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Volume 7E Proposed Development (Onshore) Appendices

Appendix 3-7 Wintering Bird Survey Report

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Acronyms and Abbreviations

°C	Degree Celsius
BAP	Biodiversity Action Plan
BoCC5	Birds of Conservation Concern, 5th edition
BTO	British Trust for Ornithology
CBC	Common Bird Census
CIEEM	Chartered Institute of Ecology and Environmental Management
EIA	Environmental Impact Assessment
EIAR	Environmental Impact Assessment Report
HDD	Horizontal Directional Drilling
HRA	Habitats Regulations Appraisal
INNS	Invasive Non-Native Species
km	Kilometre
kV	Kilovolt
LDP	Local Development Plan
m	Metre
MLWS	Mean Low Water Springs
NERC Act	Natural Environment and Rural Communities Act 2006
NESBReC	North East Scotland Biological Records Centre
NPF4	National Planning Framework 4
ONEC	Onshore Export Cable Corridor
OnTI	Onshore Transmission Infrastructure
QI	Qualifying Interest

RLB	Red Line Boundary
RSPB	Royal Society for the Protection of Birds
SAC	Special Area of Conservation
SBL	Scottish Biodiversity List
SoPI	Species of Principle Importance
SPA	Special Protection Area
SPEC	Species of European Conservation Concern
SSEN-T	Scottish and Southern Electricity Networks - Transmission
SSSI	Site of Special Scientific Interest
UK	United Kingdom
VP	Vantage Point
WANE Act	Wildlife And Natural Environment (Scotland) Act 2011
WBS	Wintering Birds Survey
WCA	Wildlife and Countryside Act 1981
WeBS	Wetlands Bird Survey
ZoI	Zone of Influence

1 Introduction

1.1 Overview

1.1.1.1 This technical appendix supports Volume 5, Chapter 3: Terrestrial Ecology and Biodiversity of the Environmental Impact Assessment Report (EIAR).

1.1.1.2 This technical appendix describes the suite of Wintering Bird Surveys (WBS), comprising transects (walked and driven) and Vantage Point (VP) surveys, carried out within the Onshore Transmission Infrastructure (OnTI) Red Line Boundary (RLB). A description of the Proposed Development (Onshore), outlining the components included within the OnTI is presented in Volume 1, Chapter 4: Proposed Development Description (Onshore).

1.1.1.3 This technical appendix contains baseline information only, with no evaluation of potential impacts that may arise from the Proposed Development (Onshore). The assessment of potential impacts to wintering birds is provided in Volume 5, Chapter 3: Terrestrial Ecology and Biodiversity.

1.1.1.4 This technical appendix is supported by the following annexes:

- Annex 1- Supporting Figures; and
- Annex 2- Stakeholder agreement with NatureScot regarding proposed WBS methodology.

1.2 The Proposed Development (Onshore)

1.2.1.1 Within the OnTI RLB, a proposed Landfall Site has been identified along with an Onshore Export Cable Corridor (ONEC) and Onshore Substation Site. The Onshore Export Cable Route (the area where the infrastructure would be located and would be required for construction activities) for the Onshore Export Cable Circuits will be up to 100 metre (m). The Onshore Export Cable Route will be defined at detailed design stage through further technical studies. At this stage, the ONEC is identified to allow for micro siting of the Onshore Export Cable Circuits at detailed design and allow for flexibility within individual locations for differing construction methodologies such as Horizontal Directional Drilling (HDD).

1.2.1.2 The OnTI RLB encompasses:

- The Landfall Site: the area from the mean low water springs where the Offshore Export Cable Circuits are connected to the Onshore Export Cable Circuits via HDD ducts within Transition Joint Bays (buried box-like structures which house the jointing between the Offshore and Onshore Export Cable Circuits). The Landfall Site is located at a rocky bay named Stake Ness, 1 kilometre (km) west of the village of Whitehills and approximately 5km west of Banff. The ONEC: where the Onshore Export Cable Circuits will be located which runs from the Landfall Site to the Onshore Substation Site.

- The ONEC extends approximately 37km from Stake Ness to an area in the vicinity of the existing New Deer Substation.
- The Onshore Substation Site: comprising two co-located Onshore Substations located adjacent to the existing New Deer substation. Each substation aligns with the two project phases.
- An Onshore Grid Connection Cable Corridor connecting the Onshore Substation to the Grid Connection Point at the existing New Deer Substation (for Phase 1).

2 Legislation, Policy, and Guidance

2.1.1.1 There is a comprehensive system of legislation, both domestic and international, which aims to protect biodiversity at the landscape, habitat and species level. Much of this legislation exists within, and also independently of, the planning process.

2.1.1.2 This section outlines the legislation, planning policy and guidelines relevant to this appendix.

2.2 Legislation

2.2.1.1 The legislation relevant to this appendix comprises:

- Nature Conservation (Scotland) Act 2004 (Scottish Parliament, 2004¹);
- Wildlife and Natural Environment (Scotland) Act 2011 (WANE) (Scottish Parliament, 2011²);
- Wildlife and Countryside Act 1981 (as amended) (United Kingdom (UK) Parliament, 1981³);
- Conservation (Natural Habitats, &c.) Regulations 1994 (as amended) (UK Parliament, 1994⁴); and
- The Conservation of Habitats and Species (Amendment) (European Union (EU) Exit) Regulations 2019 (UK Parliament, 2019⁵).

2.2.1.2 The legislative provisions for the protection of wild birds in the UK are contained primarily in Sections 1 to 7 of the Wildlife and Countryside Act 1981 (as amended)³. Under the Act, it is an offence to intentionally kill, injure or take any wild bird and no licences are available to disturb any birds in regard to development. General licences are available in respect of 'pest species' but only for certain very specific purposes, for example public health, public safety or air safety.

2.2.1.3 Species listed on Annex 1 of The Birds Directive (EU, 2009⁶) were those for which the UK Government were also required to take special measures, including through the designation of Special Protection Areas (SPAs) to ensure the survival and reproduction of these species throughout their area of distribution. The Birds Directive was transposed into UK and Scottish law under the Wildlife and Countryside Act³, the Nature Conservation (Scotland) Act¹ and the Conservation (Natural Habitats, &c.) Regulations 1994 (as amended)⁴.

2.2.1.4 The Scottish Biodiversity List (SBL) is a list of animals, plants and habitats that Scottish Ministers consider to be of principle importance for biodiversity conservation in Scotland. The SBL contains 105 bird species. The equivalent list which applies to Scotland (the Scottish Biodiversity List (SBL¹²) contains 105 species. The SBL was created as part of the Nature Conservation (Scotland) Act¹, and includes species and sub-species endemic to Scotland, species on the UK Biodiversity Action Plan (BAP) and its successor programme, the UK Post-2010 Biodiversity Framework⁷. In total, the UK BAP contains 59 bird species across the UK.

2.2.1.5 As part of the Nature Conservation (Scotland) Act¹ and the WANE Act², all public bodies in Scotland must commit to upholding a Biodiversity Duty when carrying out their responsibilities, and must report on their compliance to this duty annually (NatureScot, 2023⁸). Complying with the Biodiversity Duty can include Invasive and Non-Native Species (INNS) control, habitat maintenance, and community engagement. Any actions must be listed in a Biodiversity Duty Report to fulfil the requirements.

2.3 Planning Policy

2.3.1.1 The planning policy relevant to this appendix comprises:

- Aberdeenshire Council Local Development Plan (Aberdeenshire Council, 2023⁹);
- National Planning Framework 4 (NPF4) (Scottish Government, 2023¹⁰);
- Scottish Biodiversity Strategy (2023 draft) (Scottish Government, 2022¹¹);
- Scottish Biodiversity List (NatureScot, 2020¹²); and
- UK Biodiversity Action Plan (Joint Nature Conservation Committee, 2007¹³).

