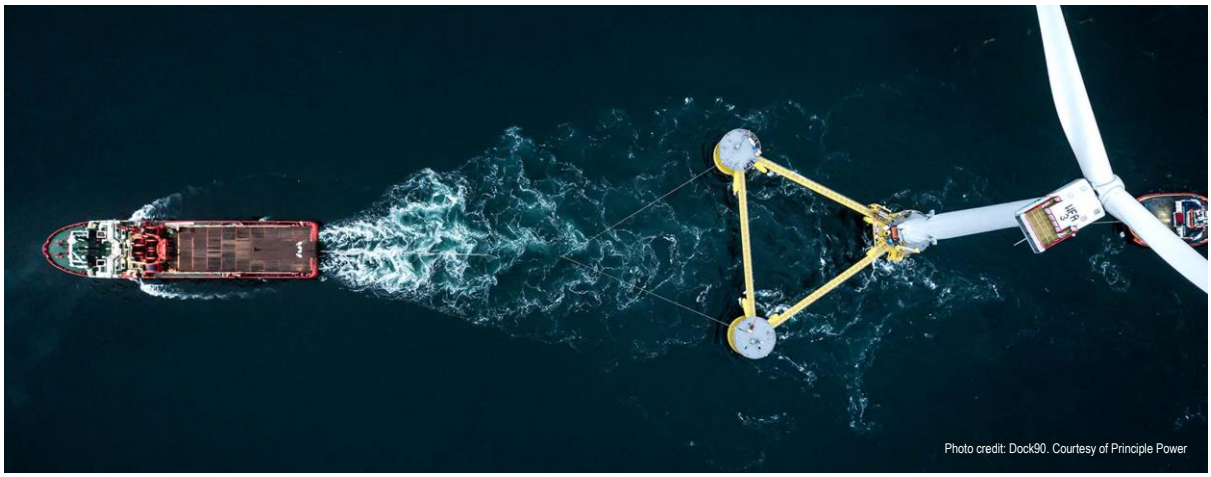

Project Erebus Environmental Statement
Chapter 24: Land Use

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Acronyms

Term	Definition
ALC	Agricultural Land Classification
BMV	Best Most Versatile
CCS	Construction Consolidation Sites
CRoW	Countryside and Rights of Way
DECC	Department of Energy and Climate Change
DEFRA	Department of Environment, F, Rural
EIA	Environmental Impact Assessment
EN-1	Overarching National Policy Statement for Energy
EN-3	National Policy Statement for Renewable Energy Infrastructure
ES	Environmental Statement
FLOW	Floating Offshore Wind
ha	Hectares
HDD	Horizontal Directional Drilling
LDP	Local Development Plan
MCAA	Marine and Coastal Access Act
MW	megawatt
NPS	National Policy Statement
NRW	Natural Resource Wales
PCC	Pembrokeshire County Council
PCNP	Pembrokeshire Coast National Park
PCNPA	Pembrokeshire Coast National Park Authority
PID	Public Information Day
PRoW	Public Right of Way
SBE	Simply Blue Energy
WTG	Wind Turbine Generators

Glossary

Term	Definition
The Project	The proposed Project Erebus, incorporating all onshore and offshore elements
The Proposed Development	The onshore elements of the Project.

Chapter 24 Land Use

24.1 Introduction

24.1.1.1 The proposed Project Erebus (the Project) is a demonstration scale Floating Offshore Wind (FLOW) development in the Celtic Sea region. The Applicant, Blue Gem Wind is a joint venture between Simply Blue Energy (SBE) and Total Energies, setup to create a new low carbon offshore energy sector in the region; that contributes to climate change targets, supply chain diversification and energy security.

24.1.1.2 The Project comprises six to ten Wind Turbine Generators (WTG) with a total capacity up to 100 MW. The offshore export cable, up to 49 km in length, links the array area to landfall at West Angle Bay, Pembrokeshire.

24.1.1.3 The Project also comprises an onshore export cable up to 14.5 km in length and an onshore substation, (the Proposed Development) located close to the existing Pembroke Power Station.

24.1.1.4 This chapter of the Environmental Statement (ES) considers the potential impacts of the Project on land use. This chapter provides an overview of the existing land use within the Proposed Development and an assessment of the potential impacts of the construction, operation and decommissioning of the Project.

24.1.1.5 In terms of land use, this chapter focuses on agricultural land use together with land uses not covered in: Chapter 19 Onshore Geology, Hydrogeology and Hydrology; Chapter 25 Traffic and Transport; and Chapter 27 Socio-economics, Tourism and Recreation.

24.1.1.6 This chapter and assessment have been prepared by ITPEnergised and authored by Emma Bathgate who has over 3 years' experience in the renewable energy industry and Emanuele Stella who has over 15 years' experience in Environmental Impact Assessment (EIA).

24.2 Legislation, Policy and Guidelines

24.2.1.1 The Study Area (refer to Section 24.4.2 below) within which the Proposed Development is set is predominantly rural agricultural land and also includes the Pembrokeshire Coast National Park Authority (PCNPA).

24.2.1.2 The following legislation is considered most relevant to land use and is reviewed in this chapter:

- Marine and Coastal Access Act 2009 (MCAA);
- Planning (Wales) Act 2015;
- The Environment (Wales) Act 2016;
- Well-Being of Future Generations Act 2015;
- Future Wales: the national plan 2040;
- Pembrokeshire Coast National Park Local Development Plan 2 2020; and,
- Countryside and Rights of Way Act (CRoW) 2000.

24.2.1.3 Further detail is provided in Chapter 5 Policy and Legislation.

24.2.1.4 National Policy Statement (NPS, 2011) from the Department of Energy and Climate Change are still considered relevant. The relevant NPSs are:

- Overarching National Policy Statement for Energy (EN-1) (DECC, 2011a); and
- National Policy Statement for Renewable Energy Infrastructure (EN-3) (DECC, 2011b).

