Cambois Connection – Onshore Scheme

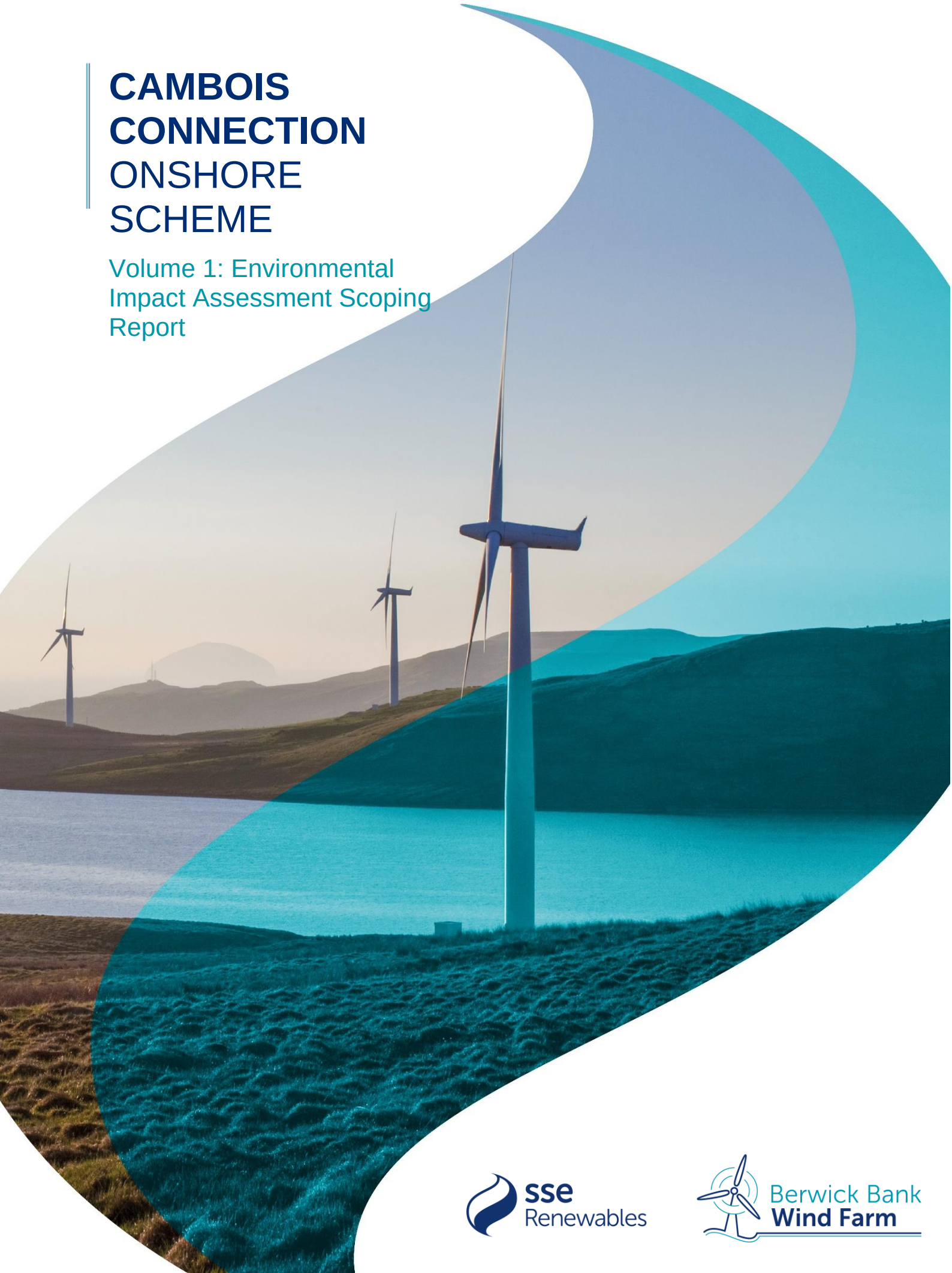
Environmental Statement Volume 3

Technical Appendix 1.2: EIA Scoping Report (Part 1)

sse Renewables

CAMBOIS CONNECTION ONSHORE SCHEME

Volume 1: Environmental Impact Assessment Scoping Report



sse Renewables

Berwick Bank Wind Farm

REVISIONS & APPROVALS

This report has been prepared by Xodus Group exclusively for the benefit and use of SSE Renewables Developments (UK) Ltd. Xodus Group expressly disclaims any and all liability to third parties (parties or persons other than SSE Renewables Developments (UK) Ltd) which may be based on this report.

The information contained in this report is strictly confidential and intended only for the use of SSE Renewables Developments (UK) Ltd. This report shall not be reproduced, distributed, quoted or made available – in whole or in part – to any third party other than for the purpose for which it was originally produced without the prior written consent of Xodus Group.

The authenticity, completeness and accuracy of any information provided to Xodus Group in relation to this report has not been independently verified. No representation or warranty express or implied, is or will be made in relation to, and no responsibility or liability will be accepted by Xodus Group as to or in relation to, the accuracy or completeness of this report. Xodus Group expressly disclaims any and all liability which may be based on such information, errors therein or omissions therefrom.

			Jennifer O'Neill Digitally signed by Jennifer O'Neill Date: 2022.11.04 11:44:58 Z	Edward Walker Digitally signed by Edward Walker Date: 2022.11.04 11:27:34 Z		
A02	04/11/2022	Approved for Use	JO	EW	EW	SA
A01	03/11/2022	Approved for Use	JO	EW	EW	KE
REV	**DATE**	**DESCRIPTION**	**ISSUED**	**CHECKED**	**APPROVED**	**CLIENT**

CONTENTS

ACRONYMS

Acronym	Description
AA	Appropriate Assessment
AADF	Annual Average Daily Flow
ADTF	Average Daily Traffic Flow
AOD	Above Ordnance Datum
AQMA	Air Quality Management Areas
BATNECC	Best Available Technique Not Entailing Excessive Cost
BEIS	Department for Business, Energy and Industrial Strategy
BGS	British Geological Survey
BNG	Biodiversity net gain
BPEO	Best Practicable Environmental Option
BTO	British Trust for Ornithology
CEMP	Construction Environmental Management Plan
CIEEM	Chartered Institute of Ecology and Environmental Management
CIfA	Chartered Institute for Archaeologists
CMLI	Chartered Members of the Landscape Institute
CO2	Carbon Dioxide
DBA	Desk-Based Assessment
DECC	Department of Energy and Climate Change
DEFRA	Department for Environment, Food and Rural Affairs
DTM	Digital Terrain Model
ECoW	Ecological Clerk of Works
EEZ	Exclusive Economic Zone
EIA	Environmental Impact Assessment
EMFs	Electromagnetic Fields

Acronym	Description
EMP	Environmental Management Plan
EPS	European Protected Species
ERIC	Environmental Records Information Centre
ES	Environmental Statement
ESO	Electricity System Operator
EU	European Union
FEED	Front End Engineering Design
FLL	Functionally Linked Land
FRA	Flood Risk Assessment
FTE	Full Time Equivalent
GLVIA3	Guidelines for Landscape and Visual Impact Assessment, 3rd Edition
GVA	Gross Value Added
HDD	Horizontal Directional Drilling
HER	Historic Environment Record
HGV	Heavy Good Vehicles
HND	Holistic Network Design
HRA	Habitats Regulation Assessment
HVAC	High Voltage Alternating Current
HVDC	High Voltage Direct Current
IAQM	Institute of Air Quality Management
ICNIRP	International Commission on Non-Ionizing Radiation Protection
IEMA	Institute of Environmental Management and Assessment
IPC	Infrastructure Planning Commission

Acronym	Description
JB	Joint Bay
JNCC	Joint Nature Conservation Committee
LCREE	Low Carbon and Renewable Energy Economy
LEP	Local Enterprise Partnership
LPA	Local Planning Authority
LSE	Likely Significant Effects
LVIA	Landscape and Visual Impact Assessment
LWS	Local Wildlife Site
MCZ	Marine Conservation Zones
MHWS	Mean High Water Springs
MLWS	Mean Low Water Springs
MMO	Marine Management Organisation
MS-LOT	Marine Scotland Licensing Operations Team
NAEI	National Atmospheric Emissions Inventory
NBN	National Biodiversity Network
NCC	Northumberland County Council
NOx	Nitrogen Oxides
NPPF	National Planning Policy Framework
NPS	National Policy Statement
NSIP	Nationally Significant Infrastructure Project
NSL	North Sea Link
NSR	Noise Sensitive Receptor
NUTS	Nomenclature of Territorial Units for Statistics

Acronym	Description
OCT	Open-Cut Trench
ONS	Office for National Statistics
OREI	Offshore Renewable Energy Installations
OTNR	Offshore Transmission Network Review
OWF	Offshore Wind Farm
PDE	Project Design Envelope
PM	Particulate Matter
PPG	Planning Practice Guidance
PPG6	Pollution Prevention Guidelines 6
PRoW	Public Rights of Way
RSPB	Royal Society for the Protection of Birds
RVAA	Residential Visual Amenity Assessment
SAC	Special Areas of Conservations
SO2	Sulphur Dioxide
SPA	Special Protected Area
SSER	SSE Renewables Developments (UK) Ltd
SSSI	Sites of Special Scientific Interest
STEAM	Scarborough tourism economic activity modelling
SuDS	Sustainable Drainage Systems
TEP	The Environment Partnership
TJB	Transition Joint Bay
UK	United Kingdom
UKCCC	UK Committee on Climate Change

Acronym	Description
UKHAB	UK Habitat Classification
UNFCCC	United Nations Framework Convention on Climate Change
UXO	Unexploded Ordnance
WeBS	Wetland Bird Survey
WFD	Water Framework Directive
WSI	Written Scheme of Investigation
ZTV	Zone of Theoretical Visibility

GLOSSARY

Term	Description
Berwick Bank Wind Farm	Refers to the wind farm from which the Cambois Connection will export electricity. The Berwick Bank Wind Farm encompasses the revised boundaries of two former opportunities (Berwick Bank and Marr Bank) (BBWF).
Converter Station	Infrastructure used to convert electricity from Direct Current (DC) to Alternating Current (AC).
Cumulative Effect	Changes to the environment caused by a combination of present and future projects, plans or activities.
COVID-19	Pandemic associated with the coronavirus (SARS-CoV-2)
EIA Regulations	This term is used to refer to the EIA Regulations which are of primary relevance to the Onshore Scheme - the Town and Country Planning (Environmental Impact Assessment) Regulations 2017 (as amended)). Noting the inclusion of the intertidal area, the EIA will also be cognisant of the requirements of The Marine Works (Environmental Impact Assessment) Regulations 2007 (as amended).
Environmental Impact Assessment	Assessment of the consequences of a plan, project or activity on the receiving environment.
Firth of Forth	Scottish estuary flanked by Fife to the north and Lothian to the south.
Ecological Features	Ecological features of the receiving environment which may need to be considered as part of an EIA.
Horizontal Directional Drilling	Horizontal Directional Drilling or 'HDD' refers to a trenchless technology used to support landfall works and crossings with sensitive or challenging features and obstructions.
High Voltage Alternating Current	High voltage alternating current is the bulk transmission of electricity by alternating current (AC), whereby the flow of electric charge periodically reverses direction.
High Voltage Direct Current	High voltage direct current is the bulk transmission of electricity by direct current (DC), whereby the flow of electric charge is in one direction.

Term	Description
Intertidal	The area of a seashore that is covered at high tide and uncovered at low tide.
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 Cambois Connection, this is Northumberland County Council (NCC).
Marine Licence	A licence granted by MS-LOT in Scottish waters (on behalf of the Scottish Ministers) or the MMO in English waters under the Marine and Coastal Access Act 2009, or the Marine (Scotland) Act 2020
Marine Scheme	Activities required as part of the Cambois Connection below Mean High Water Springs.
Marr Bank	Marr Bank Wind Farm (formerly Seagreen 3 Offshore Wind Farm).
Maximum Design Parameters	The maximum range of design parameters of each Onshore Scheme asset.
Mean High Water Springs	The most inshore level location reached by the sea at high tide during mean high water spring tide. This is defined as 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.
Mean Low Water Springs	The most offshore location reached by the sea at low tide during mean low water spring tide. This is defined as the average throughout the year, of two successive low waters, during a 24-hour period in each month when the range of the tide is at its greatest.
Natura 2000	Natura 2000 is a 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. Following Britain's exit from the European Union, these are now referred to as the national site network (please see below) under the Conservation of Habitats and Species Regulations 2017 (as amended).
National Site Network	Formerly referred to as 'EU Sites' or 'European Designated Sites', this refers to the creation of a national site network within the UK territory comprising the protected sites already designated under the Nature Directives, and any

Term	Description
	further sites designated under these Regulations (refer to section 2 for further details).
Open Cut	Method of cable installation involving trenching.
Onshore Scheme	Activities required as part of the Cambois Connection landward of Mean Low Water Springs.
Onshore scoping area	The area where the Onshore Scheme, as defined, will be located and the focus of this Scoping Report.
Planning Permission	The need for such permission is the fundamental basis of the system for controlling onshore development in the UK. Before land can be developed, planning permission for development must be granted by the local planning authority. In the case of the Cambois Connection, this is Northumberland County Council (NCC).
Project Design Envelope	A series of maximum design parameters which are defined for the Marine Scheme (and which are considered to be a worst case for any given assessment).
Proposed Development	The Cambois Connection
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.

UNITS

Unit	Description
%	Percentage
£	Pound Sterling
GW	Gigawatt (power)
Ha	Hectares
km	Kilometres (distance)
M	Metre (distance)
m^3	Cubic metres
MW	Mega Watt
NM	Nautical mile (distance)

1. INTRODUCTION

1.1. INTRODUCTION

In line with the UK's statutory target to achieve net zero emissions by the year 2050, Berwick Bank Wind Farm Limited (hereafter referred to as 'the Applicant') is planning to submit an application for the development of offshore export cables, onshore export cables, an onshore converter station and associated onshore grid connection at Cambois in Northumberland (the 'Cambois Connection' / 'The Project').

The purpose of this infrastructure is to facilitate the export of green energy from the (separately consented[1]) generation assets associated with the Berwick Bank Wind Farm (BBWF), located in the outer Firth of Forth. Figure 1-1 the overall Cambois Connection Project, encompassing both the Scoping Boundaries for both the Onshore Scheme and the Marine Scheme.

Pre-application discussions with Northumberland County Council (NCC) – the local planning authority (LPA) relevant to those aspects of the Cambois Connection above Mean Low Water Springs (MLWS) (the 'Onshore Scheme'). - confirmed the requirement for an Environmental Impact Assessment (EIA)[2]; the purpose of this report is to define the Scope of the proposed Onshore EIA required for The Project.

Figure 1-2 depicts the Scoping boundary for the Onshore Scheme.

This Scoping Report has been prepared in support of a request for a formal Scoping Opinion in relation to the Cambois Connection from NCC. Figures to support this Scoping Report are provided in Volume 2: Supporting Figures.

A separate Scoping Report has been prepared in relation to those aspects of the Cambois Connection below Mean High Water Springs (MHWS) (the 'Marine Scheme'). This separate Scoping Report has been submitted to both the Marine Management Organisation (MMO) and the Marine Scotland Licensing Operations Team (MS-LOT) in support of formal Scoping Opinion requests for the Marine Scheme in English and Scottish waters respectively. Whilst not a formal signatory to the Coastal Concordat[3], the adoption of general guiding principles[4] which seek to encourage greater coordination through the consenting process for the Cambois Connection has been discussed and agreed with NCC.

---

[1] BBWF is subject to a separate consenting process (further details are provided below). The Applicant is currently finalising the application to be submitted to MS-LOT in late 2022.

[2] Pre-application discussions between the Applicant and NCC held during July and August 2022 confirmed that the project would be an EIA development, and as such, agreed that an EIA would be required in accordance with the Town and Country Planning (Environmental Impact Assessment) Regulations 2017.

[3] A Coastal Concordat for England (MMO, 2019) is a set of guiding principles which can be used to help inform how regulatory bodies work together in coastal environments.

[4] The coastal concordat for England was an agreement between the Department for Environment, Food and Rural Affairs, the Department for Communities and Local Government the Department for Communities and Local Government (now the Department for Levelling Up, Housing and Communities (DLUHC)), the Department for Transport, the Marine Management Organisation, the Environment Agency, Natural England and the Local Government Association Coastal Special Interest Group. A Steering Group

1.2. BACKGROUND

1.2.1. THE APPLICANT

The Applicant is Berwick Bank Wind Farm Limited (BBWFL), a wholly owned subsidiary of SSE Renewable Developments (UK) Limited (SSER) which is a leading developer, owner and operator of renewable energy across the United Kingdom (UK) and Ireland, with a portfolio of around 4 GW of onshore wind, offshore wind and hydropower. Part of the FTSE-listed SSE plc, its strategy is to drive the transition to a net zero future through the world class development, construction and operation of renewable energy assets.

SSER is currently constructing one of the world's largest offshore wind energy projects, the 3.6 GW Dogger Bank Wind Farm 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 1.5 GW Seagreen 1 Offshore Wind Farm in the Firth of Forth, a joint venture with TotalEnergies.

When complete, Dogger Bank and Seagreen 1 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 which consists of 487 MW across two offshore joint venture sites, Beatrice and Greater Gabbard, both of which are operated on behalf of asset partners.

1.2.2. THE CONSULTANT

Xodus has supported BBWFL with the production of this EIA Scoping Report. Xodus is a global energy consultancy with a range of specialist capabilities across the energy sector. Through their UK environment team, Xodus has established a strong track record of carrying out robust and efficient EIAs for major infrastructure projects, including onshore development associated with offshore wind and subsea cables. Forming a key part of the EIA project team for the Cambois Connection, Xodus have provided a suite of qualified and experienced specialists to support BBWFL.

comprising members of the above have reviewed the effectiveness of the concordat and agreed a revised agreement to clarify the principles of the concordat and encourage local authorities with a coastal interest in England to adopt the concordat in accordance with the HM Government 25 Year Environment Plan. The latest (revised) coastal concordat was published in December 2019, and is available here.

