



# Project Erebus

## Technical Appendix 20.8 Wintering Bird Survey

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# Executive Summary

A wintering bird survey was undertaken between October 2020 and March 2021. The Survey Area covered several potential landfall sites and cable route options still being considered in September 2020 all of which lead to a potential substation site near Pembroke Power Station.

The work was undertaken to also inform the submission of a future planning application for the onshore elements of a floating wind farm.

The wintering bird survey, which included a desk study and field survey, covered an area larger than the final design of the cable route as several different landfall and route options were still being proposed at its commencement in October 2020.

The desk study included a search for designated sites and data requests for species from WWBIC and the BTO. The field survey involved a mixture of VP surveys at low-tide, transects covering inland areas and also high tide counts.

The desk study identified one nature conservation designations of international importance and a further five nature conservation designations of national importance designated for ornithological reason within 5km of the Site.

The WWBIC data search identified a total 106 species of protected or otherwise notable bird species have been recorded within 5km of the Site. Of these, 29 species are listed on Schedule 1 of the Wildlife and Countryside Act 1981 (as amended), 20 are listed within Annex 1 of the Birds Directive 2009, and 27 are listed on the Environment (Wales) Act 2016. Thirty-five are included on the BoCC Red List and a further 56 species are Amber-Listed. Additionally, 36 species are listed as priority species in the Pembrokeshire LBAP.

The data request from the BTO regarding wintering bird species identified between six and forty species recorded at five WEBS count sites within 2km of the Site over a five year period between 2014-2108.

The results of the wintering bird survey concentrated on two potential landfall areas at West Angle bay and the final cable route corridor with a 250m survey buffer.

The field survey identified a total of 74 bird species in the wider area of which 35 were recorded in the Site and 250m survey buffer. A total of nine records of chough and twelve records of schedule 1 species of raptor: peregrine, red kite; hen harrier and marsh harrier but none within the Site and a 250m survey buffer.

Small number of four wading birds were recorded during the survey (lapwing, oystercatcher, golden plover and ringed plover) and five gull species (herring gull, common gull, great black-backed gull, lesser black-backed gull and black-headed gull) were recorded within the site and 250m survey buffer.

A total of eight BoCC Red Listed (house sparrow, mistle thrush, redwing, skylark, yellowhammer, linnet, starling and song thrush) and five BoCC Amber Listed species (bullfinch, reed bunting, house martin, meadow pipit and kestrel) were recorded within the Site and 250 survey buffer during the survey visits. Of the 13 species redwing is also a Schedule 1 listed species. A further 13 common species were recorded within the Site and 250m survey buffer.

# 1. Introduction

## 1.1 Overview

A Preliminary Ecological Assessment (PEA) was undertaken in July 2020 (see “Erebus Project: Preliminary Ecological Assessment of potential cable routes and substation locations (the “Site”) near Angle and Rhoscrowther, Pembrokeshire”, Hudson and Sutton, 2020). This report identified the vegetation and habitats present within the Survey Area, and, in broad terms, their potential to support wintering bird species.

In October 2020 Adern Ecology Ltd was commissioned by ITP Energised to carry out a Wintering Bird Survey in support of an application to Pembrokeshire County Council for the same project. The Survey Area covered several potential landfall sites and cable route options still being considered in September 2020 all of which lead to a potential substation site near Pembroke Power Station (see Figure 1).

The purpose of this document is to report the findings of a wintering bird survey and identify potential ornithology-related constraints to the project.

## 1.2 Site Description

The Survey Area is located on the Angle Peninsula in south Pembrokeshire and comprises an area which covered several cable option routes to a number of potential substation sites south and west of Pembroke Power Station (see Figure 1). Apart from the extensive sand dune systems at Broomhill/Gupton and Kilpaison Burrows, the landscape is dominated by intensive agriculture – arable and improved grasslands bounded by species-poor hedges. To the east of the Survey Area, however, some thicker more species-rich hedges occur in areas where farming is more mixed and “traditional”. Semi-natural habitats such as grasslands and woodlands are small and widely scattered with the largest blocks of woodland occurring around Angle and Bangeston. The Survey Area is bisected by several small stream valleys that create linear habitat features where woodlands, scrub and wetland habitats all occur.

# 2. Legislation, Policy and Guidelines

## 2.1 Legislation

All relevant legislation and guidance documents have been considered as part of this assessment, as referenced in this report (a summary of pertinent nature conservation legislation is presented below).

Of particular relevance are:

- Council Directive 2009/147/EC on the conservation of wild birds (the Birds Directive)<sup>1</sup>;
- The Ramsar Convention on Wetlands 1976;
- Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora (the Habitats Directive);
- The Conservation (Natural Habitats, &c.) Regulations 1994 (as amended);
- The Wildlife and Countryside Act 1981 (as amended);
- The Wildlife and Natural Environment (Scotland) Act 2011 (as amended); and

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<sup>1</sup> Although the UK has left the European Union, there has been no significant change in the wording of UK nature conservation legislation based on European directives, and these therefore remain relevant to the present report.

- The Nature Conservation (Scotland) Act 2004 (as amended), which places a statutory duty on all public bodies to further the conservation of biodiversity through the Scottish Biodiversity Strategy, with Scottish priority species and habitats listed on the Scottish Biodiversity List (SBL), itself based on the former UK Biodiversity Action Plan (UKBAP), and regional biodiversity targets defined through a Local Biodiversity Action Plan (LBAP). The LBAP of relevance to this report is the Fife Local Biodiversity Action Plan.

## 2.1.1 International Conventions and Directives

### 2.1.1.1 The Birds Directive (2009/147/EC)

The European Union (EU) Directive on the Conservation of Wild Birds (2009/147/EC) was first adopted in 1979 and is the primary mechanism for delivering the EU's obligations under the Convention on Biological Diversity (CBD), and the Ramsar and Bonn Conventions. Collectively, the Birds and Habitats Directives require Member States to take action in order to protect all bird species and their habitats which includes the designation of Special Protection Areas (SPAs) in respect to species listed on Annex I of the Directive.

#### 2.1.1.2 Ramsar Convention on Wetlands

The Convention on Wetlands of International Importance (the Ramsar Convention) was adopted in Iran in February 1971 and came in to force in the UK in May 1976. The Convention considers the subject area of wetland conservation and comprises three elements of activity:

- The designation of wetlands of international importance as Ramsar sites;
- The promotion of the sustainable use of all wetlands in the territory of each country; and
- International co-operation with other countries to further the sustainable use of wetlands and their resource.

#### 2.1.1.3 The Habitats Regulations

In Scotland, the Habitats Directive is translated into specific legal obligations by the Conservation (Natural Habitats, &c.) Regulations 1994. This piece of legislation is commonly referred to as the Habitats Regulations.

The Habitats Regulations cover the requirements for:

- Special Protection Areas (SPAs), which are sites that are internationally important for threatened habitats and species; making a network of sites designated together and known collectively as the Natura2000 network;
- Species requiring strict protection – i.e. European protected species; and
- Other aspects of the Habitats Directive including the management, surveillance and reporting for sites in order to ensure the favourable status of species and habitats are maintained.

The Habitats Regulations were most recently amended in 2012.

#### 2.1.1.4 The Convention on Biological Diversity (CBD)

The CBD was adopted at the Earth Summit in Rio de Janeiro, Brazil in June 1992, and came into force in December 1993. It was the first global treaty to provide a legal framework for biodiversity conservation. The treaty has three primary goals:

- The conservation of biological diversity;
- The sustainable use of its components; and
- The fair and equitable sharing of the benefits arising from the use of genetic resources.

Signatories are required to create and enforce national strategies and action plans to conserve, protect and enhance biological diversity.

