


**Cambois Connection – Onshore Scheme  
Environmental Statement Volume 1  
Non-Technical Summary**

	<b>Cambois Connection – Onshore Scheme Volume 1 Non-Technical Summary</b>	Doc No: A100796-S01 – NTS – R01
Classification: Final		
Status: Final	Rev: A01	

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### Approval for Issue

Approver's name	SIGNATURE	DATE
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Approved by:	Kerrie Craig	

### Basis of Report

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## Acronyms

Acronym	Description
AADT	Annual Average Daily Traffic
AC	Alternating current
aOD	Above Ordnance Datum
ATR	Active Travel Routes
BEIS	Department for Business, Energy and Industrial Strategy
BNG	Biodiversity Net Gain
BBWF	Berwick Bank Wind Farm
BBWFL	Berwick Bank Wind Farm Limited
CCC	Committee on Climate Change
CEA	Cumulative Effects Assessment
CEMP	Construction Environmental Management Plan
COP26	The 26 <sup>th</sup> United Nations Climate Change Conference of the Parties
CRoW	Countryside and Rights of Way
CTMP	Construction Traffic Management Plan
DC	Direct current
DEFRA	Department for Environment, Food and Rural Affairs
EA	Environment Agency
EIA	Environmental Impact Assessment
EPS	European Protected Species
ES	Environmental Statement
EU	European Union
FCS	Favourable Conservation Status
GHG	Greenhouse Gas
GLVIA3	Guidelines for Landscape and Visual Impact Assessment third edition
GVA	Gross Value Added
HER	Historic Environment Record
HDD	Horizontal Directional Drilling

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Acronym	Description
HGV	Heavy Goods Vehicle
HRA	Habitat Regulations Assessment
HVAC	High Voltage Alternating Current
HVDC	High Voltage Direct Current
JNCC	Joint Nature Conservation Committee
IEMA	Institute of Environmental Management and Assessment
LAI	Local Area of Influence
LGV	Light Goods Vehicle
LVIA	Landscape and Visual Impact Assessment
LPA	Local Planning Authority
LWS	Local Wildlife Site
MCZ	Marine Conservation Zone
MD-LOT	Marine Directorate Licensing Operations Team
MDS	Maximum Design Scenario
MHWS	Mean High Water Springs
MLWS	Mean Low Water Springs
MMO	Marine Management Organisation
MD-LOT	Marine Directorate Licensing Operations Team
NDC	Nationally Determined Contribution
NCC	Northumberland County Council
NCR	National Cycle Route
NERC	Natural Environment and Rural Communities
NLP	Northumberland Local Plan
NNR	National Nature Reserve
NPS	National Policy Statement
NPPF	National Policy Planning Framework
NSIP	Nationally Significant Infrastructure Project
NSL	North Sea Link
NTS	Non Technical Summary
OCSP	Onshore Converter Station Platform

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Acronym	Description
OEP	Office for Environmental Protection
ONS	Office for National Statistics
PAMP	Public Access Management Plan
PDE	Project Design Envelope
PFA	Pulp Mill Fly Ash
PPGN	Planning Policy Guidance Notes
PPS	Planning Policy Statements
PRI	Public Road Improvements
PRoW	Public Right of Way
RBMP	River Basin Management Plan
RIAA	Report to Inform Appropriate Assessment
RMA	Reserved Matters Approvals
SAC	Special Area of Conservation
SEM	Stakeholder Engagement Manager
SPA	Special Protection Area
SSER	SSE Renewables
SSSI	Site of Special Scientific Interest
TJB	Transition Joint Bay
UK	United Kingdom
UNFCCC	United Nations Framework Convention on Climate Change
USA	United States of America
UXO	Unexploded Ordnance
WFD	Water Framework Directive
WSA	Wider Study Area
Zol	Zone of Influence

## Units


Unit	Description
%	Percent
°C	Degrees Celsius
GW	Gigawatt
km	Kilometre
km <sup>2</sup>	Square kilometre
kV	Kilo vault
m	Metre
m <sup>2</sup>	Square Metre
MtCO <sub>2</sub> e	Million tonnes of carbon dioxide equivalent
nm	Nautical mile
TWh	Terrawatt Hour

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## Glossary

Term	Description
Berwick Bank Wind Farm (BBWF)	Refers to the offshore wind farm from which the Cambois Connection (the Project) will export part of the produced electricity. The BBWF array area (where the wind turbines are located) is shown in Figure 1-1. The BBWF is under development, with the consent applications being determined.
Cambois Connection (the Project)	Offshore export cables, onshore export cables, an onshore converter station and associated onshore grid connection at the existing National Grid ESO, Blyth substation near Cambois in Northumberland. The purpose of this infrastructure is to facilitate the export of a portion of the green electricity from BBWF, allowing the BBWF to reach its full generation capacity before 2030.
EIA Regulations	Collectively, this term is used to refer to the suite of Environmental Impact Assessment (EIA) Regulations which are of relevance to the Marine Scheme and to the Onshore Scheme. For the Onshore Scheme, this is the Town and Country Planning (Environmental Impact Assessment) Regulations 2017 (as amended). For the Marine Scheme, this is the Marine Works (EIA) Regulations 2007 (as amended).
Environmental Impact Assessment	Assessment of the likely significant effects of a plan, programme, project or activity on the receiving environment.
Firth of Forth	Estuary or Firth of the River Forth in Scotland which flows into the North Sea and is flanked by Fife to the north and West Lothian, City of Edinburgh and East Lothian to the south.
Horizontal Directional Drilling	Horizontal Directional Drilling or ‘HDD’ refers to a trenchless method of drilling generally used for installation of underground utilities, which does not require any direct works, and can aid installation of crossings with sensitive or challenging features and obstructions.
High Voltage Alternating Current	Refers to high voltage electricity in alternating current (‘AC’) form.
High Voltage Direct Current (HVDC)	Refers to high voltage electricity in direct current (‘DC’) form. In relation to transmission, HVDC is often selected for longer transmission infrastructure on the basis that losses are typically lower when compared to transmission infrastructure utilising alternating current.
HVAC Zone	The area within the Site in which the HVAC cables connecting the Onshore Converter Station and existing Blyth substation will be located.
Intertidal Zone	Section of the coastline located between Mean High Water Springs (MHWS) and Mean Low Water Springs (MLWS).
Landfall	Area where the offshore export cables carrying power from BBWF are brought ashore at MHWS to connect the offshore and onshore infrastructure.




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Term	Description
Landfall/HVDC Zone	The area within the Site in which the Landfall will be located and the HVDC cables, extending from the Transition Joint Bays to the Onshore Converter Station.
Local Planning Authority	Local Planning Authority (or 'LPA') refers to the local government body legally empowered to exercise terrestrial (onshore) planning functions for a given area. In the case of the Project, this is Northumberland County Council (NCC).
Marine Licence	A licence granted under the Marine and Coastal Access Act 2009.
Marine Scheme	Activities required as part of the Project extending seawards below Mean High Water Springs.
Maximum Design Parameters	The maximum range of design parameters of each Onshore Scheme asset.
Mean High Water Springs	Monthly tides are defined as 'Springs' or 'Spring tides' when the tidal range is at its highest and 'Neaps' or 'Neap tides' when the tidal range is at its lowest. The height of Mean High Water Springs (MHWS) is the average throughout the year, of two successive high waters, during a 24-hour period in each month when the range of the tide is at its greatest (Spring tides).
Mean Low Water Springs	The height of Mean Low Water Springs (MLWS) is the average throughout a year of the heights of two successive low waters during periods of 24 hours (approximately once a fortnight).
National Site Network	Formerly referred to as 'Natura 2000 (network of core breeding and resting sites for rare and threatened species, and some rare natural habitat types, which are protected in their own right) this now refers to the national site network within the UK territory. It is comprised of the protected sites that were designated under the Nature Directives (Habitats Directive (Council Directive 92/43/EEC) and certain elements of the Wild Birds Directive (Directive 2009/147/EC) until the UK's exit of the EU, and any further sites designated under the Conservation of Habitats and Species Regulations 2017 (as amended).
Offshore Converter Station Platforms (OCSPs)	Offshore converter stations mounted on platforms within the BBWF array area. These are used to convert AC electricity generated by the wind turbines to DC electricity for transfer back to shore.
Onshore Converter Station	The onshore Converter Station is used to convert DC electricity to AC for connection into the national transmission network.
Onshore Converter Station Zone	An area within the Site in which the Onshore Converter Station will be located.
Onshore HVDC Export Cable	HVDC cables used for exporting power produced by BBWF between the landfall and the onshore converter station.
Onshore HVAC Export Cable/Grid Cables	HVAC cables used for transporting electricity from the onshore converter station to the National Grid Substation.

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Term	Description
Onshore Scheme	Activities and infrastructure required as part of the Project extending landwards above Mean Low Water Springs.
Open Cut Trenching	Method of cable installation involving trenching. The applicant has made the decision to eliminate open cut trenching at landfall due to engineering (see Volume 2, Chapter 6 Site Selection and Alternatives).
Planning Permission	Planning permission for development under the Town and Country Planning Act 1990.
Project Design Envelope	A series of maximum design parameters which are defined for the Onshore Scheme which are considered to be the worst case for any given assessment.
Substation	Refers to the point at which electricity is connected into the UK electricity network. For the Onshore Scheme, this is the National Grid substation at Blyth.
The Site	The area within the red line boundary as shown on Figure 1.1 (Volume 4).
The Project (Cambois Connection)	Offshore export cables, onshore export cables, an onshore converter station and associated onshore grid connection at the existing National Grid ESO, Blyth substation near Cambois in Northumberland. The purpose of this infrastructure is to facilitate the export of a portion of the green electricity from BBWF, allowing the BBWF to reach its full generation capacity before 2030.
Transition Joint Bay	A concrete structure where offshore export cables and onshore export cables are connected together.

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# 1. Non-Technical Summary


## 1.1. Introduction

### 1.1.1. Overview

1. Berwick Bank Wind Farm Limited (BBWFL) is a wholly owned subsidiary of SSE Renewables (SSER) (hereafter referred to as ‘the Applicant’). The Applicant is proposing the development of Offshore Export Cables, Onshore Export Cables, an Onshore Converter Station and associated grid connection at Blyth in Northumberland, known as ‘the Project’. The onshore components of the Project, landward of Mean Low Water Springs (MLWS) comprise the Onshore Scheme, which is the subject of this Environmental Statement (ES).
2. The purpose of this infrastructure is to facilitate the export of green energy from the generation assets associated with the Berwick Bank Wind Farm (BBWF), located in the outer Firth of Forth. A separate application for developing a grid connection to Branxton, East Lothian, has been included as part of the Applicant’s application for consent for BBWF, currently being determined separately. The Project will enable the BBWF to reach full generating capacity (4.1 gigawatts (GW)) by the early 2030’s.
3. The Project comprises two distinct proposals, or ‘Schemes’, which will require three separate consents. For the Onshore Scheme (all activities and infrastructure landward of MLWS consent will be sought via a planning application to Northumberland County Council (NCC) as the local planning authority (LPA) under Section 57 of the Town and Country Planning Act 1990. There are some design details related to the Onshore Scheme that are still to be finalised due to further ground investigations required, ongoing engineering design work and the procurement of cable and converter station suppliers. These details will inform the final specification. The Site boundary has been chosen to allow flexibility to accommodate these design details which will be subject to future application(s) for approval of Reserved Matters.
4. The offshore components of the Project seaward of mean high water springs (MHWS) (‘the Marine Scheme’) are located within both Scottish and English waters. In Scotland, the Marine Scheme is entirely within offshore waters (i.e., between the 12 nautical miles (nm) limit and the Scottish Exclusive Economic Zone). In England, the Marine Scheme is within offshore waters and inshore waters. The primary consents which will be sought in support of the Marine Scheme are as follows:
  - A Marine Licence from the Marine Directorate Licensing Operations Team (MD-LOT) under the Marine and Coastal Access Act 2009 for the Offshore Export Cables beyond the 12 nm in Scotland; and
  - A Marine Licence from the Marine Management Organisation (MMO) under the Marine and Coastal Access Act 2009 for Offshore Export Cables and supporting activity beyond the 12 nm limit in England. This licence will also be sought for Offshore Export Cables, Landfall works and supporting activity for the portion of the Marine Scheme which is within the 0-12 nm limit.


### 1.1.2. Purpose of this Document

5. This document is a Non-Technical Summary (NTS) of the ES prepared for the Onshore Scheme.
6. This NTS is intended to act as a stand-alone document that will provide an overview of the likely environmental effects of the Onshore Scheme and where relevant, proposed mitigation measures, in non-technical language.

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### 1.1.3. Purpose of the Environmental Statement

7. The Onshore Scheme ES provides a description of the Onshore Scheme and presents the environmental information which has been gathered in order to carry out an assessment of the likely significant effects of the Onshore Scheme on the receiving environment.
8. The Onshore Scheme ES specifically:
  - Provides statutory and non-statutory consultees with technical information to facilitate understanding of the Onshore Scheme;
  - Presents the existing environmental baseline information, established from desktop studies, site-specific surveys and/or stakeholder consultation and engagement;
  - Describes the Environmental Impact Assessment (EIA) methodology used for the assessments;
  - Presents the potential environmental impacts arising from the Onshore Scheme, based on baseline information and data gathered, and the analysis and assessment of likely significant effects, including consideration of cumulative, inter-related and transboundary effects, completed as part of the EIA process;
  - Outlines any limitations encountered during the compilation of the environmental information, including where any data gaps or deficiencies exist, and the level of confidence in the information gathered;
  - Identifies designed in measures to avoid, prevent, reduce or, where possible, offset any identified likely significant adverse effects on the environment, and where appropriate, proposes monitoring arrangements to validate findings of the Onshore Scheme. Where additional mitigation measures have been identified (in addition to those already designed into the Onshore Scheme), the likely residual significance of effects has been presented; and
  - Provides a description of the reasonable alternatives considered for the Onshore Scheme, and an indication of the main reasons for site-selection.
9. The structure of the Onshore Scheme ES is as follows:
  - Volume 1 – Non-Technical Summary;
  - Volume 2 – ES Chapters;
  - Volume 3 – Technical Appendices; and
  - Volume 4 – ES Figures.
10. The Applicant submitted a Scoping Report for the Onshore Scheme to NCC in November 2022. The Scoping Opinion received from NCC on 4 January 2023 have informed the scope of this Onshore Scheme ES. Based on the Scoping Opinions received, and formal engagement with relevant stakeholders, this Onshore Scheme ES includes the following topic areas:
  - Landscape and Visual Amenity;
  - Cultural Heritage and Archaeology;
  - Terrestrial Ecology and Ornithology;
  - Geology and Soils;
  - Hydrology and Hydrogeology;
  - Traffic and Access;
  - Noise and Vibration;
  - Air Quality;
  - Socioeconomics, Recreation and Tourism;
  - Effects on Climate (through greenhouse gas emissions); and
  - Inter-related effects.