1.3. ONSHORE AND MARINE SCHEMES

The Cambois Connection comprises two distinct proposals, or 'Schemes':

Marine Scheme: The Applicant is proposing the installation of offshore export cables from within the BBWF array area to a landfall[5] near Cambois, Northumberland; those aspects of the Cambois Connection which are seaward of MHWS are subject to a separate Marine Scoping Report and request for a Scoping Opinion to the MMO and MS-LOT.

Onshore Scheme: The Applicant is proposing the installation of a cable landfall, onshore HVDC cables, an onshore converter station, High Voltage Alternating Current (HVAC) grid cables and works to integrate into the existing National Grid substation at Blyth. This includes all aspects of the Onshore Scheme, down to the seaward extent of the landfall at Mean Low Water Springs (MLWS) (there is a necessary level of overlap between the two schemes within the intertidal area – this is discussed in further detail below).

Figure 1-3 below provides an overview of the key components of the Onshore and Marine Schemes for the Cambois Connection.

[5] 'Landfall' refers to the area along the coastline where the Marine Scheme and the Onshore Scheme interface (the exact location of this landfall has not yet been confirmed). Works at the selected landfall will include operations within the marine environment (i.e., seaward of MHWS) as well as onshore (i.e., landward of MLWS). Further details are provided in section 3 below. Whilst the exact location of the landfall has not yet been determined, it will be located within the Scoping area for the Onshore Scheme.

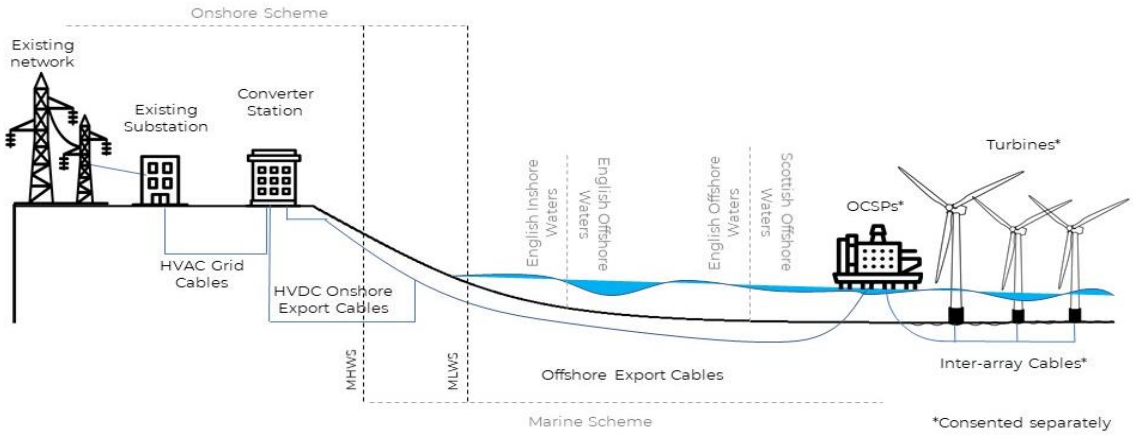


Figure 1-3 Overview of key project components

This Scoping Report relates to the Onshore Scheme, which will comprise the following key components, which are discussed in further detail in section 3:

- A new landfall located along the Cambois coastline, as depicted by Figure 1-1;
- High Voltage Direct Current (HVDC) onshore export cables connecting the offshore export cables at the new landfall and the new proposed converter station;
- A new converter station to convert HVDC electricity into High Voltage Alternating Current (HVAC), such that it can be incorporated into the UK energy network via underground HVAC cables;
- New HVAC underground grid cables connecting the new converter station and the existing National Grid substation located within the Northumberland Energy Park, adjacent to Sleek Burn and the River Blyth; and
- Works to facilitate the safe integration of the HVAC grid cables and the existing National Grid substation.

Further details surrounding the Onshore Scheme are set out in section 3 below.

1.3.1. SUMMARY OF CONSENTS REQUIRED

The onshore and marine aspects of the Cambois Connection will require separate consents.

Consent for the Onshore Scheme will be via a Planning Application to NCC as the LPA under Section 57 of the Town and Country Planning Act 1990.

The primary consents which will be sought in support of the Marine Scheme are as follows:

- A Marine Licence from MS-LOT under the Marine and Coastal Access Act 2009 for offshore export cables beyond the 12 NM in Scotland;
- A Marine Licence from the MMO under the Marine and Coastal Access Act 2009 for offshore export cables and supporting activity beyond the 12 NM limit in England; 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 which is within the 12 NM limit.

In Scottish waters, no elements of the Cambois Connection are within the 12 NM limit and for this reason, the Applicant will not be seeking consent under the Marine (Scotland) Act 2010.

1.3.2. BERWICK BANK WIND FARM

The Cambois Connection is a proposed development linked to the BBWF, which is currently in the development stage.

Located in the North Sea, in the outer Firth of Forth, BBWF has the potential to deliver up to 4.1 GW of installed capacity, making it one of the largest offshore opportunities in the world. The array area for the BBWF and the existing planned connection to Branxton, East Lothian, are wholly within Scottish waters. Previously, the BBWF project was comprised of two separate proposals called ‘Berwick Bank Wind Farm’ and ‘Marr Bank Wind Farm’. Following initial rounds of consultation, the Applicant combined proposals into one single opportunity – BBWF.

Following the review and refinement process noted above, an updated Scoping Report was prepared and submitted to Marine Scotland in October 2021. Alongside this, a Habitats Regulation Appraisal (HRA) Screening Report was prepared to inform the HRA process for the BBWF, providing information about the project’s potential to have a likely significant effect (LSE) on designated nature conservation sites.

The BBWF requires the following primary offshore consents, licences and permissions:

- A Section 36 consent under the Electricity Act 1989;
- A Marine Licence under the Marine and Coastal Access Act 2009; and
- A Marine Licence under the Marine (Scotland) Act 2010 for those aspects of the project within 12 nautical miles (NM) of the coast.

The Scoping Boundary for the Cambois Connection Marine Scheme overlaps with the BBWF array area as the offshore export cables as part of the Cambois Connection will connect into Offshore Converter Station Platforms (OCSPs) located within the BBWF array area; it is important to note that whilst linked to the Cambois Connection, the BBWF is subject to separate consenting, as described above.

1.3.3. HOLISTIC NETWORK DESIGN REVIEW

The Applicant has three signed grid connection agreements with the network operator. Two agreements are for a substation in Scotland (Branxton), with a third additional connection at Blyth substation, Northumberland (the Cambois Connection). The third additional connection agreement (Cambois Connection), was confirmed in June 2022 following National Grid's Electricity System Operator (NGESO) Holistic Network Review, results from which were published in July 2022, and will enable BBWF to reach full generating capacity (4.1 GW) by early 2030's.

1.4. EVOLUTION OF THE CAMBOIS CONNECTION AND ASSESSMENT OF ALTERNATIVES

As described above, the grid connection at Blyth (Cambois) provides an opportunity for the BBWF to be developed to full generation capacity (4.1 GW) by early 2030's. This is critical for assisting the Scottish and UK Governments to meet targets for net zero by 2045 and 2050 respectively and achieving Scotland's ambitions for 11 GW of offshore wind capacity to be in operation in Scottish waters by 2030.

Based on the location of the BBWF and the grid connection offer from National Grid at Blyth substation, a number of potential options for fulfilling the strategic objectives of BBWF have been considered; the graphic below provides a high-level summary of this process.

At this early stage, it remains the case that there are a number of potential options for the configuration of the Cambois Connection and for this reason, the current boundary provided with this Scoping Report leaves a necessary level of flexibility. Informed by the outputs from a number of onward technical and engineering studies, survey activity, the outputs from stakeholder engagement and ultimately the EIA itself, this boundary will be further refined as required throughout the consenting process. As indicated by Figure 1-2, an indicative location for the converter station has been provided.

1.5. ONSHORE SCHEME SCOPING REPORT

Pre-application discussions with NCC confirmed that the Onshore Scheme would be an EIA development, and as such, that an EIA would be required in accordance with the Town and Country Planning (Environmental Impact Assessment) Regulations 2017.

Pursuant to Regulation 15 of the Town and Country (Environmental Impact Assessment) Regulations (2017), this Scoping Report has been prepared in support of a request for a formal Scoping Opinion from NCC.

The objective of this report is to determine the Scope of the Onshore Scheme EIA which will be completed for the Cambois Connection. The Scoping Report outlines the proposed approach to EIA and is intended to provide the basis for review and feedback (both from NCC and supporting stakeholders). The Scoping Report has also been developed to help identify the potential impacts on onshore environmental receptors locally.

Table 1-1 presents the structure of the Scoping Report for the Onshore Scheme.

Table 1-1 Structure of the Onshore Scheme Scoping Report

Section Number	Title
Section 1	Introduction
Section 2	Legislative Policy and Context
Section 3	Project Description
Section 4	Approach to Scoping and EIA Methodology
Section 5	Stakeholder Engagement
Section 6	Terrestrial Ecology
Section 7	Ornithology
Section 8	Landscape and Visual
Section 9	Noise and Vibration
Section 10	Air Quality
Section 11	Archaeology and Cultural Heritage
Section 12	Geology and Contaminated Land
Section 13	Hydrology and Flood Risk
Section 14	Traffic and Transport
Section 15	Socioeconomics
Section 16	Climate Change and Carbon Balance
Section 17	Summary of Scoping Report
Section 19	References
Section 18	Appendices

Sections 6 to 16 will consider the baseline environment that existed relative to that topic prior to any development taking place, the potential impacts of the development on that receptor, the potential cumulative impacts through interactions with other developments and the proposed methodology that will be taken forward to the EIA stage.

2. LEGISLATIVE POLICY AND CONTEXT

Planning Permission for the Onshore Scheme will be sought from NCC under the Town and Country Planning Act 1990. This section of the Scoping Report provides a high-level overview of the policy and legislation context relevant to the Cambois Connection. A more detailed appraisal of policy and legislation will be supplied within the EIA Report and Planning Statement which will be submitted alongside the Planning Application to NCC.

2.1. LEGISLATION AND POLICY

2.1.1. THE TOWN AND COUNTRY PLANNING ACT 1990

In England and Wales, the Town and Country Planning Act 1990 is the basis for the planning system and sets out the roles of local authorities with regard to development plans, development management and enforcement. Consent for the Onshore Scheme will be via a Planning Application to NCC as the LPA under Section 57 of the Town and Country Planning Act 1990.

2.1.2. THE CLIMATE CHANGE ACT 2008

In June 2019 the UK became the first country to declare a climate emergency and legislate long term climate targets. The Climate Change Act 2008, as amended by the Climate Change Act 2008 (2050 Target Amendment) Order 2019, requires the UK to reduce emissions by at least 100% below 1990 levels by 2050. The act provides a legal framework for ensuring that the UK Government meets its commitments to tackle climate change, and its passage established the UK as the first Group of Seven (i.e. G7) nation to set such a goal.

2.1.3. NATIONAL ENERGY POLICY FRAMEWORK

2.1.3.1. Committee for Climate Change

In setting these targets, the Climate Change Act (2008) established the Committee for Climate Change (CCC), which is responsible for setting binding interim targets for the Government over five-year periods. In May 2019, the CCC recommended a new emissions target for the UK: a 100% reduction (net zero) in greenhouse gases by 2050. This change in legislation mandating a 100% reduction in CO_2 emissions by 2050 was approved by the House of Commons on 24 June 2019 and the House of Lords on 2626 June 2019 and is now the over-arching carbon reduction target for the Government.

Chapter 6 of CCC's 'Net Zero – The UK's Contribution to stopping global warming' (2019) report sets out a number of actions needed to deliver the net zero emissions target in the UK. The report sets out near-term actions to put the UK on track to reach the 2050 net zero target. These actions recommend more rapid electrification which must be accompanied with greater build rates of low carbon generation capacity, accompanied by measures to enhance the flexibility of the electricity system to accommodate high

proportions of inflexible generation. In addition, the report presents that development of new infrastructure will be important in supporting the supporting the decarbonisation of the UK energy system.

2.1.3.2. Energy White Paper

In December 2020, the UK Government published 'The Energy White Paper – Powering our Net Zero Future' (the 'White Paper'). The White Paper outlines a long-term strategic vision for the UK's energy system and demonstrates the Government's goal of a decisive shift from fossil fuel to clean energy, in power, buildings and industry. The White Paper states that due to the rapid growth of renewable, specifically driven by the deployment of wind, solar and biomass, the renewables capacity has grown significantly since 2010. The falling cost of these renewable technologies has also contributed to this increase, which has allowed development in a 'subsidy-free' market.

As part of the Government's 'Ten Point Plan for a Green Revolution' (UK Government, 2020), there is a commitment to continue the regular Contracts for Difference (CfD) auction rounds every 2 years to bring forward a range of low-cost renewable technologies. The latest CfD round was announced in July 2022. The White Paper is clear that 'A low-cost, net zero consistent system is likely to be composed predominantly of wind and solar' and that ''Onshore wind and solar will be key building blocks of the future generation mix, along with offshore wind'.

2.1.3.3. National Infrastructure Strategy

The National Infrastructure Strategy (NIS) 'Fairer, faster, greener' was published in November 2020. The Strategy sets out the UK Government's plans to deliver on its ambition, being 'deliver an infrastructure revolution: a radical improvement in the quality of the UK's infrastructure to help level up the country, strengthen the Union, and put the UK on the path to net zero emissions by 2050'.

The Strategy is relevant to the Onshore Scheme and Cambois Connection as it sets out how the Government will address the issues faced by the UK and how it will 'build back fairer, faster and greener'. The Government recognises that investors have faced uncertainty in recent years and therefore the NIS aims to provide clarity over the Government's plans, so they can look at the UK with confidence and help deliver the upgrades and projects needed across the country.

It is key to note that this is not aa definitive infrastructure plan – it instead represents the first step of a multi-year process to transform the UK's infrastructure networks. This Strategy will also be followed by a series of detailed publications setting out further details on key areas of infrastructure policy, including the Construction Playbook, English Devolution and Local Recovery White Paper, a refreshed Industrial Strategy, Union Connectivity Review and an updated National Infrastructure and Construction Pipeline.

2.1.3.4. Net Zero Strategy

First published in October 2021 by the Department for Business, Energy and Industrial Strategy, the 'Build Back Greener' net zero strategy sets out policies and proposals which ensure the UK is in accordance with

upcoming carbon budgets and Nationally Determined Contributions (NDC). NDCs provide a mechanism for countries to voluntarily impose national emission limits under the Paris Agreement. The strategy seeks to reach a decarbonised economy by 2050.

2.1.3.5. British Energy Security Strategy

Published in April 2022, the UK Government issued the British Energy Security Strategy (BESS). The BESS states the target to deliver 50 GW of offshore wind by 2030, including up to 5GW of floating wind.

2.1.3.6. Energy Security Bill

Published in July 2022, the Energy Security Bill builds upon the BESS to invest in homegrown energy and maintain the diversity and resilience of the UK's energy supply. The Bill establishes the need to accelerate the growth of low carbon technologies.

2.1.3.7. The Pathway to 2030 Holistic Network Design

As outlined in section 1 above, National Grid ESO completed their Holistic Network Design (HND) review which is a fundamental component of the BESS in its role to accelerate delivery for strategic network infrastructure.

The HND recognises the current model of offshore wind development incorporating a 'radial' design whereby the design, building and connecting of offshore wind farms tend to involve limited coordination between stakeholders. The HND states that developers of offshore wind projects are currently incentivised to connect individually onshore to reduce their costs and minimise risks, ultimately stifling coordination. The HND calls for a more strategic approach to network planning by integrating the connection of offshore wind farms to the shore with the capability to then transport electricity around the country.

2.1.4. NATIONAL PLANNING POLICY FRAMEWORK (NPPF)

The National Planning Policy Framework (NPPF) was published in March 2012, and most recently refined in July 2021 (Ministry of Housing, Communities and Local Government, 2021); it sets out the Government's planning policies for England and how they should be applied Applications for Planning Permission, such as the application for the Onshore Scheme, must be determined in accordance with the development plan (unless there are material considerations which dictate otherwise).

The NPPF must be considered where a development plan is prepared, and it is also a material consideration as part of the decision-making process for local planning.

As recognised by the NPPF, central to the planning system is to contribute to the achievement of sustainable development; at a high-level, this is recognised by the NPPF as '*meeting the needs of the present without compromising the ability of future generations to meet their own needs*' (NPPF, 2021). The NPPF states a presumption in favour of sustainable development which is based around 13 supporting principles under the wider goal of delivering sustainable development.

Section 14 of the NPPF ('*Meeting the challenge of climate change, flooding and coastal change*') is of particular relevance to the Cambois Connection, wherein it is recognised that the planning system should '*support renewable and low carbon energy and associated infrastructure'*.

The EIA and supporting Planning Statement will consider the NPPF in further detail, including demonstration of compliance with the most relevant NPPF sub-topics.

2.1.5. NATIONAL POLICY STATEMENTS

National Policy Statements (NPS) form a key part of the wider framework of national planning policy; they may be a material consideration during the consideration and appraisal of planning applications.

The primary NPS documents which are of relevance to the Onshore Scheme are:

- NPS for Overarching National Policy Statement for Energy (EN-1);
- NPS for Renewable Energy Infrastructure (EN-3); and
- Draft NPS for Electricity Networks Infrastructure (EN-5).

EN-1 (Ministry of Housing, Communities & Local Government, 12011) notes that it is critical for the UK to continue to develop and secure supplies of electricity as the UK transitions to a low carbon economy. EN-1 goes on to cite the need for 'sufficient electricity capacity (including a greater proportion of low carbon generation) to meet demand at all times'.

EN-3 (Department of Energy and Climate Change [DECC], 2011), alongside EN-1, provide the primary basis for decisions on planning application made to the Infrastructure Planning Commission (IPC) for renewable energy infrastructure. Likewise, EN-5 provides the primary policy for decisions taken on electricity networks infrastructure, and therefore all three NPS documents form the basis of the wider planning policy around which the application will be considered.

