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Glossary

Application Site	The area within the red line Planning Boundary comprising the Onshore Transmission Works (OnTW), as defined.
Consented Offshore Transmission Works (OfTW)	Offshore substation platforms and their foundations and substructures, interconnector cables and offshore export cables, as consented by the Scottish Ministers on 10 October 2014.
Consented Offshore Wind Farm	Wind turbine generators and their foundations and substructures, and inter-array cables., as consented by the Scottish Ministers on 10 October 2014.
EIA Report	Report presenting the findings of the Environmental Impact Assessment (EIA).
Natura 2000 Site	A network of nature protection areas throughout the European Union made up of Special Areas of Conservation (SACs) and Special Protection Areas (SPAs) designated under the Habitats Directive and Birds Directive respectively.
Offshore Export Cable	The subsea, buried or protected electricity cables running from ICOL's Offshore Wind Farm offshore substation to the Landfall.
Onshore Export Cables	Electricity cables from the Onshore Substation to the grid connection point.
Onshore Export Cable Corridor	The area within the Application Site where the proposed Onshore Export Cables will be laid.
Onshore Substation	The electrical substation comprising of all the equipment and associate infrastructure required to enable connection to the electrical transmission grid.
Onshore Transmission Works (OnTW)	All proposed works within the Application Site, typically including the Onshore Substation, cables transition pits, cable jointing pits, underground electricity transmission cables connecting to the Onshore Substation and further underground cables required to facilitate connection to the national grid. This includes all permanent and temporary works required. See <i>Chapter 5: Description of Development</i> for full details.
Original OnTW	The OnTW, as was granted planning permission in principle in September 2014, under East Lothian Council (ELC) reference 14/00456/PPM.
Original OnTW ES	The Environmental Statement (ES) that was submitted to support the application for the Original OnTW in 2014.
Priority Habitat	Habitats of conservation importance which are listed on the UK Biodiversity Action Plan and/or Scottish Biodiversity List, rare in Scotland, important for species such as fungi or mosses of which we know little, have local significance or are locally rare.
Priority Species	A species of conservation importance which are listed on the UK Biodiversity Action Plan and/or Scottish Biodiversity List, known to occur in fewer than five sites in Scotland, have experienced population decline of more than 25% in the last 25 years or are rare or threatened in the Lothians.
Revised Offshore Wind Farm	Wind turbine generators and their foundations and substructures, and inter-array cables, as per the scoping report submitted to Marine Scotland Licensing Operations Team on behalf of the Scottish Ministers in April 2017.

Scoping Opinion	The Scoping Opinion adopted by ELC as to the scope and information to be provided in support of an application for the OnTW, as defined.
Scoping Report	Report prepared as the first stage of the EIA process in support of a request for a Scoping Opinion from East Lothian Council, under Regulation 17 of the EIA Regulations. The Report was submitted in July 2017.

Abbreviations and Acronyms

BoCC	Birds of Conservation Concern
BSBI	Botanical Society of the British Isles
BTO	British Trust for Ornithology
CEMP	Construction Environment Management Plan
CIEEM	Chartered Institute of Ecology and Environmental Management
EcIA	Ecological Impact Assessment
ECoW	Ecological/Environmental Clerk of Works
EIA	Environmental Impact Assessment
ELC	East Lothian Council
ES	Environmental Statement
ESESLA	Edinburgh and South East Scotland Local Authorities
HDD	Horizontal Directional Drilling
HRA	Habitat Regulations Appraisal
IEFs	Important Ecological Features
LARG	Lothian Amphibian and Reptile Group
LBAP	Local Biodiversity Action Plan
LBG	Lothian Bat Group
LNRS	Local Nature Reserves
MAGIC	Multi Agency Geographical Information for the Countryside
MHWS	Mean High Water Springs
MLWS	Mean Low Water Springs
NBN (Gateway)	National Biodiversity Network Gateway
NM	Nautical Miles
NNR	National Nature Reserves
NPF	National Planning Framework
pSPA	Proposed Special Protection Area

SAC	Special Area of Conservation
SBL	Scottish Biodiversity List
SNH	Scottish Natural Heritage
SPA	Special Protection Area
SPP	Scottish Planning Policy
SSSI	Site of Special Scientific Interest
SWT	Scottish Wildlife Trust
TWIC	The Wildlife Information Centre
WeBS	Wetland Bird Survey

6 Ecology

6.1 Introduction

- 1 This chapter assesses the potential impacts of the Inch Cape Onshore Transmission Works (OnTW) on ecological and ornithological receptors. This refers to features of nature conservation importance including habitats, species and sites protected for their nature conservation value. These features have been characterised within and around the Application Site through the evaluation of existing survey data, desk studies and implementation of site specific surveys. Subsequently, this chapter presents an assessment of the potential impacts of the construction, operation and decommissioning phases of the OnTW on key ecological receptors of conservation importance. Details of mitigation are also presented.
- 2 This chapter is supported by the following appendices:
 - *Appendix 6A: Original Ecological Surveys (2012/13)* (undertaken to inform the assessment of the Original OnTW);
 - *Appendix 6B: Updated Ecological Surveys (2017)* (undertaken to inform the assessment of the OnTW); and
 - *Appendix 6C: Intertidal and Near-shore Bird Surveys (2012/13)*.

6.2 Consultations

- 3 Scoping and pre-application consultation responses received from East Lothian Council (ELC) and Scottish Natural Heritage (SNH), which were relevant to Ecology, are summarised in Table 6.1 below, including ICOL's response and where relevant information can be found within this Environmental Impact Assessment (EIA) Report.

Table 6.1: Scoping and Consultation Responses and Actions

Consultee	Scoping/ Consultation Response	ICOL Response
SNH (Malcolm Fraser, Forth Area Operations Officer). Letter and e-mail correspondence September and November 2016 (see footnotes).	As part of the preparatory work for the OnTW Application, SNH was consulted regarding the validity of the original ornithological survey data collected over 2012 and 2013 ¹ . Through this consultation, and following the provision of further analysis and justification (RPS, 2016), SNH agreed that the baseline ornithological conditions were unlikely to have changed substantially and that as such the original survey data would remain valid until autumn 2018 ^{2,3} .	No additional/ updated ornithological surveys undertaken. Original data considered to be appropriate for informing the deliberation of consent.
SNH	In their response to the Scoping Report, SNH acknowledged that the site of the former	Ecological Impacts Assessment (EclA)

¹ Letter prepared by RPS and submitted to Malcolm Fraser (SNH, Forth Area Operations Officer) dated 15 September 2016.

² Letter from Malcolm Fraser (SNH, Forth Area Operations Officer) dated 27 September 2016.

³ E-mail from Malcolm Fraser (SNH, Forth Area Operations Officer) dated 9 November 2016.

Consultee	Scoping/ Consultation Response	ICOL Response
(Malcolm Fraser, Forth Area Operations Officer). Scoping Response consultation letter dated 28 August 2017.	Cockenzie Power Station is currently of negligible nature conservation value and that many of the impacts associated with the OnTW will be of a similar magnitude as previously assessed for the Original OnTW. SNH also agreed that much of the previous assessment, conclusions and mitigation will remain relevant and while some of the survey data may technically be out of date, they reiterated their support of the data validity assessment on which they were previously consulted (as detailed above). Consideration of potential impacts on the Outer Firth of Forth and St. Andrews Bay Complex proposed Special Protection Area (pSPA) through the EIA and Habitat Regulations Appraisal (HRA) processes, as was proposed in the Scoping report, was also agreed with. The proposed approach of considering a 'worst-case' scenario to assess environmental effect was also welcomed.	carried out as proposed in Scoping Report and approved by SNH.
ELC (Jean Squires, Planning Officer and Stuart Macpherson, Biodiversity Officer). Formal Scoping Response dated 05 September 2017.	ELC acknowledged that the biological value and ecological sensitivity of the former Cockenzie Power Station was limited and that the selection of this site for the OnTW would reduce disruption to locally occurring habitats. Consequently, they concluded that the risk of significant adverse effects through the impacts of habitat loss and killing and injury of locally occurring wildlife from the OnTW alone and cumulatively with other projects could be scoped out of the assessment. It was also agreed that the baseline data and technical studies undertaken for the Original OnTW ES were likely to remain broadly relevant and SNH's acceptance of the validity of the data collected for the Original OnTW, as detailed above, was acknowledged and supported. Nonetheless, the proposed approach to carry out revised habitat and protected species surveys was agreed with. ELC also generally agreed with the proposed scope of the EclA and the ecological features of interest to be considered, although consideration of potential impacts on marine mammals was also advised. Consideration of potential impacts on all relevant European Protected (Natura 2000) Sites including the Firth of Forth SPA and the proposed Outer Firth of Forth and St Andrews Bay Complex pSPA through the EIA and HRA processes was also explicitly advised.	EclA carried out as proposed in Scoping Report incorporating ELC recommendations. Consideration of impacts on marine mammals has been given. Impacts from the OnTW would not lead to significant impacts and therefore are not included in the assessment. Landfall works will have no greater impact than the installation of the Offshore Export Cable as described and assessed for the Consented Offshore Wind Farm, which has been assessed as not significant. In their recent Scoping Opinion for the Revised Offshore Wind Farm application, both SNH and Marine Scotland have noted that the impacts from the

Consultee	Scoping/ Consultation Response	ICOL Response
		installation of the Offshore Export Cable does not need to be assessed, as it will not lead to significant effects. Therefore, not assessing marine mammals is also consistent with the advice of both Marine Scotland and SNH. Further to this is the fact that there is low mammal presence in the vicinity of the coast line at this location.

6.3 Policy and Legislation

4 Relevant policies and legislation are introduced in *Chapter 2: Policy and Legislation*. An overview of policy and legislation relevant to Ecology are provided below:

- Scottish Planning Policy (SPP) (Scottish Government, 2014a) (see *Section 6.3.1*);
- Scottish National Planning Framework 3 (SNPF) (Scottish Government, 2014b) (see *Section 6.3.2*);
- Strategic Development Plan for South East Scotland (SESplan) (ESESla, 2013) (see *Section 6.3.3*);
- East Lothian Local Plan (ELC, 2008b) (see *Section 6.3.4*);
- East Lothian Local Biodiversity Action Plan (LBAP) 2008-2013 (ELC, 2008b) (see *Section 6.3.5*);
- The Council Directive on the Conservation of Natural Habitats and of Wild Fauna and Flora 1992/43/EEC (EU Habitats Directive) (see *Section 6.3.6*);
- The Council Directive on the Conservation of Wild Birds 2009/147/EC (European Union (EU) Birds Directive) (see *Section 6.3.7*);
- Conservation (Natural Habitats, etc.) Regulations 1994 (as amended) (see *Section 6.3.8*);
- The Wildlife and Countryside Act 1981 (as amended) (see *Section 6.3.9*); and
- The Nature Conservation (Scotland) Act 2004 (as amended) (see *Section 6.3.10*).

6.3.1 Scottish Planning Policy (SPP)

5 The SPP document outlines the obligation of Local Planning Authorities to exercise due consideration to the environment and the conservation of biodiversity. In particular, it

identifies the importance of International, National and Local Designated Sites for nature conservation, legally protected species and habitats such as ancient woodlands and veteran trees and outlines the requirement to protect these interests.

6.3.2 National Planning Framework (NPF) 3

- 6 NPF3 sets the context for development planning in Scotland and provides a framework for the spatial development of Scotland as a whole. As well as providing the planning framework for future sustainable growth it acknowledges Scotland's natural heritage and seeks to better protect, manage and enhance it.

6.3.3 Strategic Development Plan for South East Scotland (SESplan)

- 7 The SESplan is a partnership of six Member Authorities comprising City of Edinburgh, East Lothian, Midlothian, Fife, Scottish Borders and West Lothian. It provides the planning framework for development in South East Scotland whilst recognising and protecting the natural heritage of the area. A replacement version of SESplan has been submitted to Scottish Ministers for examination (June 2017) and this document is discussed further in *Chapter 2: Policy and Legislation* and in the accompanying Planning Statement.