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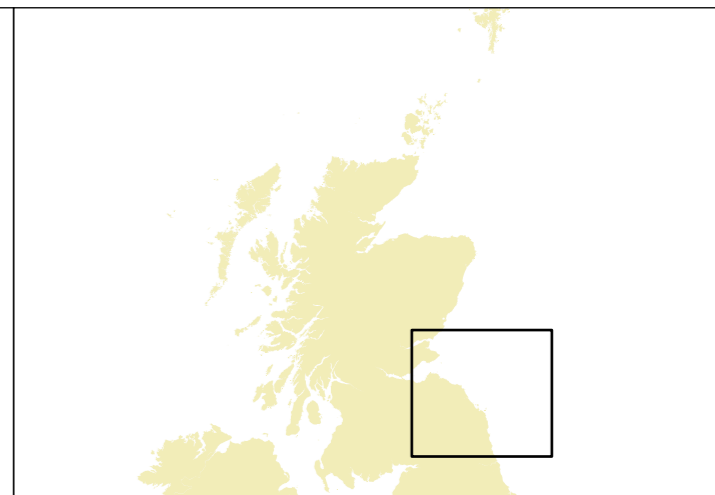
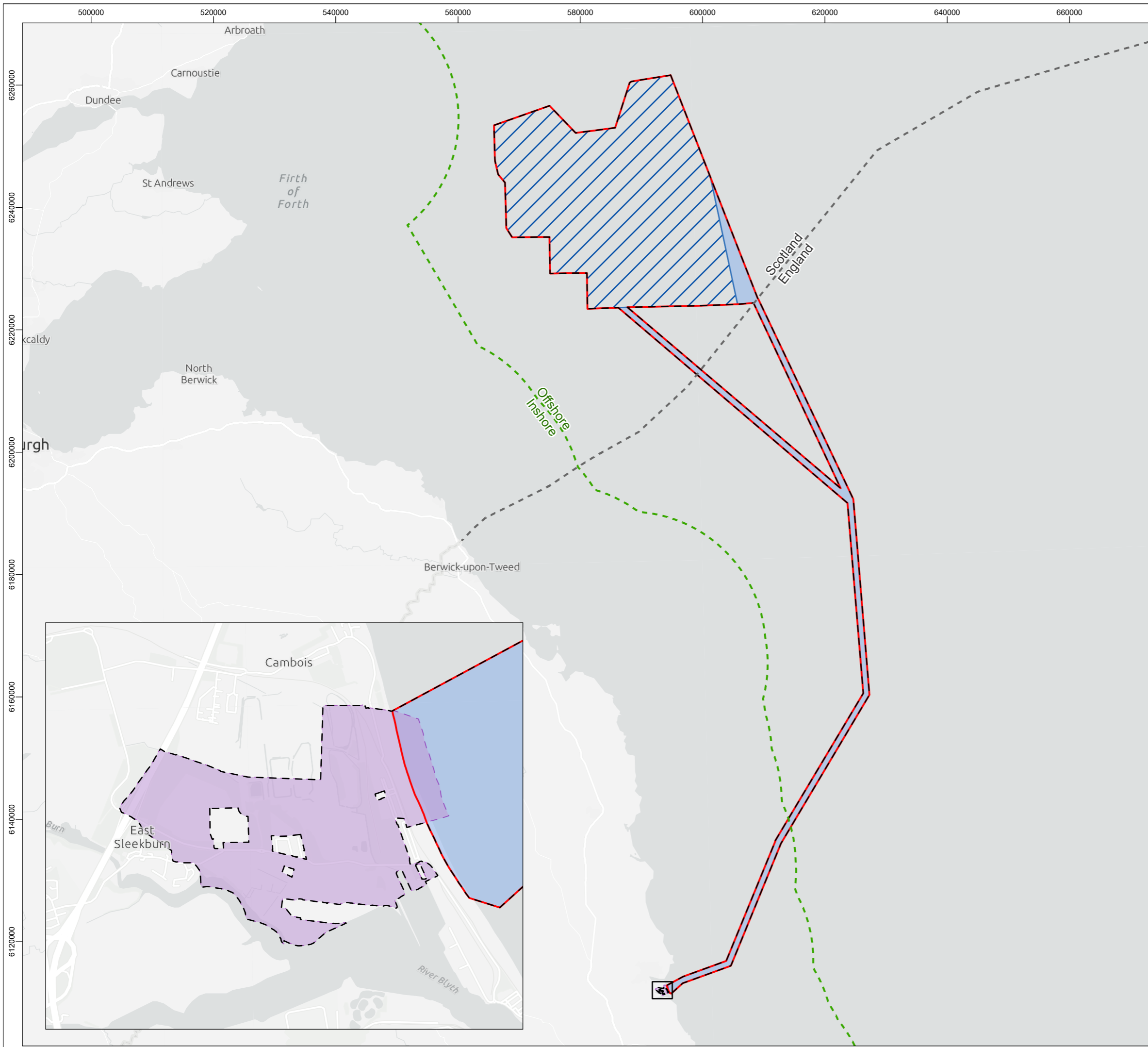
11. The following topic areas have been scoped out of the assessment, in accordance with the Scoping Report and feedback received from stakeholders during and following scoping:
- Major Accidents and Disasters;
  - Land Use; and
  - Human Health.

#### 1.1.4. The Applicant

12. BBWFL is a wholly owned subsidiary of SSER. SSER is a leading developer and operator of renewable energy, headquartered in the United Kingdom (UK) and Ireland, with a growing presence internationally. Its strategy is to lead the transition to a net zero future through the world-class development, construction and operation of renewable power assets and it is building more offshore wind energy than any other company in the world. SSE Renewables is part of SSE plc, the UK-listed integrated energy group which is investing £18bn to 2027, or £10m a day, to deliver a Net Zero Acceleration Programme Plus to address climate change head on. This includes plans by SSE Renewables to increase its installed renewable energy capacity to 9GW by 2027. The company also plans to almost quadruple capacity to over 15 GW by 2031, increasing output fivefold to over 50TWh annually – enough to be able to power around 20 million homes each year. SSE Renewables has a team of around 1,500 renewable energy professionals based across the UK, Ireland, Spain, France, Italy, Greece, the Netherlands, Japan and the United States of America (USA), all committed to delivering the green energy the world needs now and in the future.
13. SSER is currently constructing one of the world’s largest offshore wind energy projects, the 3.6 GW Dogger Bank Windfarms in the North Sea, which is a joint venture with Equinor and Eni, as well as Scotland’s largest and the world’s deepest fixed bottom offshore site, the 1.1 GW Seagreen Offshore Windfarm in the Firth of Forth, a joint venture with Total Energies.
14. When complete, Dogger Bank and Seagreen Offshore Wind Farm will help power millions of UK homes and businesses and drive the transition to net zero carbon emissions. These assets will join the Applicant’s existing operational offshore wind portfolio across two offshore joint venture sites, Beatrice and Greater Gabbard, both of which are operated on behalf of asset partners.

#### 1.1.5. Project Overview

15. The key components of the Onshore Scheme and Marine Scheme for the Project are summarised below and are illustrated in Plate 1 and shown on Figure 1.
16. The Site is located at Cambois, Northumberland, south of the River Wansbeck and north of the River Blyth. A site location plan is provided in Figure 2.
17. The red line boundary for this area (hereafter referred to as ‘the Site’) is shown on Figure 3 and the Indicative Zones of Infrastructure are shown on Figure 4.



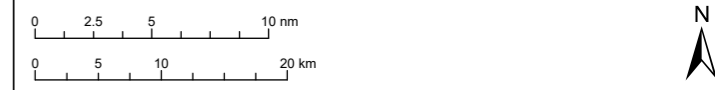
- Legend**
- Cambois Connection
  - Marine Scheme Boundary
  - Marine Scheme Offshore Export Cable Corridor
  - Berwick Bank Wind Farm Array Area
  - Onshore Scheme Boundary
  - UK 12 Nautical Mile Limit
  - Scotland/England Territorial Waters

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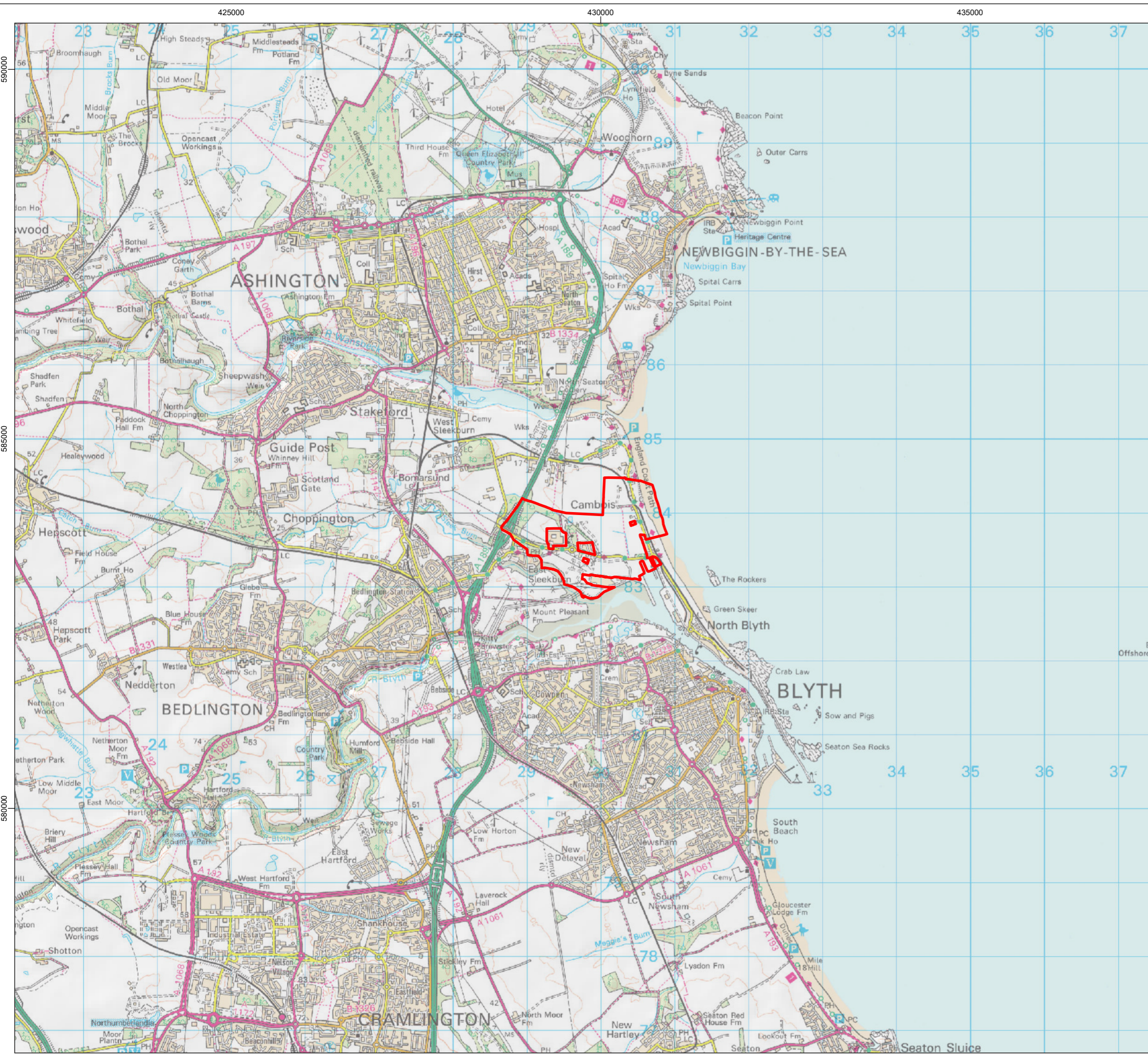
Project **BERWICK BANK WIND FARM**

Title **FIGURE 1  
LOCATION AND EXTENT**



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Scale	Plot Size	Datum	Projection
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Legend  
 Site Boundary