EN-5 (Department for Business, Energy and Industrial Strategy) notes that through the transition to net zero, there is a requirement to build and develop electricity networks to connect vital facilities such as electricity generation, storage, and interconnection infrastructure. EN-5 provides the policy for decisions on planning applications for electricity network infrastructure.

In September 2021, the Department for Business, Energy and Industrial Strategy (BEIS) published a draft EN-1 update (BEIS, 2021a) and draft EN-3 / draft EN-5 update (BEIS, 2021b), the feedback for which is currently being analysed. Draft EN-1 covers the need and urgency for new energy infrastructure to be consented and built to ensure the supply of energy in the UK remains secure, reliable, affordable and consistent with the 2050 net zero emissions targets. Draft EN-3 states that with the predicted rise in demand for electricity expected to more than double by 2050, a fourfold increase in low carbon electricity generation is required, and the majority is likely to come from renewables. The Draft EN-3 outlines instructions and guidance for developers to guide planning applications for a range of renewable technologies, including offshore wind. Draft 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'.

The NPS documents, and drafts, will be used to inform the development of the EIA and a wider review will be reported within the EIA.

2.1.6. PLANNING PRACTICE GUIDANCE

A series of Planning Practice Guidance (PPG) documents have been developed and published by the Ministry of Housing, Communities and Local Government (Ministry of Housing, Communities and Local Government, 2016). They cover a wide range of topics and are designed to help provide prospective applicants to the Planning System. Many of the topics covered by the PPG are of relevance to the Onshore Scheme; they shall be considered during the development of the EIA and Planning Application.

2.2. EUROPEAN LEGISLATION

2.2.1. PARIS AGREEMENT

On 12 December 2015, 196 Parties to the UN Framework Convention on Climate Change (UNFCCC) adopted the Paris Agreement (UNCCC, 2015), a legally-binding framework for an internationally coordinated effort to tackle climate change. The Paris Agreement's key aim is to strengthen the global response to climate change by keeping a global temperature rise this century below 2 degrees Celsius above pre-industrial levels and to pursue efforts to limit the temperature increase even further to 1.5 degrees Celsius. The UK is legally bound through commitment to the Paris Agreement.

2.2.2. EUROPEAN UNION RENEWABLE ENERGY DIRECTIVE

The UK has committed to sourcing 15% of its total energy needs from renewable sources by 2020 under the 2009 Directive on Renewable Energy (2009/28/EC) including electricity, heat and transport and 32% of its total energy needs from renewable sources by 2030 under the recast Renewable Energy Directive 2018/2001/EU. The BBWF, through the Cambois Connection, would contribute towards meeting these requirements.

2.2.3. EXIT FROM THE EUROPEAN UNION

As of 31 January 2020, the UK is no longer a member of the European Union (EU). The UK has committed to implement international environmental obligations in accordance with the EU (Withdrawal) Act 2018 and to maintain environmental commitments and legislation already made following the departure of the UK. On this premise the existing EU renewable energy targets for the UK, including the EU Renewable Energy Directive 2009/28/EC and the recast Renewable Energy Directive 2018/2001/EU will remain applicable, in accordance with their transposition into UK domestic law.

2.3. LOCAL PLANNING POLICY

2.3.1. LOCAL PLANS AND POLICIES

In April 2009, seven original LPAs[6] merged to form one single LPA – NCC. The individual plans and policies produced for each LPA were brought together at this time to form the 'Northumberland Consolidated Planning Policy Framework' (NCC, 2009).

Since this point and following a comprehensive period of consultation and community involvement, the 'Northumberland Local Plan 2016 - 2036' was formally adopted by NCC on 31 March 2022 (NCC, 2022). The policies contained within the Northumberland Local Plan replace all of those which were prepared previously for the seven individual LPAs.

As set out by NCC, the Northumberland Local Plan consists of the following key proposals (NCC, 2022):

- Sets the strategic planning policies of the Council, taking account of key factors like population trends, economic growth, climate change, resources and environmental character;
- Sets the general scale and distribution of new development which is required to meet Northumberland's needs to 2036;
- Provides the planning principles, including detailed 'development management' policies to guide decisions on planning applications;
- Shows in detail where new homes, workplaces and facilities will be located through allocations of land; and
- Shows key environmental designations and include site specific proposals for the conservation and enhancement of historic and natural assets.

The Local Plan goes on to recognise that Blyth has a strategically important employment function, with significant economic growth potential around the Blyth Estuary. It notes that specific sectors being targeted include offshore oil and gas, renewables and advanced manufacturing.

Informed by the Northumberland Development Plan Policies interactive mapping resources (NCC, 2022), the EIA will consider the key Local Plan Policies of relevance to the Cambois Connection. There are currently no relevant Made Neighbourhood Plans within the vicinity of the Cambois Connection, however this will be re-reviewed during the EIA.

NCC prepared a draft Local Development Order (LDO) for East Sleekburn for consultation in 2012 which was published in 2013 (NCC, 2013). An LDO grants permission for the type of development specified within the LDO and subsequently removes the requirement for a planning application to be made by the developer. The East Sleekburn LDO covers two sites within the onshore scoping area; East Sleekburn 1 (west) is

[6] Alnwick District Council, Berwick-Upon-Tweed Borough Council, Blyth Valley BC, Castle Morpeth BC, Tynedale BC, Wansbeck BC (the 'original' LPA for the Cambois Connection development area) and Northumberland County Council.

encompassed by the illustrated Indicative Convertor Station, and East Sleekburn 2 (east) is located at the Northumberland Energy Park on the north bank of the River Blyth. The LDO grants planning permission exclusively for the erection of buildings and/or the use of land and associated development for specific developments, as defined by Town and Country Planning (Use Classes) Order 1987 and The Town and Country Planning (General Permitted Development) (England) Order 2015, subject to various criteria and development conditions. These sites were identified as part of market research and assessment undertaken by NCC which demonstrated the sites would be suited to support a range of sectors, including offshore industries. The LDO was in place for six years following adoption and is now considered extinct. However, the LDO influenced the type of development to be found at the Site.

2.4. ENVIRONMENTAL IMPACT ASSESSMENT (EIA) REGULATIONS

Requirements for EIA are defined in the EIA Directive (85/337/EEC codified by EIA Directive 2011/92/EU as amended by EU Directive 2014/52/EU) which has been transposed into UK law.

The requirements of the EIA Directive are enacted through relevant UK legislation for electricity generation projects requiring consent under Town and Country Planning (Environmental Impact Assessment) Regulations 2017 (as amended)) (the 'EIA Regulations'). The EIA Regulations implement the requirements of the EIA Directive for planning permission applications made under the Town and Country Planning Act 1990.

As set out above, and pursuant to pre-application discussions with NCC, the Cambois Connection constitutes EIA development. Pursuant to Part 4 of the EIA Regulations, the Applicant will prepare an EIA for submission to NCC, as informed by the outcome from the formal request for a Scoping Opinion which this report supports. Pursuant to the requirements under Regulation 17 of the EIA Regulations, a written notice will be issued to NCC ahead of submission of the Planning Application and supporting EIA.

2.5. HABITATS AND BIRDS DIRECTIVE / ASSOCIATED REGULATIONS

The UK left the European Union on the 31 January 2020, however the most recent amendments to the Habitats Regulations maintain the requirement for HRA to be undertaken. Amended after the UK's departure from the European Union, the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019 (the '2019 Regulations') grant protection through the designation of a UK national site network, which was previously granted through European Sites.

The Council Directive 92/43/EEC (the Habitats Directive) was adopted in 1992. The aim of the Directive is to maintain or restore natural habitats and wild species listed on the Annexes at a favourable conservation status.

The 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 Europe. The Directive affords rare

and vulnerable species listed under Annex I of the Directive, and regularly occurring migratory species, protection through the identification and designation of Special Protection Areas (SPAs).

The Directives have been transposed into UK Law by various regulations, those of relevance to the Onshore Scheme include:

- The Conservation (Natural Habitats &c.) Regulations 1994 (as amended); and
- The Conservation of Habitats and Species Regulations 2017 (as amended).

The 2019 Regulations amended the 2017 Habitat Regulations to decouple the 2017 Habitats Regulations from the EU Directives.

The 2017 Habitats Regulations (as amended) act to enable the protection of sensitive sites which host habitats and species of European value and importance. Such sites are summarised below (they are collectively referred to as a national site network, formerly European sites). This national site network includes Ramsar sites (not 'formally' covered by the Regulations but are included in the process as a result of guidance in the NPPF). Sites are as follows:

- Special Area of Conservation (SAC);
- SPA; and
- Ramsar Sites.

The Habitats Regulations Assessment (HRA) process forms part of these regulations. The HRA process requires that any plan or proposal which has the potential to result in a negative Likely Significant Effect (LSE) to a site within the national site network or its designated features, to be subject to a HRA by the Competent Authority. Through this process, the Competent Authority will ascertain whether a project will adversely affect the integrity of a site in view of the conservation objectives of the site. Sufficient information on the potential impacts of the Onshore Scheme on sites within the national site network must be provided by the applicant to enable the Competent Authority to undertake the HRA.

Informed by the ensuing Scoping Opinion from NCC and advice from key stakeholders, such as Natural England, a HRA will be completed for the Cambois Connection. Owing to the fact that all of the relevant designated sites (from a HRA perspective) are marine-focused and/or are relevant due to the potential for designated features to interact with the Marine Scheme, it is the intention of the Applicant to prepare a single, over-arching HRA which would support both the Onshore Scheme and Marine Scheme; further details are provided below.

The Applicant will carry out a detailed screening for LSE following submission of this Scoping Report.

2.6. EUROPEAN PROTECTED SPECIES LICENSING

European Protected Species (EPS), such as bats, great crested nets, and dormice, receive full protection under the Habitats Regulations. Any activity that has the potential to disturb or injure an EPS without a

licence would be considered an offence. This includes activities such as noise disturbance or disruption to habitat. EPS licences are obtained from the relevant Regulatory Authority, such as Natural England.

Should additional pre-construction licences be required, these will be discussed and agreed with the relevant consenting authority during the pre-construction phase of the Onshore Scheme.

3. PROJECT DESCRIPTION

3.1. INTRODUCTION

The Onshore Scheme is still in the early stage of development. As such, it has been necessary for the Applicant to define a broad Scoping boundary (defined as the 'onshore scoping area' within Figure 1-1) and Project Design Envelope (PDE) to retain flexibility in the design of the Onshore Scheme until necessary surveys and technical studies required to inform confirmation of the final layout of the Onshore Scheme have been completed. As the EIA progresses, the ensuing boundary will be refined and reduced. An indicative location (and sizing) of the converter station has been provided to help provide context around the anticipated scale of the main infrastructure for the Onshore Scheme.

The onshore scoping area as detailed within Figure 1-2 depicts the area which will encompass the Onshore Scheme; the Scoping area spans an area of approximately 705 ha. The onshore scoping area comprises a range of industrial installations, 'brown field' construction areas, arable farmland and residential settlements, flanked by the Cambois coastline to the east.

The eastern (seaward) boundary of the Onshore Scheme is MLWS and there is therefore a necessary level of overlap between the Onshore Scheme and the Marine Scheme, the (landward) boundary of which is MHWS. Throughout the Scoping Report, it is identified where there may be necessary overlap associated with the EIA for the two schemes.

3.2. PROJECT DESIGN ENVELOPE / ROCHDALE ENVELOPE

The Applicant has adopted a PDE approach, in line with current best practice and the principles of the Rochdale Envelope[7]. By following a PDE approach, a maximum design scenario can be defined for key components of the Onshore Scheme, such as the onshore cables and converter station. Based on this maximum design scenario, potential for significant effects can be established and assessed on a realistic (albeit precautionary) basis. Flexibility to respond to emerging environmental and economic circumstances and technological advances is essential if the Cambois Connection is to proceed and be successful. A degree of flexibility will therefore be built into the design for the application by applying a PDE approach. Throughout this Scoping Report and future environmental appraisals, the PDE approach is being taken to allow meaningful assessments of the Cambois Connection to proceed, whilst still allowing reasonable

[7] The Rochdale Envelope is an approach developed to allow a level of flexibility during the scoping, EIA and application stages when the full details of a development are not known. When using this approach, the potential significant effects must be assessed from the from the maximum, or 'worst case' parameters of the Onshore Scheme, which must be clearly defined. This allows for a degree of flexibility within the assessment whilst still assessing the significant effects. The Rochdale Envelope approach is set out in the following case law: R v Rochdale Metropolitan Borough Council ex parte Tew (1999) and R v Rochdale Metropolitan Borough Council ex parte Milne (2001).

flexibility for future project design decisions, where this is required. The adoption of the PDE approach is common for developments of a similar nature to the Cambois Connection.

The PDE will be refined and informed by the ensuing environmental surveys, technical and engineering studies and discussions with stakeholders and the community, as part of the EIA process.

The PDE includes the components and all permanent and temporary works required to generate or transmit electricity to the National Grid. This Scoping Report presents the maximum design parameters for the receptors that are likely to be impacted by the Onshore Scheme. The key components and maximum design envelope details for the Onshore Scheme are outlined below in Table 3-1, providing the first version of the PDE to be further developed and presented during the EIA. Please note that the dimensions and values presented here are estimates only, for the purposes of providing an indicative scale for the Scoping Report.

Figure 1-3 provides a high level overview of the key components for the Onshore Scheme.

Table 3-1 Onshore Scheme maximum design envelope

Component	Description
Landfall	The landfall is the interface between the Marine Scheme and the Onshore Scheme within which the HVDC offshore export cables will be brought ashore. The construction work will therefore involve onshore and offshore elements.
Transition joint bay (TJB)	A TJB will be required to house the connection between the offshore and onshore export cables. The TJB will be located within the vicinity of the landfall point and will provide a firm base for the cable jointing. The TJB may be temporarily covered by a container or tent for the duration of the jointing works, and may be backfilled following completion of the works for the area to be reinstated. The TJB is typically a buried concrete box-like structure. Either a single TJB will be installed, or a series of TJBs for each cable. The anticipated dimensions of a single TJB is ~15 m x 5 m.
Joint bay (JB)	JBs are required typically every 500 – 1,000 m to string together the cable sections, depending on manufacturing specification of the supplier.

Component	Description
Onshore export cables (HVDC)	The onshore export cables will be installed within an excavated trench along the working corridor, which will also include any access tracks, excavated material and any other equipment/machinery. There will be a maximum of four HVDC onshore export cables. The maximum lengths of the onshore export cables are currently unknown, however a maximum length will be defined for the EIA PDE. The method for cable installation may use either Horizontal Directional Drilling (HDD) or Open Cut Trench (OCT) and a possible cable bridge crossing.
Grid cables (HVAC)	The grid cables will be installed within an excavated trench along the working corridor, which will also include any access tracks, excavated material and any other equipment/machinery. There will be a maximum of six HVAC grid cables. The maximum lengths of the grid cables are currently unknown, however a maximum length will be defined for the EIA PDE. The method for cable installation may use either Horizontal Directional Drilling (HDD) or Open Cut Trench (OCT) and a possible cable bridge crossing..
Onshore converter station	The Cambois Connection will require a new converter station within the Onshore scoping boundary to convert HVDC electricity into HVAC, such that it can be used for onward distribution on the UK energy network via the existing National Grid substation. The onshore converter station is estimated to have a permanent footprint of approximately 75,000 m^2.
Grid connection works	The existing National Grid substation at Blyth will be utilised as the grid connection. This will require limited cable connecting works to 'handover' the HVAC grid cables at the boundary fence to the existing substation.

Component	Description
	Cable installation methods are expected to be consistent with those required for the onshore export cables.
Temporary construction compound	A temporary construction compound will be required to accommodate the site work. The compound will include staff parking, welfare facilities, offices and changing rooms, and will also require a laydown area and material storage area.
Access routes	The construction of temporary access tracks from the existing road network will be required to provide access for construction. The configuration of the access route is not currently finalised.

3.3. OVERVIEW OF THE WIDER PROPOSED DEVELOPMENT

The requirement for the Cambois Connection is driven by the need to export electricity generated by the BBWF. The Cambois Connection will enable the Applicant to deliver maximum generating capacity from the BBWF by early 2030s which is critical for assisting both the Scottish and UK Governments with meeting targets for net zero and generation from renewable energy, in particular offshore wind. The Cambois Connection is formed of two schemes, described in detail above and summarised below:

- **Marine Scheme:** The Applicant is proposing offshore export cables from within the BBWF array area to a proposed landfall location near Cambois, Northumberland, with the scope of the Marine Scheme extending through the Scottish offshore region (the EEZ), through English territorial waters and making landfall in England, up to MHWS; and
- **Onshore Scheme:** The Applicant is proposing the installation of a cable landfall, onshore HVDC export cables, an onshore converter station, grid cables and works to connect into the existing National Grid substation in Blyth. This includes all aspects of the Onshore Scheme, down to the seaward extent of the landfall as MLWS.

Throughout the Scoping Report, it is identified where there may be necessary overlap associated with the EIA for the two schemes (in the intertidal area, as discussed below).

3.4. OFFSHORE EXPORT CABLE LANDFALL

In order to bring the offshore export cables ashore at Cambois, a landfall will need to be developed; this is a key interface between the Marine Scheme (below MHWS) and the Onshore Scheme (above MLWS). Further to the details provided above, the development of a landfall will require construction work within the marine environment (i.e., below MHWS) as well as onshore work (i.e., above MLWS). At this early stage, the exact location of the landfall is not yet known but it will be along the Cambois coastline, as depicted

within Figure 1-2. The description of the landfall techniques below is not specific to a single location and they will be relevant along the Cambois coastline, irrespective of exactly which site is chosen for the landfall.

The exact alignment of the offshore export cables at the landfall location will be informed by the outputs from the surveys being undertaken and a range of environmental, technical and commercial criteria.