6.3.4 East Lothian Local Plan

- 8 The adopted 2008 East Lothian Local Plan sets out detailed policies and proposals for the use of land and buildings across East Lothian. As well as identifying specific sites for new development it identifies areas to be protected from development including sites of importance for nature conservation, from local to international level. It also provides protection for biodiversity in the region. ELC is preparing a new Local Development Plan which is due to be adopted in early 2018 which will replace the 2008 Local Plan. This is discussed further in *Chapter 2: Policy and Legislation* and the accompanying Planning Statement.

6.3.5 East Lothian LBAP

- 9 The most recent East Lothian LBAP expired in 2013 and has not yet been updated. Nonetheless, it remains a relevant reference providing a list of Priority Habitats and Species that are at particular risk of local extinction in East Lothian and the management actions which are required to protect and maintain their existence. Other habitat or species priorities have been added because they occur in very few places in the Lothians, or because they have a particular relevance to the East Lothian landscape. The aims of the East Lothian LBAP include:

- Ensuring that no locally native species or habitat becomes extinct;
- Reverse the loss of Priority Species; and
- Reverse the decline in extent and quality of Priority Habitats.

6.3.6 EU Habitats Directive (1992/43/EEC)

- 10 The EU Habitats Directive (together with the Birds Directive (see below)) forms the cornerstone of Europe's nature conservation policy. This directive provides the basis upon which sites that support rare, threatened and endemic habitats and species may be protected

by designating them as Special Areas of Conservation (SACs). The directive also provides a strict system of species protection. All in all the directive protects over 1,000 animals and plant species and over 200 so called "habitat types" (e.g. special types of forests, meadows, wetlands, etc.), which are of European importance.

6.3.7 EU Birds Directive (2009/147/EC)

- 11 The EU Birds Directive provides a comprehensive scheme of protection for all wild bird species naturally occurring in the EU. It was adopted in response to increasing concern about the declines in Europe's wild bird populations as well as in recognition that their conservation required co-operation amongst its Member States.
- 12 The directive outlines the requirement for the protection of habitats for endangered (listed in Annex I) as well as migratory bird species through the establishment of a coherent network of Special Protection Areas (SPAs). Together with SACs designated under the Habitats Directive (above), they form a network of protected sites called Natura 2000 sites. The EU Birds Directive also bans activities that directly threaten birds, such as the deliberate killing or capture of birds, the destruction of their nests and taking of their eggs.

6.3.8 Conservation (Natural Habitats, &c.) Regulations 1994 (as amended)

- 13 The Conservation (Natural Habitats, &c.) Regulations 1994 (as amended) provide for the designation and protection of 'European sites', the protection of 'European protected species', and the adaptation of planning and other controls for the protection of European Sites. Under the Regulations, competent authorities i.e. any Minister, government department, public body, or person holding public office, have a general duty, in the exercise of any of their functions, to have regard to the EU Habitats Directive.

6.3.9 The Wildlife and Countryside Act 1981 (as amended)

- 14 The Wildlife and Countryside Act 1981 is the primary legislation which protects certain animals, plants and habitats in the UK. It also controls the release of non-native species and provides the legal protection for sites of biological (and geological) importance designated as Sites of Special Scientific Interest (SSSIs). The Wildlife and Countryside Act has been amended in Scotland through the Nature Conservation (Scotland) Act 2004.

6.3.10 The Nature Conservation (Scotland) Act 2004 (as amended)

- 15 Amongst other things, the Nature Conservation (Scotland) Act 2004 places duties on public bodies in relation to the conservation of biodiversity, increases protection for SSSIs, amends legislation on Nature Conservation Orders and strengthens wildlife enforcement legislation.

6.4 Embedded Mitigation

- 16 The following section details the standard best practice measures which will be incorporated into the planning and implementation of the OnTW to minimise or avoid potential environmental and ecological impacts occurring as a result of the OnTW. Where relevant, such measures have been taken into account in the assessment.

6.4.1 Construction Environment Management Plan

- 17 As detailed in *Chapter 5: Description of Development*, a Construction Environmental Management Plan (CEMP) will be prepared prior to the construction works and submitted to ELC for their approval. The CEMP will set out procedures to ensure all activities with potential to affect the environment are appropriately managed and will include, amongst other things, a Pollution Prevention Plan, Oil Spill Contingency Plan and Noise Management Plan.
- 18 The CEMP also commits to the employment of an Ecological/Environmental Clerk of Works (ECoW) immediately prior to, and throughout the construction of the OnTW. Their role will be to monitor adherence with best practice and compliance with environmental-related planning conditions and legislation.

6.4.2 General Best Practice Measures in Relation to Locally Occurring Terrestrial Mammals

- 19 The following general best practice mitigation measures will be implemented to minimise the risk of disturbance, injury or death of locally occurring terrestrial mammals during construction works:
- All trenches and excavations will be fenced or covered-over at night to prevent any animals from falling in and becoming trapped. If this is not possible an adequate means of escape must be provided (i.e. a gently graded side wall or provision of gently sloped wooden plank or equivalent);
 - Any large diameter pipes will be capped at the end of each working day to reduce the potential for animals to enter them and become trapped inside;
 - Vehicle speeds within the Application Site will be limited to a maximum of 15 mph; and,
 - If any wildlife burrows are discovered within 50 m of the Application Site during construction works then all activities will be temporarily suspended and a member of the ECoW Team contacted immediately.
- 20 Adherence to these measures is predicted to minimise the risk of any potential adverse impacts on locally occurring terrestrial mammals as a result of the OnTW.

6.4.3 General Best Practice Measures in Relation to Breeding Birds

- 21 With only limited exceptions, it is an offence under the Wildlife and Countryside Act 1981 as amended by the Nature Conservation (Scotland) Act 2004, to:
- Intentionally or recklessly take, interfere with, damage or destroy the nest of any wild bird whilst it is in use or being built;
 - Intentionally or recklessly take, interfere with or destroy the egg of any wild bird; or
 - Intentionally or recklessly disturb any wild bird listed on Schedule 1 while it is nest building, or at (or near) a nest containing eggs or young, or disturb the dependent young of such a bird.

- 22 Preferably, any site clearance associated with the OnTW would be timed to take place outside the main bird breeding season to avoid nest destruction and disturbance to nesting birds. The bird breeding season is taken to extend from March to August (inclusive); but for the majority of birds the main breeding season extends from mid-March to at least the end of July (depending on the species concerned). SNH (2011) recognises that avoiding construction work within the breeding season for birds is often not possible, as the season coincides with the best weather for construction. Furthermore, it can still be possible to undertake works during the breeding season with appropriate consideration and mitigation. As it will not be possible to limit construction works to the non-breeding season, pre-clearance/pre-construction checks will be made ahead of the works in all areas of potential bird nesting habitat during the breeding season by an ECoW, or other suitably qualified ecologist, in order to check for the presence of nesting birds. Any active nests found will be cordoned off to a suitable distance for the species concerned (up to 20 m for scrub and tree nesting birds and up to 50 m for open-ground nesting species) and all site personnel would be made aware of the works exclusion zone through toolbox talks presented by an ECoW. Construction operations will be delayed within the exclusion zone until the young have fledged and the nest becomes vacant. Works will only recommence within the exclusion zone when the ECoW has confirmed it is safe to do so.

6.4.4 General Best Practice Measures in Relation to Marine Non-Native Species

- 23 The risk of invasive species introduction will be managed through prevention methods by following best practice, for example the International Convention for the Control and Management of Ships' Ballast Water and Sediments (BWM), and the Scottish Code of Practice on non-native species. Details will be confirmed in the offshore Environmental Management Plan to be approved by relevant consultees prior to construction.

6.5 Baseline Environment

- 24 To describe the baseline environment the following activities were undertaken:
- Review of the Consented Offshore Wind Farm and Original OnTW ES's (ICOL, 2013 and ICOL 2014) and associated documents;
 - Consultation with the local biological records centre and other nature conservation bodies who may be able to supply biological records for the site and surrounding area; and
 - Updated field surveys specifically commissioned for the OnTW.

6.5.1 Study Area

- 25 Given the coastal location of the OnTW and the wide ranging foraging behaviour of seabirds, searches for coastal/marine International/European designated sites included a seaward buffer of up to 40 km from the Application Site (the 'Wider Study Area').
- 26 Due to the relatively small scale and extent of the OnTW, searches for terrestrial International/European, National and Local designated sites were limited to the Application Site and a two kilometre buffer (the 'Local Study Area'). In addition, consultation with the local biological records centre and other nature conservation bodies requested any records they may hold for legally protected or notable species of conservation concern within the Local Study Area.

6.5.2 Survey Area

- 27 All field surveys were conducted within up to 250 metres of the Application Site (the Survey Area) as detailed in *Section 6.5.3*. Access restrictions to parts of the Survey Area are described in more in *Section 6.5.4*.
- 28 From the site visit and analysis of satellite images, the site of the former Cockenzie Power Station now exists as a partially restored brownfield site as detailed in *Chapter 4: Site Selection and Alternatives* comprising spoil piles, bare ground and small patches of rough grassland. The land within the Survey Area is dominated by a combination of residential estates associated with Prestonpans, Cockenzie and Port Seton, industrial areas associated with the former Cockenzie Power Station, public parkland, arable farm land and the intertidal and near shore waters of the Firth of Forth.

6.5.3 Data Sources

- 29 Key data sources relevant to the Study Area (*Section 6.5.1*) including existing data and those commissioned by ICOL are highlighted in Table 6.2.

Table 6.2: Key Data Sources

Data Source	Area of Research
Existing Data	
Consented Offshore Wind Farm ES (ICOL, 2013), in particular <i>Chapter 12: Benthic Ecology, Chapter 15: Ornithology, and Appendix 15C: Intertidal and Near Shore Coastal Bird Report</i> .	Baseline data and EIA for the Consented Offshore Wind Farm and Offshore Transmission Works (OfTW). This assessment included impacts to intertidal habitats and bird species associated with the Firth of Forth SPA from the Wind Farm and OfTW to mean high water springs (MHWS) as well as other relevant SPAs.
Original OnTW ES (ICOL, 2014).	Baseline data and EIA for the Original OnTW. This assessment included impacts to intertidal habitats and bird species associated with the Firth of Forth SPA and other relevant SPAs, as well as terrestrial habitats and species.

Data Source	Area of Research
The Multi Agency Geographical Information for the Countryside (MAGIC) website, SNH Sitelink website and SNH Local Nature Reserves website.	<p>These internet-based resources were used to obtain information on all statutory, International/European, National and Local designated sites in proximity to the Application Site. International/European designated sites include Natura 2000 Sites (SACs and SPAs) and Wetlands of International Importance (Ramsar Sites). National designated sites include SSSIs and National Nature Reserves (NNRs) while Local designated sites are Local Nature Reserves (LNRs).</p> <p>Searches for International/European designated sites were conducted within the Wider Study Area while searches for National and Local designated sites were limited to Local Study Area as explained in <i>Section 6.5.1</i>.</p>
ELC website	<p>ELC's 'Countryside Sites' webpage (http://www.eastlothian.gov.uk/info/379/countryside_and_wildlife/1511/countryside_sites) was checked to identify any non-statutory local designated sites for nature conservation (i.e. Countryside Sites and Scottish Wildlife Trust (SWT) Sites) within the Local Study Area.</p>
East Lothian Local Biodiversity Action Plan (LBAP) (2008-2013)	The East Lothian LBAP was checked to identify whether any of the habitats and species identified within the Local Study Area are Priority Habitats and Species.
Scottish Biodiversity List (SBL)	The SBL was checked to identify whether any of the habitats and species identified within the Local Study Area are of principle biodiversity importance in Scotland.
The National Biodiversity Network (NBN) Gateway	The NBN Gateway was searched for records of legally protected and notable species within the Local Study Area from the last 10 years (i.e. since 2007).
The Wildlife Information Centre for the Lothian and Borders (TWIC)	TWIC were consulted for any records they may hold for non-statutory local designated sites for nature conservation or legally protected or notable species of conservation concern within the Local Study Area.
Lothians Bat Group (LBG)	The LBG were consulted for any bat records they may hold within the Local Study Area.
Scottish Badgers	Scottish Badgers were consulted for any badger records they may hold within the Local Study Area.
Lothian Amphibian and Reptile Group (LARG)	LARG were consulted for any records they may hold for legally protected or notable amphibian and reptile species of conservation concern within the Local Study Area.