2.4 Guidance

2.4.1.1 The guidance relevant to this appendix comprises:

- Birds of Conservation Concern, fifth review (BoCC5) (Stanbury et al, 2021¹⁴);
- Recommended bird survey methods to inform impact assessment of onshore wind farms (NatureScot, 2017¹⁵);
- Standing Advice for Planning Consultations- Birds (NatureScot, 2022¹⁶); and
- Assessing Connectivity with SPAs: Guidance (NatureScot, 2016¹⁷).

2.4.2 Birds of Conservation Concern

2.4.2.1 The BoCC5¹⁴ has been updated and thus a more detailed description on the BoCC5 has been provided.

- 2.4.2.2 The BoCC5 lists are based on an assessment of the conservation status of all regularly occurring British birds. The Red, Amber, and Green lists indicate the level of conservation importance for each species. This measure is derived from quantitative assessments from standardised criteria. The assessment is based on the most up-to-date evidence available and consider the historical decline, trends in population and range, rarity, localised distribution and international importance.
- 2.4.2.3 The lists are compiled by leading UK bird conservation organisations, including the Royal Society for the Protection of Birds (RSPB) and BTO. The criteria for birds being included in the lists are as follows:
- 2.4.2.4 Red List:
- Globally threatened;
 - Historical population decline in UK during 1800–1995; and
 - Severe (at least 50%) decline in UK breeding population over last 25 years, or longer-term period (the entire period used for assessments since the first BoCC5 review, starting in 1969). Severe (at least 50%) contraction of UK breeding range over last 25 years, or the longer-term period.
- 2.4.2.5 Amber List:
- Species with unfavourable conservation status in Europe (Species of European Conservation Concern (SPEC));
 - Historical population decline during 1800–1995 but recovering; population size has more than doubled over last 25 years;
 - Moderate (25-49%) decline in UK breeding population over last 25 years, or the longer-term period;
 - Moderate (25-49%) contraction of UK breeding range over last 25 years, or the longer-term period;
 - Moderate (25-49%) decline in UK non-breeding population over last 25 years, or the longer-term period;
 - Rare breeder; 1–300 breeding pairs in UK;
 - Rare non-breeders; less than 900 individuals;
 - Localised; at least 50% of UK breeding or non-breeding population in ten or fewer sites, but not applied to rare breeders or non-breeders; and
 - Internationally important; at least 20% of European breeding or non-breeding population in UK (NW European and East Atlantic Flyway populations used for non-breeding wildfowl and waders respectively)

2.4.2.6

Green list:

- Species that occur regularly in the UK but do not qualify under any of the above criteria.

2.4.2.7

The lists are a useful tool when evaluating the conservation significance of differing bird assemblages and are used to assess the potential significance of impacts of proposed developments and for informing types and locations of mitigation with respect to birds.

3 Methodology

3.1 Desk Study

- 3.1.1.1 A desk study was undertaken to identify any existing ecological information pertaining to wintering birds within the OnTI RLB and a 500m buffer.
- 3.1.1.2 Biological records covering an earlier design iteration of the OnTI RLB and 500m were requested from the North East Scotland Biological Records Centre (NESBReC) in February 2023.
- 3.1.1.3 In addition, data was also reviewed from the following sources:
- Information on European designated sites available on the NatureScot SiteLink website (NatureScot, 2024¹⁸), which provides information on the natural environment within Scotland, overlaid onto an interactive map;
 - Wetland Bird Survey (WeBS) data obtained from BTO that covered historical records of bird species found in sections within the OnTI RLB¹⁹:
 - Boyndie Bay (2017 to 2021);
 - Deveron Estuary (2016 to 2021);
 - Fedderate Reservoir (2017 to 2022);
 - River Deveron- Banff to Bridge of Alvah (2021 to 2022); and
 - Strathmarchin Bay (2021).
 - Field survey data collected as part of other assessments of the Proposed Development (Onshore) was undertaken. This included:
 - Proposed Development (Onshore) HRA Screening (Application Document 10); and
 - The Extended Phase 1 Habitat Surveys completed from May 2023 to October 2023 undertaken to support the EIAR, refer to Volume 5, Chapter 3: Terrestrial Ecology and Biodiversity.

3.2 Field Surveys

- 3.2.1.1 A review of relevant research and results of nearby developments was undertaken to inform the field survey methodology (Volume 7E, Appendix 3-7, Annex 2: Stakeholder Consultation). The methodology was also informed by the following information:
- Mapping the distribution of Pink-footed and Iceland Greylag Geese in Scotland (Mitchell C., 2012²⁰); and
 - The Common Bird Census (CBC) methodology (Gilbert et al, 1998²¹ and Bibby et al., 2000²²).

- 3.2.1.2 It was determined that a combination of VP surveys, walking and driving transects would be required to cover the varied habitats within the OnTI RLB. The combination of using both transect and VP surveys ensured that a proportionate survey programme could be developed which would provide a robust understanding of the baseline wintering bird assemblages occurring within the OnTI RLB. This methodology was discussed and agreed with NatureScot (Volume 7E, Appendix 3-7, Annex 2: Stakeholder Consultation).
- 3.2.1.3 The surveys were designed to identify wintering bird assemblages present within the OnTI RLB and directly adjacent fields to establish if any of these habitats could be considered to be functionally linked land to the Moray Firth SPA due to the presence of Qualifying Interests (QIs) of the SPA (Section 4.1.1).
- 3.2.1.4 Data was collected in the field using electronic handheld devices and the Field Maps ArcGIS collector app. Dedicated maps were created for each species type.
- 3.2.1.5 The data collected comprised:
- Survey start and finish times;
 - Weather conditions;
 - VP and transect locations;
 - Bird species;
 - Flock size;
 - Activity (including feeding, loafing, roosting and in flight);
 - Bird sex; and
 - Age.
- 3.2.1.6 Standard BTO species codes and activity symbols²³ were used in the collection of the field survey data.
- 3.2.1.7 Abundance and peak counts were recorded for target species. Bird species were considered to be target species if they met at least one of the following criteria:
- Moray Firth SPA citation species;
 - Species listed on Schedule 1 of the Wildlife and Countryside Act; or
 - BoCC5 Red and Amber species.

3.2.2 Vantage Point Surveys

2022/2023 Survey Season

- 3.2.2.1 VP surveys were undertaken from November 2022 to March 2023.

- 3.2.2.2 At the time of undertaking these surveys, the Proposed Development (Onshore) was at an early design stage and a preferred Landfall Site was yet to be finalised.
- 3.2.2.3 These surveys were therefore focused on the potential landfall locations of the offshore export cables. The surveys initially covered ten potential landfall locations covered by a total of 20 VP locations. During the season, a preferred Landfall Site was identified and therefore the survey scope was narrowed to focus on this site only, Landfall 6.
- 3.2.2.4 Landfall 6 was surveyed five times with surveys spaced evenly throughout this survey period. The location of this vantage point is shown in Figure 3-7.1 in Volume 7E, Appendix 3-7, Annex 1: Supporting Figures.

2023/2024 Survey Season

- 3.2.2.5 VP surveys were carried out at the Landfall Site (Landfall 6) between October 2023 and March 2024. The location of the VP is illustrated in Volume 7E, Appendix 3-7, Annex 1: Supporting Figures. The location for the VP was selected to allow surveyors unrestricted 180° views to avoid losing sight of any birds when scanning the area and to ensure the key area of focus, the coastline and intertidal areas, to be captured.
- 3.2.2.6 The dates and weather conditions of the VP surveys for the Landfall Site are provided in Table 3-1. All surveys were carried out in suitable weather conditions; in dry weather with low windspeed, and minimal cloud cover.
- 3.2.2.7 The VP location covered the Landfall Site and surrounding coastline. As the VP was located along Transect 1, the data collected as part of the VP is included within the results for Transect 1.
- 3.2.2.8 The VP was undertaken over a period of four hours to cover either high or low tide. Survey start times were selected to ensure both high and low tide were surveyed multiple times over the winter season. The surveys were designed to capture birds which may fly into the OnTI RLB and birds within the intertidal zone at the Landfall Site.
- 3.2.2.9 At the start of each VP survey, the surveyor scanned a 360° arc, recording all target species observed, the surveyor then primarily focused on the key area of focus with an unrestricted 180° views. During the VP surveys, the maximum count of each species observed was recorded electronically and this was used to determine the peak count of individual species per survey. This method provides a maximum number of individuals observed at any one time and allows species abundance to be determined.
- 3.2.2.10 Seabirds, waders, and other waterfowl recorded in proximity to coastal statutory designated sites (e.g. the Cullen to Stake Ness Coast Site of Special Scientific Interest (SSSI) and the Moray Firth SPA) were of particular interest to identify whether the Proposed Development (Onshore) had the potential to impact on the QIs of these sites.

