Site and Proximity to the Order Limits	Potential effects identified	Pathway to result in a potential to effect?	Pathway taken through to Stage 1bC (Yes/No)
		the construction of the Proposed Development.	
	Release of drilling fluid during the construction of the Proposed Development (tunnel)	Due to the distance of this site from the Proposed Development and the interest features which are listed as part of this designated site there would be no potential pathway for contamination from the release of drilling fluid during the construction of the Proposed Development (tunnel).	No
	Temporary effects on the air quality/deposition during construction, maintenance and decommissioning of the Proposed Development	Due to the distance of this site from the Proposed Development and the interest features which are listed as part of this designated site there would be no potential pathway for air quality/deposition during construction, maintenance and decommissioning of the Proposed Development.	No
	Introduction of invasive non- native species (INNS) and diseases during the construction, maintenance and decommissioning of the Proposed Development	The site is outside of the Order Limits therefore there would be no potential pathway for the introduction of INNS and diseases during the construction, maintenance and decommissioning of the Proposed Development.	No

Table 6.2 Screening Step 1bB - does an effect pathway exist between the Proposed Development and a Natura 2000 site?				
Site and Proximity to the Order Limits	Potential effects identified	Pathway to result in a potential to effect?	Pathway taken through to Stage 1bC (Yes/No)	
	Alteration of hydrological regime (fluvial/groundwater) from construction, maintenance and decommissioning of the Proposed Development	Due to the distance of this site from the Proposed Development and the interest features which are listed as part of this designated site there would be no potential pathway for alteration of hydrological regime (fluvial/groundwater) from construction, maintenance and decommissioning of the Proposed Development	No	
	Disorientation of species due to the introduction of EMFs during operation of the Proposed Development.	This site contains no interest features which are sensitive to EMFs therefore there would be no potential pathway.	No	
Traeth Lafan/Lavan Sands, Conway Bay SPA - 5.4 km east of the Order Limits	This site contains transient interest features (oystercatcher (<i>Haematopus ostralegus</i>), red-breasted merganser (<i>Mergus serrator</i>), eurasian curlew, common redshank (<i>Tringa tetanus</i>), great crested grebe (<i>Podiceps cristatus</i>)), the marine home ranges and feeding areas of some of the interest features of this site are within and adjacent to the Order Limits within the Menai Strait.			
	Direct loss or fragmentation of habitat within a Natura 2000 site during the construction, maintenance	The site is outside of the Order Limits therefore there would be no potential pathway for direct loss or fragmentation of habitat during the construction, maintenance and decommissioning of the Proposed	No	

Table 6.2 Screening Step 1bB - does an effect pathway exist between the Proposed Development and a Natura 2000 site?			
Site and Proximity to the Order Limits	Potential effects identified	Pathway to result in a potential to effect?	Pathway taken through to Stage 1bC (Yes/No)
	and decommissioning of the Proposed Development	Development.	
	Direct loss or fragmentation of supporting habitat during construction, maintenance and decommissioning of the Proposed Development.	The Proposed Development would require a relatively small area of supporting habitat in comparison to the availability of similar habitat which is prevalent in the wider locality. Therefore a potential pathway for a likely significant effect does not exist.	No
	Injury or fatality of interest features through collision	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 where the infrastructure is adjacent to foraging habitats and regularly used commuting routes. Therefore a potential pathway for a likely significant effect for injury or fatality through collision exists.	Yes
	Disturbance/injury (noise, vibration, lighting, presence of personnel) and/or displacement of species	There would be potential for the disturbance (noise, vibration, lighting, presence of personnel) and/or displacement of interest features which may use adjacent foraging habitats.	Yes

Table 6.2 Screening Step 1bB - does an effect pathway exist between the Proposed Development and a Natura 2000 site?				
Site and Proximity to the Order Limits	Potential effects identified	Pathway to result in a potential to effect?	Pathway taken through to Stage 1bC (Yes/No)	
	during construction, maintenance and decommissioning of the Proposed Development.			
	Change in water quality through mobilisation of sediment and accidental contamination during the construction, maintenance and decommissioning of the Proposed Development.	Due to the distance of this site from the Proposed Development and the interest features which are listed as part of this designated site there would be no potential pathway for a change in water quality through mobilisation of sediment and accidental contamination during the construction, maintenance and decommissioning of the Proposed Development.	No	
	Disturbance of contaminated soils releasing pollutants to surface and groundwater during the construction of the Proposed Development	Due to the distance of this site from the Proposed Development and the interest features which are listed as part of this designated site there would be no potential pathway for disturbance of contaminated soils releasing pollutants to surface and groundwater during the construction of the Proposed Development.	No	
	Release of drilling fluid during the construction of the Proposed Development	Due to the distance of this site from the Proposed Development and the interest features which are listed as part of this designated site there would be no	No	

Table 6.2 Screening Step 1bB - does an effect pathway exist between the Proposed Development and a Natura 2000 site?				
Site and Proximity to the Order Limits	Potential effects identified	Pathway to result in a potential to effect?	Pathway taken through to Stage 1bC (Yes/No)	
	(tunnel)	potential pathway for contamination from the release of drilling fluid during the construction of the Proposed Development (tunnel).		
	Temporary effects on the air quality/deposition during construction, maintenance and decommissioning of the Proposed Development	Due to the distance of this site from the Proposed Development and the interest features which are listed as part of this designated site there would be no potential pathway for air quality/deposition during construction, maintenance and decommissioning of the Proposed Development.	No	
	Introduction of invasive non- native species (INNS) and diseases during the construction, maintenance and decommissioning of the Proposed Development	The site is outside of the Order Limits therefore there would be no potential pathway for the introduction of INNS and diseases during the construction, maintenance and decommissioning of the Proposed Development.	No	
	Alteration of hydrological regime (fluvial/groundwater) from construction, maintenance and decommissioning of the	Due to the distance of this site from the Proposed Development and the interest features which are listed as part of this designated site there would be no potential pathway for alteration of hydrological regime (fluvial/groundwater) from construction, maintenance	No	

Table 6.2 Screening Step 1bB - does an effect pathway exist between the Proposed Development and a Natura 2000 site?				
Site and Proximity to the Order Limits	Potential effects identified	Pathway to result in a potential to effect?	Pathway taken through to Stage 1bC (Yes/No)	
	Proposed Development	and decommissioning of the Proposed Development		
	Disorientation of species due to the introduction of EMFs during operation of the Proposed Development.	This site contains no interest features which are sensitive to EMFs therefore there would be no potential pathway.	No	
Glannau Ynys Gybi/Holy Island Coast SPA - 14.9 km west of the Order Limits	All potential effects identified within Table 6.1	This site contains transient interest features (chough) however the home ranges and core feeding areas are sufficiently far away from the Proposed Development for no pathway to exist which would affect any of the interest features of this site. No potential Likely Significant Effect and the site can be screened out.	No	
Ynys Seiriol/Puffin Island SPA - 15.7 km east of	This site contains transient inte utilise inland feeding sites at L	erest features (cormorant (<i>Phalacrocorax carbo</i>)), interest lyn Alaw and Cefni Reservoir.	features of this site	
	Direct loss or fragmentation of habitat within a Natura	The site is outside of the Order Limits therefore there would be no potential pathway for direct loss or	No	

Table 6.2 Screening Step 1bB - does an effect pathway exist between the Proposed Development and a Natura 2000 site?				
Site and Proximity to the Order Limits	Potential effects identified	Pathway to result in a potential to effect?	Pathway taken through to Stage 1bC (Yes/No)	
the Order Limits	2000 site during the construction, maintenance and decommissioning of the Proposed Development	fragmentation of habitat during the construction, maintenance and decommissioning of the Proposed Development.		
	Direct loss or fragmentation of supporting habitat during construction, maintenance and decommissioning of the Proposed Development.	The Proposed Development would require a relatively small area of supporting habitat in comparison to the availability of similar habitat which is prevalent in the wider locality. Therefore a potential pathway for a likely significant effect does not exist.	No	
	Injury or fatality of interest features through collision	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 where the infrastructure is adjacent to foraging habitats and regularly used commuting routes. Therefore a potential pathway for a likely significant effect for injury or fatality through collision exists.	Yes	
	Disturbance/injury (noise, vibration, lighting, presence of personnel) and/or displacement of species	Due to the distance of this site from the Proposed Development there would be no potential pathway for disturbance (noise, vibration, lighting, and presence of personnel) and/or displacement of species during	No	

Table 6.2 Screening Step 1bB - does an effect pathway exist between the Proposed Development and a Natura 2000 site?				
Site and Proximity to the Order Limits	Potential effects identified	Pathway to result in a potential to effect?	Pathway taken through to Stage 1bC (Yes/No)	
	during construction, maintenance and decommissioning of the Proposed Development.	construction, maintenance and decommissioning of the Proposed Development.		
	Change in water quality through mobilisation of sediment and accidental contamination during the construction, maintenance and decommissioning of the Proposed Development.	Due to the distance of this site from the Proposed Development and the interest features which are listed as part of this designated site there would be no potential pathway for a change in water quality through mobilisation of sediment and accidental contamination during the construction, maintenance and decommissioning of the Proposed Development.	No	
	Disturbance of contaminated soils releasing pollutants to surface and groundwater during the construction of the Proposed Development	Due to the distance of this site from the Proposed Development and the interest features which are listed as part of this designated site there would be no potential pathway for disturbance of contaminated soils releasing pollutants to surface and groundwater during the construction of the Proposed Development.	No	
	Release of drilling fluid during the construction of the Proposed Development	Due to the distance of this site from the Proposed Development and the interest features which are listed as part of this designated site there would be no potential pathway for contamination from the release of	No	

Table 6.2 Screening Step 1bB - does an effect pathway exist between the Proposed Development and a Natura 2000 site?				
Site and Proximity to the Order Limits	Potential effects identified	Pathway to result in a potential to effect?	Pathway taken through to Stage 1bC (Yes/No)	
	(tunnel)	drilling fluid during the construction of the Proposed Development (tunnel).		
	Temporary effects on the air quality/deposition during construction, maintenance and decommissioning of the Proposed Development	Due to the distance of this site from the Proposed Development and the interest features which are listed as part of this designated site there would be no potential pathway for air quality/deposition during construction, maintenance and decommissioning of the Proposed Development.	No	
	Introduction of invasive non- native species (INNS) and diseases during the construction, maintenance and decommissioning of the Proposed Development	The site is outside of the Order Limits therefore there would be no potential pathway for the introduction of INNS and diseases during the construction, maintenance and decommissioning of the Proposed Development.	No	
	Alteration of hydrological regime (fluvial/groundwater) from construction, maintenance and decommissioning of the	Due to the distance of this site from the Proposed Development and the interest features which are listed as part of this designated site there would be no potential pathway for alteration of hydrological regime (fluvial/groundwater) from construction, maintenance	No	

Table 6.2 Screening Step 1bB - does an effect pathway exist between the Proposed Development and a Natura 2000 site?			
Site and Proximity to the Order Limits	Potential effects identified	Pathway to result in a potential to effect?	Pathway taken through to Stage 1bC (Yes/No)
	Proposed Development	and decommissioning of the Proposed Development	
	Disorientation of species due to the introduction of EMFs during operation of the Proposed Development.	This site contains no interest features which are sensitive to EMFs therefore there would be no potential pathway.	No
Migneint Arenig Dduallt SPA - 28.0 km east of the Order Limits	All potential effects identified within Table 6.1	The home ranges and core feeding areas of the sites transient interest features (hen harrier (<i>Circus cyaneus</i>), merlin (<i>Falco columbarius</i>), peregrine (<i>Falco peregrinus</i>)) are sufficiently far away from the Proposed Development that the interest features are unlikely to use supporting habitat with in or adjacent to the Proposed Development. Therefore no pathway to affect any of the interest features of this site.	No
		No potential Likely Significant Effect and the site can be screened out.	
Dyfi Estuary SPA - 69.5 km south of the Order Limits	This site contains transient intering in proximity to the Proposed D	erest features (Greenland white-fronted goose) which coule evelopment.	d use supporting habitat
	Direct loss or fragmentation of habitat within a Natura	The site is outside of the Order Limits therefore there would be no potential pathway for direct loss or	No

Table 6.2 Screening Step 1bB - does an effect pathway exist between the Proposed Development and a Natura 2000 site?				
Site and Proximity to the Order Limits	Potential effects identified	Pathway to result in a potential to effect?	Pathway taken through to Stage 1bC (Yes/No)	
	2000 site during the construction, maintenance and decommissioning of the Proposed Development	fragmentation of habitat during the construction, maintenance and decommissioning of the Proposed Development.		
	Direct loss or fragmentation of supporting habitat during construction, maintenance and decommissioning of the Proposed Development.	The Proposed Development would require a relatively small area of supporting habitat in comparison to the availability of similar habitat which is prevalent in the wider locality. Therefore a potential pathway for a likely significant effect does not exist.	No	
	Injury or fatality of interest features through collision	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 where the infrastructure is adjacent to foraging habitats and regularly used commuting routes. Therefore a potential pathway for a likely significant effect for injury or fatality through collision exists.	Yes	
	Disturbance/injury (noise, vibration, lighting, presence of personnel) and/or displacement of species	Due to the distance of this site, and supporting habitat, from the Proposed Development there would be no potential pathway for disturbance (noise, vibration, lighting, presence of personnel) and/or displacement of	No	

Table 6.2 Screening Step 1bB - does an effect pathway exist between the Proposed Development and a Natura 2000 site?				
Site and Proximity to the Order Limits	Potential effects identified	Pathway to result in a potential to effect?	Pathway taken through to Stage 1bC (Yes/No)	
	during construction, maintenance and decommissioning of the Proposed Development.	species during construction, maintenance and decommissioning of the Proposed Development.		
	Change in water quality through mobilisation of sediment and accidental contamination during the construction, maintenance and decommissioning of the Proposed Development.	Due to the distance of this site from the Proposed Development and the interest features which are listed as part of this designated site there would be no potential pathway for a change in water quality through mobilisation of sediment and accidental contamination during the construction, maintenance and decommissioning of the Proposed Development.	No	
	Disturbance of contaminated soils releasing pollutants to surface and groundwater during the construction of the Proposed Development	Due to the distance of this site from the Proposed Development and the interest features which are listed as part of this designated site there would be no potential pathway for disturbance of contaminated soils releasing pollutants to surface and groundwater during the construction of the Proposed Development.	No	
	Release of drilling fluid during the construction of the Proposed Development	Due to the distance of this site from the Proposed Development and the interest features which are listed as part of this designated site there would be no potential pathway for contamination from the release of	No	

Table 6.2 Screening Step 1bB - does an effect pathway exist between the Proposed Development and a Natura 2000 site?				
Site and Proximity to the Order Limits	Potential effects identified	Pathway to result in a potential to effect?	Pathway taken through to Stage 1bC (Yes/No)	
	(tunnel)	drilling fluid during the construction of the Proposed Development (tunnel).		
	Temporary effects on the air quality/deposition during construction, maintenance and decommissioning of the Proposed Development	Due to the distance of this site from the Proposed Development and the interest features which are listed as part of this designated site there would be no potential pathway for air quality/deposition during construction, maintenance and decommissioning of the Proposed Development.	No	
	Introduction of invasive non- native species (INNS) and diseases during the construction, maintenance and decommissioning of the Proposed Development	The site is outside of the Order Limits therefore there would be no potential pathway for the introduction of INNS and diseases during the construction, maintenance and decommissioning of the Proposed Development.	No	
	Alteration of hydrological regime (fluvial/groundwater) from construction, maintenance and decommissioning of the	Due to the distance of this site from the Proposed Development and the interest features which are listed as part of this designated site there would be no potential pathway for alteration of hydrological regime (fluvial/groundwater) from construction, maintenance	No	

Table 6.2 Screening Step 1bB - does an effect pathway exist between the Proposed Development and a Natura 2000 site?				
Site and Proximity to the Order Limits	Potential effects identified	Pathway to result in a potential to effect?	Pathway taken through to Stage 1bC (Yes/No)	
	Proposed Development	and decommissioning of the Proposed Development		
	Disorientation of species due to the introduction of EMFs during operation of the Proposed Development.	This site contains no interest features which are sensitive to EMFs therefore there would be no potential pathway.	No	

- 6.3.38 Of the sites in Table 6.2 above, no effect pathway has been identified with the following sites and the Proposed Development and therefore these sites have been screened out and are not considered further:
 - Bae Cemlyn/Cemlyn Bay SAC;
 - Glannau Môn: Cors heli/Anglesey Coast: Saltmarsh SAC;
 - Y Twyni o Abermenai i Aberffraw/Abermenai to Aberffraw Dunes SAC;
 - Llyn Dinam SAC;
 - Anglesey Terns/Morwenoliaid Ynys Môn SPA;
 - Glannau Ynys Gybi/Holy Island Coast SPA; and
 - Migneint Arenig Dduallt SPA.
- 6.3.39 In order to identify whether there is a mechanism for likely significant effect on those sites where a pathway has been identified in screening stage 1bB it is necessary to identify the interest features and characteristics of each of the sites. The following provides a site description of those sites where a potential source and pathway has been identified.

Corsydd Môn/Anglesey Fens Ramsar & SAC

6.3.40 Corsydd Mon comprises a series of fen basins located on the limestone of eastern Anglesey. Several of the sites (Cors Goch, Cors y Farl, Cors Erddreiniog, and Cors Bodeilio) occupy former lake basins which have gradually in filled with clay, marl and peat sediments. These sites and others (Waun Eurad, Caeau Talwrn, Gwenfro - Rhos y Gad) also contain areas of flush mire where calcareous springs irrigate the surface. The site includes some of the best examples of base-rich fen (Alkaline fen and Calcareous fen) in Wales along with oligotrophic (nutrient poor) lakes, areas of purple moor grass (*Molinia caerulea*) meadow, wet and dry heath and associated areas of neutral and calcareous grassland. The sites support many species including Geyer's whorl snail (*Vertigo geyeri*), southern damselfly (*Coenagrion mercuriale*), marsh fritillary (*Euphydryas (Eurodryas, Hypodryas) aurinia*), great crested newt and otter. The component sites are set within a mainly agricultural landscape of livestock farms and small settlements (Ref 6.4).

Y Fenai a Bae Conwy/Menai Strait and Conwy Bay SAC

6.3.41 The Menai Strait and Conwy Bay SAC is mostly subtidal but also includes a few areas of foreshore. In places the landward boundary abuts the

boundary of SACs encompassing terrestrial/coastal habitats and species and some intertidal areas that are part of the marine SAC have been notified as SSS). The SAC also overlaps wholly or in part with a number of SPAs classified under the Birds Directive.

- 6.3.42 The Menai Strait and Conwy Bay SAC is a multiple interest site that has been selected as a SAC for 5 different types of marine habitat and associated wildlife that it supports. It is considered to be one of the best areas in the UK for mudflats and sandflats not covered by seawater at low tide, reefs, sandbanks which are slightly covered by sea water all the time and to support a significant presence of large shallow inlets and bays and submerged or partially submerged sea caves.
- 6.3.43 The unique physiographic conditions experienced within the Menai Strait and Conwy Bay SAC make this an unusual site, which has long been recognised as important for marine wildlife. The variation in physical and environmental conditions throughout the site, including rock and sediment type, aspect, water clarity and exposure to tidal currents and wave action result in a wide range of habitats and associated marine communities. Many of these community types are unusual in Wales. Of particular interest is the continuum of environmental and physical conditions and associated marine communities from the tide-swept, wave-sheltered narrows of the Menai Strait to the more open, less tide swept waters of Conwy Bay and the moderately wave-exposed Great and Little Ormes (Ref 6.5).

Afon Gwyrfai a Llyn Cwellyn SAC

- 6.3.44 This site comprises the Afon Gwyrfai and Llyn Cwellyn. The Gwyrfai flows out of Llyn y Gader near Rhyd Ddu and passes through Llyn Cwellyn on its way to the sea at Y Foryd, Caernarfon Bay. It also includes a tributary of the Gwyrfai, the Afon Treweunydd, and the small lake it flows from on the slopes of Snowdon. Sporadically throughout its course, the SAC is abutted by semi-natural wetland riparian habitat much of which is within the SSSI.
- 6.3.45 Llyn Cwellyn has long been recognised for its conservation importance and is an excellent example of a deep (maximum depth of 37 m, average depth of 23 m) oligotrophic lake formed during the last Ice Age. Its nutrient–poor waters support a range of typical macrophytes, and one of the best populations of floating water plantain (*Luronium natans*) in the UK.
- 6.3.46 The whole of the Gwyrfai river system is of outstanding ecological quality. The river is particularly noted for its excellent salmon population, for which it is considered to be one of the best supporting rivers in the United Kingdom. It is also notable for its otter population which occur here in good numbers because of the relative naturalness of its riparian habitats and the

abundance of undisturbed dense cover. In addition to the lake, the river supports a discrete community of floating water plantain, and water-crowfoot (*Ranunculus*) species, with other associated vegetation including bryophyte assemblages occurring in various sectors of the river (Ref 6.6).

Eryri/Snowdonia SAC

6.3.47 The Eryri/Snowdonia SAC comprises three upland massifs separated by roads, the Carneddau, Glyderau and Yr Wyddfa. All three host a number of biological and geological SSSI features and SAC features. The three massifs are divided into land parcels or compartments. Much of Eryri would once have been covered by woodland other than the high ridges and summits. Extensive woodland clearance for agriculture and also quarrying and mining has meant that woodland is now confined to small areas on some of the lower slopes and pockets left in valleys. The resulting vegetation as a result of woodland clearance and the effects of grazing animals is mostly grasslands and heaths with mires and blanket bogs on the deeper peats and on poorly draining ground. A long history of grazing has meant that the rare arctic alpine plants are restricted to the cliffs, ledges and large boulders that are mostly inaccessible to grazing animals (Ref 6.7).

Pen Llyn a'r Sarnau/Lleyn Peninsula and the Sarnau SAC

6.3.48 The Pen Llŷn a'r Sarnau SAC encompasses areas of sea, coast and estuary that support a wide range of different marine habitats and wildlife. The nature of the seabed and coast and the range of environmental conditions present vary throughout the SAC. Differences in rock and sediment type, aspect, sediment movement, exposure to tidal currents and wave action, water clarity and salinity together with biological and food chain interactions have created a wide range of habitats and associated communities of marine plant and animal species, some of which are unique in Wales. Pen Llŷn a'r Sarnau SAC is a multiple interest site that has been selected for the presence of 9 marine habitat types and associated wildlife (Habitats Directive Annex I habitat types) and 3 mammal species (Habitats Directive Annex II species). The features are distributed throughout the SAC with no single feature occupying the entire SAC and with features overlapping in some locations (Ref 6.8).

Cardigan Bay SAC

6.3.49 Cardigan Bay is one of the largest bays in the British Isles, measuring over 100 km (60 miles) across its westernmost extent from the Lleyn Peninsula to St. David's Head.

- 6.3.50 A population of bottlenose dolphins forms a primary interest of the Bay and it was for this that the Bay was first selected as a SAC. Early surveys by Greenpeace and others in the 1990's identified the importance of the Bay for bottlenose dolphins. Other research since then, encouraged by the earlier work, has broadened our knowledge of the marine habitats of the bay.
- 6.3.51 Bottlenose dolphins range widely throughout UK waters and considerably further afield, but Cardigan Bay is one of the very few areas around the UK where significant numbers are known to occur regularly.
- 6.3.52 The Cardigan Bay SAC is a multiple interest site which has been selected for the presence of 7 interest features that qualify under Annex I and Annex II of the Habitats Directive. The features are distributed throughout the SAC with no single feature occupying the entire SAC and with features overlapping in some locations (Ref 6.9).

North Anglesey Marine cSAC and West Wales Marine cSAC

- 6.3.53 A potential network of eight sites was identified within UK waters for harbour porpoise. Sites were identified within the UK portions of Management Units defined for the species (Ref 6.10 and Ref 6.11). The Welsh and Northern Ireland Governments, along with Defra on behalf of England and offshore waters, gave approval for sites within their areas of jurisdiction to proceed to consultation.
- 6.3.54 The North Anglesey Marine/Gogledd Môn Forol cSAC covers an area of 3,235 km² reaching north-west from the Isle of Anglesey into the Irish Sea. The qualifying feature of the site is the Habitats Directive Annex II species harbour porpoise. The analyses of Heinänen and Skov (2015) (Ref 6.12) shows that harbour porpoise occur in elevated densities in the whole of the site during summer.
- 6.3.55 Situated off the coast of Wales from the Llŷn peninsula in the north to Pembrokeshire in the southwest, the West Wales Marine cSAC has been identified as an area of importance for harbour porpoise. The site is three times the size of Snowdonia National Park, covering 7,376 km².
- 6.3.56 This cSAC overlaps a number of other SACs including parts of the Pembrokeshire Marine and Pen Llŷn a'r Sarnau SACs, and encompasses the entire Cardigan Bay SAC. Along the westward boundary, water depths of up to 100 m are reached, though much of the site is 50 m or shallower. The area included within the site covers important summer habitat for harbour porpoise, while part of the site in Cardigan Bay was also identified as important during the winter.
Liverpool Bay/Bae Lerpwl SPA and Proposed Extension

- 6.3.57 Liverpool Bay SPA extends from Moelfre in north-east Anglesey to Rossall Point near Fleetwood. The entire site lies within the 12-mile limit and landward extends to the Mean Low Water Mark, except where it abuts existing SPA (Mersey Narrows, North Wirral Foreshore and Dee Estuary). At the mouth of the River Mersey, the SPA boundary follows a straight line from Fort Perch Rock lighthouse to the sea wall at Seaforth Nature Reserve.
- 6.3.58 The seabed of Liverpool Bay consists of a wide range of mobile sediments. Sand is the predominate substrate with a concentrated area of gravelly sand off the Mersey Estuary. Sandbanks off the English coast of the Bay include East Hoyle Bank (largely within the Mersey Narrows and North Wirral Foreshore SPA), parts of Great Burbo Bank (off the mouth of the Mersey). West Hoyle Bank (at the mouth of the Dee Estuary), Dutchman Bank and Chester and Rhyl Flats, are amongst the sand banks off the Welsh coast of the Bay.
- 6.3.59 The tidal currents throughout the Bay are generally weak and do not exceed 2 m/sec. This combined with a relatively extended tidal range of 6 to 8 m along the Lancashire coastline, facilitates the deposition of sediments, encouraging mud and sand belts to accumulate.
- 6.3.60 Liverpool Bay is one of the most important sea areas around the UK for populations of wintering seabirds, particularly common scoter and red throated diver, which arrive in large numbers in the autumn from their breeding sites in Northern Europe and sub-Arctic areas (Ref 6.13).
- 6.3.61 Liverpool Bay/Bae Lerpwl pSPA has been proposed to protect important areas of coast and open sea used for a variety of purposes by the qualifying species. The pSPA is an expansion of the existing Liverpool Bay/Bae Lerpwl SPA. The proposed extension includes an area to the north and west of the existing SPA, identified as supporting non-breeding little gulls. It also includes a marine foraging area for terns identified and defined by little terns breeding within The Dee Estuary SPA and the predicted foraging area for common terns breeding within Mersey Narrows & North Wirral Foreshore SPA. These areas add marine habitat extending into the Mersey Estuary, and a small intertidal area abutting the western boundary of The Dee Estuary SPA. The new pSPA site overlaps with the site for Anglesey Terns/Morwenoliaid Ynys Môn SPA. The Liverpool Bay/Bae Lerpwl pSPA therefore comprises areas for foraging breeding seabirds, and non-breeding seabirds.

6.3.62 The new qualifying interest features proposed are little gull, common tern and little tern. Red-breasted merganser and cormorant are new main components of the waterbird assemblage (Ref 6.14).

Traeth Lafan/Lavan Sands, Conway Bay SPA

6.3.63 Traeth Lafan/Lavan Sands is located in Conwy Bay lying between Bangor and Llanfairfechan in north-west Wales. This large area of intertidal sandand mud-flats lies at the eastern edge of the Menai Strait. The area has a range of exposures and a diversity of conditions, enhanced by freshwater streams that flow across the flats. The site is of importance for Wintering waterbirds, especially oystercatcher and curlew. In conditions of severe Winter weather, Traeth Lafan acts as a refuge area for oystercatchers displaced from the Dee Estuary. The site is also an important moulting roost for great crested grebe in late Summer/early autumn (Ref 6.15).

Ynys Seiriol/Puffin Island SPA

- 6.3.64 Ynys Seiriol/Puffin Island is located just off the eastern tip of the Isle of Anglesey in North Wales. It is a Carboniferous limestone block rising to 55 m with steep cliffs on all sides. A layer of heavily guano-enriched soil masks the limestone over much of the surface, leading to impoverished vegetation dominated by a dense mat of grasses (mainly Red Fescue (*Festuca rubra*) and Cock's-foot (*Dactylis glomerata*)), Common Nettle (*Urtica dioica*), Bramble (*Rubus fruticosus*) and Alexanders S*myrnium olusatrum*. Dense woodland of Elder (*Sambucus nigra*) has developed, particularly in the past 40 years since the loss of rabbit grazing. The sea-cliffs support a typical maritime flora including sea spleenwort (*Asplenium marinum*).
- 6.3.65 The site is of European importance for its breeding population of cormorant, which feed in the surrounding waters outside the SPA. The island is also of interest for other nesting seabirds breeding both on its sea-cliffs and open grassland areas though none of these are qualifying features. These include the four auks, (puffin (*Fratercula arctica*), guillemot (*Uria aalge*), black guillemot (*Cepphus grylle*) and razorbill (*Alca torda*)), together with shag (*Phalacrocorax aristotelis*), fulmar (*Fulmarus glacialis*), kittiwake (*Rissa tridactyla*), eider duck (*Somateria mollissima*), herring gull (*Larus argentatus*), greater black-backed gull (*Larus marinus*) and lesser black-backed gull (*Larus fuscus*). The breeding puffin population, which formerly numbered several thousand pairs, has declined significantly to currently number less than a hundred pairs. However, old records suggest substantial population fluctuations in the past.

6.3.66 The island is used by Atlantic grey seals as a hauling out ground. The cave spider (*Meta bourneti*), has been recorded here at its only Welsh location (Ref 6.16).

Dyfi Estuary SPA

- 6.3.67 The Dyfi Estuary is located on the west coast of Wales on the boundary between Ceredigion, Gwynedd and Powys. The SPA comprises the estuary, with adjoining saltmarsh, marshy grassland and improved grassland. The estuarine complex is of outstanding physiographic interest. It includes sandbanks, mud-flats, saltmarsh, peatbogs, river channels and creeks, with an extensive sand dune complex across the mouth of the estuary. The estuary itself is a feature of the Pen Llyn a'r Sarnau marine SAC.
- 6.3.68 The site is of importance as a traditional Wintering area for Greenland White-fronted Goose– the most southerly regularly used area for this population in the UK. Until the early 1980s the geese roosted on the estuary and flew inland either to Wales or to the raised bog of Cors Fochno to feed. The geese now use the saltmarsh and grasslands for feeding and roost on the sandbanks and mud-flats.
- 6.3.69 A general decline in Greenland white-front populations is reported to be due to the birds having a delayed age of first breeding, leading to a reduction of young birds. It appears that something is stopping the birds from achieving breeding condition and therefore very few geese are surviving long enough to breed (Fox A.D. pers.comm. 2008). Inter-specific competition with Greater Canada Geese (Branta Canadensis) on the breeding grounds in Greenland, and poor weather, have been cited as possible reasons but the influential factors are not fully understood. Worldwide numbers have declined from a high of 35,600 in 1999/2000 to an estimated 24,895 in 2006 with poor numbers of young recorded in that period. This is reflected in the Dyfi wintering flock, which has contained very few young geese in recent years, and where Wintering numbers have declined steadily from 167 in 1998/99 to a maximum of 102 in the last three winters (2005-6 to 2007-8). The decline is also mirrored at other sites such as in South-west Scotland and at Wexford.
- 6.3.70 The Dyfi Estuary is the sole remaining Wintering site in Wales and the most southerly in the UK. It is both a roosting and feeding area, and is particularly important in the context of maintaining the traditional Wintering range within the UK. However, evidence of past range contraction suggests that small isolated populations are particularly vulnerable (Ref 6.17).

Qualifying Features

6.3.71 Table 6.3 lists the qualifying species and habitats of each of the sites where a pathway with the Proposed Development has been identified. The qualifying features, conservation objectives and the vulnerabilities/threats of the Nature 2000 sites, including those where no pathway has been identified, are presented in Appendix 3 (**Document 5.23.2.3**) for completeness.

Table 6.3 Qualifying Features			
Site	Qualifying Features		
Corsydd Môn/Anglesey Fens Ramsar	 Ramsar criterion 1 Hard oligo-mesotrophic waters with benthic vegetation of <i>Chara sp.</i> Northern Atlantic wet heaths with <i>Erica tetralix</i> 		
	 Molinia meadows on calcareous, peaty or clayey— silt-laden soils (<i>Molinion caeruleae</i>) Calcareous fens with <i>Cladium mariscus</i> and species of the <i>Caricion davallinae</i> 		
	 Alkaline fens Geyer's Whorl Snail Southern damselfly Marsh fritillary butterfly 		
	Ramsar Criterion 3		
	The site supports a diverse flora and fauna with associated rare species and is of special value for maintaining the genetic and ecological diversity of the region.		
	Noteworthy flora include:		
	Higher plants:		
	 Narrow-leaved Marsh-orchid (Dactylorhiza traunsteineri) 		
	Slender cottongrass (Eriophorum gracile)		
	Lower plants:		
	Compact stonewort (Nitella tenuissima)		

Table 6.3 Qualifying Features			
Site	Qualifying Features		
	Noteworthy fauna include:		
	Invertebrates:		
	Geyer's whorl snail (Habitats Directive Annex II)		
	 Desmoulin's whorl snail Vertigo moulinsiana (Annex II (Habitats Directive; RDB3) 		
	Southern damselfly (Habitats Directive Annex II)		
	Marsh fritillary (Habitats Directive Annex II)		
	Ground beetle (Chlaenius tristis) (RDB1)		
	 Hornet robber fly (Asilus crabroniformis) (Notable) 		
	 Solder fly (Stratiomys chamaeleon), Parasitic fly (Acrometopia wahlbergi), Medicinal leech (Hirudo medicinalis) (Habitats Directive Annex V) 		
	Mammals:		
	Otter (Habitats Directive Annex II)		
Corsydd Môn/Anglesey Fens SAC	Annex I habitats that are a primary reason for selection of this site:		
	Hard oligo-mesotrophic waters with benthic vegetation of <i>Chara spp.</i>		
	 Calcareous fens with Cladium mariscus and species of the Caricion davallianae * Priority feature 		
	Alkaline fens		
	Annex I habitats present as a qualifying feature, but not a primary reason for selection of this site:		
	Northern Atlantic wet heaths with <i>Erica tetralix</i>		
	 Molinia meadows on calcareous, peaty or clayey-silt-laden soils 		
	Annex II species that are a primary reason for selection of this site:		
	Geyer`s whorl snail		
	Annex II species present as a qualifying feature,		

Table 6.3 Qualifying Features			
Site	Qualifying Features		
	but not a primary reason for site selection		
	Southern damselfly		
	Marsh fritillary butterfly		
	Other Annex I habitat present on the site:		
	 European dry heaths 		
	Other Annex II species present on the site:		
	Great Crested Newt		
	Otter		
Y Fenai a Bae Conwy/Menai Strait and Conwy Bay SAC	Annex I habitats that are a primary reason for selection of this site:		
	 Sandbanks which are slightly covered by sea water all the time 		
	 Mudflats and sandflats not covered by seawater at low tide 		
	Reefs		
	Annex I habitats present as a qualifying feature, but not a primary reason for selection of this site:		
	 Large shallow inlets and bays 		
	Submerged or partially submerged sea caves		
Afon Gwyrfai a Llyn Cwellyn SAC	Annex I habitats that are a primary reason for selection of this site:		
	 Oligotrophic to mesotrophic standing waters with vegetation of the <i>Littorelletea uniflorae</i> and/or of the <i>Isoëto-Nanojuncetea</i> 		
	• Water courses of plain to montane levels with the <i>Ranunculion fluitantis</i> and <i>Callitricho-Batrachion</i> vegetation		
	Annex II species that are a primary reason for selection of this site:		
	Atlantic salmon		
	 Floating water-plantain 		
	Annex II species present as a qualifying feature,		

Table 6.3 Qualifying Feature	es
Site	Qualifying Features
	but not a primary reason for site selection:
	• Otter
Eryri/Snowdonia SAC	Annex I habitats that are a primary reason for selection of this site:
	 Oligotrophic to mesotrophic standing waters with vegetation of the <i>Littorelletea uniflorae</i> and/or of the Isoëto-Nanojuncetea
	Siliceous alpine and boreal grasslands
	 Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels
	Siliceous scree of the montane to snow levels (<i>Androsacetalia alpinae</i> and <i>Galeopsietalia</i> ladani)
	Calcareous rocky slopes with <i>chasmophytic</i> vegetation
	Siliceous rocky slopes with <i>chasmophytic</i> vegetation
	Annex I habitats present as a qualifying feature, but not a primary reason for selection of this site:
	Northern Atlantic wet heaths with <i>Erica tetralix</i>
	European dry heaths
	Alpine and Boreal heaths
	Alpine and subalpine calcareous grasslands
	 Species-rich Nardus grasslands, on silicious substrates in mountain areas (and submountain areas in Continental Europe) * Priority feature
	Blanket bogs (* if active bog) * Priority feature
	 Depressions on peat substrates of the Rhynchosporion
	 Petrifying springs with tufa formation (<i>Cratoneurion</i>) * Priority feature

Table 6.3 Qualifying Features			
Site	Qualifying Features		
	Alkaline fens		
	Alpine pioneer formations of the Caricion <i>bicoloris-atrofuscae</i> * Priority feature		
	Old sessile oak woods with <i>llex</i> and <i>Blechnum</i> in the British Isles		
	Annex II species that area primary reason for selection of this site.		
	 Slender green feather-moss 		
	Floating water-plantain		
Pen Llyn a'r Sarnau/Lleyn Peninsula and the Sarnau	Annex I habitats that are a primary reason for selection of this site:		
SAC	 Sandbanks which are slightly covered by sea water all the time 		
	Estuaries		
	 Coastal lagoons * Priority feature 		
	 Large shallow inlets and bays 		
	Reefs		
	Annex I habitats present as a qualifying feature, but not a primary reason for selection of this site:		
	 Mudflats and sandflats not covered by seawater at low tide 		
	Salicornia and other annuals colonising mud and sand		
	Atlantic salt meadows		
	 Submerged or partially submerged sea caves 		
	Annex II species present as a qualifying feature,		
	but not a primary reason for site selection:		
	Bottlenose dolphin		
	Otter		
	Grey seal		
Cardigan Bay SAC	Annex I habitats present as a qualifying feature :		
	Sandbanks which are slightly covered by sea water		

Table 6.3 Qualifying Features			
Site	Qualifying Features		
	all the time		
	Mudflats and sandflats not covered by seawater at low tide		
	Reefs		
	Submerged or partially submerged sea caves		
	Annex II species present as a qualifying feature:		
	Grey seal		
	River lamprey		
	Sea lamprey		
	Bottlenose dolphin		
	Harbour Porpoise		
	Allis shad		
	Twait Shad		
North Anglesey Marine/Gogledd Môn Forol	Annex II species that are a primary reason for selection of this site:		
cSAC	Harbour porpoise		
West Wales Marine cSAC	The qualifying feature of the site is the Habitats Directive Annex II species:		
	Harbour porpoise		
Liverpool Bay/Bae Lerpwl SPA (including proposed extension)	This site qualifies under Article 4.1 of the Directive (79/409/EEC) by supporting populations of European importance of the following species listed on Annex I of the Directive:		
	Over Winter:		
	 Red-throated diver (North-western Europe - Wintering) 5.4% of the GB population 5 year peak mean 2001/02 - 2006/07 (N.B. Insufficient data recorded for period 2003/2004). <i>Included</i> <i>as part of the proposed Liverpool Bay/Bae</i> <i>Lerpwl SPA extension</i> 1,171 individuals (2004/05 – 2010/11), 6.89% of GB population 		
	Included as part of the proposed Liverpool Bay/Bae Lerpwl SPA extension		

Table 6.3 Qualifying Features				
Site	Qualifying Features			
	During the breeding season:			
	 Little tern 260 individuals (2010 – 2014), 6.84% of GB population 			
	 Common Tern 360 individuals (2011 – 2015), 1.80% of GB population 			
	Over Winter:			
	 Little gull 319 individuals (2004/05 – 2010/11) 			
	This site qualifies under Article 4.2 of the Directive (79/409/EEC) by supporting populations of European importance of the following species listed on Annex I of the Directive:			
	Over Winter the area regularly supports:			
	 Common Scoter (Western Siberia/Western & Northern Europe/North-western Africa) 3.4% of the population 5 year peak mean 2001/02 - 2006/07 (N.B. Insufficient data recorded for period 2003/2004) <i>Included as part of the</i> <i>proposed Liverpool Bay/Bae Lerpwl SPA</i> <i>extension</i> 56,679 individuals (2004/05 – 2010/11), 10.31% of NW European population. 			
	This site qualifies under Article 4.2 of the Directive (79/409/EEC) by supporting populations of European importance of the following species listed on Annex I of the Directive: An Internationally Important Assemblage Of Birds			
	Non-breeding:			
	 55,597 waterfowl 5 year peak mean 2001/02 - 2006/07 (N.B. Insufficient data recorded for period 2003/2004) including: Red-throated diver, Common Scoter. <i>Included as part of the</i> 			
	proposed Liverpool Bay/Bae Lerpwl SPA			
	extension over 20,000 individuals: 69,687 individuals (2004/05 – 2010/11), all species listed above plus cormorant and red – breasted			
	merganser as key components. Other species as part of the assemblage contribute to the			