Table 24.1 Policy Context

Policy	Consideration
EN-1 Overarching NPS for Energy: Paragraph 5.10.15 states that the examining authority should ensure that applicants do not site their scheme on the best and most versatile agricultural land without justification. It should give little weight to the loss of poorer quality agricultural land (in grades 3b, 4 and 5), except in areas (such as uplands) where particular agricultural practices may themselves contribute to the quality and character of the environment or the local economy.	The baseline environment has been identified and likely effects assessed within this chapter of the Environmental Statement.
EN-1 Overarching NPS for Energy: Paragraph 5.10.5 states that applicants should identify existing and proposed land uses near the project, any effects of replacing an existing development or use of the site with the proposed project or preventing a development or use on a neighbouring site from continuing, should be identified. Applicants should also assess any effects of precluding a new development or use proposed in the development plan.	The baseline study identifies existing land uses in the vicinity of the Electrical System. Land allocations (for development) are primarily associated with existing settlements. The proposed Electrical System avoids all major developed areas.
EN-1 Overarching NPS for Energy: Paragraph 5.10.7 Pre-application discussions between the applicant and the Local Authorities should identify any concerns regarding land use, having regard to the development plan and other relevant applications.	Public consultation has taken place during the development of the project proposals. Consultation has taken place with the Local Authorities to identify relevant proposed developments for cumulative assessment.
EN-1 Overarching NPS for Energy: Paragraph 5.10.8 states applicants should seek to minimise impacts on the best and most versatile agricultural land (defined as land in grades 1, 2 and 3a of the Agricultural Land Classification (ALC)) and preferably use land in areas of poorer quality (grades 3b, 4 and 5) except where this would be inconsistent with other sustainability considerations. Applicants should also identify any effects and seek to minimise impacts on soil quality taking into account any mitigation measures proposed.	Impacts on best and most versatile land are addressed within this chapter.
EN-1 Overarching NPS for Energy: Paragraph 5.10.10 states that applicants should therefore determine whether their	No areas of Green Belt have been identified within the Proposed Development.

Policy	Consideration
proposal, or any part of it, is within an established Green Belt and if it is, whether their proposal may be inappropriate development within the meaning of Green Belt policy.	

24.2.2 Local Planning Policy

24.2.2.1 EN-1 states that the Planning Inspectorate will also consider Development Plan Documents or other documents in the Local Development Framework to be relevant to its decision making.

24.2.2.2 The Proposed Development is partly within the PCNPA and administrative area of Pembrokeshire County Council (PPC).

24.2.2.3 The PCNPA Local Development Plan (LDP) has recently been adopted in 2020, the following policies are considered relevant to the Project:

- Pembrokeshire Coast National Park Local Development Plan: Policy 29 Sustainable Design; and,
- Pembrokeshire Coast National Park Local Development Plan: Policy 33 Renewable and Low Carbon Energy.

24.2.2.4 The PPC LDP is currently under review. The following policies are considered relevant to the Project:

- Pembrokeshire County Council Local Development Plan: SP 1 Sustainable Development;
- Pembrokeshire County Council Local Development Plan: GN.2 Sustainable Design; and,
- Pembrokeshire County Council Local Development Plan: GN.4 Resource Efficiency and Renewable and Low-carbon Energy Proposals.

24.3 Consultation and Scoping

24.3.1.1 A Scoping Report for the Project was issued in October 2019 with a response from Natural Resources Wales (NRW) in January 2020. No comments were received from consultees in relation to land use, therefore, the assessment outlined within the Scoping Report has been adopted. The assessment outlines the impacts the Project could have on land use. As part of the Scoping Report, settlement was scoped out of the assessment as the landfall and associated onshore cable corridor will not to pass through or disturb any settlement areas.

24.3.1.2 Ongoing public consultation has been undertaken through a series of Public Information Days (PIDs) and Virtual Public Exhibitions in November to December 2020 and July to August 2021, as well as in person events in Pembrokeshire in July 2021. Details of the consultation phases are outlined in Chapter 2 Overview of EIA Methodology.

24.3.1.3 Consultation with landowner have been ongoing during all the phases of the Project. Intensive consultation with RWE were undertaken to finalise location of onshore substation location and to understand future land uses from RWE.

24.3.1.4 Full details of the Project consultation process are presented in Volume 3 Technical Appendix 2.3 Consultation Report, which is provided as part of the application.

24.4 Assessment Methodology and Significance Criteria

24.4.1.1 The impacts associated with the Project have been assessed for three phases below:

- Construction;
- Operation (and maintenance); and
- Decommissioning.

24.4.2 Study Area

24.4.2.1 The Study Area incorporates the onshore aspects of the Project, shown in Volume 2 Figure 24.1. A full description of the below infrastructure is provided in Chapter 4 Proposed Development Description.

24.4.2.2 The onshore infrastructure for the Project will include the following:

- Landfall including cable ducts and transition bays;
- Onshore cable corridor including the cable trenches, construction sites and haul road;
- Onshore substation; and,
- National Grid infrastructure.

24.4.2.3 The assessment focuses on those areas that will be subject to land take and disturbance including any temporary working areas associated with the construction phase in addition to the permanent land take.

24.4.3 Baseline Data Sources

24.4.3.1 The assessment is based on a desk top study utilising publicly available information and documents from the following sources:

- Pembrokeshire Coast National Park Local Development Plan – Deposit Plan, March 2018 (PCNPA, 2018);
- Pembrokeshire Coast National Park Local Development Plan 2 (Replacement), September 2020 (PCNPA, 2020);
- Pembrokeshire County Council Local Development Plan, February 2013 (PCC, 2013);
- NRW Terrestrial Phase 1 Habitat Survey – habitat cover data derived from recording undertaken in 1979 and updated in 1991 (Lle, 2019);
- NBN Atlas (NBN Atlas, 2019);
- Agricultural Land Classification Maps published by Welsh Government;
- Aerial Imagery;
- Land Registry; and,
- Magic (DEFRA, 2021).