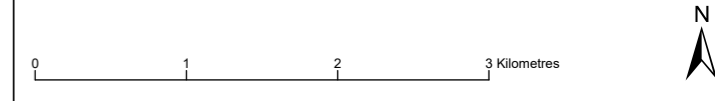
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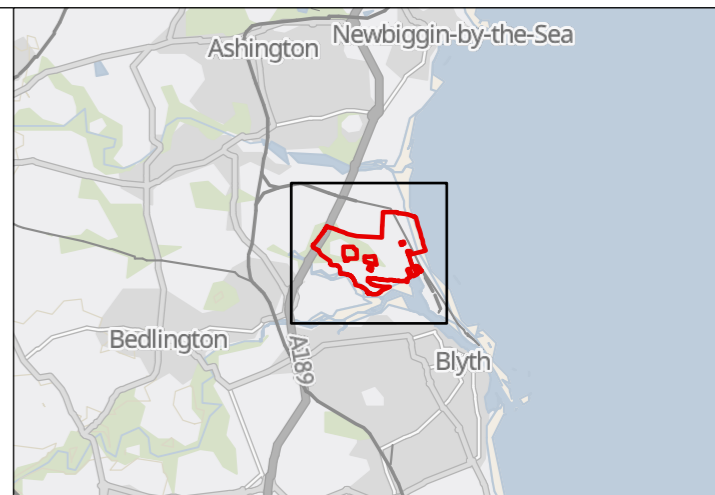
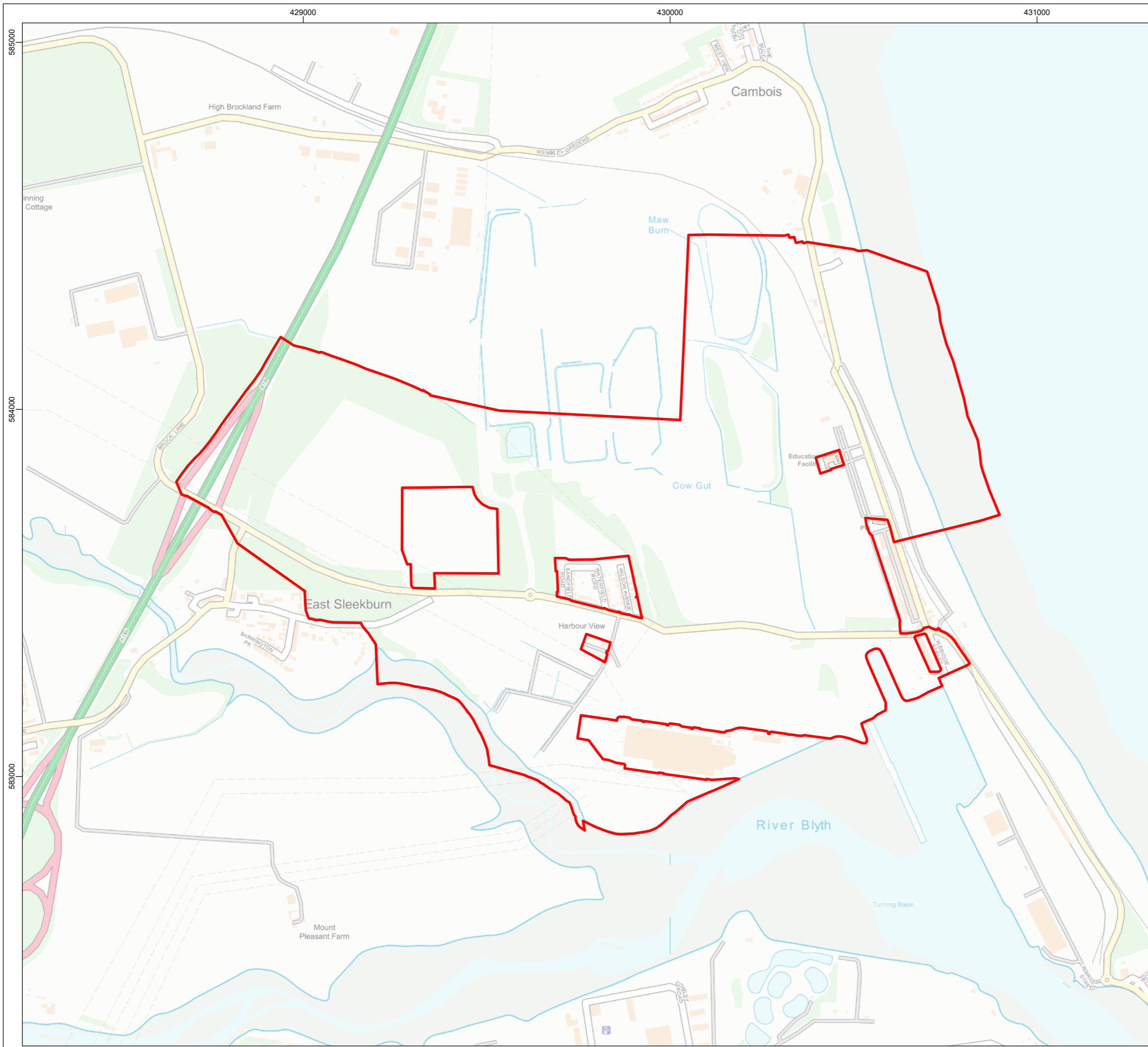
Project  
**CAMBOIS CONNECTION ONSHORE SCHEME**

Title  
**FIGURE 2: SITE LOCATION**



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Scale	Plot Size	Datum	Projection
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**Legend**  
 Site Boundary

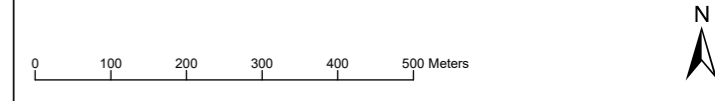
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**CAMBOIS CONNECTION ONSHORE SCHEME**

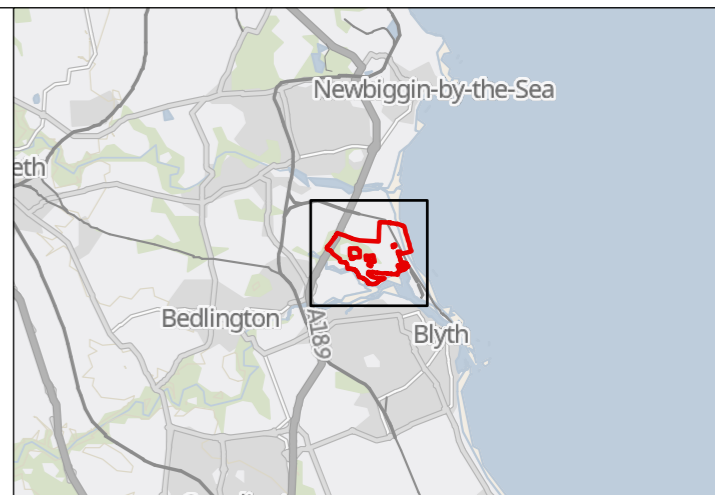
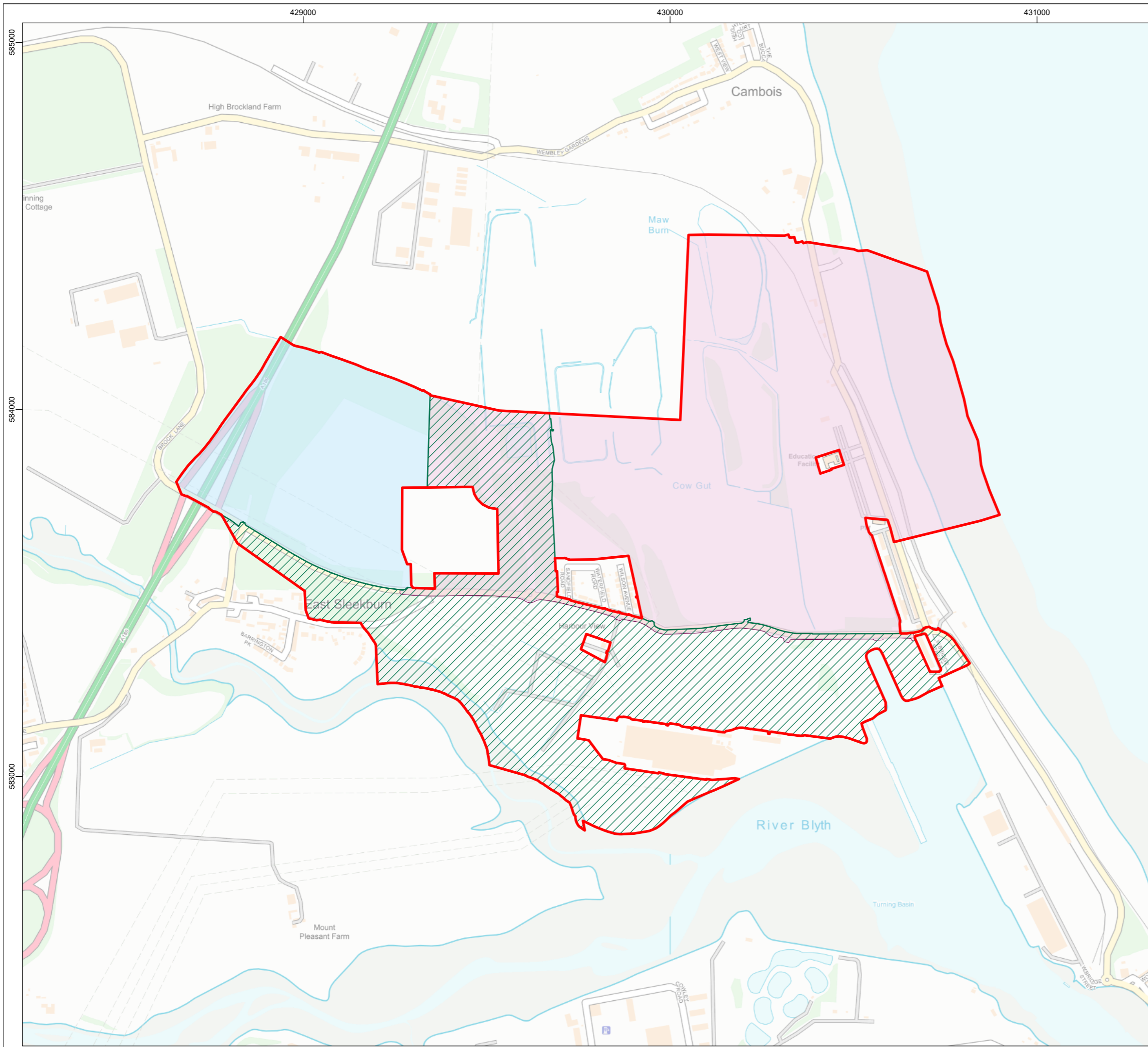
Title  
**FIGURE 3: SITE BOUNDARY PLAN**



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Scale	Plot Size	Datum	Projection
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**Legend**

- Site Boundary
- Landfall and High-Voltage Direct Current (HVDC) Zone
- High-Voltage Alternating Current (HVAC) Zone
- Converter Station Zone

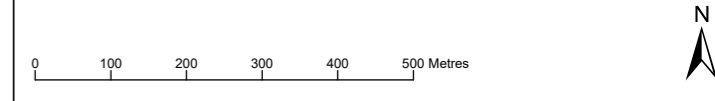
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Project  
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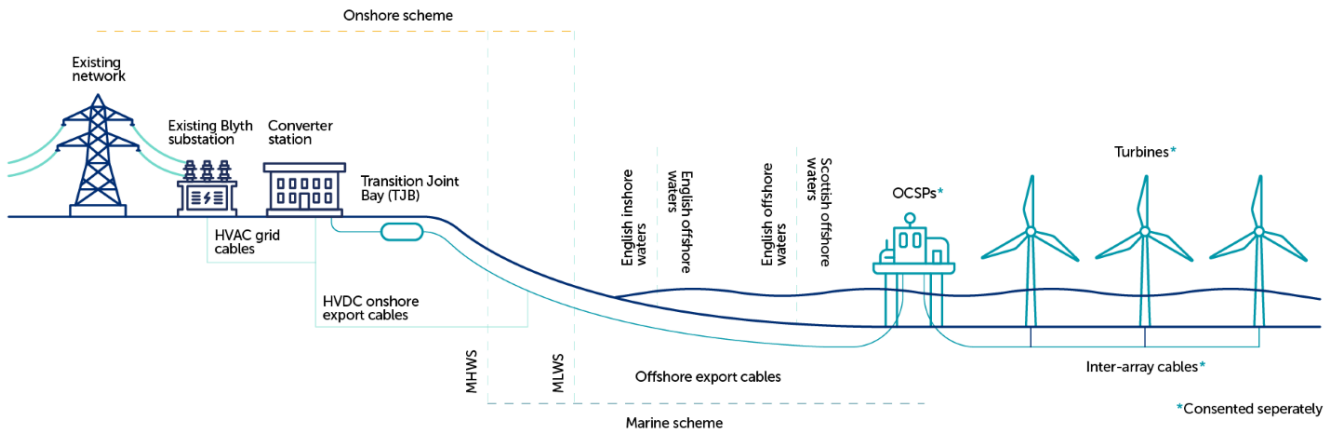
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**FIGURE 4: INDICATIVE ZONES OF INFRASTRUCTURE**



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Scale	Plot Size	Datum	Projection
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**Plate 1 Overview of the key components of the Cambois Connection**

18. The key components of the Project are:

- **Marine Scheme:** The Applicant is proposing the construction, operation and maintenance, and decommissioning of up to four high voltage direct current (HVDC) Offshore Export Cables from up to two Offshore Converter Station Platforms (OCSPs)<sup>2</sup> within the BBWF array area to MHWS of the Landfall location near Cambois, Northumberland. The Marine Scheme includes all aspects of the Project seaward of MHWS; and
- **Onshore Scheme:** The Applicant is proposing the construction, operation and maintenance, and decommissioning of a cable Landfall (down to MLWS), including up to four onshore HVDC cables (Onshore Export Cables), an Onshore Converter Station, high voltage alternating current (HVAC) grid cables and works to integrate into the existing National Grid Blyth substation. The Transition Joint (TJB) would also be located landward of MHWS. The Onshore Scheme includes all aspects of the Project located landward of MLWS.


#### 1.1.5.1. THE ONSHORE SCHEME

19. The Onshore Scheme includes the following:

- Landfall works at Transition Joint Bays;
- HVDC onshore export cables within a cable corridor between the Landfall and the new Onshore Converter Station for a cable corridor length of up to 2.1 km;
- A new Onshore Converter Station;
- HVAC onshore grid cables from the Onshore Converter Station to the National Grid Blyth substation within a cable corridor length of up to 1.5 km; and
- Associated ancillary infrastructure.

#### 1.1.5.2. BERWICK BANK WIND FARM

20. Located in the outer Firth of Forth, the BBWF has the potential to generate up to 4.1 GW of electricity, making it one of the largest offshore wind opportunities in the world. This will contribute to approximately 37% of the Scottish Government’s decarbonisation target of 11 GW of installed

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offshore wind capacity by 2030. Additionally, the BBWF will contribute to the Scotland target of net-zero greenhouse gas emissions by 2045 under the Climate Change (Scotland) Act 2009 (as amended) (Scottish Government, 2019) and for the 2050 for England and Wales under the Climate Change Act 2008 (2050 Target Amendment) Order 2019 (UK Government, 2019).

21. The Applicant applied for consent under Section 36 of the Electricity Act 1989 (Section 36 Consent) and associated Marine Licences for the BBWF to MD-LOT in December 2022 (BBWFL, 2022). These applications are currently being determined.