Table 6.3 Qualifying Features				
Site	Qualifying Features			
	assemblage in numbers <1% of their GB populations or <2,000 individuals			
Traeth Lafan/Lavan Sands, Conway Bay SPA	This site qualifies under Article 4.2 of the Directive (79/409/EEC) by supporting populations of European importance of the following migratory species:			
	Over Winter:			
	 Oystercatcher, 4,931 individuals representing at least 0.5% of the Wintering Europe & Northern/Western Africa population (5 year peak mean 1991/2 - 1995/6) 			
	• Red-breasted merganser 120 individuals during Winter. No further statistics available on citation.			
	 Eurasian curlew 1,500 individuals during Winter, 1% of the population in Great Britain based on 5 year peak mean 1991/92-1995/96 			
	 Common redshank 1,200 individuals in Winter. No further statistics provided on citation. 			
	On passage:			
	 Great crested grebe 500 individuals on passage (north – western Europe Wintering population) No further statistics provided on citation. 			
Ynys Seiriol/Puffin Island SPA	This site qualifies under Article 4.2 of the Directive (79/409/EEC) by supporting populations of European importance of the following migratory species:			
	During the breeding season the area regularly supports:			
	• Cormorant (North-western Europe) 1.35% of the breeding population 5 year mean for 1996 - 2000			
Dyfi Estuary SPA	This site qualifies under Article 4.1 of the Directive (79/409/EEC) by supporting populations of European importance of the following species listed on Annex I of the Directive:			

Table 6.3 Qualifying Features		
Site	Qualifying Features	
	Overwinter:	
	Regularly supports Greenland white-fronted goose (Greenland/Ireland/UK) 1% of the GB population 5 year peak mean for 1993/94 - 1997/98	

Screening Stage 1bC

- 6.3.72 The next stage of the screening process is to consider whether a 'mechanism' for effect exists between the sources of effect from the Proposed Development and the interest features of those sites where a pathway was identified at Stage 1bB. A mechanism is identified where there would be a source of effect, an identified pathway, and a receptor present that is sensitive to the potential effects. Those interest features where the cell is highlighted blue are those where a mechanism for effects has been identified; these interest features have been taken through to Stage 2 Appropriate Assessment.
- 6.3.73 Appendix 3 (Document 5.9.2.3) provides more detail on the following designations and Appendices 9.2 to 9.15 (Documents 5.9.2.2 to 5.9.2.15) to ES Chapter 9 Ecology and Nature Conservation (Document 5.9) summarise the results of the data search and field surveys undertaken for the Proposed Development in relation to the interest features associated with the following designations (i.e. those for which a the potential for a mechanism has been considered):
 - Corsydd Môn/Anglesey Fens Ramsar;
 - Corsydd Môn/Anglesey Fens SAC;
 - Y Fenai a Bae Conwy/Menai Strait and Conwy Bay SAC;
 - Eryri/Snowdonia SAC
 - Afon Gwyrfai a Llyn Cwellyn SAC;
 - Pen Llyn a'r Sarnau/Lleyn Peninsula and the Sarnau SAC;
 - Cardigan Bay SAC;
 - North Anglesey Marine/Gogledd Môn Forol cSAC;

- West Wales Marine cSAC;
- Liverpool Bay/Bae Lerpwl SPA;
- Traeth Lafan/Lavan Sands, Conway Bay SPA;
- Ynys Seiriol/Puffin Island SPA; and
- Dyfi Estuary SPA.
- 6.3.74 The ZOIs, described in section 6.3 above, are considered to be appropriate study areas within which to assess the potential effects upon ecological receptors and have been determined in line with the approach set out in the Chartered Institute of Ecology and Environmental Management (CIEEM), Professional guidance series, Guidelines for Ecological Impacts Assessment in the UK and Ireland: Terrestrial, Freshwater and Coastal Second Edition (Ref 6.19) and as set out in ES Chapter 9 Ecology and Nature Conservation (Document 5.9).
- 6.3.75 The presence of an interest feature species outside of a Natura 2000 site does not automatically mean it is associated with a Natura 2000 site population within the ZOI. Therefore, where interest features of the Natura 2000 sites listed in Table 6.4 have been recorded within the ZOI outside of the Natura 2000 site during field surveys and data searches, professional judgement, based on known habits of these interest features, has been used to determine whether that feature is likely to be associated with the Natura 2000 site population.
- 6.3.76 The findings of Screening Stage 1bC are reported in Table 6.4 below. The long form descriptions of effects and potential pathways identified in Stage 1bB (see Table 6.2) are presented in Stage 1bC (Table 6.4) using the short form descriptions shown below:
 - Direct loss or fragmentation of habitat
 Direct loss of habitat
 - Direct loss or fragmentation of supporting habitat during construction, maintenance and decommissioning of the Proposed Development.
 Direct loss of supporting habitat
 - Disturbance/injury (noise, vibration, lighting, presence of personnel) and/or
 Temporary disturbance/injury and/or displacement

displacement of species during construction, maintenance and decommissioning

- Change in water quality through mobilisation of sediment and accidental contamination during the construction, maintenance and decommissioning of the Proposed Development.
- Temporary effects on the air quality/deposition during construction, maintenance and decommissioning of the Proposed Development.
- Introduction of invasive non-native species (INNS) and diseases during the construction, maintenance and decommissioning of the Proposed Development
- Alteration of hydrological regime (fluvial/groundwater) from construction, maintenance and decommissioning of the Proposed Development
- Release of drilling fluid during the construction of the Proposed Development (tunnel)
- Disorientation of species due to the introduction of EMFs during operation of the Proposed Development.
- Injury or fatality of interest features through collision

- Temporary change in water quality
- Temporary effects on air quality/deposition
- Introduction of INNS and diseases
- Temporary alteration of hydrological regime
- Temporary release of drilling fluid (tunnel)
- Disorientation of species from EMFs
- Collision Risk

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Table 6.4 Screening Stage 1bC - does a mechanism for effect exist between the Proposed Development and sites interest features?					
Site	Interest Feature	Pathways from Stage 1bB	Mechanism to result in a likely significant effect?	Mechanism through to Stage 1c (Yes/No)	
Corsydd Môn a Llyn/ Anglesey and	Hard oligo-mesotrophic waters with benthic	Direct loss of habitat	This interest feature is not transient beyond the boundary of the Ramsar. This interest feature is reported to be present within several parts of the Ramsar site (Ref 6.4), these are:	No	
Llyn Fens Ramsar	vegetation of Chara sp.		 Cors Erddreiniog – management units 2a, 6, 11, 11a, 13f, 16, 22 and 27; 		
			 Cors Goch – management units 1, 2, 15, 16 and 17; and 		
			 Cors Bodeilio – management units 1, 3, 4 and 5. 		
			No pathway, and no mechanism, for a likely significant effect exists for the Cors Goch and Cors Bodeilio parts of the Ramsar site due to the distance from the Proposed Development (approximately 880 m and 1.2 km respectively).		
			Field surveys, NVC and Phase 1, undertaken to support this assessment have not recorded this interest feature in proximity to the Proposed Development, however National Vegetation Classification Phase 2 (NVCP2) data ⁸ show the nearest <i>Chara</i> pool to be approximately 340 m east of Drainage Area 7. As fields surveys and desk study data have not recorded this interest feature in the Drainage Areas no pathway, and therefore no mechanism, for a likely significant effect from direct habitat loss exists.		
		Direct loss of supporting habitatTemporary disturbance/injury and/or displacement	Supporting habitat is only relevant to mobile species interest features.	No	
			Temporary disturbance/injury and/or displacement are only relevant to mobile species interest features.	No	
		Temporary change in water quality	Due to the proximity of the Proposed Development to the Ramsar site at Cors Erddreiniog, there would be a potential mechanism for likely significant effects as a result of a temporary change in	Yes	

⁸ National Vegetation Classification Phase 2 GIS dataset (NRW) Received 2017- Some of these are ongoing and are updated regularly; others are static. They are detailed, high-resolution vegetation maps resulting from field-based mapping by NRW/CCW officers or contracted mappers, using the National Vegetation Classification to provide consistent mapping categories.

Table 6.4 Screening Stage 1bC - does a mechanism for effect exist between the Proposed Development and sites interest features?					
Site	Interest Feature	Pathways from Stage 1bB	Mechanism to result in a likely significant effect?	Mechanism through to Stage 1c (Yes/No)	
			water quality (from mobilisation of sediment and accidental contamination).		
			No pathway, and therefore no mechanism, for a likely significant effect exists for the Cors Goch and Cors Bodeilio parts of the Ramsar site due to the distance from the Proposed Development (approximately 880 m and 1.2 km respectively).		
		Temporary effects on air quality/deposition	A potential mechanism for effect exists from temporary effects associated with vehicle emissions.	Yes	
			Due to the proximity of the Proposed Development to the Ramsar site at Cors Erddreiniog there would be a potential mechanism for a likely significant effect from dust deposition.		
			No pathway, and therefore no mechanism, for a likely significant effect exists for the Cors Goch and Cors Bodeilio parts of the Ramsar site due to the distance from the Proposed Development (approximately 880 m and 1.2 km respectively).		
		Introduction of INNS and diseases	Due to the proximity of the Proposed Development to the Ramsar site at Cors Erddreiniog there would be a potential mechanism for a likely significant effect from the introduction of INNS and diseases.	Yes	
			No pathway, and therefore no mechanism, for a likely significant effect exists for the Cors Goch and Cors Bodeilio parts of the Ramsar site due to the distance from the Proposed Development (approximately 880 m and 1.2 km respectively).		
		Temporary alteration of hydrological regime	Due to the proximity of the Proposed Development to the Ramsar site at Cors Erddreiniog there would be a potential mechanism for a likely significant effect for the temporary alteration in the fluvial/ hydrogeological regime (due to the proximity of pylon 4AP051).	Yes	
			No pathway, and therefore no mechanism, for a likely significant effect exists for the Cors Goch and Cors Bodeilio parts of the Ramsar site due to the distance from the Proposed Development (approximately 880 m and 1.2 km respectively).		

Table 6.4 Screening Stage 1bC - does a mechanism for effect exist between the Proposed Development and sites interest features?				
Site	Interest Feature	Pathways from Stage 1bB	Mechanism to result in a likely significant effect?	Mechanism through to Stage 1c (Yes/No)
	Northern Atlantic wet heaths with <i>Erica</i>	Direct loss of habitat	This interest feature is not transient beyond the boundary of the Ramsar. This interest feature is reported to be present within several parts of the Ramsar site (Ref 6.4), these are:	No
	tetralix		 Cors Erddreiniog – management units 2, 2a, 3, 6, 6a, 13a, 16, 17, 20 21, 22, 27b, 28 and 29; and 	
			 Cors Goch – management units 1, 2, 4, 5, 6, 7, 8, 12, 13 and 14. 	
			No pathway, and no mechanism, for a likely significant effect exists for the Cors Goch part of the Ramsar site, due to the distance from the Proposed Development (approximately 880 m).	
			Field surveys, NVC and Phase 1, undertaken to support this assessment have not recorded this interest feature (associated with NVC habitat codes H5, M14, M15 and M16) in proximity to the Proposed Development, however the NVCP2 data shows the nearest area of this interest feature approximately 99 m east of Drainage Area 5 within management areas 6 and 6a. As fields surveys and desk study data have not recorded this interest feature in the Drainage Areas no pathway, and therefore no mechanism, for a likely significant effect from direct habitat loss exists.	
		Direct loss of supporting habitat	Supporting habitat is only relevant to mobile species interest features.	No
		Temporary disturbance/injury and/or displacement	Temporary disturbance/injury and/or displacement are only relevant to mobile species interest features.	No
		Temporary change in water quality	Due to the proximity of the Proposed Development to the Ramsar site at Cors Erddreiniog, there would be a potential mechanism for likely significant effects as a result of a temporary change in water quality (from mobilisation of sediment and accidental contamination).	Yes
			No pathway, and therefore no mechanism, for a likely significant effect exists for the Cors Goch part of the Ramsar site, due to the distance from the Proposed Development (approximately 880 m).	

Table 6.4 Screening Stage 1bC - does a mechanism for effect exist between the Proposed Development and sites interest features?				
Site	Interest Feature	Pathways from Stage 1bB	Mechanism to result in a likely significant effect?	Mechanism through to Stage 1c (Yes/No)
		Temporary effects on air quality/deposition	A potential mechanism for effect exists from temporary effects associated with vehicle emissions.	Yes
			Due to the proximity of the Proposed Development to the Ramsar site at Cors Erddreiniog there would be a potential mechanism for a likely significant effect from dust deposition.	
			No pathway, and therefore no mechanism, for a likely significant effect exists for the Cors Goch part of the Ramsar site, due to the distance from the Proposed Development (approximately 880 m).	
		Introduction of INNS and diseases	Due to the proximity of the Proposed Development to the Ramsar site at Cors Erddreiniog there would be a potential mechanism for a likely significant effect from the introduction of INNS and diseases.	Yes
			No pathway, and therefore no mechanism, for a likely significant effect exists for the Cors Goch part of the Ramsar site, due to the distance from the Proposed Development (approximately 880 m).	
		Temporary alteration of hydrological regime	Due to the proximity of the Proposed Development to the Ramsar site at Cors Erddreiniog there would be a potential mechanism for a likely significant effect for the temporary alteration in the fluvial/ hydrogeological regime (due to the proximity of 4AP051).	Yes
			No pathway, and therefore no mechanism, for a likely significant effect exists for the Cors Goch part of the Ramsar site, due to the distance from the Proposed Development (approximately 880 m).	
	Molinia meadows on calcareous, peaty or	Direct loss of habitat	This interest feature is not transient beyond the boundary of the Ramsar. This interest feature is reported to be present within several parts of the Ramsar site (Ref 6.4), these are:	No
	clayey— silt-laden soils		 Cors Erddreiniog – management units 2, 2a, 3, 4, 5, 6, 6a, 7, 11, 13a, 13b, 13c, 16, 17, 20, 21, 22, 26, 27, 27b, 28, 29 and 30; 	

Table 6.4 Screenin	Table 6.4 Screening Stage 1bC - does a mechanism for effect exist between the Proposed Development and sites interest features?				
Site	Interest Feature	Pathways from Stage 1bB	Mechanism to result in a likely significant effect?	Mechanism through to Stage 1c (Yes/No)	
			 Cors Goch – management units 1, 2, 5, 6, 7, 8, 10, 11, 12, 13, 14 and 17; and Cors Bodeilio – management units 1, 2, 3, 4, 5, 6, 7 and 8. No pathway, and no mechanism, for a likely significant effect exists for the Cors Goch and Cors Bodeilio parts of the Ramsar site due to the distance from the Proposed Development (approximately 880 m and 1.2 km respectively) 		
			NVCP2 data show the nearest area of this interest feature, approximately 14 m east of Drainage Area 6 within management area 26. In addition, NVC surveys undertaken to support this assessment identified this interest feature (associated with NVC habitat M24) within Cors Erddreiniog management unit 6 (relevé locations 49 and 59, 33.9 m and 203.5 m east respectively). As fields surveys and desk study data have not recorded this interest feature in the Drainage Areas no pathway, and therefore no mechanism, for a likely significant effect from direct habitat loss exists.		
		Direct loss of supporting habitat	Supporting habitat is only relevant to mobile species interest features.	No	
		Temporary disturbance/injury and/or displacement	Temporary disturbance/injury and/or displacement are only relevant to mobile species interest features.	No	
		Temporary change in water quality	Due to the proximity of the Proposed Development to the Ramsar site at Cors Erddreiniog, there would be a potential mechanism for likely significant effects as a result of a temporary change in water quality (from mobilisation of sediment and accidental contamination).	Yes	
			No pathway, and therefore no mechanism, for effect a likely significant effect exists for the Cors Goch and Cors Bodeilio parts of the Ramsar site due to the distance from the Proposed Development (approximately 880 m and 1.2 km respectively).		
		Temporary effects on air quality/deposition	A potential mechanism for effect exists from temporary effects associated with vehicle emissions. Due to the proximity of the Proposed Development to the Ramsar site at Cors Erddreiniog there	Yes	

Table 6.4 Scree	Table 6.4 Screening Stage 1bC - does a mechanism for effect exist between the Proposed Development and sites interest features?				
Site	Interest Feature	Pathways from Stage 1bB	Mechanism to result in a likely significant effect?	Mechanism through to Stage 1c (Yes/No)	
			would be a potential mechanism for a likely significant effect from dust deposition. No pathway, and therefore no mechanism, for effect a likely significant effect exists for the Cors Goch and Cors Bodeilio parts of the Ramsar site due to the distance from the Proposed Development (approximately 880 m and 1.2 km respectively).		
		Introduction of INNS and diseases	Due to the proximity of the Proposed Development to the Ramsar site at Cors Erddreiniog there would be a potential mechanism for a likely significant effect from the introduction of INNS and diseases.	Yes	
			No pathway, and therefore no mechanism, for effect a likely significant effect exists for the Cors Goch and Cors Bodeilio parts of the Ramsar site due to the distance from the Proposed Development (approximately 880 m and 1.2 km respectively).		
		Temporary alteration of hydrological regime	Due to the proximity of the Proposed Development to the Ramsar site at Cors Erddreiniog there would be a potential mechanism for a likely significant effect for the temporary alteration in the fluvial/ hydrogeological regime (due to the proximity of 4AP051).	Yes	
			No pathway, and therefore no mechanism, for effect a likely significant effect exists for the Cors Goch and Cors Bodeilio parts of the Ramsar site due to the distance from the Proposed Development (approximately 880 m and 1.2 km respectively).		
	Calcareous fens with <i>Cladium mariscus</i> and	Direct loss of habitat	This interest feature is not transient beyond the boundary of the Ramsar. This interest feature is reported to be present within several parts of the Ramsar site (Ref 6.4), these are:	No	
	species of the <i>Caricion</i> davallinae		 Cors Erddreiniog – management units 4, 5, 6, 7, 11, 11a, 13b, 16, 20, 21, 22, 26, 27, 27b, 28, 29 and 30; 		
			 Cors Goch – management units 1, 2, 3, 8, 15 and 17; 		
			 Cors Bodeilio – management units 1, 2, 3, 4, 5, 6, 7 and 8; and 		
			 Cors y Farl – management unit 1. 		

Table 6.4 Screenin	Table 6.4 Screening Stage 1bC - does a mechanism for effect exist between the Proposed Development and sites interest features?				
Site	Interest Feature	Pathways from Stage 1bB	Mechanism to result in a likely significant effect?	Mechanism through to Stage 1c (Yes/No)	
			No pathway, and no mechanism, for a likely significant effect exists for the Cors y Farl, Cors Goch and Cors Bodeilio parts of the Ramsar site due to the distance from the Proposed Development (approximately 365 m, 880 m and 1.2 km respectively).		
			NVCP2 data shows the nearest area of this interest feature approximately 14 m east of Drainage Area 6 within management area 26. NVC surveys undertaken to support this assessment identified this interest feature (associated with NVC habitats M9 and M24) within Cors Erddreiniog management unit 26 (relevé location 57, 112.2 m east) and Cors Erddreiniog management unit 6 (relevé locations 49 and 59, 33.9 m and 203.5 m east respectively). As fields surveys and desk study data have not recorded this interest feature in the Drainage Areas no pathway, and therefore no mechanism, for a likely significant effect from direct habitat loss exists.		
		Direct loss of supporting habitat	Supporting habitat is only relevant to mobile species interest features.	No	
		Temporary disturbance/injury and/or displacement	Temporary disturbance/injury and/or displacement are only relevant to mobile species interest features.	No	
		Temporary change in water quality	Due to the proximity of the Proposed Development to the Ramsar site at Cors Erddreiniog, there would be a potential mechanism for likely significant effects as a result of a temporary change in water quality (from mobilisation of sediment and accidental contamination).	Yes	
			No pathway, and therefore no mechanism, for a likely significant effect exists for the Cors Bodeilio parts of the Ramsar site due to the distance from the Proposed Development (approximately 880 m and 1.2 km respectively).		
			No pathway, and therefore no mechanism, for a likely significant effect exists for the Cors y Farl part of the Ramsar site as it is upstream of the Proposed Development and approximately 365 m from the Order Limits.		

Table 6.4 Screening Stage 1bC - does a mechanism for effect exist between the Proposed Development and sites interest features?				
Site	Interest Feature	Pathways from Stage 1bB	Mechanism to result in a likely significant effect?	Mechanism through to Stage 1c (Yes/No)
		Temporary effects on air quality/deposition	A potential mechanism for effect exists from temporary effects associated with vehicle emissions.	Yes
			Due to the proximity of the Proposed Development to the Ramsar site at Cors Erddreiniog there would be a potential mechanism for a likely significant effect from dust deposition.	
			No pathway, and no mechanism, for a likely significant effect exists for the Cors y Farl, Cors Goch and Cors Bodeilio parts of the Ramsar site due to the distance from the Proposed Development (approximately 365 m, 880 m and 1.2 km respectively).	
		Introduction of INNS and diseases	Due to the proximity of the Proposed Development to the Ramsar site at Cors Erddreiniog there would be a potential mechanism for a likely significant effect from the introduction of INNS and diseases.	Yes
			No pathway, and therefore no mechanism, for a likely significant effect exists for the Cors y Farl, Cors Goch and Cors Bodeilio parts of the Ramsar site due to the distance from the Proposed Development (approximately 365 m, 880 m and 1.2 km respectively).	
		Temporary alteration of hydrological regime	Due to the proximity of the Proposed Development to the Ramsar site at Cors Erddreiniog there would be a potential mechanism for a likely significant effect for the temporary alteration in the fluvial/ hydrogeological regime (due to the proximity of 4AP051).	Yes
			No pathway, and therefore no mechanism, for a likely significant effect exists for the Cors Bodeilio parts of the Ramsar site due to the distance from the Proposed Development (approximately 880 m and 1.2 km respectively).	
			No pathway, and therefore no mechanism, for a likely significant effect exists for the Cors y Farl part of the Ramsar site as it is upstream of the Proposed Development and approximately 365 m from the Order Limits.	
	Alkaline fens	Direct loss of habitat	This interest feature is not transient beyond the boundary of the Ramsar. This interest feature is	No

Table 6.4 Screening Stage 1bC - does a mechanism for effect exist between the Proposed Development and sites interest features?				
Site	Interest Feature	Pathways from Stage 1bB	Mechanism to result in a likely significant effect?	Mechanism through to Stage 1c (Yes/No)
			reported to be present within several parts of the Ramsar site (Ref 6.4), these are:	
			 Cors Erddreiniog – management units 2a, 3, 5, 6, 6a, 7, 11, 13a, 13b, 13c, 16, 17, 20, 21, 22, 26, 27b, 28, 29 and 30; 	
			 Cors Goch – management units 1, 2, 3, 5, 7, 8, 11, 12, 13 and 17; 	
			 Cors Bodeilio – management units 1, 3, 4, 5, 6, 7 and 8; and 	
			Cors y Farl – management unit 1.	
			No pathway, and no mechanism, for a likely significant effect exists for the Cors y Farl, Cors Goch and Cors Bodeilio as these parts of the Ramsar site due to the distance from the Proposed Development (approximately 365 m, 880 m and 1.2 km respectively).	
			NVCP2 data shows the nearest area of this interest feature approximately 50 m east of Drainage Area 4 within management area 22. NVC surveys undertaken to support this assessment identified this interest feature (associated with NVC habitat M9) within Cors Erddreiniog management unit 26 (relevé location 57, 112.2 m east). As fields surveys and desk study data have not recorded this interest feature in the Drainage Areas no pathway, and therefore no mechanism, for a likely significant effect from direct habitat loss exists.	
		Direct loss of supporting habitat	Supporting habitat is only relevant to mobile species interest features.	No
		Temporary disturbance/injury and/or displacement	Temporary disturbance/injury and/or displacement are only relevant to mobile species interest features.	No
		Temporary change in water quality	Due to the proximity of the Proposed Development to the Ramsar site at Cors Erddreiniog, there would be a potential mechanism for likely significant effects as a result of a temporary change in water quality (from mobilisation of sediment and accidental contamination). No pathway, and therefore no mechanism, for a likely significant effect exists for the Cors Bodeilio parts of the Ramsar site due to the distance from the Proposed Development	Yes

Table 6.4 Scre	Table 6.4 Screening Stage 1bC - does a mechanism for effect exist between the Proposed Development and sites interest features?				
Site	Interest Feature	Pathways from Stage 1bB	Mechanism to result in a likely significant effect?	Mechanism through to Stage 1c (Yes/No)	
			(approximately 880 m and 1.2 km respectively).		
			No pathway, and no mechanism, for a likely significant effect exists for the Cors y Farl part of the Ramsar site as it is upstream of the Proposed Development and approximately 365 m from the Order Limits.		
		Temporary effects on air quality/deposition	A potential mechanism for effect exists from temporary effects associated with vehicle emissions.	Yes	
			Due to the proximity of the Proposed Development to the Ramsar site at Cors Erddreiniog there would be a potential mechanism for a likely significant effect from dust deposition.		
			No pathway, and therefore no mechanism, for a likely significant effect exists for the Cors y Farl, Cors Goch and Cors Bodeilio parts of the Ramsar site due to the distance from the Proposed Development (approximately 365 m, 880 m and 1.2 km respectively).		
		Temporary introduction of INNS and diseases	Due to the proximity of the Proposed Development to the Ramsar site at Cors Erddreiniog there would be a potential mechanism for a likely significant effect from the introduction of INNS and diseases.	Yes	
			No pathway, and therefore no mechanism, for a likely significant effect exists for the Cors y Farl, Cors Goch and Cors Bodeilio parts of the Ramsar site due to the distance from the Proposed Development (approximately 365 m, 880 m and 1.2 km respectively).		
		Temporary alteration of hydrological regime	Due to the proximity of the Proposed Development to the Ramsar site at Cors Erddreiniog there would be a potential mechanism for a likely significant effect for the temporary alteration in the fluvial/ hydrogeological regime (due to the proximity of 4AP051).	Yes	
			No pathway, and therefore no mechanism, for a likely significant effect exists for the Cors Bodeilio parts of the Ramsar site due to the distance from the Proposed Development (approximately 880 m and 1.2 km respectively).		

Table 6.4 Screening Stage 1bC - does a mechanism for effect exist between the Proposed Development and sites interest features?					
Site	Interest Feature	Pathways from Stage 1bB	Mechanism to result in a likely significant effect?	Mechanism through to Stage 1c (Yes/No)	
			No pathway, and therefore no mechanism, for a likely significant effect exists for the Cors y Farl part of the Ramsar site as it is upstream of the Proposed Development and approximately 365 m from the Order Limits.		
	Geyer's Whorl Snail	Direct loss of habitat	Not directly applicable as the interest feature is a species, refer to supporting habitat.	No	
		Direct loss of supporting habitat	This interest feature is reported to be present within Cors Erddreiniog, management units 6, 6a, 7, 11, 13a, 13b, 13c, 16, 20, 21, 22 and 28, of the Ramsar site (Ref 6.4). However the results of the macroinvertebrate, surveys undertaken on watercourse W056-84 (Afon Erddreiniog within management units 3, 5 and 6) at crossing point NG-DRX C/164 do not record the presence of Geyer's Whorl Snail. In addition Cofnod data searches identify no Geyer's Whorl Snail records within the ZOIs over the last 10 years. There would be no pathway, and no mechanism, for a likely significant effect from direct loss of supporting habitat.	No	
		Temporary disturbance/injury and/or displacement	As this species is absent from the area subject to temporary disturbance there is no pathway, and no mechanism, for temporary disturbance and/or displacement.	No	
		Temporary change in water quality	Due to the proximity of the Proposed Development to the Ramsar at Cors Erddreiniog, there would be a potential mechanism for likely significant effects as a result of a temporary change in water quality (from mobilisation of sediment and accidental contamination).	Yes	
		Temporary effects on air quality/deposition	A potential mechanism for effect exists from temporary effects associated with vehicle emissions.	Yes	
			Due to the proximity of the Proposed Development to the Ramsar at Cors Erddreiniog, there would be a potential mechanism for likely significant effects as a result of temporary effects from dust deposition.		
		Introduction of INNS and diseases	Due to the proximity of the Proposed Development to the Ramsar at Cors Erddreiniog, there would be a potential mechanism for likely significant effects as a result of introduction of INNS	Yes	

Table 6.4 Screenin	Table 6.4 Screening Stage 1bC - does a mechanism for effect exist between the Proposed Development and sites interest features?				
Site	Interest Feature	Pathways from Stage 1bB	Mechanism to result in a likely significant effect?	Mechanism through to Stage 1c (Yes/No)	
			and diseases.		
		Temporary alteration of hydrological regime	Due to the proximity of the Proposed Development to the Ramsar at Cors Erddreiniog, there would be a potential mechanism for likely significant effects as a result of the temporary alteration in the fluvial/ hydrogeological regime (due to the proximity of 4AP051).	Yes	
	Southern damselflyDirect loss of habitatThis interest fer these are: • Cors Erddu • Cors Goch • Cors Goch • Data searches Erddreiniog of 2011 (see table however, none transect survey	Direct loss of habitat	This interest feature is reported to be present within several parts of the Ramsar site (Ref 6.4),	No	
		these are:	No		
		Temporary disturbance/injury and/or displacement	 Cors Erddreiniog – management units 7, 11, 13a, 13b, 13c, 13c, 13b, 13c, 13c, 13c, 13c, 13c, 13c, 13c, 13c	No	
		Temporary change in water quality		No	
		Temporary effects on air quality/deposition		No	
		Introduction of INNS and diseases	No pathway, and no mechanism, for a likely significant effect exists for the Cors Goch part of the Ramsar site due to the distance from the Proposed Development (approximately 880 m).	No	
		Temporary alteration of hydrological regime	No pathway, and therefore no mechanism, for a likely significant effect exists for the Cors Erddreiniog part of the Ramsar site as the Proposed Development does not overlap with any of the management units identified within Cors Erddreiniog for this interest feature and as fields surveys and desk study data have not recorded this interest feature in the Drainage Areas.	No	
	Marsh fritillary butterfly	Direct loss of habitat	Not directly applicable as the interest feature is a species, refer to supporting habitat.	No	
		Direct loss of supporting habitat	This interest feature is reported to be present within several parts of the Ramsar site (Ref 6.4), these are:	No	
			• Cors Erddreiniog – management units 3, 4, 5, 6, 6a, 7, 11, 13a, 13b, 16, 17, 20, 21, 22, 26,		

Table 6.4 Screening Stage 1bC - does a mechanism for effect exist between the Proposed Development and sites interest features?				
Site	Interest Feature	Pathways from Stage 1bB	Mechanism to result in a likely significant effect?	Mechanism through to Stage 1c (Yes/No)
			27, 27b, 28, 29, and 30;	
			 Cors Goch – management units 1, 2, 5, 6, 7, 8, 12, 13, 14 and 17; 	
			 Cors Bodeilio – management units 1, 2, 3, 4, 5, 6, 7 and 8; and 	
			Cors y Farl – management unit 1.	
			No pathway, and no mechanism, for a likely significant effect exists for the Cors y Farl, Cors Goch and Cors Bodeilio parts of the Ramsar site due to the distance from the Proposed Development (approximately 365 m, 880 m and 1.2 km respectively).	
			Data searches identified historical records of this interest feature at locations within Cors Erddreiniog of approximately 195 m, 210 m and 710 m east of the Order Limits between 2007 and 2016, see ES Appendix 9.14 Terrestrial Invertebrates Report (Document 5.9.2.14). These are located in units 3, 5 and 7. None have been identified during terrestrial invertebrate transect surveys undertaken to support this assessment.	
			As no records of this interest feature were identified during surveys undertaken to support this assessment, the low sensitivity of terrestrial invertebrates to temporary loss of suitable habitat, the majority of potentially affected habitats are of low quality for terrestrial invertebrates and as the Proposed Development would require a relatively small area of supporting habitat in comparison to the availability of similar habitat which is prevalent in the wider locality. A potential mechanism for a likely significant effect upon this interest feature as part of this Ramsar site does not exist.	
		Temporary disturbance/injury and/or displacement	As this species is absent from the area subject to temporary disturbance there is no pathway, and no mechanism, for temporary disturbance and/or displacement.	No
		Temporary change in water quality	Due to the proximity of the Proposed Development to the Ramsar site at Cors Erddreiniog, there would be a potential mechanism for likely significant effects as a result of a temporary change in water quality (from mobilisation of sediment and accidental contamination).	Yes

Table 6.4 Screenin	Table 6.4 Screening Stage 1bC - does a mechanism for effect exist between the Proposed Development and sites interest features?					
Site	Interest Feature	Pathways from Stage 1bB	Mechanism to result in a likely significant effect?	Mechanism through to Stage 1c (Yes/No)		
			No pathway, and no mechanism, for a likely significant effect exists for the Cors Goch and Cors Bodeilio parts of the Ramsar site due to the distance from the Proposed Development (approximately 880 m and 1.2 km respectively).			
			No pathway, and no mechanism, for a likely significant effect exists for the Cors y Farl part of the Ramsar site as it is upstream of the Proposed Development and approximately 365 m from the Order Limits.			
		Temporary effects on air quality/deposition	A potential mechanism for effect exists from temporary effects associated with vehicle emissions.	Yes		
			Due to the proximity of the Proposed Development to the Ramsar at Cors Erddreiniog, there would be a potential mechanism for likely significant effects as a result of temporary effects from dust deposition.			
			No pathway, and no mechanism, for a likely significant effect exists for the Cors y Farl, Cors Goch and Cors Bodeilio parts of the Ramsar site due to the distance from the Proposed Development (approximately 365 m, 880 m and 1.2 km respectively).			
		Introduction of INNS and diseases	Due to the proximity of the Proposed Development to the Ramsar at Cors Erddreiniog, there would be a potential mechanism for likely significant effects as a result of introduction of INNS and diseases.	Yes		
			No pathway, and no mechanism, for a likely significant effect exists for the Cors y Farl, Cors Goch and Cors Bodeilio parts of the Ramsar site due to the distance from the Proposed Development (approximately 365 m, 880 m and 1.2 km respectively).			
		Temporary alteration of hydrological regime	Due to the proximity of the Proposed Development to the Ramsar site at Cors Erddreiniog there would be a potential mechanism for a likely significant effect for the temporary alteration in the fluvial/ hydrogeological regime (due to the proximity of pylon 4AP051).	Yes		
			No pathway, and no mechanism, for a likely significant effect exists for the Cors Goch and Cors			

Table 6.4 Screening Stage 1bC - does a mechanism for effect exist between the Proposed Development and sites interest features?				
Site	Interest Feature	Pathways from Stage 1bB	Mechanism to result in a likely significant effect?	Mechanism through to Stage 1c (Yes/No)
			Bodeilio parts of the Ramsar site due to the distance from the Proposed Development (approximately 880 m and 1.2 km respectively).	
			No pathway, and no mechanism, for a likely significant effect exists for the Cors y Farl part of the Ramsar site as it is upstream of the Proposed Development and approximately 365 m from the Order Limits.	
	Narrow-leaved Marsh- orchid	Direct loss of habitat	This species is listed under Ramsar criterion 3 as diverse flora for the Ramsar site (Ref 6.20), is not transient beyond the boundary of the Ramsar and is part of the vascular plant assemblage. This interest feature is reported to be present within Cors Erddreiniog, management units 6a, 7, 11, 11a, 12, 13a, 13b, 13c, 13f, 16, 17, 20, 21, 22, 27, 27b, 28, 29, and 30, as part of the vascular plant assemblage (Ref 6.4).	No
			NVCP2 data show the nearest potential area of this interest feature (associated with NVC code M13) approximately 50 m east of Drainage Area 4 within management area 22. However field surveys, NVC and Phase 1, undertaken to support this assessment have not identified this interest feature (associated with NVC habitat M13). As fields surveys and desk study data have not recorded this interest feature in the Drainage Areas no pathway, and therefore no mechanism, for a likely significant effect from direct habitat loss exists.	
		Direct loss of supporting habitat	Supporting habitat is only relevant to mobile species interest features.	No
		Temporary disturbance/injury and/or displacement	Temporary disturbance/injury and/or displacement are only relevant to mobile species interest features.	No
		Temporary change in water quality	Due to the proximity of the Proposed Development to the Ramsar at Cors Erddreiniog, there would be a potential mechanism for likely significant effects as a result of a temporary change in water quality (from mobilisation of sediment and accidental contamination).	Yes
		Temporary effects on air	A potential mechanism for effect exists from temporary effects associated with vehicle	Yes

Table 6.4 Screening Stage 1bC - does a mechanism for effect exist between the Proposed Development and sites interest features?					
Site	Interest Feature	Pathways from Stage 1bB	Mechanism to result in a likely significant effect?	Mechanism through to Stage 1c (Yes/No)	
		quality/deposition	emissions.		
			Due to the proximity of the Proposed Development to the Ramsar at Cors Erddreiniog, there would be a potential mechanism for likely significant effects as a result of temporary effects from dust deposition.		
		Introduction of INNS and diseases	Due to the proximity of the Proposed Development to the Ramsar at Cors Erddreiniog, there would be a potential mechanism for likely significant effects as a result of introduction of INNS and diseases.	Yes	
		Temporary alteration of hydrological regime	Due to the proximity of the Proposed Development to the Ramsar at Cors Erddreiniog, there would be a potential mechanism for likely significant effects as a result of the temporary alteration in the fluvial/ hydrogeological regime (due to the proximity of pylon 4AP051).	Yes	
	Slender cottongrass	Direct loss of habitat	There would be no pathway, and no mechanism, to have a likely significant effect on this	No	
		Direct loss of supporting habitat	interest feature as it is associated with the inland Llyn Fens (Corsydd Llyn) Ramsar site, located approximately 37.9 km south-west of the Order Limits.	No	
		Temporary disturbance/injury and/or displacement		No	
		Temporary change in water quality		No	
		Temporary effects on air quality/deposition		No	
		Introduction of INNS and diseases		No	
		Temporary alteration of		No	

Table 6.4 Screening Stage 1bC - does a mechanism for effect exist between the Proposed Development and sites interest features?				
Site	Interest Feature	Pathways from Stage 1bB	Mechanism to result in a likely significant effect?	Mechanism through to Stage 1c (Yes/No)
		hydrological regime		
	Compact stonewort	Direct loss of habitat	This species is listed under Ramsar criterion 3 as diverse flora for the Ramsar site (Ref 6.4) and is not transient beyond the boundary of the Ramsar. Field surveys, NVC and Phase 1, undertaken to support this assessment have not identified any this species however, this species is reported to be present within several parts of the Ramsar site (Ref 6.4), these are: • Cors Erddreiniog – management units 5, 6, 11, 11a, 16 and 22; • Cors Goch – management units 1, 2, 3, 15, 16 and 17; and • Cors Bodeilio – management units 1, 2, 3, 4, 5, 6, 7 and 8. No pathway, and no mechanism, for effect exists for the Cors Goch and Cors Bodeilio parts of the Ramsar site due to the distance from the Proposed Development (approximately 880 m and 1.2 km respectively). As fields surveys and desk study data have not recorded this interest feature in the Drainage Areas no pathway, and therefore no mechanism, for a likely significant effect from direct habitat loss exists.	No
		Direct loss of supporting habitat	Supporting habitat is only relevant to mobile species interest features.	No
		Temporary disturbance/injury and/or displacement	Temporary disturbance/injury and/or displacement are only relevant to mobile species interest features.	No
		Temporary change in water quality	Due to the proximity of the Proposed Development to the Ramsar at Cors Erddreiniog, there would be a potential mechanism for likely significant effects as a result of a temporary change in water quality (from mobilisation of sediment and accidental contamination). No pathway, and no mechanism, for effect exists for the Cors Goch and Cors Bodeilio parts of the Ramsar site due to the distance from the Proposed Development (approximately 880 m and 1.2 km respectively).	Yes

Table 6.4 Screening Stage 1bC - does a mechanism for effect exist between the Proposed Development and sites interest features?					
Site	Interest Feature	Pathways from Stage 1bB	Mechanism to result in a likely significant effect?	Mechanism through to Stage 1c (Yes/No)	
		Temporary effects on air quality/deposition	A potential mechanism for effect exists from temporary effects associated with vehicle emissions.	Yes	
			No pathway, and no mechanism, for effect exists for the Cors Goch and Cors Bodeilio parts of the Ramsar site due to the distance from the Proposed Development (approximately 880 m and 1.2 km respectively).		
			Due to the proximity of the Proposed Development to the Ramsar at Cors Erddreiniog, there would be a potential mechanism for likely significant effects as a result of temporary effects from dust deposition.		
		Introduction of INNS and diseases	Due to the proximity of the Proposed Development to the Ramsar at Cors Erddreiniog, there would be a potential mechanism for likely significant effects as a result of introduction of INNS and diseases.	Yes	
			No pathway, and therefore no mechanism, for effect exists for the Cors Goch and Cors Bodeilio parts of the Ramsar site due to the distance from the Proposed Development (approximately 880 m and 1.2 km respectively).		
		Temporary alteration of hydrological regime	Due to the proximity of the Proposed Development to the Ramsar at Cors Erddreiniog, there would be a potential mechanism for likely significant effects as a result of the temporary alteration in the fluvial/ hydrogeological regime (due to the proximity of 4AP051).	Yes	
			No pathway, and therefore no mechanism, for effect exists for the Cors Goch and Cors Bodeilio parts of the Ramsar site due to the distance from the Proposed Development (approximately 880 m and 1.2 km respectively).		
	Desmoulin's whorl snail	Direct loss of habitat	There would be no pathway, and no mechanism, to have a likely significant effect on this interest feature as it is associated with the inland Llyn Fens (Corsydd Llyn) Ramsar site, located approximately 37.9 km south-west of the Order Limits.	No	
		Direct loss of supporting habitat		No	
		Temporary disturbance/injury		No	