The UK Government ratified the convention and published the UKBAP in 1994 and to compliment the UKBAP, separate biodiversity strategies for each of the devolved governments have been subsequently developed,

including the Environment Strategy for Wales, launched in 2006. The 'UK Post-2010 Biodiversity Framework' now succeeds the UK BAP and 'Conserving Biodiversity – the UK Approach'. The framework takes into account the 'Aichi targets' following a conference in Japan in 2010 and publication of the new EU Biodiversity Strategy (EUBS) in 2011. This complements existing UK biodiversity strategies and targets by identifying activities needed to achieve them. This framework places more weight on national responses such as the Nature Recovery Action Plan (Welsh Government, 2015), in a Welsh context (see Section 4.2.5), than on a UK-wide response.

## 2.1.2 National Legislation

### 2.1.2.1 The Wildlife and Countryside Act

The Wildlife and Countryside Act 1981 (as amended) (WCA) is the principal mechanism for wildlife protection in the UK. Schedule 1 of the Act lists bird species that are afforded special protection. The principal designation established under the Act is the citation of Sites of Special Scientific Interest (SSSI).

The Act also makes it an offence (with exception to species listed in Schedule 2) to intentionally:

- Kill, injure, or take any wild bird;
- Take, damage or destroy the nest of any wild bird while that nest is in use or being built; or
- Take or destroy an egg of any wild bird.

## 2.2 Biodiversity

### 2.2.1 The Environment (Wales) Act 2016

The Environment (Wales) Act aims to assist Wales in developing as a low carbon, green economy in response to shifting environmental conditions through climate change. The Act was developed as a response to the negative impacts from climatic change, the effects of which range from socio-economic human disturbances to a reduction of biodiversity. The Environment (Wales) Act 2016 sets out the approach to planning and managing natural resources at a national and local level with a general purpose linked to statutory 'principles of sustainable management of natural resources' defined within the Act (Welsh Government, 2016a).

Local authorities are required to take into consideration for the conservation of biodiversity within their area but also places a responsibility to not only protect but to enhance biodiversity. The act also places a need for Welsh Ministers, public bodies and statutory stakeholders to maintain and enhance biodiversity.

The Welsh Government, in conjunction with Natural Resources Wales, published a list of living organisms and types of habitat which are of principal importance for the purpose of maintaining and enhancing biodiversity, in relation to Wales, in Section 7 of the Act.

At the time of creation, the list of habitats of principal importance for the purpose of maintaining and enhancing biodiversity in relation to Wales contained 55 priority habitats including hedgerows; arable field margins; improved grassland; and rivers and streams (Welsh Government, 2016b).

At the time of listing, Welsh Priority List (WPL) species included 17 species of mammals, 51 species of birds, 10 species of fish, eight species of reptiles or amphibian, 188 invertebrate species, 77 vascular plant species, 67 species of lichens, 52 species of mosses and liverworts, 27 species of fungi, five species of stoneworts and 55 marine species (Welsh Government, 2016c). Of the birds listed, those of relevance to the Site include; skylark (*Alauda arvensis*); kestrel (*Falco tinnunculus*); cuckoo (*Cuculus canorus*); curlew (*Numenius arquata*) and lapwing (*Vanellus vanellus*).

### 2.2.2 Nature Recovery Plan

The Nature Recovery Plan was released in December 2015 and addresses the underlying causes of biodiversity loss. It sets out how Wales will deliver the commitments of the EU Biodiversity Strategy and the UN Convention on Biological Diversity to halt the decline in biodiversity by 2020 and then reverse that decline (Welsh Government, 2015).

### 2.2.3 The Pembrokeshire Local Biodiversity Action Plan

The Pembrokeshire Local Biodiversity Action Plan (LBAP) provides a framework within which existing and new actions are co-ordinated to conserve and enhance biodiversity in Pembrokeshire, taking account of local and national priorities (Pembrokeshire County Council, 2014). Part 1 of the plan provides a brief background to biodiversity in Pembrokeshire and the role of the Pembrokeshire Biodiversity Partnership (forerunner of the Pembrokeshire Nature Partnership). It also includes information on the priority habitats and species in Pembrokeshire. Part 2 provides a series of species and habitat action plans for key features in Pembrokeshire, identifying trends, threats and suggested action to address them.

Of potential relevance to this study are the following grouped habitat plans, with their associated grouped species action plans:

- Lowland Farmland:
  - Farmland birds;

In addition to the grouped species action plans there are a total of nine individual species action plans are outlined with the two relating to bird species:

- Chough (*Pyrrhocorax pyrrhocorax*); and
- Kestrel (*Falco tinnunculus*).

A further 21 bird species are listed as Pembrokeshire LBAP priority species.

## 2.3 Birds of Conservation Concern

The BoCC, is a collaboration between the Statutory Nature Conservation Bodies (SNCBs), Royal Society for the Protection of Birds (RSPB), British trust for Ornithology (BTO), Wildfowl and Wetlands Trust (WWT), Game and Wildlife Conservation Trust (GWCT) and several other organisations. It uses an approach based on quantitative assessments against standardised criteria, in order to place individual bird species on 'Red', 'Amber' or 'Green' lists to indicate different levels of conservation concern. Red in the context of BoCC is not the same as IUCN's Red List, though IUCN status is one of the criteria used in BoCC assessment. Collectively, the changes in the numbers and proportions of species on Red, Amber or Green lists provide a gauge of the broad direction of status of UK birds and point to the degree of threat they face, as well as the efficacy of conservation measures taken (Eaton *et al.*, 2015).

Birds on the Red and Amber lists are subject to at least one of the factors listed below:

- Red - red list species are those that are globally threatened, have had an historical population decline in the UK from 1800 -1995, a rapid (> or = 50%) decline in UK breeding population over the past 25 years, or a rapid (> or = 50%) contraction of UK breeding range over the past 25 years;
- Amber - amber listed species have had a historical population decline from 1800-1995 but are recovering; population size has more than doubled over the past 25 years, a moderate (25-49%) decline in UK breeding population over the past 25 years, a moderate (25-49%) contraction of UK breeding range over the past 25 years, a moderate (25-49%) decline in UK non-breeding population over the past 25 years, or species with unfavourable conservation status in Europe also known as Species of European Conservation Concern (SPEC); and
- Green - green listed species have no identified threat to their population status.

# 3. Methodology

## 3.1 Desk Study

A full ecological desk study was carried out in July 2020 and included for a search for nature conservation designations listed for ornithological reasons as well as records of ornithological species of conservation concern. In terms of designations the search area used were as follows: international and national designations, i.e. Special Protection Areas (SPAs), Ramsar sites, Sites of Special Scientific Interest (SSSIs), National Parks, and National Nature Reserves (NNRs), as well as statutory local designations i.e. Local Nature Reserves (LNR) were identified within 5km of the Site. Non-statutory designations, such as Local Wildlife Sites (LWSs), Sites of Interest for Nature Conservation (SINCs) were identified within 2km of the Site. Only designations with ecological and/or ornithological qualifying features were considered relevant in this study.

Existing records for protected or otherwise notable species (e.g. Environment (Wales) Act 2016/LBAP priority species) were identified within 5km of the Site. Records were obtained from the West Wales Biodiversity Information Centre (WWBIC, 2020) and only records from within the last 10 years were considered relevant to the study. Full details of the methodology used are described in Technical Appendix 20.1: Ecological Desk Study (ITPE, 2020).

A more detailed ornithological data request with specific reference to wintering birds was obtained from the British Trust for Ornithology (BTO) for a total of five Wetland Bird Survey (WeBS) sites which are located in close proximity to the three proposed landfall sites and cable routes as outlined in September 2021. The desk study returned all data between 2014-2018 for the five BTO WeBS sites and their locations are shown on Figure 3.