Data Source	Area of Research
Botanical Society for the British Isles (BSBI) (Scotland)	BSBI were consulted for any records they may hold for legally protected or notable plant species of conservation concern within the Local Study Area.
Site Specific Surveys/analysis	
Phase 1 Habitat Survey	The main aim of this survey was to identify the broad habitat types and dominant floral communities within the Application Site and a surrounding buffer of 250 m. The survey also aimed to identify the presence of invasive plant species subject to legal control.
Protected Species Surveys	These surveys aimed to confirm the presence or likely absence of protected species most likely to occur in the habitats within the Application Site and surrounding buffer of up to 200 m; namely otters, bats, badgers, reptiles and water voles.

6.5.4 Information Gaps and Limitations

- 30 Access within the site of the former Cockenzie Power Station and Cockenzie Substation, was not permitted for the updated Phase 1 and protected species surveys due to safety issues. However, it was still possible to survey these areas to relatively close range (i.e. to within approximately 125 m of all points) through the surrounding perimeter fences. As such, it was still possible for the surveyor to adequately identify habitat types and assess the potential for protected species to be present within the Application Site. Consequently, the access restrictions have not limited the surveys at all.
- 31 Residential areas in the wider Survey Area (i.e. outwith the Application Site - housing areas associated with Cockenzie and Prestonpans) were also excluded from the surveys based on privacy/access issues. However, such areas are expected to be of low ecological value and are not expected to be significantly affected by the OntW. Consequently, exclusion of these areas has not limited the assessment.

6.5.5 Overview of Baseline

Desk Study Information

Statutory Designated Sites

- 32 There are four coastal/marine statutory International/European designated sites within the Wider Study Area, which are shown in Figures 6.1 and 6.2 below:
- Firth of Forth SPA and Ramsar site;
 - Imperial Dock Lock, Leith SPA;
 - Forth Islands SPA; and

- the proposed Outer Firth of Forth and St. Andrews Bay Complex pSPA.

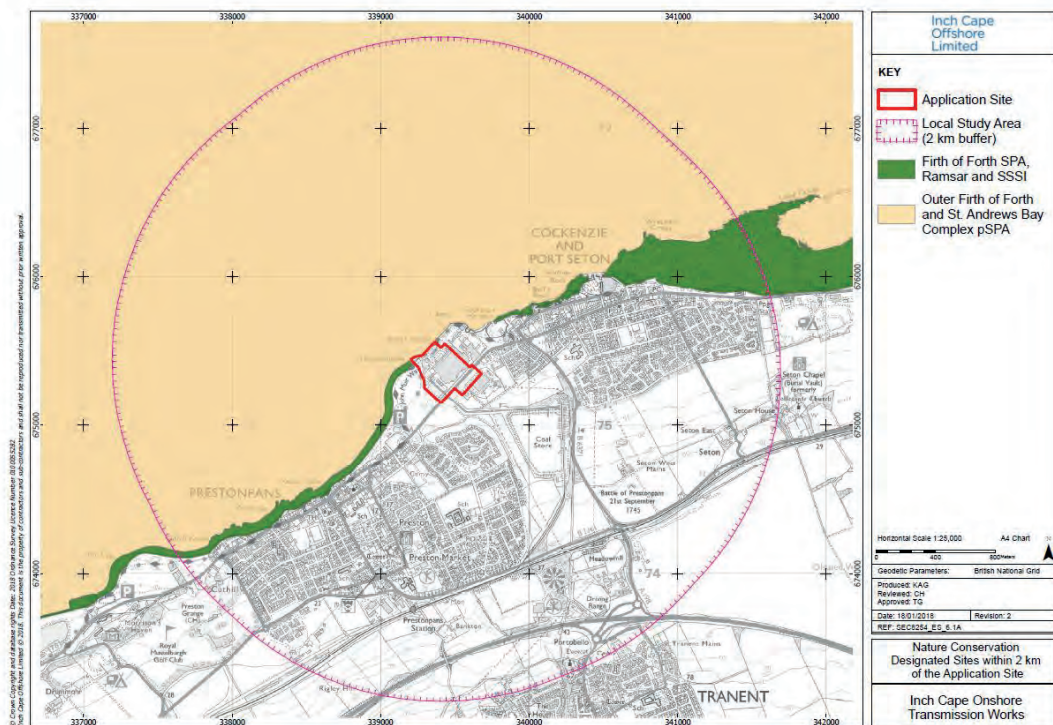


Figure 6.1: Nature Conservation Designated Sites within 2 km of the Application Site (the 'Local Study Area')

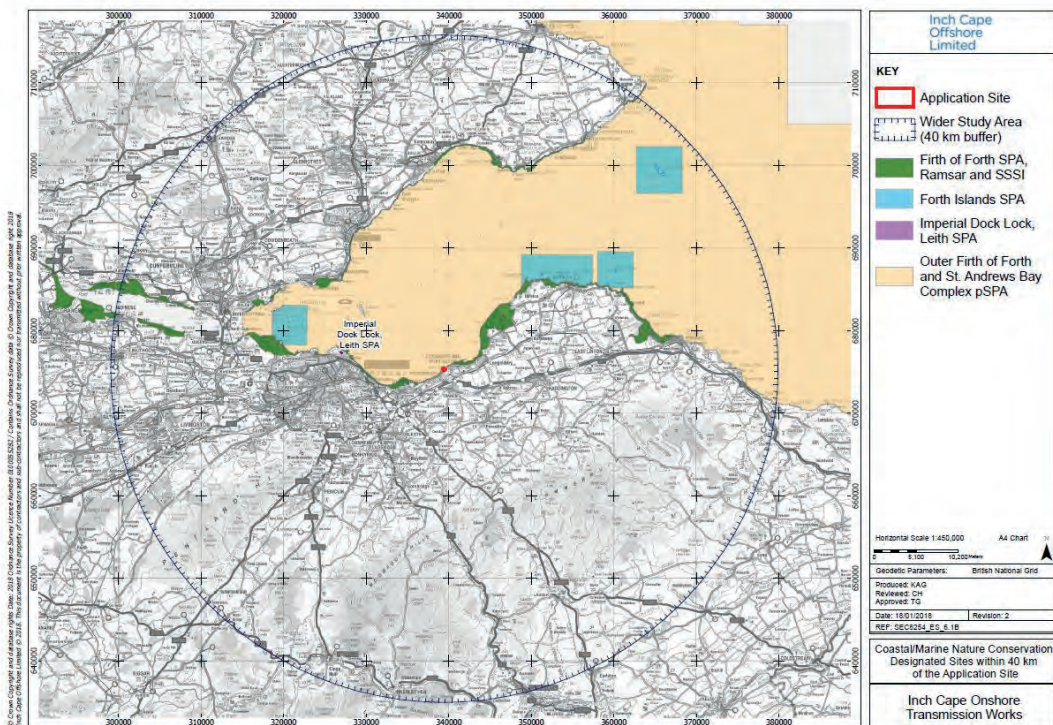


Figure 6.2: Coastal/Marine Nature Conservation Designated Sites in 40 km of the Application Site (the 'Wider Study Area')

33 While there are no terrestrial International/European designated sites within Local Study Area there is one Nationally designated site; the Firth of Forth SSSI which is associated with the Firth of Forth SPA and Ramsar site above. This site is also shown in Figures 6.1 and 6.2.

34 There are no National or Local Nature Reserves within the Local Study Area.

Firth of Forth SPA, Ramsar Site and SSSI

35 In general, the boundaries of these sites are consistent with one another across their entire extent. The north-western corner of the Application Site is located approximately 10 m from the boundary of the Firth of Forth SPA, Ramsar site and SSSI (see Figure 6.1).

36 The Firth of Forth SPA consists of over 25 discrete areas stretching from the inner reaches of the Forth Estuary near Alloa, Clackmannanshire (NS 863 914) in the west to Fife Ness, Fife (NO 639 096) and Dunbar, East Lothian (NT 677 793) at the outer reaches of the Firth of Forth in the east. This complex of sites contains a variety of coastal and estuarine habitats which attract large numbers and a wide variety of over-winter and passage wetland birds (waders and waterfowl) and seabirds to the area. This area is designated under the EU Birds Directive (2009/147/EC) due to its importance in protecting and conserving certain wild bird populations and their habitats, as well as protecting migratory birds and those considered rare or vulnerable. The site qualifies under Article 4.1 of the directive by supporting populations of European important species, listed on Annex 1, and under Article 4.2 of the directive by regularly supporting winter populations, of certain migratory species, of European and international importance. The site further qualifies by supporting a winter waterfowl assemblage of European importance consisting of at least 95,000 individuals including a further 17 named species to those designated under Articles 4.1 and 4.2 alone. The full list of qualifying interests of the Firth of Forth SPA is presented in *Appendix 6C*, Annex 1 (Table A1.1).

37 Table A1.1 of *Appendix 6C* (Annex 1) presents the populations for the full suite of SPA qualifying interests with classification as presented in the SPA citation. However, these population figures are derived from British Trust for Ornithology (BTO) Wetland Bird Survey (WeBS) five year peak counts from the periods 1992/93 - 1996/97 and 1993/94 - 1997/98 and are thus almost 20 years out of date. Therefore, more up to date population figures were sought from SNH for the period 2010/11 – 2014/15⁴.

38 The Firth of Forth is also listed as a Ramsar Site, especially as Waterfowl Habitat, under the Convention on Wetlands of International Importance (an agreement signed in Ramsar, Iran 1971). The qualifying bird interests of the Ramsar site are the same as for the Firth of Forth SPA. SPP states that as all Ramsar Sites are also Natura Sites they are protected under the relevant statutory requirements (Scottish Government, 2014, Paragraph 211).

39 In addition, the Firth of Forth is a nationally important site designated as a SSSI under the Wildlife and Countryside Act 1981 (as amended). Notified in August 2000, for both biological

⁴ Site condition monitoring data provided by Malcolm Fraser (SNH Area Officer), 28 July 2017.

and geological features, the SSSI has various qualifying interests including many bird species and habitats.

Imperial Dock Lock, Leith SPA

- 40 The Imperial Dock Lock, Leith SPA is located in the Port of Leith and is designated for the important breeding population of the Annex 1 species common tern which it supports; an average of 558 pairs at designation (based on data from 1997-2001). The population has increased since designation such that the latest population estimate is 782 pairs (average based on site condition monitoring data from 2012-2017)⁴. This represents the largest colony of common tern in the Forth, and is one of the largest colonies in Britain.
- 41 At its closest point, this SPA is located approximately 12.3 km to the west of the Application Site.

Forth Islands SPA

- 42 Forth Islands SPA consists of a series of islands supporting the main seabird breeding colonies in the Firth of Forth and encompasses the islands of Long Craig, Inchmickery, Isle of May, Fidra, The Lamb, Craigleith and Bass Rock. The extent of the Forth Islands SPA includes these islands themselves, as well as seaward extensions of up to two kilometres into the marine environment around all but Long Craig to include the seabed, water column and surface associated with the islands. The closest part of the SPA to the Application Site is the western seaward extent surrounding Fidra at approximately 13.5 km due north east of the Application Site (Figure 6.1), with the furthest part being the north eastern seaward extent surrounding the Isle of May at approximately 40 km due north east of the Application Site.
- 43 These islands qualify by regularly supporting breeding populations of European importance of the Annex 1 species Arctic tern, common tern, Sandwich tern and roseate tern. Long Craig was designated for supporting the largest colony of roseate tern in Scotland and is the most northerly of only six regular British colonies of this species. The islands also qualify by regularly supporting breeding populations of European importance of the migratory species Northern gannet, European shag, lesser black-backed gull and Atlantic puffin.
- 44 The Forth Islands SPA is also designated for regularly supporting a breeding seabird assemblage in excess of 20,000 individuals. Named species of the assemblage (i.e. those occurring in nationally important populations) include the species listed above as well as razorbill, common guillemot, black-legged kittiwake, herring gull, great cormorant and Northern fulmar.
- 45 Table A1.3 of *Appendix 6C* (Annex 1) presents the populations for the Forth Islands SPA qualifying species at classification as presented in the SPA citation. However, these population figures are out of date. Therefore, more up to date population figures were sought from SNH for the period 2012-2016 and these are also presented in Table A1.3.
- 46 It is notable from Table A1.3 that the breeding populations of Sandwich tern and roseate tern associated with the Forth Islands SPA have declined to few or no pairs. For Sandwich tern, this

decline coincided with low numbers elsewhere in the southeast of Scotland and increased numbers in northeast Scotland, suggesting there may have been a shift in the population's distribution (SNH, 2004).