Table 6.4 Screening Stage 1bC - does a mechanism for effect exist between the Proposed Development and sites interest features?					
Site	Interest Feature	Pathways from Stage 1bB	Mechanism to result in a likely significant effect?	Mechanism through to Stage 1c (Yes/No)	
		and/or displacement			
		Temporary change in water quality		No	
		Temporary effects on air quality/deposition		No	
	Introduction of INNS and diseases Temporary alteration of hydrological regime		No		
		Temporary alteration of hydrological regime		No	
	Ground beetle Direct loss of habitat There would be no pathway, and no mechanism, to have a likely significant interest feature as it is associated with the inland Llyn Fens (Corsydd Llyn) Fens (Corsydd Ll	Direct loss of habitat	There would be no pathway, and no mechanism, to have a likely significant effect on this	No	
		interest feature as it is associated with the inland Llyn Fens (Corsydd Llyn) Ramsar site, located approximately 37.9 km south-west of the Order Limits.	No		
		Temporary disturbance and/or displacement		No	
	Temporary change in water quality Temporary effects on air quality/deposition Introduction of INNS and diseases Temporary alteration of hydrological regime		No		
		Temporary effects on air quality/deposition		No	
		Introduction of INNS and diseases		No	
		Temporary alteration of hydrological regime		No	

Table 6.4 Screening Stage 1bC - does a mechanism for effect exist between the Proposed Development and sites interest features?					
Site	Interest Feature	Pathways from Stage 1bB	Mechanism to result in a likely significant effect?	Mechanism through to Stage 1c (Yes/No)	
Horn	Hornet robber fly	Direct loss of habitat	There would be no pathway, and no mechanism, to have a likely significant effect on this interest feature as it is associated with the inland Llyn Fens (Corsydd Llyn) Ramsar site, located approximately 37.9 km south-west of the Order Limits.	No	
		Direct loss of supporting habitat		No	
		Temporary disturbance/injury and/or displacement		No	
		Temporary change in water quality		No	
		Temporary effects on air quality/deposition		No	
		Introduction of INNS and diseases		No	
		Temporary alteration of hydrological regime		No	
	Soldier fly	Direct loss of habitat	This species is listed under Ramsar criterion 3 as diverse fauna for the Ramsar site (Ref 6.20)	No	
	Direct lo Tempora and/or d Tempora quality Tempora quality/d	Direct loss of supporting habitat	and is reported to be present within Cors Erddreiniog management units 7, 11, 13a, 13c, 16, 17, 20, 22, 28 and 29, of the Ramsar site (Ref 6.4). This interest feature has not been identified during macroinvertebrate and terrestrial invertebrate transect, surveys undertaken to support this assessment or in data searches. As fields surveys and desk study data have not recorded this interest feature in the Drainage Areas, and it is not reported to be present in the management units in closest proximity to the Proposed Development no pathway, and therefore no mechanism, for likely significant effects exists.	No	
		Temporary disturbance/injury and/or displacement		No	
		Temporary change in water quality		No	
		Temporary effects on air quality/deposition		No	

Table 6.4 Screening Stage 1bC - does a mechanism for effect exist between the Proposed Development and sites interest features?					
Site	Interest Feature	Pathways from Stage 1bB	Mechanism to result in a likely significant effect?	Mechanism through to Stage 1c (Yes/No)	
		Introduction of INNS and diseases		No	
		Temporary alteration of hydrological regime		No	
	Parasitic fly	Direct loss of habitat	This species is listed under Ramsar criterion 3 as diverse fauna for the Ramsar site (Ref 6.20).	No	
		Direct loss of supporting habitat	This interest feature is not identified within the conservation management plan of the Ramsar site (Ref 6.4) and historical records of parasitic fly are not found within the last 10 years. As fields surveys and desk study data have not recorded this interest feature in the Drainage Areas, and it is not reported to be present in the conservation management plan no pathway, and therefore no mechanism, for likely significant effects exists.	No	
		Temporary disturbance/injury and/or displacement		No	
		Temporary change in water quality		No	
		Temporary effects on air quality/deposition		No	
		Introduction of INNS and diseases	No		
		Temporary alteration of hydrological regime		No	
	Medicinal leech	Direct loss of habitat	This interest feature is found within the Cors Goch SSSI and Cord Bodeilio and Rhos y Gad	No	
		Direct loss of supporting habitat	SSSI of the Ramsar site, approximately 880 m at its nearest location to the Proposed Development. This interest feature is not transient beyond the boundary of these SSSIs and therefore no pathway, and therefore no mechanism, for a likely significant effect exists for all the identified effects.	No	
		Temporary disturbance/injury and/or displacement		No	

Table 6.4 Screening Stage 1bC - does a mechanism for effect exist between the Proposed Development and sites interest features?					
Site	Interest Feature	Pathways from Stage 1bB	Mechanism to result in a likely significant effect?	Mechanism through to Stage 1c (Yes/No)	
		Temporary change in water quality		No	
		Temporary effects on air quality/deposition		No	
		Introduction of INNS and diseases		No	
		Temporary alteration of hydrological regime		No	
	Otter	Direct loss of habitat	Not directly applicable as the interest feature is a species, refer to supporting habitat.	No	
		Direct loss of supporting habitat	Otters are transient and often occupy extensive territories with Green et al (1984) (Ref 6.21) reporting that for male otters this could include up to 30 to 40 km of watercourses (Ref 6.21) in which they move from one lying up place or holt to another to exploit available food sources when they are present in sufficient biomass for hunting to be efficient.	No	
			Otters are listed under Ramsar criterion 3 for the Ramsar site and are reported to be present within Cors Erddreiniog management unit 22 (Ref 6.4) and data searches. Data searches (see ES Appendix 9.8 – Otter and Water Vole Report Document 5.9.2.8) show a recent increase in otter records on Anglesey, suggesting this species is now breeding on the island. The recent increase in evidence for the presence of otter on Anglesey is also likely to reflect increased numbers of otters in rivers and the recognised use being made of coastal areas by this species. There is also evidence to suggest otters are using inland watercourses.		
			During field surveys no holts or resting places were found and only two (Meddanen tributary of the Afon Wygyr to the north-east of Llanfechell - Ref 2039-W005 and Afon Braint west of Pont Ronwy/north of Llwyn-ogan) surveyed watercourses had positive signs of otter presence,		
Table 6.4 Screening	Table 6.4 Screening Stage 1bC - does a mechanism for effect exist between the Proposed Development and sites interest features?				
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Site	Interest Feature	Pathways from Stage 1bB	Mechanism to result in a likely significant effect?	Mechanism through to Stage 1c (Yes/No)	
			spraints, a footprint and a mammal run. These are approximately 180 m west and 180 m east of proposed watercourse crossing locations (NG-RVX A/48, NG-DRX A/55, NG-RVX A/51 and NG-RVX F/243, see ES Appendix 3.2 – Watercourse Crossing Schedule (Document 5.3.2.2)), see ES Figure 2 of Otter and Water Vole Report (Document 5.9.2.8). Four further watercourses (Ref 1751-W001/A, Ref 1744-W041, Ref 4074-F2/4074-W057, Ref 4074-D148, see ES Figure 2 of Otter and Water Vole Report (Document 5.9.2.8)) were identified as potentially supporting otter due to the suitability of the habitat present and/or their connectivity with potentially suitable watercourses in the adjacent area; however no confirmed field signs were recorded on these watercourses. Watercourse crossings during construction could therefore cause temporary loss of foraging habitat throughout the Order Limits due to the creation of culverts and bridges. However considering that only two watercourses surveyed within the survey area had evidence of otter presence (Section A and Section F), the extensive territories of otters (up to 40 km) and the Proposed Development would require a relatively small area of supporting habitat in comparison to the availability of similar habitat which is prevalent in the wider locality. A potential mechanism for a likely significant effect upon otters as part of this Ramsar site does not exist from direct loss of supporting habitat.		
		Temporary disturbance/injury and/or displacement	Due to the proximity of the Proposed Development to the Ramsar site and the transient nature of otters a potential mechanism for potential likely significant effects from temporary disturbance/injury and/or displacement during the construction, maintenance and decommissioning of the Proposed Development.	Yes	
		Temporary change in water quality	Due to the proximity of the Proposed Development to the Ramsar site and the transient nature of otters a potential mechanism for potential likely significant effects from temporary changes in water quality (mobilisation of sediment and accidental contamination) during the construction, maintenance and decommissioning of the Proposed Development.	Yes	

Table 6.4 Screen	ing Stage 1bC - does a m	echanism for effect exist betw	veen the Proposed Development and sites interest features?	
Site	Interest Feature	Pathways from Stage 1bB	Mechanism to result in a likely significant effect?	Mechanism through to Stage 1c (Yes/No)
		Temporary effects on air quality/deposition	A potential mechanism for effect exists from temporary effects associated with vehicle emissions. Due to the proximity of the Proposed Development to the Ramsar at Cors Erddreiniog, there would be a potential mechanism for likely significant effects as a result of temporary effects from dust deposition.	Yes
		Introduction of INNS and diseases	Due to the proximity of the Proposed Development to the Ramsar site and the transient nature of otters a potential mechanism for potential likely significant effects from introduction of INNS and diseases exists during the construction, maintenance and decommissioning of the Proposed Development.	Yes
		Temporary alteration of hydrological regime	Due to the proximity of the Proposed Development to the Ramsar at Cors Erddreiniog and the transient nature of otters, there would be a potential mechanism for likely significant effects as a result of the temporary alteration in the fluvial/ hydrogeological regime (due to the proximity of pylon 4AP051).	Yes
Corsydd Môn/ Anglesey Fens SAC	Hard oligo-mesotrophic waters with benthic vegetation of Chara sp.	Direct loss of habitat	 This interest feature is not transient beyond the boundary of the SAC. This interest feature is reported to be present within several parts of the SAC (Ref 6.4), these are: Cors Erddreiniog – management units 2a, 6, 11, 11a, 13f, 16, 22 and 27; Cors Goch – management units 1, 2, 15, 16 and 17; Cors Bodeilio – management units 1, 3, 4 and 5; and Gwenfro Rhos y Gad – management unit 6. No pathway, and no mechanism, for a likely significant effect exists for the Cors Goch, Cors Bodeilio and Gwenfro Rhos y Gad parts of the SAC due to the distance from the Proposed Development (approximately 880 m, 1.2 km and 2 km respectively). Field surveys, NVC and Phase 1, undertaken to support this assessment have not recorded this 	No

Table 6.4 Screenin	Table 6.4 Screening Stage 1bC - does a mechanism for effect exist between the Proposed Development and sites interest features?				
Site	Interest Feature	Pathways from Stage 1bB	Mechanism to result in a likely significant effect?	Mechanism through to Stage 1c (Yes/No)	
			interest feature in proximity to the Proposed Development, however NVCP2 data shows the nearest Chara pool to be approximately 340 m east of Drainage Area 7. As fields surveys and desk study data have not recorded this interest feature in the Drainage Areas no pathway, and therefore no mechanism, for a likely significant effect from direct habitat loss exists.		
		Direct loss of supporting habitat	Supporting habitat is only relevant to mobile species interest features.	No	
		Temporary disturbance/injury and/or displacement	Temporary disturbance/injury and/or displacement are only relevant to mobile species interest features.	No	
		Temporary change in water quality	Due to the proximity of the Proposed Development to the SAC at Cors Erddreiniog, there would be a potential mechanism for likely significant effects as a result of a temporary change in water quality (from mobilisation of sediment and accidental contamination).	Yes	
			No pathway, and no mechanism, for a likely significant effect exists for the Cors Goch, Cors Bodeilio and Gwenfro Rhos y Gad parts of the SAC due to the distance from the Proposed Development (approximately 880 m, 1.2 km and 2 km respectively).		
		Temporary effects on air quality/deposition	A potential mechanism for effect exists from temporary effects associated with vehicle emissions.	Yes	
			Due to the proximity of the Proposed Development to the SAC at Cors Erddreiniog there would be a potential mechanism for a likely significant effect from dust deposition.		
			No pathway, and no mechanism, for a likely significant effect exists for the Cors Goch, Cors Bodeilio and Gwenfro Rhos y Gad parts of the SAC due to the distance from the Proposed Development (approximately 880 m, 1.2 km and 2 km respectively).		
		Introduction of INNS and diseases	Due to the proximity of the Proposed Development to the SAC at Cors Erddreiniog there would be a potential mechanism for a likely significant effect from the introduction of INNS and diseases.	Yes	

Table 6.4 Screen	Table 6.4 Screening Stage 1bC - does a mechanism for effect exist between the Proposed Development and sites interest features?				
Site	Interest Feature	Pathways from Stage 1bB	Mechanism to result in a likely significant effect?	Mechanism through to Stage 1c (Yes/No)	
			No pathway, and no mechanism, for a likely significant effect exists for the Cors Goch, Cors Bodeilio and Gwenfro Rhos y Gad parts of the SAC due to the distance from the Proposed Development (approximately 880 m, 1.2 km and 2 km respectively).		
		Temporary alteration of hydrological regime	Due to the proximity of the Proposed Development to the SAC at Cors Erddreiniog there would be a potential mechanism for a likely significant effect for the temporary alteration in the fluvial/ hydrogeological regime (due to the proximity of pylon 4AP051).	Yes	
			No pathway, and no mechanism, for a likely significant effect exists for the Cors Goch, Cors Bodeilio and Gwenfro Rhos y Gad parts of the SAC due to the distance from the Proposed Development (approximately 880 m, 1.2 km and 2 km respectively).		
	Calcareous fens with Cladium mariscus and	Direct loss of habitat	This interest feature is not transient beyond the boundary of the SAC. This interest feature is reported to be present within several parts of the SAC (Ref 6.4), these are:	No	
	species of the <i>Caricion</i> davallinae		 Cors Erddreiniog – management units 4, 5, 6, 7, 11, 11a, 13b, 16, 20, 21, 22, 26, 27, 27b, 28, 29 and 30; 		
			 Cors Goch – management units 1, 2, 3, 8, 15 and 17; 		
			 Cors Bodeilio – management units 1, 2, 3, 4, 5, 6, 7 and 8; 		
			Cors y Farl – management unit 1;		
			 Caeau Talwrn – management unit 1 and 2; and 		
			 Gwenfro Rhos y Gad – management units 1, 3, 5, 6 and 7. 		
			No pathway, and no mechanism, for a likely significant effect exists for the Caeau Talwrn, Cors Goch, Cors Bodeilio and Gwenfro Rhos y Gad parts of the SAC due to the distance from the Proposed Development (approximately 40 m, 365 m, 880 m, 1.2 km and 2 km respectively).		
			NVCP2 data shows the nearest area of this interest feature approximately 14 m east of Drainage Area 6 within management area 26. NVC field surveys undertaken to support this		

Table 6.4 Screenin	Table 6.4 Screening Stage 1bC - does a mechanism for effect exist between the Proposed Development and sites interest features?				
Site	Interest Feature	Pathways from Stage 1bB	Mechanism to result in a likely significant effect?	Mechanism through to Stage 1c (Yes/No)	
			assessment identified this interest feature (associated with NVC habitat M9 and M24) within Cors Erddreiniog management unit 26 (relevé location 57, 112.2 m east) and within Cors Erddreiniog management unit 6 (relevé locations 49 and 59, 33.9 m and 203.5 m east respectively). As fields surveys and desk study data have not recorded this interest feature in the Drainage Areas no mechanism for a likely significant effect from direct habitat loss exists.		
		Direct loss of supporting habitat	Supporting habitat is only relevant to mobile species interest features.	No	
		Temporary disturbance/injury and/or displacement	Temporary disturbance/injury and/or displacement are only relevant to mobile species interest features.	No	
		Temporary change in water quality	Due to the proximity of the Proposed Development to the Ramsar site at Cors Erddreiniog and Caeau Talwrn, there would be a potential mechanism for likely significant effects as a result of a temporary change in water quality (from mobilisation of sediment and accidental contamination).	Yes	
			No pathway, and no mechanism, for a likely significant effect exists for the Cors Goch, Cors Bodeilio and Gwenfro Rhos y Gad parts of the SAC due to the distance from the Proposed Development (approximately 880 m, 1.2 km and 2 km respectively).		
			No pathway, and no mechanism, for a likely significant effect exists for the Cors y Farl part of the SAC as it is upstream of the Proposed Development and approximately 365 m from the Order Limits.		
		Temporary effects on air quality/deposition	A potential mechanism for effect exists from temporary effects associated with vehicle emissions.	Yes	
			Due to the proximity of the Proposed Development to the SAC at Cors Erddreiniog there would be a potential mechanism for a likely significant effect from dust deposition.		
			No pathway, and therefore no mechanism, for a likely significant effect exists for the Cors y Farl, Cors Goch, Cors Bodeilio and Gwenfro Rhos y Gad parts of the SAC due to the distance from		

Table 6.4 Sc	Table 6.4 Screening Stage 1bC - does a mechanism for effect exist between the Proposed Development and sites interest features?					
Site	Interest Feature	Pathways from Stage 1bB	Mechanism to result in a likely significant effect?	Mechanism through to Stage 1c (Yes/No)		
			the Proposed Development (approximately 365 m, 880 m, 1.2 km and 2 km respectively).			
		Introduction of INNS and diseases	Due to the proximity of the Proposed Development to the SAC at Cors Erddreiniog and Caeau Talwrn there would be a potential mechanism for a likely significant effect from the introduction of INNS and diseases.	Yes		
			No pathway, and no mechanism, for a likely significant effect exists for the Cors y Farl, Cors Goch, Cors Bodeilio and Gwenfro Rhos y Gad parts of the SAC due to the distance from the Proposed Development (approximately 365 m, 880 m, 1.2 km and 2 km respectively).			
		Temporary alteration of hydrological regime	Due to the proximity of the Proposed Development to the Ramsar site at Cors Erddreiniog and Caeau Talwrn, there would be a potential mechanism for likely significant effects as a result of a temporary change in water quality (from mobilisation of sediment and accidental contamination).	Yes		
			No pathway, and no mechanism, for a likely significant effect exists for the Cors Goch, Cors Bodeilio and Gwenfro Rhos y Gad parts of the SAC due to the distance from the Proposed Development (approximately 880 m, 1.2 km and 2 km respectively).			
			No pathway, and therefore no mechanism, for a likely significant effect exists for the Cors y Farl part of the SAC as it is upstream of the Proposed Development and approximately 365 m from the Order Limits.			
	Alkaline fens	Direct loss of habitat	This interest feature is not transient beyond the boundary of the SAC. This interest feature is reported to be present within several parts of the SAC (Ref 6.4), these are:	No		
			 Cors Erddreiniog – management units 2a, 3, 5, 6, 6a, 7, 11, 13a, 13b, 13c, 16, 17, 20, 21, 22, 26, 27b, 28, 29 and 30; 			
			 Cors Goch – management units 1, 2, 3, 5, 7, 8, 11, 12, 13 and 17; 			
			 Cors Bodeilio – management units 1, 3, 4, 5, 6, 7 and 8; 			
			Cors y Farl – management unit 1;			

Table 6.4 Screenin	Table 6.4 Screening Stage 1bC - does a mechanism for effect exist between the Proposed Development and sites interest features?				
Site	Interest Feature	Pathways from Stage 1bB	Mechanism to result in a likely significant effect?	Mechanism through to Stage 1c (Yes/No)	
			 Waen Eurad – management unit 1; and 		
			 Gwenfro Rhos y Gad – management units 3, 5, 6, 7, and 8. 		
			No pathway, and no mechanism, for a likely significant effect exists for the Cors y Farl, Cors Goch, Cors Bodeilio, Waen Eurad and Gwenfro Rhos y Gad parts of the SAC due to the distance from the Proposed Development (approximately 395 m, 880 m, 1.2 km, 1 km and 2 km respectively).		
			NVCP2 data shows the nearest area of this interest feature approximately 50 m east of Drainage Area 4 within management area 22. Field surveys, NVC, undertaken to support this assessment identified this interest feature (associated with NVC habitat M9) within Cors Erddreiniog management unit 26 (relevé location 57, 112.2 m east). As fields surveys and desk study data have not recorded this interest feature in the Drainage Areas no pathway, and therefore no mechanism, for a likely significant effect from direct habitat loss exists.		
		Direct loss of supporting habitat	Supporting habitat is only relevant to mobile species interest features.	No	
		Temporary disturbance/injury and/or displacement	Temporary disturbance/injury and/or displacement are only relevant to mobile species interest features.	No	
		Temporary change in water quality	Due to the proximity of the Proposed Development to the Ramsar site at Cors Erddreiniog, there would be a potential mechanism for likely significant effects as a result of a temporary change in water quality (from mobilisation of sediment and accidental contamination).	Yes	
			No pathway, and no mechanism, for a likely significant effect exists for the Cors Goch, Cors Bodeilio, Waen Eurad and Gwenfro Rhos y Gad parts of the SAC due to the distance from the Proposed Development (approximately 880 m, 1.2 km, 1 km and 2 km respectively).		
			No pathway, and therefore no mechanism, for a likely significant effect exists for the Cors y Farl part of the SAC as it is upstream of the Proposed Development and approximately 365 m from		

Table 6.4 Sc	able 6.4 Screening Stage 1bC - does a mechanism for effect exist between the Proposed Development and sites interest features?				
Site	Interest Feature	Pathways from Stage 1bB	Mechanism to result in a likely significant effect?	Mechanism through to Stage 1c (Yes/No)	
			the Order Limits.		
		Temporary effects on air quality/deposition	A potential mechanism for effect exists from temporary effects associated with vehicle emissions.	Yes	
			Due to the proximity of the Proposed Development to the SAC at Cors Erddreiniog there would be a potential mechanism for a likely significant effect from dust deposition.		
			No pathway, and therefore no mechanism, for a likely significant effect exists for the Cors y Farl, Cors Goch, Cors Bodeilio, Waen Eurad and Gwenfro Rhos y Gad parts of the SAC due to the distance from the Proposed Development (approximately 395 m, 880 m, 1.2 km, 1 km and 2 km respectively).		
		Introduction of INNS and diseases	Due to the proximity of the Proposed Development to the SAC at Cors Erddreiniog and Caeau Talwrn there would be a potential mechanism for a likely significant effect from the introduction of INNS and diseases.	Yes	
			No pathway, and no mechanism, for a likely significant effect exists for the Cors y Farl, Cors Goch, Cors Bodeilio, Waen Eurad and Gwenfro Rhos y Gad parts of the SAC due to the distance from the Proposed Development (approximately 395 m, 880 m, 1.2 km, 1 km and 2 km respectively).		
		Temporary alteration of hydrological regime	Due to the proximity of the Proposed Development to the Ramsar site at Cors Erddreiniog, there would be a potential mechanism for likely significant effects as a result of a temporary change in water quality (from mobilisation of sediment and accidental contamination).	Yes	
			No pathway, and no mechanism, for a likely significant effect exists for the Cors Goch, Cors Bodeilio, Waen Eurad and Gwenfro Rhos y Gad parts of the SAC due to the distance from the Proposed Development (approximately 880 m, 1.2 km, 1 km and 2 km respectively).		
			No pathway, and no mechanism, for a likely significant effect exists for the Cors y Farl part of the SAC as it is upstream of the Proposed Development and approximately 365 m from the		

Mechanism through to Stage 1c (Yes/No)
No
No
No
No
Yes
e s s r

Table 6.4 Screenin	able 6.4 Screening Stage 1bC - does a mechanism for effect exist between the Proposed Development and sites interest features?			
Site	Interest Feature	Pathways from Stage 1bB	Mechanism to result in a likely significant effect?	Mechanism through to Stage 1c (Yes/No)
			SAC, due to the distance from the Proposed Development (approximately 880 m).	
		Temporary effects on air quality/deposition	A potential mechanism for effect exists from temporary effects associated with vehicle emissions.	Yes
			Due to the proximity of the Proposed Development to the SAC at Cors Erddreiniog there would be a potential mechanism for a likely significant effect from dust deposition.	
			No pathway, and no mechanism, for a likely significant effect exists for the Cors Goch part of the SAC, due to the distance from the Proposed Development (approximately 880 m).	
		Introduction of INNS and diseases	Due to the proximity of the Proposed Development to the SAC at Cors Erddreiniog there would be a potential mechanism for a likely significant effect from the introduction of INNS and diseases.	Yes
			No pathway, and therefore no mechanism, for a likely significant effect exists for the Cors Goch part of the SAC, due to the distance from the Proposed Development (approximately 880 m).	
		Temporary alteration of hydrological regime	Due to the proximity of the Proposed Development to the SAC at Cors Erddreiniog there would be a potential mechanism for a likely significant effect for the temporary alteration in the fluvial/ hydrogeological regime (due to the proximity of pylon 4AP051).	Yes
			No pathway, and no mechanism, for a likely significant effect exists for the Cors Goch part of the SAC, due to the distance from the Proposed Development (approximately 880 m).	
	Molinia meadows on calcareous, peaty or	Direct loss of habitat	This interest feature is not transient beyond the boundary of the SAC. This interest feature is reported to be present within several parts of the SAC (Ref 6.4), these are:	No
	clayey— silt-laden soils		 Cors Erddreiniog – management units 2, 2a, 3, 4, 5, 6, 6a, 7, 11, 13a, 13b, 13c, 16, 17, 20, 21, 22, 26, 27, 27b, 28, 29 and 30; 	
			• Cors Goch – management units 1, 2, 5, 6, 7, 8, 10, 11, 12, 13, 14 and 17;	

Table 6.4 Sc	creening Stage 1bC - does a	mechanism for effect exist betwee	en the Proposed Development and sites interest features?	
Site	Interest Feature	Pathways from Stage 1bB	Mechanism to result in a likely significant effect?	Mechanism through to Stage 1c (Yes/No)
			Cors Bodeilio – management units 1, 2, 3, 4, 5, 6, 7 and 8;	
			 Caeau Talwrn – management units 1, 2, 3 and 4; 	
			 Waen Eurad – management unit 1; and 	
			 Gwenfro Rhos y Gad – management units 1, 2, 3, 4, 5, 6, 7 and 8. 	
			No pathway, and no mechanism, for a likely significant effect exists for the Caeau Talwrn, Cors Goch, Cors Bodeilio, Waen Eurad and Gwenfro Rhos y Gad parts of the SAC due to the distance from the Proposed Development (approximately 40 m, 880 m, 1.2 km, 1 km and 2 km respectively).	
			NVCP2 data show the nearest area of this interest feature, approximately 14 m east of Drainage Area 6 within management area 26. NVC surveys undertaken to support this assessment identified this interest feature (associated with NVC habitat M24) within Cors Erddreiniog management unit 6 (relevé locations 49 and 59, 33.9 m and 203.5 m east respectively). As fields surveys and desk study data have not recorded this interest feature in the Drainage Areas no pathway, and therefore no mechanism, for a likely significant effect from direct habitat loss exists.	
		Direct loss of supporting habitat	Supporting habitat is only relevant to mobile species interest features.	No
		Temporary disturbance/injury and/or displacement	Temporary disturbance/injury and/or displacement are only relevant to mobile species interest features.	No
		Temporary change in water quality	Due to the proximity of the Proposed Development to the Ramsar site at Cors Erddreiniog and Caeau Talwrn, there would be a potential mechanism for likely significant effects as a result of a temporary change in water quality (from mobilisation of sediment and accidental contamination). No pathway, and therefore no mechanism, for a likely significant effect exists for the Cors Goch, Cors Bodeilio, Waen Eurad and Gwenfro Rhos y Gad parts of the SAC due to the distance from the Proposed Development (approximately 880 m, 1.2 km, 1 km and 2 km respectively).	Yes

Table 6.4 Screenir	ng Stage 1bC - does a m	echanism for effect exist betweer	n the Proposed Development and sites interest features?	
Site	Interest Feature	Pathways from Stage 1bB	Mechanism to result in a likely significant effect?	Mechanism through to Stage 1c (Yes/No)
		Temporary effects on air quality/deposition	A potential mechanism for effect exists from temporary effects associated with vehicle emissions.	Yes
			Due to the proximity of the Proposed Development to the SAC at Cors Erddreiniog there would be a potential mechanism for a likely significant effect from dust deposition.	
			No pathway, and no mechanism, for a likely significant effect exists for the Cors Goch, Cors Bodeilio, Waen Eurad and Gwenfro Rhos y Gad parts of the SAC due to the distance from the Proposed Development (approximately 880 m, 1.2 km, 1 km and 2 km respectively).	
		Introduction of INNS and diseases	Due to the proximity of the Proposed Development to the SAC at Cors Erddreiniog and Caeau Talwrn there would be a potential mechanism for a likely significant effect from the introduction of INNS and diseases.	Yes
			No pathway, and no mechanism, for a likely significant effect exists for the Cors Goch, Cors Bodeilio, Waen Eurad and Gwenfro Rhos y Gad parts of the SAC due to the distance from the Proposed Development (approximately 880 m, 1.2 km, 1 km and 2 km respectively).	
		Temporary alteration of hydrological regime	Due to the proximity of the Proposed Development to the Ramsar site at Cors Erddreiniog and Caeau Talwrn, there would be a potential mechanism for likely significant effects as a result of a temporary change in water quality (from mobilisation of sediment and accidental contamination).	Yes
			No pathway, and therefore no mechanism, for a likely significant effect exists for the Cors Goch, Cors Bodeilio, Waen Eurad and Gwenfro Rhos y Gad parts of the SAC due to the distance from the Proposed Development (approximately 880 m, 1.2 km, 1 km and 2 km respectively).	
	European Dry Heaths	Direct loss of habitat	This interest feature is only found in the Cors Goch SSSI section (approximately 880 m from the	No
		Direct loss of supporting habitat	Proposed Development) of the SAC and is not transient beyond the boundary of the SSSI management units and therefore no pathway, and no mechanism, exists for a likely significant	No
		Temporary disturbance/injury and/or displacement	effect.	No

Table 6.4 Screening Stage 1bC - does a mechanism for effect exist between the Proposed Development and sites interest features?					
Site	Interest Feature	Pathways from Stage 1bB	Mechanism to result in a likely significant effect?	Mechanism through to Stage 1c (Yes/No)	
		Temporary change in water quality		No	
		Temporary effects on air quality/deposition		10 10	
		Introduction of INNS and diseases		No	
		Temporary alteration of hydrological regime		No	
	Geyer's Whorl Snail	Direct loss of habitat	Not directly applicable as the interest feature is a species, refer to supporting habitat.	No	
		Direct loss of supporting habitat	 This interest feature is reported to be present within several parts of the SAC (Ref 6.4), these are: Cors Erddreiniog – management units 6, 6a, 7, 11, 13a, 13b, 13c, 16, 20, 21, 22 and 28; 	No	
			and		
			 Waen Eurad – management unit 1. No pathway, and no mechanism, for a likely significant effect exists for the Waen Eurad part of the SAC due to the distance from the Proposed Development (approximately 2 km). 		
			The results of the macroinvertebrate, surveys undertaken on watercourse W056-84 (Afon Erddreiniog within management units 3, 5 and 6) at crossing point NG-DRX C/164 do not record the presence of Geyer's Whorl Snail. In addition data searches identify no Geyer's Whorl Snail records within the ZOIs over the last 10 years. There would be no pathway, and therefore no mechanism, for a likely significant effect from direct loss of supporting habitat.		
		Temporary disturbance/injury	As this species is absent from the area subject to temporary disturbance there is no pathway,	No	

Table 6.4 Screening Stage 1bC - does a mechanism for effect exist between the Proposed Development and sites interest features?				
Site	Interest Feature	Pathways from Stage 1bB	Mechanism to result in a likely significant effect?	Mechanism through to Stage 1c (Yes/No)
		and/or displacement	and therefore no mechanism, for temporary disturbance and/or displacement.	
		Temporary change in water quality	Due to the proximity of the Proposed Development to the Ramsar at Cors Erddreiniog, there would be a potential mechanism for likely significant effects as a result of a temporary change in water quality (from mobilisation of sediment and accidental contamination).	Yes
			No pathway, and no mechanism, for a likely significant effect exists for the Waen Eurad part of the SAC due to the distance from the Proposed Development (approximately 2 km).	
		Temporary effects on air quality/deposition	A potential mechanism for effect exists from temporary effects associated with vehicle emissions.	Yes
			Due to the proximity of the Proposed Development to the Ramsar at Cors Erddreiniog, there would be a potential mechanism for likely significant effects as a result of temporary effects from dust deposition.	
			No pathway, and no mechanism, for a likely significant effect exists for the Waen Eurad part of the SAC due to the distance from the Proposed Development (approximately 2 km).	
		Introduction of INNS and diseases	Due to the proximity of the Proposed Development to the Ramsar at Cors Erddreiniog, there would be a potential mechanism for likely significant effects as a result of introduction of INNS and diseases.	Yes
			No pathway, and no mechanism, for a likely significant effect exists for the Waen Eurad part of the SAC due to the distance from the Proposed Development (approximately 2 km).	
		Temporary alteration of hydrological regime	Due to the proximity of the Proposed Development to the Ramsar at Cors Erddreiniog, there would be a potential mechanism for likely significant effects as a result of the temporary alteration in the fluvial/ hydrogeological regime (due to the proximity of 4AP051).	Yes
			No pathway, and no mechanism, for a likely significant effect exists for the Waen Eurad part of the SAC due to the distance from the Proposed Development (approximately 2 km).	

Table 6.4 Screening Stage 1bC - does a mechanism for effect exist between the Proposed Development and sites interest features?				
Site	Interest Feature	Pathways from Stage 1bB	Mechanism to result in a likely significant effect?	Mechanism through to Stage 1c (Yes/No)
	Southern damselfly	Direct loss of habitat	This interest feature is reported to be present within several parts of the SAC (Ref 6.4), these	No
		Direct loss of supporting habitat		No
	Temporary disturbance/injury and/or displacement	 Cors Erddreiniog – management units 7, 11, 13a, 13b, 13c, 13f, 16, 20 and 21; and Cors Goch – management units 1 and 2. 	No	
	Temporary change in water qualityData searches identified historical re Erddreiniog of approximately 681 m 2011 (see table 4.1 of ES Appendix	Data searches identified historical records of Southern Damselfly at locations within Cors Erddreiniog of approximately 681 m and 1.3 km east of the Order Limits between 2009 and 2011 (see table 4.1 of ES Appendix 9.13 Freshwater Ecology Report (Document 5.9.2.13)),	No	
		Temporary effects on air quality/deposition	however none have been identified during macroinvertebrate and terrestrial invertebrate transect surveys.	No
		Temporary introduction of INNS and diseases	No pathway, and therefore no mechanism, for a likely significant effect exists for the Cors Goch part of the SAC due to the distance from the Proposed Development (approximately 880 m).	No
		Temporary alteration of hydrological regime	No pathway, and therefore no mechanism, for a likely significant effect exists for the Cors Erddreiniog part of the Ramsar site as the Proposed Development does not overlap with any of the management units identified within Cors Erddreiniog for this interest feature and fields surveys and desk study data have not recorded this interest feature in the Drainage Areas.	No
	Marsh fritillary butterfly	Direct loss of habitat	Not directly applicable as the interest feature is a species, refer to supporting habitat.	No
		Direct loss of supporting habitat	 This interest feature is reported to be present within several parts of the SAC (Ref 6.4), these are: Cors Erddreiniog – management units 3, 4, 5, 6, 6a, 7, 11, 13a, 13b, 16, 17, 20, 21, 22, 26, 27, 27b, 28, 29, and 30; and 	No
			 Cors Goch – management units 1, 2, 5, 6, 7, 8, 12, 13, 14 and 17; 	
			 Cors Bodeilio – management units 1, 2, 3, 4, 5, 6, 7 and 8; Cors v Farl – management unit 1; 	

Table 6.4 Screenin	able 6.4 Screening Stage 1bC - does a mechanism for effect exist between the Proposed Development and sites interest features?					
Site	Interest Feature	Pathways from Stage 1bB	Mechanism to result in a likely significant effect?	Mechanism through to Stage 1c (Yes/No)		
			 Caeau Talwrn – management unit 1, 2, 3 and 4; 			
			 Waen Eurad – management unit 1; and 			
			 Gwenfro Rhos y Gad – management units 1, 3, 4, 5, 7 and 8. 			
			No pathway, and no mechanism, for a likely significant effect exists for the Caeau Talwrn, Cors y Farl, Cors Goch, Cors Bodeilio, Waen Eurad and Gwenfro Rhos y Gad parts of the SAC due to the distance from the Proposed Development (approximately 40 m, 365 m, 880 m, 1.2 km, 1 km and 2 km respectively).			
			Data searches identified historical records of this interest feature at locations within Cors Erddreiniog of approximately 195 m, 210 m and 710 m east of the Order Limits between 2007 and 2016, see ES Appendix 9.14 Terrestrial Invertebrates Report (Document 5.9.2.14). These are located in units 3, 5 and 7. None were identified during terrestrial invertebrate transect surveys undertaken to support this assessment.			
			As no records of this interest feature were identified during surveys undertaken to support this assessment, the low sensitivity of terrestrial invertebrates to temporary loss of suitable habitat, the majority of potentially affected habitats are of low quality for terrestrial invertebrates and as the Proposed Development would require a relatively small area of supporting habitat in comparison to the availability of similar habitat which is prevalent in the wider locality. A potential mechanism for a likely significant effect upon otters as part of this SAC does not exist.			
			Due to the proximity of the Proposed Development to the SAC at Caeau Talwrn, there would be a potential mechanism for likely significant effects as a result of temporary change in water quality (from mobilisation of sediment and accidental contamination), temporary effects from dust deposition, temporary disturbance and/or displacement, temporary introduction of INNS and diseases and for the temporary alteration in the fluvial/ hydrogeological regime (due to the proximity of 4AP051) during the construction, maintenance and decommissioning of the Proposed Development.			

Table 6.4 Screening Stage 1bC - does a mechanism for effect exist between the Proposed Development and sites interest features?					
Site	Interest Feature	Pathways from Stage 1bB	Mechanism to result in a likely significant effect?	Mechanism through to Stage 1c (Yes/No)	
		Temporary disturbance/injury and/or displacement	As this species is absent from the area subject to temporary disturbance there is no pathway, and therefore no mechanism, for temporary disturbance and/or displacement.	No	
		Temporary change in water quality	 Due to the proximity of the Proposed Development to the SAC at Cors Erddreiniog and Caeau Talwrn, there would be a potential mechanism for likely significant effects as a result of a temporary change in water quality (from mobilisation of sediment and accidental contamination). No pathway, and no mechanism, for a likely significant effect exists for the Cors Goch, Cors Bodeilio, Waen Eurad and Gwenfro Rhos y Gad parts of the SAC due to the distance from the Proposed Development (approximately 880 m, 1.2 km, 1 km and 2 km respectively). No pathway, and no mechanism, for a likely significant effect exists for the Cors y Farl part of the SAC as it is upstream of the Proposed Development and approximately 365 m from the Order Limits. 	Yes	
		Temporary effects on air quality/deposition	 A potential mechanism for effect exists from temporary effects associated with vehicle emissions. Due to the proximity of the Proposed Development to the SAC at Cors Erddreiniog, there would be a potential mechanism for likely significant effects as a result of temporary effects from dust deposition. No mechanism for a likely significant effect from dust or vehicle emission effects exists for Caeau Talwrn as this part of the SAC is approximately 40 m from the Proposed Development and the impact on annual mean NO_X, daily mean NO_X, annual mean SO₂ concentrations, and annual mean nutrient nitrogen, acid as Nitrogen and acid as Sulphur deposition rates is less than 1% of the relevant air quality objectives, critical level and critical loads. No pathway, and no mechanism, for a likely significant effect exists for the Cors y Farl, Cors Goch, Cors Bodeilio, Waen Eurad and Gwenfro Rhos y Gad parts of the SAC due to the 	Yes	

Table 6.4 Screening Stage 1bC - does a mechanism for effect exist between the Proposed Development and sites interest features?				
Site	Interest Feature	Pathways from Stage 1bB	Mechanism to result in a likely significant effect?	Mechanism through to Stage 1c (Yes/No)
			respectively).	
		Introduction of INNS and diseases	Due to the proximity of the Proposed Development to the SAC at Cors Erddreiniog and Caeau Talwrn, there would be a potential mechanism for likely significant effects as a result of introduction of INNS and diseases.	Yes
			No pathway, and therefore no mechanism, for a likely significant effect exists for the Cors y Farl, Cors Goch, Cors Bodeilio, Waen Eurad and Gwenfro Rhos y Gad parts of the SAC due to the distance from the Proposed Development (approximately 365 m, 880 m, 1.2 km, 1 km and 2 km respectively).	
		Temporary alteration of hydrological regime	Due to the proximity of the Proposed Development to the SAC at Cors Erddreiniog and Caeau Talwrn there would be a potential mechanism for a likely significant effect for the temporary alteration in the fluvial/ hydrogeological regime (due to the proximity of 4AP051).	Yes
			No pathway, and no mechanism, for a likely significant effect exists for the Cors Goch, Cors Bodeilio, Waen Eurad and Gwenfro Rhos y Gad parts of the SAC due to the distance from the Proposed Development (approximately 880 m, 1.2 km, 1 km and 2 km respectively).	
			No pathway, and therefore no mechanism, for a likely significant effect exists for the Cors y Farl part of the SAC as it is upstream of the Proposed Development and approximately 365 m from the Order Limits.	
	Great Crested Newt	Direct loss of habitat	Not directly applicable as the interest feature is a species, refer to supporting habitat.	No
		Direct loss of supporting habitat	This interest feature is reported to be present within Cors Erddreiniog management units 21 and 22 (Ref 6.4) and data searches provided several records within the last 10 years for GCN within Cors Erddreiniog.	No
			GCN were identified within 11 of the 112 ponds identified through the desk study to be taken forward for field surveys and assessment (eDNA sampling and traditional survey methods).	