At the landfall, a Transition Joint Bay (TJB) will be required to house the interface joint between the offshore export cables for the Marine Scheme and the onshore export cables for the Onshore Scheme. The TJB will comprise a concrete, box-like structure which will be used to safely and securely 'anchor' the cables together. Table 3-2 provides details of the maximum design footprint for the TJB. Following connection of the cables within the TJB, the TJB will be backfilled to protect the joint and the area will then be reinstated, leaving little to no sign of construction after natural cover (i.e. grass or other) is in place. Either a single, large TJB will be used for all cables (anticipated to be the likely configuration) or one TJB will be installed for each of the cables. As part of the landfall installation process, a temporary construction compound will be required close to the landfall site as well as some limited temporary access roads.

Regarding the landfall methodology, there are two techniques which can be used to install the cable at the landfall:

- Option 1: The use of trenchless technology, such as Horizontal Directional Drilling (HDD); and
- Option 2: Open-Cut Trench (OCT).

3.4.1. HDD

HDD is a trenchless method of drilling generally used for installation of underground utilities which does not require any direct works. HDD techniques are commonly used at the landfall section of cable routes, within the intertidal area (i.e. between MHWS and MLWS). HDD installation can either be completed through a shore-led or marine-led campaign; it is more typical for HDD to be completed via a shore-led campaign and this approach is therefore presented below.

The HDD is assumed to start from a temporary drilling compound which will be established above MHWS, within the onshore scoping area. The temporary compound will be established adjacent to the TJB (as described above, the location where the HVDC offshore export cables from the Marine Scheme will be joined with the HVDC onshore export onshore export cables for the Onshore Scheme).

The temporary secure drilling compound is anticipated to include:

- Site fencing and security infrastructure;
- Welfare and site offices;
- Mud laboratories;
- Mud mixing;
- Mud recycling infrastructure, including settlement;
- Storage;

- HDD ‘rig’; and
- Supporting workshops.

Once the drilling compound is established, boreholes are drilled at the landfall to accommodate cable ducts. The HDD process uses drilling fluids to help cool equipment, suspend material being excavated, clear debris from the borehole drilling process and seal the borehole itself. The boreholes will appear at ‘break-out’ location below MLWS. Ducts are then installed within the boreholes, either ‘pulled’ (i.e., from the Marine Scheme to Onshore) or ‘pushed’ (i.e., installed from the temporary drilling compound associated with the Onshore Scheme). Following duct installation, onshore export cables are installed using the same pull-in process. At the TJB, the HVDC offshore export cables will be joined to the onshore export cables for the Onshore Scheme.

Once the cables have been installed, the TJB will be backfilled and reinstated, and the drilling compound will be disestablished and reinstated. Based on the Applicant’s experience completing similar comparable works, the reinstatement process is anticipated to be swift and thorough and after a short period of time, the HDD works will not be discernible.

3.4.2. OCT

The Open Cut Trench (OCT) process involves the excavation of a trench for cable installation using mechanical excavators and supporting plant equipment down to (approximately) MLWS. Excavated material would be temporarily retained on the Cambois coastline (alongside the working area) for future backfill. As part of the OCT process, a cofferdam may be required; this is a sheet-piled structure installed to protect the OCT from excessive water ingress.

3.4.3. LANDFALL DESIGN ENVELOPE

The exact method and approach to landfall is subject to further detailed assessment and design and will be confirmed at a later stage following investigation of the ground conditions. Similarly, the exact landfall location for the Cambois Connection has not yet been determined; this will also be confirmed at a later stage as informed by the outputs from technical and design studies however, it will lie within the onshore scoping area, as depicted by Figure 1-1. Those aspects of the landfall constructed below MHWS will be subject to a separate Marine Licence Application under Part 4 of the Marine and Coastal Access Act 2009.

Further details surrounding the landfall parameters will be provided within the EIA, as informed as far as practicable in the absence of detailed design studies.

3.5. ONSHORE CABLES

From the TJB, HVDC cables will be installed to connect into the converter station. No overhead lines are planned for the Onshore Scheme.

JBs are typically required every 500 – 1,000 m to string together the onshore export cable sections, depending on manufacturing specification of the supplier.

It is anticipated that a combination of installation methods will be used, consisting of trenched (OCT), trenchless (HDD) technology and bridge crossings. The methods for cable installation will be either HDD or OCT, as is detailed in the section above. When trenching, the cable trenches will be located within the working corridor, which will also include any access tracks, excavated material and any other equipment/machinery. Certain sections of the working corridor may be wider, if required, for temporary parking, storage and cable pulling equipment.

Temporary working areas will also be required along the cable route for the cable installation works, such as those required for pulling pits to support the cable installation process.

The maximum length of the onshore export cables is currently unknown, however a minimum and maximum length will be agreed for the EIA PDE based on routing work which will consider key technical (e.g. roads, utilities, watercourses and existing planning consents and infrastructure), environmental (forestry and woodland, protected sites, landscape designations, and cultural heritage assets) and land use constraints. Using a maximum and minimum length will allow flexibility in how these sensitivities are managed and allow more defined corridors to be identified once further site investigations have been completed.

Collectively, the onshore export cables and grid cables (see below) are referred to as the 'onshore cables' throughout this Scoping Report.

Table 3-2 Onshore export cables maximum design envelope

Design Parameters	Maximum Design Envelope
Number of HVDC Cables	A maximum of four HVDC cables from the TJB to the converter station.
Dimensions of cable trench[8] (if trenched)	Width: up to 3.2 m Depth: up to 4.5 m

[8] Nb. These dimensions are variable across the cable route, depending on ground conditions.

Design Parameters	Maximum Design Envelope
	Cover[9]: up to 4 m
Volume of excavated material	The amount of excavated material generated from the cable installation is currently unknown but will be confirmed post-scoping following further engineering studies.
Width of cable construction corridor (m)	Minimum: 29 m Maximum: 225 m. Subject to refinement and the width will vary across the site.

3.6. GRID CABLES (HVAC)

From the converter station, HVAC cables will be installed to connect into the existing National Grid substation at Blyth. No overhead lines are planned for the Onshore Scheme.

JBs are typically required every 500 – 1,000 m to string together the grid cable sections, depending on manufacturing specification of the supplier.

It is anticipated that a combination of installation methods will be used, consisting of trenched (OCT), trenchless (HDD) technology and bridge crossings. The methods for cable installation will be either HDD or OCT, as is detailed in the section above and is not repeated here. When trenching, the grid cable trenches will be located within the working corridor, which will also include any access tracks, excavated material and any other equipment/machinery. Certain sections of the working corridor may be wider, if required, for temporary parking, storage and cable pulling equipment.

Temporary working areas will also be required along the grid cable route for the cable installation works, such as those required for pulling pits to support the cable installation process.

The maximum length of the grid cables is currently unknown.

Collectively, the onshore export cables and grid cables (see below) are referred to as the ‘onshore cables’ throughout this Scoping Report.

[9] Distance from the top of cover to the reinstated earth

Table 3-3 Grid cables maximum design envelope

Design Parameters	Maximum Design Envelope
Number of HVAC Cables	A maximum of six HVAC cables from the converter station to the existing National Grid substation.
Dimensions of cable trench[10] (if trenched)	Width: up to 3.2 m Depth: up to 4.5 m Cover[11]: up to 4 m
Volume of excavated material	The amount of excavated material generated from the cable installation is currently unknown but will be confirmed post-scoping following further engineering studies.
Width of cable construction corridor (m)	Minimum: 29 m Maximum: 225 m

3.7. ONSHORE CONVERTER STATION

The Onshore Scheme will require a new converter station to convert HVDC electricity into HVAC, such that it can be used for onward distribution on the UK energy network via the existing National Grid substation at Blyth.

At this early stage the exact configuration of the converter station is not known. Notwithstanding, based on the development of comparable UK projects of a similar capacity, the following components are anticipated:

- Fenced compound;
- DC Hall;
- Valve Hall(s) and AC Inductor Systems;
- Power Control and Communication Building;
- Transformer Bays;
- AC Switchgear / switching yard;
- Diesel back-up generator(s);

[10] Nb. These dimensions are variable across the cable route, depending on ground conditions.

[11] Distance from the top of cover to the reinstated earth

- Operation and Maintenance / Spares Building;
- Gatehouse; and
- Associated development for the adequate management of surface water on site / sustainable urban drainage systems (SuDS) (expected to include a surface water retention pond within the footprint of the substation site and a surface water discharge outfall on the north bank of the Sleek Burn).

Construction of the converter station is expected to include the following key activities:

- Construction of temporary access roads from the existing road network;
- Temporary construction working areas;
- Site preparation including site clearance, fencing off the construction area, provision of services to the site and creation of a construction compound with welfare facilities;
- Civil works to prepare the site for the heavy-duty equipment required for the installation of the foundations and buildings. This will comprise earthworks to create a firm and level platform across the site;
- Foundation works for the main electrical components and buildings which may comprise piled and/or shallow foundations;
- Provision of the main utilities to services the site including electrics, water and telecommunications;
- Construction of the main buildings housing the switchgear and controls;
- Installation and testing of electrical equipment;
- Landscaping works including earthworks and vegetation planting; and
- Commissioning activities.

Details surrounding the PDE of the converter station will be provided within the EIA, as informed as far as practicable in the absence of detailed design studies.

Table 3-4 Onshore converter station maximum design envelope

Design Parameters	Maximum Design Envelope
Permanent footprint area	Approximately 75,000 m^2
Maximum height	Approximately 30 m

3.8. WORKS TO INTEGRATE INTO THE EXISTING NATIONAL GRID SUBSTATION

At this early stage in the development of the Onshore Scheme, the Applicant intends to utilise the existing National Grid substation at Blyth. This will require some limited cable connecting works to 'handover' the grid cables to National Grid at the boundary fence of the existing substation. At this stage, these installation methods are expected to be consistent with those described above.

3.8.1. CONSTRUCTION OF THE ONSHORE SCHEME.

It is anticipated that the Onshore Scheme will take up to approximately five years to construct. The exact construction methodologies to be employed for permanent infrastructure have yet to be determined and will be informed by engineering studies and a range of commercial, technical, and environmental criteria.

The design and broad construction methodology (including requirements for temporary construction) will be identified ahead of the Planning Application and reported within the EIA (it is anticipated that a detailed construction programme will be secured via condition for NCC approval).

The construction of the Onshore Scheme is expected to include the following core activities, listed in broad chronological order:

- Groundworks and site preparation for the converter station;
- Construction of the converter station (expected to be the longest construction activity, taking up to a maximum of the full five years for development);
- Construction of the landfall (anticipated to be carried out over a maximum of two periods, first for the installation of ducts, and second, for the pulling of the cable ashore from the Marine Scheme);
- Installation of the HVDC cables from the landfall to the converter station;
- Installation of the HVAC cables and works to integrate into the existing National Grid substation;
- Commissioning of the end-to-end HVDC link which will include a suite of testing and assurance activity in order to ensure full operational capability before integration into the existing UK electricity transmission system; and
- Similar commissioning activities associated with the HVAC link.

3.9. OPERATION OF THE ONSHORE SCHEME

3.9.1. OPERATION AND MAINTENANCE

Following commissioning, it is assumed that the Onshore Scheme will operate continuously (24 hours a day, 7 days a week) except during planned shutdowns for maintenance. The converter station will be designed to remain in situ during the lifetime of the Onshore Scheme, which is expected to be 35 years.

There will be a limited amount of traffic to and from the substation for general operation and maintenance purposes. The Onshore Scheme will not be permanently staffed. Unexpected faults may lead to increased traffic volumes depending on the type of fault.

Routine activities on the underground cable system during the operational phase may include adhoc visits to the manholes as required for inspection/maintenance purposes. Non-routine activities could include repair of damage to cable or replacement of failed cable joint.

arising from Climate Change, both now and in the future. Noting that the converter station will be largely unmanned, this will include adequate provision for surface water retention and drainage infrastructure.

3.9.2. ELECTRIC AND MAGNETIC FIELD

The equipment detailed above produces Electric and Magnetic Fields (EMFs). Exposure limits for EMFs in the UK are set by the Government based on the advice and guidance from the United Kingdom Health Security Agency. The exposure limits for both HVDC and HVAC cables are underpinned by advice and guidance which has been set by the International Commission on Non-Ionizing Radiation Protection (ICNIRP) guidelines, published in 1994 and 1998 respectively and recently updated in March 2020 (ICNIRP, 2020). The Onshore Scheme for the Cambois Connection will be designed in such a manner to ensure compliance with the guidelines for exposure to EMFs.

3.10. LANDFALL, ONSHORE CABLE ROUTE, SUBSTATION & ASSOCIATED DEVELOPMENT – DECOMMISSIONING

For the purpose of the EIA the Applicant assumes that the decommissioning will occur 35 years after the commencement of operation and will take 18-24 months to complete.

The methodology for decommissioning will be similar to that described above for construction, but in reverse. It is anticipated that all the infrastructure will be removed with the exception of buried ducting, the foundations of the substation and any bridge crossings outwith the top 1 m of the reinstated surface level.

It is anticipated that a Decommissioning Plan will be required by a planning condition, to be approved by NCC prior to the commencement of decommissioning activities. It is anticipated that a Decommissioning Plan will be required by a planning condition, to be approved by NCC prior to the commencement of decommissioning activities.

4. APPROACH TO SCOPING AND EIA METHODOLOGY

4.1. INTRODUCTION

EIA is a process which identifies the potential environmental impacts of a development and then seeks to avoid, reduce or offset any adverse impacts through mitigation measures where possible. The EIA process is both iterative and cyclic and runs in tandem with project design. As potential impacts are identified, the design of the Onshore Scheme can be adjusted, and mitigation measures proposed. Consultation, a vital component of the EIA process, continues throughout each stage and contributes both to the identification of potential impacts and the development of mitigation measures.

4.2. SCOPING ASSESSMENT AND METHODOLOGY

The EIA Regulations 2017, as detailed above, provide requirements for the information which should be provided within a Scoping Report to inform a formal request for a Scoping Opinion. These requirements have been used to inform the development of this Scoping Report, as summarised below in Table 4-1.

Table 4-1 Legislative Requirements

Legislative Requirements of the EIA Regulations	Details
A plan sufficient to identify the land	Figure 1-2
A brief description of the nature and purpose of the development, including its location and technical capacity	The Onshore Scheme comprises of onshore works (above MLWS) associated with the Cambois Connection project). Works relate to a landfall for a offshore and onshore HVDC export cables, construction of a converter station and onshore HVAC grid cables. The location of the Onshore Scheme is at Cambois, as illustrated on Figure 1-2 The purpose of the Onshore Scheme infrastructure is to facilitate the export of green energy from the generation assets associated with the BBWF.

Legislative Requirements of the EIA Regulations	Details
An explanation of the likely significant effects of the development on the environment	Table 17-1
Other information or representations as the person *making the request may wish to provide or make*	Beyond thelegislative requirements for the Scoping Report, the Applicant has provided throughout the Scoping Report a range of supporting information to help aid NCC and supporting stakeholders in their preparation of a formal Scoping Opinion.

This Scoping Report provides a high-level assessment of the potential impacts. This process has been undertaken using best judgement of the available data and professional expertise, and used the following approach:

- Review of available existing information;
- Review of the potential impacts that might be expected to arise from the Onshore Scheme;
- Where an impact has been considered but is deemed to be insignificant it will be scoped out of the proposed EIA;
- Where an impact is considered to need assessment at the EIA stage a determination on whether available data is sufficient to undertake robust assessments for EIA and HRA with confidence; and
- Where data is lacking, identification of further data and surveys required in order to carry out EIA and HRA.

A full explanation of the assessment methodology for the EIA will be presented in the EIA Report.

The prediction of impacts will be made using the defined PDE parameters of the Onshore Scheme (as detailed in section 3 above) and through experience of similar projects. The prediction of impacts includes consideration of the construction, operations and maintenance and decommissioning phases of the Onshore Scheme.

4.3. TOPIC-SPECIFIC STRUCTURE

The structure of the technical chapters within this Scoping Report have, where appropriate, followed the suggested structure:

- Introduction;
- Legislative Policy and Context;
- Key Data Sources;
- Engagement;
- Study Area;
- Baseline Environment;
- Designed In Measures;
- Scoping of Potential Impacts;
- Potential Transboundary Impacts;
- Proposed EIA Methodology; and
- Scoping Questions.

4.4. OVERVIEW OF THE PROPOSED EIA METHODOLOGY

The methodology for the ensuing EIA for the Onshore Scheme follows a systematic, staged process in order to assess the potential impacts and effects arising from the Onshore Scheme on a range of different receptors. The methodology has been and informed by relevant industry guidance, best practice and experience from previous comparable projects.

Throughout the course of the EIA, the Onshore Scheme will follow best practice by ensuring that, where practicable, environmental considerations are integrated into the design of the Onshore Scheme

The EIA will identify potentially significant adverse environmental effects on the environment and, where any are identified, project-specific mitigation measures will be adopted to avoid, minimise, reduce or offset / compensate such adverse environmental effects. Similarly, where there is potential for the Onshore Scheme to benefit the environmental, measures may be put in place to maximise these benefits.

The EIA for the Onshore Scheme will follow the robust process summarised below in Figure 4-1.