### 1.1.5.3. GRID CONNECTIONS

22. The Applicant has three signed grid connection agreements; two agreements are for a substation in Scotland (Branxton) for 2.3 GW, with a third additional connection at the National Grid Blyth substation in England, for 1.8 GW, totally 4.1 GW for the BBWF. As described in section 1.1, this third grid connection is the basis of the Project and will enable the BBWF to reach full generating capacity by 2029 and will contribute to the UK Government’s legally binding net zero targets and the urgent need to decarbonise the UK’s energy system. The third grid connection at Blyth (the Project) was confirmed in July 2022 in the National Grid’s Electricity System Operator Holistic Network Design Review.

## 1.2. Policy and Legislative Context


### 1.2.1. Overview

23. This section provides a summary of the policy and legislative context for the Onshore Scheme, specifically in relation to:
  - International and domestic climate change commitments, which aim to reduce greenhouse gas (GHG) emissions, in the context of avoiding emissions through investment in renewable energy;
  - UK climate change and renewable energy legislation and policy; and
  - UK consenting legislation and processes.

### 1.2.2. Climate Change Policy and the Need for the Development

#### 1.2.2.1. INTERNATIONAL COMMITMENTS

24. The Kyoto Protocol is an international agreement linked to the United Nations Framework Convention on Climate Change (UNFCCC) which commits industrialised nations, including the UK, to limit and reduce GHG emissions. The Kyoto Protocol has been in effect since 2005. The commitments of the Kyoto Protocol were transposed into UK law through the Climate Change Act 2008.
25. In 2015, the Paris Agreement was established to commit countries to reduce global GHG emissions and limit the global temperature increase in this century to 2 °C while pursuing efforts to limit global warming to 1.5 °C compared to pre-industrial levels. The Paris Agreement entered into force as a legally binding international treaty on climate change in 2016.
26. The 26<sup>th</sup> United Nations Climate Change Conference of the Parties, COP26, was held in Glasgow in November 2021. Key achievements included securing net zero commitments with new 2030 emission targets and strengthened climate commitments.

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### 1.2.2.2. EU LEGISLATION AND EU EXIT

27. The European Union (EU) Roadmap 2050 sets out a plan for a low-carbon economy in Europe by 2050 with a goal of achieving an overall 80% reduction in the EU’s greenhouse gas emissions by 2050 (compared to 1990) through investment in clean energy and clean technology (ECF, 2010).
28. The UK is currently committed to implement international environmental obligations in accordance with the EU (Withdrawal) Act 2018, in which the UK Government maintains environmental commitments following the withdrawal from the EU on 31 January 2020. The UK Government established a roadmap to 2050 through the UK Net Zero Strategy (2021) (UK Government, 2021a).


### 1.2.2.3. THE CLIMATE CHANGE ACT 2008 & DOMESTIC COMMITMENTS

29. The Climate Change Act 2008 (2050 Target Amendment) Order 2019 revised the Climate Change Act 2008 to set a ‘net zero target’ requiring GHG emissions to be 100% lower than the 1990 levels by 2050.
30. The Climate Change Act 2008 also established the Committee on Climate Change (CCC), an independent statutory body which advises the UK and devolved governments on emission targets and reports to the UK Parliament on progress in reducing GHG emissions. To date, the CCC have produced six ‘Carbon Budgets’ which provide a limit on total GHG emissions to be emitted during their budgetary periods of four-year intervals. The UK Carbon Budget Order 2021 set the level of the Sixth Carbon Budget (2033 – 2037) to 965 million tonnes of carbon dioxide equivalent (MtCO<sub>2e</sub>) in line with an interim target of 78% reduction in emissions by 2035 recommended by the CCC (UK Government, 2021b).
31. Chapter 6 of CCC’s ‘Net Zero – The UK’s Contribution to Stopping Global Warming’ report (CCC, 2019) refers to delivering a net zero emissions target for the UK. The chapter sets out a number of actions, including the transition to a net zero emissions economy and what is needed to underpin delivery of net zero emissions in the UK. ‘Part B’ sets out key near term actions to put the UK on track to net-zero greenhouse gas emissions by 2050 and recommends that more rapid electrification must be accompanied with greater build rates of low carbon generation capacity.
32. In 2020, the UK communicated its Nationally Determined Contribution (NDC) to the UNFCCC. The UK committed to reducing economy wide GHG emissions by at least 68% by 2030 (UK Government, 2022).
33. The UK has established plans to reach net zero through the Ten Point Plan for a Green Industrial Revolution (BEIS and Prime Minister’s Office, 2020) and the Energy White Paper (BEIS, 2020) as well as prioritising offshore wind development. This is seen through the British Energy Security Strategy target to increase offshore wind development to 50 GW by 2030 (BEIS and Prime Minister’s Office, 2022).

## 1.2.3. National Policy

### 1.2.3.1. NATIONAL POLICY STATEMENT

34. The National Policy Statement (NPS) (UK Government, 2011) outlines the objectives for the development of Nationally Significant Infrastructure Projects (NSIPs) within England and Wales. BBWF itself does not comprise a NSIP as it is located in Scottish Waters, and therefore does not require development consent under the Planning Act 2008. Similarly, the Onshore Scheme is not an NSIP and does not form part of a NSIP. Therefore, the Onshore Scheme does not require development consent under the Planning Act 2008 and does not fall to the Planning Inspectorate to consider. The same applies to the Marine Scheme.

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35. NPSs are however a statement of government intention relating, in this case, to renewable energy projects, therefore can be taken into consideration during the preparation of the Onshore Scheme EIA. The following NPSs relating to renewable energy projects have been taken into consideration and used to inform this ES.
- The Overarching NPS for Energy (EN-1);
  - NPS for Renewable Energy Infrastructure (EN-3); and
  - NPS for Electricity Networks Infrastructure (EN-5).
36. EN-1 notes that the need for the UK to continue to develop and secure electricity supplies is critical as the UK moves towards a low carbon economy. EN-3, in combination with EN-1, provides the basis for consent decisions for renewable energy NSIPs. EN-5 recognises that the new electricity generating infrastructure that the UK needs to move to a low carbon economy will be *'heavily dependent on the availability of a fit for purpose and robust electricity network'*. EN-5 also highlights that *'when considering impacts for electricity networks infrastructure, all of the generic impacts covered in EN-1 are likely to be relevant, even if they only apply during one phase of the development [...] or only apply to one part of the development'*.
37. A suite of draft revised Energy NPSs was published by the UK government in March 2023. These draft revised NPSs will now be subject to consultation before revised NPSs are formally adopted.
38. The notable NPS revisions include the confirmation of a future energy mix which will come from a wide range of sources including renewables, as well as the discussion of UK security of supply and the role of the Capacity Market (draft revised EN-1) (DESNZ, 2023). Notably, the draft EN-1 also includes an update of need and urgency for new electricity infrastructure including networks, storage, and interconnection based on up-to-date analysis and understanding of known infrastructure and technologies.
39. Draft revised EN-3 (DESNZ, 2023a) identifies offshore wind projects and associated transmission infrastructure as Critical National Priority infrastructure, receiving the highest form of policy support and a clear presumption of need.

#### 1.2.3.2. NATIONAL PLANNING POLICY FRAMEWORK

40. The National Planning Policy Framework (NPPF) was originally implemented in 2012 with the intent of making the planning system less complex and more accessible (Ministry of Housing, Communities and Local Government, 2021). The NPPF replaces the suite of Planning Policy Guidance Notes (PPGN) and Planning Policy Statements (PPS) which formerly provided national planning guidance to local planning authorities. A revised NPPF was published in February 2019 and updated in July 2021, setting out the UK Government's planning policies for England and how these are expected to be applied.
41. The NPPF sets out the Government's planning policies for England and how these should be applied. The NPPF is a material consideration in the determination of planning applications. The NPPF is clear that the purpose of the planning system is to contribute to the achievement of sustainable development.

#### 1.2.4. Development Plan Policy

42. The Development Plan for Northumberland comprises the adopted Northumberland Local Plan 2016 to 2036 (NLP) (NCC, 2022) and any made neighbourhood plans. The NLP was adopted by NCC on 31 March 2022. There are no made neighbourhood plans relevant to the application site for the proposed Onshore Scheme.
43. The NLP identifies land at Cambois within the application site as a Strategic Employment Area (Policy ECN2) and includes reference to approximately 16.5 hectares of sites with Enterprise Zone

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status (offering a combination of financial incentives and simplified planning procedures) and 73 hectares of sites with Local Development Order status.

44. Policy REN-1 states that ‘proposals for renewable energy and low carbon energy development will be supported including where decentralised, *renewable or low carbon energy supply systems are to be used to supply energy to a development.*’

### 1.2.5. Consent Requirements

45. As detailed in section 1.1.1 of this Non-Technical Summary, consent for the Onshore Scheme will be via an Outline Planning Application to NCC as the LPA under Section 57 of the Town and Country Planning Act 1990.
46. A separate ES has been prepared to accompany the application for marine licences for the Marine Scheme. The primary consents that will be sought in support of the Marine Scheme are as follows:
- A Marine Licence from MS-LOT (Marine Scotland Licensing Operations Team) under the Marine and Coastal Access Act 2009 for the offshore export cables between 12 nm and the outer limits of the Exclusive Economic Zone in Scotland; and
  - A Marine Licence from the MMO under the Marine and Coastal Access Act 2009 for offshore export cables, Landfall works and supporting activity for the portion of the Marine Scheme in English inshore and offshore waters.


#### 1.2.5.1. EIA REGULATIONS

47. Requirements for an EIA were defined in the EIA Directive (85/337/EEC codified by EIA Directive 2011/92/EU and then amended by EU Directive 2014/52/EU) which were transposed into UK law. The purpose of the EIA Directive is to ensure that the potential effects of a project on the environment are taken into consideration before development consent is granted. If a development of a specified nature is deemed likely to have a significant effect on the environment by virtue of factors such as size or location, then an EIA is required. The results from an EIA must be provided by the Applicant to the decision maker in the form of an ES.
48. The Applicant has confirmed with NCC the commitment to complete an EIA for the Onshore Scheme. The Onshore Scheme ES has been undertaken in accordance with the EIA Regulations to fulfil their requirements.

### 1.2.6. Other Consents and Legislation

#### 1.2.6.1. THE HABITATS AND BIRDS DIRECTIVE

49. The EU Council Directive 2009/147/EC on the conservation of wild birds (the ‘Birds Directive’) provides a framework for the conservation and management of wild birds within the EU, with protection to Annex I and regularly occurring migratory species through the identification and designation of Special Protection Areas (SPAs).
50. The EU Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora (‘the Habitats Directive’) aims to maintain or restore natural habitats and wild species listed on the Annexes at a favourable conservation status.
51. The Birds Directive and Habitats Directive have been transposed into national law as the ‘Habitats Regulations’ which comprise of the following legislation applicable to the Onshore Scheme:
- the Wildlife and Countryside Act 1981

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- the Conservation of Habitats and Species Regulations 2017 (UK Government, 2017 (the ‘Habitats Regulations’)
52. The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019 (the ‘2019 Regulations’) amended the 2017 Habitats Regulations and grant protection through the designation of a UK national site network, which was previously granted through European Sites. The national site network consists of:
- Special Areas of Conservation (SACs);
  - SPAs; and
  - Ramsar Sites<sup>1</sup>.
53. Where a plan or project is likely to have a significant effect on a European site, there is a requirement, under the Habitats Regulations for the competent authority to carry out an Appropriate Assessment.
54. The Habitats Regulations require sufficient information to be provided the competent authority to enable it to assess whether there are likely to be any significant effects, and to carry out the Appropriate Assessment (and any subsequent stages of the Habitat Regulations Assessment (HRA)), where necessary, as part of an HRA. This information and the legislative and policy background to the assessment is provided by the Applicant in the ‘Report to Inform Appropriate Assessment’ (RIAA) which accompanies the Onshore Scheme ES.

#### 1.2.6.2. EUROPEAN PROTECTED SPECIES LICENSING


55. The Habitats Regulations also provide protection for certain species of plants and animals, e.g., bats, great crested newt, referred to as European Protected Species (EPS), and their breeding sites or resting places. The Habitats Regulations set out the activities that are prohibited, such as deliberate disturbance or damage to a breeding site. If an activity is likely to cause disturbance or injury to an EPS, an EPS licence is required to undertake that activity. The Habitats Regulations provide for licences to be granted for certain operations, such as Onshore Schemes that may affect EPS, subject to:
- There being no satisfactory alternative; and
  - The action authorised not being detrimental to the maintenance of the population of the range of species concerned at Favourable Conservation Status (FCS) in their natural range.
56. If disturbance cannot be avoided, then an application for an EPS licence is required to be made to the relevant authority. EPS licences are obtained from Natural England.

#### 1.2.6.3. WILDLIFE AND COUNTRYSIDE ACT 1981

57. The Wildlife and Countryside Act 1981 (UK Government, 1981) enables the designation of Sites of Special Scientific Interest (SSSIs) to provide statutory protection of the best examples of flora, fauna, geological and physio-geological features. SSSI legislation applies to areas of the terrestrial and intertidal environment only and does not extend offshore. Natural England has overall responsibility for the management of the SSSI network in England. The Wildlife and Countryside Act also enables Statutory Nature Conservation Bodies to declare sites which are considered to be of national importance as National Nature Reserves (NNRs).

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<sup>1</sup> Ramsar Sites are not formally covered by the Regulations but are included in the process as a result of guidance in the National Planning Policy Framework (NPPF), as revised in 2021. Within the NPPF, Ramsar Sites are granted the same protection as habitats sites.

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58. The Wildlife and Countryside Act defines a series of offences which are intended to provide protection to wild birds, including their eggs and nests, certain animal, and plant species, and to prohibit the intentional introduction and spread of invasive non-native species.

#### 1.2.6.4. WATER FRAMEWORK DIRECTIVE REGULATIONS

59. The Water Framework Directive 2000/60/EC (WFD) provides protection to water in Europe by regulating pollutants and setting corresponding regulatory standards to protect and, where necessary, restore water bodies in order to reach good status, and to prevent deterioration. The WFD is applied in England via the Water Environment (Water Framework Directive) (England and Wales) Regulations 2017, setting out a series of objectives for waterbodies and groundwaters. The WFD applies to inland, transitional, and coastal surface waters as well as groundwaters. WFD is implemented through River Basin Management Plans (RBMP). The Northumbria RBMP applies to the Onshore Scheme (Environment Agency, 2022). A WFD Assessment has been completed for the Onshore Scheme and accompanies this application.