- 47 The boundary of the Forth Islands SPA overlaps with the boundaries of the following SSSIs: Long Craig, Inchmickery, Forth Islands, Bass Rock and the Isle of May. However, these are all located outwith the Local Study Area for National Designated Sites.

Proposed Outer Firth of Forth and St. Andrews Bay Complex pSPA

- 48 The Outer Firth of Forth and St Andrews Bay Complex pSPA stretches from Arbroath to St. Abb's Head encompassing the Firth of Forth, the outer Firth of Tay and St. Andrews Bay and comprises an area of 2,720.68 km². The site extends beyond the 12 nautical miles (nm) boundary of territorial and offshore waters to encompass the feeding areas of some seabirds.
- 49 The Outer Firth of Forth and St Andrews Bay Complex pSPA attracts one of the largest and most diverse concentrations of marine birds in Scotland. During the non-breeding season, it provides important wintering grounds used for feeding, moulting and roosting by a variety of divers, grebes and seaducks including the largest aggregations of red-throated diver and common eider in Scotland. The Firth of Forth is also notable for its concentrations of wintering gulls, including little gull, kittiwake, black-headed gull, common gull and herring gull. Together with guillemot, shag and razorbill these species contribute to an assemblage of over 40,000 seabirds using the site during the non-breeding season.
- 50 There are also feeding grounds for breeding common tern, Arctic tern and shag nesting colonies within the site. During the breeding season kittiwake, gannet, herring gull, guillemot, puffin, and Manx shearwater also contribute to a major assemblage of over 100,000 seabirds.
- 51 Table A1.4 of *Appendix 6C* (Annex 1) presents the populations for the proposed Outer Firth of Forth and St Andrews Bay Complex pSPA qualifying species as presented in the site's Advice to Support Management document (SNH, 2016).
- 52 The boundary of the proposed Outer Firth of Forth and St Andrews Bay Complex pSPA follows the Mean Low Water Springs (MLWS) mark. It is therefore adjacent to the boundary of the OnTW Application Site at the MLWS mark immediately in front of the site of the former Cockenzie Power Station (i.e. the distance between the Application Site and the proposed Outer Firth of Forth and St Andrews Bay Complex pSPA is 0 metres).

Non-Statutory Designated Sites

- 53 Internet-based searches revealed that there are no non-statutory designated sites (e.g. Local Wildlife/Countryside Sites) within the Local Study Area.

East Lothian LBAP

- 54 Although the period for the existing East Lothian LBAP has now expired (2008-2013) it remains relevant and identifies a number of Priority Habitats and Species which may occur within the Local Study Area. These include intertidal and scrub habitats and a variety of species including

intertidal and near shore water birds, farmland birds, raptors, mammals (such as otter, bats and badger), and reptiles (such as common lizard).

Scottish Biodiversity List (SBL)

- 55 The SBL is a list of animals, plants and habitats that Scottish Ministers consider to be of principal importance for biodiversity conservation in Scotland. There are a number of habitats and species which may occur within or in close proximity to the Application Site most of which are consistent with those referred to in the East Lothian LBAP.

Biological Records

- 56 Table 6.3 presents details of legally protected and notable species which were recorded from the Local Study Area within the last 10 years (i.e. since 2007).

Table 6.3: Biological Records Obtained through Desk Study and Consultation

Species	Details
Otter	The only record of otters within the two kilometres Study Area was provided by TWIC from 2011 and was of an individual observed foraging in the shallow coastal waters.
Bats	Although records of pipistrelle bats (common, soprano and unidentified pipistrelle species) were provided by TWIC within the Local Study Area, none were from within or in close proximity to the Application Site.
Badger	Between them, TWIC and Scottish Badgers provided eight badger road traffic mortality records from the past 10 years all of which were located along the A1 and over 1.7 km from the Application Site.
Birds	TWIC provided a number of bird records from within the Local Study Area, the majority of which were of bird species that are associated with the intertidal and near shore coastal habitats of the Firth of Forth. Other notable bird records related to SBL and Red-listed birds of conservation concern such as house sparrow, skylark and linnet.
Amphibians	No records of any legally protected or notable amphibian species of conservation concern were provided from within the Local Study Area by TWIC.
Reptiles	No records of any legally protected or notable reptile species of conservation concern were provided from within the Local Study Area by TWIC.
Invertebrates	The only notable invertebrate records provided by TWIC from within the Local Study Area were for grayling butterfly and wall butterfly. All of the 14 records for grayling were out with the Application Site although one was from an area of coastal grassland immediately to the east. The only wall butterfly record was from a grassland area approximately 400 m to the south of the Application Site.
Plants	TWIC and BSBI provided a number of records of plant species of conservation concern from within the Local Study Area, a number of which were SBL species. However, all were from locations outwith the Application Site.

Consented Offshore Wind Farm ES (2013) and associated Appendices

- 57 This section summarises the survey work relevant to the OnTW which was undertaken previously and reported in the ES for the Consented Offshore Wind Farm and OfTW (ICOL, 2013).
- 58 *Chapter 12: Benthic Ecology* of the Consented Offshore Wind Farm ES presents the assessment of impacts associated with the Consented Offshore Wind Farm and OfTW to mean high water springs (MHWS) on intertidal habitats and benthic ecology (defined as communities of organisms living on the seabed) (ICOL, 2013). The intertidal habitat at the northern end of the Cockenzie Intertidal Landfall Study Area which corresponds with the very small area included within the OnTW Application Site (see *Appendix 6B*, Figure 6B.1), was classified as hard substratum showing typical zonation of a rocky shore. The biotopes which were distributed successively between the upper shore and extreme low shore at the northern end of the Cockenzie Intertidal Landfall Study Area (which is relevant to the Application Site) were considered to be typical of intertidal and sublittoral fringe rock and included;
- LR.MLR.BF.PelB (*Pelvetia canaliculata* (channel wrack) and barnacles on moderately exposed littoral fringe rock);
 - LR.HLR.MusB.Cht.Cht (*Chthamalus* spp. (barnacle species) on exposed upper eulittoral rock);
 - LR.MLR.BF.FspiB (*Fucus spiralis* (spiral wrack) on exposed to moderately exposed upper eulittoral rock);
 - IR.MIR.KR.Ldig.Ldig (*Laminaria digitata* (oarweed) on moderately exposed sublittoral fringe bedrock); and
 - LS.LSa.MuSa.Lan (*Lanice conchilega* (sand mason worm) in littoral sand).
- 59 Previous intertidal sampling along the Cockenzie foreshore identified a narrow mussel bed (LS.LBR.LMus.Myt.Mx) on mid shore mixed cobble and gravel substrates at the northern end of the Landfall. However, sampling in 2012 for the Consented Offshore Wind Farm proposal found that this habitat was no longer present suggesting that it was likely to have been a naturally ephemeral feature.
- 60 *Chapter 15: Ornithology* and *Appendix 15C: Intertidal and Near Shore Coastal Bird Report* of the Consented Offshore Wind Farm ES details the methods and results of intertidal and near shore bird surveys undertaken between January 2012 and January 2013 along the coastline associated with the Landfall for the Offshore Export Cable. These surveys demonstrated that the surveyed area supported a diversity of waterbird species characteristic of estuarine habitats. This included a number of species which occurred in significant numbers compared to their respective Firth of Forth SPA and Forth Islands SPA population estimates (i.e. >1 per cent) such as red-throated diver, Slavonian grebe, velvet scoter, Sandwich tern, turnstone, common scoter, eider, and long-tailed duck, herring gull, razorbill, guillemot, shag and cormorant.

- 61 *Chapter 15: Ornithology* of the Consented Offshore Wind Farm ES presented the assessment of impacts associated with the Consented Offshore Wind Farm and OfTW to MHWS on ornithology (ICOL, 2013). Despite many of the bird species associated with the intertidal and near shore habitats being qualifying interests of the Firth of Forth SPA and Forth Islands SPA, it was concluded that the Project alone and In-combination with other developments would not result in any adverse impacts on the habitats or species of either site.
- 62 *Appendix 15C: Intertidal and Near Shore Coastal Bird Report* of the Consented Offshore Wind Farm ES (ICOL, 2013) detailed the results of the surveys conducted immediately adjacent to the Landfall point for the Original OnTW, as well as a proposed alternative Landfall point several kilometres further along the shore to the east at Seton Sands. The OnTW Application Site is located further along the shore from the Original OnTW Landfall point and therefore a new Intertidal and Near Shore Bird Report has been prepared which considers the results of surveys undertaken at least 500 m either side of the OnTW Application Site. This report is presented as *Appendix 6C* to this EIA chapter, a summary of which is presented below.

Original OnTW ES

- 63 This section summarises the survey work relevant to the OnTW which was undertaken previously and reported in the ES for the Original OnTW (ICOL, 2014). The Original OnTW extended from a slightly different Landfall point located approximately 300 m west along the shore from the OnTW, to an Onshore Substation located approximately 1.5 km inland. Details of the Original OnTW Application Site and the associated ecology surveys are provided in *Appendix 6A*.

Habitats

- 64 An Extended Phase 1 Habitat Survey undertaken for the Original OnTW in 2012 identified that the semi-natural habitats immediately to the south and west of the Application Site were dominated by intensively managed amenity grassland and the intertidal habitat of the Firth of Forth. The land to the east is dominated by residential areas while to the north are the open coastal waters of the Firth of Forth.

Protected Species

- 65 Protected species surveys undertaken for the Original OnTW in 2014 included searches for evidence of otter, badger, water vole, reptiles and bat roost potential. No evidence of any protected species was detected during these surveys.

Intertidal and Near-shore Bird Surveys

- 66 Potential impacts of the Original OnTW on intertidal and near-shore water birds cross referenced with the assessment made in the Consented Offshore Wind Farm ES (ICOL, 2013), details of which are summarised in relation to the Consented Offshore Wind Farm ES and associated Appendices (Paragraphs 59 to 62) above.

Breeding Birds

- 67 Breeding bird surveys undertaken in 2012 to inform the assessment for the Original OnTW identified no species of conservation concern to be breeding within or immediately surrounding the Application Site. In the wider surrounding area covered by those surveys, species which were found to be breeding were common, widespread and typical of the associated rough grassland, scrub, woodland and farmland habitats.

Winter Bird Surveys

- 68 Winter bird surveys conducted in 2012 and 2013 to inform the assessment for the Original OnTW found several species of conservation value used any of the habitats within or immediately surrounding the Application Site. These included two qualifying interests of the Firth of Forth SPA, Ramsar and SSSI (curlew and oystercatcher), one Schedule 1 protected species (fieldfare) and five Scottish Biodiversity List (SBL) and/or red-listed birds of conservation concern (dunnock, starling, song thrush, black-headed gull and herring gull).
- 69 However, all of these species were either recorded infrequently such as to suggest the Application Site and surrounding area was of limited value to them, and/or in low numbers compared to their national wintering, or where relevant, SPA populations. This is likely because habitat is poor for these species, and so it is unlikely to represent important foraging or roosting ground for them.

Site Specific Surveys*Habitats*

- 70 A Phase 1 Habitat Survey of the Application Site and a surrounding buffer of 250 m was carried out on 14 July 2017, details of which are provided in *Appendix 6B* and Figure 6B.1. The aim of the survey was to identify the broad habitat types and dominant floral communities within the Survey Area as well as the presence of invasive plant species subject to legal control such as Japanese knotweed and giant hogweed. Access to the entire site was restricted, nonetheless it was possible to survey the entirety of the application site through the perimeter fencing (where required).
- 71 The majority of the Application Site is comprised of hardstanding consisting of either concrete or compacted hardcore following the demolition of the former Cockenzie Power Station and associated clearance. Hardstanding is also present around the existing Cockenzie Substation.
- 72 Semi-natural habitats within the Application Site are limited to small patches of managed amenity grassland, semi-improved neutral grassland and species poor semi-improved grassland located within the site of the former Cockenzie Power Station and along the margins of the B1348 Edinburgh Road. These grassland areas are interspersed with very occasional scattered scrub and standard broad-leaved trees.
- 73 Also within the Application Site is a small area of intertidal habitat comprising rocks and boulders associated with the Firth of Forth shoreline.