## 3.2 Survey Methods

A wintering bird survey, comprising six visits, was carried out between October 2020 and March 2021 to identify approximate numbers and the location of wintering birds at the landfall of the proposed cable as well the cable corridor and an approximate 250m survey buffer. The surveys aimed to identify all bird species of conservation concern in all the inter-tidal areas and along the inland proposed cable routes with a particular focus on identifying the presence of any wintering chough.

In order to dovetail with the data provided by the BTO as described in Section 3.1 above the surveys were undertaken to identify which species are using the areas directly around the three proposed landfall option areas as well as along all the proposed cable routes as well. The tidal area along Pembroke River estuary directly east of the proposed substation was also surveyed.

The survey comprised a 3-hour vantage point (VP) survey of each of the four intertidal areas, including the three landfall option areas, as well in the Pembroke River estuary directly east of the substation search area. The VP surveys were undertaken starting one hour before peak low tide and finish two hours after peak low tide.

In addition to the inter-tidal areas transect surveys were completed within a 500m survey corridor, following each the three potential cable routes for a further four hours: The four hours was split two hours either side of peak high tide and, starting inland, included a high tide count at each of the three landfall intertidal areas.

These high tide surveys were complete in three months, October 2020, December 2020 and February 2021.

In addition, due to the lack of desk study data at West Angle Bay three more low tide surveys were undertaken at this location, as well as three further checks for wintering chough along the cabling route for Freshwater Bay, making six visits to each location in total.

The three VP survey locations and three transect routes are shown in Figure 2.

Ahead of the commencement of the wintering bird surveys the methodology outlined above for the wintering bird survey was sent to NRW for comment and was approved by email on 13<sup>th</sup> October 2020.

The VP survey and survey transects were carried out by a suitably qualified ornithologist on the following dates:

- 20<sup>th</sup> – 22<sup>nd</sup> October 2020;
- 4<sup>th</sup>, 5<sup>th</sup>, 19<sup>th</sup> November 2020;
- 2<sup>nd</sup>, 4<sup>th</sup>, 6<sup>th</sup>, 7<sup>th</sup>, 8<sup>th</sup>, 16<sup>th</sup>, and 20<sup>th</sup> December 2020;
- 23<sup>rd</sup> January 2021;
- 15<sup>th</sup> – 17<sup>th</sup> and 25<sup>th</sup>, 26<sup>th</sup> February 2021; and
- 18<sup>th</sup> March 2021.

Surveys were conducted in good weather and the route taken on each field visit reversed to reduce systematic data bias.

VP surveys were completed from a fixed location with all bird species recorded within 500m of the proposed landfall locations and as tides changed the ornithologist determined whether the bird(s) were different from any previously encountered. This involved careful attention to the whereabouts and movements of birds, together with birds' sex and plumage characteristics. To minimise the risk of double-counting, behaviour and location of birds were carefully observed so that previously encountered birds were not recorded twice. Surveys were not conducted in winds greater than Beaufort Force 5, in persistent rain, or when visibility was poor (less than 500m).

The three transects were completed at a slow and measured pace with all birds within 250m of each proposed cable corridor recorded. In areas with good visibility, these were scanned using a telescope in order to reduce the impacts of disturbance on the survey results.

All bird activity was identified and mapped onto 1:25,000 OS maps of the Site, using BTO two-letter codes and appropriate symbols as outlined in Appendix 1 of Gilbert *et al.* (2011). Due care and attention was taken using appropriate symbols, to ensure that multiple registrations of the same bird were not recorded on the survey maps.

On completion of all six visits all the recorded birds were entered onto ArcGIS.

### 3.3 Survey Limitations

All the survey visits were completed within the optimal times and dates for a wintering bird survey. The surveyor could access the majority of the Study Area although on occasions due to being it private land with no arranged access, some sections during the survey visits were scanned from a distance using binoculars and / or telescope. The ability of the surveyor to see all parts of the Study Area mean this is not considered to be a limitation to the survey data.

## 4. Results

### 4.1 Desk Study

#### 4.1.1 Nature Conservation Designations

As shown on Figure 4 and detailed in Table 1, here are two nature conservation designations of international importance and a further five nature conservation designations of national importance designated for ornithological reason within 5km of the Site.

**Table 1: Nature Conservation Designations of International and National Importance**

Name	Designation	Distance	Description
Pembrokeshire Coast	National Park	All routes are within the National Park.	The national park is primarily designated for its coastal landscape which incorporates wildlife, habitats, farming, history, tourism, business and local communities. The park has 13 SAC, five SPA, one marine conservation zone, seven NNR and 60 SSSI designations.
Castlemartin Coast	SPA	150m south-east at nearest point.	Species referred to in Article 4 of Directive 2009/147/EC and listed in Annex II of Directive 92/43/EEC: <ul style="list-style-type: none"> <li>○ Chough (<i>Pyrrhocorax pyrrhocorax</i>) - During the breeding season the area regularly supports 3.5% of the British breeding population, between 12 and 14 pairs (count as at 1998).</li> </ul>
Arfordir Penrhyn Angle / Angle Peninsula Coast	SSSI	Borders at West Angle Bay.	The site is designated for its wide range of habitats and is also designated for the following bird species: <ul style="list-style-type: none"> <li>○ (wintering) Chough.</li> </ul> Also present but not recorded as part of the SSSI citation: <ul style="list-style-type: none"> <li>○ Peregrine (<i>Falco peregrinus</i>).</li> </ul>
Milford Haven Waterway	SSSI	280m east.	The site is designated for its ancient woodland, saltmarsh, swamp, saline lagoons, rare and scarce plants and invertebrates and nationally important numbers of migratory waterfowl. Ornithological features: <ul style="list-style-type: none"> <li>○ Little grebe (<i>Tachybaptus ruficollis</i>);</li> <li>○ Shelduck (<i>Tadorna tadorna</i>);</li> <li>○ Wigeon (<i>Anas Penelope</i>);</li> <li>○ Teal (<i>Anas crecca</i>);</li> <li>○ Dunlin (<i>Calidris alpine</i>); and</li> <li>○ Curlew (<i>Numenius arquata</i>).</li> </ul>
Castlemartin Range	SSSI	1.17 km south	The site is of interest for its marine biology, sand dunes, wetland habitats, calcareous grassland, cliff and coastal grassland and heath, together with the most extensive area of species-rich neutral grassland in Wales. Also of special interest are breeding seabirds: <ul style="list-style-type: none"> <li>○ A breeding population of 15 - 20 pairs of chough;</li> <li>○ 12,000 – 16,000 individual guillemots (<i>Uria aalge</i>);</li> <li>○ 800 – 1,100 razorbills (<i>Alca torda</i>);</li> <li>○ kittiwakes (<i>Rissa tridactyla</i>); and</li> <li>○ puffins (<i>Fratercula arctica</i>)</li> </ul> Other breeding birds present but not part of the designation include fulmar ( <i>Fulmarus</i> )

Name	Designation	Distance	Description
			<i>glacialis</i> ), lesser black-backed gull ( <i>Larus fuscus</i> ), herring gull ( <i>L. argentatus</i> ), shag ( <i>Phalacrocorax aristotelis</i> ), raven ( <i>Corvus corax</i> ), peregrine, kestrel ( <i>Falco tinnunculus</i> ), swift ( <i>Apus apus</i> ), house martin ( <i>Delichon urbica</i> ), rock pipit ( <i>Anthus petrosus</i> ), buzzard ( <i>Buteo buteo</i> ), stonechat ( <i>Saxicola rubicola</i> ), wheatear ( <i>Oenanthe oenanthe</i> ), meadow pipit ( <i>Anthus pratensis</i> ), whitethroat ( <i>Sylvia communis</i> ), skylark ( <i>Alauda arvensis</i> ), ringed plover ( <i>Charadrius hiaticula</i> ), Dartford warblers ( <i>S. undata</i> ) and barn owl ( <i>Tyto alba</i> ). Outside the breeding season, significant numbers of waders and gulls are also present.
Dale and South Marloes Coast	SSSI	2.9 km west.	The site is designated for its wide range of habitats and is also designated for the following bird species: <ul style="list-style-type: none"> <li>○ (wintering) Chough;</li> </ul>

In addition the presence of lapwing (*Vanellus vanellus*) is mentioned in the site descriptions for Broomhill Burrows SSSI (which lies directly south of the Site) but not as a designating feature.