#### 1.2.6.5. THE ENVIRONMENT ACT 1995

60. The Environment Act 1995 (UK Government, 1995) provided for the establishment of a number of government agencies, including the Environment Agency, The Scottish Environment Protection Agency and the National Park Authorities. The Act also brought in requirements for the governments to prepare strategies on air quality, national waste, and hedgerow protection.

#### 1.2.6.6. THE ENVIRONMENT ACT 2021

61. The Environment Act 2021 (UK Government, 2021c) operates as the UKs framework of environmental protection and aims to improve air and water quality, biodiversity and waste reduction. Through the Environment Act, the Office for Environmental Protection (OEP) was established. The aim of the OEP is to protect and improve the environment by holding government and other public authorities to account.


##### 1.2.6.6.1. BIODIVERSITY NET GAIN

62. Biodiversity net gain (BNG) is an approach to development, and/or land management, that aims to leave the natural environment in a measurably better state than it was beforehand.
63. In line with the Environment Act 2021, from a date to be appointed but expected to be January 2024, all planning applications in England will be required to deliver mandatory BNG, comprising a minimum 10% net gain. BNG can be delivered on site, off site or via a new statutory biodiversity credits scheme and any sites need to be registered on a national register of net gain delivery sites. This has been calculated using the current Department for Environment, Food and Rural Affairs (DEFRA) Biodiversity Metric and forms part of the proposal for the Onshore Scheme planning application.
64. BNG does not change existing legal protections for important habitats and wildlife species. It maintains the mitigation hierarchy of avoid, then mitigate and compensate if necessary. An indicative BNG Assessment has been completed for the Onshore Scheme and accompanies this application.

#### 1.2.6.7. ENVIRONMENTAL PERMITTING (ENGLAND AND WALES) REGULATIONS 2016

65. These regulations seek to ensure that the authorised activities and their discharges do not endanger the environment or human health. In England, Environmental Permits are granted by The Environment Agency (EA) and combine the requirements for an integrated waste management



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approach and hazardous waste management. Environmental Permits cover activities relevant to the Onshore Scheme such as water discharges during onshore construction and associated dewatering, and each permit issued by the EA would typically contain a series of conditions to be complied with.

#### 1.2.6.8. COUNTRYSIDE AND RIGHTS OF WAY (CROW) ACT 2000


66. The Countryside and Rights of Way (CROW) Act 2000 (UK Government, 2000) introduced improved provisions for the protection and management of SSSIs. It also implemented the so called 'right to roam' on certain upland and uncultivated areas of England and Wales in addition to a staged review of public rights of way conducted under the act. It also includes a power to extend the right to coastal land by order.
67. The Act is intended to give greater freedom for people to explore open countryside and contains measures to improve public access to the open countryside and registered common land while recognising the legitimate interests of those who own and manage the land concerned; it also amends the law relating to rights of way. There are Public Rights of Way (ProW) present within the vicinity of the Onshore Scheme, as well as Cambois Beach and Blyth Beach.

#### 1.2.6.9. NATURAL ENVIRONMENT AND RURAL COMMUNITIES ACT 2006

68. The National Environment and Rural Communities (NERC) Act is designed to promote the conservation and enhancement of the natural environment and the sustainable management of natural resources in rural areas.
69. Section 41 of the NERC Act requires that the Secretary of State publish 'a list of habitats and species which are of principal importance for the conservation of biodiversity in England'. The list includes 56 habitats and 943 species which have been determined in consultation with Natural England and draws upon the UK Biodiversity Action Plan List of Priority Species and habitats (JNCC, 2019).
70. The current published list includes taxon groups which may be of potential relevance to the Onshore Scheme; this includes birds, amphibians (including great crested newt), reptiles (including slow worm and common lizard), mammals (including various bat species, water vole, otter and red squirrel), butterflies (including grayling and dingy skipper), lichens and vascular plants as well as other plant, fungi and animal taxon groups. Section 41 habitats of principal importance in England also include broad habitats which may be of potential relevance to the Onshore Scheme: standing open waters, rivers and streams, supralittoral sediment (including coastal sand dunes), littoral sediments (including coastal saltmarsh, sand dunes and intertidal mudflats), fen marsh and swamp (e.g., reedbeds) and hedgerows.
71. The technical chapters within the Onshore Scheme ES (Volume 2, Chapter 9) considers NERC species as required based on the extent of potential interaction between NERC habitats and species and the Onshore Scheme.
72. The NERC Act 2006 has been considered within this ES with regards to the UK list of priority habitats and species listed of principal importance.

### 1.3. EIA Methodology

73. The EIA is a systematic process which identifies what impacts could result from a development, and then aims to avoid, reduce, or offset any likely significant effects (generally, any adverse impacts on the environment) through the implementation of mitigation measures where practicable. The EIA process is undertaken in coordination with the project design, and thus the design of the Onshore Scheme has been adjusted to avoid potential impacts identified where practicable.

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Similarly, where there is the potential for the Onshore Scheme to benefit the environment, measures have been put in place to maximise these benefits. Where avoidance was not practicable, reduction or offsetting of the likely significant effects through other mitigation measures were proposed. Consultation with key stakeholders has been carried out throughout the EIA process to inform the identification of potential impacts and the development of mitigation measures.

74. This section presents the EIA methodology used for the assessment of likely significant effects of the Onshore Scheme on physical, biological and human environment receptors throughout all phases of the Onshore Scheme (construction, operation and maintenance, and decommissioning). It describes the approach that has been employed to determine impact magnitude, receptor sensitivity, and the assessment of the likely significance of effects, including for inter-related effects, cumulative effects, and transboundary effects.


### 1.3.1. Key Principles of the Assessment

#### 1.3.1.1. OVERVIEW

75. The EIA methodology is detailed in full in the EIA Methodology Chapter. Additionally, the following are discussed within each of the technical chapters of the Onshore Scheme ES:
- A description of topic-specific consultation and stakeholder engagement undertaken;
  - A description of the evidence used to identify and assess the effects on the environment, including any limitations and assumptions;
  - A description of the environmental factors likely to be significantly affected by the Onshore Scheme (known as the ‘baseline’);
  - An assessment of the likely significant effects, including an evaluation of significance;
  - A description of any mitigation measures;
  - A Cumulative Effects Assessment (CEA);
  - An assessment of transboundary effects;
  - An assessment of inter-related effects; and
  - A reference list.

#### 1.3.1.2. PROJECT DESIGN ENVELOPE / MAXIMUM DESIGN SCENARIO

76. The Applicant has adopted a Project Design Envelope (PDE) approach, in line with current best practice and the principles of the Rochdale Envelope<sup>2</sup>. For all EIA receptors considered in each technical assessment chapter (Volume 2, Chapters 7 to 15 of the Onshore Scheme ES), potential impacts have been assessed based on the project design parameters that represent a Maximum Design Scenario (MDS) which can be considered a realistic ‘worst-case’ scenario. Realistic combinations of design parameters have been considered to ensure that the ‘worst-case’ scenario options are not overly precautionary or unrealistic. Under this approach, the combination of Onshore Scheme design options constituting the worst-case scenario may differ from one receptor to another and from one impact to another. The end result is an EIA which has been based on clearly defined parameters that have defined the range of Onshore Scheme design possibilities and hence the likely environmental impacts that could result from the Onshore Scheme.

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- 77. Reflecting the PDE approach taken to the impact assessment, the Applicant is also applying for outline planning permission under Section 92 of the Town and County Planning Act 1990 for the entirety of the Onshore Scheme. Final design details for the various components of the Onshore Scheme will be subject to future application(s) for the approval of Reserved Matters which will be approved by NCC.
- 78. Certain design details relating to the Onshore Scheme are still to be finalised subject to further design following the acquisition of information on ground conditions across the Site, ongoing engineering design work and the procurement of cable and Onshore Converter Station suppliers which will be completed post-consent.

### 1.3.1.3. MITIGATION MEASURES

- 79. As part of the Onshore Scheme design process, a number of measures have been considered to reduce the potential for impacts to the environment. These include measures which have been adopted as part of the Onshore Scheme design, referred to as ‘designed in measures’ or primary mitigation. Primary mitigation measures are considered inherently part of the design of the Onshore Scheme and have therefore been considered in the assessment undertaken as part of each technical chapter of the Onshore Scheme ES.
- 80. Secondary mitigation measures are implemented to further reduce environmental effects to ‘not significant’ levels where the initial assessment concludes there is the potential for a significant adverse effect to occur. This is referred to as ‘secondary mitigation’ (whereby additional mitigation is specifically developed due to specific findings within the ES).
- 81. Tertiary mitigation are measures which will be implemented regardless of the design process and the EIA, for example, those requirements prescribed by relevant legislation. These measures include actions that are considered to be standard practices used to manage commonly occurring environmental effects (IEMA, 2016). Tertiary mitigation is therefore considered ‘designed in’ measures, in line with primary mitigation.

### 1.3.1.4. ASSESSMENT OF IMPACTS AND EFFECTS

- 82. The ‘source-pathway-receptor’ model has been utilised for the identification and assessment of potential effects of the Onshore Scheme on the environment during construction, operation and maintenance, and decommissioning. The source represents the origin of an impact (i.e., an activity related to the Onshore Scheme), the pathway represents the route through the environment by which the effects of an activity are transmitted, and the receptor is the environment or resource that receives the impact. Where there is no known ‘pathway’ then no effect is considered to occur, and the impact is scoped out. By way of an example, the construction of the Onshore Export Cables disturbs ground which may potentially release loose sediments into the water table (the pathway), which could affect the transmissibility of aquifers (the impact) and increase flood risk (the effect).
- 83. The identified impacts are then assessed based on the sensitivity of the receptor and the magnitude of the impact which are defined within each of the ES technical chapters through topic-specific criteria. Considering the impact magnitude and the sensitivity of a receptor, the significance of the effect can be ascertained based on baseline information, professional judgment, and stakeholder advice. A defined methodology and matrix have been used in each ES technical chapter to ensure consistency when evaluating the significance of effects (Table 1-1). For effects assessed as minor to moderate, professional judgement has been applied to determine if the effect is significant in terms of the EIA regulations. A typical categorisation of effect significance is shown below in Table 1-2, noting that effects can be either beneficial or adverse. Any effect with a significance of moderate or greater is considered ‘significant’ in terms of the EIA regulations, and effects identified as minor or negligible are considered to be ‘not significant’ in terms of the EIA regulations.

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84. One exception where a topic deviates from the generic approach is the Landscape and Visual Amenity chapter (Volume 2, Chapter 7). This chapter classifies the level of physical and perceptual change to the receiving environment as the ‘magnitude of change’ in line with the recommendations of the Guidelines for Landscape and Visual Impact Assessment third edition (GLVIA3) (Landscape Institute, 2013). However, this terminology should be considered interchangeable with ‘magnitude of impact’.

**Table 1-1 Significance of effects matrix**

		Magnitude of Impact			
		Negligible	Low	Medium	High
Sensitivity of Receptor	Negligible	Negligible	Negligible to Minor	Negligible to Minor	Minor
	Low	Negligible to Minor	Negligible to Minor	Minor	Minor to Moderate
	Medium	Negligible to Minor	Minor	Moderate	Moderate to Major
	High	Minor	Minor to Moderate	Moderate to Major	Major
	Very High	Minor	Moderate to Major	Major	Major


**Table 1-2 Definition of consequence of effect and associated significance**

Category	Definition	Significance
Major	A fundamental change to the environment or receptor, resulting in a significant effect.	Significant
Moderate	A material but non-fundamental change to the environment or receptor, resulting in a possible significant effect.	Significant
Minor	A detectable but non-material change to the environment or receptor resulting in no significant effect or small-scale temporary changes.	Not Significant
Negligible	No detectable change to the environment or receptor resulting in no significant effect.	Not Significant

### 1.3.1.5. INTER-RELATED EFFECTS

85. An assessment of the inter-related effects (i.e., where multiple impacts affect one receptor) has been carried out within each ES technical chapter. The inter-related effects assessment considers effects from the Onshore Scheme, and not those from other projects cumulatively with the Onshore Scheme. These latter effects are considered within the Cumulative Effects Assessment. There are two main types of inter-related effects:

- **Project Lifetime Effects:** these are effects which occur over time at more than one phase of the Onshore Scheme (i.e., construction, operation and maintenance, decommissioning) and may interact together to potentially create a more significant effect on a specific receptor when compared to if only assessed in isolation; and
- **Receptor-Led Effects:** these are effects which may interact spatially and/or temporally resulting in the potential for inter-related effects on a specific receptor. Receptor-led inter-related effects may be short term, temporary or incorporate longer-term, potentially permanent effects. For example, where potential impacts on a key receptor (e.g., protected species from multiple impact pathways such as habitat disturbance), results in a greater impact on the receptor species than one impact pathway alone.

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### 1.3.1.6. CUMULATIVE EFFECTS ASSESSMENT

86. An initial screening was performed to identify developments with which the Onshore Scheme may interact that may result in cumulative effects during installation, operation and maintenance, and decommissioning. The screening considered what detail is currently available regarding current and future developments, as well as the likelihood of a potential interaction. This considered projects that are ‘reasonably foreseeable’ such as:
- Existing projects in construction;
  - Consented projects, awaiting implementation; and
  - Proposals awaiting determination within the planning process with design information in the public domain (including other renewable energy or subsea transmission developments that requested a Scoping Opinion by 31<sup>st</sup> July 2023).
87. The CEA has considered all other relevant plans, projects and activities that are publicly available three months prior to submission of the Onshore Scheme application using the NCC Public Access Planning Register, as follows:
88. A search of planning consents and application in the previous three years was undertaken (since July 2023). Three years was chosen as an appropriate search criterion as this is the typical period conditioned for commencing development as part of any planning consent;
- Planning applications and consents for Screening and Scoping Opinions and Major Development<sup>3</sup> were recorded;
  - Planning applications and consents for discharge of conditions, non-material amendments and Minor Development<sup>4</sup> were ignored due to their scale;
  - A ‘cut-off’ date of the 31<sup>st</sup> July 2023 was used to ensure all potentially relevant applications were included; and
  - A Zone of Influence (Zol) of 3 km from the Site boundary was used to ensure all potentially relevant applications were included.
89. The screening resulted in a long list of potential developments within the 3 km Zol, as agreed through Scoping. The long list for the CEA is provided in Technical Appendix 3.2, Volume 3 and has been developed using publicly available datasets, such as those from NCC Planning Portal, to identify projects and plans in the vicinity of the Onshore Scheme. A desk-based search of publicly available information was undertaken to compile information such as project name, information source, confidence in project data, scale / capacity, status of the development and construction timescales within the long list.
90. The offshore components of the Cambois Connection (seaward of MHWS) ‘the Marine Scheme’ is subject to a separate application and consenting process under the Marine and Coastal Access Act 2009. The Marine Scheme has been included as a cumulative project for the purposes of the Onshore Scheme CEA as agreed through Scoping, and information on the Marine Scheme has been used to inform this assessment.