Table 6.4 Screening Stage 1bC - does a mechanism for effect exist between the Proposed Development and sites interest features?				
Site	Interest Feature	Pathways from Stage 1bB	Mechanism to result in a likely significant effect?	Mechanism through to Stage 1c (Yes/No)
			Three ponds where presence has been confirmed through eDNA surveys (Ponds 16, 26 and 164). Four of the ponds with GCN identified (A067, 134, 239, 240) are located within Cors Erddreiniog with the closest, A067 (which was found to contains GCN eggs confirming that this pond is used for breeding) being approximately 340 m from Drainage Area 5. Refer to Appendix 9.6, Great Crested Newt Report (Document 5.9.2.6).	
			Due to the distance of these GCN ponds from the Proposed Development, the majority of habitats affected by temporary loss are of low quality for GCN and the Proposed Development would require a relatively small area of supporting habitat in comparison to the availability of similar habitat which is prevalent in the wider locality, no mechanism for a likely significant effect from direct loss of supporting habitat exists.	
		Temporary disturbance/injury and/or displacement	Due to the proximity of the Proposed Development to the SAC a potential mechanism for potential likely significant effects from temporary disturbance/injury and/or displacement during the construction, maintenance and decommissioning of the Proposed Development.	Yes
		Temporary change in water quality	Due to the proximity of the Proposed Development to the SAC at Cors Erddreiniog a potential mechanism for potential likely significant effects from temporary changes in water quality (mobilisation of sediment and accidental contamination) during the construction, maintenance and decommissioning of the Proposed Development.	Yes
		Temporary effects on air quality/deposition	A potential mechanism for effect exists from temporary effects associated with vehicle emissions.	Yes
			Due to the proximity of the Proposed Development to the SAC at Cors Erddreiniog, there would be a potential mechanism for likely significant effects as a result of temporary effects from dust deposition.	
		Introduction of INNS and diseases	Due to the proximity of the Proposed Development to the SAC at Cors Erddreiniog a potential mechanism for potential likely significant effects from introduction of INNS and diseases exists	Yes

Table 6.4 Screening Stage 1bC - does a mechanism for effect exist between the Proposed Development and sites interest features?				
Site	Interest Feature	Pathways from Stage 1bB	Mechanism to result in a likely significant effect?	Mechanism through to Stage 1c (Yes/No)
			during the construction, maintenance and decommissioning of the Proposed Development.	
		Temporary alteration of hydrological regime	Due to the proximity of the Proposed Development to the SAC at Cors Erddreiniog and the transient nature of otters, there would be a potential mechanism for likely significant effects as a result of the temporary alteration in the fluvial/ hydrogeological regime (due to the proximity of 4AP051).	Yes
	Otter	Direct loss of habitat	Not directly applicable as the interest feature is a species, refer to supporting habitat.	Yes No No
		Direct loss of supporting habitat	Otters are known to be transient and often occupy extensive territories with Green et al (1984) (Ref 6.21) reporting that for male otters this could include up to 30 to 40 km of watercourses (Ref 6.21) in which they move from one lying up place or holt to another to exploit available food sources when they are present in sufficient biomass for hunting to be efficient.	
			Otters are listed under Ramsar criterion 3 for the Ramsar site and are reported to be present within Cors Erddreiniog management unit 22 (Ref 6.4) and data searches. Data searches (see ES Appendix 9.8 – Otter and Water Vole Report Document 5.9.2.8) show a recent increase in otter records on Anglesey, suggesting this species is now breeding on the island. The recent increase in evidence for the presence of otter on Anglesey is also likely to reflect increased numbers of otters in rivers and the recognised use being made of coastal areas by this species. There is also evidence to suggest otters are using inland watercourses.	
			During field surveys no holts or resting places were found and only two (Meddanen tributary of the Afon Wygyr to the north-east of Llanfechell - Ref 2039-W005 and Afon Braint west of Pont Ronwy/north of Llwyn-ogan) surveyed watercourses had positive signs of otter presence, spraints, a footprint and a mammal run. These are approximately 180 m west and 180m east of proposed watercourse crossing locations (NG-RVX A/48, NG-DRX A/55, NG-RVX A/51 and NG-RVX F/243 see ES Appendix 3.2 – Watercourse Crossing Schedule (Document 5.3.2.2)), see ES Figure 2 of Otter and Water Vole Report (Document 5.9.2.8). Four further watercourses	

Table 6.4 Screer	Table 6.4 Screening Stage 1bC - does a mechanism for effect exist between the Proposed Development and sites interest features?				
Site	Interest Feature	Pathways from Stage 1bB	Mechanism to result in a likely significant effect?	Mechanism through to Stage 1c (Yes/No)	
			(Ref 1751-W001/A, Ref 1744-W041, Ref 4074-F2/4074-W057, Ref 4074-D148, see ES Figure 2 of Otter and Water Vole Report (Document 5.9.2.8)) were identified as potentially supporting otter due to the suitability of the habitat present and/or their connectivity with potentially suitable watercourses in the adjacent area; however no confirmed field signs were recorded on these watercourses.		
			Watercourse crossings during construction could therefore cause temporary loss of foraging habitat throughout the Order Limits due to the creation of culverts and bridges. However considering that only two watercourses surveyed within the survey area had evidence of otter presence (Section A and Section F), the extensive territories of otters (up to 40km) and the Proposed Development would require a relatively small area of supporting habitat in comparison to the availability of similar habitat which is prevalent in the wider locality. A potential mechanism for a likely significant effect upon otters as part of this Ramsar site does not exist from direct loss of supporting habitat.		
		Temporary disturbance and/or displacement	Due to the proximity of the Proposed Development to the Ramsar site and the transient nature of otters a potential mechanism for potential likely significant effects from temporary disturbance/injury and/or displacement during the construction, maintenance and decommissioning of the Proposed Development.	Yes	
		Temporary change in water quality	Due to the proximity of the Proposed Development to the Ramsar site and the transient nature of otters a potential mechanism for potential likely significant effects from temporary changes in water quality (mobilisation of sediment and accidental contamination) during the construction, maintenance and decommissioning of the Proposed Development.	Yes	
		Temporary effects on air quality/deposition	A potential mechanism for effect exists from temporary effects associated with vehicle emissions. Due to the proximity of the Proposed Development to the Ramsar at Cors Erddreiniog, there	Yes	

Table 6.4 Screenir	Table 6.4 Screening Stage 1bC - does a mechanism for effect exist between the Proposed Development and sites interest features?					
Site	Interest Feature	Pathways from Stage 1bB	Mechanism to result in a likely significant effect?	Mechanism through to Stage 1c (Yes/No)		
			would be a potential mechanism for likely significant effects as a result of temporary effects from dust deposition.			
		Temporary introduction of INNS and diseases	Due to the proximity of the Proposed Development to the Ramsar site and the transient nature of otters a potential mechanism for potential likely significant effects from introduction of INNS and diseases exists during the construction, maintenance and decommissioning of the Proposed Development.	Yes		
		Temporary alteration of hydrological regime	Due to the proximity of the Proposed Development to the Ramsar at Cors Erddreiniog and the transient nature of otters, there would be a potential mechanism for likely significant effects as a result of the temporary alteration in the fluvial/ hydrogeological regime (due to the proximity of 4AP051).	Yes		
Y Fenai a Bae	Sandbanks which are slightly covered by sea water all the time	Direct loss of habitat	This closest location of this interest feature is approximately 2.7 km south-west of the Order Limits. Due to the distance of the interest feature from the Proposed Development no pathway, and no mechanism, for a likely significant effect exists for direct habitat loss, changes in water quality and the release of drilling fluid during the construction of the Proposed Development	No		
Conwy/ Menai Strait and Conwy Bay SAC		Temporary change in water quality		No		
		Temporary release of drilling fluid		No		
		Introduction of the INNS and diseases	There is the potential mechanism for the introduction of INNS and diseases associated with the introduction of boats and buoys for marine mammal and fish mitigation during tunnelling activities beneath the Menai Strait.	Yes		
	Mudflats and sandflats not covered by	Direct loss of habitat	This interest feature is not transient beyond the boundary of the SAC and is present within the Order Limits.	Yes		
	seawater at low tide		A potential mechanism for direct loss or fragmentation of habitat during construction of the Proposed Development associated with scour from the placement of buoy-mounted acoustic devices (if used) and the release of drilling fluid exists as this interest feature, (and its associated biological community attributes linked to favourable condition), is within the Order			

Table 6.4 Screening Stage 1bC - does a mechanism for effect exist between the Proposed Development and sites interest features?					
Site	Interest Feature	Pathways from Stage 1bB	Mechanism to result in a likely significant effect?	Mechanism through to Stage 1c (Yes/No)	
			Limits		
		Temporary change in water quality	This interest feature is approximately 1.4 km from the nearest hydrologically connected works with the potential to cause changes in fluvial water quality, due to this distance there would be no pathway, and no mechanism, for a likely significant effect upon this interest feature.	No	
		Temporary release of drilling fluid	A potential mechanism for effects from release of drilling fluid during construction of the Proposed Development exists as this interest feature (and its associated biological community attributes linked to favourable condition), is within the Order Limits.	Yes	
		Introduction of the INNS and diseases	There is the potential mechanism for the introduction of INNS and diseases associated with the introduction of boats and buoys for marine mammal and fish mitigation during tunnelling activities beneath the Menai Strait.	Yes	
	Reefs	Direct loss of habitat	This interest feature is not transient beyond the boundary of the SAC and is present within the Order Limits. A potential mechanism for direct loss or fragmentation of habitat during construction of the Proposed Development associated with scour from the placement of buoy-mounted acoustic devices (if used) and the release of drilling fluid exists as this interest feature, (and its associated biological community attributes linked to favourable condition), is within the Order Limits.	Yes	
		Temporary change in water quality	This interest feature is approximately 1.4 km from the nearest hydrologically connected works with the potential to cause changes in fluvial water quality, due to this distance there would be no pathway, and no mechanism, for a likely significant effect upon this interest feature.	No	
		Temporary release of drilling fluid	A potential mechanism for effects from release of drilling fluid during construction of the Proposed Development exists as this interest feature (and its associated biological community attributes linked to favourable condition), is within the Order Limits.	Yes	

Table 6.4 Screenir	ng Stage 1bC - does a m	echanism for effect exist betwee	n the Proposed Development and sites interest features?	
Site	Interest Feature	Pathways from Stage 1bB	Mechanism to result in a likely significant effect?	Mechanism through to Stage 1c (Yes/No)
		Introduction of the INNS and diseases	There is the potential mechanism for the introduction of INNS and diseases associated with the introduction of boats and buoys for marine mammal and fish mitigation during tunnelling activities beneath the Menai Strait.	Yes
	Large shallow inlets	Direct loss of habitat	No pathway, and no mechanism, for the Proposed Development to affect this interest feature	No
	and bays	Temporary change in water quality	exists as the Proposed Development would not affect longshore drift.	No
		Temporary release of drilling fluid		No
		Introduction of the INNS and diseases	There is the potential mechanism for the introduction of INNS and diseases associated with the introduction of boats and buoys for marine mammal and fish mitigation during tunnelling activities beneath the Menai Strait.	Yes
	Submerged or partially	Direct loss of habitat	No pathway, and no mechanism, for the Proposed Development to affect this interest feature exists due to the distance (5.2 km) and nature of this interest feature from the Order Limits.	No
	submerged sea caves	Temporary change in water quality		No
		Temporary release of drilling fluid		No
		Introduction of the INNS and diseases	There is the potential mechanism for the introduction of INNS and diseases associated with the introduction of boats and buoys for marine mammal and fish mitigation during tunnelling activities beneath the Menai Strait.	Yes
Eryri/Snowdonia SAC -	Oligotrophic to mesotrophic standing waters with vegetation of the <i>Littorelletea</i> <i>uniflorae</i> and/or of the	Temporary effects on air quality/deposition	As this site is within 10 km of an emergency generator during the construction of the Proposed Development there is the potential for a mechanism for effect associated with changes in air quality.	Yes

Table 6.4 Scree	Table 6.4 Screening Stage 1bC - does a mechanism for effect exist between the Proposed Development and sites interest features?				
Site	Interest Feature	Pathways from Stage 1bB	Mechanism to result in a likely significant effect?	Mechanism through to Stage 1c (Yes/No)	
	Isoëto-Nanojuncetea				
	Siliceous alpine and boreal grasslands	Temporary effects on air quality/deposition	As this site is within 10 km of an emergency generator during the construction of the Proposed Development there is the potential for a mechanism for effect associated with changes in air quality.	Yes	
	Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels	Temporary effects on air quality/deposition	As this site is within 10 km of an emergency generator during the construction of the Proposed Development there is the potential for a mechanism for effect associated with changes in air quality.	Yes	
	Siliceous scree of the montane to snow levels (<i>Androsacetalia</i> <i>alpinae</i> and <i>Galeopsietalia</i> ladani)	Temporary effects on air quality/deposition	As this site is within 10 km of an emergency generator during the construction of the Proposed Development there is the potential for a mechanism for effect associated with changes in air quality.	Yes	
	Calcareous rocky slopes with <i>chasmophytic</i> vegetation	Temporary effects on air quality/deposition	As this site is within 10 km of an emergency generator during the construction of the Proposed Development there is the potential for a mechanism for effect associated with changes in air quality.	Yes	
	Siliceous rocky slopes with <i>chasmophytic</i> vegetation	Temporary effects on air quality/deposition	As this site is within 10 km of an emergency generator during the construction of the Proposed Development there is the potential for a mechanism for effect associated with changes in air quality.	Yes	
	Northern Atlantic wet heaths with <i>Erica</i>	Temporary effects on air quality/deposition	As this site is within 10 km of an emergency generator during the construction of the Proposed Development there is the potential for a mechanism for effect associated with changes in air	Yes	

Table 6.4 Screening Stage 1bC - does a mechanism for effect exist between the Proposed Development and sites interest features?				
Site	Interest Feature	Pathways from Stage 1bB	Mechanism to result in a likely significant effect?	Mechanism through to Stage 1c (Yes/No)
	tetralix		quality.	
	European dry heaths	Temporary effects on air quality/deposition	As this site is within 10 km of an emergency generator during the construction of the Proposed Development there is the potential for a mechanism for effect associated with changes in air quality.	Yes
	Alpine and Boreal heaths	Temporary effects on air quality/deposition	As this site is within 10 km of an emergency generator during the construction of the Proposed Development there is the potential for a mechanism for effect associated with changes in air quality.	Yes
	Alpine and subalpine calcareous grasslands	Temporary effects on air quality/deposition	As this site is within 10 km of an emergency generator during the construction of the Proposed Development there is the potential for a mechanism for effect associated with changes in air quality.	Yes
	Species-rich <i>Nardus</i> grasslands, on <i>silicious</i> substrates in mountain areas (and submountain areas in Continental Europe)	Temporary effects on air quality/deposition	As this site is within 10 km of an emergency generator during the construction of the Proposed Development there is the potential for a mechanism for effect associated with changes in air quality.	Yes
	Blanket bogs	Temporary effects on air quality/deposition	As this site is within 10 km of an emergency generator during the construction of the Proposed Development there is the potential for a mechanism for effect associated with changes in air quality.	Yes
	Depressions on peat substrates of the Rhynchosporion	Temporary effects on air quality/deposition	As this site is within 10 km of an emergency generator during the construction of the Proposed Development there is the potential for a mechanism for effect associated with changes in air quality.	Yes
	Petrifying springs with	Temporary effects on air	As this site is within 10 km of an emergency generator during the construction of the Proposed	Yes

Table 6.4 Screening Stage 1bC - does a mechanism for effect exist between the Proposed Development and sites interest features?					
Site	Interest Feature	Pathways from Stage 1bB	Mechanism to result in a likely significant effect?	Mechanism through to Stage 1c (Yes/No)	
	tufa formation (<i>Cratoneurion</i>) * Priority feature	quality/deposition	Development there is the potential for a mechanism for effect associated with changes in air quality.		
	Alkaline fens	Temporary effects on air quality/deposition	As this site is within 10 km of an emergency generator during the construction of the Proposed Development there is the potential for a mechanism for effect associated with changes in air quality.	Yes	
	Alpine pioneer formations of the Caricion <i>bicoloris-</i> <i>atrofuscae</i>	Temporary effects on air quality/deposition	As this site is within 10 km of an emergency generator during the construction of the Proposed Development there is the potential for a mechanism for effect associated with changes in air quality.	Yes	
	Old sessile oak woods with <i>Ilex</i> and <i>Blechnum</i> in the British Isles	Temporary effects on air quality/deposition	As this site is within 10 km of an emergency generator during the construction of the Proposed Development there is the potential for a mechanism for effect associated with changes in air quality.	Yes	
	Slender green feather- moss	Temporary effects on air quality/deposition	As this site is within 10 km of an emergency generator during the construction of the Proposed Development there is the potential for a mechanism for effect associated with changes in air quality.	Yes	
	Floating water-plantain	Temporary effects on air quality/deposition	As this site is within 10 km of an emergency generator during the construction of the Proposed Development there is the potential for a mechanism for effect associated with changes in air quality.	Yes	
Afon Gwyrfai a Llyn Cwellyn SAC	Oligotrophic to mesotrophic standing	Disturbance/injury and or displacement	The site is 8.6 km south-west and upstream of the Proposed Development and as this interest feature is not transient beyond the boundary of the SAC there would be no pathway, and no	No	
	waters with vegetation	Temporary release of drilling fluid	mechanism, for a likely significant effect from the release of drilling fluid, disturbance/injury and	No	

Table 6.4 Screening Stage 1bC - does a mechanism for effect exist between the Proposed Development and sites interest features?					
Site	Interest Feature	Pathways from Stage 1bB	Mechanism to result in a likely significant effect?	Mechanism through to Stage 1c (Yes/No)	
	of the <i>Littorelletea</i> <i>uniflorae</i> and/or of the <i>Isoëto-Nanojuncetea</i>	Disorientation of species from EMFs	or displacement or EMFs.	No	
	Water courses of plain to montane levels with	Disturbance/injury and or displacement	The site is 8.6 km south-west and upstream of the Proposed Development and as this interest feature is not transient beyond the boundary of the SAC there would be no pathway, and no	No	
	the Ranunculion fluitantis and Callitricho-Batrachion vegetation	Temporary release of drilling fluid	mechanism, for a likely significant effect from the release of drilling fluid, disturbance/injury and or displacement or EMFs.	No	
		Disorientation of species from EMFs		No	
	Atlantic salmon	Disturbance/injury and or displacement	Atlantic salmon has been caught in the Ynys Gored Goch fish trap (north of Britannia Bridge) (Ref 6.22). Salmonids are therefore assumed to be utilising the Menai Strait en-route to their spawning areas as adults (spring to autumn) and to the sea as smolts (spring). The Menai Strait has been described as a salmonid waterway (Ref 6.22). The Rivers Seiont, Ogwen, Cadnant and Cegin all flow into the Strait from both Anglesey and the mainland. The Seiont is known to support Atlantic salmon, but is not associated with an SAC population. The River Gwyrfai (Afon Gwyrfai) contains a largely unexploited salmon population and enters the Menai Strait approximately 8.6 km south-west of the Order Limits.	Yes	
			There is a potential mechanism for effect as 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.		
		Temporary release of drilling fluid	The release of drilling fluid has the potential to affect fish through the contamination of the water column therefore there would be a mechanism for a likely significant effect.	Yes	

Table 6.4 Screenin	Table 6.4 Screening Stage 1bC - does a mechanism for effect exist between the Proposed Development and sites interest features?					
Site	Interest Feature	Pathways from Stage 1bB	Mechanism to result in a likely significant effect?	Mechanism through to Stage 1c (Yes/No)		
		Disorientation of species from EMFs	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.	Yes		
	Floating water-plantain	Disturbance/injury and or displacement	The site is 8.6 km south-west, upstream of the Proposed Development and as this interest feature is not transient beyond the boundary of the SAC therefore there would be no pathway,	No		
		Temporary release of drilling fluid	and no mechanism, for potential for a likely significant effect from the release of drilling fluid, disturbance/injury and or displacement or EMFs.	No		
C		Disorientation of species from EMFs		No		
	Otter	Disturbance/injury and or displacement	Otters are known to be transient and often occupy extensive territories with Green et al (1984) (Ref 6.21) reporting that for male otters this could include up to 30 to 40 km of watercourses (Ref 6.21) in which they move from one lying up place or holt to another to exploit available food sources when they are present in sufficient biomass for hunting to be efficient. Otters are not sensitive to the release of drilling fluid from blowout and EMFs therefore there would be no pathway, or mechanism, to result in a likely significant effect on otters associated with this SAC. 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 any noise propagated into the water above during construction of the tunnel is extremely low, particularly given the very short blast duration therefore there is no potential for disturbance/injury and or displacement.	No		
		Temporary release of drilling fluid		No		
		Disorientation of species from EMFs		No		
Pen Llyn a'r Sarnau/ Lleyn	Estuaries	Disturbance/injury and or displacement	No pathway, and therefore no mechanism, to affect this interest feature exists due to the distance of the Pen Llyn a'r Sarnau/Lleyn Peninsula and the Sarnau SAC (36.7 km) from the	No		
Peninsula and the Sarnau SAC		Disorientation of species from EMFs	Proposed Development and the non-transient nature of this interest feature.	No		

Table 6.4 Screenir	ng Stage 1bC - does a m	echanism for effect exist betwe	en the Proposed Development and sites interest features?	
Site	Interest Feature	Pathways from Stage 1bB	Mechanism to result in a likely significant effect?	Mechanism through to Stage 1c (Yes/No)
	Coastal lagoons	Disturbance/injury and or displacement	No pathway, and therefore no mechanism, to affect this interest feature exists due to the distance of the Pen Llyn a'r Sarnau/Lleyn Peninsula and the Sarnau SAC (36.7 km) from the	No
La ar R		Disorientation of species from EMFs	Proposed Development and the non-transient nature of this interest feature.	No
	Large shallow inlets and bays	Disturbance/injury and or displacement	No pathway, and therefore no mechanism, to affect this interest feature exists due to the distance of the Pen Llyn a'r Sarnau/Lleyn Peninsula and the Sarnau SAC (36.7 km) from the Proposed Development and the non-transient nature of this interest feature.	No
		Disorientation of species from EMFs		No
	Reefs	Disturbance/injury and or displacementNo pathway, and no mechanism to Pen Llyn a'r Sarnau/Lleyn Peninsul	No pathway, and no mechanism to affect this interest feature exists, due to the distance of the Pen Llyn a'r Sarnau/Lleyn Peninsula and the Sarnau SAC (36.7 km) from the Proposed	No
		Disorientation of species from EMFs	Development and the non-transient nature of this interest feature.	No
	Mudflats and sandflats not covered by seawater at low tide	Disturbance/injury and or displacement	No pathway, and no mechanism to affect this interest feature exists due to the distance of the Pen Llyn a'r Sarnau/Lleyn Peninsula and the Sarnau SAC (36.7 km) from the Proposed Development and the non-transient nature of this interest feature.	No
		Disorientation of species from EMFs		No
	Salicornia and other annuals colonizing	Disturbance/injury and or displacement	No pathway, and no mechanism to affect this interest feature exists due to the distance of the Pen Llyn a'r Sarnau/Lleyn Peninsula and the Sarnau SAC (36.7 km) from the Proposed	No
	mud and sand	Disorientation of species from EMFs	Development and the non-transient nature of this interest feature.	No
	Atlantic salt meadows	Disturbance/injury and or	No pathway, and no mechanism to affect this interest feature exists due to the distance of the	No

Table 6.4 Screening Stage 1bC - does a mechanism for effect exist between the Proposed Development and sites interest features?					
Site	Interest Feature	Pathways from Stage 1bB	Mechanism to result in a likely significant effect?	Mechanism through to Stage 1c (Yes/No)	
		displacement	Pen Llyn a'r Sarnau/Lleyn Peninsula and the Sarnau SAC (36.7 km) from the Proposed		
		Disorientation of species from EMFs	Development and the non-transient nature of this interest feature.	No	
	Submerged or partially submerged sea caves	Disturbance/injury and or displacement	No pathway, and no mechanism to affect this interest feature exists due to the distance of the Pen Llyn a'r Sarnau/Lleyn Peninsula and the Sarnau SAC (36.7 km) from the Proposed Development and the non-transient nature of this interest feature.	No	
		Disorientation of species from EMFs		No	
	Bottlenose dolphins	Disturbance/injury and or displacement Bottlenose dolphins are known to occasionally pass through the Menai Strait. Althor individuals may utilise the Menai Strait to travel between Caernarfon Bay and Liverp marine mammals are not commonly observed within the area (NRW meeting Octobe	Bottlenose dolphins are known to occasionally pass through the Menai Strait. Although individuals may utilise the Menai Strait to travel between Caernarfon Bay and Liverpool Bay, marine mammals are not commonly observed within the area (NRW meeting October, 2015 ⁹).	Yes	
			There could be disturbance of individuals during construction. Noise and vibration has the potential to cause behavioural changes or, in more extreme cases, damage to hearing therefore there is a potential mechanism for effect.		
		Disorientation of species from EMFs	There could be disorientation of individuals of sensitive species from EMFs during operation. EMF have the potential to disorientate marine mammals such as bottlenose dolphin therefore there is a potential mechanism for effect.	Yes	
	Otter	Disturbance/injury and or displacement	Otters are known to be transient and often occupy extensive territories with Green et al (1984) (Ref 6.21) reporting that for male otters this could include up to 30 to 40 km of watercourses	No	
		Disorientation of species from	(Ref 6.21) in which they move from one lying up place or holt to another to exploit available food sources when they are present in sufficient biomass for hunting to be efficient. Therefore due to	No	

⁹ NRW meeting minutes, 21st October 2015, Ty Menai : North Wales Connection: Boreholes within the Menai and onshore

Table 6.4 Screening Stage 1bC - does a mechanism for effect exist between the Proposed Development and sites interest features?					
Site	Interest Feature	Pathways from Stage 1bB	Mechanism to result in a likely significant effect?	Mechanism through to Stage 1c (Yes/No)	
		EMFs	the distance (36.7 km) of this site from the Proposed Development no pathway, and therefore no mechanism, exists to affect this interest feature, associated with this SAC.		
	Grey seal	Disturbance/injury and or displacement	Grey seal are known to occasionally pass through the Menai Strait. Although individuals may utilise the Menai Strait to travel between Caernarfon Bay and Liverpool Bay, marine mammals are not commonly observed within the area (NRW meeting October, 2015 ¹⁴). There could be disturbance of individuals during construction. Noise and vibration has the potential to cause behavioural changes or, in more extreme cases, damage to hearing therefore there is a potential mechanism for effect.	Yes	
		Disorientation of species from EMFs	Grey seal are known to occasionally pass through the Menai Strait. Although individuals may utilise the Menai Strait to travel between Caernarfon Bay and Liverpool Bay, marine mammals are not commonly observed within the area (NRW meeting October, 2015 ¹⁴). However grey seal are not sensitive to EMFs therefore no pathway, or mechanism, for a likely significant effect exists.	No	
Cardigan Bay SAC	Bottlenose dolphins	Disturbance/injury and or displacement	Bottlenose dolphins are known to occasionally pass through the Menai Strait. Although individuals may utilise the Menai Strait to travel between Caernarfon Bay and Liverpool Bay, marine mammals are not commonly observed within the area (NRW meeting October, 2015 ¹⁴). There could be disturbance of individuals during construction. Noise and vibration has the potential to cause behavioural changes or, in more extreme cases, damage to hearing therefore there is a potential mechanism for effect.	Yes	
		Disorientation of species from EMFs	There could be disorientation of individuals of sensitive species from EMFs during operation. EMF have the potential to disorientate marine mammals such as bottlenose dolphin therefore there is a potential mechanism for effect.	Yes	
	Reefs	Disturbance/injury and or	No pathway, and therefore no mechanism, to affect this interest feature exists due to the	No	

Table 6.4 Screening Stage 1bC - does a mechanism for effect exist between the Proposed Development and sites interest features?					
Site	Interest Feature	Pathways from Stage 1bB	Mechanism to result in a likely significant effect?	Mechanism through to Stage 1c (Yes/No)	
		displacement	distance of the Cardigan Bay SAC (85.5 km) from the Proposed Development and the non-		
		Disorientation of species from EMFs	transient nature of this interest feature.	No	
	Submerged or par submerged sea ca	Submerged or partially submerged sea caves	Disturbance/injury and or displacement	No pathway, and therefore no mechanism, to affect this interest feature exists due to the distance of the Cardigan Bay SAC (85.5 km) from the Proposed Development and the non-	No
		Disorientation of species from EMFs	transient nature of this interest feature.	No	
	Sandbanks - slightly covered by seawater	Disturbance/injury and or displacement	No pathway, and therefore no mechanism, to affect this interest feature exists due to the distance of the Cardigan Bay SAC (85.5 km) from the Proposed Development and the non-		
	all the time	Disorientation of species from EMFs	transient nature of this interest feature.	No	
	Grey seal	Disturbance/injury and or displacement	Grey seal are known to occasionally pass through the Menai Strait. Although individuals may utilise the Menai Strait to travel between Caernarfon Bay and Liverpool Bay, marine mammals are not commonly observed within the area (NRW meeting October, 2015 ¹⁴). There could be disturbance of individuals during construction. Noise and vibration has the potential to cause behavioural changes or, in more extreme cases, damage to hearing therefore there is a potential mechanism for effect.	Yes	
		Disorientation of species from EMFs	Grey seal are not sensitive to EMFs therefore no pathway, or mechanism, for a likely significant effect exists.	No	
	River Lamprey	Disturbance/injury and or displacement	No pathway, and therefore no mechanism, to affect this interest feature exists due to the distance of the Cardigan Bay SAC (85.5 km) from the Proposed Development.	No	

Table 6.4 Screenir	Table 6.4 Screening Stage 1bC - does a mechanism for effect exist between the Proposed Development and sites interest features?					
Site	Interest Feature	Pathways from Stage 1bB	Mechanism to result in a likely significant effect?	Mechanism through to Stage 1c (Yes/No)		
		Disorientation of species from EMFs		No		
	Sea Lamprey	Disturbance/injury and or displacement	No pathway, and therefore no mechanism, to affect this interest feature exists due to the distance of the Cardigan Bay SAC (85.5 km) from the Proposed Development.	No		
North Anglosov		Disorientation of species from EMFs		No		
North Anglesey Marine/ Gogledd Môn Forol cSAC	Harbour porpoise	Disturbance/injury and or displacement	 Harbour porpoise are known to occasionally pass through the Menai Strait. Although individuals may utilise the Menai Strait to travel between Caernarfon Bay and Liverpool Bay, marine mammals are not commonly observed within the area (NRW meeting October, 2015¹⁴). There could be disturbance of individuals during construction. Noise and vibration has the potential to cause behavioural changes or, in more extreme cases, damage to hearing therefore there is a potential mechanism for effect. 	Yes		
		Disorientation of species from EMFs	There could be disorientation of individuals of sensitive species from EMFs during operation. EMF have the potential to disorientate marine mammals such as bottlenose dolphin therefore there is a potential mechanism for effect.	Yes		
West Wales Marine cSAC	Harbour porpoise	Disturbance/injury and or displacement	Harbour porpoise are known to occasionally pass through the Menai Strait. Although individuals may utilise the Menai Strait to travel between Caernarfon Bay and Liverpool Bay, marine mammals are not commonly observed within the area (NRW meeting October, 2015 ¹⁴).	Yes		
			There could be disturbance of individuals during construction. Noise and vibration has the potential to cause behavioural changes or, in more extreme cases, damage to hearing therefore there is a potential mechanism for effect.			
		Disorientation of species from EMFs	There could be disorientation of individuals of sensitive species from EMFs during operation. EMF have the potential to disorientate marine mammals such as bottlenose dolphin therefore	Yes		

Table 6.4 Screening Stage 1bC - does a mechanism for effect exist between the Proposed Development and sites interest features?					
Site	Interest Feature	Pathways from Stage 1bB	Mechanism to result in a likely significant effect?	Mechanism through to Stage 1c (Yes/No)	
			there is a potential mechanism for effect.		
Liverpool Bay/Bae Lerpwl SPA (including extension)	Little tern <i>(Breeding)</i>	Collision Risk	Little tern associated with the Liverpool Bay/Bae Lerpwl SPA (including extension) nest at a location approximately 53 km east of the Order Limits and their mean maximum recorded foraging range in 11 km (Ref 6.14). Data searches show one record of this interest feature foraging offshore at Cemlyn Bay in the last ten years and field surveys show no records of this interest feature utilising the Menai Strait during the breeding season. As this interest features are strictly/pelagic and the closest breeding site at Cemlyn Bay is too distant for disturbance therefore there would be no pathway, and therefore no mechanism, to result in a likely significant on this interest feature.	No	

Table 6.4 Screening Stage 1bC - does a mechanism for effect exist between the Proposed Development and sites interest features?						
Site	Interest Feature	Pathways from Stage 1bB	Mechanism to result in a likely significant effect?	Mechanism through to Stage 1c (Yes/No)		
	Common tern (Breeding)	Collision Risk	Maximum foraging distances from breeding colonies of common terns are reported to be 20 – 30 km (Ref 6.23), with some sources suggesting up to 37 km (Ref 6.24) and foraging habitat including open sea, brackish waters, estuaries, rivers and inland waterbodies.	No		
			Common tern is a 'fairly common Summer visitor and passage migrant' (Ref 6.25). The main breeding colonies are The Skerries and Cemlyn, but breeding was also recorded for the 2008–12 period on the Menai Strait, somewhere near the Menai Bridge (Ref 6.26).			
			The common tern has a coastal distribution around Anglesey that is reflected in the third party data: all Cofnod records received are from Cemlyn; and available data from WeBS ¹⁰ online include records only at coastal count sectors. Historically common tern has been regarded as breeding at the islands on Llyn Alaw, however there have been no records of this species there in the last 10 years, the last recorded presence in the WeBS online data ¹⁵ base being in count year 1996 – 97.			
			During Menai Strait bird counts (Appendix 9.15 (Document 5.9.2.15)), common tern was recorded foraging between the two bridges in June and July 2016 and July – August 2017, with peak counts of 6 over open water in July 2016 and 10 birds on Ynys Gored Goch showing territorial behaviour in July 2017 (although breeding was not confirmed at this location). West of the Britannia Bridge this species was recorded only once.			
			The key areas for common tern are therefore coastal, with the species present potentially at any location around the coast of Anglesey in Summer and Cemlyn Bay being the key breeding location. It is not present inland. As this interest features are strictly/pelagic and the closest breeding site at Cemlyn Bay is too distant for disturbance therefore there would be no pathway, and therefore no mechanism, to result in a likely significant on this interest feature.			

¹⁰ British Trust for Ornithology (BTO) Wetland Bird Survey (WeBS) WeBS online (website): <u>https://app.bto.org/webs-reporting/</u>
Table 6.4 Screening Stage 1bC - does a mechanism for effect exist between the Proposed Development and sites interest features?				
Site	Interest Feature	Pathways from Stage 1bB	Mechanism to result in a likely significant effect?	Mechanism through to Stage 1c (Yes/No)
	Red throated diver (North-western Europe) <i>(Over Winter)</i>	Collision Risk	Red throated diver is almost exclusively distributed in offshore waters during Winter. Data searches show seven records of red throated diver in proximity to Cemlyn Bay, Wylfa Head and Caemes Bay over the last ten years, however data searches and field surveys show no records of this interest feature utilising the Menai Strait during the non-breeding seasons for the same period. The boundary of the Liverpool Bay/Bae Lerpwl SPA (including extension) is approximately 13 km from the Order Limits at the Menai Strait therefore there would be no pathway, and therefore no mechanism, for a likely significant effect from either disturbance and/or displacement and collision risk.	No
	Common scoter (European Population) <i>(Over Winter)</i>	Collision Risk	Common scoter is almost exclusively distributed in offshore waters during Winter. Data searches show seven records of common scoter in proximity to Cemlyn Bay and Wylfa Head over the last ten years, however data searches and field surveys show no records of this interest feature utilising the Menai Strait during the non-breeding seasons for the same period. The boundary of the Liverpool Bay/Bae Lerpwl SPA (including extension) is approximately 13 km from the Order Limits at the Menai Strait therefore there would be no pathway, and therefore no mechanism, for a likely significant effect from either disturbance and/or displacement and collision risk.	No
	Little gull (Non-breeding)	Collision Risk	Little gulls are also strictly coastal or inhabit offshore waters in Winter. Data searches shown three records of Little gull in proximity to Cemlyn Bay and Wylfa Head and one records within the Menai Strait, east of the Britannia Bridge, over the last ten years, however field surveys show no records of this interest feature utilising the Menai Strait during the non-breeding seasons.	No
			Little gulls associated with the Liverpool Bay/Bae Lerpwl SPA (including extension) are present in open waters north of the Dee Estuary to Morecambe Bay approximately 58 km east of the Order Limits (Ref 6.14) therefore there would be no pathway, and no mechanism, for a likely significant effect from either disturbance and/or displacement and collision risk.	