- 74 The habitat in the Survey Area out with the Application Site is dominated by publicly accessible amenity and semi-improved neutral grassland interspersed with occasional small stands of scrub, trees and tall ruderal (i.e. early successional) vegetation comprising common and widespread species.
- 75 There are also substantial areas of hardstanding associated with the parts of the former Cockenzie Power Station and the Cockenzie Substation which fall outside of the Application Site.
- 76 The Survey Area out with the Application Site also includes an extension of the intertidal rock and boulder habitat which occurs within the Application Site, as well as the open coastal waters of the Firth of Forth beyond.
- 77 No plant species which are subject to legal control were identified within the Survey Area.

Protected Species Surveys

- 78 Protected species surveys were also carried out on 14 July 2017 and included the Application Site plus a surrounding buffer of up to 200 m (the 'Protected Species Survey Area'). Based on the previously identified habitat conditions within and immediately surrounding the Application Site it was considered that the only protected species which could potentially occur there would be otter (along the adjacent seashore), bats (in any buildings immediately adjacent to the Application Site), badgers (in the surrounding scrub and grassland habitats), and potentially reptiles. Full details of the protected species surveys are provided in *Appendix 6B*.
- 79 The habitats within the Protected Species Survey Area were generally considered to have negligible potential to support any protected species, being largely devoid of shelter and subject to high levels of human disturbance. The habitats within the inaccessible site of the former Cockenzie Power Station in particular were considered to be unsuitable for any protected species.
- 80 The only evidence of protected species which was found was an old, two-entrance outlier badger sett located just outside the site of the former Cockenzie Power Station's eastern perimeter fence. However, both entrances were overgrown with vegetation and showed no signs of recent activity. Consequently, it was concluded that the sett was disused and probably had been inactive for some time.
- 81 No evidence of any other protected species was detected in the accessible areas of the Protected Species Survey Area.

Intertidal and Near Shore Bird Surveys

- 82 As detailed above in relation to the Consented Offshore Wind Farm ES (ICOL, 2013) and associated appendices, a programme of intertidal and near shore bird surveys were undertaken between January 2012 and January 2013 along the coastline associated with the originally proposed landfall for the Offshore Export Cable. However, the Consented Offshore

Wind Farm and Original OnTW ES's only considered the results of the surveys conducted immediately adjacent to the originally proposed landfall located approximately 300 m further west along the shore from the Application Site). As the Application Site is located further along the shore the results of surveys undertaken adjacent to this new location were not previously reported on.

- 83 Intertidal and near shore bird surveys were carried out, with more details presented in *Appendix 6C*, which considers the results undertaken at least 500 metres either side of, and up to 1.5 km offshore from the Application Site (the 'Intertidal and Nearshore Bird Survey Area').
- 84 *Appendix 6C* identifies that the coastal waters associated with the Intertidal and Nearshore Bird Survey Area support a diversity of waterbird species typical of estuarine areas. This included various species of waterfowl (predominantly seaducks), wading birds, divers, grebes and seabirds.
- 85 Further analysis of the bird data was undertaken to determine the importance of the coastal habitats of the Intertidal and Nearshore Bird Survey Area for qualifying species of designated sites associated with the Firth of Forth (introduced above and in *Appendix 6C*), many of which were recorded within the Intertidal and Nearshore Bird Survey Area. In general, however, the data showed that the Intertidal and Nearshore Bird Survey Area is of low importance to most SPA qualifying species, typically only supporting small, albeit occasionally significant, numbers (i.e. ≥ 1 per cent) compared to each species' population within the relevant designated sites. Only a few SPA qualifying species regularly occurred in significant numbers. These comprised (with reference to Table 6C.17 of *Appendix 6C*):
 - Eider duck, red-throated diver, turnstone and cormorant associated with the Firth of Forth SPA;
 - Sandwich tern associated with the Firth of Forth SPA and Forth Islands SPA; and,
 - Herring gull associated with Forth Islands SPA and the proposed Outer Firth of Forth and St. Andrews Bay Complex pSPA.

6.5.6 Baseline without the OnTW

- 86 The Scottish Government (National Planning Framework 3, June 2014) identifies the site of the former Cnockenzie Power Station as a national development site for thermal energy generation, carbon capture and storage (National Development 3). NPF3 also identifies Cnockenzie as a key location with opportunities for renewable energy-related investment, reflected by National Development 4 'High Voltage Electricity Transmission Network' in NPF3. ELC recognises that the site presents a key opportunity in terms of economic development and energy related investment and is seeking views on the most appropriate land uses for the site through its Local Development Plan (LDP) consultation exercise, which is at draft stage only at present and a separate Masterplan which was published in November 2017.
- 87 Until the draft LDP has been formally adopted by ELC it is difficult to predict the baseline in the absence of the OnTW. However, given the status of the site in NPF3 it is expected that the

demolished site of the former Cockenzie Power Station will be redeveloped, most probably for some energy/industrial related purpose.

6.6 Assessment Methodology

6.6.1 Guidance and Methods

88 Relevant information and guidance to this Assessment includes:

- Guidelines on Ecological Impact Assessment in the United Kingdom and Ireland, Terrestrial, Freshwater and Coastal (CIEEM, 2016); and
- A Handbook on Environmental Impact Assessment (SNH, 2013).

89 The Ecological Impact Assessment (EclA) methods used within this chapter follow the principals and approaches detailed in *Chapter 3: Process and Methodology*. The significance of the effects that potential impacts associated with the OnTW may have on ecological receptors is defined by correlating the magnitude of the impacts with the sensitivity of the particular ecological receptor under consideration. Categorisation of the magnitude of impacts and receptor sensitivity is detailed below.

6.6.2 Magnitude of Impacts

90 The magnitude of impacts is determined through understanding how each ecological receptor responds to the activities associated with the OnTW. The elements used to define the magnitude of impacts include:

- Duration: whether particular impacts/activities will occur in the short-term (<5 years), medium-term (5-15 years) or long-term (15-25 years or longer);
- Timing: such as if impacts/activities occur during critical life-stages or seasons (e.g. bird nesting season);
- Frequency: the number of times an impact/activity occurs could influence the resulting effect which could affect foraging or breeding success and energy expenditure with knock-on effects on individuals' ability to survive;
- Extent: the spatial or geographical area over which the impact/effect may occur; and,
- Reversibility: whether the effects will be reversible in the short to medium term.

91 The magnitude of potential impacts associated with the OnTW was defined using the criteria presented in Table 6.4.

Table 6.4: Magnitude of Impacts

Magnitude	Description
High	Major effects on the feature/population which would have a sufficient effect to alter the nature of the feature in the short- to long- term and affect its long-term viability.
Moderate	Effects that are detectable in short and medium-term, but which should not alter the long-term viability of the feature/population.
Low	Minor effects, either of sufficiently small-scale or of short duration to cause no long-term harm to the habitat/population.
Negligible	A potential effect resulting in no change or a very small or temporary change that is not expected to affect the habitat/population in any way.

6.6.3 Sensitivity of Receptors

- 92 Determining the sensitivity of ecological receptors within the Study Area is undertaken in a systematic way using criteria that determine their importance. The term used for ecological receptors that may be affected by the OnTW is Important Ecological Feature (IEF). The approach to determining the nature conservation level of each IEF is outlined in Table 6.5 with the scale of sensitivity being classed as Low, Moderate or High.
- 93 In accordance with CIEEMs EcIA guidelines (CIEEM, 2016), the value of habitats is also measured against published selection criteria. These include size (extent), diversity, naturalness, rarity, fragility, recorded history, position in an ecological or geographical unit, current condition and potential value.
- 94 When assigning a level of value to each IEF, their distribution and status, including a consideration of trends based on available historical records, are considered. Rarity is considered because of its relationship with threat and vulnerability, although rarity in itself is not necessarily an indicator of value. A species that is rare and declining will be assigned a higher level of importance than one that is rare but known to be stable.

Table 6.5 Approach to Evaluating Ecological Receptor Sensitivity

Receptor Sensitivity	Geographic Frame of Reference	Examples
High	International	<p>Habitats or species that form part of the cited interest within an internationally protected site, such as those designated under the Birds (e.g. SPAs) or Habitats Directives (e.g. SACs) or other international convention (e.g. Ramsar site).</p> <p>A feature (e.g. habitat or population) which is either unique or sufficiently unusual to be considered as being one of the highest quality examples in an international/ national context, such that</p>

Receptor Sensitivity	Geographic Frame of Reference	Examples
		the site is likely to be designated as a site of European importance (e.g. SPA or SAC).
	National	<p>Habitats or species that form part of the cited interest within a nationally designated site, such as a SSSI or NNR.</p> <p>A feature (e.g. habitat or population) which is either unique or sufficiently unusual to be considered as being one of the highest quality examples in a national/ regional context for which the site could potentially be designated as a SSSI.</p> <p>Presence of SBL habitats or species, where the action plan states that all areas of representative habitat or individuals of the species should be protected.</p>
Moderate	Regional	<p>Habitats or species that form part of the cited interest of a LNR, or some local-level designated sites depending on specific site conditions.</p> <p>A feature (e.g. habitat or population), which is either unique or sufficiently unusual to be considered as being of nature conservation value in a regional (i.e. Lothian and Borders) context.</p> <p>Presence of LBAP habitats or species, where the action plan states that all areas of representative habitat or individuals of the species should be protected, or Red-listed UK Birds of Conservation Concern (BoCC).</p>
Low	Local	<p>Habitats or species that form part of the cited interest of a local-level designated site and may be designated as a non-statutory Site of Importance for Nature Conservation or the equivalent, e.g. Local Wildlife/Countryside Site, Ancient Woodland designation.</p> <p>A feature (e.g. habitat or population) that is of nature conservation value in a local context only, with insufficient value to merit a formal nature conservation designation.</p>

6.6.4 Determining the Significance of Effects

- 95 Effects are classified as either direct or indirect. Direct effects are those such as habitat loss and noise disturbance to ecological receptors. Indirect effects include displacement from potential foraging areas through disturbance impacts or physical loss or disruption of foraging resources.
- 96 As mentioned above, the significance of effects is defined by relating the magnitude of the impacts arising from the OnTW (as defined in Table 6.4) with the sensitivity of the particular ecological receptor under consideration (as defined in Table 6.5). Consideration of the magnitude of potential impacts and receptor sensitivity will determine an outcome for the

residual effects (both positive and negative) following application of mitigation as demonstrated in the matrix shown in Table 6.6.

Table 6.6: Significance of Effects

Magnitude of Impact	Sensitivity of resource/receptor		
	Low	Moderate	High
Negligible	Negligible/Minor	Minor	Minor/Moderate
Low	Minor	Minor/Moderate	Moderate
Moderate	Minor/Moderate	Moderate	Moderate/Major
High	Moderate	Moderate/Major	Major

- 97 Although the CIEEM (2016) guidelines discourage the use of a matrix, the one in Table 6.6 has been used here for consistency in the approach between disciplines/chapters. The impact assessment draws on available information pertaining to the sensitivity, distribution and extent of relevant habitats and or species' population size including published scientific papers and 'grey' literature in order to inform impact magnitude and receptor sensitivity.
- 98 A significant effect does not necessarily equate to an effect so severe that consent for the project should be refused planning permission, simply that the environmental consequences of such an effect are sufficiently important for decision makers to be adequately informed about (CIEEM, 2016). For the purposes of this assessment, only those effects described as Moderate, Moderate/Major or Major are considered to be ecologically significant, which is consistent with SNH's view of what would be regarded as likely significant effects in the EIA process (SNH, 2013).

6.6.5 Consideration of Ecological Receptors

- 99 A preliminary list of IEFs to be considered within the impact assessment was selected based upon the following:
- Statutory and non-statutory designated sites of nature conservation importance, as defined in Table 6.5, located within the relevant Study Areas (see *Section 0*) and their associated qualifying interests;
 - Habitats listed on Annex 1 of the EU Habitats Directive;
 - Legally protected species under the Wildlife and Countryside Act 1981 (as amended) (excluding common breeding birds) and/or the Conservation (Natural Habitats, etc.) Regulations 1994 (as amended);
 - Bird species listed on Annex 1 of the EU Birds Directive;
 - Red-listed bird species of conservation concern (BoCC) (Eaton et al. 2009);

- Habitats and species identified on the SBL; and/or,
- Habitats and species identified as priorities in the East Lothian LBAP.