Table 3-1: 2023/2024 VP survey details

Month	Parameter	Conditions
October	Date	30/10/2023
	Starting Temp (Degree Celsius)	6.4
	Precipitation	None
	Cloud	Moderate cover
November	Date	27/11/2023
	Starting Temp	4.8
	Precipitation	Low/moderate
	Cloud	Cloudy
December	Date	18/12/2023
	Starting Temp	8.3
	Precipitation	None
	Cloud	Fair
January	Date	08/01/2024
	Starting Temp	-0.8
	Precipitation	None
	Cloud	Fair/fog
February	Date	05/02/2024
	Starting Temp	5.2
	Precipitation	Low
	Cloud	Moderate
March	Date	20/03/2024
	Starting Temp	6.1
	Precipitation	Low
	Cloud	Moderate cloud

3.2.3 Transect Surveys

- 3.2.3.1 Transect surveys were carried along five transect routes once a month between October 2023 and March 2024.
- 3.2.3.2 The location of all transects is illustrated in Figure 3-7.1 within Volume 7E, Appendix 3-7, Annex 1: Supporting Figures.

Walking Transects

- 3.2.3.3 Dedicated walking transects were undertaken in two areas, referred to as Transect 1 and Transect 5. The surveyors followed hedgerows, field margins (to avoid walking over and damaging winter-sown crops), and public rights of way where possible, whilst ensuring a comprehensive survey coverage within the OnTI RLB.
- 3.2.3.4 Transect 1 covered the Landfall Site and ran south in a loop to approximately 2km inland. This transect largely comprised the coast and the VP for the Landfall Site.
- 3.2.3.5 Transect 5 covered the Onshore Substation Site and suitable terrestrial habitat within the OnTI RLB in this area.
- 3.2.3.6 An additional three walked transects (Transect 2, 3 and 4) were undertaken as part of the driving transects. These three transects were walked where fields were not visible from the road due to topography or vegetation.
- 3.2.3.7 Surveyors observed birds by sight and sound by walking through the survey area at a slow and steady pace, using binoculars as necessary. The positions of the recorded birds were plotted as accurately as possible (to the nearest 10 to 20m) on digitised maps.
- 3.2.3.8 Observations of birds located adjacent to the area being surveyed were also recorded to ensure that any such species that were in proximity to the Landfall Site, Onshore Substation Site and the OnTI RLB were considered.
- 3.2.3.9 All common 'non target' or secondary species, for example robin (*Erithacus rubecula*), blackbird (*Turdus merula*) and blue tit (*Cyanistes caeruleus*), were also recorded.
- 3.2.3.10 The dates and weather conditions of the walking transects are provided in Table 3-2. All surveys were carried out in suitable weather conditions; in dry weather with low windspeed, and minimal cloud cover.

Driving Transects

- 3.2.3.11 The remainder of the OnTI RLB was surveyed using driving transects and was split into two areas, referred to as Driving Transect 1 and Driving Transect 2. The driven transect routes are shown in Figure 3-7.1 provided in Volume 7E, Appendix 3-7, Annex 1: Supporting Figures.

- 3.2.3.12 The dates and weather conditions of the driven transects are provided in Table 3-2. All surveys were carried out in suitable weather conditions; in dry weather with low windspeed, and minimal cloud cover.
- 3.2.3.13 The local road networks were found to provide sufficient coverage of the OnTI RLB. The roads used included the A97, A98, A947, B9121, B9105, B9025, and B9170, as well as many unnumbered minor roads.
- 3.2.3.14 Driving Transect 1 covered all the OnTI RLB from Transect 1 to the River Deveron. Driving Transect 2 covered the remainder of the OnTI RLB from the River Deveron to Transect 5.

Table 3-2: Transect survey dates and weather conditions.

Survey Month	Parameter	Transect 1 (Walking Transect)	Transect 2, Transect 3 and Transect 4 (Driving Transects)	Transect 5 (Walking Transect)
October	Date	30/10/2023	31/10/2023 to 01/11/2023	02/11/2023
	Temperature (degree celsius (°C))	8	7	3
	Weather, visibility, and wind (Beaufort scale ²⁴)	Scattered to moderate cloud cover, good visibility, no rain, 4 -5	Scattered to moderate cloud cover, good visibility, no rain, 4	Moderate cloud cover, no rain, 5
November	Date	29/11/2023	28/11/2023	30/11/2023
	Temperature (°C)	4-6	6	1
	Weather, visibility, and wind	Full cloud cover, moderate visibility, dry to heavy showers, 4	Full cloud cover, moderate visibility, heavy showers, 4	No cloud cover, sunny, good visibility, 3
December	Date	19/12/2023	20/12/2023	21/12/2023
	Temperature (°C)	4-7	4	6
	Weather, visibility, and wind	No cloud cover, sunny, good visibility, 4	Full cloud cover, moderate visibility, light showers, 3	Full cloud cover, good visibility, no rain, 6

Survey Month	Parameter	Transect 1 (Walking Transect)	Transect 2, Transect 3 and Transect 4 (Driving Transects)	Transect 5 (Walking Transect)
January	Date	09/01/2024	10/01/2024	11/01/2024
	Temperature (°C) 0-1	0	0	4
	Weather, visibility, and wind	Low cloud cover, good visibility, 2	Low cloud cover, good visibility, 2	Low cloud cover, good visibility, 2
February	Date	07/02/2024	06/02/2024	08/02/2024
	Temperature (°C) 1	1	3	0
	Weather, visibility, and wind	No cloud cover, sunny, good visibility, 4	Low cloud cover, good visibility, 5-7	No cloud cover, sunny, good visibility, 1
March	Date	20/03/2024	19/03/2024	19/03/2024
	Temperature (°C) 6	6	4	6
	Weather, visibility, and wind	Low cloud cover, good visibility, dry with light showers, 2	Low cloud cover, good visibility, 3	Low cloud cover, good visibility, 4-5

3.3 Assumptions and Limitations

- 3.3.1.1 Ecological surveys are limited by factors which affect the presence of plants and animals, such as the time of year, migration patterns and behaviour. The absence of evidence of any particular species should not be taken as conclusive proof that the species is not present or that it will not be present in the future. However, professional judgement allows for the likely presence of these species to be predicted with sufficient certainty as to not significantly limit the validity of these findings.
- 3.3.1.2 Data obtained from the desk study was dependent upon records submitted for the area of interest. Therefore, absence of records of a particular species does not necessarily mean that the species do not occur in the OnTI RLB. Similarly, the presence of records for a given species does not necessarily mean that these would still be present or relevant in the context of the Proposed Development (Onshore).

- 3.3.1.3 Lockdown measures put in place during the Covid-19 pandemic limited the activities of many recording and volunteer groups meaning that desk study records are highly likely to have incomplete data for the years 2020 and 2021.
- 3.3.1.4 It is noted that the October 2023 survey stretched into early November. This was required due to land access constraints. The survey results are still considered to be representative of wintering bird distribution and assemblage at this stage of the survey season. The following survey undertaken in November 2023 was undertaken towards the end of that month to ensure the surveys were spread out appropriately to capture any changes in species and assemblages present.
- 3.3.1.5 The data gathered for this report was collected between November 2022 and March 2024. As per CIEEM's advice note on the age of surveys²⁵, should works not commence within the 18 months following survey, or paused for the same duration, it will be necessary to repeat the surveys.