As shown on Figure 4 and detailed in Table 2, a single statutory designation of local importance is present within 5km of the Site.

**Table 2: Nature Conservation Designations of Local Importance**

Name	Designation	Distance to Site	Description
Pembroke Mill Ponds	LNR	4.76km east of all cable routes.	The pond has a developing reed bed, fen and carr and adjoining woodland. The vegetation represents a transition from estuarine to freshwater conditions. The pond and woodland are used by birds including kingfisher ( <i>Alcedo atthis</i> ), pochard ( <i>Aythya ferina</i> ), mute swan ( <i>Cygnus olor</i> ), mallard ( <i>Anas platyrhynchos</i> ), teal ( <i>Anas crecca</i> ) and willow warbler ( <i>Phylloscopus trochilus</i> ) as well as aquatic invertebrates, fish and otter.

#### 4.1.2 Species

The WWBIC data search identified a total 106 species of protected or otherwise notable bird species have been recorded within 5km of the Site. Of these, 29 species are listed on Schedule 1 of the Wildlife and Countryside Act 1981 (as amended), 20 are listed within Annex 1 of the Birds Directive 2009, and 27 are listed on the Environment (Wales) Act 2016. Thirty-five are included on the BoCC Red List and a further 56 species are Amber-Listed. Additionally, 36 species are listed as priority species in the Pembrokeshire LBAP. Full details are described in Technical Appendix 20.1: Ecological Desk Study (ITPE, 2020).

The BTO WeBS data identified a number of wildfowl, wading and coastal species and the full details of the records including all scientific names are detailed in Appendix A: Tables A1-A5.

Angle Bay BTO site lies 600m north of the site at its nearest point and over the five year period (2014-2018) a total of 28 species were recorded. A total of six schedule 1 species: whooper swan, scaup, black-tailed godwit, greenshank, Mediterranean gull and whimbrel; and four Annex 1 species: whooper swan;

Mediterranean gull; little egret; and bar-tailed godwit; and sandwich tern. Numbers of these species was generally low although bar-tailed godwit and black-tailed godwit had maximum counts of 49 and 200. The most commonly recorded species were waterfowl most notably wigeon (peak count 3500) as well as shelduck (34) and brent goose (77); wading birds oystercatcher (213), curlew (378), redshank (65) and dunlin (430).

Freshwater West lies 400m south of the Site boundary at its closest point and over the five year period (2014-2018) a total of 28 species were recorded. A total of 3 schedule 1 species: common scoter; red-throated diver and whimbrel; and four Annex 1 species: red-throated diver; golden plover; bar-tailed godwit; and sandwich tern; were recorded infrequently (less than 10 records over the 5 years). The most commonly recorded species were wading birds oystercatcher (peak count 165), curlew (128) and lapwing (500) and four gull species (black-headed (75), great black-backed (220), lesser black-backed (650) and herring (350)).

Broomhill Burrows Pond lies 400m south of the Site and six species were recorded, mallard, teal, heron, snipe, herring gull and lesser black-backed gull. All six species recorded in low numbers.

Pembroke River Estuary lies 250m east of the Site boundary at its closest point and over the five year period (2014-2018) a total of 40 species were recorded. A total of five schedule 1 species: black-tailed godwit; black-throated diver; great northern diver; greenshank and whimbrel; with and five Annex 1 species: black-throated diver; great northern diver; golden plover; bar-tailed godwit; and little egret; . Numbers of these species was generally low although bar-tailed godwit and black-tailed godwit had maximum counts of 133 and 226. The most commonly recorded species were wildfowl species wigeon (peak count 6170); shelduck (171) and teal (210); wading birds oystercatcher (168), curlew (508) and dunlin (1770) and black-headed gull (327).

## 4.2 Field Survey

The field survey covered a total of four intertidal areas and three proposed cable routes as the final landfall site and cable route was not decided at the commencement of surveys in October 2020. The full survey results are displayed in Appendix B (Table B1); however this results section discusses the results recorded in the Site and 250m survey buffer with the exception of birds of higher conservation value, namely chough and schedule 1 raptor, where all records are outlined.

### 4.2.1 Chough

Chough were recorded on nine occasions, all nine records were of two birds with four records on the cliff tops north of West Angle bay and five records in the northern half of Freshwater West. There were two records in October, three records on the same day in November, one in December, two In January and one in February.

The four records north of West Angle bay are between 400-650m from the Site and the five records at Freshwater west are between 300 – 1,500m south of the Site.

The locations of the chough records are shown in Figure5.

### 4.2.2 Schedule 1 Raptors

No records of Schedule 1 raptors were recorded within the Site or 250m survey buffer, although a total of four species were recorded during surveys in the wider area: red kite (4 registrations), peregrine (5), hen harrier (1) and marsh harrier (2). All the records bar two peregrine records east of Angle Bay were recorded at or in close proximity to Freshwater West (see Figure 6).

### 4.2.3 Wading Birds

Oystercatcher were the most commonly recorded wading with six records totalling ten birds all recorded at West Angle bay. There were two records each for ringed plover (group of nine and a single bird) both on West Angle bay, golden plover (groups of five and two) in field north of Freshwater West and lapwing (groups of five and fifteen) also recorded in fields north of Freshwater West. All wader records are shown in Figure 7.

#### 4.2.4 Seabirds and Gulls

A total of 44 records of gull species were recorded during the survey. Herring gull were the most frequently recorded (13 records, totalling 331 individuals), black-headed gull (13, 304), common gull (9,90), great black-backed gull (4,6) and lesser black backed gull (3, 43). Cormorant was the only seabird recorded within the Site and 250m with four registrations all individual birds recorded at West Angle Bay. A total of 22 of the 44 records were at West Angle Bay with the remaining 22 records in fields between Carters green and Lambeath.

#### 4.2.5 Other Species

During the six visits a total of eight BoCC Red Listed (starling (*Sturnus vulgaris*), house Sparrow (*Passer domesticus*), linnet (*Linaria cannabina*), mistle Thrush (*Turdus viscivorus*), skylark (*Alauda arvensis*), song thrush (*Turdus philomelos*), redwing (*Turdus iliacus*) and yellowhammer (*Emberiza citrinella*) and four BoCC Amber Listed (bullfinch (*Pyrrhula pyrrhula*)), meadow pipit (*Anthus pratensis*), reed bunting (*Emberiza schoeniclus*) and kestrel (*Falco tinnunculus*)) species were recorded.

## 5. Discussion

### 5.1 Nature Conservation Designations

As identified in Section 4.1.1 Castlemartin Coast SPA lies south of Site, the nearest point being 150m south. The SPA is designated for its breeding population of chough (also covered in in the Castlemartin Range SSSI citation). Wintering chough are the primary designating feature of the Arfordir Penrhyn Angle / Angle Peninsula Coast SSSI which lies in direct proximity to the Site at West Angle bay and Dale and South Marloes Coast SSSI which lies 2.9km west of the Site. Milford Haven Waterway SSSI lies 280m east of the Site at its closest point and is designated for its migratory waterfowl, while Castlemartin Range SSSI already mentioned above lies 1.17km south of the Site and is also designated for its breeding seabirds.