100 Ecological receptors which met one or more of the above criteria, and which were identified as being associated with the OnTW (e.g. via the desk study or field surveys), formed this preliminary group of IEFs for this assessment.

101 However, the aim of the EIA is to report on significant effects, rather than every conceivable effect. As such, a number of IEFs were scoped out of the assessment as the baseline desk study and survey results indicated that significant effects were not likely to occur, for example if there was no connectivity to designated sites, no breeding was recorded, the number of individuals recorded was extremely low in relation to their relevant reference populations, and/or site usage was rare. Consequently, such impacts do not require assessment under the terms of the EIA Regulations and SNH (2006) guidelines.

102 SNH (2006) states that *“the inclusion of a species within an LBAP should not lead to SNH objecting to a proposal because of local impacts on that species, unless in SNH’s judgement the status of the species regionally or nationally could be compromised by the development”*. This can be reasonably expanded to include SBL or red-listed species that are included in their respective classification based on a relative decline in numbers from a high baseline rather than an inherent rareness at a national level. These species were therefore also omitted from the impact assessment.

103 Table 6.7 presents the full, preliminary list of IEFs and their sensitivity. The table also provides qualification for each IEFs sensitivity assessment as well as identifying those VERs which have been scoped in and out of the assessment, along with any justification for that decision.

Table 6.7: Sensitivity of Receptors in the Onshore Transmission Works

Receptor	Sensitivity	Scoped In/Out	Qualification
Firth of Forth SPA and Ramsar Site	High	In	Internationally designated (Natura 2000) site the boundary of which is approximately 10 m from the Application Site. This site is important for the large numbers and wide variety of over-wintering and passage wetland birds which it supports (see <i>Section 6.5.5</i>), many of which occur in the intertidal and near-shore coastal habitats immediately adjacent to the OnTW Application Site.

Receptor	Sensitivity	Scoped In/Out	Qualification
Imperial Dock Lock, Leith SPA	High	Out	Internationally designated (Natura 2000) site located approximately 12.3 km from the Application Site, recognised for the important populations of breeding common tern which it supports (see <i>Section 6.5.5</i>). However, no direct impacts on this site are predicted due to its distance of separation from the Application Site while the occurrence of common tern (the site's only qualifying species) in proximity to the Application Site was infrequent and abundance was very low compared to the SPA population.
Forth Islands SPA	High	In	Internationally designated (Natura 2000) site located approximately 13.5 km from the Application Site, recognised for the important breeding seabird populations and assemblage it supports (see <i>Section 6.5.5</i>). No direct impacts on this site are predicted due to its distance of separation from the Application Site. However, some of the SPAs qualifying species were recorded in proximity to the Application Site during the intertidal and near shore bird surveys.
Proposed Outer Firth of Forth and St. Andrews Bay Complex pSPA	High	In	Proposed Internationally designated (Natura 2000) site the boundary of which abuts that of the Application Site at the MLWS mark. This site is recognised for the important breeding and non-breeding seabird populations it supports (see <i>Section 6.5.5</i>) many species of which occur in the intertidal and near-shore coastal habitats immediately adjacent to the Application Site.
Firth of Forth SSSI	High	In	Nationally designated site located approximately 10 m from the Application Site. This site is notified for both biological and geological features including the large numbers and wide variety of over-wintering and passage wetland birds which it supports (see <i>Section 6.5.5</i>) many of which occur in the intertidal and near-shore coastal habitats immediately adjacent to the Application Site.
Intertidal (Rock & Boulder) Habitat / Intertidal and sublittoral fringe rock biotopes (see <i>Section 6.5.5</i>)	Low	In	Intertidal habitat is a Priority Habitat of the East Lothian LBAP, a very small area of which occurs within the Application Site. Although widely distributed throughout the UK and not considered to be of particularly high conservation value these habitats are likely to provide a food resource for waterbirds associated with Natura 2000 Sites of the Firth of Forth (above).

Receptor	Sensitivity	Scoped In/Out	Qualification
Semi-improved neutral grassland Amenity grassland Scattered scrub Broad-leaved trees	Low	Out	Common and widespread habitat of low ecological value and no conservation status.
Otter	Low	Out	European protected species for which a single record was received within the Local Study Area, although survey evidence and habitat suitability suggests that occurrence would be rare limited to the coastal habitats of the Firth of Forth.
Bats	Low	Out	European protected species for which records were received confirming that pipistrelle bat species are present in the wider surrounding area. However, the habitats associated with the Application Site are considered to be unsuitable as foraging bats and no bat roost potential exists.
Badger	Low	Out	Nationally protected species for which records were received confirming that the species is present in the wider surrounding area. Although surveys identified an old, disused sett immediately adjacent to the Application Site, the associated habitats are considered to be unsuitable for the species.
Red-throated diver Sandwich tern Turnstone Cormorant Eider Red-breasted merganser Velvet scoter Herring gull	High	In	Qualifying/assemblage interests of one or more of the Firth of Forth Natura 2000 Sites (above) which were regularly/frequently recorded within the Intertidal and Nearshore Bird Survey Area during the year or relevant breeding/non-breeding season and often in small but significant numbers relative to the species' relevant SPA populations.

Receptor	Sensitivity	Scoped In/Out	Qualification
Common scoter Oystercatcher Ringed plover Shag Razorbill Guillemot	High	In	Qualifying/assemblage interests of one or more of the Firth of Forth Natura 2000 Sites (above) which were regularly/frequently recorded within the Intertidal and Nearshore Bird Survey Area during the year or relevant breeding/non-breeding season but only occasionally in significant numbers relative to the species' relevant SPA populations.
Slavonian grebe Goldeneye Great crested grebe Long-tailed duck Mallard	High	In	Qualifying/assemblage interests of one or more of the Firth of Forth Natura 2000 Sites (above) which were rarely/infrequently recorded within the Intertidal and Nearshore Bird Survey Area during the year or relevant breeding/non-breeding season and only occasionally in small, significant numbers relative to the species' SPA populations.
Common tern	High	Out	Qualifying interest of Forth Islands SPA, Imperial Dock Lock, Leith SPA, and proposed Outer Firth of Forth and St. Andrews Bay Complex pSPA, recorded infrequently within the Intertidal and Nearshore Bird Survey Area though present in small, significant numbers relative to the species' Forth Islands SPA population. However, birds in the Intertidal and Nearshore Bird Survey Area considered unlikely to be associated with the SPA based on the species' foraging range.
Curlew Gannet	High	Out	Qualifying/assemblage interests of one or more of the Firth of Forth Natura 2000 Sites (above), recorded frequently within the Intertidal and Nearshore Bird Survey Area during the year or relevant breeding/non-breeding season but in small, insignificant numbers relative to the species' SPA population.
Bar-tailed godwit Knot Redshank Dunlin Wigeon Lesser black-backed gull Puffin Kittiwake Fulmar	High	Out	Qualifying/assemblage interests of one or more of the Firth of Forth Natura 2000 Sites (above) but only recorded rarely/infrequently and/or in small, insignificant numbers within the Intertidal and Nearshore Bird Survey Area during the year or relevant breeding/non-breeding season relative to the species' SPA population.

Receptor	Sensitivity	Scoped In/Out	Qualification
Golden plover Shelduck Grey plover Lapwing Arctic tern Roseate tern Little Gull Manx shearwater	High	Out	Qualifying/assemblage interests of one or more of the Firth of Forth Natura 2000 Sites (above) but not recorded within the Intertidal and Nearshore Bird Survey Area.
Purple sandpiper	Low	Out	Schedule 1 protected species under the Wildlife and Countryside Act (1981) rarely recorded within the Intertidal and Nearshore Bird Survey Area and only during the non-breeding season.
Fieldfare Linnet Song thrush Dunnock Black-headed gull Starling	Moderate	Out	Schedule 1 protected, Red-listed and/or SBL species recorded in or around the Application Site during the breeding and/or non-breeding season but in low numbers compared to the species' breeding or wintering populations.
Grayling butterfly Wall butterfly	Low	Out	SBL species, for which a record was received near to the Application Site. However, the Application Site possess negligible habitat capable of supporting the species.

- 104 While Table 6.7 considers the sensitivity of waterbirds associated with the OnTW individually, for concision the impact assessment (*Sections 6.7 to 6.10*) considers waterbirds either collectively or as species groups (i.e. waders, seabirds etc.).

6.6.6 Cumulative Impact Assessment

- 105 As well as consideration of the potential impacts of the OnTW on IEFs, an assessment of the potential cumulative effects should be considered in combination with potential impacts associated with other developments that exist or are likely to occur in the wider area. This includes both operational projects and projects in the planning process. The cumulative impact assessment will look at all impacts, including identifying any situation where effects that are minor in isolation could have a greater additive effect, to render them significant. The cumulative impact assessment is presented in *Section 6.9*.

6.7 Impact Assessment

6.7.1 Summary of OnTW

Construction

- 106 *Chapter 5: Description of Development* provides details of the indicative layout and approach to the OnTW, an outline summary of which is provided below.

Offshore Export Cable Landfall and Onshore Installation

- 107 Two Offshore Export Cables will be brought ashore, either through the intertidal zone or under the existing seawall into Cable Transition Pits located above the MHWS. This will be achieved by one of two methods; Open Cut Trenching, or Horizontal Directional Drilling (HDD). Broadly, the HDD option involves drilling a hole underground between the Cable Transition Pits at the landward side of the Landfall to a point below the MLWS mark through which the Offshore Export Cables are pulled and installed. The Open Cut Trenching method involves excavating a trench between the Cable Transition Pits and a point below the MLWS within which the Offshore Export Cables are laid before the trench is backfilled.
- 108 Of these two approaches, the Open Cut Trenching method is considered to be the worst case scenario as it will involve greater disturbance of terrestrial and possibly intertidal habitats and is also considered likely to be more disturbing to wildlife, in particular waterbirds associated with the designated sites of the Firth of Forth. The following impact assessment will be based on this method.
- 109 Between the Cable Transition Pits and the Onshore Substation (see below), the two Offshore Export Cables are expected to be installed via either surface cut trenches or ducts. These may require jointing pits if the cables have to be installed in sections.
- 110 Between the Onshore Substation and the Grid Connection Point, the two Onshore Export Cables are also expected to be installed via either surface cut trenches or ducts as described in *Section 5.4 of Chapter 5: Description of Development*.

Onshore Substation

- 111 The Onshore Substation will accommodate a footprint of approximately 3.5 ha and will consist of various installations including a control building, office buildings and enclosures for key elements of the facility's operational equipment (i.e. switchgear, transformers, shunt reactors and diesel generator). These will all be surrounded by concrete hardstandings. There will also be an internal access road and car park while the perimeter of the Onshore Substation will be surrounded by security fencing.
- 112 During construction, a temporary construction compound will also be established. This is expected to be located adjacent to the Onshore Substation footprint and will accommodate approximately six hectares. This will include temporary office and welfare facilities, material and equipment storage/laydown areas, a security facility and a car parking area.

- 113 As part of the landscaping of the Application Site, the Onshore Substation will be surrounded to the north-west, west and east by earth embankments which will be planted with a mix of native species reflecting woodland and scrub species from the surrounding area.

Operation

- 114 Operational activities are expected to be limited to routine maintenance and servicing of the Onshore Substation and along the Onshore Export Cable Corridor.

Decommissioning

- 115 The scale and nature of the works involved in decommissioning are expected to be equivalent to those detailed for the construction phase.

6.7.2 Refinement of Potential Impacts

- 116 Through the scoping process, ELC agreed that the biological value and ecological sensitivity of the former Cockenzie Power Station site within which the Application Site is located was limited. Consequently, they concluded that the risk of significant adverse effects through the impacts of habitat loss and killing and injury of locally occurring wildlife from the OnTW alone and in combination with other projects could be scoped out of the assessment.

- 117 It is also considered on the basis of the negligible to low ecological value of the terrestrial habitats within the Application Site that any impacts to such habitats would be of negligible magnitude and hence not significant. Consequently, any impacts of disturbance to terrestrial habitats have also been scoped out.