4 Results

4.1 Desk Study

4.1.1 Designated Sites

4.1.1.1 The Moray Firth SPA is within 10km of the Landfall Site (approximately 5.9km west at the nearest point). The SPA has been cited for supporting non-breeding assemblages of European importance of the following species:

- Great northern Diver (*Gavia immer*, 5.8% of the Great Britain population);
- Red-throated diver (*Gavia stellata*, 1.9% of the Great Britain population); and
- Slavonian grebe (*Podiceps auratus*, 3.9% of the Great Britain population).

4.1.1.2 The SPA also supports the following migratory populations of European importance:

- Greater scaup (*Aythya marila*, 17.9% of the Great Britain population);
- Common eider (*Somateria mollissima*, 2.9% of the Great Britain population);
- Long-tailed duck (*Clangula hyemalis*, 45.5% of the Great Britain population);
- Common scoter (*Melanitta nigra* 5.5% of the Great Britain population);
- Velvet scoter (*Melanitta fusca*, 59.5% of the Great Britain population);
- Common goldeneye (*Bucephala clangula*, 4.5% of the Great Britain population);
- Red-breasted merganser (*Mergus serrator*, 1.8% of the Great Britain population); and
- European shag (*Phalacrocorax aristotelis*; 3.2% of biogeographic region and 5.95% of Great Britain population during breeding season, and 2.7% and 10.2% respectively during non-breeding season).

4.1.1.3 NatureScot undertook a research study in 2023 investigating the suitability of different methods used for monitoring inshore wintering waterfowl within Marine Protected Areas (MPAs), using the Moray Firth SPA as a pilot data area for the study during the winter period of 2019/2020²⁶. The study compared the datasets provided by aerial surveys and concurrent vantage point surveys with WeBS and RSPB datasets which had been used to estimate the population of the SPA's designating feature species.

4.1.1.4 The results of the study suggest that, while caution is needed when comparing the 2019/2020 surveys carried out over a single season with mean values across five or more years from up to 19 years ago, differences in cited abundances and those recorded from the aerial and vantage point surveys were observed. For example, both red-throated diver and great northern diver populations were estimated to be larger from the March 2020 aerial survey results when compared to the cited population sizes (880 compared to 324 for red-throated diver, 747 to 144 for great northern diver).

4.1.1.5 It was concluded by the report that aerial surveys could provide a more accurate, albeit localised, method of estimating populations of inshore wintering seabirds when used in conjunction with existing methods such as vantage points and boat surveys.

4.1.2 Biological Records

4.1.2.1 Only data from the past ten years has been used within this technical appendix, as ecological data collected later is unlikely to be representative of current conditions and species assemblages.

NESBReC

4.1.2.2 The NESBReC data search returned 43 records of birds within the past ten years within 500m of the OnTI RLB, comprising 20 different species. All of which are target species. These can be summarised as:

- Six species are legally protected by Schedule 1 of the WCA 1981³ (as amended) (barn owl, great northern diver, green sandpiper, peregrine, red-throated diver and whooper swan);
- Three are qualifying species of the nearby SPA (great northern diver, red-throated diver, and eider);
- Eight are BoCC5 'Red' listed species (corn bunting, grasshopper warbler, house sparrow, lapwing, skylark, spotted flycatcher, starling and yellowhammer);
- Nine are BoCC5 'Amber' listed species (bullfinch, dunnock, eider, great northern diver, green sandpiper, pink-footed goose, short-eared owl, snipe and whooper swan); and
- 16 are listed on the SBL (barn owl, bullfinch, corn bunting, dunnock, grasshopper warbler, green sandpiper, house sparrow, lapwing, peregrine, red-throated diver, short-eared owl, skylark, spotted flycatcher, starling, whooper swan and yellowhammer).

WeBS Data Search

4.1.2.3 The BTO returned WeBS data for five areas around the Landfall Site. A summary of the data search is provided in Table 4-1.

Table 4-1: Bird species recorded in WeBS data.

Date Range	Bird Species (common name)	Bird Species (Latin name)	Legislation covering species
2016-2021	Black-headed gull	<i>Chroicocephalus ridibundus</i>	BoCC5 Amber list
2021	Black-throated diver	<i>Gavia arctica</i>	WCA Schedule 1, BoCC5 Amber list
2016-2022	Common gull	<i>Larus canus</i>	BoCC5 Amber list
2016-2021	Curlew	<i>Numenius arquata</i>	BoCC5 Red list
2017-2021	Dunlin	<i>Calidris alpina</i>	BoCC5 Red list
2016-2021	Eider	<i>Somateria mollissima</i>	BoCC5 Amber list, SPA qualifying species
2016-2021	Glaucous gull	<i>Larus hyperboreus</i>	BoCC5 Amber list
2016-2022	Goldeneye	<i>Bucephala clangula</i>	SPA qualifying species
2016-2022	Great black-backed gull	<i>Larus marinus</i>	BoCC5 Amber list
2017-2022	Greylag goose	<i>Anser anser</i>	WCA Schedule 1, BoCC5 Amber list
2016-2022	Herring gull	<i>Larus argentatus</i>	BoCC5 Red list
2017-2022	Icelandic greylag goose	<i>Anser anser</i>	WCA Schedule 1, BoCC5 Amber list
2021-2022	Kingfisher	<i>Alcedo atthis</i>	WCA Schedule 1
2016-2021	Kittiwake	<i>Rissa tridactyla</i>	BoCC5 Red list
2016-2021	Knot	<i>Calidris canutus</i>	BoCC5 Amber list
2017-2022	Lapwing	<i>Vanellus vanellus</i>	BoCC5 Red list
2017-2022	Lesser black-backed gull	<i>Larus fuscus</i>	BoCC5 Amber list
2016-2021	Long-tailed duck	<i>Clangula hyemalis</i>	WCA Schedule 1, SPA qualifying species
2016-2022	Mallard	<i>Anas platyrhynchos</i>	BoCC5 Amber list
2017-2022	Moorhen	<i>Gallinula chloropus</i>	BoCC5 Amber list
2016-2022	Oystercatcher	<i>Haematopus ostralegus</i>	BoCC5 Amber list
2017-2022	Pink-footed Goose	<i>Anser brachyrhynchus</i>	BoCC5 Amber list

Date Range	Bird Species (common name)	Bird Species (Latin name)	Legislation covering species
2017-2022	Pochard	<i>Aythya ferina</i>	BoCC5 Red list
2016-2021	Purple sandpiper	<i>Calidris maritima</i>	WCA Schedule 1, BoCC5 Red list
2017-2021	Red-breasted merganser	<i>Mergus serrator</i>	BoCC5 Amber list, SPA qualifying species
2016-2022	Redshank	<i>Tringa totanus</i>	BoCC5 Amber list
2016-2021	Red-Throated diver	<i>Gavia stellata</i>	WCA Schedule 1, SPA qualifying species
2017-2021	Ringed plover	<i>Charidrius hiaticula</i>	BoCC5 Red list
2016-2021	Sandwich tern	<i>Sterna sandvicensis</i>	BoCC5 Amber list
2016-2021	Scaup	<i>Aythya marila</i>	SPA qualifying species
2016-2021	Shag	<i>Phalacrocorax aristotelis</i>	BoCC5 Red list, SPA qualifying species
2016-2022	Teal	<i>Anas crecca</i>	BoCC5 Amber list
2016-2021	Turnstone	<i>Arenaria interpres</i>	BoCC5 Amber list
2017-2022	Whooper swan	<i>Cygnus cygnus</i>	WCA Schedule 1, BoCC5 Amber list
2017-2022	Wigeon	<i>Mareca penelope</i>	BoCC5 Amber list

4.2 Field Surveys

4.2.1 2022/ 2023 Survey Season

4.2.1.1 A total of 70 individual birds of nine target species were identified during the 2022/2023 VP surveys undertaken between November 2022 to March 2023. The results of these surveys are shown in Table 4-2.