24.4.4 Assessment of Potential Effect Significance

24.4.4.1 The generic assessment methodology that is applied through the ES is explained in detail in Chapter 2 Overview of EIA Methodology. The following sections describe more specifically the methodology, used to assess the potential impacts of the Proposed Development on land use and agriculture, following the characterisation of the existing environment.

24.4.4.2 Two key groups of impact have been identified for the purpose of defining receptor sensitivity and impact magnitude in this chapter:

- Impacts on land use and tenure: these are the potential impacts of the project on human beings, including landowners and occupiers, local communities, and other land users; and
- Impacts on agricultural productivity and soil resources: these are potential Project impacts on the bio-physical elements of the soils, the surrounding environment, and the productivity of the land. The focus of this chapter is on agricultural productivity. Soil resources are discussed briefly and covered in greater detail in Chapter 19 Onshore Geology, Hydrogeology and Hydrology.

24.4.4.3 Whilst there are clear links between the two impact groups, the assessment of receptor sensitivity and magnitude of effect will differ. The potential impacts will be assessed as a function of the sensitivity of a receptor and the magnitude of the effect. Examples of these are given in the following sections.

24.4.4.4 The criteria used to make judgement on important / sensitivity of the receptor(s) and magnitude of change are presented in the tables below.

Sensitivity

24.4.4.5 The sensitivity of receptors is based on the capacity of receptors to tolerate change and whether or not increased risk would be acceptable within the scope of the prevailing legislation and guidelines. The degree of change that is considered to be acceptable is dependent on the susceptibility of the receptor to the change the Project would potentially have. Table 24.2 displays the Sensitivity for Land Use Receptors.

Table 24.2 Sensitivity for Land Use Receptors

Sensitivity of Receptor	Definition
High	Farms in which the operation of the enterprise is dependent on the spatial relationship of land to key infrastructure, and where there is a requirement for frequent and regular access between the two, or dependent on the existence of the infrastructure itself, e.g. dairying, irrigated arable cropping and field-scale horticulture, and intensive livestock or horticultural production.
Medium	Farms in which there is a degree of flexibility in the normal course of operations, e.g. combinable arable farms and grazing livestock farms (other than dairying).
Low	Off-lying areas of land that are not contiguous with the main farm holding
Negligible	Off-lying areas of agricultural land used for non-commercial purposes.

Magnitude of Impact

24.4.4.6 The magnitude of effect factors considered, relate to the scale of change (effect) that might take place. In determining the magnitude of potential effect, the value of the assets affected are first defined. The criteria for assessing the magnitude of change are set out in Table 24.3 below.

24.4.4.7 For the purposes of this assessment, construction related impacts that do not extend beyond the construction phases of the Project will be assigned a short-term magnitude.

Table 24.3 Magnitude of Impact

Magnitude	Land Use and Tenure	Agriculture and Soils
High	Permanent (>10 years) / irreversible changes, over the whole receptor, affecting usability, risk, value over a wide area, or certain to affect regulatory compliance.	A permanent loss of over 20 ha of the best most versatile (BMV) agricultural land or more than 60% of total regional resource. Full recovery would take more than 10 years.
Medium	Moderate permanent or long-term (5-10 years) reversible changes, over the majority of the receptor, affecting usability, risk, value over the local area, possibly affecting regulatory compliance; Existing land use would not be able to continue on less than 5ha of land; or Noticeable changes to the existing land use although it may continue.	A medium to long term loss of more than 20ha of the BMV agricultural land (Grades 1, 2, 3a) or more than 60% of total regional resource; Permanent loss of more than 10ha of grade 3b ALC or more than 10% of total regional resource; Full recovery of land would take 5 to 10 years; or More than 20ha of soil is temporarily unsuitable for agriculture.
Low	Temporary change affecting usability, risk or value over the medium-term (<5 years); or Temporary change affecting usability within the site boundary; measurable permanent change with minimal effect usability, risk or value; no effect on regulatory compliance.	A short-term loss of more than 20ha, or permanent loss of more than 10ha of ALC Grade 4 land or more than 10% of total regional resource; Full recovery of land is expected within 5 years; or Less than 20ha of soil is temporarily unsuitable for agriculture.
Negligible	Minor permanent or temporary change, undiscernible over the medium to short-term, with no effect on usability, risk or value.	No material change to the soil resource has been identified. Small area <1,000 m2 is permanently lost from agriculture.

Significance of Effect

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

24.4.4.9 The matrix which will be used as a tool to aid this assessment is presented in Table 24.4. The assessment of impact is qualitative and relies on expert judgement and desk-based studies to establish the existing land use within the study area to determine the aforementioned sensitivity of the receptor and the magnitude of effect scales. The matrix should be viewed as a framework to aid understanding of how a judgement has been reached, rather than as a prescriptive tool.

Table 24.4 Effect Significance Matrix

		Sensitivity			
		High	**Medium**	**Low**	**Negligible**
Magnitude	**High**	Major	Major	Moderate	Minor
	Medium	Major	Moderate	Minor	Negligible
	Low	Moderate	Minor	Minor	Negligible
	Negligible	Minor	Negligible	Negligible	Negligible

24.4.4.10 As with the definitions of magnitude and sensitivity, the matrix used for a topic is clearly defined by the assessor within the context of that assessment. The impact significance categories are dived as shown in the table below (Table 24.5).

Table 24.5 Definitions of Magnitude and Sensitivity

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

24.4.4.11 Note that for the purposes of this ES, major and moderate impacts are deemed to be ‘significant’. In addition, whilst minor impacts are not significant in their own right, it is important to distinguish these from other non-significant impacts as they may contribute to significant impacts cumulatively or through interactions.

24.4.4.12 Embedded mitigation will be referred to and is included in the initial assessment of impact. If the impact does not require further mitigation (or none is possible) the residual impact will remain the same. If, however, mitigation is required there will be an assessment of the post-mitigation residual impact.

Duration of Effect

24.4.4.13 When determining the significance of an impact, as well as taking into account the magnitude, consideration needs to be given to; the duration of the impact, for example, will the impact be temporary or permanent; short, medium or long term. For the purpose of this assessment, short term effects are considered to be of two years or less, medium term effects of two to five years, long term effects of five to ten years, and permanent effects to be for more than 10 years.