The Proposed Development doesn't overlap the imprint of any of these protected sites but does pass close to Castlemartin SPA, Arfordir Penrhyn Angle / Angle Peninsula Coast SSSI and Milford Haven Waterway SSSI meaning works may have the possibility to impact on birds within these protected sites due to visual and noise disturbance. These impacts are likely to be short term and temporary in nature and will need to be taken into consideration in the development process.

Chough are known to range long distances to forage during both the breeding and non-breeding seasons meaning In addition to the potential impacts caused by the proximity of protected sites the Proposed Development may impact on chough away from protected sites at foraging sites.

### 5.2 Species

#### 5.2.1 Chough

Chough is listed both as a Schedule 1 and Annex 1 species and is legally protected accordingly. Chough is also a BOCC Red listed, WPL and Pembrokeshire priority LBPA species. Chough are a designated feature of the Castlemartin Coast SPA, Arfordir Penrhyn Angle / Angle Peninsula Coast SSSI, Castlemartin Range SSSI and Dale and South Marloes Coast all of which are located within 5km of the Site.

Chough were recorded on separate occasions, each records consisting of two birds. The records were all over 250m from the Site boundary meaning it is considered unlikely the Proposed Development will have any serious impact on chough foraging in these areas, although

#### 5.2.2 Schedule 1 Raptors

Peregrine, red kite, hen harrier and marsh harrier are listed both as a Schedule 1 and Annex 1 species and are legally protected accordingly.

Infrequent records of these four schedule 1 species were recorded during the wintering bird surveys, the majority of records (10 out of 12) were records of birds hunting over the area of Freshwater West with two records of a peregrine noted east of Angle Bay. With none of the records being recorded within 250m of the site and records infrequent it is considered unlikely the Proposed Development will have any negative impact on wintering birds of these four species.

### 5.2.3 Waders

Golden plover are an Annex 1 listed, ringed plover and lapwing are BoCC Red listed and oystercatcher are BoCC Amber listed species and are protected accordingly.

Wading birds were recorded in small numbers at West Angle bay where both oystercatcher and ringed plover were recorded. Lapwing and golden plover were recorded in small numbers in field along the cable route.

The Proposed Development may impact on these wading birds through disturbance at roosting and foraging locations although the impacts are considered to be short-term and temporary.

### 5.2.4 Gulls

Herring gull are BoCC Red listed and common gull, great black-backed gull, lesser black-backed gull and black-headed gull are BoCC Amber listed species.

Gulls were recorded in small numbers at West Angle bay and also roosting in fields along the cable route with occasional large flocks' encountered.

The Proposed Development may impact on gull species through disturbance at roosting and foraging locations although the impacts are considered to be short-term and temporary.

### 5.2.5 Red / Amber Listed / WPL and LBAP Species

The Site contains a number of different habitats which provide suitable wintering habitat for a range of lowland, farmland, woodland and wetland bird species. A single species, redwing, is afforded protection under Annex 1 of The Birds Directive (2009), or Schedule 1 of the Wildlife and Countryside Act (1981), the highest level of protection for breeding birds in the UK, a further seven BoCC Red Listed (house sparrow, mistle thrush, redwing, skylark, yellowhammer, linnets, starling and song thrush) and five BoCC Amber Listed species (bullfinch, reed bunting, house martin, meadow pipit and kestrel) were recorded; of these 13, nine are also WPL priority species and one (kestrel) have a specific Pembrokeshire LBAP action plan and, as such, are species of conservation concern.

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# Appendix A – Desk Study Results

Table A1 – Angle Bay Desk Study Results

Species	Scientific Name	No counts present	Total	Max	Average	Annex1	Sch1	W/PL	BoCC
Brent Goose (Light-bellied of Nearctic origin)	<i>Branta bernicla</i>	21	592	77	17				Amber
Mute Swan	<i>Cygnus olor</i>	27	184	24	5				Amber
Whooper Swan	<i>Cygnus cygnus</i>	1	1	1	0	X	X		Amber
Shelduck	<i>Tadorna tadorna</i>	24	300	34	9				Amber
Shoveler	<i>Anas clypeata</i>	5	17	8	0				Amber
Wigeon	<i>Anas penelope</i>	31	21499	3500	614				Amber
Mallard	<i>Anas platyrhynchos</i>	19	187	30	5				Amber
Pintail	<i>Anas acuta</i>	11	41	7	1				Amber
Scaup	<i>Aythya marila</i>	1	1	1	0		X		Red
Great Crested Grebe	<i>Podiceps cristatus</i>	24	63	21	2				
Grey Heron	<i>Ardea cinerea</i>	6	6	1	0				
Little Egret	<i>Egretta garzetta</i>	21	73	17	2	X			
Cormorant	<i>Phalacrocorax carbo</i>	14	20	3	1				
Water Rail	<i>Rallus aquaticus</i>	1	1	1	0				
Oystercatcher	<i>Haematopus ostralegus</i>	35	2017	213	58				Amber
Lapwing	<i>Vanellus vanellus</i>	1	36	36	1			X	Red
Grey Plover	<i>Pluvialis squatarola</i>	6	13	6	0				Amber
Ringed Plover	<i>Charadrius hiaticula</i>	16	118	27	3			X	Red
Whimbrel	<i>Numenius phaeopus</i>	1	3	3	0		X		Red
Curlew	<i>Numenius arquata</i>	34	1025	378	29			X	Red
Bar-tailed Godwit	<i>Limosa lapponica</i>	17	183	49	5	X		X	Amber
Black-tailed Godwit	<i>Limosa limosa</i>	1	200	200	6		X		Red
Turnstone	<i>Arenaria interpres</i>	9	40	21	1				Amber
Knot	<i>Calidris canutus</i>	2	1	1	0				Amber
Sanderling	<i>Calidris alba</i>	2	9	7	0				Amber
Dunlin	<i>Calidris alpina (schinzii)</i>	29	4058	430	116	(x)			Amber
Snipe	<i>Gallinago gallinago</i>	2	3	2	0				Amber
Redshank	<i>Tringa totanus</i>	30	549	65	16				Amber
Greenshank	<i>Tringa nebularia</i>	4	6	3	0		X		Amber
Black-headed Gull	<i>Chroicocephalus ridibundus</i>	2	111	69	3			X	Amber
Mediterranean Gull	<i>Larus melanocephalus</i>	2	14	12	0	X	X		Amber

Species	Scientific Name	No counts present	Total	Max	Average	Annex1	Sch1	WPL	BoCC
Common Gull	<i>Larus canus</i>	1	1	1	0				Amber
Great Black-backed Gull	<i>Larus marinus</i>	11	18	3	1				Amber
Herring Gull	<i>Larus argentatus</i>	2	45	39	1			X	Red
Lesser Black-backed Gull	<i>Larus fuscus</i>	5	16	7	0				Amber
Brent Goose (Light-bellied of Nearctic origin)	<i>Branta bernicla</i>	21	592	77	17				Amber