4.2.1.2 No observations were made for the following Moray Firth SPA qualifying species:

- Common goldeneye;
- Velvet scoter; and
- Greater scaup.

- 4.2.1.3 The 2022/2023 WBS focused on potential landfall locations and did not cover the OnTI RLB in its entirety. Surveys undertaken recorded few qualifying species for the Moray Firth SPA within proximity to the Proposed Development (Onshore).
- 4.2.1.4 The largest total abundance over the survey season of the Moray Firth SPA qualifying species was for shag, with a total abundance of 18, and the highest peak count for a Moray Firth SPA qualifying species was eight for eider, recorded in March.
- 4.2.1.5 The surveys identified that SPA qualifying species, albeit in low numbers, were flying south from the coast as recorded in the habitats associated with Transect 1 and the VP.
- 4.2.1.6 The surveys also found that species such as herring gull, oystercatcher and redshank have the potential to use fields inland from the coast.

Table 4-2: 2022/2023 VP survey results

Bird Species Common Name	Bird Species Latin Name	Highest Abundance across all 2022/2023 VP Surveys	Conservation Status	Designated Site Qualifying Feature?
European Shag	<i>Phalacrocorax aristotelis</i>	18	BOCC5 Red List IUCN Least Concern	Yes (Moray Firth SPA)
Common Eider	<i>Somateria mollissima</i>	14	BOCC5 Amber List, IUCN Near Threatened	Yes (Moray Firth SPA)
Redshank	<i>Tringa totanus</i>	13	BOCC5 Amber List IUCN Least Concern	No
Long-tailed Duck	<i>Clangula hyemalis</i>	11	BOCC5 Red List, IUCN Vulnerable	Yes (Moray Firth SPA)
Red-throated Diver	<i>Gavia stellata</i>	6	BOCC5 Green List IUCN Least Concern	Yes (Moray Firth SPA)
Red-breasted Merganser	<i>Mergus serrator</i>	4	BOCC5 Amber List, IUCN Least Concern	Yes (Moray Firth SPA)
Common Scoter	<i>Melanitta nigra</i>	3	BOCC5 Red List IUCN Least Concern	Yes (Moray Firth SPA)
Great Northern Diver	<i>Gavia immer</i>	1	BOCC5 Amber List, IUCN Least Concern	Yes (Moray Firth SPA)

4.2.2 Extended Phase 1 Habitat Data

4.2.2.1 Upon completion of the Phase 1 habitat surveys carried out in 2023, it was identified that over 70% of the habitats within the OnTI RLB were arable fields, with a further 20% comprising grassland habitats. This is considered representative of the wider landscape of the area which supports an abundance of suitable habitat for wintering birds.

4.2.3 2023/2024 Transect Surveys

4.2.3.1 Transect routes were subject to six WBS visits, spread between October 2023 and March 2024 (Table 3-2).

4.2.3.2 Within the OnTI RLB during the 2023 and 2024 WBS, a total of 65 bird species were identified, with a total abundance of 14,697 individual birds recorded. This comprised 57 target species and eight non-target species. A breakdown of species richness and target species abundance is provided in Table 4-3.

4.2.3.3 A summary of the survey wide transect results in relation to the target species criteria (Section 3.2.1.7) is detailed below.

4.2.3.4 Individual results for each transect are provided in Section 4.2.4 to 4.2.8.

4.2.3.5 A summed peak count was determined by the summation of each species' peak count, irrespective of the survey in which they occurred. This represents the minimum number of individuals of each species identified during the survey period.

Moray Firth Qualifying Interests

4.2.3.6 A total of six species recorded during all transect surveys are listed as a Moray Firth SPA citation species. These species comprised:

- Common scoter;
- Eider;
- Great northern diver;
- Long tailed duck;
- Red breasted merganser; and
- Red throated diver.

WCA Schedule 1 Species

4.2.3.7 A total of 14 species recorded during all transect surveys are listed in Schedule 1 of the WCA 1981³. These species comprised:

- Black-throated diver;
- Common scoter;

- Fieldfare (*Turdus pilaris*);
- Great northern diver;
- Greylag goose (*Anser anser*);
- Long-tailed duck;
- Peregrine (*Falco peregrinus*);
- Purple sandpiper (*Calidris maritima*);
- Red kite (*Milvus milvus*);
- Red-throated diver;
- Redwing;
- Snow bunting (*Plectrophenax nivalis*);
- White-billed diver (*Gavia adamsii*); and
- Whooper swan.

BoCC5

4.2.3.8 A total of 17 Red List and 31 Amber List BoCC5 species were recorded during the transect surveys.

Table 4-3: Species richness levels and abundances for each transect.

Survey Station ID	Total Species Richness	Target Species Richness	Secondary Species Richness	Abundance
Study Area	65	57	8	14,697
Transect 1 (T1) and VP 1	61	55	6	6,192
Transect 2 (T2)	2	2	0	69
Transect 3 (T3)	2	2	0	718
Transect 4 (T4)	4	4	0	5,206
Transect 5 (T5)	27	23	5	2,656

4.2.4 Transect 1 and Vantage Point

4.2.4.1 Transect 1 and VP 1 covered the Landfall Site adjacent to the Moray Firth SPA. The survey area comprised large open, primarily agricultural fields and the coastline along the Moray Firth with includes a section of the Cullen

to Stake Ness Coast SSSI. The SSSI has not been cited for bird species, and the nearest designated site to the location with a relevant bird citation is the Moray Firth SPA, approximately 5.4km to the west of the transect at the nearest point. The transect supported a total species abundance of 6,192 and a total species richness of 61. This comprised 55 target species and six secondary species.

4.2.4.2 Seven Moray Firth SPA citation species and thirteen species listed on Schedule 1 of the WCA 1981 were recorded within the Transect 1 survey area. Fourteen species were also listed on Section 41 of the NERC Act 2006 and 51 species were listed as Amber/Red List BoCC5 species within the survey area.

4.2.4.3 In relation to target bird species (Section 3.2.1.7), a summary of abundance, peak counts and conservation status for Transect 1 is given in Table 4-4.

Table 4-4: Target Bird Species Peak Counts and Total Abundance within the Transect 1 and VP 1 survey area.

Species and BTO Code	WCA	BoCC5	Target Species	SPA Qualifying Species	Total Abundance	Peak Count
Black guillemot (<i>Cephus grylle</i>) TY	No	Amber	Yes	No	2	2
Blackbird (<i>Turdus merula</i>) B.	No	Amber	Yes	No	5	2
Black-headed gull (<i>Chroicocephalus ridibundus</i>) BH	No	Amber	Yes	No	56	16
Black-throated diver (<i>Gavia arctica</i>) BV	Yes (Schedule 1)	Amber	Yes	No	1	1
Common gull (<i>Larus canus</i>) CM	No	Amber	Yes	No	347	53
Common scoter (<i>Melanitta nigra</i>) CX	Yes (Schedule 1)	Red	Yes	Yes	16	6
Common Snipe (<i>Gallinago gallinago</i>) SN	No	Amber	Yes	No	9	2
Corn bunting (<i>Miliaria calandra</i>) CB	No	Red	Yes	No	86	30