24.4.4.14 This impact assessment considers the potential for impacts during the construction, operations and maintenance (including re-powering) and decommissioning phases of the Project.

24.4.4.15 Impacts have been classified as follows:

- Direct impacts: these may arise from impacts associated with the construction, operations and maintenance, or decommissioning of the Project;
- Indirect impacts: these may be experienced by a receptor that is removed from the direct impact;
- Inter-related impacts: these may be experienced by a receptor and may arise from more than one environmental topic, or during more than one project phase (refer to Chapter 29 Inter-Related Effects); and
- Cumulative impacts: these may occur as a result of the Project, in conjunction with other existing, or planned projects within the study area, for each receptor (refer to Chapter 30 Cumulative Effects).

24.4.4.16 The methodology that has been followed is based upon a clear and concise set of definitions for sensitivity of receptor and magnitude of effect, which have then been combined to give an assessment of potential significance.

Standard Mitigation

24.4.4.17 A range of standard mitigation measures have already been applied to the Project as part of the over-arching site selection and iterative design process (see below and Chapter 3, Site Selection and Alternatives). These have been introduced to minimise potential impacts of the Project on any affected receptors.

24.4.4.18 Standard mitigation measures which the Project has already implemented, or is committed to in the future, in order to minimise potential impacts on socio-economics are listed below:

- A Construction Environment Management Plan (CEMP) will be produced in accordance with the Volume 3 Technical Appendices 4.1 Onshore Outline CEMP. The CEMP would explain how the activities of contractors and sub-contractors would be required to comply with its requirements, including where necessary the production of subsidiary plans in relation to specific construction matters;
- In addition, work to install the onshore export cable in the highway will be required to comply with the Traffic Management Strategy (Chapter 25: Traffic and Transport), with individual Traffic Management Strategies to be produced for all locations where the onshore export cable is buried in, or impacts on, the uninterrupted use of the highway by vehicular traffic; and
- Proposed site access routes will utilise temporary haulage roads which will minimise the interface between the Project and the public road system. However, the haulage roads will be connected to the local road network at certain points, which may result in minor roadworks where necessary.

24.5 Baseline Conditions

24.5.1.1 This section describes the existing environment in relation to land use. It is based on a desk-based study of data sources as noted above.

24.5.2 Cable Routing

24.5.2.1 The process of establishing an appropriate onshore cable corridor following detailed consideration and evaluation of principal constraints and alternative options is described in Chapter 3 Site Selection and Alternatives. The grid connection point for the Project will be close to the existing Pembroke power station.

24.5.3 Land Use

24.5.3.1 The land use within the Proposed Development is predominantly agricultural, the majority of which is permanent grassland and a small amount of arable and pastoral land. Within the Study Area the PCNP runs along the coastline. The PCNP is primarily private land, and across the Study Area ownership is spread between residential and farm ownership and several large landowners including the MoD, National Trust, Valero and RWE Innogy.

24.5.3.2 One of the most important aspects of land-use in the southern and western part of the peninsula is the Castlemartin firing range which covers approximately 5,900 hectares. The range is the only UK range available for direct-fire live gunnery exercises with both on-land impact areas and a large offshore safety area (Defence Estates, 2018). Merrion Camp is part of the Castlemartin training area and located to the north of the firing range.

24.5.4 Designated Land and Public Rights of Way

24.5.4.1 The PCNP runs along the coastline covering approximately 50% of the Study Area. Pembrokeshire Coast National Park Authority (PCNPA) was established in 1996 to manage the Park and implement the following two statutory duties:

- To conserve and enhance the natural beauty, wildlife and cultural heritage of the National Park; and
- To promote opportunities for public enjoyment and understanding of its special qualities.

24.5.4.2 The PCNPA has a varied landscape of cliffs, beaches, estuaries, inland hills, moorland and valleys as well as many sites of historic and archaeological importance. The PCNPA aims to protect and enhance the natural landscape as well as promoting opportunities for understanding and enjoyment of the special qualities of the National Park by the public.

24.5.4.3 Other recreational land uses including Pembrokeshire Coast Path, which runs along the coastline between St Dogmaels to Amroth and is present within the Proposed Development. Inland there are numerous Public Rights of Way (PRoW), bridleways and other footpaths.

24.5.4.4 Chapter 27 Socio-economic, Tourism and Recreation provides a detailed summary of PCNPA and existing PRoWs in the locality of the Project and addresses the potential impacts. Therefore, have not been assessment within this chapter of the ES.

24.5.5 Agricultural Land

24.5.5.1 This section describes the baseline environment in terms of agricultural land cover within the Proposed Development. It describes the crops grown and the common agricultural practices adopted in Pembrokeshire.

24.5.5.2 A key land-use in the Study Area is agriculture, with these areas primarily comprising grassland, pastoral land for sheep, beef and dairy along with small areas of arable, farmed by a mix of small farming communities and those farmers operating large scale farms. Approximately 88% of land in Wales is used for farms and commons. In Pembrokeshire, approximately 163,000 ha is considered agricultural land with around 96,000 of this permanent grass (Welsh Government, 2019).

24.5.5.3 The Welsh Government have developed the Predictive Agricultural Land Classification map. The Predictive Map replaced the 'Provisional' 1:250,000 map which was withdrawn in 2017. Agricultural land in Wales is classified according to the quality and versatility of the soil in a nationally recognised grading system the Agricultural Land Classification (ALC). Grade 1 represents best quality land through to Grade 5 which represents agricultural land of the poorest quality. The Best Most Versatile (BMV) agricultural land is defined in Planning Policy Wales as Grades 1, 2 and 3a. This is excellent to good quality land which is able to best deliver the food and non-food crops.

24.5.5.4 The landfall area consists of all agricultural land use classifications and the onshore cable corridor consists of areas classified as Grade 2, 3a, 3b, 4 and 5 based on the Agricultural Land Classification: predictive map created by the Welsh Government (refer to Volume 2, Figure 24.2). The onshore cable corridor development boundary is approximately 98.25 ha.