Table 6.4 Screening Stage 1bC - does a mechanism for effect exist between the Proposed Development and sites interest features?				
Site	Interest Feature	Pathways from Stage 1bB	Mechanism to result in a likely significant effect?	Mechanism through to Stage 1c (Yes/No)
Interr impor asser 20,00 69,68 (2004 all sp 	Internationally important waterbird assemblage of over 20,000 individuals: 69,687 individuals (2004/05 – 2010/11), all species listed above plus cormorant and red – breasted merganser	Collision Risk	• Cormorant Although cormorant is primarily a coastal species, Stroud <i>et al.</i> , (Ref 6.27) 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 6.29); however Thaxter <i>et al.</i> (Ref 6.23), 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 a limited potential for cormorant associated with the Liverpool Bay SPA to encounter the OHL and a potential mechanism for an effect.	Yes
	as key components. Other species as part of the assemblage contribute to the assemblage in numbers <1% of their GB populations or <2,000 individuals	Collision Risk	 Red – breasted merganser Red – breasted merganser was not recorded in flight but was present at Llyn Alaw and in small numbers (Appendix 9.15 (Document 5.9.2.15)) in all open waters within the Menai Count Sector Areas. WeBS¹⁵ core count data indicate it's presence at most coastal sectors but few inland freshwaters (Cemlyn Bay and Iagoon, Llyn Alaw, Traeth Dulas, Traeth Lligwy, and Traeth Coch). As red – breasted merganser are only present at few inland freshwaters, including Llyn Alaw, and in small numbers in all open waters within the Menai Count Areas and as red – breasted merganser was not recorded in flight over the Proposed Development no pathway, and therefore mechanism, for a likely significant effect exists for either disturbance and/or displacement and collision . 	No
	Oystercatcher (Over Winter)	Collision Risk Temporary disturbance and/or	Oystercatcher is a 'fairly common breeding resident and Winter visitor' (Ref 6.25). It breeds predominantly on wetland margins around the coast of Anglesey, with some breeding sites inland occurring around the margins of Llyn Alaw (Ref 6.26).	No No
		displacement	Cofnod records returned were mostly coastal in distribution and included confirmed breeding at Llyn Alaw and Cemlyn Bay. Oystercatchers have been recorded in WeBS counts at Cemlyn Bay, Llyn Alaw, Traeth Dulas, Traeth Llygwy, and Traeth Coch, with the largest counts at	

Table 6.4 Screenin	Table 6.4 Screening Stage 1bC - does a mechanism for effect exist between the Proposed Development and sites interest features?				
Site	Interest Feature	Pathways from Stage 1bB	Mechanism to result in a likely significant effect?	Mechanism through to Stage 1c (Yes/No)	
			coastal sites.		
			Small numbers (5 or less) of oystercatcher were recorded on the Menai Strait during all seasons.		
			This species was rarely recorded in flight on Anglesey (Appendix 9.15 (Document 5.9.2.15))and not at all on the mainland, there being only 4 flights (7 birds in total) in Winter 2015 – 16 and Spring 2017, recorded from VP5 (Cemaes), VP19b (Llyn Alaw) and VP52a (2 brief flights of birds visiting wet pastures north of the Menai Strait). The latter were over 2 km from the Order Limits. All flights were entirely below risk height.		
			As oystercatcher are only present at few inland freshwaters, including Llyn Alaw, and in small numbers in all open waters within the Menai Count Areas and due to the low numbers recorded in flight, all entirely below risk height, there would be no mechanism, for a likely significant effect.		
Red-breasted	Red-breasted	Collision Risk	Red – breasted merganser was not recorded in flight but was present at Llyn Alaw and in small	No	
	merganserTemporary disturbance and/or(Over Winter)displacement	numbers in all open waters within the Menai Count Sector Areas. WeBS core count data indicate it's presence at most coastal sectors but few inland freshwaters (Cemlyn Bay and Iagoon, Llyn Alaw, Traeth Dulas, Traeth Lligwy, and Traeth Coch).	No		
Eu (C			As red – breasted merganser are only present at few inland freshwaters, including Llyn Alaw, and in small numbers in all open waters within the Menai Count Areas and as red – breasted merganser was not recorded in flight over the Proposed Development there would be no mechanism, for a likely significant effect.		
	Eurasian curlew	Collision Risk	Curlew is a 'declining resident and abundant Winter visitor'. Breeding was confirmed at	No	
	(Over Winter) Temporary disturbance and/or displacement	Malltraeth Marsh RSPB (1 pair) and a breeding pair was seen at Cors Erddreiniog in April 2015 (Ref 6.25). Notable Winter counts include 200 at Cemlyn Bay on 3rd January 2015. Possible and probable breeding is reported in Brenchley et al. (2013) across much of Anglesey's interior and some coastal areas, with at least some overlap between these areas and the Order Limits	No		

Table 6.4 So	Table 6.4 Screening Stage 1bC - does a mechanism for effect exist between the Proposed Development and sites interest features?				
Site	Interest Feature	Pathways from Stage 1bB	Mechanism to result in a likely significant effect?	Mechanism through to Stage 1c (Yes/No)	
			(Ref 6.26).		
			Cofnod data include records for Cemlyn and Cemaes, Llyn Alaw, Capel Parc, Cors Erddreiniog, 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.		
			Multiple counts of curlew were recorded between the Menai and Britannia bridges and regular counts were made of smaller numbers west of Britannia Bridge, all year round, plus a Winter flock of 70 birds at Llyn Alaw. Possible breeding was recorded in CBC Area 7.		
			There were 123 recorded curlew flights - 42 below risk height, 1 above risk height and the remaining 80 at risk height - involving 1,082 birds with flocks ranging from 1 to 70 individuals (mean 9) (Appendix 9.15 (Document 5.9.2.15)). 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 Cors Erddreiniog (recorded from VP 33Alt2 and VP 37E), where 3 (out of 6) records between March and May 2016 included display flights. Scattered flights were recorded elsewhere during this period, especially in the improved pastures near Four Crosses (viewed from VP 52a), however these were more likely to be feeding and commuting flights.		
			Non – breeding flights were recorded throughout the rest of the survey period and were distinctly aligned to the distribution of favoured terrestrial feeding areas:		
			 the fields immediately north of VP 5 at Tregele, adjacent to the Order Limits; 		
			 the wet fields immediately west of Four Crosses, about 1 km north of the Menai Strait. A regularly used flight path between here and the Menai Strait was identified; however this is at least 2 km east of the Order Limits. 		
			Regular, but less frequently used areas including Llyn Alaw and surrounding wet grasslands and		

Table 6.4 Screening Stage 1bC - does a mechanism for effect exist between the Proposed Development and sites interest features?				
Site	Interest Feature	Pathways from Stage 1bB	Mechanism to result in a likely significant effect?	Mechanism through to Stage 1c (Yes/No)
			the sloping pastures adjacent to VP58, about 1 km east of the Menai Strait and the same distance west of the Order Limits.	
			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. However curlew typically feed on coastal habitat including intertidal mudflats and grasslands within about 500m of the coast and very rarely more than 2.5km inland from coastal feeding areas (Ref 6.30). 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 4.7km from the SPA. Curlew activity recorded inland where above ground infrastructure is proposed is therefore highly unlikely to be related to the SPA population. Therefore there would be no mechanism for the Proposed Development to result in a likely significant effect from disturbance and/or displacement or collision.	
	Great crested grebe	Collision Risk	Great Crested Grebe is a fairly common breeding resident within Wales and is more numerous	No
	(Non-breeding)	Temporary disturbance and/or displacement	in Winter (Ref 6.25). It is present as a confirmed or probable breeding species in all 10 km grid squares covering the Order Limits, with the exception of the tetrad covering the northern part of the Order Limits (Ref 6.26).	No
			WeBS online data indicate consistent presence in small numbers at all of the wetlands, for which data were collated, with the largest counts at Llyn Alaw (10) and Traeth Coch (21). Surveys recorded great crested grebe at Llyn Alaw on at least 4 occasions (peak count 7) over Winter 2016 – 17 and occasional individuals on the Menai Strait west of the Britannia Bridge. East of the Britannia bridge slightly larger numbers were recorded (peak 6) over Winter with occasional records during the breeding period (peak 2) and records were slightly more frequent, though still irregular.	
			There were no recorded flights of great – crested grebe. Similar to little grebe, this species is relatively widespread on freshwaters and coastal waters across Anglesey but is likely to be mostly sedentary. Key areas are therefore the larger wetland sites (i.e. excluding small pools	

Table 6.4 Screening Stage 1bC - does a mechanism for effect exist between the Proposed Development and sites interest features?				
Site	Interest Feature	Pathways from Stage 1bB	Mechanism to result in a likely significant effect?	Mechanism through to Stage 1c (Yes/No)
			and ponds) and coastal areas and in this case Llyn Alaw is arguably the most important site within the survey area. As great crested grebe are only present at wetlands for which data were collated, at Llyn Alaw and the Menai Strait no mechanism for likely significant effects exist from either disturbance and/or displacement or collision risk.	
Co (0 1	Common redshank	Collision Risk	Redshank is a 'scarce resident'; common passage migrant and Winter visitor'. Records reported	No
	(Over Winter)	Temporary disturbance and/or displacement	are almost entirely coastal (Ref 6.25). Possible and probable breeding have been reported predominantly on the west coast of Anglesey, with sightings around most of the Anglesey coast during the breeding season (Ref 6.26).	No
			The Cofnod and WeBS data also demonstrate this, with sparse records at inland sites (1-2 birds occasionally at Llyn Alaw and Llyn Llygeirian) but much more frequent occurrence in greater numbers; the highest counts exceeded 200 individuals at Traeth Coch in 2015/16 and 2015/16 count periods.	
			This species was recorded frequently in all intertidal habitats surveyed on the Menai Strait, and on a year-round basis within the Menai count area, with a peak count of 10 in Count Sector E in August 2017 and smaller numbers in Winter. It was regularly recorded in much larger numbers between the bridges.	
			VP surveys generated only three records of this species in flight, near Llyn Alaw and the Menai Strait in November 2015 and December 2016, with about half of the brief flight time at risk height (Appendix 9.15 (Document 5.9.2.15)). Redshank activity therefore appears to be restricted mainly to the coast with occasional forays over land on Anglesey.	
			As redshank appears to be restricted mainly to the coast with occasional forays over land on Anglesey there would be no mechanism for a likely significant effect from either disturbance and/or displacement or collision risk.	

Table 6.4 Screening Stage 1bC - does a mechanism for effect exist between the Proposed Development and sites interest features?				
Site	Interest Feature	Pathways from Stage 1bB	Mechanism to result in a likely significant effect?	Mechanism through to Stage 1c (Yes/No)
Ynys Seiriol/ Puffin Island SPA	Cormorant (North- western Europe) <i>(Breeding)</i>	Collision Risk	Although cormorant is primarily a coastal species, Stroud <i>et al.</i> , (Ref 6.27) 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 6.29); however Thaxter <i>et al.</i> (Ref 6.23), report that the mean foraging range of cormorant is 5.2 km. As the SPA, at its closest point, is 15.35 km to the closest point of the Order Limits, there is limited potential for cormorant associated with Puffin Island to encounter the OHL and a potential mechanism for an effect.	Yes
Dyfi Estuary SPA	Regularly supports Greenland White- fronted Goose (Greenland/Ireland/UK) 1% of the GB population 5 year peak mean for 1993/94 - 1997/98 (Over Winter)	Collision Risk	 Data provided by RSPB for Malltraeth Marsh include 15 records of Greenland white-fronted geese between 2011 and 2016 at this location, with peak numbers appearing to increase in recent years (17 in 2014, 23 in 2015 and 13 in 2016). The Cambrian Bird Report 2015 (Ref 6.25) provides details of 17 Greenland white-fronted geese which moved from Malltraeth Marsh RSPB in February to fields near Pont Marquis just southwest of the reserve. Historical presence on Anglesey has been reported as up to 200 individuals in the 1980's but the status of Anglesey as a regular Wintering "resort" is poorly understood and according to some sources is in doubt¹¹. The latest census of this species (Ref 6.31) counted 13 individuals at Valley and Llyn Llewenan in March 2016, with Spring 2016 totals for Wales standing at 36 (13 on Anglesey and 23 at the Dyfi Estuary). WeBS online data for all Anglesey count sectors with records of this species in the last 10 years include peak counts at the following core count sectors, all on the western side of Anglesey: Malltraeth RSPB (19 in December 2015); Malltraeth Cob and Pools (19 in Winter 2014 – 15); Llyn Coron (16 in Winter 2014 – 15); 	Yes

¹¹ http://greenlandwhitefront.org/gb-site-inventory/england-wales/77-angelsey-gwynedd

Table 6.4 Screening Stage 1bC - does a mechanism for effect exist between the Proposed Development and sites interest features?				
Site	Interest Feature	Pathways from Stage 1bB Mechanism to result in a likely significant effect?		Mechanism through to Stage 1c (Yes/No)
			 Cemlyn Bay and Lagoon (6 in Winter 2008 – 9); 	
			 Inland Sea and Alaw Estuary (1 in Winter 2006-7); 	
			Llyn Alaw (1 in Winter 2006-7); and	
			Llyn Llygeirian (2 in Winter 2006-7 and 2007-8).	
			White-fronted geese were recorded on only a single occasion during the ornithological surveys when a total of four white-fronted geese (subspecies not specified) were recorded during a dusk count at Llyn Alaw on 30th November 2016. There were no recorded flights for this species.	
			As this species was recorded (albeit only once) at Llyn Alaw (Appendix 9.15 (Document 5.9.2.15)) there is a potential mechanism for effect.	

- 6.3.77 There would be no mechanism for the Proposed Development to affect the following site and therefore has been screened to have no Likely Significant Effect and will not be reported on further:
 - Traeth Lafan/Lavan Sands, Conway Bay SPA;
- 6.3.78 A number of interest features of the remaining Natura 2000 sites have also been screened to have no Likely Significant Effect and are not reported on further. Table 6.5 identifies, following Screening Stage 1bB, the sites, their relevant interest features and the potential for effects in each case that have been taken through to Appropriate Assessment.

Table 6.5 Summary of Screening Stage 1bC					
Site	Interest features taken through to Appropriate Assessment	Potential for an effect/type			
Corsydd Môn a Llyn/Anglesey and Llyn Fens Ramsar	Hard oligo- mesotrophic waters with benthic vegetation of <i>Chara</i> sp.	 Change in water quality through mobilisation of sediment and accidental contamination during the construction, maintenance and decommissioning of the Proposed Development. Temporary effects on the air quality/deposition from dust during construction, maintenance and decommissioning of the Proposed Development. Introduction of invasive non-native species (INNS) and diseases during the construction, maintenance and decommissioning of the Proposed Development. Alteration of hydrological fluvial regime from construction, maintenance and decommissioning of the Proposed Development Alteration of hydrological fluvial regime from construction, maintenance and decommissioning of the Proposed Development 			
	Northern Atlantic wet heaths with	 Change in water quality through mobilisation of sediment and accidental contamination during the construction, 			

Table 6.5 Summ	ary of Screening Sta	ge 1bC
Site	Interest features taken through to Appropriate Assessment	Potential for an effect/type
	Erica tetralix	 maintenance and decommissioning of the Proposed Development. Temporary effects on the air quality/deposition from dust during construction, maintenance and decommissioning of the Proposed Development. Introduction of invasive non-native species (INNS) and diseases during the construction, maintenance and decommissioning of the Proposed Development Alteration of hydrological fluvial regime from construction, maintenance and decommissioning of the Proposed Development Alteration of hydrological fluvial regime from construction, maintenance and decommissioning of the Proposed Development (only associated with pylon 4AP051)
	Molinia meadows on calcareous, peaty or clayey— silt-laden soils	 Change in water quality through mobilisation of sediment and accidental contamination during the construction, maintenance and decommissioning of the Proposed Development. Temporary effects on the air quality/deposition from dust during construction, maintenance and decommissioning of the Proposed Development. Introduction of invasive non-native species (INNS) and diseases during the construction, maintenance and decommissioning of the Proposed Development. Alteration of hydrological fluvial regime from construction, maintenance and

Table 6.5 Summary of Screening Stage 1bC				
Site	Interest features taken through to Appropriate Assessment	Potential for an effect/type		
		decommissioning of the Proposed Development (only associated with pylon 4AP051)		
	Calcareous fens with <i>Cladium</i> <i>mariscus</i> and species of the <i>Caricion davallinae</i>	• Change in water quality through mobilisation of sediment and accidental contamination during the construction, maintenance and decommissioning of the Proposed Development.		
		 Temporary effects on the air quality/deposition from dust during construction, maintenance and decommissioning of the Proposed Development. 		
		 Introduction of invasive non-native species (INNS) and diseases during the construction, maintenance and decommissioning of the Proposed Development 		
		 Alteration of hydrological fluvial regime from construction, maintenance and decommissioning of the Proposed Development (only associated with pylon 4AP051) 		
	Alkaline fens	 Change in water quality through mobilisation of sediment and accidental contamination during the construction, maintenance and decommissioning of the Proposed Development. 		
		• Temporary effects on the air quality/deposition from dust during construction, maintenance and decommissioning of the Proposed Development.		

Table 6.5 Sumn	nary of Screening Sta	ge 1bC
Site	Interest features taken through to Appropriate Assessment	Potential for an effect/type
		 Introduction of invasive non-native species (INNS) and diseases during the construction, maintenance and decommissioning of the Proposed Development
		 Alteration of hydrological fluvial regime from construction, maintenance and decommissioning of the Proposed Development (only associated with pylon 4AP051)
	Geyer's Whorl Snail	 Change in water quality through mobilisation of sediment and accidental contamination during the construction, maintenance and decommissioning of the Proposed Development.
		 Temporary effects on the air quality/deposition from dust during construction, maintenance and decommissioning of the Proposed Development.
		 Introduction of invasive non-native species (INNS) and diseases during the construction, maintenance and decommissioning of the Proposed Development
		 Alteration of hydrological fluvial regime from construction, maintenance and decommissioning of the Proposed Development (only associated with pylon 4AP051)
	Marsh fritillary butterfly	 Change in water quality through mobilisation of sediment and accidental contamination during the construction, maintenance and decommissioning of

Table 6.5 Summary of Screening Stage 1bC		
Site	Interest features taken through to Appropriate Assessment	Potential for an effect/type
		 the Proposed Development. Temporary effects on the air quality/deposition from dust during construction, maintenance and decommissioning of the Proposed Development. Introduction of invasive non-native species (INNS) and diseases during the construction, maintenance and decommissioning of the Proposed Development Alteration of hydrological fluvial regime from construction, maintenance and decommissioning of the Proposed Development Alteration of hydrological fluvial regime from construction, maintenance and decommissioning of the Proposed Development (only associated with pylon 4AP051)
	Narrow-leaved Marsh-orchid	 Change in water quality through mobilisation of sediment and accidental contamination during the construction, maintenance and decommissioning of the Proposed Development. Temporary effects on the air quality/deposition from dust during construction, maintenance and decommissioning of the Proposed Development. Introduction of invasive non-native species (INNS) and diseases during the construction, maintenance and decommissioning of the Proposed Development. Alteration of hydrological fluvial regime from construction, maintenance and decommissioning of the Proposed

Table 6.5 Summary of Screening Stage 1bC		
Site	Interest features taken through to Appropriate Assessment	Potential for an effect/type
		Development (only associated with pylon 4AP051)
	Compact stonewort	 Change in water quality through mobilisation of sediment and accidental contamination during the construction, maintenance and decommissioning of the Proposed Development. Temporary effects on the air quality/deposition from dust during construction, maintenance and decommissioning of the Proposed Development. Introduction of invasive non-native species (INNS) and diseases during the construction, maintenance and decommissioning of the Proposed
		 Development Alteration of hydrological fluvial regime from construction, maintenance and decommissioning of the Proposed Development (only associated with pylon 4AP051)
	Otter	 Disturbance/injury (noise, vibration, lighting, presence of personnel) and/or displacement of species during construction, maintenance and decommissioning
		 Change in water quality through mobilisation of sediment and accidental contamination during the construction, maintenance and decommissioning of the Proposed Development.
		 Temporary effects on the air

Table 6.5 Summary of Screening Stage 1bC		
Site	Interest features taken through to Appropriate Assessment	Potential for an effect/type
		 quality/deposition from dust during construction, maintenance and decommissioning of the Proposed Development. Introduction of invasive non-native species (INNS) and diseases during the construction, maintenance and decommissioning of the Proposed Development Alteration of hydrological fluvial regime from construction, maintenance and decommissioning of the Proposed Development Alteration of hydrological fluvial regime from construction, maintenance and decommissioning of the Proposed Development
Corsydd Môn/Anglesey Fens SAC	Hard oligo- mesotrophic waters with benthic vegetation of <i>Chara</i> sp.	 Change in water quality through mobilisation of sediment and accidental contamination during the construction, maintenance and decommissioning of the Proposed Development. Temporary effects on the air quality/deposition from dust during construction, maintenance and decommissioning of the Proposed Development. Introduction of invasive non-native species (INNS) and diseases during the construction, maintenance and decommissioning of the Proposed Development Alteration of hydrological fluvial regime from construction, maintenance and decommissioning of the Proposed Development

Table 6.5 Summary of Screening Stage 1bC		
Site	Interest features taken through to Appropriate Assessment	Potential for an effect/type
	Calcareous fens with <i>Cladium</i> <i>mariscus</i> and species of the <i>Caricion davallinae</i>	 Change in water quality through mobilisation of sediment and accidental contamination during the construction, maintenance and decommissioning of the Proposed Development. Temporary effects on the air quality/deposition from dust during construction, maintenance and decommissioning of the Proposed Development. Introduction of invasive non-native species (INNS) and diseases during the construction, maintenance and decommissioning of the Proposed Development Alteration of hydrological fluvial regime from construction, maintenance and decommissioning of the Proposed Development Alteration of hydrological fluvial regime from construction, maintenance and decommissioning of the Proposed Development (only associated with pylon 4AP051)
	Alkaline fens	 Change in water quality through mobilisation of sediment and accidental contamination during the construction, maintenance and decommissioning of the Proposed Development. Temporary effects on the air quality/deposition from dust during construction, maintenance and decommissioning of the Proposed Development. Introduction of invasive non-native species (INNS) and diseases during the construction, maintenance and decommissioning of the Proposed

Table 6.5 Summary of Screening Stage 1bC		
Site	Interest features taken through to Appropriate Assessment	Potential for an effect/type
		 Development Alteration of hydrological fluvial regime from construction, maintenance and decommissioning of the Proposed Development (only associated with pylon 4AP051)
	Northern Atlantic wet heaths with <i>Erica tetralix</i>	 Change in water quality through mobilisation of sediment and accidental contamination during the construction, maintenance and decommissioning of the Proposed Development.
		 Temporary effects on the air quality/deposition from dust during construction, maintenance and decommissioning of the Proposed Development.
		 Introduction of invasive non-native species (INNS) and diseases during the construction, maintenance and decommissioning of the Proposed Development
		 Alteration of hydrological fluvial regime from construction, maintenance and decommissioning of the Proposed Development (only associated with pylon 4AP051)
	Molinia meadows on calcareous, peaty or clayey— silt-laden soils	 Change in water quality through mobilisation of sediment and accidental contamination during the construction, maintenance and decommissioning of the Proposed Development.
		 Temporary effects on the air quality/deposition from dust during

Table 6.5 Summary of Screening Stage 1bC		
Site	Interest features taken through to Appropriate Assessment	Potential for an effect/type
		 construction, maintenance and decommissioning of the Proposed Development. Introduction of invasive non-native species (INNS) and diseases during the construction, maintenance and decommissioning of the Proposed Development Alteration of hydrological fluvial regime from construction, maintenance and decommissioning of the Proposed Development (only associated with pylon 4AP051)
	Geyer's Whorl Snail	 Change in water quality through mobilisation of sediment and accidental contamination during the construction, maintenance and decommissioning of the Proposed Development. Temporary effects on the air quality/deposition from dust during construction, maintenance and decommissioning of the Proposed Development. Introduction of invasive non-native species (INNS) and diseases during the construction, maintenance and decommissioning of the Proposed Development Alteration of hydrological fluvial regime from construction, maintenance and decommissioning of the Proposed Development Alteration of hydrological fluvial regime from construction, maintenance and decommissioning of the Proposed Development (only associated with pylon 4AP051)

Table 6.5 Summary of Screening Stage 1bC		
Site	Interest features taken through to Appropriate Assessment	Potential for an effect/type
	Marsh fritillary butterfly	 Change in water quality through mobilisation of sediment and accidental contamination during the construction, maintenance and decommissioning of the Proposed Development. Temporary effects on the air quality/deposition from dust during construction, maintenance and decommissioning of the Proposed Development. Introduction of invasive non-native species (INNS) and diseases during the construction, maintenance and decommissioning of the Proposed Development Alteration of hydrological fluvial regime from construction, maintenance and decommissioning of the Proposed Development
	Great Crested Newt	 Disturbance/injury (noise, vibration, lighting, presence of personnel) and/or displacement of species during construction, maintenance and decommissioning Change in water quality through mobilisation of sediment and accidental contamination during the construction, maintenance and decommissioning of the Proposed Development. Temporary effects on the air quality/deposition from dust during construction, maintenance and decommissioning of the Proposed

Table 6.5 Summ	nary of Screening Sta	ge 1bC
Site	Interest features taken through to Appropriate Assessment	Potential for an effect/type
		 Development. Introduction of invasive non-native species (INNS) and diseases during the construction, maintenance and decommissioning of the Proposed Development Alteration of hydrological fluvial regime from construction, maintenance and decommissioning of the Proposed Development (only associated with pylon 4AP051)
	Otter	 Disturbance/injury (noise, vibration, lighting, presence of personnel) and/or displacement of species during construction, maintenance and decommissioning Change in water quality through mobilisation of sediment and accidental contamination during the construction, maintenance and decommissioning of the Proposed Development. Temporary effects on the air quality/deposition from dust during construction, maintenance and decommissioning of the Proposed Development. Introduction, maintenance and decommissioning of the Proposed Development. Introduction of invasive non-native species (INNS) and diseases during the construction, maintenance and decommissioning of the Proposed Development. Alteration of hydrological fluvial regime from construction, maintenance and
		from construction, maintenance and decommissioning of the Proposed

Table 6.5 Summary of Screening Stage 1bC		
Site	Interest features taken through to Appropriate Assessment	Potential for an effect/type
		Development (only associated with pylon 4AP051)
Y Fenai a Bae Conwy/Menai Strait and Conwy Bay SAC	Sandbanks which are slightly covered by sea water all the time	 Introduction of invasive non-native species (INNS) and diseases during the construction of the Proposed Development
	Mudflats and sandflats not covered by seawater at low tide	 Direct loss or fragmentation of habitat within a Natura 2000 site during the construction of the Proposed Development Release of drilling fluid during the construction of the Proposed Development (tunnel) Introduction of invasive non-native
		species (INNS) and diseases during the construction of the Proposed Development
	Reefs	 Direct loss or fragmentation of habitat within a Natura 2000 site during the construction of the Proposed Development
		 Blowout of drilling fluid during the construction of the Proposed Development (tunnel)
		 Introduction of invasive non-native species (INNS) and diseases during the construction of the Proposed Development
	Large shallow inlets and bays	 Introduction of invasive non-native species (INNS) and diseases during the construction of the Proposed Development

Table 6.5 Summary of Screening Stage 1bC		
Site	Interest features taken through to Appropriate Assessment	Potential for an effect/type
	Submerged or partially submerged sea caves	 Introduction of invasive non-native species (INNS) and diseases during the construction of the Proposed Development
Eryri/Snowdonia SAC	Oligotrophic to mesotrophic standing waters with vegetation of the Littorelletea uniflorae and/or of the Isoëto- Nanojuncetea	 Temporary effects on the air quality/deposition during construction, of the Proposed Development.
	Siliceous alpine and boreal grasslands	 Temporary effects on the air quality/deposition during construction, of the Proposed Development.
	Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels	 Temporary effects on the air quality/deposition during construction, of the Proposed Development.
	Siliceous scree of the montane to snow levels (Androsacetalia alpinae and Galeopsietalia Iadani)	 Temporary effects on the air quality/deposition during construction, of the Proposed Development.

Table 6.5 Summary of Screening Stage 1bC		
Site	Interest features taken through to Appropriate Assessment	Potential for an effect/type
	Calcareous rocky slopes with chasmophytic vegetation	 Temporary effects on the air quality/deposition during construction, of the Proposed Development.
	Siliceous rocky slopes with chasmophytic vegetation	 Temporary effects on the air quality/deposition during construction, of the Proposed Development.
	Northern Atlantic wet heaths with Erica tetralix	 Temporary effects on the air quality/deposition during construction, of the Proposed Development.
	European dry heaths	 Temporary effects on the air quality/deposition during construction, of the Proposed Development.
	Alpine and Boreal heaths	 Temporary effects on the air quality/deposition during construction, of the Proposed Development.
	Alpine and subalpine calcareous grasslands	 Temporary effects on the air quality/deposition during construction, of the Proposed Development.
	Species-rich Nardus grasslands, on silicious substrates in mountain areas (and submountain areas in Continental Europe)	 Temporary effects on the air quality/deposition during construction, of the Proposed Development.

Table 6.5 Summary of Screening Stage 1bC		
Site	Interest features taken through to Appropriate Assessment	Potential for an effect/type
	Blanket bogs	 Temporary effects on the air quality/deposition during construction, of the Proposed Development.
	Depressions on peat substrates of the Rhynchosporion	 Temporary effects on the air quality/deposition during construction, of the Proposed Development.
	Petrifying springs with tufa formation (Cratoneurion) * Priority feature	 Temporary effects on the air quality/deposition during construction, of the Proposed Development.
	Alkaline fens	 Temporary effects on the air quality/deposition during construction, of the Proposed Development.
	Alpine pioneer formations of the Caricion bicoloris- atrofuscae	 Temporary effects on the air quality/deposition during construction, of the Proposed Development.
	Old sessile oak woods with Ilex and Blechnum in the British Isles	 Temporary effects on the air quality/deposition during construction, of the Proposed Development.
	Slender green feather-moss	 Temporary effects on the air quality/deposition during construction, of the Proposed Development.

Table 6.5 Summary of Screening Stage 1bC			
Site	Interest features taken through to Appropriate Assessment	Potential for an effect/type	
	Floating water- plantain	 Temporary effects on the air quality/deposition during construction, of the Proposed Development. 	
Afon Gwyrfai a Llyn Cwellyn SAC	Atlantic salmon	 Disturbance/injury (noise, vibration, lighting, presence of personnel) and/or displacement of species during construction, maintenance and decommissioning Release of drilling fluid during the construction of the Proposed Development (tunnel) Disorientation of species from EMFs 	
Pen Llyn a'r Sarnau/Lleyn Peninsula and	Bottlenose dolphins	 Disturbance/injury (noise, vibration) during construction Disorientation of species from EMFs 	
the Sarnau SAC	Grey seal	 Disturbance/injury (noise, vibration) during construction 	
Cardigan Bay SAC	Bottlenose dolphins	 Disturbance/injury (noise, vibration) during construction Disorientation of species from EMFs 	
	Grey seal	 Disturbance/injury (noise, vibration) during construction 	
North Anglesey Marine/Gogledd Môn Forol cSAC	Harbour porpoise	 Disturbance/injury (noise, vibration) during construction Disorientation of species from EMFs 	
West Wales Marine cSAC	Harbour porpoise	 Disturbance/injury (noise, vibration) during construction 	

Table 6.5 Summary of Screening Stage 1bC			
Site	Interest features taken through to Appropriate Assessment	Potential for an effect/type	
		 Disorientation of species from EMFs 	
Liverpool Bay SPA	Cormorant (assemblage feature)	Collision risk	
Puffin Island SPA	Cormorant	Collision risk	
Dyfi Estuary SPA	Greenland White- fronted Goose	Collision risk	

7 Stage 2 Appropriate Assessment

7.1 INTRODUCTION

7.1.1 Taking each Natura 2000 site in turn, this section sets out each of the interest features that the Proposed Development would have a mechanism to affect, (as identified during Stage 1 Screening) and then, taking into account the proposed avoidance and reduction measures, consideration is given to whether there are any implications for the conservation objectives of the site. Finally a conclusion is drawn as to whether the Proposed Development would result in an adverse effect on site integrity.

7.2 APPLICATION OF MITIGATION MEASURES

- 7.2.1 Control and management measures for the construction of the Proposed Development are set out in a series of management plans and strategies which would be in place prior to and during construction as appropriate and which are secured through Requirement 6 of the draft DCO (Document 2.1). These management plans and strategies are as follows:
 - Construction Environmental Management Plan (CEMP) (Document 7.4);
 - Outline Construction Traffic Management Plan (CTMP) (Document 7.5);
 - Public Rights of Way Management Plan (**Document 7.6**);
 - Biodiversity Mitigation Strategy (**Document 7.7**);
 - Archaeological Strategy (**Document 7.8**);
 - Noise and Vibration Management Plan (Document 7.9);
 - Outline Soil Management Plan (**Document 7.10**);
 - Outline Waste Management Plan (**Document 7.11**); and
 - Outline Materials Management Plan (**Document 7.12**).

7.2.2 General control and management measures that have been taken into account in this assessment are set out in Table 7.1.

Table 7.1: General CEMP Measures Relevant to the Assessment		
Code	Description	Benefit
General F	Principles	
Working H	Hours	
GP11	Construction hours are set out in Requirement 8 of the draft DCO (Document 2.1). Further details are provided in the CEMP (Document 7.4).	Minimise general disturbance at night from noise, vibration, traffic or lighting.
Inspection	าร	
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 (Document 7.4).	Prevention of incidents that may be harmful to the environment and ecological features and resources.
GP52	 Regular inspections will be undertaken by National Grid and the contractors to ensure the checks are being undertaken correctly. The inspections will also include: reviewing the daily risk assessment forms; ensuring that corrective action is undertaken and rectified; and providing data for performance monitoring. 	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	Prevention of incidents that may be harmful to

Table 7.1: General CEMP Measures Relevant to the Assessment		
Code	Description	Benefit
	to do so', will be taken should any incidents or non-conformance with the CEMP (Document 7.4) be found during inspection.	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 (Document 7.4).	Prevention of incidents that may be harmful to the environment and ecological features and resources.
Incident F	Response	
GP71	All incidents associated with the construction of the Proposed Development, including environmental incidents and non- conformance with the CEMP, will be reported and investigated in accordance with the PICP (unless stated differently in other Management Plans).	Increased monitoring of environmental performance and 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 (Document 7.4).	To reduce risks to the environment, and ecological features and resources.
Fencing 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	Minimise working areas and encroachment onto adjacent habitats. Retention of commuting and foraging habitat for protected species. Prevent access to working areas and

Table 7.1: General CEMP Measures Relevant to the Assessment		
Code	Description	Benefit
	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.	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.
Lighting a	and 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	Minimise disturbance from light pollution effects on ecological features and resources.

Table 7.1: General CEMP Measures Relevant to the Assessment			
Code	Description	Benefit	
	and will comprise lighting of work areas and access and egress with low level directional lighting which is not towards sensitive receptors.		
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 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.	Minimise disturbance from light pollution effects on sensitive ecological features and resources.	
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 Management			
GP814	An Outline Waste Management Plan (OWMP)(Document 7.11) 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	Minimise risks of invasive species and controlled waste being released/established in the wild.	

Table 7.1: General CEMP Measures Relevant to the Assessment			
Code	Description	Benefit	
	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 (Document 7.4), which will include invasive plant material.		
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, 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.	Minimise risks of invasive species and controlled waste being released/established in the wild.	
Air Emissions			
Dust and PM ₁₀ 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	Minimise air pollution effects from dust on ecological features and	

Table 7.1: General CEMP Measures Relevant to the Assessment			
Description	Benefit		
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.	resources.		
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.		
 The DuMP will contain the general measures as necessary and outlined within the CEMP (Document 7.4), which includes the following; 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 	Minimise air pollution effects from dust and ecological features and resources, and ensure that reinstatement of habitats on a like for like basis.		
ut	-		
 The DuMP will contain the following measures in relation to site layout: 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 hard surfacing will be provided at all bellmouths. 	Minimise air pollution effects from dust on sensitive ecological receptors.		
	 General CEMP Measures Relevant to the Ast Description 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. A Dust Management Plan (DuMP) will be prepared and will include measures to control dust during the construction of the Proposed Development. The DuMP will contain the general measures as necessary and outlined within the CEMP (Document 7.4), which includes the following; 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 The DuMP will contain the following measures in relation to site layout: 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 hard surfacing will be provided at all bellmouths. 		

Table 7.1: General CEMP Measures Relevant to the Assessment		
Code	Description	Benefit
AE21	The Outline Construction Traffic Management Plan (OCTMP) (Document 7.5) 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 (Document 7.4).	Minimise air pollution effects on ecological features and resources.
Monitorin	g	
AE41	As set out in section 2.6 of the CEMP (Document 7.4), the contractor will undertake inspections, which will include monitoring compliance with the CEMP. Details of the inspection requirements are provided in the CEMP (Document 7.4).	Minimise air pollution effects from dust on ecological features and resources.
Noise and	d Vibration Control	
NV11	A Noise and Vibration Management Plan (NVMP) (Document 7.9) 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 (Document 7.9).	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 (Document 2.1). 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	Minimise vibration and noise pollution and

Table 7.1: General CEMP Measures Relevant to the Assessment			
Code	Description	Benefit	
	the CEMP (Document 7.4).	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	 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; Blast design measures or other mitigation measures will be implemented to prevent exceedance of limits. 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. 	Reduce the propagation of noise into the Menai Strait. Limit the zone of mortality/ hearing threshold shifts in marine and migratory species. Reduce cumulative effects and effects of 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 (Document 5.9).	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	Minimise vibration and noise pollution and potential impacts on sensitive receptors.	

Table 7.1: General CEMP Measures Relevant to the Assessment		
Code	Description	Benefit
	mms-1 or a groundborne noise level of 40 dB LAmax, S at nearest 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 (Document 7.10) 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 (Document 7.10) has been produced and includes the measures in accordance with Defra guidance ¹² , further details of which are provided in the CEMP (Document 7.4).	Minimise soil disturbance and contamination risks or effects on ecological features and resources.
Protectior	of the Water Environment	
Introduction	on	
WE11	 The following three general principles will be adhered to: prevent siltation and contamination of existing drainage systems and natural water environments; 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 	Minimise water pollution and disturbance of existing water flows.
	 second in order to minimise the risk of blockage of outfall structures); and ensure the routes of existing flows 	

¹² Defra (2009) Construction Code of Practice for the Sustainable Use of Soils on Construction Sites. pp64. Available at https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/69308 /pb13298-code-of-practice-090910.pdf
Table 7.1: General CEMP Measures Relevant to the Assessment		
Code	Description	Benefit
	(groundwater, surface and watercourse flows) are not impacted.	
Pollution	Control	
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 (Document 7.4).	Minimise risk of water pollution.
WE22	In addition to complying with the general committed measures reported in the CEMP (Document 7.4), as set out in section 2.7 of the CEMP a specific Pollution Incident Control Plan (PICP) will be prepared and 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.	Minimise risk of water pollution.
WE23	Generic mitigation measures within the PICP will include (as necessary) those detailed in the CEMP (Document 7.4).	Minimise risk of water pollution.
Stand-Of	f 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 (Document 7.7).	Minimise risk of pollution and disturbance to existing water flows and waterbodies and associated ecological features and resources.
Groundwater and Dewatering Discharge		

Table 7.1: General CEMP Measures Relevant to the Assessment		
Code	Description	Benefit
Overhead	Line and Substations	
WE41	Groundwater dewatered from excavations (e.g. pylon foundation excavations (assumed to be of approximately three weeks' duration 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 (Document 7.7). The discharge rate for groundwater dewatered from excavations must match the rate of infiltration in to the soil (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.	Minimise risk of pollution and disturbance to existing water flows and waterbodies and associated ecological features and resources.
Tunnel	Γ	Γ
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 (Document 7.4).	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 risk of impacts of construction on existing drainage

Table 7.1: General CEMP Measures Relevant to the Assessment		
Code	Description	Benefit
	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.	systems and associated ecological features and resources.
Drainage	Design	
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 (Document 7.4).	Minimise risk of impacts of construction on existing drainage systems and associated ecological features and resources.
Inspection	าร	
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 Management		
WE55	To prevent sediment laden run-off entering watercourses/standing waterbodies, measures will be implemented, where necessary. Further details are provided in the	Minimise water pollution effects from sediment laden run-off.

Table 7.1: General CEMP Measures Relevant to the Assessment		
Code	Description	Benefit
	CEMP (Document 7.4).	
Land Drai	inage	
WE56	Prior to construction land drainage measures will be undertaken. Details of which are provided in the CEMP (Document 7.4).	Minimise impacts of construction on existing drainage systems.
Cors Erdo	dreiniog 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 drainage mitigation which are shown in the CEMP (Document 7.4).	Minimise impacts of construction on existing drainage systems in relation to the designated site.
	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	Minimise impacts of

Table 7.1: General CEMP Measures Relevant to the Assessment		
Code	Description	Benefit
	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:	construction on existing drainage systems in relation to the designated site.
	 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 towards the designated sites; 	
	 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 	
	 a requirement for on-going liaison with NRW over the water management measures in relation to the Cors Erddreiniog SAC. 	
Control of	fBlowout	
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	Minimise water pollution effects on the Menai Strait.

Table 7.1: General CEMP Measures Relevant to the Assessment		
Code	Description	Benefit
	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.	
Flood Ma	nagement	
Design ar	nd Installation of Watercourse Crossings	
FM14	Watercourse crossing design considerations are listed within the CEMP (Document 7.4).	Minimise flood risk, minimise risk of impact on ecological features and resources and ensure continuity of watercourse corridor.
Biosecurit	ty	
Invasive N	Non-Native Species Method Statement	
BS11	 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: pre-construction surveys of INNS will be required to detect new occurrences and spread of known areas within the Order Limits; INNS within the development footprint, and in areas which will potentially be 	Prevent the release and spread of INNS, pests and pathogens which could have an impact on ecological features and resources.

Table 7.1: General CEMP Measures Relevant to the Assessment		
Code	Description	Benefit
	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 it is a restricted area;	
	 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; rubber wheeled or rubber tracked vehicles must be used during operations in contaminated areas to misining any part of the use of the cleaning facilities. 	
	from INNS seeds or fragments and propagules being trapped in metal	

Table 7.1: General CEMP Measures Relevant to the Assessment		
Code	Description	Benefit
	 tracks of machines; 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 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; 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 	
	 check lists will be used by contractors to ensure compliance of the measures; 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; monitoring will also be required following construction and for a period of no less than two years, potentially more depending on the species, 	

Table 7.1: General CEMP Measures Relevant to the Assessment		
Code	Description	Benefit
	 following the completion of control action; where INNS are being retained on site, implementation of eradication measures will be considered to provide a net conservation gain; Disposal of disinfectant used during the Proposed Development would be undertaken in accordance with standard procedures; All washing-down of vehicles; Disposal of disinfectant used during the Proposed Development would be 	
lananese	 undertaken in accordance with standard procedures; and All washing-down of vehicles (including wheel washing) and equipment will take place in designated areas and wash water will be prevented from passing untreated into watercourses and groundwater in accordance with the Environment Agency's GPP 13. 	
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,	Prevent the release and spread of INNS which could have an impact on ecological features and

Table 7.1: General CEMP Measures Relevant to the Assessment		
Code	Description	Benefit
	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.	resources.
Indian (Hi	malayan) 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 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.	Prevent the release and spread of INNS which could have an impact on ecological features and resources.
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 Rhubarb (Gunnera manicata)		
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	Prevent the release and spread of INNS which could have an impact on ecological features and resources.

Table 7.1: General CEMP Measures Relevant to the Assessment		
Code	Description	Benefit
	bank, and fragments of the rhizomes	
American	Mink (Neovison vison)	
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.
New Zeal	and Pigmyweed (<i>Crassula helmsii</i>)	1
BS61	All operations involving New Zealand pigmyweed will be controlled as recommended by the Environment Agency guide – Managing Invasive Non-native Species (2010) (Ref 9.53).	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.
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)		
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	Prevent the release and spread of INNS which could have an impact on ecological features and

Table 7.1: General CEMP Measures Relevant to the Assessment		
Code	Description	Benefit
	be the most effective form of control; however Glyphosate can be used to treat <i>Azolla</i> . Such treatments are best carried out when a gentle wind or currents have collected floating fronds together at suitable points.	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)		
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	Prevent the release and spread of INNS which could have an impact on ecological features and resources.

Table 7.1: General CEMP Measures Relevant to the Assessment		
Code	Description	Benefit
	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.	
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 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	Prevent the release and spread of INNS which could have an impact on ecological features and resources.

been thoroughly cleaned immediately prior to deployment in the Menai Strait), particularly if

Table 7.1: General CEMP Measures Relevant to the Assessment		
Code	Description	Benefit
	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.	
Surveys a	and Monitoring	
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, which is caused by caused by a fungus (<i>Hymenoscyphus fraxineus</i>) and Chytridiomycosis (Chytrid fungus) within aquatic environments.	Prevent the release and spread of INNS, pests and pathogens which could have an impact on ecological features and resources.
Biodiversity and Nature Conservation		
Biodiversi	ity Mitigation Strategy (BMS)	

Table 7.1: General CEMP Measures Relevant to the Assessment		
Code	Description	Benefit
BNC11	The Biodiversity Mitigation Strategy (BMS) (Document 7.7) 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 (Document 7.7) 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	 The BMS (Document 7.7) sets out the following: ecological mitigation measures as identified in Chapter 9, Ecology and Nature Conservation of the ES (Document 5.9); measures for ecological supervision during the delivery of construction and mitigation activities; and provision for and details of specific ecological mitigation plans and method statements or other management documents. 	Minimise construction impact on the biodiversity and environment of the site and surrounding area.
Summary of General Biodiversity and Nature Conservation 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 (Document 7.7).	Minimise construction impact on the biodiversity and environment of the site and surrounding area.
Protection of Habitats		

Table 7.1: General CEMP Measures Relevant to the Assessment		
Code	Description	Benefit
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	 Maintain appropriate buffers to protect non-working areas where not essential within the Order Limits: 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; 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 trees not required to be removed will be protected as per section 12 of this CEMP; ; maintain 8 m buffers around ponds where possible to protect both 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 	Minimise construction impact on the biodiversity and environment of the site and surrounding area.