- 118 Finally, as the Application Site does not overlap with any designated sites (as identified in *Section 6.5.5*), there will be no loss or disturbance of habitats associated with these sites and so such impacts have also been scoped out.

- 119 Following on from the above, impacts which have been scoped in to be considered in this assessment of the OnTW are listed below relative to each development phase:

- Impacts of Construction (and Decommissioning):
 - Temporary disturbance of intertidal habitats through cable installation works and temporary construction areas;
 - Disturbance of locally occurring wildlife (principally intertidal and near shore waterbirds) within and immediately adjacent to the Application Site generated by activities involved in the construction and installation of the OnTW; and,
 - Pollution of terrestrial and coastal habitats through accidental spillage of chemicals or fuels, or the release of sediment from within the Application Site.
- Impacts of Operation:
 - Disturbance of locally occurring wildlife (principally intertidal and near shore waterbirds) generated through the operation of the substation and the routine

maintenance operations associated with the Onshore Substation and associated Onshore Export Cables;

- Pollution of terrestrial and coastal habitats through accidental spillage of chemicals or fuels during routine maintenance operations associated with the Onshore Substation and associated Onshore Export Cables; and
- An assessment of the effect of landscape planting on biodiversity at a site level.

6.7.3 Effects of Construction

Temporary Habitat Disturbance (and Associated Species Impacts)

- 120 Although none of the intertidal habitat associated with the Landfall and Offshore Export Cable trenching activities is expected to be permanently lost, it will be disturbed during the Offshore Export Cable installations works at the Landfall. For this assessment a precautionary assumption is made that the entire area of intertidal habitat (approximately 0.2 ha) could be affected by these works.
- 121 As identified in *Section 6.5: Baseline Environment* the intertidal habitat within the Application Site is not part of any designated site and represents less than 0.01 per cent of the intertidal habitat in the entire Firth of Forth (intertidal area associated with Firth of Forth SPA is 6317.69 ha (SNH, 2001)). The magnitude of this impact on the low sensitivity intertidal habitat within the Application Site is therefore considered to be negligible with the resulting effect being Negligible/Minor (see Table 6.7) and non-significant.
- 122 With regards to the species associated with this habitat (i.e. marine algae and benthic fauna), *Chapter 12: Benthic Ecology* of the Consented Offshore Wind Farm ES (ICOL, 2013), which assessed the impacts of the OfTW on benthic ecology, concluded that the removal of intertidal and sublittoral rocky shore biotopes along this stretch of coastline will likely cause a temporary loss of species richness and diversity (namely furoid algae and marine invertebrates). Species recovery would be dependent on the suitability of the replaced substrate and the life cycle of the characterising species, which are typically long for rocky intertidal species (e.g. potentially up to 20 years for some species). As such recovery, assuming a temporary loss of all species, could take at least 10 years although immigration of adults from adjacent undisturbed areas could help to reduce this timeframe. Nonetheless, the magnitude of the impact was considered to be low. Given the low sensitivity of the biotopes involved any associated effects are therefore predicted to be Negligible/Minor (see Table 6.7) and non-significant.
- 123 In terms of the impact of this temporary habitat disturbance on birds, particularly those associated with the designated sites of the Firth of Forth, it is only really possible that the small area of intertidal habitat within the Application Site would be used by foraging waders during low tide (as opposed to open water species such as seaducks, grebes, divers and terns when submerged at high tide). Wading birds are only represented as qualifying interests of the Firth of Forth SPA, Ramsar site and SSSI. *Appendix 6C*, Table 6C.4 identifies that very few wading bird species regularly occurred in the survey sector which covered the intertidal and near shore habitats adjacent to the Application Site (i.e. within Sector B). Moreover, those individuals which were recorded there are likely to have been distributed throughout the wider intertidal

habitat of the survey sector rather than concentrated within the small area of habitat within the Application Site, if at all. Therefore, the intertidal habitat within the Application Site is expected to be of negligible importance to wading bird species. In any case, any birds which may be temporarily displaced from this small area of intertidal habitat will be able to use alternative, nearby foraging areas elsewhere along the shore. Consequently, it is concluded that the temporary habitat disturbance and any associated loss of foraging resource on the high sensitivity qualifying bird species of the Firth of Forth SPA, Ramsar Site and SSSI would have an impact of negligible magnitude. As such, any resulting effects are predicted to be Minor/Moderate (see Table 6.7) and non-significant.

Disturbance of Intertidal and Near Shore Waterbirds

- 124 *Appendix 6C* identifies that the intertidal and near shore habitats adjacent to the Application Site support a variety of waterbirds such as waders, seaducks, grebes, divers and terns for feeding, loafing and roosting, most of which are associated with the designated sites of the Firth of Forth. This is consistent with the findings of the intertidal and near shore bird surveys undertaken to inform the assessment of the Original OfTW and reported in *Appendix 15C: Intertidal and Near Shore Coastal Bird Report* of the Consented Offshore Wind Farm ES (ICOL, 2013), which focussed on a narrow stretch of coastline further to the west of the Application Site and associated Export Cable Landfall. Consequently, although prepared in relation to the Consented OfTW, *Chapter 15: Ornithology* of the Consented Offshore Wind Farm ES provides a reliable and relevant reference upon which to base the assessment of potential impacts on intertidal and near shore waterbirds from the OnTW.
- 125 *Chapter 15: Ornithology* of the Consented Offshore Wind Farm ES (ICOL, 2013) presents the findings of a number of bird disturbance studies with *Section 15.7* concluding that disturbance impacts associated with the Consented OfTW would be temporary and localised. Disturbance for the most susceptible species was predicted to be limited to within 250 m and 350 m for foraging and roosting birds respectively. Furthermore, it was considered likely that suitable alternative roosting and foraging habitat was available in adjacent areas of shoreline and open water as well as within the wider Firth of Forth. In addition to this, the waterbirds which use the habitats adjacent to the Application Site are expected to be habituated to reasonably high levels of disturbance from both the historical operation and recent demolition of the former Cockenzie Power Station as well as regular human disturbance from public walking behind the seawall.
- 126 Regarding the construction of the Onshore Substation specifically, the likelihood of disturbance adversely affecting intertidal and near shore waterbirds of the Firth of Forth is significantly reduced by the fact that it is located approximately 120 m inland from the coastal margin (see *Figure 1.1*).
- 127 Therefore, it is concluded that disturbance of the high sensitivity qualifying bird species of the Firth of Forth SPA, Ramsar Site and SSSI, Forth Islands SPA and Outer Firth of Forth and St. Andrews Bay Complex pSPA would have an impact of negligible magnitude. Given the high sensitivity of these IEFs this results in a Minor/Moderate and non-significant effect (see Table 6.7).

Pollution of Habitats

Coastal Habitats of the Firth of Forth

- 128 The use of construction machinery immediately adjacent to the coast introduces the risk of fuel or chemical spillage incidents occurring within intertidal and near shore waters of the Firth of Forth, and hence the Firth of Forth SPA, Ramsar Site and SSSI and proposed Outer Firth of Forth and St. Andrews Bay Complex pSPA.
- 129 The ecological impacts of pollution events vary with the severity of the pollution incident and are dependent on the scale of the spillage and the nature of the contaminants involved. In the event of a worst case scenario, where large quantities of fuel or hazardous chemical are spilt this could result in major significant adverse effects to these designated sites, their qualifying interests and associated habitats.
- 130 As identified in *Chapter 5: Description of Development* a CEMP will be produced prior to the commencement of works. This will include details of all precautionary methods of working and pollution prevention measures in order to avoid or minimise the risk of any pollution incidents occurring. The CEMP is also expected to include incident response procedures to reduce the impacts that any pollution events which do occur may have. As such, it is anticipated that the risk of any pollution incidents occurring will be very low and any which do are likely to be identified and responded to quickly. Consequently, any ecological impacts will be localised and only involve small quantities of contaminant.
- 131 For works undertaken above the MHWS, the shoreline is also protected by an artificial seawall which will act as a barrier to the release of any contaminants from the Application Site into the sea.
- 132 The risk of coastal habitats being affected by pollution incidents specifically resulting from the construction of the Onshore Substation are significantly reduced by the fact that it is located approximately 120 m inland from the coastal margin. This therefore provides a reasonable buffer zone within which any pollution incidents can be intercepted and cleaned up before they reach the shore.
- 133 Consequently, the impact magnitude of any pollution incidents on the Firth of Forth SPA, Ramsar Site and SSSI and proposed Outer Firth of Forth and St. Andrews Bay Complex pSPA and their associated habitats and qualifying interests are anticipated to be of negligible magnitude. Given the high sensitivity of these IEFs this results in a Minor/Moderate and non-significant effect (see Table 6.7).

Terrestrial Habitats

- 134 The negligible to low ecological value hardstanding and grassland habitats which make up the majority of the Application Site have been scoped out of the assessment. Consequently, the effects of any fuel or chemical spillage incident on these habitats will not lead to a significant effect and therefore have not been assessed.

6.7.4 Effects of Operation and Maintenance

Disturbance of Intertidal and Near Shore Waterbirds

- 135 During the operational phase of the OnTW, disturbance is predicted to be limited to the occasional presence of personnel conducting routine maintenance and servicing works at the Onshore Substation and along the Onshore Export Cables.
- 136 Activities associated with these works are expected to result in temporary, short-term, and low intensity visual and auditory disturbance within and immediately surrounding these areas. Compared to the impacts associated with the more intrusive construction activities at these locations on the various IEF species associated with the designated sites of the Firth of Forth, and considering the baseline levels of disturbance referred to above, it is anticipated that the magnitude of any disturbance impacts associated with the operational activities will be negligible.
- 137 Furthermore, as noted in *Chapter 8: Landscape and Visual*, as part of the landscaping of the Application Site the Onshore Substation will be surrounded to the north-west, west and east by earth embankments planted with woodland and scrub species which will provide additional screening to visual and auditory disturbance. The Landscape Mitigation Plan for the Onshore Substation is presented in *Figure 8.6*.
- 138 Consequently, any disturbance effects on the high sensitivity IEFs associated with the Firth of Forth SPA, Ramsar Site and SSSI, Forth Islands SPA and proposed Outer Firth of Forth and St. Andrews Bay Complex pSPA are expected to be of Minor/Moderate and non-significant (see Table 6.7).

Pollution of Habitats

- 139 The risk of pollution incidents occurring during the operational phase of the OnTW, will be limited to routine maintenance and servicing works. However, it is expected that such works will be carried out in accordance with precautionary methods of working and standard pollution prevention measures as well as having incident response procedures in place so as to avoid or minimise the risk of any pollution incidents occurring and reduce the impacts of any pollution events which do occur. The shoreline is also protected by an artificial seawall which will act as a barrier to the release of any contaminants from the Application Site into the sea.
- 140 Consequently, the impact magnitude of any pollution incidents on the Firth of Forth SPA, Ramsar Site and SSSI, Forth Islands SPA and proposed Outer Firth of Forth and St. Andrews Bay Complex pSPA and their associated habitats and qualifying interests are anticipated to be of negligible magnitude. Given the high sensitivity of these IEFs this results in Minor/Moderate (see Table 6.7) and non-significant effects.

Establishment of Landscape Planting

- 141 Following its planting during the construction phase, the landscape vegetation which will be instated on screening embankments surrounding the Onshore Substation is expected to

develop and become established as clumps of scrub and trees. As well as enhancing the character and diversity of vegetation within the site of the former Cockenzie Power Station, the scrub and trees will provide shelter, foraging and breeding habitat for locally occurring invertebrates, small mammals and birds, thus making a small contribution to biodiversity enhancement at the site level.

- 142 The scale and hence magnitude of the vegetation planting is expected to be small (low magnitude) and the sort of species which are expected to be planted and which are likely to benefit from it are anticipated to be of low ecological value (low sensitivity). Nonetheless, given the negligible ecological value of the site of the former Cockenzie Power Station in its current demolished state, the establishment of scrub and trees around the Onshore Substation is expected to represent a Minor significant positive effect.

6.7.5 Effects of Decommissioning

- 143 The potential impacts of decommissioning are considered to be equivalent to and potentially lower than the worst case impacts assessed for the construction phase. Therefore, the effect outcomes and significance levels as presented for construction phase impacts are considered to be applicable to those which are expected to occur during decommissioning.