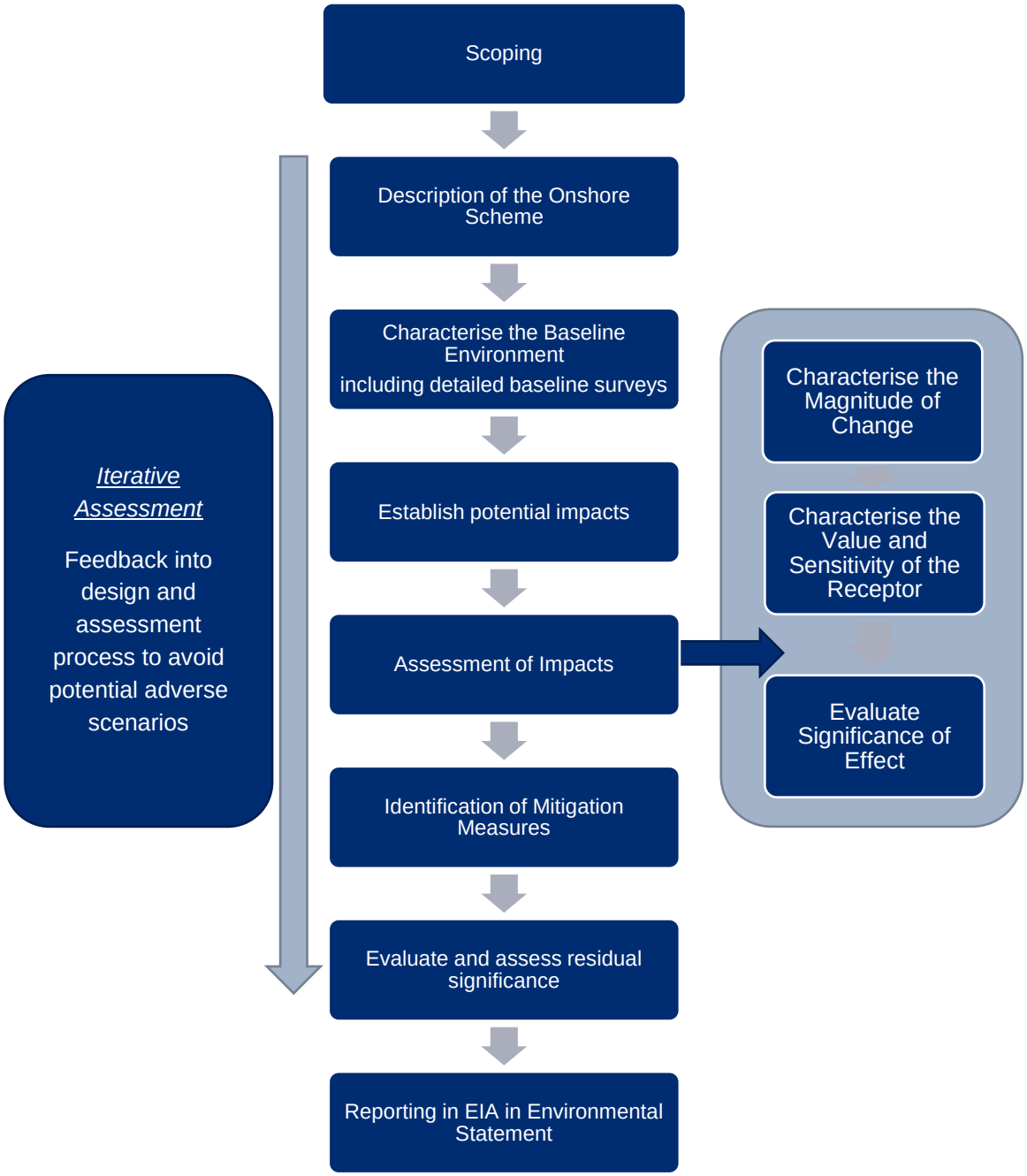


Figure 4-1 Proposed EIA Process for the Onshore Scheme

4.5. CHARACTERISING THE ONSHORE BASELINE ENVIRONMENT

In order to robustly assess the potential impacts arising from the Onshore Scheme, it will be necessary to establish the environmental baseline conditions which exist within the relevant local areas of study and within the vicinity of the Onshore Scheme. Furthermore, beyond the characterisation of the existing baseline, it will be necessary to understand the potential evolution of the study area(s) throughout the lifetime of the Onshore Scheme, such that future impacts can be adequately understood.

The development of the environmental baseline for the Onshore Scheme will be established through stages such as those detailed below:

- Primary baseline studies (field studies, such as those which are currently ongoing to help inform the Ecological Impact Assessment Process);
- Review of secondary sources (desk-based assessment and review of existing information and data local to / or relevance to the Onshore Scheme); and
- Stakeholder Engagement (detailed discussions with a range of relevant stakeholders to help expand on the findings from wider field and desk-based studies.

The EIA will include a detailed baseline for each technical chapter, as informed by the stages described above and the outputs from this formal request for a Scoping Opinion.

4.6. ASSESSMENT OF IMPACTS

The Onshore Scheme EIA will be developed in accordance with the Institute of Environmental Management and Assessment (IEMA) guidance on impact assessment, which state that the EIA should '*follow a clear progression, from the characterisation of 'impact' to the assessment of the significance of the effects taking into account the evaluation of the sensitivity and value of the receptors'* (IEMA, 2004). A range of leading industry guidance and best-practice guidance will be used to inform the Onshore Scheme EIA; this shall include;

- The Statement of Environmental Impact Assessment Practice in the UK (IEMA, 2011);
- EIA Guidance for Offshore Renewable Energy Projects – Guidebook (BSI, 2015);
- Environmental Impact Assessment Guide to Shaping Quality Development (IEMA, 2015);
- Delivering Proportionate EIA (IEMA, 2017);
- Assessing Greenhouse Gas Emissions and Evaluating their Significance (IEMA, 2017);
- Highways England – Introduction to environmental assessment (LA101) and Environmental assessment and monitoring (LA104);
- IEMA A New Perspective on Land and Soil in Environmental Impact Assessment (2022);
- IEMA Impact Assessment Strategy (IEMA, 2019); and
- Chartered Institute of Ecology and Environmental Management (CIEEM) Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine (CIEEM, 2022).

4.6.1. APPRAISAL OF IMPACTS AND EFFECTS

The identification of potential impacts will be carried out to determine potential effects of the Onshore Scheme on a range of environmental receptors. The definitions which will be used to describe this process are summarised in Table 4-2 below.

The EIA scoping assessment considers designed in measures measures that are built into the Onshore Scheme either through design or implementation of industry best practice.

Table 4-2 Impact terminology

Impact terminology	Definition
Direct Impact	Impacts which result from a direct interaction between the Onshore Scheme and relevant environmental receptors.
Indirect Impact	Impacts on relevant environmental receptors which are not as a direct result of the Onshore Scheme but which may still require consideration in the EIA (this can include complex pathways or activities carried out off-site, for example).
Cumulative Impacts	Impacts which result from the cumulative effect of past, present or reasonably foreseeable developments, together with the Onshore Scheme.
In-Combination Impacts	Impacts arising from combinations of impacts as a result of the Onshore Scheme which, when acting together, would result in a new or different likely significant effect.. This is linked to the concept of inter-related effects and whilst this summary is related to ‘impacts’, a definition is also provided below. Inter-related effects refer to the inter-relations between individual topics within an EIA which, when considered in their completeness, may lead to environmental effects by virtue of difference (increased) pressures on receptors.

Impact terminology	Definition
Beneficial Impact	An impact which would result in an improvement to the baseline environment.
Adverse Impact	An impact which would result in a deterioration to the baseline environment.

4.6.2. MAGNITUDE OF CHANGE

The EIA will also consider the *magnitude* of change associated with a given impact. The main factors which will typically influence this consideration include:

- Scale of Change;
- Spatial Extent of Change; and
- Duration and Frequency of Change.

The EIA will consider the magnitude of each potential impact; the broad impact magnitude criteria are summarised in Table 4-3 below.

Table 4-3 Impact magnitude

Impact magnitude	Criteria
High	The impact occurs over a large spatial extent resulting in widespread, long-term, or permanent changes in baseline conditions or affects a large proportion of a receptor population. The impact is very likely to occur and/or will occur at a high frequency or intensity.
Medium	The impact occurs over a local to medium extent with a short- to medium-term change to baseline conditions or affects a moderate proportion of a receptor population. The impact is likely to occur and/or will occur at a moderate frequency or intensity.
Low	The impact is localised and temporary or short-term, leading to a detectable change in baseline conditions or a noticeable effect on a small proportion of a receptor

Impact magnitude	Criteria
	population. The impact is unlikely to occur or may occur but at low frequency or intensity.
Negligible	The impact is highly localised and short-term, with full rapid recovery expected to result in very slight or imperceptible changes to baseline conditions or a receptor population. The impact is very unlikely to occur; if it does, it will occur at a very low frequency or intensity.
No Change	No change from baseline.

4.6.3. RECEPTOR SENSITIVITY

The EIA will consider the sensitivity of each receptor, a factor which is typically influenced by the vulnerability of a receptor to change, the recoverability of a receptor or feature and its importance, as detailed in Table 4-4. The sensitivity value given to a receptor is typically determined by balancing considerations of these factors.

Table 4-4 Receptor sensitivity

Receptor sensitivity	Definition
Very high	The receptor has no capability to 'absorb' or accommodate change and no ability to recover or adapt.
High	The receptor has very limited capability to 'absorb' or accommodate change without fundamentally altering the character of the receptor.
Medium	The receptor has some capacity to absorb or accommodate change without significantly altering character, however some damage to the receptor is anticipated to occur.

Receptor sensitivity	Definition
Low	The receptor is considered tolerant to change without significant detriment to its character; some limited or minor change may occur.
Negligible	The receptor is tolerant to change with no effect on its fundamental character.

4.6.4. EVALUATING SIGNIFICANCE OF EFFECT

Based on the magnitude of change and the sensitivity of a receptor, the significance of the effect can be ascertained and informed by baseline information, professional judgment and stakeholder advice. A significance matrix may also be used to help inform this process; an example is included in Table 4-5 below. Any effect with a significance of moderate or greater is generally considered 'significant' in EIA terms and additional mitigations may be required. Effects identified as minor or negligible are generally considered to be 'not significant' in EIA terms.

Significance will be assessed based on the prevailing topic-specific assessment methodology during the EIA.

Table 4-5 Significance of effects matrix

Receptor sensitivity	Magnitude of impact				
	No Change	Negligible	Low	Moderate	High
Negligible	Negligible	Negligible	Negligible	Negligible	Minor
Low	Negligible	Negligible	Minor	Minor	Moderate
Moderate	Negligible	Minor	Minor	Moderate	Major
High	Negligible	Minor	Moderate	Major	Major
Very High	Negligible	Minor	Major	Major	Major

4.6.5. APPROACH TO MITIGATION

As stated in Table 4-6 below, certain designed in measures are likely to be adopted as part of the Onshore Scheme development process in order to reduce the potential for impacts to the environment. These designed in measures are considered as 'built in' to the Onshore Scheme. At the Scoping stage, it is not possible to provide a detailed review of designed in mitigation measures. Notwithstanding, the Applicant is committed to adopting mitigation and some likely concepts which will be explored in further detail as the EIA progresses are explained in Table 4-6 below, and potential embedded measures that could be implemented are summarised in each technical section.

Table 4-6 Proposed Design In Mitigation Measures for the Onshore Scheme

Mitigation	Notes	Construction, Operation & Maintenance, Decommissioning
Construction Environmental Management Plan (CEMP)	The CEMP will be an overarching live document combining the principles of all management plans and environmental plans outlined within the EIA report. The CEMP will be supported by other documents (such as a Species Protection Plan, see below, and Dust Management Plan), which will detail measures to ensure that all works on site comply with relevant legislation in relation to protected species throughout the construction phase. The plan will provide advice to developers and contractors on how best to minimise impacts on receptors throughout the construction phase of development.	**Construction**
Ecological Clerk of Works (ECoW)	The EcoW will be the overarching supervisor for environmental sensitivites during construction, and will be responsible for ensuring mitigation measures are reactive to changing conditions on site, and compliant with relevant legislation protecting environmental sensitivites. The ECoW will ensure supervision of any construction activities that have the potential to	**Construction**

Mitigation	Notes	Construction, Operation & Maintenance, Decommissioning
	impact on protected species and/or sensitive habitats.	
Species Protection Plan	A Species Protection Plan will be implemented to ensure that disruption or disturbance to specific species during the construction phase is avoided. It may include mitigation measures such as, timing of works, vegetation removal, protection of nesting birds, and minimising disturbance from site vehicles.	**Construction**

Where the impact assessment identifies a significant adverse environmental effect, mitigation measures will be incorporated into the assessment process to avoid impacts or reduce them to acceptable levels. This is referred to as 'secondary mitigation' (whereby additional mitigation is specifically developed due to specific findings within the EIA). Consistent with best-practice and accepted methodology for EIA, a standard hierarchal approach will be adopted when identifying mitigation requirements; this is summarised below.

- Avoid or Prevent: Measures which avoid creating impacts from the outset. For example, careful siting of infrastructure to avoid direct impacts on receptors, or scheduling of works outside sensitive ecological windows;
- Reduce: Measures taken to reduce the duration, magnitude and/or extent of impacts that cannot be completely avoided. For example, curtailing noisy machinery to reduce noise pollution, or siting infrastructure to reduce interaction with ecology; and
- Offset: Measures implemented to compensate for any residual effects that could not be appropriately avoided or reduced. For example, restoration of degraded habitats, or improving public access.

After the consideration of any project-specific mitigation measures, the residual significance of an effect will be considered. Generally, residual effects which are identified as being 'Moderate' or 'Major' after adoption of mitigation will typically require further additional analysis, assessment, consultation and further mitigation where appropriate. However, significance will be assessed based on the prevailing topic-specific assessment methodology during the EIA. For example, CIEEM (2022) avoids and discourages use of the matrix approach to determining significance and describes only two categories: "significant" or "not-significant".

4.6.6. MONITORING

The EIA Report may include, where they are deemed to be required, recommendations for monitoring certain impacts attributed to the Onshore Scheme. Monitoring will be recommended for where significant impacts only are likely, Monitoring proposals will be linked to clearly defined criteria. Monitoring is liable to occur where there is either uncertainty in the original impact assessment or where an impact is deemed to be significant.

4.7. INTER-RELATED EFFECTS

Inter-related effects refer to the inter-relations between individual topics within an EIA which, when considered in their completeness, may lead to environmental effects by virtue of difference (increased) pressures on receptors. There are two main types of inter-related effect:

- Project Lifetime Effects: these are effects which occur over time at more than one phase of the Onshore Scheme (i.e. construction, operation, decommissioning) and may interact together to potentially create a more significant effect 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.

4.8. CUMULATIVE IMPACTS

4.8.1. INTRODUCTION

As part of the EIA for the Onshore Scheme, it will be necessary to consider the potential for cumulative effects. The requirement for such an assessment is set out within the EIA Directive. The cumulative assessment will follow guidance from National Infrastructure Planning (2017) Advice Note Seventeen: Cumulative Effects Assessment. Whilst it is acknowledged that the Onshore Scheme is not a Development Consent Order project, the aforementioned guidance is considered to be well tested and useful for the purposes of the EIA.

It is important to recognise that although there are similarities in assessment of each, in-combination and cumulative effects are not one-and-the-same; they are distinctive, individual effects which can be broadly defined as follows:

- **In-combination Effects:** such effects arise from combinations of impacts within the Onshore Scheme which, when acting together, would result in a new or different likely significant effect or an effect of additional or greater significance when compared to an effect in isolation; and
- **Cumulative Effects**: these effects arise from impacts associated with the Onshore scheme which, when acting together with wider third party developments, could result in a new or different potentially significant effect or an effect of greater significance when compared to an effect in isolation.

There is no single, agreed approach to the completion of cumulative and in-combination assessments. Appreciating that the Onshore Scheme is not a Nationally Significant Infrastructure Project (NSIP), the approach to the assessment of cumulative effects for NSIPs, as provided by the Planning Inspectorate, may represent a robust and well-tested approach. As detailed within Advice Note Seventeen (PINS, 2019), this approach follows a systematic and staged process; this is summarised in further detail below.

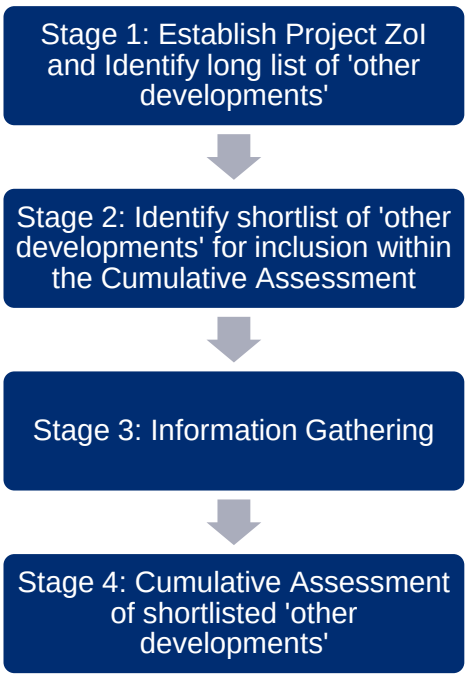


Figure 4-2 Process to assess cumulative effects

4.8.2. INITIAL SCREENING

A review of the NCC Planning Register and the NSIP Portal has been completed to identify developments that are of such a nature and proximity to the Onshore Scheme that they may have the potential to generate a cumulative effect. Table 16-1 details where proposed assessments will consider potential cumulative effects, in accordance with the EIA regulations. The extent of the assessments will be defined within each technical assessment EIA chapter.

The results from this preliminary screening exercise are provided in Table 4 below (this will be subject to review periodic review as the EIA progresses). Operational developments are not considered in this assessment as they form part of the baseline. Recognising the coastal nature of the Onshore Scheme, the Applicant will ensure alignment with the Marine Scheme and associated cumulative assessment in order to ensure any potential significant effects are considered.

Table 4-7 Identified Cumulative Projects

Development Description	Status	Distance to Study Area	Start Date	Construction During Project Activities?	Additional Information
Cambois Connection Marine Scheme	Pre-Application	0 km (potential for direct overlap)	Unknown	Yes	Offshore works (below MHWS therefore has overlap with the Onshore Scheme at the intertidal) associated with the Cambois Connection project (whilst subject to separate consents) is linked to the Onshore Scheme. Construction 2025 onward; anticipated to be operational from 2030.
Blyth Demonstrator Offshore Wind Farm 2	Consented	Adjacent to (potential for direct overlap)	Installation planned in 2023.	No	In addition to the existing operational turbines within the Blyth Demonstrator, a further five floating OWF turbines have been consented by the MMO under variation to the existing Blyth Demonstrator marine licence. This application is for floating foundations and turbine dimensions only and does not comprise additional onshore cable components.