Table 7.1: General CEMP Measures Relevant to the Assessment		
Code	Description	Benefit
	 pond; and 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). 	
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.
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	Minimise construction impact on the biodiversity and environment of the site and surrounding area.

Table 7.1: General CEMP Measures Relevant to the Assessment			
Code	Description	Benefit	
	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.		
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	 Programme of works would include for the following: 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). Further information is provided in the BMS (Document 7.7); no ground clearance in GCN mitigation areas commencing during winter months, in particular of dismantling 	Minimise construction impact on the biodiversity and environment of the site and surrounding area.	

Table 7.1: General CEMP Measures Relevant to the Assessment			
Code	Description	Benefit	
	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 (Document 7.7) 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 (Document 7.7) and GCN EPS licence;		
	 no working in watercourses during sensitive months such as spawning season as appropriate for each fish species in each watercourse; 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); 		
Reinstate	ment		
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 e.g. ground strengthening, all temporary land,	Minimise long-term damage/disturbance to ecological features and resources.	

Table 7.1: General CEMP Measures Relevant to the Assessment		
Code	Description	Benefit
	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 (Document 7.7) 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.

7.3 ANGLESEY AND LLYN FENS RAMSAR AND CORSYDD MÔN/ ANGLESEY FENS SAC

- 7.3.1 The following mechanisms for effect have been identified on the Anglesey And Llyn Fens Ramsar and Corsydd Môn/ Anglesey Fens SAC:
 - Disturbance/injury (noise, vibration, lighting, presence of personnel) and/or displacement of species during construction, maintenance and decommissioning
 - Change in water quality through mobilisation of sediment and accidental contamination during the construction, maintenance and decommissioning of the Proposed Development.
 - Temporary effects on the air quality/deposition from dust during construction, maintenance and decommissioning of the Proposed Development.
 - Introduction of invasive non-native species (INNS) and diseases during the construction, maintenance and decommissioning of the Proposed Development
 - Alteration of hydrological fluvial regime from construction, maintenance and decommissioning of the Proposed Development (only associated with 4AP051) Disturbance/injury (noise, vibration, lighting, presence of personnel) and/or displacement of species during construction, maintenance and decommissioning
- 7.3.2 The following sections provide analysis of the mechanisms for effect and an assessment as to the potential for the Proposed Development to result in an adverse effect on site integrity on the Anglesey And Llyn Fens Ramsar and Corsydd Môn/ Anglesey Fens SAC.

Conservation Objectives

7.3.3 The following table sets out the conservation objectives relevant to the interest features that have been brought through to this stage.

Table 7.2 Anglesey And Llyn Fens Ramsar and Corsydd Mon/AngleseyFens SAC Conservation Objectives (Ref 6.4)

Conservation Objective for Feature 3: Hard oligo-mesotrophic waters with benthic vegetation of Chara spp.

The vision for this feature is for it to be in a favourable conservation status,

where all of the following conditions are satisfied:

- Open water occupies not less than 1% of the total site area.
- Natural deep lakes persist at Cors Goch and Cors Erddreiniog component sites
- The macrophyte, phytoplankton, zooplankton and predator components of the ecosystem operate in balance in a clear-water environment, where:
- Characteristic macrophyte species are present in the water bodies, including dense beds of stoneworts (*Chara species*), in areas <6 m deep
- Invasive non-native species are absent, or occur at no more than rare or occasional frequency.
- Locally native (non-coarse) fish are present.
- All coarse fish are absent
- Water quality is such as to maintain pH 7-9 and mean annual Total Phosphorus <15µg/l.
- The water is clear throughout the year, with an absence of algal blooms.
- Marl deposition occurs within all the lakes.
- There is minimal extraneous sediment input
- The integrity of the natural hydrological system (inputs and outputs) is intact.
- Appropriate water level is maintained throughout the year, (seasonal fluctuation 30cm).
- All factors affecting the achievement of these conditions are under control.

Conservation Objective for Feature 5: Northern Atlantic wet heaths with Erica tetralix

- Wet heath covers at least 4%ha of the site
- The following plants are common in the wet heath: heather (*Calluna vulgaris*); Cross-leaved heath (*Erica tetralix*) as well as bog moss (*Sphagnum Species*) Devil's bit scabious and *Narthecium ossifragum*.
- Competitive species indicative of under-grazing, particularly bracken Pteridium aquilinum, purple moor-grass and western gorse Ulex gallii will be kept in check.
- 70% of wet heath will be "good condition" wet heath.
- The wet heath supports viable populations of marsh gentian at Cors Erddreiniog

- The wet heath contributes to the support of a viable meta-population of marsh fritillary
- All factors affecting the achievement of these conditions are under control.

Conservation Objective for Feature 4 - Molinia meadows on calcareous, peaty or clayey silt-laden soils

The vision for this feature is for it to be in a favourable conservation status, where all of the following conditions are satisfied:

- Molinia meadows occupy at least 2% of the total site area.
- Molinia meadows are distributed over at all 7 component sites.
- The following plants are common in the Molinia meadows: purple moorgrass; devil's bit scabious (*Succisa pratensis*); carnation sedge (*Carex panicea*); saw wort (*Serratula tinctoria*); lousewort (*Pedicularis sylvestris*), *Carex pulicaris and C. hostiana* and Marsh orchids
- Soft rush (*Juncus effusus*) and species indicative of agricultural modification, such as perennial rye grass (*Lolium perenne*) and white clover (*Trifolium repens*) are largely absent from the Molinia Meadows.
- Purple moor grass does not exceed 50% of ground cover.
- Scrub species such as willow and birch are largely absent from the Molinia meadows
- Rhododendron species are absent
- Leaf litter should comprise <25% of ground cover
- Groundwater will be between –10cm and –25cm below ground level for most of the year
- The integrity of the hydrological system (inputs and outputs) will be intact.
- Swards structure should reflect the requirements of feature 9 (Marsh fritillary)
- All factors affecting the achievement of these conditions are under control.

Conservation Objective for Feature 1: Calcareous fens with Cladium mariscus and species of the Caricion davallianae

- Calcareous fen occupies at least 20% (93 ha) of the total site area.
- Calcareous fen is distributed over at least 5 of the 7 sites including Cors Erddreiniog, Cors Bodeilio, Cors Goch, Gwenfro-Rhos Y Gad and Cors Y Farl.

- Calcareous fen exhibits a range of condition states (see below) in which great fen sedge (*Cladium mariscus*) is frequent to dominant, with no less than 10% preferable to species-poor *Cladium* swamp and the remainder to either vegetation in which Cladium occurs with sweet gale (*Myrica gale*), bluntflowered rush (*Juncus subnodulosus*), purple moor-grass and cross-leaved heath (*Erica tetralix*), or vegetation with many of the above elements as well as bog-bean (*Menyanthes trifoliata*) marsh cinquefoil (*Potentilla palustris*), bladderwort (*Utricularia vulgaris*), and slender sedge (*Carex lasiocarpa*) and other small sedges.
- Species indicative of drainage or agricultural modification, such as Yorkshire fog (*Holcus lanatus*), bramble species, nettle are largely absent from the calcareous fen.
- Purple moor grass does not exceed 25% of ground cover.
- Leaf Litter forms no more than 20% of the ground cover at any location.
- Scrub species such as willow Salix and birch Betula sp are largely absent from the calcareous fen.
- Rhododendron species is absent.
- Standing surface water is present or expressable on footfall over most of the Winter period.
- Groundwater is within 15cm of surface in mid Summer.
- All hydrological (diffuse, surface and sub-surface) pathways (inputs and outputs) are restored and/or intact (includes ditch infilling, blocking, diversion and re-engineering). Water quality reflects the base-rich but nutrient poor requirements of the habitat.
- All factors affecting the achievement of these conditions are under control.

Conservation Objective for Feature 2: Alkaline fen

- Alkaline fen occupies at least 17% of the total site area.
- Alkaline fen is found on all 7 component sites.
- The following plants are common in the alkaline fen: black bog rush (*Schoenus nigricans*), moss (*Campyllium stellatum*), great fen sedge (up to 1 m tall), blunt flowered rush, sweet gale, moss, bladderwort, butterwort (*Pinguicula vulgaris*),
- Species indicative of drainage or agricultural modification, such as Yorkshire fog, bramble species, nettle, are largely absent from the alkaline fen.
- Purple moor grass does not exceed 25% of ground cover and is restricted

to drier areas

- Bare ground including tufa constitutes about 10% of the ground cover.
- Alkaline Fen exhibits a diverse age and height structure across the site (tussocks are undamaged and 20% short grazed, 50% mature – 30% in between including bare ground).
- Scrub species such as willow (*Salix*) species and birch (*Betula pubescens*) are largely absent from the alkaline fen.
- Rhododendron species is absent.
- Water expressable on foot-fall or running surface water is present between tussocks throughout the year.
- All Hydrological (diffuse, surface and sub-surface) pathways (inputs and outputs) should be restored and/or intact (includes ditch infilling, blocking, diversion and re-engineering)
- Water quality is appropriate to the needs of the vegetation and species.
- All factors affecting the achievement of these conditions are under control.

Conservation Objective for Feature 7: Geyer's whorl snail

The vision for this feature is for it to be in a favourable conservation status, where all of the following conditions are satisfied:

- Geyer's whorl snail is frequent in suitable habitat at Cors Erddreiniog and Waun Eurad Sections:
- There are abundant areas of flushed fen grassland (M13/feature 2) with sedge/moss lawns 5-15cm tall, containing species such as *Carex viridula subsp. brachyrrhyncha, Pinguicula vulgaris, Briza media, Equisetum palustre, Juncus articulatus and the mosses Drepanocladus revolvens, Campylium stellatum*, with scattered tussocks of *Schoenus nigricans* no greater than 80cm tall.
- Soils are saturated *schoenus* tussocks lower than 80cm

Conservation Objective for Feature 9: Marsh fritillary butterfly

- The site supports a sustainable meta population of the marsh fritillary.
- The population is viable in the long-term, (acknowledging the extreme population fluctuations of the species).
- Habitats on the site are in optimal condition to support the metapopulation.
- At least 6% (approximately 30ha) of the total site area is marshy grassland or wet heath suitable for supporting marsh fritillary, with Devil's-

bit scabious Succisa pratensis present and only a low cover of scrub.

- At least 40% of this 30ha is good marsh fritillary breeding habitat, dominated by purple moor grass, with *S. pratensis* abundant throughout and a vegetation height of 10-20cm over the Winter period.
- Areas of good marsh fritillary habitat are scattered over several management units.
- Off site habitats that function as stepping stone or corridors located between SAC compartments will be maintained for migration, dispersal, foraging and genetic exchange purposes
- All factors affecting the achievement of the foregoing conditions are under control.

Conservation Objective for Feature 22:Stonewort assemblage

The vision for this feature is for it to be in a favourable conservation status, where all of the following

conditions are satisfied:

- All the components of the assemblage are present on the site
- All the component species are found in at least 3 distinct loci.
- All factors affecting the achievement of the foregoing conditions are under control

Conservation Objective for Feature 11: Lutra lutra.

The vision for this feature is for it to be in a favourable conservation status, where all of the following conditions are satisfied:

- The population of otters using the SAC is stable or increasing over the long term and reflects
- the natural carrying capacity of the habitat within and adjacent to the SAC
- The SAC will have habitat, including riparian trees and vegetation and wetlands, to help
- support the otter population in the long term
- The site contributes food (including eels, other fish, amphibians etc) to help support a resident otter population.
- All factors affecting the achievement of the foregoing conditions are under control.

Conservation Objective for Feature 10: *Triturus cristatus*

The vision for this feature is for it to be in a favourable conservation status,

where all of the following conditions are satisfied:

- · Great crested newts will be present on the site
- At least 3 display/breeding ponds occur throughout the entire site
- Great crested newt larvae will be found in 2 or more of the breeding ponds
- All of display/breeding ponds on the site will have a water depth of 10cm of more during the normal summer months.
- Native macrophytes will cover at least half of the pond surface yet some of the water surface will still remain open.
- Aquatic marginal vegetation will be present around the ponds
- Breeding/display ponds will not be heavily shaded by surrounding vegetation
- Algal blooms and surface sheens will be absent from display/breeding ponds
- Fish will be absent from breeding/display ponds which support great crested newts
- Only small numbers of water and wildfowl will be seen on the ponds
- The terrestrial habitat surrounding breeding ponds will provide refuge, foraging and hibernacula areas and corridors which will aid the dispersal of great crested newts
- Off site habitats that function as stepping stone or corridors located between SAC compartments will be maintained for migration, dispersal, foraging and genetic exchange purposes
- Non-native aquatic species will be no more than rare or occasional at any location
- All factors affecting the achievement of the foregoing conditions are under control.

Mitigation measures

- 7.3.4 Mitigation measures and commitments to certain further design measures (presented in the Schedule of Environmental Commitments (Document 7.4.2.1)) which are of relevance to the assessment as to the potential for the Proposed Development to result in an adverse effect on site integrity for the Anglesey And Llyn Fens Ramsar and Corsydd Môn/ Anglesey Fens SAC are described below. These committed measures are secured through draft DCO (Document 2.1) Requirement 6.
 - CEMP Measures in Table 7.1; 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.

- 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.
- 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.
- 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.

Step 3 and Step 4

7.3.5 Table 7.3 below provides an assessment as to the potential for the Proposed Development to result in any implications on sites conservation objectives (step 3) and whether the Proposed Development would result in an adverse effect on site integrity on the Anglesey and Llyn Fens Ramsar and Corsydd Môn/ Anglesey Fens SAC (step 4).

Mechanism for effect identified during screening	Interest features	Step 3 Appropriate Assessment: Are there implications on the site's conservation objectives?
Disturbance/injury (noise, vibration, lighting, presence of personnel) and/or displacement of species during construction, maintenance and decommissioning	Otter – Ramsar Criterion 3/Annex II species present on the site Great Crested Newt - Annex II species present on the site	Commitments SAC001-SAC008 in the Schedule of Environmental Commitments (Document 7.4.2.1) would prevent all authorised works other the drainage mitigation works within the boundaries of the site. No evidence of otter was identified within the vicinity of the designated site; refer to ES Figure 2 of Otter and Water Vole Report (Document 5.9.2.8). No positive GCN ponds within the site, where works would take place within supporting terrestrial habitat have been identified; refer to ES Appendix 9.6 (Document 5.9.2.6).
		Taking into account the above and with the mitigation measures listed in section 7.3.4 the Proposed Development would not result in any implications on the conservation objectives from disturbance/injury (noise, vibration, lighting, presence of personnel) and/or displacement of species.
Change in water quality	Hard oligo-mesotrophic waters with	Commitments SAC001-SAC008 in the Schedule of
sediment and accidental	Ramsar Criterion 1/ Annex I habitat	prevent all authorised works other than drainage

Mechanism for effect identified during screening	Interest features	Step 3 Appropriate Assessment: Are there implications on the site's conservation objectives?
contamination during the construction, maintenance and decommissioning of the Proposed Development.	present as a primary reason for selection of the site Northern Atlantic wet heaths with Erica tetralix – Ramsar Criterion 1/Annex I habitat present as a qualifying feature but not the primary reason for the section of the site. Molinia meadows on calcareous, peaty or clayey silt-laden soils – Ramsar Criterion 1/Annex I habitat present as a	 mitigation works within the boundaries of the site. 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: cross drains will be provided under the access track and stockpiles at regular intervals and low features
	qualifying feature but not the primary reason for the selection of the site	These will allow natural flows to continue to flow towards the designated sites;
	Calcareous fens with Cladium mariscus and species of the Caricion davallinae – Ramsar Criterion 1/Annex I habitat as the primary reason for the section of the site	• surface water and siltation mitigation methods, for example use of vegetated swales will be implemented to prevent either increased flows or silt laden run off from entering the designed sites; and
	Alkaline fens – Ramsar Criterion 1/ Annex 1 habitat present as the primary reason for the selection of the site	 a requirement for on-going liaison with NRW over the water management measures in relation to the Cors Erddreiniog SAC.
	Narrow-leaved Marsh-orchid – Ramsar	Taking into account the above and with the mitigation

Table 7.1: Step 3 Appropriate Assessment and Step 4 Integrity	Test for Anglesey And Llyn Fens Ramsar and Corsydd
Môn/ Anglesey Fens SAC	

Mechanism for effect identified during screening	Interest features	Step 3 Appropriate Assessment: Are there implications on the site's conservation objectives?
	Criterion 1 (under Molinia meadows community).	measures listed in section 7.3.4 the Proposed Development would not result in any implications on the
	Compact stonewort – Ramsar Criterion 3	conservation objectives from disturbance/injury (noise,
	Geyer's Whorl Snail – Ramsar Criterion /Annex II species present as the primary reason for the selection of the site.	vibration, lighting, presence of personnel) and/or displacement of species.
	Marsh fritillary butterfly – Ramsar Criterion 1	
	Otter – Ramsar Criterion 3/Annex II species present on the site	
	Great Crested Newt – Annex II species present on the site	
Temporary effects on the	Hard oligo-mesotrophic waters with	Commitments SAC001-SAC008 in the Schedule of
air quality/deposition from	benthic vegetation of Chara sp –	Environmental Commitments (Document 7.4.2.1) would
dust during construction,	Ramsar Criterion 1/ Annex I habitat	prevent all authorised works other than drainage
maintenance and	present as a primary reason for selection	mitigation works within the boundaries of the site.
decommissioning of the	of the site	ES Chapter 14, Air Quality (Document 5.14), concluded
Proposed Development.	Northern Atlantic wet heaths with Erica	that the stated dust and air emission control measures,
	tetralix – Ramsar Criterion 1/Annex I	when implemented throughout the works, as
	habitat present as a qualifying feature but	appropriate, would mean that residual effects as a result

Mechanism for effect identified during screening	Interest features	Step 3 Appropriate Assessment: Are there implications on the site's conservation objectives?
	not the primary reason for the section of the site. Molinia meadows on calcareous, peaty or clayey silt-laden soils – Ramsar Criterion 1/Annex I habitat present as a qualifying feature but not the primary reason for the selection of the site Calcareous fens with Cladium mariscus and species of the Caricion davallinae – Ramsar Criterion 1/Annex I habitat as the primary reason for the section of the site Alkaline fens – Ramsar Criterion 1/ Annex 1 habitat present as the primary reason for the selection of the site	of construction dust and PM ₁₀ deposition would not be significant. Also, in ES Chapter 14 Air Quality (Document 5.14), the contribution of the Proposed Development has been shown to fall below 1% of the Critical Load/Level for all determinants. In line with EA guidance, the predicted impacts are considered insignificant. Taking into account the above and with the mitigation measures listed in section 7.3.4 the Proposed Development would not result in any implications on the conservation objectives from temporary effects on the air quality/deposition and dust.
	Narrow-leaved Marsh-orchid – Ramsar Criterion 1 (under Molinia meadows community). Compact stonewort – Ramsar Criterion 3	
	Geyer's Whorl Snail – Ramsar Criterion /Annex II species present as the primary	

Môn/ Anglesey Fens SAC		
Mechanism for effect identified during screening	Interest features	Step 3 Appropriate Assessment: Are there implications on the site's conservation objectives?
	reason for the selection of the site.	
	Marsh fritillary butterfly – Ramsar Criterion 1	
	Otter – Ramsar Criterion 3/Annex II species present on the site	
	Great Crested Newt – Annex II species present on the site	
Introduction of invasive non-native species (INNS) and diseases during the construction, maintenance and decommissioning of the Proposed Development	Hard oligo-mesotrophic waters with benthic vegetation of <i>Chara sp</i> – Ramsar Criterion 1/ Annex I habitat present as a primary reason for selection of the site Northern Atlantic wet heaths with Erica tetralix – Ramsar Criterion 1/Annex I habitat present as a qualifying feature but not the primary reason for the section of the site.	Commitments SAC001-SAC008 in the Schedule of Environmental Commitments (Document 7.4.2.1) would prevent all authorised works other than drainage mitigation works within the boundaries of the site. In accordance with CEMP measure BS11 an INNS 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
	Molinia meadows on calcareous, peaty or clayey silt-laden soils – Ramsar Criterion 1/Annex I habitat present as a	of invasive non-native species (INNS), pests and pathogens during construction and ensure legal compliance:

Mechanism for effect identified during screening	Interest features	Step 3 Appropriate Assessment: Are there implications on the site's conservation objectives?
	 qualifying feature but not the primary reason for the selection of the site Calcareous fens with Cladium mariscus and species of the Caricion davallinae – Ramsar Criterion 1/Annex I habitat as the primary reason for the section of the site Alkaline fens – Ramsar Criterion 1/ Annex 1 habitat present as the primary reason for the selection of the site Narrow-leaved Marsh-orchid – Ramsar Criterion 1 (under Molinia meadows community). Compact stonewort – Ramsar Criterion 3 Geyer's Whorl Snail – Ramsar Criterion /Annex II species present as the primary reason for the selection of the site. Marsh fritillary butterfly – Ramsar Criterion 1 Otter – Ramsar Criterion 3/Annex II species present on the site 	 pre-construction surveys of INNS will be required to detect new occurrences and spread of known areas within the Order Limits; 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 it is a restricted area; 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

Table 7.1: Step 3 Appropriate Assessment	and Step 4 Integrity	Test for Anglesey An	d Llyn Fens Ramsar	and Corsydd
Môn/ Anglesey Fens SAC				

Mechanism for effect identified during screening	Interest features	Step 3 Appropriate Assessment: Are there implications on the site's conservation objectives?			
	Great Crested Newt – Annex II species present on the site	 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; 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; 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 wash down activities. Plant must be allowed to dry thoroughly prior to working within separate watercourses. 			
Table 7.1: Step 3 Appropriate Assessment and Step 4 Integrity Test for Anglesey And Llyn Fens Ramsar and Corsydd Môn/ Anglesey Fens SAC					
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Mechanism for effect identified during screening	Interest features	Step 3 Appropriate Assessment: Are there implications on the site's conservation objectives?			
		Where possible, machinery will be designated to a specific watercourse/body to avoid causing the spread of aquatic INNS between watercourses/bodies;			
		 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; 			
		 check lists will be used by contractors to ensure compliance of the measures; 			
		 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; 			
		 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; 			

Table 7.1: Step 3 Appropriate Assessment and Step 4 Integrity Test for Anglesey And Llyn Fens Ramsar and Corsydd Môn/ Anglesey Fens SAC

Mechanism for effect identified during screening	Interest features	Step 3 Appropriate Assessment: Are there implications on the site's conservation objectives?
		 where INNS are being retained on site, implementation of eradication measures will be considered to provide a net conservation gain;
		 Disposal of disinfectant used during the Proposed Development would be undertaken in accordance with standard procedures;
		 All washing-down of vehicles;
		 Disposal of disinfectant used during the Proposed Development would be undertaken in accordance with standard procedures; and
		• All washing-down of vehicles (including wheel washing) and equipment will take place in designated areas and wash water will be prevented from passing untreated into watercourses and groundwater in accordance with the Environment Agency's GPP 13.
		Taking into account the above and with the mitigation measures listed in section 7.3.4 the Proposed
		Development would not result in any implications on the conservation objectives from temporary effects on the

Table 7.1: Step 3 Appropriate Assessment and Step 4 Integrity Test for Anglesey And Llyn Fens Ramsar and Corsydd Môn/ Anglesey Fens SAC

Mechanism for effect identified during screening	Interest features	Step 3 Appropriate Assessment: Are there implications on the site's conservation objectives?
		air quality/deposition and dust.
Alteration of hydrological fluvial regime from construction, maintenance and decommissioning of the Proposed Development (only associated with 4AP051)	 Hard oligo-mesotrophic waters with benthic vegetation of <i>Chara sp</i> – Ramsar Criterion 1/ Annex I habitat present as a primary reason for selection of the site Northern Atlantic wet heaths with Erica tetralix – Ramsar Criterion 1/Annex I habitat present as a qualifying feature but not the primary reason for the section of the site. Molinia meadows on calcareous, peaty or clayey silt-laden soils – Ramsar Criterion 1/Annex I habitat present as a qualifying feature but not the primary reason for the selection of the site Calcareous fens with Cladium mariscus and species of the Caricion davallinae – Ramsar Criterion 1/Annex I habitat as the primary reason for the section of the site 	Commitments SAC001-SAC008 in the Schedule of Environmental Commitments (Document 7.4.2.1) would prevent all authorised works other than drainage mitigation works within the boundaries of the site. Pylon 4AP051 is located 20 m outside of the designated sites but in the same superficial aquifer. The depth of the footings for pylon 4AP051 would be approximately 3.4 m, hence the maximum drawdown required to provide a dry working area would be less than 3.4 m. Due to the limited drawdown, short duration of pumping, discharge of treated pumped water to a soak away in the original catchment, and relatively small area of catchment affected the Proposed Development would not result in any implications on the conservation objectives from the alteration of hydrological fluvial regime.

Table 7.1: Step 3 AppropMôn/ Anglesey Fens SAC	riate Assessment and Step 4 Integrity Te	st for Anglesey And Llyn Fens Ramsar and Corsydd
Mechanism for effect identified during screening	Interest features	Step 3 Appropriate Assessment: Are there implications on the site's conservation objectives?
	Alkaline fens – Ramsar Criterion 1/ Annex 1 habitat present as the primary reason for the selection of the site	
	Narrow-leaved Marsh-orchid – Ramsar Criterion 1 (under Molinia meadows community).	
	Compact stonewort – Ramsar Criterion 3	
	Geyer's Whorl Snail – Ramsar Criterion /Annex II species present as the primary reason for the selection of the site.	
	Marsh fritillary butterfly – Ramsar Criterion 1	
	Otter – Ramsar Criterion 3/Annex II species present on the site	
	Great Crested Newt – Annex II species present on the site	
Step 4 - taking into account	the above it can be concluded that the Propos	sed Development would not result in an adverse effect on

Step 4 - taking into account the above it can be concluded that the Proposed Development would not result in an adverse effect on the site integrity of either the Anglesey And Llyn Fens Ramsar or the Corsydd Mon/Anglesey Fens SAC.

7.4 Y FENALA BAE CONWY/ MENAL STRAIT AND CONWY BAY SAC

- 7.4.1 The following mechanisms for effect have been identified on the Y Fenai A Bae Conwy/ Menai Strait And Conwy Bay SAC:
 - Direct loss or fragmentation of habitat within a Natura 2000 site during the construction of the Proposed Development
 - Blowout of drilling slurry during the construction of the Proposed Development (tunnel)
 - Introduction of invasive non-native species (INNS) and diseases during the construction of the Proposed Development.
- 7.4.2 The following sections provide analysis of the mechanisms for effect and an assessment as to the potential for the Proposed Development to result in an adverse effect on site integrity for the Y Fenai A Bae Conwy/ Menai Strait And Conwy Bay SAC.

Conservation Objectives

7.4.3 The following table sets out the conservation objectives relevant to the interest features that have been brought through to this stage.

Table 7.4 Y Fenai A Bae Conwy/Menai Strait and Conwy Bay SAC
Conservation Objectives (Ref 6.5)To achieve favourable conservation status all the following, subject to
natural processes, need to be fulfilled and maintained in the long-term. If
these objectives are not met restoration measures will be needed to
achieve favourable conservation status.Habitat Features• Mudflats and sandflats not covered by seawater at low tide

- Reefs
- Sandbanks which are slightly covered by seawater all the time
- Large shallow inlets and bays
- Submerged or partially submerged sea caves

Range

The overall distribution and extent of the habitat features within the site, and each of their main component parts is stable or increasing.

For the intertidal mudflats and sandflats feature these include;

- Muddy gravel communities
- Dwarf eelgrass, Zostera noltei beds
- Sediment communities at Traeth Lafan

For the reef feature these include;

- Reef communities in high energy wave-sheltered, tide-swept conditions
- Under-boulder, overhang and crevice communities
- Limestone reef communities
- Clay outcrop reef communities

For the large shallow bay feature these include;

• Organically enriched muddy sediment areas

Structure and function

The physical biological and chemical structure and functions necessary for the long-term maintenance and quality of the habitat are not degraded. Important elements include;

- geology,
- sedimentology,
- geomorphology,
- hydrography and meteorology,
- water and sediment chemistry,
- biological interactions.

This includes a need for nutrient levels in the water column and sediments to be:

- at or below existing statutory guideline concentrations
- within ranges that are not potentially detrimental to the long-term maintenance of the features species populations, their abundance and range.

Contaminant levels in the water column and sediments derived from human activity to be:

- at or below existing statutory guideline concentrations
- below levels that would potentially result in increase in contaminant concentrations within sediments or biota
- below levels potentially detrimental to the long-term maintenance of the feature species populations, their abundance or range taking into account bioaccumulation and biomagnification.

Restoration and recovery

This includes the need for restoration of some reef features such as

underboulder, overhang and crevice communities, and of some mudflat and sandflat features such as the muddy gravel habitats and sheltered muddy habitats. All of these habitats are also part of the large inlets and bays feature.

Typical Species

The presence, abundance, condition and diversity of typical species is such that habitat quality is not degraded. Important elements include:

- species richness
- population structure and dynamics,
- physiological heath,
- reproductive capacity
- recruitment,
- mobility
- range

As part of this objective it should be noted that:

 populations of typical species subject to existing commercial fisheries need to be at an abundance equal to or greater than that required to achieve maximum sustainable yield and secure in the long-term the management and control of activities or operations likely to adversely affect the habitat feature is appropriate for maintaining it in favourable condition and is secure in the long-term

Mitigation measures

7.4.4 Mitigation measures and commitments to certain further design measures (presented in the Schedule of Environmental Commitments (Document 7.4.2.1)) which are of relevance to the assessment as to the potential for the Proposed Development to result in an adverse effect on site integrity for the Y Fenai A Bae Conwy/ Menai Strait And Conwy Bay SAC are described below. These committed measures are secured through draft DCO Requirement 6.

• CEMP Measures in Table 7.1; WE511, BS11, BS301, BS401, BS403

Step 3 and Step 4

7.4.5 Table 7.5 below provide an assessment as to the potential for the Proposed Development to result in any implications on sites conservation objectives (step 3) and whether the Proposed Development would result in an adverse effect on site integrity on the Y Fenai A Bae Conwy/ Menai Strait And Conwy Bay SAC (step 4).

Table 7.5: \$	Step 3 Appropriate Assessment a	and Step 4 Integrity	Test for Y Fe	enai A Bae Conw	y/ Menai Strait	And Conwy
Bay SAC						

Mechanism effect identified during screening	Interest features	Step 3 are there implications on the site's conservation objectives?
Direct loss or fragmentation of habitat within a Natura 2000 site during the construction of the Proposed Development	Mudflats and sandflats not covered by seawater at low tide Reefs	From the baseline information regarding habitat types presented in section 7 of ES Chapter 9 Ecology and Nature Conservation (Document 5.9), 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.
		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.
		The vertical LOD for the tunnel would maintain a minimum of 10 m bedrock cover from the top of the tunnel to the surface level of the Menai Strait, which would ensure the probability of a blow out event would be very low. The mitigation measures listed in section 7.4.4 coupled with the relatively short period that construction activities would occur beneath the wetted area of the

Table 7.5: Step 3 Appropriate Assessment and	Step 4 Integrity Test for	Y Fenai A Bae Conwy/ Me	nai Strait And Conwy
Bay SAC			

Mechanism effect identified during screening	Interest features	Step 3 are there implications on the site's conservation objectives?
		Menai Strait (approximately three months), would ensure that the risk of occurrence is very low. 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. This is controlled through CEMP measures BNC28 that 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.
		Taking into account the above and with the mitigation measures listed in section 7.4.4 the Proposed Development would not result in any implications on the conservation objectives from direct loss or fragmentation of habitat.
Release of drilling fluid during the construction of the Proposed Development (tunnel)	Mudflats and sandflats not covered by seawater at low tide Reefs	The vertical LOD for the tunnel would maintain a minimum of 10 m bedrock cover from the top of the tunnel to the bed of the Menai Strait would ensure the probability of a blow out event would be very low. The

Table 7.5: Step	3 Appropriate Assessment and	Step 4 Integrity	Test for Y F	enai A Bae (Conwy/ Menai	Strait And C	Conwy
Bay SAC							

Mechanism effect identified during screening	Interest features	Step 3 are there implications on the site's conservation objectives?
		mitigation measures listed in section 7.4.4 coupled with the relatively short period that construction activities would occur beneath the wetted area of the Menai Strait (approximately three months), would ensure that both the risk of occurrence is very low. 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. Taking into account the above and with the mitigation measures listed in section 7.4.4 the Proposed Development would not result in any implications on the conservation objectives from the release of drilling fluid
Introduction of INNS and diseases during the construction of the Proposed Development	Sandbanks which are slightly covered by sea water all the time Mudflats and sandflats not covered by seawater at low tide Reefs Large shallow inlets and bays Submerged or partially submerged sea caves	In accordance with CEMP measure BS11 an INNS 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). In accordance with CEMP measure BS301 marine mammal surveillance operations during tunnel construction under the Menai Strait will, where possible be carried out with observers based on land. Where

Table 7.5: Step 3	Appropriate Assessment and	Step 4 Integrity Test	t for Y Fenai A Bae	e Conwy/ Menai	Strait And Conwy
Bay SAC					

Mechanism effect identified during screening	Interest features	Step 3 are there implications on the site's conservation objectives?
		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. Abiosecurity risk assessment will be produced as part of the INNMS, which will outline how the risk (if any) of the transfer of <i>Didemnum vexillum</i> and other organisms that may be transported via vessel hulls or equipmentwill be mitigated.
		Taking into account the above and with the mitigation measures listed in section 7.4.4 the Proposed Development would not result in any implications on the conservation objectives from the introduction of INNS and diseases.
Step 4 taking into account the ab	ove it can be concluded that the Propos	sed Development would not result in an adverse effect on

the site integrity of Y Fenai A Bae Conwy/ Menai Strait And Conwy Bay SAC

7.5 ERYRI/SNOWDONIA SAC

- 7.5.1 The following mechanisms for effect have been identified on the Eryri/Snowdonia SAC:
 - Temporary effects on the air quality/deposition from dust during construction, maintenance and decommissioning of the Proposed Development.
- 7.5.2 The following sections provide analysis of the mechanisms for effect and an assessment as to the potential for the Proposed Development to result in an adverse effect on site integrity for the Eryri/Snowdonia SAC.

Conservation Objectives

7.5.3 The following table sets out the conservation objectives relevant to the interest features that have been brought through to this stage.

Table 7.6 Eryri/Snowdonia SAC Conservation Objectives (Ref 6.7)
Conservation Objective for Oligotrophic to mesotrophic standing waters with vegetation of the <i>Littorelletea uniflorae</i> and/or of the <i>Isoëto-Nanojuncetea</i>
The vision for this feature is for it to be in a favourable conservation status, where all of the following conditions are satisfied:
 Each of the lakes has a macrophyte flora which includes some of the characteristic species such as Littorella uniflora, Lobelia dortmanna, Isoetes lacustris, Myriophorum alterniflorum, Juncus bulbosus, Potamogeton species and Subularia aquatica
 The lakes which have not been dammed for use as reservoirs retain a natural profile.
• All of the lakes show a characteristic vegetation zonation from the shore to the deeper water.
 Water quality of each lake is within parameters which are suitable to support the characteristic flora and fauna
Conservation Objective for Siliceous alpine and boreal grasslands
The vision for this feature is for it to be in a favourable conservation status, where all of the following conditions are satisfied:
 The high summits of the Carneddau (Carnedd Dafydd, Pen yr Ole Wen, Carnedd Llewelyn,Garnedd Uchaf, Yr Aryg, Foel Grach, Llwytmor, Drosgl, Foel Fras, Pen Llythrig y Wrach andPen yr Helgi Ddu) the Glyderau (Y Garn, Glyder Fach, Glyder Fawr, Elidir Fach, Carnedd y

Ffiliast and Mynydd Perfedd), should each support summit heath vegetation which does notshow signs of heavy modification by grazing and/or heavy trampling.

- There should be no further loss of summit heath on Yr Wyddfa. The extent of the habitat at Crib y Ddysgl and Garnedd Uchaf should be retained as an absolute minimum and there shouldbe no loss of quality.
- The vegetation should be dominated by species typical of species of summit heath such as *Racomitrium lanuginosum* (woolly hair moss), *Carex bigelowii* (stiff sedge), shrubs dwarfed by the high altitude conditions such as *Vaccinium myrtillus* (bilberry) and *Salix herbacea*, lichens and montane bryophytes.
- Grasses should not comprise a significant proportion of the vegetation.
- The habitat should grade into montane heath at its lower level.
- All factors affecting the achievement of these conditions are under control.

Conservation Objective for hydrophilous tall herb fringe communities of plains and of the montane to alpine levels

The vision for this feature is for it to be in a favourable conservation status, where all of the following conditions are satisfied:

- The area of tall herb ledge must be stable, or increasing in the long term. There will be no loss of tall herb ledge vegetation and the feature will occur in all management units in which it currently occurs
- Tall herb ledge vegetation will develop on ledges and on damp calcareous grassland below cliffs where the potential exists but expansion is currently prevented by grazing.
- Tall herb vegetation will consist of a number of flowering plant species such as Lady's mantle Alchemilla spp., Meadowsweet Filipendula vulgaris, Globeflower Trollius europaeus, Welsh poppy Meconopsis cambrica, Devilsbit scabious Succisa pratensis, Ox-eye daisy Leucanthemum vulgare, Wild Angelica Angelica sylvestris, Roseroot Sedum rosea, Lesser meadow rue Thalictrum minus and Common valerian Valeriana officinalis
- The flowering plants will be ungrazed and able to mature and set seed freely

Conservation Objective for siliceous scree of the montane to snow levels

The vision for this feature is for it to be in a favourable conservation status, where all of the following conditions are satisfied:

• The naturally mobile scree on each massif will have open vegetation on or among the boulders, with *Cryptogramma crispa, Deschampsia*

flexuosa, Festuca ovina, Galium saxatile, Huperzia selago and an extensive and varied bryophyte flora.

• There will not be excessive disturbance to the as a result of human or animal activity.

Conservation Objective for calcareous rocky slopes with chasmophytic vegetation

The vision for this feature is for it to be in a favourable conservation status, where all of the following conditions are satisfied:

- The feature must be stable or increasing in the long term. There will be no loss of calcareous chasmophytic vegetation and it will continue to occur in all of management units in which it currently occurs.
- The feature must continue to support a range of arctic alpine plant populations.
- The plants will be ungrazed and able to mature and set seed freely, or non-flowering plants reproduce by propagules or vegetative means.
- The feature will not be inhibited by invasive non-native plant species.

Conservation Objective for siliceous rocky slopes with chasmophytic vegetation

The vision for this feature is for it to be in a favourable conservation status, where all of the following conditions are satisfied:

- This habitat should support a range of bryophytes and ferns in suitable crevices on acid rocks.
- The feature should not be damaged by grazing.
- It should be widespread on suitable moist acidic rock crevices on each massif.

Conservation Objective for North Atlantic wet heaths with Erica tetralix

The vision for this feature is for it to be in a favourable conservation status, where all of the following conditions are satisfied:

- The feature must be stable or increasing in the long term.
- The habitat will typically comprise *Erica tetralix* and *Calluna vulgaris* and mosses on a wet peaty substrate with a range of small flowering plants such as bog asphodel *Narthecium ossifragum*, milkwort *Polygala serpyllifolia*, Common butterwort *Pinguicula vulgaris*, small sedges and round leaved sundew *Drosera rotundifolia*.

Conservation Objective for European dry heath

The vision for this feature is for it to be in a favourable conservation status, where all of the following conditions are satisfied:

- The feature must be stable or increasing in the long term.
- The habitat will be dominated by at least two dwarf shrub species, usually heather *Calluna vulgaris* and bilberry *Vaccinium mytillus*, but sometimes western gorse Ulex gallii or crowberry *Empetrum nigrum* may be prominent.
- There will be a mixed age range of heath at an appropriate scale which includes stands of young vigorous dwarf shrubs, mature stands where the heather is becoming senescent, and all age ranges in between.
- The heath shrubs will not exhibit forms characteristic of overgrazing.
- There will be no signs of frequent burning nor reversion to grassland.
- All factors affecting the achievement of these conditions are under control.

Conservation Objective for alpine and boreal heaths

The vision for this feature is for it to be in a favourable conservation status, where all of the following:

- Alpine and Boreal heath habitat should cover considerable areas of the Eryri SAC at high altitudes i.e. from about 600m upwards, though it may extend below this in particularly exposed areas.
- It should grade into summit heath on the high summits and ridges, and into dry heath at its lower end.
- This vegetation should be dominated by dwarf shrubs, typically stunted by the high altitude conditions, such as cowberry (*Vaccinium vitis idea*), bilberry (*Vaccinium myrtillus*) and mountain crowberry (*Empetrum hermaphroditum*), prostrate ling (*Calluna vulgaris*) and in some stands dwarf juniper (*Juniperus communis* ssp. *nana*.)Other montane species such as wooley hair moss (*Racomitrium lanuginosum*) and other montane bryophytes and lichens should be present.
- Although some grasses, particularly sheep's fescue, will be present, they should not be at high cover.
- In the long term we expect existing habitat to be retained and to improve in quality in its current locations, and also to expand into other suitable localities where the habitat now exists in a degraded state.
- All factors affecting the achievement of these conditions are under control

Conservation Objective for alpine and subalpine calcareous grasslands

The vision for this feature is for it to be in a favourable conservation status, where all of the following conditions are satisfied:

• This habitat should remain in its current locations although there may

be some shifts in its extent.