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<sup>3</sup> As defined in The Town and Country Planning (Development Management Procedure) (England) Order 2015

<sup>4</sup> As defined in The Town and Country Planning (Development Management Procedure) (England) Order 2015

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## 1.4. Stakeholder Consultation and Engagement

### 1.4.1. Introduction

91. This section of the NTS for the Onshore Scheme ES provides a record of the stakeholder and public engagement that has been undertaken in the pre-application stage for the Onshore Scheme.
92. Early and ongoing engagement with stakeholders is an important part of EIA best practice and the development of any project. The Applicant is committed to ongoing and targeted dialogue and engagement with stakeholders, regulators, and communities under a robust programme of meaningful stakeholder engagement and consultation activity to inform decision making and Project design.

### 1.4.2. Regulatory Framework


93. Pre-application consultation is a compulsory requirement if the project is classed as a NSIP. The thresholds for a project to be considered an NSIP are outlined in Part 3 of The Planning Act 2008. The Onshore Scheme does not fall under the category of NSIP and therefore the requirements relating to pre-application consultation do not apply. As the Onshore Scheme does not fall under the category of NSIP, but instead will be considered pursuant to the Town and Country Planning Act 1990, there is no requirement to undertake formal pre-application consultation.

### 1.4.3. Engagement with NCC

94. Whilst there are no statutory pre-application consultation and engagement requirements from NCC as part of the planning application process for the Onshore Scheme, relevant guidance on best-practice and consultation has been used to inform consultation and engagement to-date.
95. The National Planning Policy Framework states that whilst Local Planning Authorities '*cannot require that a developer engages with them before submitting a planning application... .. they should encourage take-up of any pre-application services they offer*'. The Applicant has sought advice through NCC's formal Pre-Application Advice service, which is summarised within Volume 2 Chapter 4 of the Onshore Scheme ES.

### 1.4.4. Further Technical Engagement

96. Technical engagement has been carried out, and will continue to be carried out, with a range of relevant stakeholders in relation to the Onshore Scheme. A list of the stakeholders consulted in relation to the Onshore Scheme is included in the Onshore Scheme ES.
97. In November 2022, the Applicant submitted a request for Scoping Opinion and associated EIA Scoping Report for the Onshore Scheme to NCC. A Scoping Opinion was received on 4th January 2023.
98. The comments that have been received and are applicable to specific receptors are further detailed in the relevant technical chapters of the Onshore Scheme ES, along with details of how the comments have been considered and addressed within the EIA.
99. A dedicated Stakeholder Engagement Manager (SEM) has been appointed to facilitate continued engagement with the community (including the general public, community councils, businesses, and local organisations).

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100. The Applicant has sought to engage with the communities and wider public stakeholders who are most affected by the proposals in the development of the Project, and they have had the opportunity to comment on the proposals at key decision making points.
101. Two in person public exhibitions have been held for the Onshore Scheme. The first was held on 11 May 2023 in East Bedlington to introduce and update members of the public on the progress of the Project. A follow up public exhibition event was held on 26 September 2023 in Cambois Primary School.

## 1.5. Project Description

### 1.5.1. Introduction


102. This section of the Non-Technical Summary for the Onshore Scheme ES summarises the onshore components and methodology for the Onshore Scheme. As addressed in section 1.3.1.2, the design parameters represent a Maximum Design Scenario, and therefore the Project description describes the maximum extent of the design as a basis to determine what the likely worst case effects may be, noting that for some technical topics the worst case might be a combination of parameters, not just the maximum parameter.

### 1.5.2. Cable Landfall

103. The Landfall location at Cambois forms the interface between the Marine Scheme and Onshore Scheme where the Offshore Export Cables (comprising up to four HVDC cables, installed within a maximum of four trenches) will be brought ashore.
104. The development of a Landfall will require construction work within the onshore environment (i.e., above MLWS) as well as work within the marine environment work (i.e., below MHWS). The Offshore Export Cables will be installed at the Landfall using a trenchless technology such as Horizontal Directional Drilling (HDD). This involves installing an underground cable duct by drilling a hole (or holes) from one point to another. The Offshore Export Cables are then installed through the duct(s).

### 1.5.3. Onshore Infrastructure

105. The Offshore Export Cables will be connected to the onshore underground cables through the use of TJBs. Up to four TJBs will be required for the Onshore Scheme and each will consist of a buried concrete chamber.
106. Up to four HVDC cables, transmitting power at a voltage of up to 525kV, will connect the subsea cables to the Onshore Converter Station and will be installed within a duct. Joint Bays will also be required along the onshore cable route. Similar to the TJB located at Landfall, joint bays are buried concrete structures. It is expected that joint bays will be required at approximately 500 - 1000 m intervals along the onshore cable route. The total length of the HVAC cables route will be approximately 2.1 km.
107. The Onshore Converter Station will be located to the west of the existing North Sea Link (NSL) Onshore Converter Station, with Brock Lane running east west to the south, and the A189 lying to the west. The Onshore Converter Station will be contained within a permanent secure fenced compound and will comprise the electrical infrastructure required to convert HVDC electricity into HVAC electricity for connection into the national grid via the Blyth substation. The Onshore Converter Station will consist of one main building, which will not exceed 30 m in height (maximum roof level) and will have a maximum footprint 90,000 m<sup>2</sup>, including the platform (area of hard standing up on which the Onshore Converter Station will be positioned). The Onshore Converter

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Station finished platform level will have a maximum height of 15.2 m aOD (above Ordnance Datum<sup>5</sup>), meaning that the maximum overall height will be no more than 45.2 m aOD, not including any external electrical equipment located on the exterior of the building, for example lighting rods. It should be noted these are subject to further refinement post consent.

108. The Onshore Converter Station will be connected to the 400kV substation at Blyth via up to twelve HVAC cables. The HVAC cables will have an operating voltage of up to +/- 400 kV. The total length of the HVAC cables route will be approximately 1.5 km. Buried joint bays, comms boxes and links boxes will also be required for each cable.

#### 1.5.4. Indicative Programme

109. An outline of the programme for construction of the Onshore Scheme is given below to provide indicative commencement and completion dates, together with estimated durations of key construction activities. Until detailed design of the Onshore Scheme is progressed and further refined pre-construction, this programme for the Onshore Scheme as a whole is indicative and is subject to further refinement, but is used to inform assessment of construction phase impacts for the Onshore Scheme.

110. The indicative outline construction programme includes the following:

- Commencement of construction expected in Q4 2025 and completion of construction expected in Q4 2029;
- Site preparation/ enabling works for an estimated duration of up to 15 months;
- Landfall construction for an estimated duration of up to 24 months;
- Onshore Cable (HVAC and HVDC) installation for an estimated duration of up to 18 months;
- Onshore Converter Station construction for an estimated duration of up to 18 months; and
- Outfall installation for an estimated duration of up to 9 months.


##### 1.5.4.1. SITE PREPARATION WORKS

111. Whilst the site preparation works will occur for the duration of the construction phase, these will not be continuous. There are expected to be periods when site preparation, Landfall and cable installation and onshore convertor station construction works occur concurrently.
112. Once temporary construction access to the Onshore Converter Station site has been established site preparation works will commence. These will include vegetation clearance, development of internal site access and the construction of temporary facilities including parking, site offices, storage containers, welfare facilities, construction/laydown areas, waste laydown/sorting areas, a bunded fuelling area, and a double bunded chemical / fuel storage area, the development of electricity, water supplies, drainage and electricity, and the erection of security fencing.

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<sup>5</sup> An Ordnance datum or aOD is a vertical height used by an Ordnance survey as the basis for deriving altitudes on maps. It is an absolute level. For example, if you are flying at a height of 100 m aOD and the ground beneath is at 0 m aOD, then you would be 100m above the level of the ground below. However, if the ground is at 50 m aOD, and you are still flying at 100 m aOD, then you would be flying 50 m above the level of the ground below.



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### 1.5.5. Construction Access

113. Prior to the commencement of construction, a Construction Traffic Management Plan (CTMP) will be prepared, in consultation with NCC Highways Department. This will set out all construction access arrangements, including agreed access points, delivery routes and times.
114. Where required, temporary access routes will be constructed to facilitate construction vehicle access to the Landfall, Converter Station, HVDC and HVAC onshore cable routes. Public Road Improvements (PRIs) may be required along sections of the existing public road network to accommodate the construction and abnormal load traffic. These improvements are likely to consist of road alignment improvements, street furniture removal and road widening, including any other measures considered necessary and as agreed with NCC. Following construction, the areas will be reinstated to their original condition, unless otherwise forming part of the final permanent development.
115. Potential construction access points have been identified in locations to minimise impacts on the local road network as far as possible. It is anticipated that two access tracks will be required along the HVDC cable route as well as the HVAC cable route, one either side of the cable trenches. Any construction access track along the HVDC cable route and HVAC cable route would be expected to be 12 m wide. Temporary access roads within the Site will be formed of crushed stone / hard standing / tarmac or tracked and will be maintained for the duration of the construction period as required. Following construction, the temporary surface will be removed and the previous land use reinstated.
116. There will be a variety of vehicles requiring access to the Site throughout the construction period. These will include flatbed trucks for the delivery of construction materials and equipment, plant such as excavators, bulldozers, cranes, Heavy Goods Vehicles (HGVs), cars and vans for use by construction staff. The location of final access routes and final traffic numbers and vehicle types will be dependent upon the final design of the Onshore Scheme and will be influenced by factors such as final Landfall location, final onshore cable routes including requirements for use of trenchless techniques or open cut trench installation techniques and final Onshore Converter Station design including final ground levels, drainage design, ground excavations etc.

#### 1.5.5.1. BEACH ACCESS


117. Landfall activities are anticipated to involve construction utilising trenchless techniques (i.e., HDD). This will involve drilling from land under existing infrastructure, including road, utilities, railways, and beach areas. During construction it is expected that access to the beach will be maintained and signage may be employed at this time to advise of the works.

### 1.5.6. Construction Compounds

118. Construction compounds and material storage areas will also be required at the Onshore Converter Station site. There will be up to two compounds and two materials storage areas.

### 1.5.7. Environmental Management

119. During construction, the appointed Contractors will be required to develop and implement a detailed site-specific Construction Environmental Management Plan (CEMP), an Outline CEMP has been produced as part of this application. The CEMP will as a minimum, set out the requirements to implement the mitigation measures identified within this ES. It will also set out a variety of control measures for managing the potential environmental effects of construction works including control and management of noise, dust, surface water runoff, waste, and pollution control.

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### 1.5.8. Working Hours

120. Planning permission will be sought for 24-hour, 7 days per week construction working hours. The 24-hour construction period is anticipated to be only necessary for the trenchless technique (e.g., HDD) crossing solutions. This is on the basis that the trenchless installations (drilling and ducting) need to be completed as a continuous activity from the entry point to the exit point. Whilst 24-hour working is generally necessary at these locations, this shall be reviewed with the relevant stakeholders and asset owners at detailed design stage. At this stage, opportunities to reduce these working times shall be considered and adopted where agreeable.

### 1.5.9. Operation and Maintenance Phase

121. Once operational, the Onshore Converter Station will have a small workforce on site and the Site will be subject to infrequent inspections and maintenance visits whilst in operation. Access will be required to the for potential operation and maintenance activities 24 hours per day, 365 days per year. The frequency and duration of maintenance visits will be dependent on the manufacturer's recommendations for the equipment installed.
122. Annual checks, on foot, will be required along the onshore cable corridor during operation. Access would normally be along the agreed onshore cable corridor.
123. Onshore Converter Station security will likely comprise of CCTV, access control systems and security fencing. Permanent lighting at the Onshore Converter Station will also be installed to aide security and facilitate safe access during hours of darkness.

### 1.5.10. Decommissioning Phase


124. The anticipated operational life of the Onshore Converter Station and cables is approximately 35 years from final commissioning of the wind turbines. This life expectancy could be extended dependent on the operation of the component parts which will be subject to ongoing inspection. At the end of the operational lifetime of the Onshore Scheme, the operator of the Onshore Scheme will develop and agree a solution for the onward handling of the onshore infrastructure with the regulator. This decision will be based on the advice from the regulator at the time and informed by the prevailing environmental regulatory requirements at that time, and relevant best-practice.

### 1.5.11. Measures adopted as part of the Onshore Scheme


125. The Onshore Scheme includes a number of designed in measures which the Applicant is committed to delivering. These measures are integrated into the project design. A full description of the designed in measures for the Onshore Scheme is provided in Chapter 15 of the Onshore Scheme ES.

## 1.6. Site Selection and Consideration of Alternatives

126. The approach taken to site selection and subsequent assessment of alternative options for delivery of the Cambois Connection has been based on the objective of developing a viable connection between the BBWF and existing grid network in order to maximise export capacity, thereby delivering a significant volume of new low-carbon electricity as soon as possible, with a substantial contribution to the national grid before 2030.
127. An appraisal considering reasonable alternative Onshore Converter Station locations, Onshore Cable Corridors (HVDC and HVAC) and Landfall options has been carried out for the Onshore Scheme, considering potential environmental effects and technical constraints of the alternatives reviewed.