Development Description	Status	Distance to Study Area	Start Date	Construction During Project Activities?	Additional Information
Northumberland Energy Park Phases (Phases 1-3)	Under construction	Adjacent to (potential for direct overlap)	Ongoing	Yes	Linked to Phase 1 which is the now operational Enterprise Zone developed to help attract new offshore and marine industry to the area, NEP Phase 2 and 3 relate to wider strategic redevelopment activities within the Blyth / Cambois area; notably, the development area for Phase 2 includes the NSL cable whilst Phase 3 includes the BritishVolt 'gigafactory' battery manufacturing facility (consented). All of the Phase 2 and Phase 3 activities are understood to be terrestrial in nature.
Single wind turbine (tip height up to circa 300 m and rotor diameter of up to 200 m)	Scoping	Adjacent to (potential for direct overlap)	Unknown	Yes	Scoping opinion for a single wind turbine with a tip height of up to circa 300 m and a rotor diameter of up to 200 m
22/01725/FUL | Battery Storage Site, West Sleekburn	In planning	Adjacent to (potential for direct overlap)	Unknown	Yes	Demolition of existing structures and construction of a battery energy storage system and associated infrastructure with a capacity of circa 30 MW.

4.8.3. PROPOSED CUMULATIVE ASSESSMENT METHODOLOGY

Three months prior to the submission of the EIA, an additional search will be undertaken to ensure any recent and relevant proposals are captured within the Cumulative Impact Assessment (CIA), in addition to those projects identified in Table 4, to allow assessments to be made and reported within the EIA. The status of these and any other identified plans or projects will be monitored, and if relevant will be included within the CIA. The final scope and identified projects of the CIA will be agreed with NCC, and other consultees as appropriate.

4.9. TRANSBOUNDARY IMPACTS

Transboundary effects arise when impacts from a development within one European Economic Area (EEA) state's territory affects the environment of another EEA state(s). The EIA Directive, which has been transposed into English law through domestic legislation prior to the UK's withdrawal from the EU, requires the assessment of transboundary effects. This report will identify relevant transboundary impacts to be considered within the EIA or state if no transboundary impacts are anticipated.

4.10. SCOPING REPORT EXCLUSIONS

Based on the nature of the Cambois Connection project and in line with the Applicant's commitment to achieving an EIA which is appropriate and proportionate to the nature of the Onshore Scheme, some topics are proposed to be scoped out of the EIA and have therefore been excluded from this Scoping Report. This approach is consistent with the range of industry guidance and best-practice encouraging a streamlined and focused EIA, including IEMA (IEMA, 2017). Table **4-8** below provides a summary of topics proposed to be entirely Scoped-Out, alongside the rationale.

Table 4-8 **Rationale for exclusion from scoping report**

Topic	Rationale
Major Accidents and Disasters	The construction, operation & maintenance and decommissioning of the Onshore Scheme is not anticipated to include activities which are likely to give rise to a risk of major accidents or could foreseeably create circumstances which would amount to a disaster. The Onshore Scheme relates to a series of activities which are well-understood and have been completed – without risk of a major accident or disaster – around the UK, and indeed at the landfall location at Cambois. A desk-based review of local infrastructure indicates that there are no significant third party facilities which could reasonably be expected to be put at-risk due to the Onshore Scheme.

Topic	Rationale
	Based on a review of the Control of Major Accidents and Hazards (COMAH) database held by the Health and Safety Executive, there is only a single (lower tier) COMAH site within the vicinity of the Onshore Scheme; this is a fuel bunkering facility which is approximately 2 km to the south of a central point within the Scoping boundary. For these reasons, a dedicated assessment of major accidents and disasters is not proposed.
Land Use	The construction of the Onshore Scheme is anticipated to give rise to some limited disturbance (this is primarily associated with the installation of the onshore export cables and grid cables). This process will potentially impact small swathes of land, albeit for a temporary period during the construction phase of the Onshore Scheme. The ongoing operational impact of the Onshore Scheme in terms of land use change will primarily relate to the Converter Station. Interactions with geology, hydrogeology / flood risk and potential ground contamination will be considered within the EIA, as detailed within this Scoping Report. Wider considerations associated with the potential disturbance to other users of 'land' locally in terms of recreational activities will be considered as part of the assessment of socioeconomic impacts; this will include potential agricultural operators. The current land use of the onshore scoping area comprises a range of industrial installations, 'brown field' construction areas, arable farmland and residential settlements, flanked by the Cambois coastline to the east. Natural England (2019) provides a series of Agricultural Land Classification maps for England. The maps define the east of the onshore scoping area as 'non-agricultural land predominantly in urban use' and the west is classed as having Class 3 soils, defined as 'Good to Moderate'. Whilst the west area of the onshore scoping area is defined is having Class 3 soils, which are defined as 'best and most versatile' (BMV) agricultural land, it is judged that considering the relatively small land take of the Onshore Scheme during operation (the convertor station and access tracks only) and the extent of industrial development currently consented or in construction within the vicinity (including transmission infrastructure on the Class 3 soils), the change to land use as a result of the Onshore Scheme would not result in a significant effect.

Topic	Rationale
	On this basis and considering that assessment of potential impacts will be considered through topic-specific assessments in the EIA, a 'general' land use assessment in terms of land use change is not proposed.
Human Health	Potential impacts arising from the Onshore Scheme of relevance to human health primarily relate to landscape & visual, air quality and noise. As set out in this Scoping Report, a detailed appraisal of potential impacts across each of these topics is proposed within the EIA and for this reason, a dedicated human health assessment is not proposed.

5. STAKEHOLDER ENGAGEMENT AND CONSULTATION

5.1. TECHNICAL ENGAGEMENT

Engagement with stakeholders will form an important part of the development process for the Onshore Scheme and the Applicant has already held meaningful engagement with NCC and key stakeholders, including Natural England.

Prior to the submission of this Scoping Report, the Applicant has engaged with relevant stakeholders; this is summarised in Table 5-1 below.

Table 5-1 Summary of stakeholder engagement to date

Stakeholder and Date	Summary
NCC (13 January 2022)	The Applicant held an introductory meeting with NCC, as the LPA for the Onshore Scheme associated with the Cambois Connection. Owing to the requirement for a landfall, the approach to the impact assessment for this area was discussed (including in terms of any potential overlap in assessments). It was discussed and confirmed that NCC is not a signatory to the Coastal Concordat, however the Applicant confirmed their intentions to adopt these principles where practicable to help guide the EIA process.
MMO (16 March 2022)	The Applicant introduced the Cambois Connection to both relevant marine regulators for the Marine Scheme. The approach to the ensuing EIA and MLA was presented, as well as the intended approach regarding MLA submissions in both Scotland and England. Of relevance to the Onshore Scheme, this included discussions with the MMO around the Applicant's intentions to adopt / work under the principles of the Coastal Concordat.
MS-LOT (16 March 2022)	
Natural England (17 March 2022)	The Applicant introduced the Cambois Connection and discussed a range of topics of relevance to ecology & nature conservation, as well as the intended approach and Scope of the ensuing EIA and HRA. The intended approach to the impact assessment for ornithology was discussed (including the Applicant's original intention to utilise existing available data for the Cambois Connection, as opposed to obtaining new additional overwintering bird data).

Stakeholder and Date	Summary
Natural England (06 July 2022)	The Applicant held a further meeting with Natural England to discuss the Scope of and approach to a suite of surveys planned for 2022, including offshore geophysical and benthic surveys. Interactions with relevant designated sites were discussed, as was the Applicant's position with regards to overwintering birds. Subsequent discussions were held with Natural England, and a discretionary advice service response was received by the Applicant; broadly, this: • Provided further information surrounding the Scope of and approach to specialist assessments; • Set out Natural England's agreement with the Scope of and approach to offshore surveys; • Set out Natural England's agreement to the Scope of onshore surveys, including any consideration of nearshore receptors; and • Provided a clear request for non-breeding bird surveys ("overwintering" surveys) in the event work outside of the breeding season cannot be avoided.
NCC (03 August 2022)	The Applicant held a further engagement meeting with NCC; alongside introducing the Cambois Connection to new members of the LPA case team, this meeting was used to provide an update on the broad approach to the Ecological Impact Assessment and the approach to Screening for EIA. It was agreed and subsequently formalised in writing with NCC that the Onshore Scheme was classified as EIA Development and that the Applicant would submit a formal request for a Scoping Opinion.

The onward engagement with stakeholders during the EIA process is expected to be focused on the following key stages:

- Engagement with regulators and other stakeholders in relation to licences and permits associated with pre-development surveys (e.g. geophysical, geotechnical, water quality etc.). This has already commenced;
- Formal submission and publication of this Scoping Report and request for a Scoping Opinion;
- Follow-up to scoping, to confirm the EIA approach with key stakeholders, in order to agree the detailed scopes of surveys and refine the scope of EIA studies being undertaken, based on the EIA Scoping Opinion received;
- Provision of key technical reports and data, used to inform the assessments, to relevant stakeholders for information and feedback;

- Formal submission and publication of consent applications and the accompanying EIAR to seek views on the proposal; and
- Additional public / stakeholder-specific engagement events that will take place at intervals during the consenting process, together with the issue of newsletters and updates to the Onshore Scheme website.

Using experience from previous similar projects and incorporating the requirements of legislation (e.g., the EIA Regulations), an overview of the Onshore Scheme EIA stakeholder engagement strategy is presented in Figure 5-1.

5.2. ENGAGEMENT STRATEGY OVERVIEW

The Applicant has made a commitment to work with organisations, communities and individuals who have an interest in the development of the Onshore Scheme throughout its lifetime. The Applicant will adhere to all statutory consultation requirements for consultation.

The Applicant will carry out consultation activities ahead of submission of the Planning Application and supporting EIA; this shall be developed and agreed with NCC, as the LPA, and informed by feedback provided during this Scoping exercise.

At this early stage, consultation activity is anticipated to include:

- Natural England;
- Historic England;
- Environment Agency;
- Northumberland County Council;
- National Trust;
- The Wildlife Trust;
- Royal Society for the Protection of Birds;
- Blyth Town Council;
- East Bedlington Parish Council;
- The Coal Authority;
- Northumberland Wildlife Trust;
- Highways England;
- Ashington Parish Council;
- Newbiggin-By-The-Sea Town Council;
- Choppington Parish Council;
- National Highways;
- Northumbrian Water; and
- United Kingdom Health Security Agency.

5.3. COMMUNITY AND PUBLIC ENGAGEMENT

Consultation with stakeholders and local communities is a key part of the consenting processes. The Applicant is actively seeking input; with all comments and opinions provided carefully considered and used to help shape the development of the Cambois Connection. Figure 5-1 below provides a summary of the Onshore Scheme EIA stakeholder engagement strategy.

Public exhibitions (in person, virtual or hybrid) will be held to introduce and update on the progress of the Project. The events will also allow the Project team to respond to any queries and questions the public may have. Pre-application consultation will be the main opportunity for communities and members of the public to; review the plans; provide comments; submit feedback; and to shape the development of the Project design prior to submission of the applications for the Marine Scheme and the Onshore Scheme. The Applicant will ensure that communities and wider public stakeholders who are most affected by the proposals are engaged in the development of the Project and have the opportunity to comment on the proposals at key decision making points.

The Applicant will offer a range of ways for the public to contact the project team, and share their views based on the most appropriate mechanisms for the community.

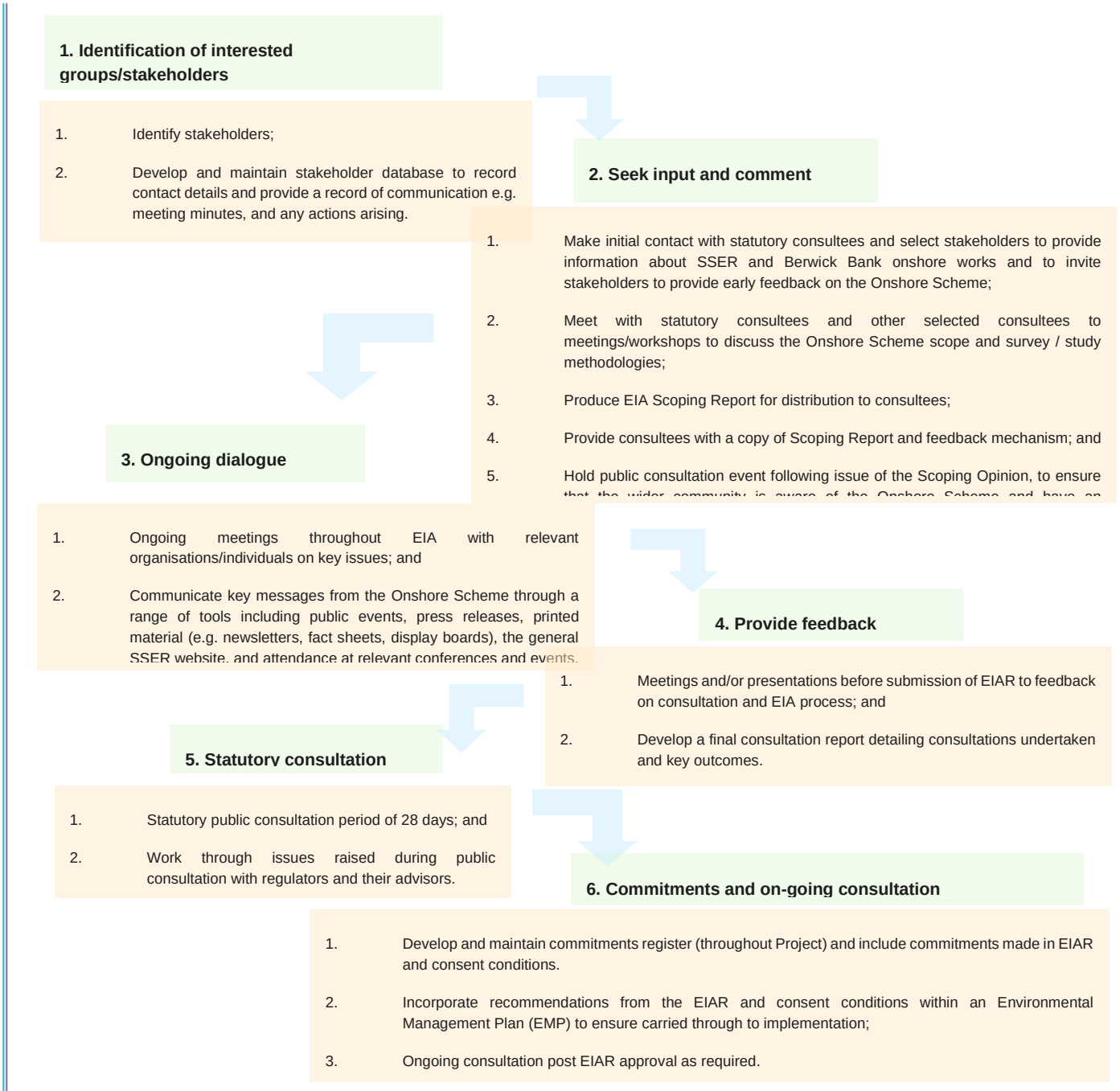


Figure 5-1 Overview of Onshore EIA Stakeholder Engagement Strategy

6. TERRESTRIAL ECOLOGY

6.1. INTRODUCTION

This section of the Scoping Report identifies the terrestrial ecology receptors of relevance to the onshore scoping area. This section describes the potential effects from the construction, operation and maintenance, and decommissioning of the landfall, onshore cables, converter station and associated works on terrestrial ecology (excluding birds) and sets out the proposed scope for this topic of the EIA. The proposed methods are also presented. Terrestrial ornithology is covered separately in 7.

This section covers the area above MLWS. The Marine Scheme will lead the assessment of intertidal impacts within the EIA. The Scoping Report submitted to the MMO and MS-LOT for the Marine Scheme outlines the proposed scope of assessment, which is summarised in this section.

As detailed in section 2, a HRA will be completed for the Cambois Connection. It is the intention of the Applicant to prepare a single over-arching HRA which would support both the Onshore and Marine scheme.

6.2. LEGISLATION, POLICY AND GUIDANCE

In addition to the legislation outline in section2, the following legislation, policy and guidance is specifically relevant to Terrestrial Ecology:

6.2.1. LEGISLATION

- Wildlife and Countryside Act 1981 (as amended);
- The Conservation of Habitats and Species Regulations 2017 (as amended);
- Natural Environment and Rural Communities (NERC) Act 2006;
- Environment Act (2021); and
- The Protection of Badgers Act 1992.

6.2.2. POLICY

- National Planning Policy Framework (England): The NPPF sets out guidance for local planning authorities and decision-makers in how to apply planning policies when drawing up plans and making decisions about planning applications. Specific policies relating to habitats and biodiversity are set out in paragraphs 174 and 179-182 of the NPPF; and
- Northumberland Local Plan 2016-2036: Policy ENV2 (Biodiversity and Geodiversity) is of particular relevance to terrestrial ecology.

6.2.3. GUIDANCE

- A Handbook on Environmental Impact Assessment, version 5 (SNH, 2018);
- Pollution Prevention Guidelines 6 (PPG6): Working at Construction and Demolition Sites (currently under review) (Environment Agency, 2012);
- Guidelines for Ecological Impact Assessment in the United Kingdom (Chartered Institute of Ecology and Environmental Management [CIEEM], 2022);
- Guidelines for Preliminary Ecological Appraisal, 2nd Edition (CIEEM, 2017);
- Bat Mitigation Guidelines (Mitchell-Jones, 2004);
- Bat Conservation Trust Bat Surveys for Professional Ecologists, Good Practice Guidelines, 3rd Edition (Collins et al., 2016);
- Land Use Planning System – SEPA Guidance Note 31 Guidance on Assessing the Impacts of Development Proposals on Groundwater Abstractions and Groundwater Dependent Terrestrial Ecosystems, Issue 3 (SEPA, 2017);
- Handbook for Phase 1 Habitat Survey: a technique for environmental audit (JNCC, 2010);
- National Vegetation Classification: Users' Handbook (Rodwell, 2006); and
- Handbook of Biodiversity Methods (Hill et al., 2005).