Table A2 – Freshwater West Desk Study Results

Species	Scientific Name	No counts present (Out)	Total	Max	Average	Annex1	Sch1	WPL	BoCC
Mallard	<i>Anas platyrhynchos</i>	2	4	2	0				Amber
Teal	<i>Anas crecca</i>	1	1	1	0				Amber
Common Scoter	<i>Melanitta nigra</i>	1	5	5	0		X	X	Red
Red-throated Diver	<i>Gavia stellata</i>	1	1	1	0	X	X		
Grey Heron	<i>Ardea cinerea</i>	5	7	3	0				
Shag	<i>Phalacrocorax aristotelis</i>	13	15	2	0				Red
Cormorant	<i>Phalacrocorax carbo</i>	7	28	22	1				
Oystercatcher	<i>Haematopus ostralegus</i>	25	1649	165	47				Amber
Lapwing	<i>Vanellus vanellus</i>	4	569	500	16			X	Red
Golden Plover	<i>Pluvialis apricaria</i>	1	60	60	2	X		X	
Grey Plover	<i>Pluvialis squatarola</i>	12	293	80	8				Amber
Ringed Plover	<i>Charadrius hiaticula</i>	13	440	80	13			X	Red
Whimbrel	<i>Numenius phaeopus</i>	2	9	5	0		X		Red
Curlew	<i>Numenius arquata</i>	25	1161	128	33			X	Red
Bar-tailed Godwit	<i>Limosa lapponica</i>	2	3	2	0	X		X	Amber
Turnstone	<i>Arenaria interpres</i>	3	39	33	1				Amber
Knot	<i>Calidris canutus</i>	2	4	3	0				Amber
Sanderling	<i>Calidris alba</i>	4	100	75	3				Amber
Dunlin	<i>Calidris alpina (schinzii)</i>	9	237	100	7	(x)			Amber
Snipe	<i>Gallinago gallinago</i>	2	4	2	0				Amber
Common Sandpiper	<i>Actitis hypoleucos</i>	1	3	3	0				Amber
Redshank	<i>Tringa totanus</i>	1	1	1	0				Amber
Black-headed Gull	<i>Chroicocephalus ridibundus</i>	22	510	75	15			X	Amber
Common Gull	<i>Larus canus</i>	2	2	1	0				Amber

Species	Scientific Name	No counts present (Out)	Total	Max	Average	Annex1	Sch1	WPL	BoCC
Great Black-backed Gull	<i>Larus marinus</i>	27	1093	220	31				Amber
Herring Gull	<i>Larus argentatus</i>	25	1271	350	36			X	Red
Lesser Black-backed Gull	<i>Larus fuscus</i>	20	1061	650	30				Amber
Sandwich Tern	<i>Sterna sandvicensis</i>	2	13	7	0	X			Amber

Table A2 – Freshwater West Desk Study Results

Species	Scientific Name	No counts present (Out)	Total	Max	Average	Annex1	Sch1	WPL	BoCC
Mallard	<i>Anas platyrhynchos</i>	2	4	2	0				Amber
Teal	<i>Anas crecca</i>	1	1	1	0				Amber
Common Scoter	<i>Melanitta nigra</i>	1	5	5	0		X	X	Red
Red-throated Diver	<i>Gavia stellata</i>	1	1	1	0	X	X		
Grey Heron	<i>Ardea cinerea</i>	5	7	3	0				
Shag	<i>Phalacrocorax aristotelis</i>	13	15	2	0				Red
Cormorant	<i>Phalacrocorax carbo</i>	7	28	22	1				
Oystercatcher	<i>Haematopus ostralegus</i>	25	1649	165	47				Amber
Lapwing	<i>Vanellus vanellus</i>	4	569	500	16			X	Red
Golden Plover	<i>Pluvialis apricaria</i>	1	60	60	2	X		X	
Grey Plover	<i>Pluvialis squatarola</i>	12	293	80	8				Amber
Ringed Plover	<i>Charadrius hiaticula</i>	13	440	80	13			X	Red
Whimbrel	<i>Numenius phaeopus</i>	2	9	5	0		X		Red
Curlew	<i>Numenius arquata</i>	25	1161	128	33			X	Red
Bar-tailed Godwit	<i>Limosa lapponica</i>	2	3	2	0	X		X	Amber
Turnstone	<i>Arenaria interpres</i>	3	39	33	1				Amber
Knot	<i>Calidris canutus</i>	2	4	3	0				Amber
Sanderling	<i>Calidris alba</i>	4	100	75	3				Amber
Dunlin	<i>Calidris alpina (schinzii)</i>	9	237	100	7	(x)			Amber
Snipe	<i>Gallinago gallinago</i>	2	4	2	0				Amber
Common Sandpiper	<i>Actitis hypoleucos</i>	1	3	3	0				Amber
Redshank	<i>Tringa totanus</i>	1	1	1	0				Amber
Black-headed Gull	<i>Chroicocephalus ridibundus</i>	22	510	75	15			X	Amber
Common Gull	<i>Larus canus</i>	2	2	1	0				Amber
Great Black-backed Gull	<i>Larus marinus</i>	27	1093	220	31				Amber
Herring Gull	<i>Larus argentatus</i>	25	1271	350	36			X	Red

Species	Scientific Name	No counts present (Out)	Total	Max	Average	Annex1	Sch1	WPL	BoCC
Lesser Black-backed Gull	<i>Larus fuscus</i>	20	1061	650	30				Amber
Sandwich Tern	<i>Sterna sandvicensis</i>	2	13	7	0	X			Amber

Table A3 – Broomhill Burrows Desk Study Results

Species	Scientific Name	No counts present (Out)	Total	Max	Average	Annex1	Sch1	WPL	BoCC
Mallard	<i>Anas platyrhynchos</i>	1	17	17	0				Amber
Teal	<i>Anas crecca</i>	1	11	11	0				Amber
Grey Heron	<i>Ardea cinerea</i>	1	1	1	0				
Snipe	<i>Gallinago gallinago</i>	5	8	3	0				Amber
Herring Gull	<i>Larus argentatus</i>	1	10	10	0			X	Red
Lesser Black-backed Gull	<i>Larus fuscus</i>	1	5	5	0				Amber

Table A4 – Pembroke River Estuary Desk Study Results

Species	Scientific Name	No counts present	Total	Max	Average	Annex1	Sch1	WPL	BoCC
Greylag Goose (British/Irish)	<i>Anser anser</i>	1	2	2	0				Amber
Black Swan	<i>Cygnus atratus</i>	1	3	3	0				
Mute Swan	<i>Cygnus olor</i>	24	298	34	9				Amber
Shelduck	<i>Tadorna tadorna</i>	33	1701	171	49				Amber
Shoveler	<i>Anas clypeata</i>	8	56	24	2				Amber
Wigeon	<i>Anas penelope</i>	32	48405	6170	1383				Amber
Mallard	<i>Anas platyrhynchos</i>	24	302	49	9				Amber
Pintail	<i>Anas acuta</i>	1	1	1	0				Amber
Teal	<i>Anas crecca</i>	27	1244	210	36				Amber
Black-throated Diver	<i>Gavia arctica</i>	1	1	1	0	X	X		Amber
Great Northern Diver	<i>Gavia immer</i>	1	1	1	0	X	X		Amber
Little Grebe	<i>Tachybaptus ruficollis</i>	8	13	3	0				
Great Crested Grebe	<i>Podiceps cristatus</i>	12	30	10	1				
Grey Heron	<i>Ardea cinerea</i>	8	15	5	0				