24.5.5.5 Table 24.6 below and Volume 2, Figure 24.2 show the distribution of the ALC within the onshore cable corridor area.

Table 24.6 Agricultural Land Classification

Grade	Area (ha)	Percentage within Proposed Development (%)	Percentage within Proposed Development as a % of total ALC in Pembrokeshire (%)
Grade 1: Excellent Quality Agricultural Land	0	0	0
Grade 2 – Good Quality Agricultural Land	29.82	30.4	0.15
Grade 3a – Good to Moderate Quality Agricultural Land	36.25	36.9	0.23
Grade 3b –Moderate Quality Agricultural Land	30.48	31.0	0.13
Grade 4 – Poor Quality Agricultural Land	0.45	0.5	0.001
Grade 5 – Very Poor Quality Agricultural Land	0.78	0.8	0.001

Grade	Area (ha)	Percentage within Proposed Development (%)	Percentage within Proposed Development as a % of total ALC in Pembrokeshire (%)
Non-Agricultural (including urban)	0.30	0.3	0.002

24.5.6 Soil Type

24.5.6.1 Reference should be made to Chapter 19 Onshore Geology, Hydrogeology and Hydrology for details on soils in relation to flood risk and water. Any impact on the soil resource is not predicted to extend beyond the Proposed Development. It should be noted that the published soil data provide generic characteristics and is indicative of the soil type present. The precise soil type and characteristics will differ between and within individual fields and will be captured within a Soil Management Plan to be prepared at detail design stage.

24.5.7 Utilities

24.5.7.1 There are a number of utilities present within the Proposed Development including telecommunications, underground oil/gas pipeline, underground water mains, buried electric cable. The locations of the known utilities are shown in Volume 2, Figure 24.1.

24.5.7.2 Table 24.7 below outlines the major utilities and the providers present within the development boundary.

Table 24.7 Utilities and Providers

Utility Type	Provider
Major Oil Pipeline	Valero – operated and maintained by Mainline
Telecommunications	BT
Water Mains	Welsh Water
Electricity	National Grid / Western Power Distribution South Wales

24.6 Assessment of Potential Impacts

24.6.1.1 This section outlines the potential impacts on land use as a result of the Project. Each impact is described and assigned a significance using the assessment methodology described above and in Chapter 2 Overview of EIA Methodology. The assessment will be based on the realistic worst-case parameters associated with the Proposed Development. The realistic worst-case scenario includes the maximum extent of the potential land occupied by the landfall, onshore cable route and substation as well as timings and methodology for construction.

24.6.1.2 Table 24.8 below outlines the potential impact/change and reasoning as a result of the Project based on the realistic worst-case scenario. Chapter 4 Proposed Development Description details the Project parameters.

Table 24.8 Realistic Worst-Case Scenario Assessed

Potential Change / Impact	Realistic Worst-Case Scenario	Justification
Construction		
Temporary disruption to existing agricultural land use	Horizontal Directional Drilling (HDD) construction: total size ^{m2} maximum period of 21 weeks. Beach Transition bay temporary working area (2 transition bays): 162 m^2 (12 m x 6 m x 2.25 m) each for maximum period of 3 months.	This outlines the maximum construction period for the onshore aspects of the Project and therefore the maximum length of any potential disruption to existing agricultural land use.
Impacts on Agricultural Land Classification through soil disturbance	Construction Offices, Welfare, Laydown and Parking: 58,215m^2 Landfall transition bays approximate quantity of spoil material	This outlines the maximum area for construction impact and potential effects to the ALC.
Impacts on soil resource	Onshore cable corridor: Length of onshore export cable 14.5 km, 60 m corridor width. 98.25 ha Cable Joint Chambers: (10 m x 3 m x 2 m) = 60 m^3 Link Box Chamber: (2 m x 2 m) 4 m^2 The onshore construction is expected to last a maximum of 18 months. Open cut trenching is assumed in relation to disruption (West Angle Bay will be partially closed), whereas longer programme (32 weeks) is assumed in relation to HDD at landfall.	The realistic worst-case scenario assumes the maximum extent and the maximum duration of disturbance to soil resources. This scenario represents the maximum potential for impacts on soils resources through physical disturbance, and compaction and soil erosion.
Impacts to Pembrokeshire Coast National Park		The realistic worst-case scenario outlines the maximum extent and duration of disruption to the PCNP.
Disruption to existing Industrial sites	Onshore Substation Footprint: (128 m x 88.5 m) 11,328 m^2	The realistic worst-case scenario outlines the maximum extent and duration of disruption to existing industrial sites including Pembroke Power Station.
Disruption to existing Military sites		The realistic worst-case scenario outlines the maximum extent and duration of disruption to existing military sites.
Operation		
Permanent change to land use	2 transition bays will be installed underground, each with an operational volume of 324 m^3	The realistic worst-case scenario assumes the maximum permeant land take as result of permanent land use change.

Potential Change / Impact	Realistic Worst-Case Scenario	Justification
Impacts on ALC	58 jointing bays will be installed underground, each with an operational volume of 60 m^3 20 link boxes will be installed underground, each with an operational volume of 4 m^3 Operational Footprint: Substation operational access road:	The realistic worst-case scenario assumes the maximum permeant land take and as result of permanent change to ALC.
Impacts on Pembrokeshire Coast National Park		The realistic worst-case scenario assumes the maximum cable easement width and hence the maximum area subject to restrictions.
Permanent restriction of land use within cable easement	Permanent restriction within the maximum cable easement (12 m)	The maximum adverse scenario assumes the maximum cable easement width and hence the maximum area subject to restrictions.
Decommissioning		
For the onshore infrastructure it is likely industry best practice and legislation regarding the decommissioning policy will change over time. An onshore decommissioning plan will be provided to and approved by the Local Planning Authority. The detail and scope of the decommissioning works will be determined by the relevant legislation and guidance at the time of decommissioning and agreed by the regulator. As such for the purpose of worst-case scenario, impacts no greater than those identified for the construction phase are expected for the decommissioning phase. Specific attention will be paid to the PCNP.		