6.3. KEY DATA SOURCES

An initial desk-based study has been undertaken to identify sources of existing ecological data and to collect some of that data to inform a Preliminary Ecological Appraisal (PEA) and to inform this Scoping Report. Further details are provided in the PEA report included in Appendix A with a short summary provided below.

The initial desk-based study comprised a review of standard online sources and a biological records centre search. Relevant baseline data were also sought from recent EIAs and other ecological assessments for developments within the onshore scoping area (where readily available online). Table **6-1** below lists the key data sources that have been used to inform this Scoping Report.

Where appropriate, relevant planning applications, such as those identified in Table 4, have been used to inform the baseline and the scoping of potential impacts.

Table 6-1 **Available data and information sources**

Title	Source	Year	Author
Local Records Centre Data	https://www.ericnortheast.org.uk/	2022	Environmental Records Information Centre (ERIC) North East
Designated sites and qualifying features	jncc.gov.uk website	2022	Joint Nature Conservation Committee (JNCC)

Title	Source	Year	Author
Natural England Designated Sites View	https://designatedsites.naturalengland.org.uk/	2022	Natural England
Multi-agency Geographic Information Centre (MAGIC) Map	Magic.gov.uk/designatedsites.naturalengland.org.uk/	2022	Department for Environment, Food and Rural Affairs (DEFRA) and Natural England
21/00818/FULES | BritishVolt Project Phoenix Environmental Statement: Main Report (Ecology Chapter)	https://publicaccess.northumberland.gov.uk/online-applications/applicationDetails.do?keyVal=QPE48BQS0ME00&activeTab=summary	2021	Ridge
21/00818/FULES | BritishVolt Project Phoenix Environmental Statement Volume 3: Appendices (where relevant to ecology)	https://publicaccess.northumberland.gov.uk/online-applications/applicationDetails.do?keyVal=QPE48BQS0ME00&activeTab=summary	2021	Ridge
21/00818/FULES | Project Phoenix EN20037 Construction Environmental Management Plan	https://publicaccess.northumberland.gov.uk/online-applications/applicationDetails.do?keyVal=QPE48BQS0ME00&activeTab=summary	2021	ISG
22/01725/FUL | Battery Storage Site, West Sleekburn: Preliminary Ecological Appraisal	https://publicaccess.northumberland.gov.uk/online-applications/applicationDetails.do?activeTab=summary&keyVal=RBS204QSGR400	2022	Quants Environmental

In addition to the initial desk-based study an initial habitat survey was completed in August 2022. The initial survey comprised two main elements: mapping of habitats using UKHab v1.1; and noting evidence of, or potential for, protected or notable species, or other important ecological features. Most of the onshore scoping area comprises private land that was not accessible for detailed field survey and was therefore

surveyed through interpretation of aerial imagery, augmented by limited ground-truthing from public roads and rights of way. Further details are provided in the PEA report included in Appendix A.

6.4. ENGAGEMENT

The Applicant has met with Natural England to discuss the approach to the assessment of ecology within the EIA. Natural England has confirmed that for ecological surveys, Phase 1 are appropriate in non-sensitive areas, and the requirement is for Phase 2 in sensitive Areas (i.e. in or adjacent to designated sites or where protected species may be present). Natural England also confirmed agreement with the Applicant to utilise the UK Habitat Classification (UKHab) guidance for biodiversity net gain (BNG), which will be assessed using Biodiversity Metric 3.1 (or successor), using CIEEM BNG Good practice principles for development guidance (2019) and any relevant guidance that is published following the DEFRA consultation on BGN regulations and implementation (2022).

Technical engagement will be carried out with NCC early in the ecological impact assessment (EcIA) process. This activity will help to inform the detailed baseline survey and data collection exercise and in order to agree any required mitigation measures, for inclusion within the EcIA or to be secured via condition, as required.

6.5. STUDY AREA

At this stage the detailed design of the Onshore Scheme has not been refined and although the actual footprint of the scheme will be much smaller than the onshore scoping area, this section of the Scoping Report has been written on the basis that development could potentially take place anywhere within the wider onshore scoping area.

The initial desk study carried out to inform this Scoping Report collected data for protected and notable (e.g. rare or invasive), species and designated sites in the vicinity of the onshore scoping area. A search area of up to 10 km was used for statutory designated sites and up to 2 km for protected/notable species and for local designated sites including Local Nature Reserves (LNRs) and non-statutory Local Wildlife Sites (LWS).

The initial habitat survey included all habitats within the onshore scoping area plus ponds within an additional 250 m buffer to inform potential survey requirements for great crested newt (GCN) (*Triturus cristatus*).

6.6. BASELINE ENVIRONMENT

6.6.1. DESIGNATED SITES

There are 11 terrestrial statutory designated sites (excluding Local Nature Reserves (LNR)) located within 10 km of the onshore scoping area including one Ramsar site and nine SSSIs. There are no SACs within 10 km of the onshore scoping area. There are five Local Nature Reserves (LNR) within 2 km. The PEA

report (Appendix A) provides a description of designated sites and their distance and direction from the onshore scoping area. There are three statutory designated sites located within the onshore scoping area which are: Northumbria Coast Ramsar and Northumberland Shore Site of Special Scientific Interest (SSSI).

Northumbria Coast SPA and Ramsar is designated for stretches of coast which support internationally important numbers of waders and seabirds (further information provided in section 7). 96% of the site is composed of rocky marine shore wetlands, including cliffs, crags/ledges, intertidal rock, open coast (including bay), and pools, and assists in shoreline stabilization. Northumberland Shore SSSI is of international, or national significance for six wader species.

Baseline information for terrestrial ornithology designations, including the Northumbria Coast SPA and Ramsar, and Northumberland Shore SSSI, is provided in section 7.

A further four non-statutory Local Wildlife Sites (LWS) occur within 2 km of the onshore scoping area; Blyth Estuary, Wansbeck Estuary, Sleekburn Fen and Plessey Wood, none of which are within the onshore scoping area.

It should be noted that some of the sites referred to above are designated primarily or partly for their ornithological interests but have been included here for completeness.

6.6.2. TERRESTRIAL HABITATS

The PEA report (Appendix A) gives further detail and descriptions of habitats which can be found within the Onshore scoping area and these are summarised in the broad UKHab Classifications below:

- Neutral and Modified Grassland;
- Hedgerows and Scrub;
- Standing Open Water;
- Rivers and Streams;
- Fen, Marsh and Swamp;
- Open Mosaic Habitat;
- Intertidal Mudflats;
- Coastal Saltmarsh;
- Coastal Dunes;
- Littoral Sediment;
- Sparsely Vegetated Land;
- Urban;
- Woodland and Forest; and
- Cropland – Arable and Horticulture.

The following habitats of Principal Importance (i.e., those included under Section 41 of the NERC Act [2006], many of which are also included on Annex 1 of the Habitats Directive) are confirmed or likely to be

present within the Onshore scoping area either through identification during the initial habitat survey, in Natural England's Priority Habitat Inventory dataset or data provided by ERIC North East:

Table 6-2 Potential impacts on onshore ecology during construction, operations and maintenance and decommissioning of the Onshore Scheme

Priority Habitat[12]	Description
Lowland mixed deciduous woodland	The largest blocks of woodland are considered likely to include this category.
Ancient Woodland[13]	There is one block of ancient woodland (Ancient Semi-Natural Woodland ASNW), within the ecological survey area, Hospital Wood adjacent to the northern Onshore scoping area boundary.
Hedgerows	Most of the hedgerows within the Onshore scoping area are likely to meet the Section 41 definition[7]
Reedbeds	Areas within a small watercourse in the southern part of the Onshore scoping area are considered to meet the Section 41 description[7]
Rivers	The River Wansbeck, River Blyth, Sleek Burn and Maw Burn could meet the Section 41 definition by virtue of supporting protected and/or Section 41 species such as otter (*Lutra lutra*).
Open Mosaic Habitat	Present at three locations on previously disturbed ground, two in the southeast of the Onshore scoping area and one in the northeast. The Britishvolt survey results confirm the presence of open mosaic habitat within their site boundary. The extent of this may have changed due to recent construction activities at the Britishvolt site and may change again following the implementation of proposed mitigation measures.

[12] Section 41 Habitat definitions align with the UK Biodiversity Action Plan Priority Habitat Descriptions published in 2008 and updated in 2011, available at https://data.jncc.gov.uk/data/2728792c-c8c6-4b8c-9ccd-a908cb0f1432/UKBAP-PriorityHabitatDescriptions-Rev-2011.pdf

[13] Natural England and Forestry Commission 'standing advice' for ancient woodland, ancient trees and veteran trees available online at https://www.gov.uk/guidance/ancient-woodland-ancient-trees-and-veteran-trees-advice-for-making-planning-decisions

Priority Habitat[12]	Description
Coastal Saltmarsh	The River Blyth, Sleek Burn and River Wansbeck contain these habitats, which are considered likely to meet the Section 41 definition.
Coastal Sand Dunes	Coastal dunes in the east of the Onshore scoping area are considered likely to meet the Section 41 definition.
Intertidal Mudflats	The River Blyth contains this habitat in large areas, which are considered likely to meet the Section 41 definition.
Ponds	Many ponds within the onshore scoping area and surrounding 250 m buffer could potentially meet the Section 41 definition by supporting GCN and/ or other Section 41 or Red Data Book species (although further surveys would be required to confirm whether any ponds meet the definition on this basissupport protected or notable species).

6.6.3. PROTECTED, NOTEABLE AND NON-NATIVE SPECIES

A review of biological records obtained to date indicates that several protected or notable species occur within the Onshore scoping area and 2 km buffer. A full list of protected, notable and non-native terrestrial species identified to be present on or within 2 km of the Onshore scoping area through the desk study review is included in the PEA report (Appendix A) with a brief summary in Table 6-3 below. Records of marine mammals will be covered within the Marine Scheme EIA. Any records that may be relevant to the intertidal area will also be included within the terrestrial ecology assessment within the EIA.

Table 6-3 Potential impacts on onshore ecology during construction/ decommissioning, operations and maintenance of the Onshore Scheme

Receptor	Description
Plants	64 species of protected and notable flowering plant species.
Invertebrates	52 species of protected or notable invertebrates including records of grayling *Hipparchia Semele* and potential suitability for wall *Lasiommata megera* and dingy skipper *Erynnis tages.*

Receptor	Description
Amphibians	Four species of amphibian identified, including great crested newt and common toad *Bufo bufo*, although the most recent record for GCN dates back to 2006. Ponds, rough grassland, scrub, hedgerow, wetland and woodland habitats are potentially suitable for use by this species group and are present across the Onshore scoping area .
Reptiles	Two species of reptile, slow worm *Anguis fragilis* and common lizard *Zootoca vivipara*. Habitats that may be suitable for use by reptiles occur across the Onshore scoping area and include coastal dunes, rough grassland, field margins, hedgerows, scrub, woodland edges, watercourse edges, dunes and wetlands.
Bats	Bats – eight species recorded, plus unconfirmed *Pipistrellus sp., Myotis sp., Nyctalus sp.* and bat sp. The Onshore scoping area includes numerous habitats that are suitable for use by commuting and foraging bats, such as hedgerows, woodland edges, watercourses and wetlands. Potential roost locations within the Onshore scoping area include mature trees within hedgerows and woodlands, as well as buildings.
Badger (*Meles meles)*	20 records returned from the data search. Woodland and hedgerows within the Onshore scoping area are potentially suitable for sett digging, and the grassland fields for foraging.
Otter	40 records returned from the data search and in addition to the river and streams, otter may utilise the ditch and pond network present in the Onshore scoping area , particularly during the amphibian breeding season when frog, toad and newt prey would be abundant.
Water Vole (*Arvicola amphibius)*	One record was returned from the data search. Water vole may utilise the water courses and ponds within the Onshore scoping area .

Receptor	Description
Red Squirrel (*Sciurus vulgaris*)	500 records were returned in the data search. The Onshore scoping area supports habitats suitable for red squirrel with dense woodlands present in scattered, mostly linear parcels across the Onshore scoping area .
Other Mammals	Records of hedgehog *Erinaceus europaeus* and brown hare *Lepus europaeus.* The Onshore scoping area includes numerous habitats that are suitable for use by hedgehog such as hedgerows, woodland edges, scrub and gardens. Suitable habitat for brown hare is also present across the Onshore scoping area , including grassland for foraging and woodland and hedgerows for cover.
Invasive non-native species (Schedule 9)	Numerous invasive non-native plant species and records of American mink *Mustela vison* and grey squirrel *Sciurus carolinensis*.

6.7. DESIGNED IN MEASURES CONSIDERED WITHIN THE EIA

As part of the design process a number of designed in mitigation measures will be adopted to reduce the potential for impacts on terrestrial and freshwater receptors. These will evolve over the development process as the EIA progresses and in response to consultation. The Applicant is committed to implement these measures, and also various standard sectoral practices and procedures.

The development and suitability of any mitigation measures will be consulted upon with statutory consultees throughout the EIA process. The Environment Act 2021 requires that developers in England must demonstrate a net biodiversity gain of at least 10% to obtain planning consent for Town and Country Planning Act 1990 development. Although submission of a detailed biodiversity net gain (BNG) assessment may not be mandatory by the time of submission, BNG and a detailed BNG assessment using Biodiversity Metric 3.1 (or successor) will be provided as part of the project to demonstrate that existing policy requirements to provide biodiversity enhancements will be met.

6.8. SCOPING OF POTENTIAL IMPACTS

Several potential effects on ecological receptors have been identified which may occur during the construction, operation and maintenance and decommissioning phases of the Onshore Scheme. These anticipated effects are outlined below and are considered in the absence of mitigation in Table 6-4.

Table 6-4 Potential impacts on onshore ecology during construction/ decommissioning, operations and maintenance of the Onshore Scheme

Potential Impact	Scoping Justification	Scoped In / Out
Construction / Decommissioning[14]		
Possible damage to designated sites including the Northumbria Coast Ramsar and Northumberland Shore SSSI	Due to construction works in or adjacent to designated sites, including possible impacts resulting from airborne pollution.	**Scoped In**
Possible damage to other designated sites including: Willow Burn Pasture (SSSI); Hawthorn Cottage Pasture (SSSI); New Hartley Ponds (SSSI); Holywell Pond (SSSI); Arcot Hall Grassland and Ponds (SSSI); Cresswell Ponds (SSSI); Castle Island (LNR); Wansbeck Riverside Park (LNR); Paddock Wood (LNR); Ha'penny Woods (LNR); and Choppington Community Woods (LNR).	Based on the distance from the Onshore scoping area, over 800 m, and a lack of downstream hydrological connections it is unlikely that these sites would be impacted.	**Scoped Out**
Habitat loss or damage (permanent and temporary.	Due to construction of Onshore Scheme infrastructure.	**Scoped In**
Severance of habitat connectivity.	For example, as a result of tree felling within woodland or loss of hedgerows during construction of project infrastructure, which could in turn affect protected/notable species.	**Scoped In**
Loss of habitat suitable for shelter, foraging and commuting by protected/notable species.	Resulting from the permanent and temporary habitat loss during construction of Onshore infrastructure.	**Scoped In**

[14] Impacts during decommissioning are likely to be similar to construction, but more limited in geographical extent and timescale and there will be no permanent habitat loss.

Potential Impact	Scoping Justification	Scoped In / Out
Disturbance to, displacement and inadvertent mortality/injuring of protected/notable fauna.	Due to the activities involved in construction of the Onshore infrastructure involving, but not limited to, the permanent and temporary loss of habitat, noise, vibration and air pollution.	**Scoped In**
Sedimentation or other pollution of watercourses due to construction activities and vehicular traffic; including indirect impacts to aquatic species and/or hydrologically connected designated sites.	Construction traffic and machinery will use and contain fuel, oils and other fluids which, if spilled, could damage terrestrial and aquatic ecosystems.	**Scoped In**
Spread of invasive non-native species through the activities on site.	Invasive non-native plant and animal species (INNS) can be spread inadvertently in soil which is moved around the construction site and on machinery etc which is moved between construction sites.	**Scoped In**
Operation and Maintenance		
Disturbance, displacement and inadvertent mortality/injury of fauna due to vehicular traffic and presence of site operatives, e.g., for maintenance.	The presence of site staff could result in the disturbance of species during maintenance.	**Scoped In**
Environmental incidents and accidents (e.g., spillages) leading to adverse effects on aquatic habitats and associated species.	Traffic and machinery will use and contain fuel, oils and other fluids which, if spilled, could damage terrestrial and aquatic ecosystems	**Scoped In**
Construction / Decommissioning[14]		
Possible damage to designated sites including the Northumbria Coast Ramsar and Northumberland Shore SSSI	Due to construction works in or adjacent to designated sites, including possible impacts resulting from airborne pollution.	**Scoped In**

Potential Impact	Scoping Justification	Scoped In / Out
Possible damage to other designated sites including: Willow Burn Pasture (SSSI); Hawthorn Cottage Pasture (SSSI); New Hartley Ponds (SSSI); Holywell Pond (SSSI); Arcot Hall Grassland and Ponds (SSSI); Cresswell Ponds (SSSI); Castle Island (LNR); Wansbeck Riverside Park (LNR); Paddock Wood (LNR); Ha'penny Woods (LNR); and Choppington Community Woods (LNR).	Based on the distance from the Onshore scoping area, over 800 m, and a lack of downstream hydrological connections it is unlikely that these sites would be impacted.	**Scoped Out**
Habitat loss or damage (permanent and temporary.	Due to construction of Onshore Scheme infrastructure.	**Scoped In**

6.9. POTENTIAL TRANSBOUNDARY IMPACTS

The only scope for transboundary impacts with respect to onshore ecology will be in the event of major impacts on the populations of migratory species which breed or winter overseas. Impacts at this level will be avoided through appropriate siting of infrastructure and the implementation of mitigation measures. It is therefore proposed to scope out transboundary effects from further assessment (unless major impacts on migratory species are predicted at later stages of the assessment).