Species	Scientific Name	No counts present	Total	Max	Average	Annex1	Sch1	WPL	BoCC
Little Egret	<i>Egretta garzetta</i>	24	142	19	4	X			
Shag	<i>Phalacrocorax aristotelis</i>	1	1	1	0				Red
Cormorant	<i>Phalacrocorax carbo</i>	11	18	4	1				
Coot	<i>Fulica atra</i>	1	1	1	0				
Oystercatcher	<i>Haematopus ostralegus</i>	35	2490	168	71				Amber
Lapwing	<i>Vanellus vanellus</i>	2	12	11	0			X	Red
Golden Plover	<i>Pluvialis apricaria</i>	1	10	10	0	X		X	
Grey Plover	<i>Pluvialis squatarola</i>	7	61	18	2				Amber
Ringed Plover	<i>Charadrius hiaticula</i>	2	4	3	0			X	Red
Whimbrel	<i>Numenius phaeopus</i>	1	1	1	0		X		Red
Curlew	<i>Numenius arquata</i>	36	1850	508	53			X	Red
Bar-tailed Godwit	<i>Limosa lapponica</i>	18	854	133	24	X		X	Amber
Black-tailed Godwit	<i>Limosa limosa</i>	8	277	226	8		X		Red
Turnstone	<i>Arenaria interpres</i>	8	81	41	2				Amber
Knot	<i>Calidris canutus</i>	6	26	12	1				Amber
Sanderling	<i>Calidris alba</i>	2	9	8	0				Amber
Dunlin	<i>Calidris alpina schinzii</i>	24	9452	1770	270	X			Amber
Snipe	<i>Gallinago gallinago</i>	24	448	105	13				Amber
Common Sandpiper	<i>Actitis hypoleucos</i>	1	4	4	0				Amber
Redshank	<i>Tringa totanus</i>	32	1480	156	42				Amber
Greenshank	<i>Tringa nebularia</i>	10	16	5	0		X		Amber
Black-headed Gull	<i>Chroicocephalus ridibundus</i>	20	1331	327	38			X	Amber
Common Gull	<i>Larus canus</i>	2	5	4	0				Amber
Great Black-backed Gull	<i>Larus marinus</i>	10	27	7	1				Amber
Herring Gull	<i>Larus argentatus</i>	20	456	68	13			X	Red
Lesser Black-backed Gull	<i>Larus fuscus</i>	13	59	14	2				Amber

Table A5 – Pwllcochran Flats Desk Study Results

Species	Scientific Name	No counts present	Total	Max	Average	Annex1	Sch1	WPL	BoCC
Mute Swan	<i>Cygnus olor</i>	2	4	2	0				Amber
Shelduck	<i>Tadorna tadorna</i>	6	13	4	0				Amber
Wigeon	<i>Anas penelope</i>	11	228	59	7				Amber
Mallard	<i>Anas platyrhynchos</i>	3	9	4	0				Amber

Species	Scientific Name	No counts present	Total	Max	Average	Annex1	Sch1	WPL	BoCC
Great Northern Diver	<i>Gavia immer</i>	2	2	1	0	X	X		Amber
Great Crested Grebe	<i>Podiceps cristatus</i>	10	22	5	1				
Grey Heron	<i>Ardea cinerea</i>	6	7	2	0				
Little Egret	<i>Egretta garzetta</i>	15	28	5	1	X			
Cormorant	<i>Phalacrocorax carbo</i>	13	19	3	1				
Oystercatcher	<i>Haematopus ostralegus</i>	31	1516	158	43				Amber
Curlew	<i>Numenius arquata</i>	21	196	24	6			X	Red
Bar-tailed Godwit	<i>Limosa lapponica</i>	1	1	1	0	X		X	Amber
Black-tailed Godwit	<i>Limosa limosa</i>	2	6	4	0		X		Red
Turnstone	<i>Arenaria interpres</i>	4	41	21	1				
Redshank	<i>Tringa totanus</i>	23	186	14	5				Amber
Greenshank	<i>Tringa nebularia</i>	4	4	1	0		X		Amber
Black-headed Gull	<i>Chroicocephalus ridibundus</i>	16	247	95	7			X	Amber
Mediterranean Gull	<i>Larus melanocephalus</i>	2	12	11	0	X	X		Amber
Common Gull	<i>Larus canus</i>	6	42	13	1				Amber
Great Black-backed Gull	<i>Larus marinus</i>	8	10	2	0				Amber
Herring Gull	<i>Larus argentatus</i>	28	379	67	11			X	Red
Lesser Black-backed Gull	<i>Larus fuscus</i>	6	10	3	0				Amber
Kingfisher	<i>Alcedo atthis</i>	1	1	1	0	X	X		Amber

## Appendix B - Wintering bird survey results

Table B1 – Wintering bird survey full results

Vernacular Name	Scientific name	Visit 1 - Oct 2020 (4 days)	Visit 2 - Nov 2020 (1 day)	Visit 3 - Dec 2020 (4 days)	Visit 1 - Jan 2021 (1 day)	Visit 2 - Feb 2021 (4 days)	Visit 3 - Mar 2021 (1 day)	Total
Chough	<i>Pyrrhocorax pyrrhocorax</i>	4	2	10	2			18
Raven	<i>Corvus corax</i>	4				4		8
Great Crested Grebe	<i>Podiceps cristatus</i>	14		17		3		34
Little Grebe	<i>Tachybaptus ruficollis</i>					1		1
Black-headed Gull	<i>Chroicocephalus ridibundus</i>	133	5	462		1134		1734
Common Gull	<i>Larus canus</i>	3		55		221		279
Great Black-backed Gull	<i>Larus marinus</i>	5	2	13	1	7	1	29
Herring Gull	<i>Larus argentatus</i>	97	42	244	23	292	54	752
Lesser Black-backed Gull	<i>Larus fuscus</i>		1	24		79		104
Mediterranean Gull	<i>Larus melanocephalus</i>			1		6		7
Grey Heron	<i>Ardea cinerea</i>	1		2		2		5
Little Egret	<i>Egretta garzetta</i>	4		7		6		17
Moorhen	<i>Gallinula chloropus</i>	2		3		2		7
Water Rail	<i>Rallus aquaticus</i>	2				2		4
Buzzard	<i>Buteo buteo</i>	5		10		7		22
Hen Harrier	<i>Circus cyaneus</i>					1		1
Kestrel	<i>Falco tinnunculus</i>	5				3		8
Marsh Harrier	<i>Circus aeruginosus</i>			3				3
Peregrine	<i>Falco peregrinus</i>	1		3		1		5
Red Kite	<i>Milvus milvus</i>					5		5
Sparrowhawk	<i>Accipiter nisus</i>	3		7		3	1	14
Cormorant	<i>Phalacrocorax carbo</i>	4	2	6	6	2	1	21
Gannet	<i>Morus bassanus</i>					2		2
Shag	<i>Phalacrocorax aristotelis</i>	2		1		1		4
Blackcap	<i>Sylvia atricapilla</i>	1						1
Bullfinch	<i>Pyrrhula pyrrhula</i>	13		13		10		36