24.6.2 Embedded Mitigation

24.6.2.1 As part of the Project design process, a number of measures have been proposed to reduce the potential for impacts on land use. The embedded mitigation accounted for land use and therefore ensured that where practicable, steps were taken to minimise creating isolated land parcels, permanently cutting off farm access routes and disrupting key assets such as Pembroke Power Station. The mitigation measures that were identified and adopted as part of the evolution of the project design and that are relevant to land use are listed Table 24.9 below.

Table 24.9 Embedded mitigation relating to land use

Parameter	Mitigation Measures embedded into the Project design
Construction	
Proposed Development & Project Design	Refinements to the onshore cable corridor and location of associated infrastructure have taken place throughout the design and refinement process, taking into consideration the locations of sensitive land uses, such as settlement areas, industrial and military sites and the PCNP. Land take has been reduced as far as practicable, as detailed further within Chapter 3: Site Selection and Alternatives. Reinstatement of land to its original use will be undertaken as far as practical following the completion of the construction works.
Agricultural Operations	The applicant has discussed and agreed commercial terms with the affected landowners for the areas in relation to permanent land take requirements. The outline design and route selection has accommodated landowners' agricultural operations.
Reinstatement	Following the completion of all cable construction works, the land within the working width will be fully reinstated as near as practically possible to its former condition. Any hedgerow sections removed during the works will be replanted, with all field boundary and stock fences reinstated.
Soil Management	A soil management plan will be prepared at detail design stage in accordance with best practice including DEFRA's "Construction Code of Practice for the Sustainable Use of Soils on Construction Sites" (2009).
Military Sites	All potentially affected military sites will be contacted prior to construction to ensure disruption is minimised but have been avoided as part of design iteration process (Chapter 3: Site Selection and Alternatives)
Utilities	Where the onshore export cable crosses the major oil pipeline the method of construction will be agreed with the asset owner and an asset protection agreement will be in place prior to commencement of construction to avoid any disruption. All potentially affected utility providers will be contacted, and the location of existing services will be accurately identified on the ground prior to construction. All utility crossings will be assessed in accordance with the standards defined by the utility owner/ operator.
Operation	
Land Use	In relation to permanent land take requirements the Applicant is currently undertaking discussions with affected parties and proposes to secure commercial terms with them.
Agricultural Operations	Any permanent restriction of certain activities above the cable will be discussed with affected landowners and secured in the commercial terms with them.
Decommissioning	
Land use, Soils and Agriculture	Any new legislation or guidelines published prior to decommissioning will be adhered to and incorporated into mitigation design prior to any decommissioning taking place.

24.6.3 Potential Impact during Construction

24.6.3.1 Reference should be made to Chapter 4 Proposed Development Description for full details of the proposed construction phase. This section outlines the potential impacts as a result of the Project.

Temporary disruption to existing agricultural land use

24.6.3.2 Installation of the onshore cable will temporarily affect land currently under agricultural management, influencing how current agricultural practices within affected holdings are undertaken. Land would be directly taken out of existing use or isolated due to construction activities and effectively taken out of use. Due to health, safety and technical requirements during construction, works areas would be generally fenced off and not accessible to landowners or occupiers for the duration of the construction period.

24.6.3.3 Construction will involve the temporary stripping and storage of topsoil and subsoil to excavate trenches to the required width and depth to install cable circuits. Following completion of the works, the working width will be fully reinstated as near as practically possible to its former condition. Full reinstatement will allow normal farming practices to continue (i.e. crop growth, ploughing, machine loads).

24.6.3.4 Immediately after reinstatement, a temporary period suspending farming activities will allow reseeded or replanted semi-natural vegetation to fully establish. In the case of pasture, any reinstated land will need to have achieved a condition robust enough to sufficiently withstand grazing pressure.

24.6.3.5 Conversely, reinstated arable areas will be able to be brought back into full agricultural use at the next sowing season following completion of construction.

24.6.3.6 Installation of the onshore export cable will temporarily affect approximately 60 m wide (for the majority of the onshore cable corridor) x 14.5 km long area of land, which is predominantly agricultural land. This will result in the temporary exclusion of approximately 87 ha of land from its current agricultural land use over the construction period.

24.6.3.7 In addition, approximately 2.3 ha is required for temporary works areas comprising up to 4 temporary satellite construction compounds specifically for the installation of the onshore export cable. These temporary construction compounds are predominantly located on agricultural land.

24.6.3.8 Construction of the Landfall compound will temporarily affect approximately 1.5ha of agricultural land during the construction phase.

24.6.3.9 Construction of the Onshore Substation compound will temporarily affect approximately 1 ha of agricultural land during the construction phase.

24.6.3.10 The adoption of the embedded mitigation detailed in Table 24.9, agreement of commercial terms with affected parties, and provision of sufficient time period between the serving of notice for entry and the commencement of on-site activities to allow farmers and landowners time to adapt their working practices prior to construction, will ensure that the disruption to farming practices will be reduced as far as possible and that once completed, the areas of temporary impact will be returned to their former agricultural use.

24.6.3.11 The impact on agricultural operations as a result of temporary disruption to current farming regimes is therefore anticipated to be of low magnitude on receptors of medium sensitivity, due to the receptors' ability to adapt to anticipated change.

24.6.3.12 The impact of disruption on agricultural land activities during construction is considered to be of **minor adverse** effect, which is not significant in EIA terms.

24.6.3.13 Following the full reinstatement of areas impacted by construction activities, the effect on agricultural operations is assessed to be **negligible**, which is not significant in EIA terms.

Impacts on Agricultural Land Classification

24.6.3.14 Installation of the onshore export cable will temporarily affect a 60 m wide (for the majority of the onshore cable corridor) x 14.5 km long area of land, which is predominantly ALC Grade 2 and ALC Grade 3a land (but also passes through ALC Grade 3b and 4 land). This will result in the temporary exclusion of approximately 66.1 ha at ALC Grade 2 and 3a of land from its current land use.