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128. The design for the Onshore Scheme is the outcome of an iterative process that commenced when the need to develop an additional connection from BBWF to a Landfall in England was identified with the objective to not only enable, but to accelerate BBWF reaching its full generation capacity.
129. The appraisal of the Onshore Scheme determined that not developing the Cambois Connection and thus the Onshore Scheme would not have assisted in rapidly tackling the global climate change emergency by contributing to achieving Scottish and UK targets set in response. The Onshore Scheme will help deliver significant quantities of low-carbon electricity from BBWF’s full generation capacity (as early as 2030, making a significant, necessary and timely contribution to the Scottish and UK targets of achieving Net Zero by 2045 and 2050 respectively, as well as the Scottish and UK targets of having 11 GW and 50 GW of offshore wind operating in Scottish and UK waters respectively by 2030. This early connection and important contribution to rapid decarbonisation and associated increase of electricity output from offshore wind would not have been achievable by BBWF with the additional grid connection originally offered at the Branxton substation in East Lothian, where BBWF will export the remaining electricity to. The additional grid connection at Blyth substation in North-East England was confirmed by the National Grid Electricity System Operator (NGESO) in July 2022 in their Holistic Network Design Review.
130. Following determination that the Onshore Scheme is needed, a wide range of environmental, technical and commercial considerations have influenced the optioneering and design evolution process of the Onshore Converter Station, Onshore Cable Corridors (HVDC and HVAC) and the Landfall. Alongside this, the formal consultation process (including a formal request by BBWF for a Scoping Opinion in November 2022) and engagement with key stakeholders, including but not limited to NCC, Natural England, landowners and members of the Public, has informed the development of the Onshore Scheme.
131. The Landfall area of search options extended from the Port of Blyth in the south up to Lynemouth north of Newbiggin-by-the-Sea and the River Wansbeck. However, it quickly became apparent that any Landfall to the north of the River Wansbeck would require construction of a far longer and more complex onshore cable route to the Blyth substation. This would interact with a number of conurbations, roads, other infrastructure and would require crossing of the River Wansbeck, resulting in significant additional technical complexity, cost and the need for additional construction activity on both riverbanks. A Landfall north of the River Wansbeck where cliffs are present may also be challenging for using trenchless Landfall installation technologies, which have been selected by the Applicant and have the advantage of avoiding and reducing potential environmental effects at the Landfall. An appraisal of the remaining Landfall area of search between the Port of Blyth and the River Wansbeck concluded that the preferred Landfall would be located in the south of this coastal stretch.
132. The connection of BBWF at Blyth would form part of Northumberland Energy Park (NEP). NEP is part of the Energy Central development which is a UK based service, investment and growth cluster for companies supporting a green energy strategy. Energy Central will be developed in three phases with these phases being NEP1, NEP2 and NEP3. Key drivers for the assessment of Onshore Converter Station site options were the allocation of the grid connection at Blyth substation; proximity to grid; availability and size of land required for the Onshore Converter Station; and a short onshore cable route to reduce impacts and disruption. Land zoned for industrial use, along with the environmental constraints (including landscape and visual context, designated sites, protected species and habitats, cultural heritage, residential properties and other sensitive receptors, land ownership and use; access and road use and planning policy) and stakeholder preference.
133. A total of four areas of search for the Onshore Converter Station were identified and considered alongside environmental constraints. A Refined Onshore area of search was presented within the Scoping Report, within this area three locations were considered for the Onshore Converter Station. A Red Amber Green (RAG) assessment of these three options was undertaken and the preferred Onshore Converter Station location, as presented within this planning application, was selected


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due to its close proximity to the grid connection and landfall, availability of land, the land being zoned for Industrial use and within NEP2. Environmental constraints and effects were generally considered to be comparable between each option and stakeholder preference further narrowed the site selection process resulting in the preferred location being Converter Station Site 1.

134. In summary, a staged site selection approach, achieves the right balance between competing technical and environmental constraints and has allowed for the most environmentally preferred options to be taken forward for assessment in the ES.

## 1.7. Landscape and Visual Amenity


135. The full assessment of landscape and visual impacts is provided in Volume 2, Chapter 7 of the Onshore ES.
136. The landscape and visual impact assessment (LVIA) considers the effects of the Onshore Scheme on landscape character and visual amenity within a Study Area up to 3 km from the Site. The assessment has been undertaken in accordance with all relevant published guidance and has involved desk-based and field-based assessments. The approach and scope of the assessment was agreed through scoping and through further consultation with Northumberland County Council.
137. The baseline for the assessment includes landscape and visual receptors in the Study Area. The landscape of the Site and Study Area is described through observations made in the field along with published landscape character assessment. Physical landscape elements, landscape character types and designated landscapes are considered in the landscape assessment. Visual receptors include people in settlements, using the local area for recreation, and travelling through the area on roads. Representative viewpoints have been selected to assess the range of visual receptors, and these viewpoints were agreed through consultation. The LVIA is also accompanied by a series of photomontage visualisations to illustrate the potential change in view from these representative viewpoints. The cumulative assessment considers the effect of the addition of the Onshore Scheme in relation to other developments in the Study Area and also considers the cumulative effect of the Marine Scheme together with the Proposed Development (Onshore Scheme).
138. The LVIA concluded that construction of the Landfall and Onshore Export Cable and Grid Cables would not give rise to significant landscape character effects and that likely significant construction effects would be localised, temporary and limited to visual effects upon higher sensitivity receptors in close proximity to the installation activity. No significant seascape character effects have been identified for the intertidal area and due to trenchless technology being proposed at the Landfall, no physical disturbance of the beach or intertidal area or physical effect would occur.
139. The LVIA identified that significant effects on the physical landscape would occur on woodland within the Site during the installation of the Landfall and Onshore Export Cable and Grid Cables and construction of the Onshore Converter Station. However, the Applicant's commitment to retaining certain areas of woodland within the Site has moderated the level of effect.
140. For the Onshore Converter Station, significant effects on the landscape character of the LVIA study area have been identified during construction and operation at a localised range of approximately 0.5 km within the Onshore Converter Station Zone and its immediate environs and across both the host Landscape Character Area 41a: Blyth and Wansbeck Estuaries and a small area of the neighbouring Landscape Character Area 42a: Urban Fringe, Ashington, Blyth, and Cramlington. The LVIA found that construction of the Onshore Converter Station and installation of the Onshore Export Cable would give rise to significant visual effects, within approximately 1 km of the Onshore Scheme as represented by Viewpoint 1, Viewpoint 2, Viewpoint 3, Viewpoint 3, Viewpoint 4, and Viewpoint 6. During the operational phase of the Onshore Scheme there would be significant effects experienced by receptors at Viewpoint 1, Viewpoint 2, and Viewpoint 4. This assessment is precautionary at this stage and represents the worst case, maximum design scenario.

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141. Such effects may be mitigated through the detailed design of the proposals, which would seek to avoid removal of key woodland. However, it is not possible for the Applicant to commit further to this at this stage or to the geographical area and location of any landscape mitigation (screening) proposals. This will be subject to detailed design and mitigation will be developed and set out in a Landscape and Ecological Mitigation Plan which will form part of future application(s) for approval of Reserved Matters.
142. No significant cumulative effects have been found when considering the whole project effect (i.e., the total effect of the Onshore Scheme and the Marine Scheme) in addition to those identified for the Onshore Scheme alone.).
143. Significant cumulative effects as a result of other developments in the Study Area have been identified within the Onshore Converter Station Zone and its immediate environs during the construction phase. Significant cumulative effects are identified from Viewpoint 2: North Field / Waterfield Road, near East Sleekburn. From this representative viewpoint, receptors would experience significant cumulative visual effects during the installation of the Onshore Export Cables and construction of the Onshore Converter Station, and residual significant cumulative effects during the operation of the Onshore Converter Station.
144. None of the remaining landscape and visual receptors are assessed as having significant cumulative effects as a result of other developments in the Study Area. Where cumulative developments are visible from key landscape and visual receptors, they would have limited cumulative interaction with the Onshore Scheme or the cumulative effect would be minimal, short term and temporary, substantially limiting their cumulative influence when considering the additional effect of the Onshore Scheme.
145. The industrial character, and existing large-scale electrical infrastructure, in close proximity to the Site and within the landscape around the River Blyth and Port of Blyth is a notable influence on the landscape and visual resource within the immediate context of the proposed Converter Station, notably the NSL converter station and National Grid Substation. Whilst the scale of the proposed Converter Station, and introduction of further built form into the landscape, gives rise to significant residual effects, these effects will be experienced within the context of nearby industrial development and within a very localised part of the Study Area, in the immediate landscape and visual context.

## 1.8. Cultural Heritage and Archaeology


146. Cultural Heritage and Archaeology refers to assets which contribute to the historic environment. The cultural heritage and archaeological assessment is completed in two parts; direct impacts upon non-designated heritage assets and indirect impacts upon designated heritage assets. A Study Area of 1 km from the Site boundary was used, and the assessment used a desk-based approach to review known and potential archaeology within the Onshore Scheme boundary (shown in purple on Figure 1.1) and designated heritage assets coupled with archaeological walkovers. Direct impacts upon cultural heritage assets which outlie the Onshore Scheme boundary and indirect effects upon designated heritage assets where the Onshore Scheme will have no effect on an asset's setting have been scoped out of the assessment.
147. The overall archaeological potential for the Site is generally low. This is due to the potential marginality of the majority of the Site prior to later industrial development. Known assets recorded on the Historic Environment Record (HER) comprise and prehistoric to Romano-British enclosures recorded via aerial photographs and remnant medieval ridge and furrow. These assets are located on higher dryer parts of the Site in the west where more permanent or persistent activity may have been possible from the prehistoric to the post-medieval periods. Otherwise known assets are restricted to Industrial and Second World War remains affected by demolition. The history of industrial use within the Site has caused previous below-ground disturbance within the Site boundary.

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148. Two Grade II Listed Buildings are located immediately outside the boundary of the scheme, being Cambois War Memorial, and Coal Staithes at Blyth Power Station<sup>2</sup>, both located to the south-east of the Site. There were no identified indirect effects upon these designated heritage assets.
149. A number of potential impacts on non-designated heritage assets were identified associated with the construction phase of the Onshore Scheme. These are primarily impacts on the two enclosures and unknown archaeological remains within previous undisturbed areas, within the footprint of the Onshore Scheme, leading to minor to moderate adverse effects which are not significant in EIA terms. Other impacts were considered negligible to moderate adverse and not significant. With the proposed secondary mitigation measures, the archaeological remains can be preserved through record, however the impact remains unchanged as the assets would still be removed.
150. Cumulative impacts on non-designated heritage assets would be on negligible to minor significance (not significant in EIA terms).


## 1.9. Terrestrial Ecology and Ornithology

151. ‘Terrestrial Ecology and Ornithology’ refers to terrestrial habitats and vegetation, and faunal species including invertebrates, reptiles, birds (breeding and non-breeding), bats and terrestrial mammals (badger, otter, and red squirrel). Intertidal habitats and species, landward of MLWS, are also considered. The full Terrestrial Ecology and Ornithology assessment is provided in Volume 3, Chapter 9 of the EIA.
152. The study areas used for the terrestrial ecology and ornithology assessment vary according to the receptor, based on relevant good practice guidance. A desk-based study was carried out to identify relevant existing information relating to designated sites and protected or notable species. A search radius of 10 km was used for statutory designated sites, with a search radius of 2 km used for non-statutory designated sites and protected or notable species records. Site-specific surveys were also undertaken to inform the assessment, covering the Site plus buffer zones relevant to the receptor involved. These included a habitat survey (including a survey for invasive non-native plant species) and surveys for invertebrates, great-crested newts, breeding and wintering birds, terrestrial mammals (including otter, water vole, badger and red squirrel) and bats.
153. Fourteen statutory designated sites are located within 10 km of the Site boundary, with four overlapping the Site (Northumberland Marine SPA, Northumberland Shore SSSI, Coquet to St Marys Marine Conservation Zone (MCZ) and Berwick to St Marys MCZ). In addition, the Northumbria Coast SPA and Ramsar Site is located 0.3 km from the Site boundary. There are three Local Nature Reserves (LNR) and three non-statutory Local Wildlife Sites (LWS) within 2 km of the Site. The Blyth Estuary LWS overlaps the Site boundary.
154. Habitats identified within the Site included the following priority habitats in England: coastal sand dunes, coastal saltmarsh, intertidal mudflats, hedgerows, lowland mixed deciduous woodland, rivers and open mosaic habitat on previously developed land. The Site is of county-level value for most of these habitats and of regional importance for open mosaic habitat, due to its large extent. The Site is of lower (local) value for hedgerows (which are all relatively species-poor) and woodland (which is mostly of plantation origin).
155. Two priority butterfly species, dingy skipper and grayling, were recorded with the Site of county-level value for each species. Common lizard, and potentially slow-worm are likely to be present at the Site in small numbers. Breeding bird surveys identified the presence of small numbers of breeding waders, including ringed plover, little ringed plover and lapwing, of county-level value. Wintering bird surveys identified the presence of several waterbird species, including qualifying and notified features for nearby designated sites and a significant proportion of the Northumberland Shore SSSI population of sanderling, ringed plover and redshank. Mammal surveys confirmed the presence of badger and otter within the Site and red squirrel presence is possible. Bat surveys identified up to 17 trees with high or moderate bat roost potential and bat activity surveys recorded

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at least six bat species within the Site. No evidence of water vole or great crested newt was identified during site-specific surveys.