Species and BTO Code	WCA	BoCC5	Target Species	SPA Qualifying Species	Total Abundance	Peak Count
Curlew (<i>Numenius arquata</i>) CU	No	Red	Yes	No	174	42
Dunnock (<i>Prunella modularis</i>) D.	No	Amber	Yes	No	18	4
Eider (<i>Somateria mollissima</i>) E.	No	Amber	Yes	Yes	55	8
Fieldfare (<i>Turdus pilaris</i>) FF	Yes (Schedule 1)	Red	Yes	No	287	120
Fulmar (<i>Fulmarus glacialis</i>) F.	No	Amber	Yes	No	2	2
Gannet (<i>Morus bassanus</i>) GX	No	Amber	Yes	No	35	4
Great black-backed gull (<i>Larus marinus</i>) GB	No	Amber	Yes	No	68	26
Great northern diver (<i>Gavia immer</i>) ND	Yes (Schedule 1)	Amber	Yes	Yes	7	1
Greenfinch (<i>Carduelis chloris</i>) GR	No	Red	Yes	No	1	1
Grey wagtail (<i>Motacilla cinerea</i>) GL	No	Amber	Yes	No	1	1
Greylag goose (<i>Anser anser</i>) GJ	Yes (Schedule 1)	Amber	Yes	No	1	1
Guillemot (<i>Uria aalge</i>) GU	No	Amber	Yes	No	15	6
Herring Gull (<i>Larus argentatus</i>) HG	No	Red	Yes	No	1702	312
House sparrow (<i>Passer domesticus</i>) HS	No	Red	Yes	No	14	8
Kestrel (<i>Falco tinnunculus</i>) K.	No	Amber	Yes	No	2	1

Species and BTO Code	WCA	BoCC5	Target Species	SPA Qualifying Species	Total Abundance	Peak Count
Kittiwake (<i>Rissa tridactyla</i>) KI	No	Red	Yes	No	58	15
Linnet (<i>Carduelis cannabina</i>) LI	No	Red	Yes	No	750	150
Long-tailed duck (<i>Clangula hyemalis</i>) LN	Yes (Schedule 1)	Red	Yes	Yes	125	16
Mallard (<i>Anas platyrhynchos</i>) MA	No	Amber	Yes	No	66	28
Meadow pipit (<i>Anthus pratensis</i>) MP	No	Amber	Yes	No	10	4
Mistle thrush (<i>Turdus viscivorus</i>) M.	No	Red	Yes	No	3	2
Oystercatcher (<i>Haematopus ostralegus</i>) OC	No	Amber	Yes	No	25	4
Peregrine (<i>Falco peregrinus</i>) PE	Yes (Schedule 1)	Green	Yes	No	1	1
Pink-footed Goose (<i>Anser brachyrhynchus</i>) PG	No	Amber	Yes	No	498	210
Purple sandpiper (<i>Calidris maritima</i>) PS	Yes (Schedule 1)	Red	Yes	No	2	1
Razorbill (<i>Alca torda</i>) RA	No	Amber	Yes	No	88	18
Red kite (<i>Milvus milvus</i>) KT	Yes (Schedule 1)	Green	Yes	No	1	1
Red-breasted Merganser (<i>Mergus serrator</i>) RM	No	Amber	Yes	Yes	1	1
Redshank (<i>Tringa totanus</i>) RK	No	Amber	Yes	No	1	1

Species and BTO Code	WCA	BoCC5	Target Species	SPA Qualifying Species	Total Abundance	Peak Count
Red-throated diver (<i>Gavia stellata</i>) RH	Yes (Schedule 1)	Green	Yes	Yes	26	2
Redwing (<i>Turdus iliacus</i>) RE	Yes (Schedule 1)	Amber	Yes	No	221	95
Reed bunting (<i>Emberiza schoeniclus</i>) RB	No	Amber	Yes	No	8	2
Rook (<i>Corvus frugilegus</i>) RO	No	Amber	Yes	No	219	104
Shag (<i>Phalacrocorax aristotelis</i>) SA	No	Red	Yes	Yes	76	8
Skylark (<i>Alauda arvensis</i>) S.	No	Red	Yes	No	69	20
Snow bunting (<i>Plectrophenax nivalis</i>) SB	Yes (Schedule 1)	Amber	Yes	No	1	1
Song thrush (<i>Turdus philomelos</i>) ST	No	Amber	Yes	No	4	2
Sparrowhawk (<i>Accipiter nisus</i>) 2SH	No	Amber	Yes	No	1	1
Starling (<i>Sturnus vulgaris</i>) SG	No	Red	Yes	No	400	147
Teal (<i>Anas crecca</i>) T.	No	Amber	Yes	No	28	13
Tree sparrow (<i>Passer montanus</i>) TS	No	Red	Yes	No	106	35
Turnstone (<i>Arenaria interpres</i>) TT	No	Amber	Yes	No	36	20
Twite (<i>Carduelis flavirostris</i>) TW	No	Red	Yes	No	60	33
White-billed Diver (<i>Gavia adamsii</i>) WV	Yes (Schedule 1)	N/A	Yes	No	1	1

Species and BTO Code	WCA	BoCC5	Target Species	SPA Qualifying Species	Total Abundance	Peak Count
Woodpigeon (<i>Columba palumbus</i>) WP	No	Amber	Yes	No	25	19
Wren (<i>Troglodytes troglodytes</i>) WR	No	Amber	Yes	No	5	2
Yellowhammer (<i>Emberiza citrinella</i>) Y.	No	Red	Yes	No	152	30

4.2.5 Transect 2

- 4.2.5.1 The survey area covered by Transect 2 comprised large open fields and agricultural land, hedgerow and small areas of scrub. The transect supported a total species abundance of 69 and a total species richness of 2. This comprised two target species and no secondary species.
- 4.2.5.2 In relation to target bird species, a summary of species abundance and conservation status is provided in Table 4-5.
- 4.2.5.3 No Moray Firth SPA citation species were recorded within the Transect 2 survey area. Pink-footed goose is listed as Amber List BoCC5 species and grey partridge is listed on the Red List of BoCC5 species.

Table 4-5: Target Bird Species Peak Counts and Total Abundance within Transect 2 survey area.

Species	WCA	BoCC5	Target Species	SPA Qualifying Species	Total Abundance	Peak Count
Pink-footed goose (<i>Anser brachyrhynchus</i>) PG	No	Amber	Yes	No	67	67
Grey partridge (<i>Perdix perdix</i>) P.	No	Red	Yes	No	2	2

4.2.6 Transect 3

- 4.2.6.1 The survey area covered by Transect 3 comprised large open fields and agricultural land near the B9121. The transect supported a total species abundance of 718 and a total species richness of 2. This comprised two target species and no secondary species.

- 4.2.6.2 In relation to target bird species, a summary of species abundance and conservation status is given in Table 4-6.
- 4.2.6.3 No Moray Firth SPA citation species were recorded within the Transect 3 survey area. One species listed on Schedule 1 of the WCA 1981 was recorded within the survey area. No species were listed on Section 41 of the NERC Act 2006 and two species were listed as Amber List BoCC5 species within the survey area.

Table 4-6: Target Bird Species Peak Counts and Total Abundance within Transect 3 survey area.

Species	WCA	BoCC5	Target?	SPA Qualifying Species	Total Abundance	Peak Count
Pink-footed goose PG	No	Amber	Yes	No	115	110
Greylag goose GJ	Yes (Schedule 1)	Amber	Yes	No	603	94

4.2.7 Transect 4

- 4.2.7.1 The survey area covered by Transect 4 comprised large open fields and agricultural land, with areas of broadleaved woodland to the north side of the transect route. The transect supported a total species abundance of 5,206 and a total species richness of 4. This comprised four target species and no secondary species.
- 4.2.7.2 In relation to target bird species, a summary of species abundance and conservation status is given in Table 4-7.
- 4.2.7.3 No Moray Firth SPA citation species were recorded within the Transect 4 survey area. Two species listed on Schedule 1 of the WCA 1981 were recorded within the survey area. No species were listed on Section 41 of the NERC Act 2006 and 4 species were listed as Amber List BoCC5 species.

Table 4-7: Target Bird Species Peak Counts and Total Abundance within Transect 4 survey area.