24.6.3.15 In addition, approximately 4.8 ha is required for temporary works areas comprising up to four satellite compounds the landfall area and the Onshore Substation compound. The onshore cable corridor construction compounds are predominantly located on ALC Grade 2 and ALC Grade 3a/b land. The construction of the landfall compound result in the temporary loss of up to 1.5 ha of Grade 3b ALC land. The construction of the substation compound will result in a temporary loss of up to 1ha in Grade 2/3b ALC land.

24.6.3.16 The total area of BMV agricultural land within PCC and PCNPA is 35,438 ha which equates to 21.7% of total agricultural land in Pembrokeshire. The Project onshore boundary is approximately 98.25 ha where 66.1 ha is considered BMV land representing 0.38% of the total BMV land across PCC and PCNPA.

24.6.3.17 Given the presence of mainly Grade 2 and 3 ALC land, this represents a receptor of high sensitivity. Given the adoption of the embedded mitigation detailed in Table 24.9 and in particular that the onshore cable corridor for the Proposed Development land take has been reduced as far as practicably possible, it is predicted that adverse temporary impacts on ALC Grade 2 and 3 land would be of low magnitude. The impact on agricultural land classification during construction is considered to be of **minor adverse** effect, which is not significant in EIA terms.

24.6.3.18 Following the full reinstatement of areas impacted by construction activities, the effect on agricultural land classification is assessed to be **negligible**, which is not significant in EIA terms.

Impacts on Soil Resource

24.6.3.19 The Direct impacts on soil resources will be dependent on factors such as climatic conditions and the intensity and duration of activities undertaken. The following impacts are predicted to occur at various locations along the onshore cable corridor:

- Physical disturbance of soil: this is likely to arise from changes in ground conditions, temporary and permanent land take, compaction by heavy plant and machinery, and removal of existing vegetation (where required);
- Soil erosion: this is likely to occur on newly exposed areas of soil as a consequence of wind and water;
- Damage to soil structure: this is likely to occur as a result of heavy machinery movements during periods of inclement wet weather; and
- Increased soil run-off: this is likely to occur in wet weather as a knock-down effect of soil compaction and decreased soil infiltration.

24.6.3.20 Within the Project boundary the soils are predominantly characterised by freely draining slightly acidic loamy soils that are not considered to generally exhibit characteristics which indicate they have a high susceptibility to damage or degradation. Given this, as well the prolonged agricultural productivity to which soils within the study area are already subjected, soil is considered to be of low sensitivity. Given the adoption of the embedded mitigation detailed in Table 24.9, and in particular the adoption of standard best practice measures for soil handling and the implementation of a Soil Management Plan, the predicted impacts on soils would be of low magnitude. The impact on soil resources during construction is considered to be **negligible**, which is not significant in EIA terms.

Impacts to Pembrokeshire Coast National Park

24.6.3.21 PCNP may be impacted during the construction phase of the Project in a similar way as noted above 'Temporary disruption to existing agricultural land use'. Approximately 66.2 ha of the onshore cable corridor is located within the PCNP. Following consultation with the PCNPA, it was established the main concern is the visual impact of the FLOW as the construction phases of the onshore cable corridor would likely cause only temporary disruption to the land within the PCNP. Additionally, as part of the design mitigation the onshore cable route will be buried and therefore not visual once constructed. Further details of the potential visual impacts of the FLOW are noted within Chapter 27 Socio-economics, tourism and recreation.

Disruption to Existing Industrial Sites

24.6.3.22 There are a number of utilities present within the Proposed Development including buried and above electricity cables, oil pipelines, public water mains and telecommunications lines. The onshore export cable corridor has been selected to avoid major buried utilities where possible. Valero major oil pipeline crosses the onshore export cable corridor at Wallaston Cross. In order to avoid any potential disruption to the oil pipeline, the method of construction will be agreed with the asset owner and an asset protection agreement will be in place prior to commencement of construction.

24.6.3.23 The Applicant would be required to contact potentially affected utility providers and identify the location of existing services on the ground prior to construction. Major utilities have been covered by identifying protective provisions, and with the use of crossing agreements. The Applicant would undertake utility crossings or diversions in accordance with the appropriate standards for such crossings or works and will have asset protection agreements in place with the utility owners where appropriate. The continuation of all utilities, including the identified gas pipeline, water supplies, and electricity will be ensured. Therefore, no impacts associated with existing utilities are anticipated during the construction of the Project.

Disruption to Existing Military Sites

24.6.3.24 Castlemartin Training Area is a military site present within the Proposed Development and is the active ranges are operational for 44 weeks of the year. The onshore export cable corridor has been selected to avoid this area fully. Therefore, no impacts associated with the existing Castlemartin Training area are anticipated during the construction or operation of the Project.

24.6.4 Operational

Permanent change to Agricultural Land Use

24.6.4.1 Impacts on existing agricultural land use/ operations associated with the operation of the proposed Onshore Substation and onshore export cable are principally associated with permanent taking of land within agricultural land use.

24.6.4.2 Land take associated with transition joint bays at the landfall will result in the permanent loss of approximately 0.0144 ha. Operation of the Onshore Substation will result in the permanent loss of approximately 3 ha of agricultural land. This represents a loss of 2.9 % of all agricultural land in PCC and PCNPA.

24.6.4.3 Assuming that some marginal agricultural holdings may be impacted, this represents a receptor of high sensitivity. Given the adoption of the embedded mitigation detailed in Table 24.9, and in particular the agreement of commercial terms with affected parties, the impact on agricultural operations as a result of disruption to current farming regimes is anticipated to be of low magnitude. The impact of disruption on agricultural land activities during operation is considered to be of **minor adverse** effect, which is not significant in EIA terms.

Impacts on Agricultural Land Classification

24.6.4.4 The combined permanent agricultural land take of 3.01 ha of land within the footprint of the onshore export cable and Onshore Substation include the Onshore Substation permanent access track, and land take associated with the transition joint bays at the landfall. This represents 1.38% of the BMV agricultural land within PCC and PNCP.