156. Potential impacts were assessed for the following designated sites: Northumberland Shore SSSI, Northumbria Coast SPA and Ramsar Site, Northumberland Marine SPA, Blyth Estuary LWS and Berwick to St Marys MCZ. Impacts considered included disturbance to qualifying or notified bird species, temporary habitat loss and accidental pollution. All other designated sites are not likely to be significantly affected, due to the intervening distance and/or a lack of hydrological connection or other functional linkage.
157. Potential impacts were also assessed for a range of important habitat types and species including, invertebrates, reptiles, breeding birds, wintering birds (where not included as qualifying or notified features of nearby designated sites), otter, badger, red squirrel and bats. The potential for invasive non-native species to be spread by the Onshore Scheme was also assessed. Impacts considered included permanent and temporary habitat loss, disturbance, accidental killing or injury, damage to active nests (birds) and indirect effects due to accidental pollution.
158. As part of the project design process, several measures have been included to reduce the potential for impacts on terrestrial ecology and ornithology. These include the avoidance of priority sand dune and saltmarsh and some areas of priority woodland habitat, and a timing restriction on construction of a surface water outfall into the Sleek Burn. A CEMP will be produced prior to construction commencing which will provide details of a range of measures to be implemented during construction. These include employment of an Ecological Clerk of Works, pre-construction surveys, reinstatement of temporarily disturbed habitats, and a range of standard site good practice, biosecurity and pollution control measures. An Environmental Management Plan will detail measures to be implemented during the operation and maintenance phase and a Decommissioning Plan will detail measures to be implemented during decommissioning.
159. Despite the implementation of the measures outlined above and depending on the final design adopted at the detailed design stage, in the absence of further, more-specific mitigation measures the following potentially significant negative effects are possible during the construction phase: permanent and temporary loss of woodland and hedgerow and temporary loss of open mosaic habitat and intertidal mudflats; temporary habitat loss for invertebrates; temporary habitat loss and accidental killing/injury to reptiles; disturbance to breeding waders and wintering waterbirds (including redshank, which is a notified feature of the Northumberland Shore SSSI); possible loss, damage or disturbance to badger setts and red squirrel dreys; and possible loss or disturbance of bat roosts and temporary loss of important bat foraging/commuting habitat. No significant effects are predicted during the operation and maintenance phase for any receptors. Decommissioning effects are expected to be similar to those for construction but over a reduced timescale and affecting a smaller area.
160. Specific mitigation measures are proposed to avoid accidental killing/injury of reptiles, to avoid/reduce disturbance to birds (including notified features for the Northumberland Shore SSSI) and to mitigate for possible impacts on badger setts, red squirrel dreys, bat roosts or bat foraging/commuting habitats. Following the implementation of the proposed measures no significant residual effects are likely for any of these receptors.
161. Depending on the final design adopted at the detailed design stage, significant residual negative effects are possible in relation to the permanent loss of woodland and hedgerow habitat and the temporary loss of open mosaic habitat and habitat for invertebrates and reptiles (in the short term only). These effects would be offset by the creation and management of new habitats within the Onshore Converter Station Zone and off-site, which would also provide a substantial biodiversity enhancement. Although not yet mandatory the Applicant has committed to delivering a minimum of 10% Biodiversity Net Gain.
162. Cumulative effects have been assessed in respect of several other developments including the Marine Scheme, the battery manufacturing plant within the land at the former power station site

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(and associated substation and cabling works), the pipeline extension at West Sleekburn, the residential development on land north of Spring Ville, East Sleekburn and the erection of buildings for the manufacturing of subsea cables north of the former Blyth Power Station. Following the implementation of proposed mitigation measures for each of the relevant projects no significant cumulative effects are likely.


## 1.10. Geology and Soils

163. 'Geology and Soils' refers to the soils, geology and ground conditions present within the Onshore Scheme boundary, its geological conditions and what the land has been historically used for, and is currently used for, such as agricultural land. It also includes information on groundwater and if the land is contaminated or not. The study area for the geology and soils assessment includes all onshore elements of Onshore Scheme. The assessment used a desk-based approach to review the known ground conditions within the study area.
164. Characterisation of the geology and soils study area identified that the ground conditions comprise made ground (associated with historical power station and industrial activities), superficial deposits (including alluvium, blown sand and glacial till deposits), and bedrock of interbedded sedimentary sequence of the Pennine Middle Coal Measures Formation. Designated sites are located in estuarine conditions and along sections of the open coast. These areas are not designated for their geological benefits and instead due to their biodiversity elements.
165. The Study Area has a history of industrial use and the available information indicates the majority of the study area has experienced some degree of development. The study area has been subjected to a number of former industrial activities including a power station, underground mine workings, mineral railway, bulk storage of coal and Pulp Mill Fly Ash (PFA) and utilisation during WWII construction of pill boxes, an air raid shelter and pipe mines. Potential sources of contamination and Unexploded Ordnance (UXO) hazards may be present across the Onshore Scheme boundary.
166. A number of potential impacts on geological and soil receptors, associated with the construction, operational and maintenance, and decommissioning phases of the Onshore Scheme, were identified. These included impacts on geology and soils, including soil quality, compaction and erosion, natural drainage patterns and loss of agricultural land, as well as impacts on potentially contaminated land, historical mining activities and UXO.
167. With the proposed embedded and secondary mitigation measures in place, these impacts result in effects of either negligible or minor adverse significance. None of the potential impacts are considered significant in EIA terms.
168. Cumulative impacts on geological and soil receptors would be of negligible significance (not significant in EIA terms).

## 1.11. Hydrology and Hydrogeology

169. The Hydrology and Hydrogeology chapter assesses the likely significant effects of the Onshore Scheme on hydrological and hydrogeological receptors during the construction, operation and maintenance, and decommissioning phases.
170. Hydrology and hydrogeology refers to all surface and tidal waters, and groundwaters within the vicinity of the Onshore Scheme. The hydrology and hydrogeology of the Study Area was characterised via a desk top study, site walkover survey and consultation with key, relevant stakeholders.
171. Characterisation of the Study Area identified a number of 'Ordinary Watercourses' within the Onshore Scheme boundary which are dominated by surface water runoff. Tidal water bodies are



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noted to the south and east of the Study Area which are considered to be in continuity with regional groundwater in the bedrock. Groundwater presence at the site in the shallow diamicton layers is likely to be very limited and confined. Designated sites are located in estuarine conditions and along sections of the open coast. These areas are not designated for their hydrological benefits and instead due to their biodiversity elements.


172. A number of potential impacts on hydrological and hydrogeological receptors, associated with the construction, operation and maintenance, and decommissioning phases of the Onshore Scheme, were identified. These included changes to flood risk, the sediment transport regime and water quality. With the proposed embedded mitigation measures in place, these impacts result in effects of either negligible or minor adverse significance. None of the potential impacts are considered significant in EIA terms.
173. Cumulative impacts from the Study Area result in effects of negligible significance (not significant in EIA terms) upon hydrological and hydrogeological receptors within 2 km of the proposed works.
174. Likely inter-related effects may occur with ecological and ornithological receptors, and archaeological and cultural heritage receptors. They are not anticipated to interact in such a way as to result in combined effects of greater significance than the assessments presented for each individual phases. Therefore, these inter-related effects would not be significant in EIA terms.

## 1.12. Traffic, Transport and Access

175. Traffic, Transport and Access refers to the highway network and active travel routes within a defined Study Area and the users of these. The traffic, transport and access receptors of the Onshore Scheme were characterised via a desktop review, a visual inspection of the Study Area and site-specific traffic surveys.
176. The baseline review identified no existing capacity issues on the local highway network in the Study Area in the highway peak hours (08:00 to 09:00 and 17:00 to 18:00) and no existing road safety problems. There are a number of formal Active Travel Routes (ATRs) in the Study Area, including two national routes.
177. A number of potential impacts on traffic and transport sensitive receptors, associated with the construction and decommissioning phases of the Onshore Scheme, have been identified. These included driver delay (temporary land closure), community severance, vulnerable road users and road safety, increase in traffic where a highway link intersects a formal ATR and the temporary diversion of a formal ATR. With the proposed mitigation measures in place (Construction Traffic Management Plan, Traffic Plan and Public Access Management Plan), all of these impacts result in effects of either negligible or minor adverse significance (not significant in EIA terms).
178. Cumulative impacts from the increase in vehicle movements associated with four developments result in effects of negligible to minor significance (not significant in EIA terms) upon traffic and transport sensitive receptors for community severance and vulnerable road users and road safety and effects of moderate significance (significant in EIA terms) upon traffic and transport sensitive receptors for driver delay (temporary lane closure). However, with secondary mitigation measures including limiting duration of works as far as practicable, a co-ordinated approach to traffic control; and provision of a hardstrip for emergency use in place, this impact results in effects of minor adverse significance (not significant in EIA terms).

## 1.13. Noise and Vibration

179. Noise and vibration refers to the audible sound and physical vibration that will be emitted by the Onshore Scheme, through all phases. The noise and vibration of the Onshore Scheme was characterised via understanding the plant (both mobile for construction and fixed for operation)

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associated with the Onshore Scheme and their noise and vibration emissions, and predicting how the combined noise and vibration from each phase of the Onshore Scheme propagates out to the nearest noise and vibration sensitive receptors.

Noise monitoring indicated that the baseline noise environment at the nearest noise and vibration sensitive receptors is predominantly rural, with the main noise sources in the area being noise from the sea, road traffic using the A189 and Brock Lane, with birdsong and other natural noises dominant in their absence.

180. A number of potential impacts on noise sensitive receivers, associated with the construction, operational and maintenance, and decommissioning phases of the Onshore Scheme, were identified. These included construction noise on nearby receptors, construction noise on ecological receptors, construction vibration on nearby receptors, operational noise on nearby receptors, operational noise on ecological receptors, and noise and vibration during decommissioning. With the proposed mitigation measures in place (e.g., screening of noise sources, limiting construction activity or timings), these impacts result in effects of either negligible or minor adverse significance.
181. At this stage of the design refinement procedure, the variabilities that define the extent of noise impact are not tightly defined and as a result significant worst-case assumptions have been made, resulting in an indication of adverse impact; however, it is considered that with the refinement of the Onshore Scheme design, the tertiary mitigation measures defined, and the secondary mitigation to the Onshore Converter Station, any adverse impact can be reduced so as to be not be significant. A detailed noise impact assessment will be submitted to Northumberland County Council to demonstrate that the refined project will comply with appropriate limits at the detailed design stage.
182. Cumulative impacts from the proposed industrial developments in the area will not result in an increase in adverse effects compared to that from the Onshore Scheme or the other developments individually, i.e., the Onshore Scheme will not increase any cumulative impact. For the proposed residential developments in the area, with the proposed mitigation measures in place, the Onshore Scheme will not result in significant adverse impact.


## 1.14. Air Quality

183. An air quality assessment has been undertaken to determine the likely significant effects on air quality receptors associated with the Onshore Scheme.
184. The assessment scope has been informed by both national and local planning policy and guidance, established best practice and experience, as well as via the consultation process from relevant consultees.
185. A qualitative assessment of potential impacts associated with the generation of dust construction activities on both human and ecological receptors has been undertaken to inform the extent of controls to be applied throughout the construction phase. Following the effective implementation of these controls, residual effects associated with the construction phase assessment are considered to be not significant. The identified control measures will be secured through a Dust Management Plan (DMP) within a wider CEMP. All dust impacts are considered to be temporary and short-term in nature.
186. A numerical screening assessment of construction phase road traffic movements has been undertaken with reference to established thresholds. Road traffic impacts on sensitive human and ecological receptors can be considered insignificant. Effects are considered to be not significant. No secondary mitigation is needed.
187. All cumulative effects associated with the Onshore Scheme are considered not significant.

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## 1.15. Socioeconomics, Recreation and Tourism

188. The chapter presents the existing baseline conditions established from desk studies and considers the effects as a result of impacts from the construction, operation and maintenance, and decommissioning of the Onshore Scheme on the local wider economy, recreational assets, and tourism receptors within 2 spatial areas, the Wider Study Area (WSA) and the Local Area of Impact (LAI). Generally, the WSA is defined as the area within which the significant effects on employment and the local economy could occur. For this assessment there is a tiered WSA, with the potential impacts of the Onshore Scheme at a local (Northumberland), regional (the North East of England), and (national) UK scale assessed. The LAI is the area used for the assessment of effects on receptors that are likely to experience effects at a more local level such as tourism and recreational assets, and for the Onshore Scheme comprises the proposed Onshore Scheme boundary, together with an area extending to 1 km.
189. The baseline description has been informed using data from the Study Areas using existing relevant datasets from the Office for National Statistics (ONS), which provides data on population, labour market and employment conditions. The interaction between the Onshore Scheme and the local and wider economy, and potential employment generated by the Onshore Scheme was estimated using the expenditure of the Onshore Scheme.
190. The assessment concluded that potential effects during construction and operation and maintenance as a result of the impacts of direct and indirect employment creation, direct and indirect additional GVA (Gross Value Added) generation, impacts on demands for housing and local services, and access to job opportunities by local residents, would range from minor adverse to minor beneficial, which are not significant in EIA terms. The beneficial effects came as a result of increased employment and additional GVA, whilst the adverse impacts were due to potential increased demand for housing and local services.
191. The potential effects during construction, and operation and maintenance as a result of the impacts of the Onshore Scheme on recreational activities and tourism receptors occurred as a result of the direct impacts of construction of the Onshore Scheme and the indirect impact of the loss of visual amenity through the construction of and operational presence of the convertor station. Through the implementation of embedded mitigation of the CEMP, PAMP and a rolling construction programme, the significance of effects would range No Effect for coastal tourism assets during operation to minor to moderate adverse for impacts on the King Charles III England Coastal Path and National Cycle Route 1 (NCR 1) which, the latter of which used professional judgement to determine that the abilities to reroute, intermittent nature of the impacts and reversibility of the impacts, meant that the effects are not considered to be significant in EIA terms.
192. Impacts on GVA and employment during decommissioning were found to be minor beneficial whilst the impacts on tourism and recreation were found to be negligible, both of which are not significant in EIA terms.
193. Cumulative effects as a result of the Onshore Scheme combined with other plans and developments in the area were concluded to range from minor beneficial for increase in local employment and GVA as a result of the cumulative developments not being considered direct competition for resources to minor to moderate adverse for the cumulative impacts related to the loss of visual amenity for the King Charles III England Coastal Path and National Cycle Route (NCR) 1 which, after using professional judgement, were all ruled to be not significant in EIA terms.
194. Likely inter-related effects may occur with recreational and / or tourism amenity, which would be visually impacted during the construction and operational phases and were assessed in Chapter 7: Landscape and Visual Amenity. Further impacts related to the construction phase are the reduction of recreational and / or tourism amenity as a result of construction noise, as well the possible closure, diversion or severance of linear recreational routes, which are assessed in Chapter 14: Noise and Vibration and Chapter 13: Traffic and Access, respectively.

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