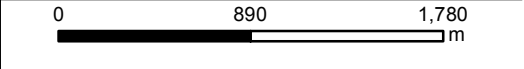
Vernacular Name	Scientific name	Visit 1 - Oct 2020 (4 days)	Visit 2 - Nov 2020 (1 day)	Visit 3 - Dec 2020 (4 days)	Visit 1 - Jan 2021 (1 day)	Visit 2 - Feb 2021 (4 days)	Visit 3 - Mar 2021 (1 day)	Total
Cetti's Warbler	<i>Cettia cetti</i>	1						1
Chaffinch	<i>Fringilla coelebs</i>	33	8	97	4	11	2	155
Goldcrest	<i>Regulus regulus</i>	2				2		4
Goldfinch	<i>Carduelis carduelis</i>	120						120
Greenfinch	<i>Carduelis chloris</i>	1		1				2
Grey Wagtail	<i>Motacilla cinerea</i>	2						2
House Martin	<i>Delichon urbicum</i>	1						1
House Sparrow	<i>Passer domesticus</i>	9		27		20		56
Linnet	<i>Linaria cannabina</i>	186		13	1	59	2	261
Long-tailed Tit	<i>Aegithalos caudatus</i>					4		4
Meadow Pipit	<i>Anthus pratensis</i>	46	7	91	4	53		201
Mistle Thrush	<i>Turdus viscivorus</i>	1		1		2		4
Nuthatch	<i>Sitta europaea</i>	1						1
Pied Wagtail	<i>Motacilla alba</i>	2	3	4	3	23		35
Redwing	<i>Turdus iliacus</i>	10		6				16
Reed Bunting	<i>Emberiza schoeniclus</i>	3		7		1		11
Rock Pipit	<i>Anthus petrosus</i>	12	4	25	2	12	1	56
Sand Martin	<i>Riparia riparia</i>						2	2
Skylark	<i>Alauda arvensis</i>	243		73		45		361
Song Thrush	<i>Turdus philomelos</i>	18	3	18	1	11		51
Starling	<i>Sturnus vulgaris</i>	487	60	1277	7	2080		3911
Stonechat	<i>Saxicola rubicola</i>	19		12	2	13	2	48
Swallow	<i>Hirundo rustica</i>	30		30				60
Wheatear	<i>Oenanthe oenanthe</i>	1						1
Yellowhammer	<i>Emberiza citrinella</i>			1				1
Bar-tailed Godwit	<i>Limosa lapponica</i>	9		8		38		55
Black-tailed Godwit	<i>Limosa limosa</i>	71		1				72
Curlew	<i>Numenius arquata</i>	153	1	94		64		312
Dunlin	<i>Calidris alpina schinzii</i>	38		195		790		1023
Golden Plover	<i>Pluvialis apricaria</i>	7		450		60		517
Greenshank	<i>Tringa nebularia</i>	3		1				4
Grey Plover	<i>Pluvialis squatarola</i>			2				2

Vernacular Name	Scientific name	Visit 1 - Oct 2020 (4 days)	Visit 2 - Nov 2020 (1 day)	Visit 3 - Dec 2020 (4 days)	Visit 1 - Jan 2021 (1 day)	Visit 2 - Feb 2021 (4 days)	Visit 3 - Mar 2021 (1 day)	Total
Knot	<i>Calidris canutus</i>	3		2				5
Lapwing	<i>Vanellus vanellus</i>	148		230				378
Oystercatcher	<i>Haematopus ostralegus</i>	256	2	115	3	69		445
Redshank	<i>Tringa totanus</i>	34		47		14		95
Ringed Plover	<i>Charadrius hiaticula</i>	60		21	2	12		95
Sanderling	<i>Calidris alba</i>	12				1		13
Snipe	<i>Gallinago gallinago</i>	14		16		13		43
Turnstone	<i>Arenaria interpres</i>	3		29		31		63
Brent Goose	<i>Branta bernicla</i>	132		75		104		311
Mallard	<i>Anas platyrhynchos</i>	6		33				39
Mute Swan	<i>Cygnus olor</i>	1		2		2		5
Pintail	<i>Anas acuta</i>	12		22		56		90
Shelduck	<i>Tadorna tadorna</i>			27		72		99
Teal	<i>Anas crecca</i>	110		233		64		407
Wigeon	<i>Anas penelope</i>	7680	2	2145	2	615		10440

# Figures



**KEY:**  
 Site boundary



Scale 1:35,000 @ A3

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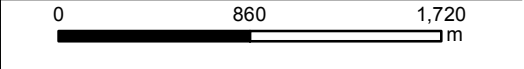
**Figure 1**  
**Site Location and Cable Route**

Date: 30/11/2021	Drawn by: EB	Checked by: ES	Version: V01
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Project Number: 2923



- KEY:**
- Site boundary
  - VP Location (low tide)
  - Transect Routes



Scale 1:34,000 @ A3

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**Figure 2 - VP Locations and Transect Routes**

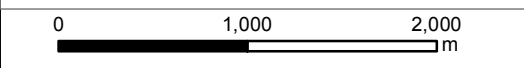
Date: 30/11/2021	Drawn by: EB	Checked by: ES	Version: V01
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Project Number: 2923



**KEY:**

- Site boundary
- WEBS Sites



Scale 1:40,000 @ A3

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**Figure 3 - WEBS Count Locations**

Date: 30/11/2021	Drawn by: EB	Checked by: ES	Version: V01
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Project Number: 2923



**KEY:**

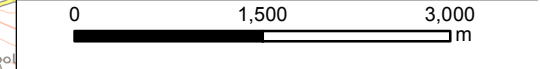
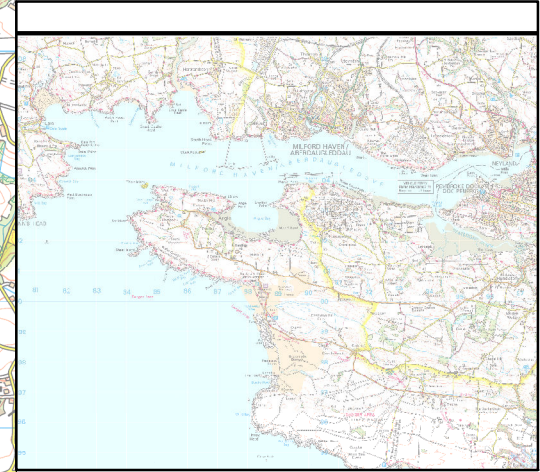
- Site boundary
- Study Area (5 km)

**Special Protection Area (SPA)**

- Castlemartin Coast

**Sites of Special Scientific Interest (SSSI)**

- Arfordir Penrhyn Angle / Angle Peninsula Coast
- Castlemartin Range
- Dale And South Marloes Coast
- Milford Haven Waterway
- Pembroke Mills Ponds Local Nature Reserve (LNR)



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**Figure 4 - Ornithological Designations**

Date: 30/11/2021	Drawn by: EB	Checked by: ES	Version: V01
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Project Number: 2923



**KEY:**

- Site boundary
- Survey buffer (250m)

**Species**

- Chough

0 890 1,780  
m

Scale 1:35,000 @ A3

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**Figure 5**  
**Chough**

Date: 30/11/2021 Drawn by: EB Checked by: ES Version: V01

Project Number: 2923

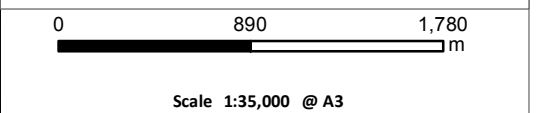


**KEY:**

- Site boundary
- Survey buffer (250m)

**Species**

- Hen Harrier
- Marsh Harrier
- Peregrine
- Red Kite



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**Figure 6**  
**Schedule 1 Raptor Records**

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Project Number: 2923



**KEY:**

- Site boundary
- Survey buffer (250 m)

**Species**

- Golden Plover
- Lapwing
- Oystercatcher
- Ringed Plover

0 890 1,780  
m

Scale 1:35,000 @ A3

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**Figure 7**  
Wading Birds within Site and 250m Buffer

Date: 30/11/2021 Drawn by: EB Checked by: ES Version: V01

Project Number: 2923



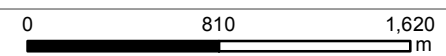
**KEY:**

- Site boundary
- Survey buffer (250 m)

**Species**

- Black-headed Gull
- Common Gull
- Cormorant
- Great Black-backed Gull
- Herring Gull
- Lesser Black-backed Gull

VEHICLE FERRY FROM PEMBROKE TO ROSSLARE 3 1/2 hours



Scale 1:32,000 @ A3

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**Figure 8**  
**Seabirds and Gulls**

Date: 30/11/2021	Drawn by: EB	Checked by: ES	Version: V01
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Project Number: 2923



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