6.8 Effects on Biodiversity

- 144 The biodiversity value of the Application Site is considered to be negligible, being predominantly made up of concrete and compacted hardcore following the demolition of the former Cockenzie Power Station as well as the hardstanding associated with the Cockenzie Substation. Semi-natural habitats are limited to small patches of low biodiversity value grassland with very occasional scattered scrub and standard broad-leaved trees and a very small area of intertidal rocks and boulders habitat associated with the Firth of Forth shoreline.
- 145 Immediately surrounding the Application Site, the habitat is dominated by further low biodiversity value grassland interspersed with occasional small stands of low biodiversity value scrub, trees, and tall ruderal vegetation. There is also a narrow extension of the intertidal rock and boulder habitat which occurs within the Application Site and the open, near shore coastal waters of the Firth of Forth beyond.
- 146 While the terrestrial habitats associated with the Application Site support limited biodiversity, the adjacent coastal habitats, which form part of the Firth of Forth SPA, Ramsar site and SSSI and the proposed Outer Firth of Forth and St. Andrews Bay Complex pSPA, support important populations of several intertidal and near shore waterbird species as well as the prey that they feed upon. Consequently, the coastal habitats adjacent to the Application Site represent the areas of highest biodiversity value associated with the OnTW.
- 147 However, following the assessment of potential impacts associated with the OnTW, both alone and in combination with other projects, it is predicted that the potential impacts of temporary habitat disturbance (and associated species impacts), disturbance of intertidal and near shore waterbirds and pollution of coastal habitats will result in effects of no more than Minor/Moderate significance. Consequently, it is considered that the OnTW will not result in

any decrease in biodiversity at the local or wider geographic level. If anything, the establishment of landscape vegetation (scrub and trees) around the Onshore Substation is expected to enhance the diversity of vegetation within the site of the former Cockenzie Power Station. This is likely to provide shelter, foraging and breeding habitat for locally occurring invertebrates, small mammals and birds, thus making a small contribution to biodiversity enhancement at the site level.

6.9 Cumulative Impact Assessment

6.9.1 Introduction

148 The assessment of cumulative impacts is structured as follows:

- Firstly, cumulative impacts of the OnTW, OfTW and Offshore Wind Farm, are assessed (see *Section 6.9.2*); and,
- Secondly, cumulative impacts between the various elements of the OnTW and between the OnTW and other projects and activities in the surrounding area (see *Section 6.9.3*).

149 Given the localised nature of the OnTW and its associated impacts the search area for other projects and activities to be considered in this cumulative impact assessment extended to two kilometres.

150 The impacts assessed as having potential cumulative impacts over the construction, operation and decommissioning phases are:

- Impacts of Construction (and Decommissioning):
 - Temporary habitat disturbance;
 - Disturbance of intertidal and near shore waterbirds; and,
 - Pollution of Habitats.
- Impacts of Operation:
 - Disturbance of intertidal and near shore waterbirds; and,
 - Pollution of Habitats.

6.9.2 Cumulative Impacts of the OnTW, OfTW and Offshore Wind Farm

Cumulative Effects of Construction

Habitat Disturbance

151 There will be no cumulative effect of habitat disturbance in the intertidal zone because the Offshore Export Cable installation works would be undertaken as part of both the offshore and onshore works. Outside of the intertidal zone, the OfTW construction works will be located below MLWS in the subtidal, near shore waters of the Firth of Forth, while the OnTW construction works will be located in the terrestrial habitats above MHWS. Therefore, there will be no cumulative impacts of disturbance to either the subtidal or terrestrial habitats and

hence no cumulative effects of habitat disturbance are predicted between the OfTW and the OnTW.

Disturbance of Intertidal and Near Shore Waterbirds

- 152 The Consented Offshore Wind Farm ES (ICOL, 2013) considered the potential for cumulative impacts between the Offshore Export Cable installation works near the shore and the Onshore Export Cable installation works inland from the MLWS. It was concluded that cumulative disturbance effects on intertidal and near shore waterbirds would be negligible based on:
- The presence of an additional single cable-laying vessel, travelling at a low speed and involving relatively few vessel movements during construction;
 - The limited spatial overlap between construction activities associated with the Offshore Export Cable installation works near the shore and the Onshore Export Cable installation works inland from the MLWS; and,
 - The limited extent that intertidal and near shore waterbirds might be displaced (i.e. within 500 m) by simultaneous construction activities associated with the OfTW and OnTW.
- 153 Therefore, any effects are predicted to be Minor/Moderate and non-significant.

Pollution

- 154 It is expected that the Offshore Export Cable installation works will be carried out under strict operating procedures including environmental protection and best practice working methods. Therefore, it is anticipated that the risk of a pollution incident such as an oil or fuel spillage occurring as a result of these works will be very low. With both the OnTW and OfTW committed to being carried out under strict Environmental Management Plans, the cumulative risk of a significant pollution incident occurring is also considered to be very low with any ecological impacts expected to be localised and involving only small quantities of contaminant. For works undertaken above the MHWS, the shoreline is also protected by an artificial seawall which will act as a barrier to the release of any contaminants from the Application Site into the sea. Therefore, the cumulative impact of any pollution incidents on the high sensitivity habitats and associated species of the Firth of Forth are anticipated to be of negligible magnitude resulting in Minor/Moderate and non-significant effects.

Cumulative Effects of Operation and Maintenance

Disturbance of Intertidal and Near Shore Waterbirds

- 155 The Consented Offshore Wind Farm ES (ICOL, 2013) predicted that cumulative disturbance impacts associated with the operation and maintenance of the Offshore and Onshore Export Cables would be very unlikely. The operation and maintenance activities associated with the OfTW and the OnTW near the shore would be temporary in nature and unlikely to result in disturbance effects beyond 500 m. Therefore, any cumulative impacts on intertidal and near shore waterbirds are anticipated to be of negligible magnitude, resulting in Minor/Moderate and non-significant effects at worst.

Pollution

- 156 As with the Offshore and Onshore Export Cable installation works, it is expected that the operation and maintenance works will be carried out under strict operating procedures including environmental protection and best practice working methods. Therefore, the risk of a pollution incident occurring as a result of these works is expected to be very low with any ecological impacts expected to be localised and involving only small quantities of contaminant. Therefore, the cumulative impacts of any pollution incidents are anticipated to be of negligible magnitude resulting in Minor/Moderate and non-significant effects.

Cumulative Effects of Decommissioning

- 157 The general approach to decommissioning is detailed in *Chapter 5: Description of Development*. Following the operational phase a decommissioning plan will be prepared as part of the ongoing development work and will be subject to approval from ELC. It is assumed that the potential effects during this phase will at worst be equivalent to those anticipated for the construction phase.

6.9.3 Cumulative Impacts with Other Projects

Introduction

- 158 Checks on the [ELC Planning Portal](#) identified one project, a proposed housing development at Blindwells located 1.5 km to the south east of the OnTW Application Site, which may result in impacts of sufficient nature and scale which could give rise to ecological cumulative effects in combination with those associated with the OnTW.
- 159 The Blindwells New Settlement Development Framework was approved by ELC in June 2010 although no development proposals have been submitted to date. The site is allocated in the East Lothian Local Plan (2008) and the Strategic Development Plan for South East Scotland (SESplan) as a core development area within which a new settlement should be located.

Cumulative Impacts with Other Projects

Habitat Disturbance

- 160 As the Blindwells Settlement will not involve any works within the intertidal zone and is located approximately one kilometre from the coast, there will be no cumulative disturbance to intertidal habitats resulting from this development and the OnTW (i.e. no cumulative effect).

Disturbance of Intertidal and Near Shore Waterbirds

- 161 In order for such cumulative impacts to occur the during the construction phase this development would have to occur concurrently, or at least partially overlap with the construction of the OnTW.
- 162 Regardless, the Blindwells Settlement is located approximately one kilometre inland from the coast and so is not expected to cause any disturbance impacts on intertidal and near shore waterbirds of the Firth of Forth during either construction or operation/occupation.

Consequently, there are not expected to be any cumulative disturbance impacts between the OnTW and this development (i.e. no cumulative effect), even if they are under construction at the same time.

Pollution

- 163 As with the OnTW, it is expected that the development of the Blindwells Settlement will be carried out under strict operating procedures including environmental protection and best practice working methods. Therefore, it is anticipated that the risk of a pollution incident such as an oil or fuel spillage occurring as a result of these developments will be very low as well with any ecological impacts expected to be localised and involving only small quantities of contaminants. Furthermore, as the Blindwells Settlement is located approximately one kilometre inland from the coast the risk of any pollution incidents associated with this development affecting the high sensitivity habitats and species associated with the designated sites of the Firth of Forth is considered to be negligible.
- 164 The risk of pollution incidents occurring during the operation of the OnTW, is expected to be negligible due primarily to the nature of the operations and any routine maintenance works as well as the implementation of standard pollution prevention measures. While the pollution risk from the inhabited Blindwells Settlement is difficult to quantify, since the development is located approximately one kilometre inland from the coast, the risk of any related pollution incidents affecting the high sensitivity habitats and species associated with the designated sites of the Firth of Forth is considered to be negligible.
- 165 Consequently, the cumulative impact of any pollution incidents from this development is predicted to be of negligible magnitude, resulting in Minor/Moderate and non-significant effects for the high sensitivity habitats and species of the Firth of Forth.

6.10 Impact Interactions

- 166 Under the 2017 EIA Regulations (Part 1, Section 4(e)), there is a requirement to consider potential interactions between the impacts associated with other environmental disciplines considered in the other chapters of the ES.
- 167 The only potential interaction of impacts associated with other environmental disciplines associated with the OnTW on ecology is the landscape planting designed to screen the Onshore Substation, as detailed in the *Chapter 8: Landscape and Visual*. However, as described in *Section 6.7.4*, this is expected to enhance the character and diversity of vegetation within the site of the former Cockenzie Power Station as well as providing shelter, foraging and breeding habitat for locally occurring fauna and is considered to represent a Minor significant positive effect.
- 168 There are not considered to be any other impact interactions with other environmental disciplines associated with the OnTW.

6.11 Additional Mitigation

- 169 Since all potential impacts associated with the OnTW are predicted to result in effects of no more than Minor/Moderate significance, no additional mitigation above that committed to in the embedded mitigation section is proposed.
- 170 However, in order to re-establish the baseline conditions in respect to protected species a protected species survey will be undertaken within six months prior to the commencement of the OnTW. The surveys will follow the same scope as those undertaken to inform this assessment with the findings being used to inform the requirement and extent of any necessary protected species mitigation measures. The surveys will also inform the requirement for any licences which may be required to permit the disturbance of protected species or damage/destruction of their resting places. These would be applied for separately if required, which, on the basis of the baseline survey results is considered to be highly unlikely.

6.12 Conclusion and Residual Effects – Onshore Transmission Works

- 171 Table 6.8 presents a summary of the predicted residual effects of the OnTW, none of which will lead to a significant effect.

Table 6.8: Summary of Effects

Impact	Receptor	Effect (including embedded mitigation)
Temporary habitat disturbance (construction & operation)	Intertidal rock and boulder habitat	Negligible/ Minor
	Marine algae and benthic fauna	Negligible/ Minor
	Intertidal and near shore water birds	Minor/ Moderate
Disturbance (construction & operation)	Intertidal and near shore waterbirds (including those associated with nature conservation designated sites)	Minor/ Moderate
Pollution (construction & operation)	Coastal habitats of the Firth of Forth (including those associated with nature conservation designated sites)	Minor/ Moderate
Establishment of landscape planting (operation)	Site-level vegetation community and associated fauna	Minor positive

6.13 Requirement to Undertake an Appropriate Assessment in Relation to Likely Significant Effects on European Designated (Natura 2000) Sites

- 172 Under Article 6 of the Habitats Directive (92/43/EEC), a Habitats Regulations Appraisal (HRA) is required when a project which is not directly connected with or necessary to the management of a European Designated Site is likely to have a significant effect thereon, either in isolation or in combination with other plans and projects.
- 173 An HRA document has been submitted in support of this application and is provided separately. In combination with good practice mitigation to be outlined in the Construction Environment Management Plan (CEMP), ICOL concludes that the OnTW will not have an adverse effect on the site integrity of any SPA.

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