Species	WCA	BoCC5	Target?	SPA Qualifying Species	Total Abundance	Peak Count
Greylag goose GJ	Yes (Schedule 1)	Amber	Yes	No	1182	970
Mallard MA	No	Amber	Yes	No	12	12
Pink-footed goose PG	No	Amber	Yes	No	3875	3180

Species	WCA	BoCC5	Target?	SPA Qualifying Species	Total Abundance	Peak Count
Whooper swan (<i>Cygnus cygnus</i>) WS	Yes (Schedule 1)	Amber	Yes	No	137	84

4.2.8 Transect 5

- 4.2.8.1 The survey area covered by Transect 5 comprised of a walked transect of the Onshore Substation Site and adjacent land within the OnTI RLB. The area covered large open fields, marshy grassland and agricultural fields, with a section of built environment around the existing New Deer Substation area.
- 4.2.8.2 The transect supported a total species abundance of 2,656 and a total species richness of 27. This comprised 23 target species and five secondary species.
- 4.2.8.3 In relation to target bird species, a summary of species abundance and conservation status is given in Table 4-8.
- 4.2.8.4 No Moray Firth SPA citation species were recorded within the Transect 5 survey area. Five species listed on Schedule 1 of the WCA 1981 were recorded within the survey area. Ten species were listed on Section 41 of the NERC Act 2006 and 21 species were listed as either Amber or Red List BoCC5 species within the survey area.

Table 4-8: Target Bird Species Peak Counts and Total Abundance within Transect 5 survey area.

Species and BTO Code	WCA	BoCC5	Target?	SPA Qualifying Species	Total Abundance	Peak Count
Corn bunting (<i>Miliaria calandra</i>) CB	No	Red	Yes	No	3	3
Dunnock (<i>Prunella modularis</i>) D.	No	Amber	Yes	No	2	1
Fieldfare (<i>Turdus pilaris</i>) FF	Yes (Schedule 1)	Red	Yes	No	405	140
Greenfinch (<i>Carduelis chloris</i>) GR	No	Red	Yes	No	1	1
Greylag goose (<i>Anser anser</i>) GJ	Yes (Schedule 1)	Amber	Yes	No	2	2

Species and BTO Code	WCA	BoCC5	Target?	SPA Qualifying Species	Total Abundance	Peak Count
Herring gull (<i>Larus argentatus</i>) HG	No	Red	Yes	No	160	160
House sparrow (<i>Passer domesticus</i>) HS	No	Red	Yes	No	41	13
Kestrel (<i>Falco tinnunculus</i>) K.	No	Amber	Yes	No	2	2
Mallard (<i>Anas platyrhynchos</i>) MA	No	Amber	Yes	No	6	3
Meadow pipit (<i>Anthus pratensis</i>) MP	No	Amber	Yes	No	7	1
Mistle thrush (<i>Turdus viscivorus</i>) M.	No	Red	Yes	No	2	2
Peregrine (<i>Falco peregrinus</i>) PE	Yes (Schedule 1)	Green	Yes	No	2	1
Pink-footed Goose (<i>Anser brachyrhynchus</i>) PG	No	Amber	Yes	No	255	145
Redwing (<i>Turdus iliacus</i>) RE	Yes (Schedule 1)	Amber	Yes	No	213	120
Reed bunting (<i>Emberiza schoeniclus</i>) RB	No	Amber	Yes	No	4	2
Skylark (<i>Alauda arvensis</i>) S.	No	Red	Yes	No	20	6
Song thrush (<i>Turdus philomelos</i>) ST	No	Amber	Yes	No	2	1
Starling (<i>Sturnus vulgaris</i>) SG	No	Red	Yes	No	703	280
Tree sparrow (<i>Passer montanus</i>) TS	No	Red	Yes	No	25	21
Whooper swan WS	Yes (Schedule 1)	Amber	Yes	No	31	29

Species and BTO Code	WCA	BoCC5	Target?	SPA Qualifying Species	Total Abundance	Peak Count
Woodpigeon (<i>Columba palumbus</i>) WP	No	Amber	Yes	No	85	80
Wren (<i>Troglodytes troglodytes</i>) WR	No	Amber	Yes	No	4	2
Yellowhammer (<i>Emberiza citrinella</i>) Y.	No	Red	Yes	No	67	29

5 Discussion

5.1.1.1 The desk study data was broadly consistent with the 2023/2024 survey data with the majority of species represented in both the desk study data and survey data.

5.1.1.2 Of note, common goldeneye, which is a Moray Firth SPA qualifying species, was represented in all returned WeBS data areas in 2021 (the closest being approximately 3km from the OnTI RLB, and approximately 3.7km from the vantage point at Strathmarchin Bay) but not identified during 2023/2024 field surveys.

5.1.2 2022/2023 Survey Season

5.1.2.1 The 70 birds identified in the 2022/2023 WBS at the potential landfall locations were all target species.

5.1.2.2 It is notable that neither pink-footed goose or greylag goose were recorded during this survey effort. These species are known to utilise grassland as foraging areas, which are in abundance in the wider habitat within the OnTI RLB. This would suggest that these geese species were not entering the OnTI RLB from the potential landfall locations at that time that the surveys were undertaken. Higher numbers of pink footed goose were recorded at the Landfall Site in 2023/2024, however only a single greylag goose was identified.

5.1.3 2023/2024 Survey Season

5.1.3.1 The wintering bird assemblage recorded within the OnTI RLB was largely typical of species associated with agricultural areas. The presence of agricultural features such as large open arable fields, wet grassland, hedgerows and improved grassland has resulted in the recording of notable numbers of wintering wildfowl and gulls.

5.1.3.2 Moray Firth SPA qualifying species were only recorded in areas of Transect 1. SPA qualifying species were not recorded within any of the other survey areas, indicating that these habitats are likely not used as functionally linked land to the SPA.

5.1.3.3 Target species (Section 3.2.1.7) recorded along with their peak count include pink-footed goose (3,180), greylag goose (770), herring gull (312), starling (280), linnet (150) and fieldfare (140).

- 5.1.3.4 No counts of wintering bird species recorded across the OnTI RLB approached the 1% level of the national wintering population estimates as detailed by the RSPB (Royal Society for the Protection of Birds, 2018²⁷) and BTO (British Trust for Ornithology, 2022²⁸). The peak count for pink-footed goose (3,180) is noted as being the highest peak count from across the surveys, however, this does not meet the 1% level of the national population of pink-footed goose (UK Wintering population estimated to be 510,000²⁹).
- 5.1.3.5 Transect 1 and the VP were noted as supporting the highest species richness (61) and total abundance (6,192). This survey area was located towards the northern extent of the OnTI RLB, adjacent to the Moray Firth SPA, where numerous species and individuals were recorded. Approximately half of the records associated with Transect 1 were recorded along the northern part of the transect route outside the OnTI RLB, over the Moray Firth.
- 5.1.3.6 The survey areas associated with Transect 1 and the VP supported seven SPA qualifying species, however the peak count and total abundance numbers for SPA species are considered to be low. Given the presence of SPA qualifying species within the survey area and the abundance of large agricultural fields suitable for wintering bird species, the survey area is considered to provide notable opportunities for wintering birds as well as functionally linked habitat to the Moray Firth SPA.
- 5.1.3.7 The survey area associated with Transect 1 also supported 13 Schedule 1 WCA bird species and 51 BoCC5 Amber/Red list species.
- 5.1.3.8 Survey areas associated with Transect 2 and Transect 3 were noted as supporting lower levels of bird species and individuals. Both transects supported a species richness of two with total abundance of individuals recorded as 69 for Transect 2 and 718 for Transect 3. Transect 2 did not support any Schedule 1 WCA bird species with Transect 3 supporting a single WCA species.
- 5.1.3.9 Survey areas associated with Transect 4 were identified as supporting a low species richness with only four different species recorded, however the total abundance of individuals was high, with a total abundance of 5,206 recorded.
- 5.1.3.10 Whilst a low species richness was recorded within the survey area, two Schedule 1 WCA bird species were recorded and four BoCC5 Amber list species. The peak count of pink-footed goose (3,180), a SPA citation species, was recorded within the survey area of Transect 4.
- 5.1.3.11 Transect 5 was noted as supporting moderate levels of species richness (27 species) and numbers of individuals (2,656). The survey area associated with Transect 5 supported four Schedule 1 WCA bird species and 21 BoCC5 Amber/Red list species.