24.6.4.5 Given the presence of Grade 2 and 3 ALC land, this represents a receptor of high sensitivity. Given that the area of permanent agricultural land take represents only 1.38 % of BMV agricultural land within the Pembrokeshire region, the impact on ALC land is anticipated to be of low magnitude. The impact on agricultural land classification during operation is considered to be of **minor adverse** effect, which is not significant in EIA terms.

Impacts to Pembrokeshire Coast National Park

24.6.4.6 The impacts to PCNP in relation to recreation has been assessed and discussed in Chapter 27 Socio-economic, Tourism and Recreation. Therefore, have not been included within the land use assessment within this chapter of the ES.

Permanent restriction of land use within cable easement

24.6.4.7 There will be no permanent land take associated with the operational onshore export cable with the exception of the man-hole covers associated with the jointing bay link boxes and a raised area of land associated with the transition joint bays and permanent access track at the landfall, however a permanent 12 m wide easement over the onshore export cable will be established. Within this permanent easement there will be the right to construct, maintain, repair and inspect the cable. In most instances following construction this will not affect the existing land although certain activities on land above the cabling will be restricted to ensure that there is no accidental damage to the cable. These restrictions will preclude, amongst other things, mineral extraction, the erection of buildings and the planting of deep-rooted trees.

24.6.4.8 The jointing chambers are 60 m^3 (10 m x 3 m x 2 m) located approximately every 500 m of the onshore cable corridor with the link boxes a maximum of 4 m^2 (2 m x 2 m) located every 1500 m of the onshore cable corridor.

24.6.4.9 Assuming that some marginal agricultural holdings may be impacted, this represents a receptor of high sensitivity. It is predicted that adverse impacts as a result of permanent restriction on land use within the cable easement would be of low magnitude. The impact of disruption on permanent restriction of land use during operation is considered to be of **minor adverse** effect, which is not significant in EIA terms.

24.6.5 Decommissioning

24.6.5.1 No decision has been made regarding the final decommissioning policy for the onshore infrastructure as it is recognised that industry best practice, rules and legislation change over time. The onshore substation will likely be removed and be reused or recycled. It is anticipated that the onshore cable would be decommissioned (de-energised) and either the cables and jointing bays left *in situ* or removed depending on the requirements of the Onshore Decommissioning Plan approved by the Local Planning Authority. The detail and scope of the decommissioning works will be determined by the relevant legislation and guidance at the time of decommissioning and agreed with the regulator. As such, for the purposes of a worst-case scenario, impacts no greater than those identified for the construction phase are expected for the decommissioning phase.

24.6.6 Cumulative Effects

24.6.6.1 There is not expected to be any potential pathways for cumulative effects in relation to land use.

24.6.6.2 The cumulative effects are effects that could arise as the result of more than one development at the same time. This assessment considers any present or reasonably foreseeable project, programme or plan that could result in an additive impact with the Project.

24.6.6.3 Full details of the approach to the cumulative assessment can be found in Chapter 30 Cumulative Effects. Each project on the CEA list has been considered on a case by case basis for scoping in or out of this chapter's assessment based upon data confidence, effect-receptor pathways and the spatial/temporal scales involved.

24.7 Inter-related effects

24.7.1.1 Inter-relationships are considered to be the impacts and associated effects of different aspects of the project on the same receptor. There are considered to be:

- Project lifetime effects: Assessment of the scope for effects that occur throughout more than one phase of the project (construction, operation and maintenance, and decommissioning), to interact to potentially create a more significant effect on a receptor than if just assessed in isolation in these three key project stages (e.g. changes in agricultural industry may affect the socio-economics of the region); and
- Receptor led effects: Assessment of the scope for all effects to interact, spatially and temporally, to create inter-related effects on a receptor. As an example, all effects on a given land use, such as agricultural land (e.g. construction and changes in land use could impact landscape and visual amenity) may interact to produce a different, or greater effect on this receptor than when the effects are considered in isolation. Receptor-led effects might be short term, temporary or transient effects, or incorporate longer term effects.

24.7.1.2 A description of the likely inter-related effects arising from the Project on land use is provided in Chapter 29 Inter-related Effects.

24.8 Additional Mitigation

24.8.1.1 None of the effects identified are major or moderate adverse (significant in EIA terms). Therefore, no additional mitigation is required beyond the mitigation relevant to land use which has been embedded into the project design.

24.9 Summary

24.9.1.1 The ES Chapter details the findings of land studies undertaken for the onshore cable corridor of the Proposed Development. The assessment focused on those areas that will be subject to land take and disturbance including any temporary working areas associated with the construction phase in addition to the permanent land take.

24.9.1.2 Mitigation is proposed to avoid potential impacts from the Proposed Development on the features associated with the sites and so are not considered to be significant.

24.9.1.3 Finding of impacts on land use are summarised in Table 24.10.

Table 24.10 Summary of predicted Effect in relation to Land Use

Description of Impact	Significance of Effect	Possible Mitigation Measures	Residual Effect
Construction			
Temporary disruption to Agricultural Land Use	Minor	Embedded Mitigation	Negligible (Not Significant)
Impacts on ALC land through soil disturbance	Minor	Embedded Mitigation	Negligible (Not Significant)
Impacts on soil resources	Negligible	Embedded Mitigation	Negligible (Not Significant)
Disruption to existing Industrial sites	No impact	Embedded Mitigation	No impact
Disruption to existing Military sites	No impact	Embedded Mitigation	No impact
Operation			
Permanent change of land use	Minor	None	Minor (Not Significant)
Impacts on ALC land	Minor	None	Minor (Not Significant)
Permanent restriction of land use within the cable easement	Minor	None	Negligible (Not significant)
Decommissioning			
Temporary disruption to existing agricultural operations, ALC land and soil resources schemes (cable pulling)	Minor/ Negligible (less than during construction)	None	Minor/Negligible (Not Significant)

Cumulative Effects			
Cumulative impact on agricultural land use and soils	None		

24.10 References

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