- The feature should continue to support the characteristic plants including arctic alpine plant species.
- The only acceptable losses of this habitat should be due to succession to other valuable montane communities such as tall herb ledge vegetation.

Conservation Objective for Species-rich Nardus grassland on siliceous substrates in mountain areas

The vision for this feature is for it to be in a favourable conservation status, where all of the following conditions are satisfied:

- The extent will be at least 10 hectares of the habitat to include 5 ha on the slopes above Llyn Llydaw.
- The grassland will support a range of plant species such as Harebell *Campanula rotundifolia,* Eyebright *Euphrasia spp.* Devilsbit scabious *Succisa pratensis,* Wild thyme *Thymus polytrichus,* Heath speedwell *Veronica officinalis,* Spring sedge *Carex caryophyllea,* Flea sedge *Carex pulicaris,* Carnation sedge *Carex panicea,* Lady's mantle *Alchemila glabr.*
- There will not be any significant cover of invasive species. New Zealand willowherb, *Epilobium brunnescens* is a long established alien plant on the site and is accepted at present as it doesn't appear to adversely affect the feature. (At present CCW has no knowledge of any means of reducing or eliminating it)

Conservation Objective for blanket bog

The vision for this feature is for it to be in a favourable conservation status, where all of the following conditions are satisfied:

- The extent of this habitat should be of the order of 1342 ha (as notified on the N2K data form). This figure however includes a considerable amount of degraded blanket bog. At present it is unknown how much of this is capable of restoration to good quality blanket bog habitat.
- The good quality blanket bog will support typical species e.g. oligotrophic *Sphagnum* spp., cotton grass *Eriophourm* spp, ling *Calluna vulgaris*, bell heather *Erica cinerea*, crowberry *Empetrum nigrum*, cow berry *Vaccinium vitis-idaea*, and cranberry *Vaccinium oxycoccus*.
- The intact habitat will not show any signs of degradation as a result of overgrazing, drainage, or burning, such as depletion of dwarf shrubs and sphagna with increased grass cover.
- The degraded habitat will not show any recent signs of further degradation as a result of overgrazing, drainage or burning.

• All factors affecting the achievement of these conditions are under control.

Conservation Objective for Depressions on peat substrates of the Rhynchosporion

The vision for this feature is for it to be in a favourable conservation status, where all of the following conditions are satisfied:

- The extent has not been fully measured because the nature of the habitat is small scale and patchy within mosaics of blanket bog and wet heath. However the extent should be at least that which has been mapped.
- The habitat, characterised by white beak sedge *Rhynchospora alba* will support a range of plant species such as bog pimpernel *Anagallis tenella*, ling *Calluna vulgaris*, round leaved sundew *Drosera rotundifolia*, cross-leaved heath *Erica tetralix*, cottongrass *Eriophorum angustifolium*, marsh St John's wort *Hypericum elodes*, purple moor grass *Molinia caerulea*, bog asphodel *Narthecium ossifragum*, bog pondweed *Potamogeton polygonifolius*, *Sphagnum* spp., and short sedges.
- There will be no signs of excessive grazing which would result in large areas of bare peat and possibly significant cover of rushes *Juncus spp.*
- Drainage or burning would damage this habitat and neither activity should be consented where this habitat could potentially be affected.
- At Cwmffynnon and other small areas in the Glyderau, the habitat supports the uncommon species, marsh clubmoss *Lycopodiella inundata*. Here we would expect to see frequent small patches of bare peat which support the species. Many of these areas may be caused by vigorous flushing of water rather than by grazing animals.

Conservation Objective for Petrifying springs with tufa formation (Cratoneuron)

The vision for this feature is for it to be in a favourable conservation status, where all of the following conditions are satisfied:

- This feature on Eryri does not form tufa but should display a dominant cover of mosses such as *Cratoneuron communatum, Philonotis fontana* and *Bryum pseudotriquetrum* with frequent characteristic forbs such as *Montia fontana, Chrysosplenium oppositifolium* and *Saxifraga stellaris.*
- There are no significant increases in grass or rush cover

Conservation objectives for alkaline fens

The vision for this feature is for it to be in a favourable conservation status, where all of the following conditions are satisfied:

• The habitat consists of flushes, influenced by some base-enrichment,

where brown mosses (such as *Scorpidium scorpioides*, *Cratoneuron commutatum* and *Drepanocladus revolvens*) are present. Small sedge species such as *Carex viridula*, *C. panicea*, *C. dioica C. pulicaris* and *Eriophorum spp* will be present and usually also *Pinguicula vulgaris*.

Conservation objectives for Alpine pioneer formations of the *Caricion bicolorisatrofuscae*

The vision for this feature is for it to be in a favourable conservation status, where all of the following conditions are satisfied:

- The feature consists of base rich flushes at high altitude which are flushed continuously with cold water.
- This habitat should have a high bryophyte cover and support arctic alpines such as *Saxifraga oppositifolia*, *S. stellaris* and *Thalictrum alpinum*. *Juncus triglumis* should be present and sedges such as *Carex viridula*.
- There should be no non-native species.
- The flowering plants should be able to flower and set seed unhindered by grazing

Conservation Objective for old sessile oakwoods with Ilex and Blechnum

The vision for this feature is for it to be in a favourable conservation status, where all of the following conditions are satisfied:

- The extent is increasing.
- The woodland comprises locally native canopy forming trees including: Quercus petraea, Betula pubescens, B. pendula, Fraxinus excelsior and Sorbus aucuparia.
- There is a mixed age structure within the woodland.
- Regeneration is occurring and sufficient seedlings can grow on to saplings and ultimately canopy trees.
- There are no significant alien species.

Conservation objectives for Slender green feather-moss *Drepanocladus* (Hamatocaulis) vernicosus

The vision for this feature is for it to be in a favourable conservation status, where all of the following conditions are satisfied:

- The moss is present at Cwm Afon Llafar Flush A and Flush B.
- The associated vegetation should be dominated by rushes and sedges, with <20% rush cover.
- There should be less than 10% disturbed bare ground within the flushes.

Conservation objectives for Floating water plantain *Luronium natans*

The vision for this feature is for it to be in a favourable conservation status, where all of the following conditions are satisfied:

• Luronium natans occurs in Llyn Cwmffynnon as a minimum

Mitigation Measures

- 7.5.4 Mitigation measures and commitments to certain further design measures (presented in the Schedule of Environmental Commitments (**Document 7.4.2.1**)) which are of relevance to the assessment as to the potential for the Proposed Development to result in an adverse effect on site integrity for the Eryri/Snowdonia SAC are described below. These committed measures are secured through draft DCO Requirement 6.
 - CEMP Measures in Table 9.24; all relevant General Principle measures, AE21, AE41

Step 3 and Step 4

7.5.5 Table 7.7 below provide an assessment as to the potential for the Proposed Development to result in any implications on sites conservation objectives (step 3) and whether the Proposed Development would result in an adverse effect on site integrity on the Eryri/Snowdonia SAC (step 4).

Table 7.7. Step 3 Appropriate Assessment and Step 4 Integrity Test for Eryn/Snowdonia SAC			
Mechanism effect identified during screening	Interest features	Step 3 are there implications on the site's conservation objectives?	
Temporary effects on the air quality/deposition from dust during construction, maintenance and decommissioning of the Proposed Development.Olig wat uat solution grad Hyd com modSilid solution com modSilid solution solution com modSilid solution com modSilid solution com modSilid com modSilid solution com modSilid com modSilid solution com modSilid com modSilid solution com modSilid com solutionSilid solution com solutionSilid com solutionSilid solution com solutionSilid com solutionSilid solution com solutionSilid com solutionSilid solution com solutionSilid com solutionSilid solution com solutionSilid com solutionSilid solution com solutionSilid com solutionSilid solution com solutionSilid com solutionSilid solution com solutionSilid com solutionSilid solution com solutionSilid com solutionSilid solution solution solutionSilid com solutionSilid solution solution solutionSilid com solutionSilid solution solutionSilid solutionSilid solution solutionSilid solutionSilid solution solutionSilid solutionSilid solution solution <tr< td=""><td>Oligotrophic to mesotrophic standing waters with vegetation of the Littorelletea uniflorae and/or of the Isoëto-Nanojuncetea Siliceous alpine and boreal grasslands</td><td>This site is 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. The critical load range for Siliceous alpine and boreal</td></tr<>	Oligotrophic to mesotrophic standing waters with vegetation of the Littorelletea uniflorae and/or of the Isoëto-Nanojuncetea Siliceous alpine and boreal grasslands	This site is 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. The critical load range for Siliceous alpine and boreal	
	Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels Siliceous scree of the montane to	grasslands has been used 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.	
	snow levels (Androsacetalia alpinae and Galeopsietalia ladani) Calcareous rocky slopes with chasmophytic vegetation	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/Lovel, and	
	Siliceous rocky slopes with chasmophytic vegetation Northern Atlantic wet heaths with Erica tetralix European dry heaths	relevant air quality objective and Critical Loads/Level, and is therefore considered insignificant (not significant) within the air quality assessment in ES 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).	
	Alpine and Boreal neaths	Taking into account the above and with the mitigation	

. . . :/0. C A

Table 7.7: Step 3 Appropriate Assessment and Step 4 Integrity Test for Eryri/Snowdonia SAC			
Mechanism effect identified during screening	Interest features	Step 3 are there implications on the site's conservation objectives?	
during screening	Alpine and subalpine calcareous grasslands Species-rich Nardus grasslands, on silicious substrates in mountain areas (and submountain areas in Continental Europe) Blanket bogs Depressions on peat substrates of the Rhynchosporion Petrifying springs with tufa formation (Cratoneurion) * Priority feature Alkaline fens Alpine pioneer formations of the Caricion bicoloris-atrofuscae Old sessile oak woods with Ilex and	objectives? measures listed in section 7.5.4 the Proposed Development would not result in any implications on the conservation objectives from temporary effects on the air quality/deposition.	
	Slender green feather-moss Floating water-plantain		
Stop 4 toking into appoint the sh	ave it can be concluded that the Dran as	ad Development would not recult in on advarge effect or	

Step 4 taking into account the above it can be concluded that the Proposed Development would not result in an adverse effect on the site integrity of Eryir/Snowdonia SAC

7.6 AFON GWYRFAI A LLYN CWELLYN SAC

- 7.6.1 The following mechanisms for effect have been identified on the Afon Gwyrfai A Llyn Cwellyn SAC:
 - Disturbance/injury (noise, vibration) and/or displacement of species during construction;
 - Release of drilling fluid during the construction of the Proposed Development (tunnel); and
 - Disorientation of species from EMF
- 7.6.2 The following sections provide analysis of the mechanisms for effect and an assessment as to the potential for the Proposed Development to result in an adverse effect on site integrity for the Afon Gwyrfai A Llyn Cwellyn SAC.

Conservation Objectives

7.6.3 The following table sets out the conservation objectives relevant to the interest features that have been brought through to this stage.

Table 7.8 Afon Gwyrfai A Llyn Cwellyn SAC Conservation Objectives(Ref 6.6)

Conservation Objective for Feature 3: Atlantic salmon

The vision for this feature is for it to be in a favourable conservation status, where all of the following conditions are satisfied:

- The conservation objective for the water course as defined in 4.1 above must be met
- The population of the feature in the SAC is stable or increasing over the long-term.
- The natural range of the feature in the SAC is neither being reduced nor is likely to be reduced for the foreseeable future. The natural range is taken to mean those reaches where predominantly suitable habitat for each life stage exists over the long-term. Suitable habitat is defined in terms of near-natural.
- The Gwyrfai will continue to be a sufficiently large habitat to maintain the feature's population in the SAC on a long-term basis.

Mitigation measures

- 7.6.4 Mitigation measures and commitments to certain further design measures (presented in the Schedule of Environmental Commitments (Document 7.4.2.1)) which are of relevance to the assessment as to the potential for the Proposed Development to result in an adverse effect on site integrity for the Afon Gwyrfai A Llyn Cwellyn SAC are described below. These committed measures are secured through draft DCO Requirement 6.
 - CEMP Measures in Table 7.1; NV32, NV33, WE511, BNC28.

Step 3 and Step 4

7.6.5 Table 7.9 below shows the Appropriate Assessment (Step 3) and Integrity Test (Step 4) undertaken for the Proposed Development on the Afon Gwyrfai A Llyn Cwellyn SAC.

Mechanism effect identified during screening	Interest features	Step 3 are there implications on the site's conservation objectives?	
Disturbance/injury (noise, vibration and/or displacement of species during construction,	With regards to the TBM tunnelling construction method the sound generated would be primarily low frequency in nature (<500 Hz). It is therefore evident from the hearing ranges presented in ES Appendix 9.18 (Document 5.9.2.18) that acoustic energy from TBM activities would fall outside the peak hearing sensitivity of fish.		
		With regards to Drill and Blast, and as set out in CEMP measure NV32, the following measures would be in place:	
		 Blast design measures or other mitigation measures will be implemented to prevent exceedance of limits. 	
		 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. 	
		 The maximum total blast weight per round for drill and blast of the tunnel will not exceed 300 kg. 	
		• The maximum number of blasts for drill and blast of the tunnel per 24 hours will not exceed six.	
		Limits will also be placed on blasting activity to ensure effects on marine mammals and fish are no greater than	

Table 7.9: Step 3 Appropriate Assessment and Step 4 Integrity Test for Afon Gwyrfai A Llyn Cwellyn SAC

	assessment and otep 4 integrity rest	
Mechanism effect identified during screening	Interest features	Step 3 are there implications on the site's conservation objectives?
		those reported in ES Chapter 9 Ecology and Nature Conservation (Document 5.9) and summarised below.
		Taking into account the above measures, 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 ES Appendix 9.18 (Document 5.9.2.18).
		As set out in CEMP measure BNC28 Acoustic Deterrent Devices would be used at all times during the blasting of the tunnel beneath the Menai Strait.
		Taking into account the above and with the mitigation measures listed in section 7.6.4 the Proposed Development would not result in any implications on the conservation objectives from the Disturbance/injury (from noise and vibration) and/or displacement of species.
Release of drilling fluid during the construction of the Proposed Development (tunnel)	Atlantic Salmon	The vertical LOD for the tunnel would maintain a minimum of 10 m bedrock cover from the top of the tunnel to the bed of the Menai Strait would ensure the probability of a blow out event would be very low. The mitigation measures listed in section 7.4.4 coupled with

Table 7.9: Step 3 Appropriate Assessment and Step 4 Integrity Test for Afon Gwyrfai A Llyn Cwellyn SAC			
Mechanism effect identified during screening	Interest features	Step 3 are there implications on the site's conservation objectives?	
		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 the risk of occurrence would be very low. 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, leading to a substantial dilution effect and, irrespective, as a highly mobile species, Atlantic salmon would be likely to avoid areas of contamination.	
		Taking into account the above and with the mitigation measures listed in section 7.6.4 the Proposed Development would not result in any implications on the conservation objectives from the release of drilling fluid.	
Disorientation of species from EMF	Atlantic Salmon	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 7.1). In addition, mitigation listed in The NPS EN-3 paragraph 2.6.76 (Ref 7.2) states that a cable buried at depths of 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	

Table 7.9: Step 3 Appropriate Assessment and Step 4 Integrity Test for Afon Gwyrfai A Llyn Cwellyn SAC				
Mechanism effect identified during screening	Interest features	Step 3 are there implications on the site's conservation objectives?		
		for the Proposed Development (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 μ T) reduces from approximately 96 to 3 when moving from 0 to 10 m away from centreline and typical μ T reduces from 24 to 0.9 at the same distances ¹³ . As the cables would be housed in a tunnel at least 10 m below the seabed the EMFs generated by cables beneath the Menai would therefore be expected to be approaching background levels within the water column and EMF resulting from the Proposed Development would not result in any implications on the		

Step 4 taking into account the above it can be concluded that the Proposed Development would not result in an adverse effect on

conservation objectives from disorientation of species.

Table

the site integrity of Afon Gwyrfai A Llyn Cwellyn SAC

North Wales Connection Project

¹³ http://www.emfs.info/sources/overhead/specific/400-kv/

7.7 PEN LLYN A'R SARNAU/LLEYN PENINSULA AND THE SARNAU SAC

- 7.7.1 The following mechanisms for effect have been identified on the Pen Llyn a'r Sarnau/Lleyn Peninsula and the Sarnau SAC:
 - Disturbance/injury (noise, vibration) and/or displacement of species during construction; and
 - Disorientation of species from EMF
- 7.7.2 The following sections provide analysis of the mechanisms for effect and an assessment as to the potential for the Proposed Development to result in an adverse effect on site integrity for the Pen Llyn a'r Sarnau/Lleyn Peninsula and the Sarnau SAC.

Conservation Objectives

7.7.3 The following table sets out the conservation objectives relevant to the interest features that have been brought through to this stage.

Table 7.10 Pen Llyn a'r Sarnau/Lleyn Peninsula and the Sarnau SACConservation Objectives (Ref 6.8)

To achieve favourable conservation status all the following, subject to natural processes, need to be fulfilled and maintained in the long-term. If these objectives are not met restoration measures will be needed to achieve favourable conservation status.

Species Features: Grey seal, Bottlenose dolphin

Populations

The population is maintaining itself on a long-term basis as a viable component of its natural habitat. Important elements are population size, structure, production, and condition of the species within the site.

As part of this objective it should be noted that :

- for bottlenose dolphin, otter and grey seal; contaminant burdens derived from human activity are below levels that may cause physiological damage, or immune or reproductive suppression
- grey seal populations should not be reduced as a consequence of human activity

<u>Range</u>

The species population within the site is such that the natural range of the population is not being reduced or likely to be reduced for the foreseeable future.

- As part of this objective it should be noted that for bottlenose dolphin, otter and grey seal
- Their range within the SAC and adjacent inter-connected areas is not constrained or hindered
- There are appropriate and sufficient food resources within the SAC and beyond

The sites and amount of supporting habitat used by these species are accessible and their extent and quality is stable or increasing

Supporting Habitats and Species

The presence, abundance, condition and diversity of habitats and species required to support this species is such that the distribution, abundance and populations dynamics of the species within the site and population beyond the site is stable or increasing. Important considerations include;

- distribution,
- extent,
- structure,
- function and quality of habitat,
- prey availability and quality.

As part of this objective it should be noted that;

- The abundance of prey species subject to existing commercial fisheries needs to be equal to or greater than that required to achieve maximum sustainable yield and secure in the long-term.
- The management and control of activities or operations likely to adversely affect the species feature, is appropriate for maintaining it in favourable condition and is secure in the long-term.
- Contamination of potential prey species should be below concentrations potentially harmful to their physiological health.
- Disturbance by human activity is below levels that suppress reproductive success, physiological health or long-term behaviour
- For otter there are sufficient sources within the SAC and beyond of high quality freshwater for drinking and bathing.

Restoration and recovery: As part of this objective it should be noted that for the bottlenose dolphin and otter, populations should be increasing.

Mitigation measures

7.7.4 Mitigation measures and commitments to certain further design measures (presented in the Schedule of Environmental Commitments (**Document**

7.4.2.1)) which are of relevance to the assessment as to the potential for the Proposed Development to result in an adverse effect on site integrity for the Pen Llyn a'r Sarnau/Lleyn Peninsula and the Sarnau SAC are described below. These committed measures are secured through draft DCO Requirement 6.

• CEMP Measures in Table 7.1; NV32, NV33, BS11, BS301, BS401, BS403, BNC28.

Step 3 and Step 4

7.7.5 Table 7.11 below shows the Appropriate Assessment (Step 3) and Integrity Test (Step 4) undertaken for the Proposed Development on the Pen Llyn a'r Sarnau/Lleyn Peninsula and the Sarnau SAC.

Table 7.11: Step 3	Appropriate Assessment a	nd Step 4 Integrity	/ Test for Pen	i Llyn a'r Sa	arnau/Lleyn P	eninsula and the
Sarnau SAC						

Mechanism effect identified during screening	Interest features	Step 3 are there implications on the site's conservation objectives?
Disturbance/injury (noise, vibration and/or displacement of species during construction,	Bottlenose dolphins Grey seal	The peak particle velocity (PPV) has been calculated for TBMs ES Appendix 9.18 (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 μ Pa (pk) or an rms sound pressure level of 136 dB re 1 μ Pa (rms) in the water column near the seabed. Sound resulting from the TBM would be primarily low frequency in nature (<500 Hz). It is therefore evident from the hearing ranges presented in ES Appendix 9.18 (Document 5.9.2.18) that acoustic energy from TBM activities would 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 Sound Exposure Level (SEL) levels significantly lower than the onset threshold for either temporary threshold shift (TTS) or permanent threshold shift (PTS) even if it spent 24 hours at the seabed immediately adjacent to the TBM.

Mechanism effect identified during screening	Interest features	Step 3 are there implications on the site's conservation objectives?
		For the Drill and Blast method, and as set out in CEMP measure NV32, the following measures would be in place:
		 Blast design measures or other mitigation measures will be implemented to prevent exceedance of limits.
		• 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.
		 The maximum total blast weight per round for drill and blast of the tunnel will not exceed 300 kg.
		 The maximum number of blasts for drill and blast of the tunnel per 24 hours will not exceed six.
		For the drill and blast methodology, sound modelling conducted on a worst case cumulative sound, based on six 300 kg charge rounds per day, has predicted that the most sensitive (high frequency) cetacean species (e.g. bottlenose dolphin) exposed to sound within a 171 m radius of the blast could experience auditory injury (permanent threshold shift in hearing).

Mechanism effect identified during screening	Interest features	Step 3 are there implications on the site's conservation objectives?
		For a pinniped such as the 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.
		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.
		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 from 2004 to 2014. Construction activities would occur beneath the wetted area of the Menai Strait for a short period (approximately three months). Furthermore, due to 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 limited zone of potential noise effect (based on noise modelled (see ES Appendix 9.18 Document 5 9 2 18)) and the very low utilisation of the
		area by marine mammals indicate there would be an

Mechanism effect identified during screening	Interest features	Step 3 are there implications on the site's conservation objectives?
		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.
		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 Ecology and Nature Conservation (Document 5.9) and summarised above.
		As set out in CEMP measure BNC28 Mitigation measures will include, as appropriate, 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.
		Taking into account the above and with the mitigation measures listed in section 7.7.4 the Proposed Development would not result in any implications on the conservation objectives from the Disturbance/injury (noise and vibration) and/or displacement of species.
		It should be noted that the acoustic modelling referred to above was based on a theoretical treatment of sound from Drill and Blast activities. In reality, the situation

Mechanism effect identified during screening	Interest features	Step 3 are there implications on the site's conservation objectives?
		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.
Disorientation of species from EMF	Bottlenose dolphins	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 7.1). In addition, mitigation listed in The NPS EN-3 (Ref 7.2) states that a cable buried at a 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 Proposed Development (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 μ T) reduces from approximately 96 to 3 when moving from 0 to 10 m

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Table 7.11: Step 3	3 Appropriate Assessment	and Step 4 Integrity	Test for Pen Llyn a'r	Sarnau/Lleyn	Peninsula and the
Sarnau SAC					

Mechanism effect identified during screening	Interest features	Step 3 are there implications on the site's conservation objectives?		
		away from centreline and typical μ T reduces from 24 to 0.9 at the same distances ¹⁴ . As the cables would be housed in a tunnel at least 10 m below the seabed the EMFs generated by cables beneath the Menai would therefore be expected to be approaching background levels within the water column and EMF resulting from the Proposed Development would not result in any implications on the conservation objectives from disorientation of species.		
Step 4 taking into account the above it can be concluded that the Proposed Development would not result in an adverse effect on				

the site integrity of Pen Llyn a'r Sarnau/Lleyn Peninsula and the Sarnau SAC

¹⁴ http://www.emfs.info/sources/overhead/specific/400-kv/
7.8 CARDIGAN BAY SAC

- 7.8.1 The following mechanisms for effect have been identified on the Cardigan Bay SAC:
 - Disturbance/injury (noise, vibration) and/or displacement of species during construction; and
 - Disorientation of species from EMF
- 7.8.2 The following sections provide analysis of the mechanisms for effect and an assessment as to the potential for the Proposed Development to result in an adverse effect on site integrity for the Cardigan Bay SAC.

Conservation Objectives

7.8.3 The following table sets out the conservation objectives relevant to the interest features that have been brought through to this stage.

7.12 Cardigan Bay SAC Conservation Objectives (Ref 6.9)

To achieve favourable conservation status all the following, subject to natural processes, need to be fulfilled and maintained in the long-term. If these objectives are not met restoration measures will be needed to achieve favourable conservation status.

Species Features: Grey seal, Bottlenose dolphin

Populations

The population is maintaining itself on a long-term basis as a viable component of its natural habitat.

Important elements include:

- population size
- structure, production
- condition of the species within the site.

As part of this objective it should be noted that for bottlenose dolphin and grey seal;

- Contaminant burdens derived from human activity are below levels that may cause physiological damage, or immune or reproductive suppression
- For grey seal populations should not be reduced as a consequence of human activity

<u>Range</u>

The species population within the site is such that the natural range of the population is not being reduced or likely to be reduced for the foreseeable future.

- As part of this objective it should be noted that for bottlenose dolphin and grey seal
- Their range within the SAC and adjacent inter-connected areas is not constrained or hindered
- There are appropriate and sufficient food resources within the SAC and beyond
- The sites and amount of supporting habitat used by these species are accessible and their extent and quality is stable or increasing

Supporting Habitats And Species

The presence, abundance, condition and diversity of habitats and species required to support this species is such that the distribution, abundance and populations dynamics of the species within the site and population beyond the site is stable or increasing. Important considerations include;

- distribution
- extent
- structure
- function and quality of habitat
- prey availability and quality.

As part of this objective it should be noted that;

- The abundance of prey species subject to existing commercial fisheries needs to be equal to or greater than that required to achieve maximum sustainable yield and secure in the long-term.
- The management and control of activities or operations likely to adversely affect the species feature is appropriate for maintaining it in favourable condition and is secure in the long-term.
- Contamination of potential prey species should be below concentrations potentially harmful to their physiological health.
- Disturbance by human activity is below levels that suppress reproductive success, physiological health or long-term behaviour

Restoration and recovery: As part of this objective it should be noted that for the bottlenose dolphin populations should be increasing.

Mitigation measures

- 7.8.4 Mitigation measures and commitments to certain further design measures (presented in the Schedule of Environmental Commitments (Document 7.4.2.1)) which are of relevance to the assessment as to the potential for the Proposed Development to result in an adverse effect on site integrity for the Cardigan Bay SAC are described below. These committed measures are secured through draft DCO Requirement 6.
 - CEMP Measures in Table 7.1; NV32, NV33, BS11, BS301, BS401, BS403, BNC28.

Step 3 and Step 4

7.8.5 Table 7.13 below shows the Appropriate Assessment (Step 3) and Integrity Test (Step 4) undertaken for the Proposed Development on Cardigan Bay SAC.

Table 7.13: Step 3 Appropriate Assessment and Step 4 Integrity Test for Cardigan Bay SAC		
Mechanism effect identified during screening	Interest features	Step 3 are there implications on the site's conservation objectives?
Disturbance/injury (noise, vibration and/or displacement of species during construction,	Bottlenose dolphins Grey seal	The peak particle velocity (PPV) has been calculated for TBMs (ES Appendix 9.18 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 μ Pa (pk) or an rms sound pressure level of 136 dB re 1 μ Pa (rms) in the water column near the seabed.
Disorientation of species from EMF	Bottlenose dolphins	Sound resulting from the TBM would be primarily low frequency in nature (<500 Hz). It is therefore evident from the hearing ranges presented in ES Appendix 9.18 (Document 5.9.2.18) that acoustic energy from TBM activities would 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.

Table 7.13: Step 3 Appropriate Assessment and Step 4 Integrity Test for Cardigan Bay SAC		
Mechanism effect identified during screening	Interest features	Step 3 are there implications on the site's conservation objectives?
Step 4 taking into account the above it can be concluded that the Proposed Development would not result in an adverse effect on the site integrity of Cardigan Bay SAC		

7.9 NORTH ANGLESEY MARINE/GOGLEDD MÔN FOROL CSAC

- 7.9.1 The following mechanisms for effect have been identified on the North Anglesey Marine/Gogledd Môn Forol cSAC:
 - Disturbance/injury (noise, vibration) and/or displacement of species during construction; and
 - Disorientation of species from EMF
- 7.9.2 The following sections provide analysis of the mechanisms for effect and an assessment as to the potential for the Proposed Development to result in an adverse effect on site integrity for the North Anglesey Marine/Gogledd Môn Forol cSAC.

Conservation Objectives

7.9.3 The following table sets out the conservation objectives relevant to the interest features that have been brought through to this stage.

Table 7.14: North Anglesey Marine/Gogledd Môn Forol cSAC (Ref 7.3)

To avoid deterioration of the habitats of the harbour porpoise or significant disturbance to the harbour porpoise, thus ensuring that the integrity of the site is maintained and the site makes an appropriate contribution to maintaining Favourable Conservation Status (FCS) for the UK harbour porpoise.

To ensure for harbour porpoise that, subject to natural change, the following attributes are maintained or restored in the long-term:

- The species is a viable component of the site.
- There is no significant disturbance of the species.
- The supporting habitats and processes relevant to harbour porpoises and their prey are maintained.

Mitigation measures

7.9.4 Mitigation measures and commitments to certain further design measures (presented in the Schedule of Environmental Commitments (Document 7.4.2.1)) which are of relevance to the assessment as to the potential for the Proposed Development to result in an adverse effect on site integrity for the North Anglesey Marine/Gogledd Môn Forol cSAC are described below. These committed measures are secured through draft DCO Requirement 6.

- CEMP Measures in Table 7.1; NV32, NV33, BS11, BS301, BS401, BS403, BNC28.
- •
- •

Step 3 and Step 4

7.9.5 Table 7.15 below shows the Appropriate Assessment (Step 3) and Integrity Test (Step 4) undertaken for the Proposed Development on the North Anglesey Marine/Gogledd Môn Forol cSAC.

Table 7.15: Step 3 Appropriate Assessment and Step 4 Integrity Test for North Anglesey Marine/Gogledd Môn Forol cSAC			
Mechanism effect identified during screening	Interest features	Step 3 are there implications on the site's conservation objectives?	
Disturbance/injury (noise, vibration) and/or displacement of species during construction	Harbour porpoise	The peak particle velocity (PPV) has been calculated for TBMs (ES Appendix 9.18 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 μ Pa (pk) or an rms sound pressure level of 136 dB re 1 μ Pa (rms) in the water column near the seabed. Sound resulting from the TBM would be primarily low frequency in nature (<500 Hz). It is therefore evident from the hearing ranges presented in ES Appendix 9.18 (Document 5.9.2.18) that acoustic energy from TBM activities would 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	
		spent 24 hours at the seabed immediately adjacent to the TBM.	

Table 7.15: Step 3 Appropriate Assessment and Step 4 Integrity Test for North Anglesey Marine/Gogledd Môn Forol cSAC		
Mechanism effect identified during screening	Interest features	Step 3 are there implications on the site's conservation objectives?
		For the Drill and Blast method, and as set out in CEMP measure NV32, the following measures would be in place:
		 Blast design measures or other mitigation measures will be implemented to prevent exceedance of limits.
		 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.
		 The maximum total blast weight per round for drill and blast of the tunnel will not exceed 300 kg.
		 The maximum number of blasts for drill and blast of the tunnel per 24 hours will not exceed six.
		For the drill and blast methodology, sound modelling conducted on a worst case cumulative sound, based on six 300 kg charge rounds per day, has predicted that the most sensitive (high frequency) cetacean species (e.g. bottlenose dolphin) exposed to sound within a 171 m radius of the blast could experience auditory injury (permanent threshold shift in hearing).
		For a pinniped such as the grey seal, injury from the

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Table 7.15: Step 3 Appropriate Assessment and Step 4 Integrity Test for North Anglesey Marine/Gogledd Môn Forol cSAC		
Mechanism effect identified during screening	Interest features	Step 3 are there implications on the site's conservation objectives?
		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.
		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.
		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 from 2004 to 2014. Construction activities would occur beneath the wetted area of the Menai Strait for a short period (approximately three months). Furthermore, due to 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 limited zone of potential noise effect (based on noise modelled (see ES Appendix 9.18 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

Mechanism effect identified during screening	Interest features	Step 3 are there implications on the site's conservation objectives?
		would have an effect during a blast.
		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 Ecology and Nature Conservation (Document 5.9) and summarised above.
		As set out in CEMP measure BNC28 Mitigation measures will include, as appropriate, 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.
		Taking into account the above and with the mitigation measures listed in section 7.7.4 the Proposed Development would not result in any implications on the conservation objectives from the Disturbance/injury (noise and vibration) and/or displacement of species.
		It should be noted that the acoustic modelling referred to above 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

Table 7.15: Step 3 Appropriate	Assessment and Step 4 Integrity Te	st for North Anglesey Marine/Gogledd Mon Forol CSAC
Mechanism effect identified during screening	Interest features	Step 3 are there implications on the site's conservation objectives?
		and impact zones will be lower than predicted.
Disorientation of species from EMF	Harbour porpoise	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 7.1). In addition, mitigation listed in The NPS EN-3 (Ref 7.2) states that a cable buried at 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 Proposed Development (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 μ T) reduces from approximately 96 to 3 when moving from 0 to 10 m away from centreline and typical μ T reduces from 24 to 0.9 at the same distances. As the cables would be housed in a tunnel at least 10 m below the seabed the EMFs generated by cables beneath the Menai would therefore be expected to be approaching background levels within the water column and EMF resulting from

Table 7.15: Step 3 Appropriate	Assessment and Step 4 Integrity Tes	st for North Anglesey Marine/Gogledd Môn Forol cSAC
Mechanism effect identified during screening	Interest features	Step 3 are there implications on the site's conservation objectives?
		implications on the conservation objectives from disorientation of species.
Step 4 taking into account the above it can be concluded that the Proposed Development would not result in an adverse effect on the site integrity of North Anglesey Marine/Gogledd Môn Forol cSAC		

7.10 WEST WALES MARINE CSAC

- 7.10.1 The following mechanisms for effect have been identified on the West Wales Marine cSAC:
 - Disturbance/injury (noise, vibration) and/or displacement of species during construction; and
 - Disorientation of species from EMF
- 7.10.2 The following sections provide analysis of the mechanisms for effect and an assessment as to the potential for the Proposed Development to result in an adverse effect on site integrity for the West Wales Marine cSAC.

Conservation Objectives

7.10.3 The following table sets out the conservation objectives relevant to the interest features that have been brought through to this stage.

Table 7.16 West Wales Marine cSAC Conservation Objectives (Ref 7.4)

To avoid deterioration of the habitats of the harbour porpoise or significant disturbance to the harbour porpoise, thus ensuring that the integrity of the site is maintained and the site makes an appropriate contribution to maintaining Favourable Conservation Status (FCS) for the UK harbour porpoise.

To ensure for harbour porpoise that, subject to natural change, the following attributes are maintained or restored in the long-term:

- 1. The species is a viable component of the site.
- 2. There is no significant disturbance of the species.

3. The supporting habitats and processes relevant to harbour porpoises and their prey are maintained.

These Conservation Objectives are common across all UK sites proposed for this species to ensure coherence across the network (EC, 2012¹⁵). These Conservation Objectives are based on considerations of the ecological requirements of the species within the site, although their interpretation is contextualised in their contribution to maintaining FCS at a wider scale (EC, 2012⁷). With regard the West Wales Marine/Gorllewin Cymru Forol site, attributes need to be maintained. Maintain implies that,

¹⁵ EC, 2012. Commission Note on Setting Conservation Objectives for Natura 2000 Sites

based on our existing understanding, the feature is regarded as being in favourable condition and will, subject to natural change, remain in this condition.

1. The species is a viable component of the site.

Harbour porpoises are considered to be a 'viable component' of the site if they are able to survive and live successfully within it. The West Wales Marine/Gorllewin Cymru Forol site has been selected primarily on the basis of its long-term, preferential use by harbour porpoise in contrast to other areas of the UK portion of the Irish Sea. The implication is that this site provides good foraging habitat and it may also be used for breeding and calving. However, because the number of harbour porpoise using the site naturally varies, there is not an exact number of animals within the site above which the species is viable or below which it will become unviable.

For that reason, the intent of this objective is to minimise the risk posed by activities within the site to the species viability. Activities that kill, injure or significantly disturb harbour porpoise have the potential to affect species viability within the site.

2. There is no significant disturbance of the species within the site.

Disturbance of harbour porpoise generally, but not exclusively, originates from activities that cause underwater noise. Responses to noise can be physiological and/or behavioural. JNCC has produced guidelines (Ref 7.5) to minimise the risk of physical injury to cetaceans from various sources of loud, underwater noise. However, disturbance is a behavioural (non-injurious) response to noise and may lead to harbour porpoises being displaced from the area affected.

Within sites, the immediate effects of disturbance are in the loss (usually temporary) of habitat available to harbour porpoise. The West Wales Marine/Gorllewin Cymru Forol site has been identified on the basis of having persistent higher densities of harbour porpoises (Ref 6.11) when compared to other areas of the UK's Irish Sea and Celtic Sea continental shelf, which is linked to the habitats within the site that likely promote good feeding opportunities. Therefore, activities within the site should be managed to ensure access to the site. Any disturbance should not lead to the exclusion of harbour porpoise from a significant period of time. Case Work Advice Guidance in relation to various activities is being developed and expands this supplementary advice to define 'significant portion and period' in the context of impacting site integrity.

This Conservation Objective aims to ensure that the site contributes as best it can to maintaining the Favourable Conservation Status of the wider harbour porpoise population. As such, how any impacts within the site translate into effects on the Management Unit population are of greatest concern.

3. The supporting habitats and processes relevant to harbour porpoises and their prey are maintained.

The harbour porpoise is a species that is highly dependent on a year-round proximity to food sources and its distribution and condition may strongly reflect the availability and energy density of its prey (Brodie 1995 in Santos & Pierce, 2003 (Ref 7.6)). The densities of porpoise using the site are likely linked to the availability (and density) of prey within this site. Porpoise eat a variety of prey including gobies (*Gobiidae* species), sand eel (*Ammodytes* species), whiting (*Merlangius merlangus*), herring (*Clupea harengus*) and sprat (*Clupea harengus*) (some of which may have spawning grounds within the West Wales Marine/Gorllewin Cymru Forol site). However, the diet of porpoises specifically when using the site is unknown. In the UK as a whole, the activity which potentially poses a risk to the achievement of this conservation objective is commercial fishing; although environmental variability also plays a role in determining the status of fish stocks.

The delineation of the West Wales Marine/Gorllewin Cymru Forol site is based on the prediction of 'harbour porpoise habitat' within the Celtic and Irish Seas (Ref 6.11). Habitat, in this context, means the characteristics of the seabed and water column. Peaks in density of harbour porpoise in the West Wales Marine/Gorllewin Cymru Forol site are likely to vary seasonally. At the Management Unit scale, for both the Summer and Winter seasons, the distribution of harbour porpoise is related to water depth and variables within the water column (Heinänen & Skov, 2015). Harbour porpoise density peaked in stable stratified waters (based on vertical differences in temperature) with lower gradients of eddy activity (turbulence); higher densities were also found in areas with current speeds of 0.4-0.6 m/s. The analysis indicated a preference for water depths between 30 and 50 m throughout the year. In general, in both seasons, harbour porpoise preferred coarser seabed sediments (sand/gravel). How these environmental characteristics of the site influence the prey of harbour porpoise or other aspects of their life directly (e.g. breeding/calving) is currently unknown.

Mitigation measures

7.10.4 Mitigation measures and commitments to certain further design measures (presented in the Schedule of Environmental Commitments (Document 7.4.2.1)) which are of relevance to the assessment as to the potential for the Proposed Development to result in an adverse effect on site integrity for the

West Wales Marine cSACare described below. These committed measures are secured through draft DCO Requirement 6.

• CEMP Measures in Table 7.1; NV32, NV33, BS11, BS301, BS401, BS403, BNC28.

Step 3 and Step 4

7.10.5 Table 7.17 below shows the Appropriate Assessment (Step 3) and Integrity Test (Step 4) undertaken for the Proposed Development on the West Wales Marine cSAC.

Table 7.17: Step 3 Appropriate Assessment and Step 4 Integrity Test for West Wales Marine cSAC		
Mechanism effect identified during screening	Interest features	Step 3 are there implications on the site's conservation objectives?
Disturbance/injury (noise, vibration) and/or displacement of species during construction	Harbour porpoise	The peak particle velocity (PPV) has been calculated for TBMs (ES Appendix 9.18 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 μ Pa (pk) or an rms sound pressure level of 136 dB re 1 μ Pa (rms) in the water column near the seabed. Sound resulting from the TBM would be primarily low frequency in nature (<500 Hz). It is therefore evident from the hearing ranges presented in ES Appendix 9.18 (Document 5.9.2.18) that acoustic energy from TBM activities would 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.