6 Conclusions

- 6.1.1.1 From the results, it can be concluded that the OnTI RLB provides suitable habitats for a variety of wintering bird species, including 57 species listed on at least one of the WCA Schedule 1 list, and the Amber and Red Lists of BoCC5.
- 6.1.1.2 However, no counts of wintering bird species recorded across the OnTI RLB approached the 1% level of the national wintering population estimates as detailed by the RSPB²⁷ and BTO²⁸. Therefore, no habitats within the survey area are considered to meet the threshold as nationally important.
- 6.1.1.3 An assessment of the potential impacts of the Proposed Development (Onshore) on the wintering bird assemblage can be found in Volume 5, Chapter 3: Terrestrial Ecology and Biodiversity of the EIAR.

7 References

- ¹ Scottish Parliament (2004) 'Nature Conservation (Scotland) Act 2004'. Available at: <https://www.legislation.gov.uk/asp/2004/6/contents> (Accessed 18/10/2024).
- ² Scottish Parliament (2011) 'Wildlife and Natural Environment Act (2011)'. Available at: <https://www.legislation.gov.uk/asp/2011/6/contents/enacted> (Accessed 18/10/2024).
- ³ UK Parliament (1981) 'Wildlife and Countryside Act (1981) (as amended)'. Available at: <https://www.legislation.gov.uk/ukpga/1981/69/contents> (Accessed 18/10/2024).
- ⁴ UK Parliament (1994) 'The Conservation (Natural Habitats, &c.) Regulations 1994'. Available at: <https://www.legislation.gov.uk/uksi/1994/2716/contents/made> (Accessed 18/10/2024).
- ⁵ UK Parliament (2019) 'The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019'. Available at: <https://www.legislation.gov.uk/uksi/1994/2716/contents/made> (Accessed 18/10/2024).
- ⁶ European Union (2009) 'Directive 2009/147/EC of the European Parliament and of the Council of 30 November 2009 on the conservation of wild birds (Annex 1)'. Available at: <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32009L0147> (Accessed 18/10/2024).
- ⁷ Joint Nature Conservation Committee (2011) 'The UK Post-2010 Biodiversity Framework (2012-2019)'. Available at: <https://hub.jncc.gov.uk/assets/587024ff-864f-4d1d-a669-f38cb448abdc#UK-Post2010-Biodiversity-Framework-2012.pdf> (Accessed 18/10/2024).
- ⁸ NatureScot (2023) 'Scottish Biodiversity Duty'. Available at: <https://www.nature.scot/scotlands-biodiversity/scottish-biodiversity-strategy-and-cop15/biodiversity-duty> (Accessed 18/10/2024).
- ⁹ Aberdeenshire Council (2023) 'Aberdeenshire Local Development Plan 2023'. Available at: <https://www.aberdeenshire.gov.uk/planning/plans-and-policies/ldp-2023/> (Accessed 18/10/2024).
- ¹⁰ Scottish Government (2023) 'National Planning Framework 4 (2023)'. Available at: <https://www.gov.scot/publications/national-planning-framework-4/> (Accessed 18/10/2024).
- ¹¹ Scottish Government (2022) 'Biodiversity strategy to 2045: Tackling the nature emergency-draft (2023)'. Available at: <https://www.gov.scot/publications/scottish-biodiversity-strategy-2045-tackling-nature-emergency-scotland/> (Accessed 18/10/2024).
- ¹² NatureScot (2022) 'The Scottish Biodiversity List'. Available at: <https://www.nature.scot/scotlands-biodiversity/scottish-biodiversity-strategy-and-cop15/scottish-biodiversity-list> (Accessed 18/10/2024).
- ¹³ Joint Nature Conservation Committee (2007) 'The UK Biodiversity Action Plan'. Available at: <https://jncc.gov.uk/our-work/uk-bap/> (Accessed 18/10/2024).
- ¹⁴ Stanbury et. Al (2021) 'The status of our bird populations: the Fifth Birds of Conservation Concern in the United Kingdom, Channel Islands and Isle of Man and second IUCN Red List assessment of extinction risk for Great Britain'. Available at: <https://www.bto.org/our->

[science/publications/birds-conservation-concern/status-our-bird-populations-fifth-birds](#) (Accessed 18/10/2024).

¹⁵ NatureScot (Formerly Scottish Natural Heritage) (2017) 'Recommended bird survey methods to inform impact assessment of onshore windfarms (Scottish Natural Heritage)'. Available at: <https://www.nature.scot/doc/recommended-bird-survey-methods-inform-impact-assessment-onshore-windfarms> (Accessed 18/10/2024).

¹⁶ NatureScot (2022) 'NatureScot Standing Advice for Planning Consultations-Birds (published 2022)'. Available at: <https://www.nature.scot/doc/standing-advice-planning-consultations-birds> (Accessed 18/10/2024).

¹⁷ NatureScot (2016) 'Assessing Connectivity with Special Protection Areas (SPAs) (Version 3- published June 2016)'. Available at: <https://www.nature.scot/doc/assessing-connectivity-special-protection-areas> (Accessed 18/10/2024).

¹⁸ NatureScot (2024) 'SiteLink Map Search'. Available at: <https://sitelink.nature.scot/map> (Accessed 18/10/2024).

¹⁹ Data were provided by WeBS, a Partnership jointly funded by the British Trust for Ornithology, Royal Society for the Protection of Birds and Joint Nature Conservation Committee, in association with The Wildfowl & Wetlands Trust, with fieldwork conducted by volunteers.

²⁰ Mitchell, C. (2012) 'Mapping the distribution of feeding Pink-footed and Iceland Greylag Geese in Scotland'. Wildfowl & Wetlands Trust / Scottish Natural Heritage Report, Slimbridge. 108pp. Available at: https://www.bto.org/sites/default/files/mitchel_2012_mapping_distribution_feeding_pinkfooted_and_greylag_geese_scotland_wwtshn_report.pdf (Accessed 18/10/2024).

²¹ The Royal Society for the Protection of Birds (1998). Gilbert, G., Gibbons, D.W., & Evans, J. (1998) 'Bird Monitoring Methods: A Manual of Techniques for UK Key Species'. The Royal Society for the protection of Birds, Sandy, Bedfordshire, England.

²² Bird Census Techniques, Second Edition. —Colin J. Bibby, Neil D. Burgess, David A. Hill, and Simon H. Mustoe. 2000. Academic Press, London, UK.

²³ British Trust for Ornithology. Bird Species Codes. Available at: <https://www.bto.org/our-science/projects/breeding-bird-survey/taking-part/download-forms-instructions> (Accessed 18/10/2024).

²⁴ Met Office (2024) 'Beaufort wind force scale'. Available at: <https://www.metoffice.gov.uk/weather/guides/coast-and-sea/beaufort-scale> (Accessed 18/10/2024).

²⁵ CIEEM (April 2019) 'Advice Note On the Lifespan of Ecological Reports and Surveys'. Available at: <https://cieem.net/resource/advice-note-on-the-lifespan-of-ecological-reports-and-surveys/> (Accessed 18/10/2024).

²⁶ Graham, J. and Thompson, K. 2023. Approaches to monitoring wintering waterfowl in Marine Protected Areas - Moray Firth pilot study winter 2019/20. NatureScot Research Report 1281. Available at: <https://www.nature.scot/doc/naturescot-research-report-1281-approaches-monitoring-wintering-waterfowl-marine-protected-areas> (Accessed 01/10/2024)

²⁷ The Royal society for the Protection of Birds (2024) 'Birds A-Z'. Available at: <https://www.rspb.org.uk/birds-and-wildlife/a-z> (Accessed 18/10/2024).

²⁸ British Trust for Ornithology (2024) 'BirdFacts'. Available at: <https://www.bto.org/understanding-birds/welcome-birdfacts> (Accessed 18/10/2024).

²⁹ British Trust for Ornithology (2024) 'Pink-footed Goose BirdFacts page'. Available at: [Pink-footed Goose | BTO - British Trust for Ornithology](#) (Accessed 18/10/2024).

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