Mechanism effect identified during screening	Interest features	Step 3 are there implications on the site's conservation objectives?
		For the Drill and Blast method, and as set out in CEMP measure NV32, the following measures would be in place:
		 Blast design measures or other mitigation measures will be implemented to prevent exceedance of limits.
		 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.
		 The maximum total blast weight per round for drill and blast of the tunnel will not exceed 300 kg.
		 The maximum number of blasts for drill and blast of the tunnel per 24 hours will not exceed six.
		For the drill and blast methodology, sound modelling conducted on a worst case cumulative sound, based on six 300 kg charge rounds per day, has predicted that the most sensitive (high frequency) cetacean species (e.g. bottlenose dolphin) exposed to sound within a 171 m radius of the blast could experience auditory injury (permanent threshold shift in hearing).
		For a pinniped such as the grey seal, injury from the

Table 1.11. Step 3 Appropriate Assessment and Step 4 integrity rest for west wates marine CSAC		
Mechanism effect identified during screening	Interest features	Step 3 are there implications on the site's conservation objectives?
		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.
		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.
		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 from 2004 to 2014. Construction activities would occur beneath the wetted area of the Menai Strait for a short period (approximately three months). Furthermore, due to 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 limited zone of potential noise effect (based on noise modelled (see ES Appendix 9.18 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

Table 7.17: Step 3 Appropriate Assessment and Step 4 Integrity Test for West Wales Marine cSAC

Mechanism effect identified during screening	Interest features	Step 3 are there implications on the site's conservation objectives?
		would have an effect during a blast.
		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 Ecology and Nature Conservation (Document 5.9) and summarised above.
		As set out in CEMP measure BNC28 Mitigation measures will include, as appropriate, 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.
		Taking into account the above and with the mitigation measures listed in section 7.7.4 the Proposed Development would not result in any implications on the conservation objectives from the Disturbance/injury (noise and vibration) and/or displacement of species.
		It should be noted that the acoustic modelling referred to above 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

Table 7.17: Step 3 Appropriate Assessment and Step 4 Integrity Test for West Wales Marine cSAC

Mechanism effect identified during screeningInterest featuresStep 3 are there implications on the site's cons objectives?Disorientation of species from EMFHarbour porpoiseStudies on the potential effects of EMFs generation wind farm submarine cables on the marine environment (Def 7)		Assessment and step 4 integrity rea	
Disorientation of species from EMFHarbour porpoiseStudies on the potential effects of EMFs general wind farm submarine cables on the marine environment (Def 7)	Aechanism effect identified Juring screening	Interest features	Step 3 are there implications on the site's conservation objectives?
Disorientation of species from Harbour porpoise Studies on the potential effects of EMFs generative states on the marine environment of the second state states on the marine environment of the second state states are states on the marine environment of the second states on the			and impact zones will be lower than predicted.
have shown effects to be not-significant (Ref 7, addition, mitigation listed in The NPS EN-3 (Re states that a cable buried at a depth greater th or more below the seabed would provide suffici mitigation from the effects of EMF. Although w cables are lower kV than that required for the P Development (i.e. 33/132 kV compared to 400 l evidence has shown that at 1 m above ground EMFs produced by 400 kV cables approach ba at approximately 10 m from the centreline. Fiel measurements have shown that maximum mag (measured in μT) reduces from approximately 2 when moving from 0 to 10 m away from centrel typical μT reduces from 24 to 0.9 at the same or As the cables would be housed in a tunnel at le below the seabed the EMFs generated by cabl beneath the Menai would therefore be expecte approaching background levels within the wate and EME resulting from the Zeropsed Davelop	Disorientation of species from	Harbour porpoise	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 7.1). In addition, mitigation listed in The NPS EN-3 (Ref 7.2) states that a cable buried at a depth 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 Proposed Development (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 µT) reduces from approximately 96 to 3 when moving from 0 to 10 m away from centreline and typical µT reduces from 24 to 0.9 at the same distances. As the cables would be housed in a tunnel at least 10 m below the seabed the EMFs generated by cables beneath the Menai would therefore be expected to be approaching background levels within the water column and EME resulting from the Proposed Development

Table 7.17: Step 3 Appropriate Assessment and Step 4 Integrity Test for West Wales Marine cSAC

Table 7.17: Step 3 Appropriate Assessment and Step 4 Integrity Test for West Wales Marine cSAC		
Mechanism effect identified during screening	Interest features	Step 3 are there implications on the site's conservation objectives?
		would not result in any implications on the conservation objectives from disorientation of species.
Step 4 taking into account the ab the site integrity of West Wales N	ove it can be concluded that the Propos larine cSAC	sed Development would not result in an adverse effect on

7.11 LIVERPOOL BAY SPA

- 7.11.1 The following mechanisms for effect have been identified on Liverpool Bay SPA:
 - Collision Risk
- 7.11.2 The following sections provide analysis of the mechanisms for effect and an assessment as to the potential for the Proposed Development to result in an adverse effect on site integrity for Liverpool Bay SPA.

Conservation Objectives

7.11.3 The following table sets out the conservation objectives relevant to the interest features that have been brought through to this stage.

Table 7.18 Liverpool Bay SPA Conservation Objectives (Ref 6.14)_
Non-breeding assemblage of over 20,000 waterbirds
Subject to natural change, maintain or enhance the waterbird assemblage and its supporting habitats in favourable condition.
The interest feature waterbird assemblage will be considered to be in favourable condition only when each of the following two conditions is met:
 The size of the waterbird assemblage population shows only non- significant fluctuation around the mean at the time of designation to allow for natural change;
 The extent of the waterbird assemblage supporting habitat within the site is maintained.

Mitigation measures

7.11.4 No mitigation measures have been identified.

Step 3 and Step 4

7.11.5 Table 7.19 below shows the Appropriate Assessment (Step 3) and Integrity Test (Step 4) undertaken for the Proposed Development on Liverpool Bay SPA.

Table 7.19: Step 3 Appropriate Assessment and Step 4 Integrity Test for Liverpool Bay SPA		
Mechanism effect identified during screening	Interest features	Step 3 are there implications on the site's conservation objectives?
Collision risk	Cormorant (assemblage feature)	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. Cormorant form part of the over-winter assemblage feature of the SPA. Although cormorant is primarily a coastal species, Stroud et al., (Ref 6.27) 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 6.29); however Thaxter <i>et al.</i> (Ref 6.23), 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
		associated with the Liverpool Bay SPA to encounter the OHL. It is assumed for the purposes of this assessment

Table 7.19: Step 3 Appropriate Assessment and Step 4 integrity Test for Liverpool Bay SPA		
Mechanism effect identified during screening	Interest features	Step 3 are there implications on the site's conservation objectives?
		that cormorants behave similarly outside of the breeding season. Cormorants are reported (Ref 7.7) 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.
		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 not result in any implications on the conservation objectives from collision risk.
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Step 4 taking into account the above it can be concluded that the Proposed Development would not result in an adverse effect on

Table 7.19: Step 3 Appropriate Assessment and Step 4 Integrity Test for Liverpool Bay SPA		
Mechanism effect identified during screening	Interest features	Step 3 are there implications on the site's conservation objectives?
the site integrity or function of the assemblage as a whole of Liverpool Bay SPA.		

7.12 PUFFIN ISLAND SPA

- 7.12.1 The following mechanisms for effect have been identified on Puffin Island SPA:
 - Collision Risk
- 7.12.2 The following sections provide analysis of the mechanisms for effect and an assessment as to the potential for the Proposed Development to result in an adverse effect on site integrity for Puffin Island SPA.

Conservation Objectives

7.12.3 The following table sets out the conservation objectives relevant to the interest features that have been brought through to this stage.

Table 7.20 Puffin Island SPA Conservation Objectives (Ref 6.16)
Breeding population of cormorant *Phalacrocorax carbo*The conservation objective for the Cormorant is to achieve and maintain favourable conservation status, in which all the following conditions are satisfied:

The number of breeding cormorants within the SPA are stable or

- The abundance and distribution of prey species are sufficient to support
 - this number of breeding pairs and for successful breeding.
- The management and control of activities or operations likely to adversely affect the Cormorants, is appropriate for maintaining the feature in favourable condition and is secure in the long term."

Mitigation measures

7.12.4 No mitigation measures have been identified.

Step 3 and Step 4

7.12.5 Table 7.21 below shows the Appropriate Assessment (Step 3) and Integrity Test (Step 4) undertaken for the Proposed Development on Puffin Island SPA.

Table 7.21. Step 5 Appropriate Assessment and Step 4 integrity Test for Furth Island SFA		
Mechanism effect identified during screening	Interest features	Step 3 are there implications on the site's conservation objectives?
Collision risk	Cormorant	The site supports 776 pairs of cormorant during the breeding season. SPA. Although cormorant is primarily a coastal species, Stroud <i>et al.</i> (Ref 6.27) 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 6.29); however Thaxter <i>et al.</i> (Ref 6.23), 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. Cormorants are reported (Ref 7.7) 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.

Table 7.21 Integrity Te for Duffin Jeland SD/ 0 C4

Table 7.21: Step 3 Appropriate Assessment and Step 4 Integrity Test for Puffin Island SPA		
Mechanism effect identified during screening	Interest features	Step 3 are there implications on the site's conservation objectives?
		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 not result in any implications on the conservation objectives from collision risk.
Step 4 taking into account the abo	ove it can be concluded that the Propos	ed Development would not result in an adverse effect on

the site integrity of Puffin Island SPA.

7.13 DYFI ESTUARYSPA

- 7.13.1 The following mechanisms for effect have been identified on the Dyfi Estuary SPA:
 - Collision Risk
- 7.13.2 The following sections provide analysis of the mechanisms for effect and an assessment as to the potential for the Proposed Development to result in an adverse effect on site integrity for the Dyfi Estuary SPA.

Conservation Objectives

7.13.3 The following table sets out the conservation objectives relevant to the interest features that have been brought through to this stage.

 Table 7.22 Dyfi Estuary SPA Conservation Objectives (Ref 6.17)

Greenland white-fronted goose Anser albifrons flavirostris

The vision for this feature is for it to be in a favourable conservation status, where all of the following conditions are satisfied:

- The Dyfi wintering population attains national importance level (ie.1% of the national (UK) population), annually.
- Winter mortality levels are 5% of the wintering population annually.
- All site-specific factors affecting the achievement of these conditions (eg. avoidable disturbance), are under control

Mitigation measures

7.13.4 No mitigation measures have been identified.

Step 3 and Step 4

7.13.5 Table 7.23 below shows the Appropriate Assessment (Step 3) and Integrity Test (Step 4) undertaken for the Proposed Development on Dyfi Estuary SPA.

Table 7.23: Step 3 Appropriate Assessment and Step 4 Integrity Test for Dyfi Estuary SPA		
Mechanism effect identified during screening	Interest features	Step 3 are there implications on the site's conservation objectives?
Collision risk	Greenland white-fronted goose	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.
		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 the Proposed Development would not result in any implications on the conservation objectives from collision

Table 7.23: Step 3 Appropriate Assessment and Step 4 Integrity Test for Dyfi Estuary SPA		
Mechanism effect identified during screening	Interest features	Step 3 are there implications on the site's conservation objectives?
		risk.
Step 4 taking into account the ab the site integrity of the Dyfi Estua	ove it can be concluded that the Propos ry SPA.	sed Development would not result in an adverse effect on

7.14 SUMMARY

- 7.14.1 The above assessment has concluded that the Proposed Development, alone, would not have implications for the site objectives nor result in an adverse effect on the site integrity of the following sites:
 - Corsydd Môn a Llyn/Anglesey and Llyn Fens Ramsar;
 - Corsydd Môn/Anglesey Fens SAC, Y Fenai a Bae Conwy/Menai Strait and Conwy Bay SAC;
 - Eryri/Snowdonia SAC;
 - Afon Gwyrfai a Llyn Cwellyn SAC;
 - Pen Llyn a'r Sarnau/Lleyn Peninsula and the Sarnau SAC;
 - Cardigan Bay SAC;
 - North Anglesey Marine/Gogledd Môn Forol cSAC;
 - West Wales Marine cSAC;
 - Liverpool Bay SPA;
 - Puffin Island SPA; and
 - Dyfi Estuary SPA.

8 In Combination Assessment

8.1 INTRODUCTION

8.1.1 Having concluded that there would be no adverse effects on the integrity of the identified designated sites as a result of the Proposed Development alone, it is necessary to consider if there would be any potential for adverse effects on the integrity of the identified designated sites from the Proposed Development in combination with other developments.

8.2 SOURCES OF POTENTIAL CUMULATIVE EFFECTS

- 8.2.1 ES Chapter 20 Inter-Project Cumulative Effects (**Document 5.20**) identifies a long list of other developments that could result in-combination (cumulative) effects with the Proposed Development. For each of the developments consideration has been given to whether it falls within a topic specific 'zone of influence' (ZOI) and professional judgement used to judge whether there is any potential for the projects to interact. The following developments have been identified as having shared receptors with the Proposed Development that are relevant to this HRA:
 - Wylfa Newydd Power Station;
 - Wylfa Nuclear Power Station Decommissioning;
 - Glyn Rhonwy Pumped Storage;
 - Third Menai Crossing;
 - Grŵp Llandrillo Menai Llangefni Campus; and
 - Holyhead Port Expansion
- 8.2.2 A description of the Wylfa Newydd Power Station is provided in ES Appendix 20.1 (**Document 5.20.2.1**) and a description of the other three developments is presented in ES Appendix 20.2 (**Document 5.20.2.2**).
- 8.2.3 Table 8.1 identifies the Natura 2000 sites identified with shared receptors with these four developments.

Development	Shared Receptors
Wylfa Newydd Power Station	North Anglesey Marine (cSAC),
Wylfa Nuclear Power Station Decommissioning	North Anglesey Marine cSAC
Glyn Rhonwy Pumped Storage	Afon Gwyrfai a Llyn Cwellyn SAC
	Menai Strait and Conwy Bay SAC
Third Menai Crossing	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
Grŵp Llandrillo Menai Llangefni Campus	Corsydd Môn/Anglesey Fens SAC
Holyhead Port Expansion	North Anglesey Marine cSAC.

Table 8.1: Natura 2000 Sites Identified with Shared Receptors

8.3 POTENTIAL FOR IN-COMBINATION EFFECTS

8.3.1 The potential for the developments listed above to result in in-combination effects on the Natura 2000 sites where there are shared receptors are shown in Table 8.2 below.
Table 8.1 Potential for developments to result in in-combination effects					
Site	Mechanism for effect associated with the Proposed Development	Interest Feature	Developments with potential for in-combination effects	Potential for in-combination effects.	
North Anglesey Marine candidate Special Area of Conservation (cSAC),	Disturbance/injury (noise, vibration) during construction Disorientation of species from EMFs	Harbour Porpoise	Wylfa Newydd Power Station	Conclusions of the assessment of Wylfa NewyddThe Shadow HRA Reort for the Wylfa Newydd Fpotential for a likely significant effect on HarbourAnglesey Maine cSAC from• Changes in visual and acoustic stimuli;• Land take, including seabed or intertidal land• Changes in marine water quality;• Alteration of coastal processes and hydrody• Physical interaction between species and theFor each of these potential effects the HRA for theconcludes that the project would not result in an site.Potential for in-combination effectsThe Proposed Development would not result in an intribid designated site therefore there is no potential forNewydd Power Station project to result in an intribid project to result in an intribid designated site therefore there is no potential forNewydd Power Station project to result in an intribid regards to marine water quality due to the or Development no potential pathway was identified there is no potential for the Proposed Development for the result in an intribid regards to marine water quality due to the or Development no potential pathway was identified there is no potential for the Proposed Development or an intribid regards to marine water quality due to the or Development no potential pathway was identified there is no potential for the Proposed Development would integrity. The potential marine impact zones for are discrete and therefore there is no potential for the read concluded that the Proposed Development would integrity. The potential marine impact zones for are discrete and therefore there is no potential for the two developments on this interest feature at developments include mitigation in the form of M which would ensure blasts events would not tak within the impact zone or surrounding area, reduction or surrounding	

dd Power Station

Power Station (Ref 8.1) identifies a r Porpoise associated with the North

nd;

namics; and

- ne project infrastructure
- the Wylfa Newydd Power Station project adverse effect on the site integrity of this

land take either within or associated with ial for the Proposed Development and the -combination effect.

alteration to coastal processes and or the Proposed Development and the combination effect.

distance of this site from the Proposed ed for a change in water quality therefore nent and the Newydd Power Station

In the Proposed Development due to struction of the tunnel associated with the isons set in in Table 7.15 this HRA has ald not result in an adverse effect on site in this interest feature from the two projects for an in-combination effect to occur from it the same time. In addition both MMOs and/or passive acoustic monitoring ke place if a marine mammal was present lucing the potential for any effect in either

Table 8.1 Potential for developments to result in in-combination effects					
Site	Mechanism for effect associated with the Proposed Development	Interest Feature	Developments with potential for in-combination effects	Potential for in-combination effects.	
	Development		Wylfa Nuclear Power Station Decommissioning	 impact zone. The Proposed Development would not include a marine environment therefore there is no potent the Newydd Power Station project to result in an No potential for a likely significant effect has bee Power Station project from disorientation associanclude any infrastructure which could cause this potential for the Proposed Development and the result in an in-combination effect. <u>Conclusions of the assessment of Wylfa Nuclea</u> The Wylfa Nuclear Power Station Environmenta concludes a negligible impact on marine mamma. Potential for in-combination effects: A mechanism for effect has been identified from disturbance/injury (noise, vibration) during const drill and blast construction method. For the reast concluded that the Proposed Development wou integrity. The potential marine impact zones on projects are discrete and therefore there is no potential marine impact zones on projects are discrete and therefore there is no potential marine impact zones on projects are discrete and therefore there is no potential marine impact zones on projects are discrete and therefore there is no potential marine impact zones on projects are discrete and therefore there is no potential marine impact zones on projects are discrete and therefore there is no potential marine impact zones on projects are discrete and therefore there is no potential marine impact zones on projects are discrete and therefore there is no potential marine impact zones on projects are discrete and therefore there is no potential marine impact zones on projects are discrete and therefore there is no potential marine impact zones on projects are discrete and therefore there is no potential marine impact zones on projects are discrete and therefore there is no potential marine impact zones on projects are discrete and therefore there is no potential marine impact zones on projects are discrete and therefore there is no potential marine impact zones on projects are discrete and therefore there is no potentis p	
				both developments include mitigation in the form monitoring which would ensure blasts events we was present within the impact zone or surround effect in either impact zone.	

any physical infrastructure within the tial for the Proposed Development and n in-combination effect.

en identified from the Wylfa Newydd siated with EMFs as the proposals do not is potential effect; therefore there is no e Wylfa Newydd Power Station project to

ar Power Station Decommissioning

al Statement (2013 update) (Ref 8.2) hals associated with the use of explosives. ill be minimised by carrying out rine mammals offshore will be carried out ing onshore at a suitable vantage point d explosion. If a marine mammal is tacked until it is out of range and the use of ninutes after the last detection of a marine

In the Proposed Development due to struction of the tunnel associated with the sons set in in Table 7.15 this HRA has ald not result in an adverse effect on site in this interest features from the two potential for an in-combination effect to st feature at the same time. In addition in of MMOs or passive acoustic ould not take place if a marine mammal ling area, reducing the potential for any

Table 8.1 Potential for developments to result in in-combination effects					
Site	Mechanism for effect associated with the Proposed Development	Interest Feature	Developments with potential for in-combination effects	Potential for in-combination effects.	
			Third Menai Crossing	Conclusions of the assessment of Third Menai (
				There is currently no detailed information publication residual effects of this development, as the prop	
				A consultation document (Ref 8.3) issued in Mar Crossing could have a 'Large Adverse' effect on	
				Potential for in-combination effects	
				Although it has been identified that the Third Me effects on Marine Biodiversity for the reasons se concluded that the Proposed Development woul integrity. Whilst the marine impact zones for ma may overlap or be within close proximity the Pro- in the form of MMOs or passive acoustic monito would not take place if a marine mammal was p surrounding area removing the potential for an in	
			Holyhead Port Expansion	Conclusions of the assessment of Holyhead Por	
				The Scoping Report for the Holyhead Port Expa around the port has existing high levels of shipp of the site and that the underwater noise produc cause physical trauma to harbour porpoise, but disturbance and displacement of preferred habit	
				The Scoping Report identifies that the due to the site, it is unlikely that further increases in the lev management as there are evidently high numbe the already high levels of shipping traffic within H impacts from increased vessel numbers will be f changes to prey availability will be informed by t	
				Potential for in-combination effects	
				A mechanism for effect has been identified from disturbance/injury (noise, vibration) during const drill and blast construction method. For the reas concluded that the Proposed Development woul integrity.	
				The potential marine impact zones on this intere	

Crossing

ally available regarding the potential posals are still at the optioneering stage.

rch 2018 identified that the Third Menai n marine biodiversity

enai crossing could have significant et in in Table 7.15 this HRA has ald not result in an adverse effect on site arine mammals of the two developments oposed Development includes mitigation oring which would ensure blasts events oresent within the impact zone or in-combination effect.

rt Expansion

ansion (Ref 8.4) identifies that the area bing, contributing to the underwater noise ced by shipping activities is unlikely to it has the potential to impact on tat areas and cause avoidance.

e currently high levels of shipping on the vel of shipping traffic will require ers of porpoises using the area despite Holyhead Port and that the potential fully assessed as part of their EIA and the the proposed modelling studies.

the Proposed Development due to truction of the tunnel associated with the sons set in in Table 7.15 this HRA has Id not result in an adverse effect on site

est features from the two projects are

Table 8.1 Potential for	Table 8.1 Potential for developments to result in in-combination effects					
Site	Mechanism for effect associated with the Proposed Development	Interest Feature	Developments with potential for in-combination effects	Potential for in-combination effects.		
				discrete and therefore there is no potential for an two developments on this interest feature at the Report for the Holyhead Port Expansion has iden by shipping activities is unlikely to cause physica there would be no mechanism for an in-combina causing disturbance/injury between the two proje		
Afon Gwyrfai a Llyn	Disturbance/ injury	Atlantic Salmon	Glyn Rhonwy Pumped	Conclusions of the assessment of Glyn Rhonwy		
Cwellyn SAC	(noise, vibration) during construction		Storage	The Glyn Rhonwy Pumped Storage No Significa identified potential effects on this site associated		
	Release of drilling fluid			Water pollution and runoff		
	during the construction Disorientation of species from EMFs			Noise		
				Nutrient enrichment		
				Flow regime		
				The No Significant Effects Report (NSER) conclusions significant effect on this site from any of the pote		
				Potential for in-combination effects		
				The only interest feature where a mechanism for Proposed Development is Atlantic salmon, as thi would utilise the Menai Strait.		
				The site is upstream of the Proposed Developme has been identified as such there is no potential Rhonwy Pumped Storage project and water pollu flow regime.		
				A mechanism for effect has been identified from disturbance/injury (noise, vibration) on Atlantic sa associated with the drill and blast construction m 7.9 this HRA has concluded that the Proposed D adverse effect on site integrity I respect of this per noise effects, the Glyn Rhonwy Pumped Storage noise generated during construction will reach a and will be between 45 – 49 dB, which is similar and no potential for a likely significant effect has zones on this interest features from the two proje		

n in-combination effect to occur from the same time. In addition the Scoping ntified that underwater noise produced al trauma to harbour porpoise therefore ation effect from underwater noise ects.

Pumped Storage

nt Effects Report (NSER) (Ref 8.5) I with:

uded that there is no potential for a likely ential effects listed above.

r effect has been identified from the is a transient interest feature which

ent therefore no hydrological pathway for an in-combination effect with Glyn ution and runoff, nutrient enrichment and

the Proposed Development due to almon during construction of the tunnel nethod. For the reasons set in in Table Development would not result in an otential effect. With regards to potential e project NSER (Ref 8.5) concludes that 500 m stretch of the Afon Gwyrfai only, to the ambient levels by a watercourse been concluded. The potential impact ects are discrete and therefore there is

Table 8.1 Potential for developments to result in in-combination effects					
Site	Mechanism for effect associated with the Proposed Development	Interest Feature	Developments with potential for in-combination effects	Potential for in-combination effects.	
				no potential for an in-combination effect to occu interest feature at the same time.	
			Third Menai Crossing	Conclusions of the assessment of Third Menai (
				There is currently no detailed information public residual effects of this development, as the prop	
				A consultation document (Ref 8.3) issued in Ma Crossing could have a 'Large Adverse' effect or	
				Potential for in-combination effects	
				Although it has been identified that the Third Me effects on Marine Biodiversity the consultation of identify marine fish. For the reasons set in in Ta Proposed Development would not result in an a Third Menai Crossing assessment, when under marine fish they would need to assess the poter	
Y Fenai a Bae Conwy/ Menai Strait and Conwy Bay SAC	Direct loss or fragmentation of habitat during the construction of the Proposed Development	Mudflats and sandflats not covered by seawater at low tide Reefs	Glyn Rhonwy Pumped Storage	Conclusions of the assessment of Glyn Rhonwy The Glyn Rhonwy Pumped Storage NSER iden associated with: • Water pollution and runoff Potential for in-combination effects	
	Development			The Glyn Rhonwy Pumped Storage project con- effect from water pollution due to the distance of and the level for dilution and dispersal between	
				A mechanism for effect has been identified from release of drilling fluid from tunnelling activities a method. For the reasons set out in Table 7.5 th Development would not result in an adverse effe a blow out event occurring, the mitigation measure and the dilution of the receiving water body even there is no potential for an in-combination effect	

Ir from the two developments on this

<u>Crossing</u>

cally available regarding the potential posals are still at the optioneering stage.

arch 2018 identified that the Third Menai n marine biodiversity

enai crossing could have significant document (Ref 8.3) does not specifically able 7.9 this HRA has concluded that the adverse effect on site integrity. Should the taken identify a potential for an effect on intial for an in-combination effect.

/ Pumped Storage

tified potential effects on this site

cludes no potential for a likely significant of this site downstream from the project the project and the designated site.

In the Proposed Development from the associated with the TBM construction his HRA has concluded that the Proposed fect on site integrity due to the likelihood of sures in place to prevent an event occur en if a blow out event occurred as such t with Glyn Rhonwy Pumped Storage

Table 8.1 Potential for developments to result in in-combination effects				
Site	Mechanism for effect associated with the Proposed Development	Interest Feature	Developments with potential for in-combination effects	Potential for in-combination effects.
				project and water pollution and runoff. The Glyn Rhonwy Pumped Storage would not re fragmentation of habitat of this designed site or is no potential for an in-combination effect.
	Release of frilling fluid during the construction of the Proposed Development Introduction of INNS and diseases during the construction of the Proposed Development	Mudflats and sandflats not covered by seawater at low tide Reefs Mudflats and sandflats not covered by seawater at low tide Reefs Sandbanks which are slightly covered by sea water all of the time Large shallow inlets and bays Submerged or partially submerged sea caves	Third Menai Crossing	Conclusions of the assessment of the Third Mer There is currently no detailed information public residual effects of this development, as the prop A consultation document issued in March 2018 could have a 'Large Adverse' effect on marine b options could disturb or take marine habitat with Potential for in-combination effects Although it has been identified that the third Mer on interest features of this SAC, the Proposed D any loss of or damage to intertidal or marine hal For the proposed development, the mitigation m likelihood of any effects occurring and also the s event of a blowout of drilling fluids. On this basis there would be any potential for in-combination
Corsydd Môn/Anglesey Fens SAC (Caeau Talwrn)	Disturbance/injury (noise, vibration, lighting, presence of personnel) and/or displacement of species	Otter Great Crested Newt	Grŵp Llandrillo Menai Llangefni Campus	Conclusions of the assessment of Grŵp Llandril The Environmental Statement (Ref 8.6) for this location of this site from their proposed develop including built up areas and infrastructure, the d have any significant impacts. <u>Potential for in-combination effects</u> The Core Management Plan for Corsydd Môn/A identifies Calcareous fens, Molinia meadows an features present on the Caeau Talwrn part of th

esult in either the direct loss or the introduction of INNS therefore there

<u>nai Crossing</u>

- cally available regarding the potential posals are still at the optioneering stage.
- identified that the Third Menai Crossing biodiversity, stating that 'All alignment hin the SAC through construction of piers'.
- nai crossing could have significant effects Development is very unlikely to result in bitats.
- neasures proposed would reduce both the severity of effects in the highly unlikely s it is considered equally unlikely that effects on these interest features.

illo Menai Llangefni Campus

development concludes that due to the oment sites and intervening habitat development of these sites is unlikely to

Anglesey Fens SAC (Ref 6.4) only nd marsh fritillary butterfly as the interest ne Corsydd Môn/Anglesey Fens SAC

Table 8.1 Potential for developments to result in in-combination effects					
Site	Mechanism for effect associated with the Proposed Development	Interest Feature	Developments with potential for in-combination effects	Potential for in-combination effects.	
				therefore there is no potential for an in-combination effect.	
	Change in water quality through mobilisation of sediment and accidental contamination Temporary effects on the air quality/deposition from dust Introduction of invasive non-native species (INNS) and diseases Alteration of hydrological fluvial regime	Hard oligo- mesotrophic waters with benthic vegetation of <i>Chara sp</i> Northern Atlantic wet heaths with Erica tetralix Molinia meadows on calcareous, peaty or clayey silt-laden soils Calcareous fens with <i>Cladium mariscus</i> and species of the <i>Caricion</i> <i>davallinae</i> Alkaline fens Narrow-leaved Marsh- orchid Compact stonewort Geyer's Whorl Snail Marsh fritillary butterfly Otter Great Crested Newt		Conclusions of the assessment of Grŵp Llandrillo Menai L The Environmental Statement (Ref 8.6) for this development location of this site from their proposed development sites including built up areas and infrastructure, the development have any significant impacts. <u>Potential for in-combination effects</u> With regards to changes in water quality the Grŵp Llandrill development is downstream of this site and therefore there from the development and no potential for an in-combination With regards to the alteration of the hydrological regime this effect from pylon 4AP051 and has concluded that the Prop result in any implications on the conservation objectives from hydrological fluvial regime. The pathway to this site assoct the Cors Erddreiniog part of the SAC therefore there is no effect as the shared receptors is the Caeau Talwrn compon With regards to the introduction of INNS the Environmenta Grŵp Llandrillo Menai Llangefni Campus has not identified site from INNS therefore there is no potential for an in-com- With regards to Temporary effects on the air the Environmenta the Grŵp Llandrillo Menai Llangefni Campus has not identified site from INNS therefore there is no potential for an in-com-	
Pen Llyn a`r Sarnau/Lleyn Peninsula	Disturbance/injury (noise, vibration)	Bottlenose dolphins	Third Menai Crossing	Conclusions of the assessment of Third Menai Crossing	
and the Sarnau SAC	during construction	Urey sear		residual effects of this development, as the proposals are s	
	Disorientation of species from EMFs			A consultation document (Ref 8.3) issued in March 2018 in Crossing could have a 'Large Adverse' effect on marine bio	
				Potential for in-combination effects	
				Although it has been identified that the Third Menai crossir effects on Marine Biodiversity for the reasons set in in Tab	

langefni Campus

ent concludes that due to the and intervening habitat nt of these sites is unlikely to

llo Menai Llangefni Campus e is no pathway for an effect ion effect.

his HRA identified a potential bosed Development would not om the alteration of

ciated with pylon 4AP051 is to potential for an in combination onent.

al Statement (Ref 8.6) for the any potential effects on this hbination effect.

nental Statement (Ref 8.6) for tified any potential effects on -combination effect.

ble regarding the potential still at the optioneering stage.

dentified that the Third Menai iodiversity

ng could have significant le 7.11 this HRA has

Table 8.1 Potential for developments to result in in-combination effects				
Site	Mechanism for effect associated with the Proposed Development	Interest Feature	Developments with potential for in-combination effects	Potential for in-combination effects.
				concluded that the Proposed Development would integrity. Whilst the marine impact zones for mar may overlap or be within close proximity the Pro- in the form of MMOs or passive acoustic monitor would not take place if a marine mammal was p surrounding area removing the potential for an i
West Wales Marine	Disturbance/injury	Harbour Porpoise	Third Menai Crossing	Conclusions of the assessment of Third Menai
cSAC,	(noise, vibration) during construction			There is currently no detailed information public residual effects of this development, as the prop
	Disorientation of species from EMFs			A consultation document (Ref 8.3) issued in Ma Crossing could have a 'Large Adverse' effect or
				Potential for in-combination effects
				Although it has been identified that the Third Me effects on Marine Biodiversity for the reasons se concluded that the Proposed Development woul integrity. Whilst the marine impact zones for ma may overlap or be within close proximity the Pro- in the form of MMOs or passive acoustic monitor would not take place if a marine mammal was p surrounding area removing the potential for an i
Cardigan Bay SAC	Disturbance/injury	Bottlenose dolphins	This Menai Crossing	Conclusions of the assessment of Third Menai
(no dur Dis spe	(noise, vibration) during construction Disorientation of species from EMFs	Grey seal		There is currently no detailed information public residual effects of this development, as the prop A consultation document (Ref 8.3) issued in Ma Crossing could have a 'Large Adverse' effect or
				Potential for in-combination effects
				Although it has been identified that the Third Me effects on Marine Biodiversity for the reasons se concluded that the Proposed Development wou integrity. Whilst the marine impact zones for ma may overlap or be within close proximity the Pro- in the form of MMOs or passive acoustic monitor

and not result in an adverse effect on site arine mammals of the two developments oposed Development includes mitigation oring which would ensure blasts events present within the impact zone or in-combination effect.

Crossing

cally available regarding the potential posals are still at the optioneering stage.

arch 2018 identified that the Third Menai n marine biodiversity

enai crossing could have significant et in in Table 7.17 this HRA has ald not result in an adverse effect on site arine mammals of the two developments oposed Development includes mitigation oring which would ensure blasts events oresent within the impact zone or in-combination effect.

Crossing

ally available regarding the potential posals are still at the optioneering stage. arch 2018 identified that the Third Menai

marine biodiversity

enai crossing could have significant et in in Table 7.13 this HRA has ald not result in an adverse effect on site arine mammals of the two developments oposed Development includes mitigation oring which would ensure blasts events •

Table 8.1 Potential for developments to result in in-combination effects					
Site	Mechanism for effect associated with the Proposed Development	Interest Feature	Developments with potential for in-combination effects	Potential for in-combination effects.	
				would not take place if a marine mammal was place if a marine mammal was place if a marine mammal was place if a surrounding area removing the potential for an in	

present within the impact zone or in-combination effect.

- 8.3.2 The above has concluded that the Proposed Development in combination with other development, would not result in an adverse effect on the site integrity of the following sites:
 - Corsydd Môn a Llyn/Anglesey and Llyn Fens Ramsar;
 - Corsydd Môn/Anglesey Fens SAC, Y Fenai a Bae Conwy/Menai Strait and Conwy Bay SAC;
 - Eryri/Snowdonia SAC;
 - Afon Gwyrfai a Llyn Cwellyn SAC;
 - Pen Llyn a'r Sarnau/Lleyn Peninsula and the Sarnau SAC;
 - Cardigan Bay SAC, North Anglesey Marine/Gogledd Môn Forol cSAC;
 - West Wales Marine cSAC;
 - Liverpool Bay SPA;
 - Puffin Island SPA; and
 - Dyfi Estuary SPA.

9 Summary and Conclusions

- 9.1.1 The HRA of the Proposed Development has adopted a robust approach to identifying any potential likely significant effects of the Proposed Development on the interest features of a number of Natura 2000 sites, both alone and in combination.
- 9.1.2 The HRA has screened the Proposed Development for likely significant effects under the requirements of Council Directive 92/43/EEC on the conservation of Natural Habitat and Wild Fauna and Flora and Council Directive 2009/147/EC (Birds Directive) the Conservation of Wild Birds (the Codified version of Council Directive 79/409/EEC on the conservation of Wild Birds).
- 9.1.3 The screening exercise was split down into two main stages (1a and 1b) with Stage 1b being split down into a further three steps. This staged approach has been used to clearly demonstrate how conclusions have been reached.
- 9.1.4 At Stage 1a a long list of 20 sites was developed and agreed; these 20 sites were those where there was considered to be some potential for effects to occur. Stage 1b has considered the sources/causes of effect that could theoretically arise as a result of the Proposed Development, and then considered the potential pathways through which these sources could have an effect on the interest features of the Natura 2000 sites. Where there is a source, pathway and relevant receptor, it has been concluded that there is a mechanism for an effect to occur (Stage 1bC).
- 9.1.5 Following the precedent set by the publication of the Court of Justice of the European Union's ruling on Case C323/17 (People over Wind, Peter Sweetman v Coillte Teoranta) no mitigation measures have been taken into consideration at the Stage 1 Screening and therefore all sites and interest features for which there was considered to be a mechanism for effect have been taken through to Stage 2 Appropriate Assessment.
- 9.1.6 Three Natura 2000 sites, Corsydd Mon/Anglesey Fens SAC, Corsydd Mon/Anglesey Fens Ramsar site and the Y Fenai a Bae Conwy/Menai Strait and Conwy Bay SAC, are located partially within the Order Limits and a

number of other sites have been identified as having potential to be affected through effects on transient species or through effects on supporting habitat located outside of the boundaries of the designations.

- 9.1.7 During this exercise seven sites were screened out from having a likely significant effect during Stage 1bB as no pathway was identified between these sites and the sources of effect identified at Stage 1bA. These sites were Bae Cemlyn/Cemlyn Bay SAC, Glannau Môn: Cors heli/Anglesey Coast: Saltmarsh SAC, Y Twyni o Abermenai i Aberffraw/Abermenai to Aberffraw Dunes SAC, Llyn Dinam SAC, Glannau Ynys Gybi/Holy Island Coast SPA and Migneint Arenig Dduallt SPA.
- 9.1.8 At the end of Stage 1bC, there were a limited of interest features for which a mechanism for effects was identified and which were therefore taken through to Stage 2. These were:
 - Hard oligo-mesotrophic waters with benthic vegetation of Chara sp.
 - Northern Atlantic wet heaths with Erica tetralix
 - Molinia meadows on calcareous, peaty or clayey— silt-laden soils (Molinion caeruleae)
 - Calcareous fens with Cladium mariscus and species of the Caricion davallinae
 - Alkaline fens
 - Narrow-leaved Marsh-orchid (Dactylorhiza traunsteineri)
 - Compact stonewort (Nitella tenuissima)
 - Geyer's whorl snail (Habitats Directive Annex II)
 - Marsh fritillary (Habitats Directive Annex II)
 - Otter (Habitats Directive Annex II)
 - Great Crested Newt
 - Sandbanks which are slightly covered by sea water all the time
 - Mudflats and sandflats not covered by seawater at low tide
 - Reefs
 - Large shallow inlets and bays

- Submerged or partially submerged sea caves
- Oligotrophic to mesotrophic standing waters with vegetation of the Littorelletea uniflorae and/or of the Isoëto-Nanojuncetea
- Siliceous alpine and boreal grasslands
- Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels
- Siliceous scree of the montane to snow levels (Androsacetalia alpinae and Galeopsietalia ladani)
- Calcareous rocky slopes with chasmophytic vegetation
- Siliceous rocky slopes with chasmophytic vegetation
- Northern Atlantic wet heaths with Erica tetralix
- European dry heaths
- Alpine and Boreal heaths
- Alpine and subalpine calcareous grasslands
- Species-rich Nardus grasslands, on silicious substrates in mountain areas (and submountain areas in Continental Europe)
- Blanket bogs
- Depressions on peat substrates of the Rhynchosporion
- Petrifying springs with tufa formation (Cratoneurion) * Priority feature
- Alkaline fens
- Alpine pioneer formations of the Caricion bicoloris-atrofuscae
- Old sessile oak woods with llex and Blechnum in the British Isles
- Slender green feather-moss
- Floating water-plantain
- Atlantic salmon
- Bottlenose dolphin
- Grey seal

- Harbour Porpoise
- Cormorant
- Greenland white-fronted goose
- 9.1.9 The above are interest features of:
 - Corsydd Môn/Anglesey Fens Ramsar;
 - Corsydd Môn/Anglesey Fens SAC;
 - Y Fenai a Bae Conwy/Menai Strait and Conwy Bay SAC;
 - Eryri/Snowdonia SAC
 - Afon Gwyrfai a Llyn Cwellyn SAC;
 - Pen Llyn a'r Sarnau/Lleyn Peninsula and the Sarnau SAC;
 - Cardigan Bay SAC;
 - North Anglesey Marine/Gogledd Môn Forol cSAC;
 - West Wales Marine cSAC;
 - Liverpool Bay/Bae Lerpwl SPA;
 - Ynys Seiriol/Puffin Island SPA; and
 - Dyfi Estuary SPA.
- 9.1.10 The Proposed Development was not considered to result in a likely significant effect on the other sites and interest features as no mechanisms for effects were identified.
- 9.1.11 All of the above sites and interest features were taken through to Stage 2 Appropriate Assessment. At this stage consideration was given to the wide range of mitigation measures identified to avoid or reduce the severity or potential for effects on the sites and interest features taken forward from stage 1. Taking these measures into account, consideration was then given to the conservation objectives set for each of the sites, and whether there were any implications for them related to the mitigated effects of the Proposed Development.
- 9.1.12 In each case it was concluded that there were no implications for site objectives and that the Proposed Development would not result in an adverse effect on the site integrity.

- 9.1.13 Consideration was then given to the potential for there to be effects on the integrity of these sites as a result of the Proposed Development incombination with other developments. Four of the other developments considered were identified as having shared receptors (sites and interest features) with the proposed development, these were:
 - Wylfa Newydd Power Station;
 - Wylfa Nuclear Power Station Decommissioning;
 - Glyn Rhonwy Pumped Storage; and
 - Third Menai Crossing
- 9.1.14 The sites with shared receptors were:
 - North Anglesey Marine candidate Special Area of Conservation (cSAC),
 - Afon Gwyrfai a Llyn Cwellyn SAC
 - Menai Strait and Conwy Bay SAC
- 9.1.15 An assessment was then undertaken of the potential for the effects of the Proposed Development and these other development could have an effect on site integrity in-combination. In each case it has been concluded that there is no potential for in-combination effects.
- 9.1.16 This HRA Report has therefore concluded that the Proposed Development would not result in a likely significant effect on a Natura 2000 site alone or in combination with other plans and projects.

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