6.10. PROPOSED EIA METHODOLOGY

The EcIA will be undertaken following Chartered Institute for Ecology and Environmental Management (CIEEM, 2022) Guidelines for Ecological Impact Assessment in the UK and Ireland.

The approach to data gathering will be discussed and agreed with relevant bodies prior to commencement, once further details of the areas likely to be developed A summary of ecological survey work that may be required, depending on the emerging project design, is provided below.

6.11. SUMMARY OF NEXT STEPS

As preferred landfall, cable route corridor and converter station locations are identified, targeted surveys will be undertaken within these locations, and an appropriate buffer, as required. A list of surveys that may be required, depending on the proposed location of project infrastructure, is provided below, with further

details provided in the PEA report (Appendix A). All surveys will be carried out in accordance with published good practice guidelines by suitably experienced and qualified ecologists:

- Field-based habitat survey of areas within 100 m of proposed development options will be undertaken using the UKHab classification and will include the collection of habitat condition data to inform the BNG assessment;
- Detailed surveys of habitats with potential to support important populations of protected or otherwise notable plant species will be undertaken, during the relevant season, if required;
- A habitat-based assessment for protected and notable invertebrates will be undertaken, which will indicate if detailed invertebrate surveys are required;
- Surveys for GCN (and toads) will be undertaken for any potentially suitable ponds within 250 m using eDNA survey and following the standard protocol (Biggs et al., 2014), with additional population size class assessment surveys (English Nature, 2001) undertaken for ponds with positive or inconclusive eDNA survey results;
- A more detailed assessment of habitats for their suitability for common reptile species will be undertaken once proposed development areas have been identified, followed by presence/ absence surveys (Sewell, 2013; Froglife 1999; Gent & Gibson,1998), if required, for areas of moderate or high suitability habitat with potential to be subject to moderate or large-scale impacts;
- A badger survey will be undertaken within a minimum buffer of 30 m from proposed development areas (Neal & Cheeseman,1996);
- Surveys for roosting bats, comprising (i) preliminary roost inspections from the ground of any trees and structures within proposed development areas, (ii) close inspections at height of trees/ structures initially assessed as having moderate or high suitability for roosting bats and that could be removed or damaged; and (iii) emergence surveys (during the bat active season) of all trees/ structures that could be removed or damaged which are confirmed as having moderate or high suitability on close inspection or which could not be closely inspected at height (Collins, 2016);
- Surveys for foraging bats to confirm if the Onshore Scheme could potentially affect important foraging and commuting habitat for bats. This will be completed by undertaking walked transects and/or point counts and deployment of static bat detectors throughout the bat active season (May to September) to record bat activity, (Collins J. (ed.), 2016);
- An assessment of watercourses within or close to proposed development areas for their potential to support otter, followed by a survey for otter signs on any suitable water courses, plus 250 m up and downstream (Chanin, 2003a, 2003b); and
- An assessment of watercourses within or close to proposed development areas for their potential to support water vole, followed by a survey for water vole signs on any suitable water courses, plus 200 m up and downstream (Dean et al., 2016).

The Marine Scheme will lead the assessment of intertidal impacts and the Onshore Scheme assessment will draw on that, as necessary, to cover the area between MLWS and MHWS. A project specific intertidal walkover survey is proposed to be completed in 2022/2023 to collect site-specific data and to identify the

location and/or extent of Annex I habitats present. The assessment of potential impacts on intertidal ecology will be consistent with the approach recommended by CIEEM (2018). Any potential direct and indirect impacts of the Project will be assessed, and the sensitivity, vulnerability and recoverability of intertidal ecology receptors will be assessed using the Scottish Government's Feature Activity Sensitivity Tool (FEAST) and the Marine Life Information network (MarLIN, 2022).

6.12. SCOPING QUESTIONS

For the scoping opinion, it will be helpful if you can include consideration of the following questions:

- Do you agree that the data sources and surveys identified are likely to be sufficient to inform the terrestrial ecology baseline for the EIA?
- Do you agree that all the statutory and non-statutory designated sites within the potential to be affected have been identified?
- Do you have any comments on the proposed scope and extent of the further surveys for protected, priority and notable species?
- Do you agree that all potential impacts have been identified for important onshore ecological features?
- Do you agree that the proposed mitigation measures described provide a suitable means for managing and mitigating the potential effects of the project on important onshore ecological features (insofar as it is possible to identify relevant mitigation requirements at this early stage)?
- Please could consultees provide details of any other developments that should be included in the cumulative assessment?

7. ORNITHOLOGY

7.1. INTRODUCTION

The ornithology impact assessment for the Onshore Scheme will consider potential effects on birds associated with the cable landfall (above MLWS), the onshore cable route and the onshore convertor station, located within the onshore scoping area. This assessment will consider bird species that utilise the onshore areas during the breeding and non-breeding (wintering and passage) periods, and also any effects on bird populations associated with designated sites in the vicinity of the onshore scoping area.

The ornithology impact assessment for the Onshore Scheme will be marine-led and focus on functional linkages with onshore receptors and will cover an assessment of impacts above MLWS. Further detail on the proposed methodology for the ornithology impact assessment is provided in the sections below.

7.2. LEGISLATION, POLICY AND GUIDANCE

In addition to the legislation outline in section 2, the following legislation, policy and guidance is specifically relevant to ornithology:

7.2.1. LEGISLATION

- The 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 Europe;
- Natural Environment and Rural Communities Act 2006: extends a biodiversity duty to public bodies and statutory undertakers to ensure due regard to the conservation of biodiversity; and
- The Wildlife and Countryside Act 1981 (as amended): provides for the legal protection of all wild birds, special protection measures for Schedule 1 birds, and also for the protection of Sites of Special Scientific Interest (SSSIs).

7.2.2. POLICY

- Northumberland Local Plan 2016-2036: Policy ENV2 (Biodiversity and Geodiversity) is of particular relevance to ornithology.

7.2.3. GUIDANCE

- CIEEM guidelines on ecological impact assessment (2018); and
- Natural England: Guidance for Bird Surveys in Relation to Development (2022).

7.3. KEY DATA SOURCES

Table 7-1 sets out the key data and information sources that have been used to inform the scoping report and/or those that will be used to inform the EIA.

Table 7-1 Available data and information sources – Onshore Ornithology

Title	Source	Year	Author
MagicMap	https://magic.defra.gov.uk/magicmap.aspx	2022	DEFRA and Natural England
Wetland Bird Survey (WeBS) data	Waterfowl high tide counts from WeBS count sectors adjoining the onshore scoping area https://app.bto.org/webs-reporting/numbers.jsp	2022	British Trust for Ornithology (BTO)
Data Report	Information on breeding and wintering birds likely to be present in the Ornithology Study Area (as defined below).	2022	BTO
Natural England Designated Sites View	https://designatedsites.naturalengland.org.uk/	2022	Natural England
Seabird Monitoring Programme	https://app.bto.org/seabirds/public/index.jsp	2022	JNCC, BTO and Royal Society for the Protection of Birds (RSPB)
NBN Atlas	https://records.nbnatlas.org/explore/your-area	2022	National Biodiversity Network (NBN) Atlas
UK – Northway Electricity Interconnector (NSN Link) Winter and Breeding Bird Survey 2012 to 2014	https://northsealink.com/media/1128/v26_tep_2336050a_winter-and-breeding-bird-survey-2012-to-2014_june-2014-1.pdf	2014	The Environment Partnership (TEP) for National Grid

Title	Source	Year	Author
Blyth-Cambois Wader Study	Not available online. Referenced in above report.	2011	SKM Enviros
Northumberland Priority Species	https://neenp.org.uk/natural-environment/northumberland-priority-species/	2022	North East England Nature Partnership
Red list of threatened species	https://www.iucnredlist.org/	2022	IUCN

7.4. ENGAGEMENT

The Applicant has met with Natural England to discuss the approach to the assessment of ornithology within the EIA. This has included the approach to utilise the range of existing (desk-based) data which is available locally and which is of relevance to the Onshore Scheme.

Further to technical discussions with Natural England in August 2022, overwintering surveys are planned for the Onshore Scheme. The scope of these surveys are detailed in the proposed EIA methodology section below.

7.5. STUDY AREA

The initial desk study carried out to inform this scoping report collected data for statutory and non-statutory designated sites, suitable habitats and records in the vicinity of the onshore scoping area. A search area of up to 10 km was used for statutory and non-statutory designated sites, and up to 500 m for suitable habitats and records. The Ornithology Study Area is shown on Figure 7-1.

Once the Onshore Scheme PDE is finalised has been refined, the Ornithology Study Area for the EIA will be refined to assess only the Proposed Development Site.

7.6. BASELINE ENVIRONMENT

Records potentially relevant to the onshore ornithology assessment include:

- Relevant statutory designated sites (SPAs, Marine Conservation Zones [MCZs] and Ramsar Sites);
- Relevant nationally designated sites (including SSSIs);
- Relevant local non-statutory designations (RSPB Reserves);
- Existing protected and notable species records; and
- Relevant project information including the NSL Link Winter and Breeding Bird Survey report.

7.6.1. STATUTORY DESIGNATED SITES OF NATURE CONSERVATION IMPORTANCE

There are 12 statutory designated sites located within the 10 km Study Area including one SPA, one MCZ, one Ramsar site, and nine SSSIs. There are three designated sites located within the onshore scoping area which are: Northumbria Coast Ramsar, Northumbria Coast SPA and Northumberland Shore SSSI.

The Northumberland Marine SPA is designated for breeding populations of Arctic tern (*Sterna paradisaea*), Common tern (*Sterna hirundo*), Guillemot (*Uria aalge*), little tern (*Sternula albifrons*), puffin (*Fratercula arctica*), roseate tern (*Sterna dougallii*), sandwich tern (*Thalasseus sandvicensis*). The SPA extends from south of Blyth and extends as far north as Berwick-upon-Tweed, covering the vast majority of the Northumberland coast.

It is unlikely that the onshore scoping area would be of particular importance for seabird species associated with the SPA. However, some habitats (i.e. arable or pasture; see below) may be used by species associated with the SPA, i.e. constitute 'functionally linked land' (FLL) used by feeding or roosting birds from the SPA population. The shoreline along the onshore scoping area may also potentially be used by foraging or roosting sandwich terns from the SPA during the breeding season.

The onshore scoping area is also adjacent to the Berwick to St Mary's MCZ which is designated to protect the common eider duck (*Somateria Mollissima)*. As such, this area incorporates eider nesting grounds on the Farne Islands, which together with Coquet Island are the main breeding areas on the east coast of England.

The Northumbria Coast Ramsar site is classified for its wintering populations of turnstone (*Arenaria interpres*) and purple sandpiper (*Calidris maritima*) and breeding population of little tern (*Sternula albifrons*).

The Northumberland Coast SSSI overlaps from the 500 m onshore scoping area and includes much of the shoreline between the Tyne estuary and the Scottish border. The designation provides habitat for wintering shorebirds, including turnstone and purple sandpiper, sanderling, ringed plover, redshank and golden plover.

7.6.2. NON-STATUTORY DESIGNATED SITES OF NATURE CONSERVATION IMPORTANCE

The nearest RSPB reserve to the onshore scoping area is Coquet Island, approximately 20 km to the north. This site is home to the UK's only roseate tern breeding colony and is also an important site for nesting puffins and common, Sandwich and Arctic terns. However, this site falls outwith the Ornithology Study Area.

The Blyth and Sleekburn LWS is located within the Ornithology Study Area, and has two extents; one including the Sleekburn estuary and the second over the Blyth estuary. The two areas are comprised of mudflats which extend at low tide, and areas of saltmarsh habitat. There is likely to be some existing disturbance to wildlife from the industry and activity within the estuaries.

7.6.3. HABITATS

A review of Google aerial imagery identified the likely key habitats within the 500 m Ornithology Study Area. The built environment within the Ornithology Study Area comprises a mix of industrial installations, 'brown field' construction areas and residential settlements. The built environment is subject to moderate amounts of activity that has the potential to disturb birds and result in habitat change.

The coastal, inshore marine waters and Blyth estuary are habitats of value to ornithological species, such as shorebirds, divers and gulls. Areas of arable agriculture, broadleaved woodland, coastal sand dunes, and coastal grassland within the 500 m Ornithology Study Area are more likely to be used by a range of common/widespread breeding bird species, which may include 'Red' or 'Amber' 'Birds of Conservation Concern' (BoCC) (Stanbury et al., 2021). For example, arable habitats may support breeding species such as yellowhammer (*Emberiza citronellacitronella)* and skylark (*Alauda arvensis)* (Red) and waders such as lapwing (*Vanellus vanellus)*, curlew (*Numenius arquata)* (Red), redshank or oystercatcher (*Haematopus ostralegus)* (Amber); beach/dune habitats may be used by nesting ringed plover (*Charadrius hiaticula)* (Red).

7.6.4. RECORDS

There are records of numerous species protected through inclusion on Schedule 1 of the Wildlife and Countryside Act 1981 (as amended) or otherwise of conservation concern within the Ornithology Study Area. Most records are likely to relate to wintering birds or birds on passage and are mostly associated with nearby designated sites. Up to four Schedule 1 species, little ringed plover (*Charadrius dubius)*, barn owl (*Tyto alba)*, kingfisher (*Alcedo atthis)* and peregrine (*Falco peregrinus)* are considered to have any potential to breed within the onshore scoping area. There are no records of breeding little tern (qualifying species for the Northumbria Coast SPA and Ramsar) within the Ornithology Study Area and the closest known colony is located several kilometres to the north of the onshore scoping area. The intertidal habitats within the onshore scoping area are considered likely to support all of the wintering birds listed as qualifying or notified features for the Northumbria Coast SPA and Ramsar and the Northumberland Shore SSSI. It is also possible that some of these species may use suitable habitats within the inland parts of the site (e.g. wet fields or large areas of open mosaic habitats).

The following red data list species were identified within the 500 m Ornithology Study Area, based on information from North East England Nature Partnership and IUCN:

- Corn bunting (*Emberiza calandra*);
- Grey partridge (*Perdix perdix*);
- Kestrel (*Falco tinnunculus*);
- Lapwing (*Vanellus vanellus*);
- Linnet (*Carduelis cannabina*);
- Reed bunting (*Emberiza schoeniclus*));
- Skylark (*Alauda arvensis*);

- Starling (*Sturnus vulgaris*);
- Tree sparrow (*Passer montanus*);
- Yellow wagtail (*Motacilla flava*);
- Yellowhammer (*Emberiza citronella*);
- Peregrine (*Falco peregrinus*);
- Grasshopper Warbler (*Locustella naevia)*;
- Mistle thrush (*Turdus viscivorus)*; and
- Twite (*Linaria flavirostris)*.

7.7. DESIGNED IN MEASURES CONSIDERED WITHIN THE EIA

Designed in mitigation measures in respect of onshore ornithology will be determined once surveys of the onshore scoping area have been completed and baseline conditions are fully understood.

The requirement for additional mitigation measures (secondary mitigation) will be dependent on the significance of effects on the ornithology receptors and will be consulted upon with consultees throughout the EIA process.

7.8. SCOPING OF POTENTIAL IMPACTS

Several potential effects on ornithology receptors have been identified which may occur during the construction, operation and maintenance and decommissioning phases of the Onshore Scheme. These effects are outlined below in Table 7-2.

Table 7-2 Potential impacts on onshore ornithology during construction/ decommissioning, operations and maintenance of the Onshore Scheme

Potential Impact	Scoping Justification	Scoped In / Out
Construction / Decommissioning		
Permanent or temporary habitat loss affecting breeding or wintering birds.	Habitats used by birds for nesting, foraging or roosting may be affected permanently (e.g. within the footprint of the converter station) or temporarily (e.g. along the cable route) during construction and decommissioning.	**Scoped In**
Disturbance and damage/injury as a result of	Construction/decommissioning activities may result in noise, vibratory or visual disturbance to birds nesting, feeding or roosting in the vicinity of proposed works. Night-time activity	**Scoped In**

Potential Impact	Scoping Justification	Scoped In / Out
construction/decommissioning activity	may also disturb birds, e.g. as a result of construction lighting.	
Indirect effects on habitats or individual birds	Indirect effects from construction/decommissioning activities have the potential to temporarily or permanently affect habitats, such as pollution, sedimentation, changes to hydrological flow.	**Scoped In**
Direct impacts (killing/injury) to nesting birds	Breeding birds (including nests, eggs and young) could be killed or injured during site clearance.	**Scoped In**
Operation and Maintenance		
Collision with Onshore Scheme infrastructure	The onshore export cables and grid cablesare underground (with the potential for it to be bridged), and the convertor station will be up to 30 m in height, in keeping with existing buildings in the immediate vicinty. Therefore the collision risk to birds is not considered to be signficiant.	**Scoped Out**
Disturbance and damage to habitats or to individual birds	Human activities related to maintenance of onshore infrastructure have the potential to cause temporary and localised disturbance effects on ecological features such as habitats or birds nesting, feeding or roosting in the vicinity. Any impacts are likley to be of low magnitude, due to the infrequent and small-scale nature of expected operations works.	**Scoped In**
Indirect effects on habitats or individual birds	Indirect effects from operation and maintainence activities have the potential to temporarily or permanently affect habitats, such as pollution, sedimentation, changes to hydrological flow.	**Scoped In**

7.9. POTENTIAL TRANSBOUNDARY IMPACTS

Any effects on onshore ornithology receptors are likely to be localised (i.e. limited to the Ornithology Study Areas). No transboundary impacts are considered likely, and this impact pathway can therefore be scoped out of the EIA in respect of onshore ornithology receptors.

7.10. PROPOSED EIA METHODOLOGY

As the Onshore Scheme PDE is developed and the EIA is carried out, the design of the Onshore Scheme will be informed by a range of technical, commercial and environmental criteria; this shall include refinement to consider the management of potential ornithological impacts.

Based on a contemporaneous review of available ornithological data, and as informed by discussions with NCC, it is understood that for many of the relevant species and designated sites, the marine environment is of more relevance to them than the terrestrial and there is only limited use of the land west of the landfall. For this reason, a separate HRA will not be completed for the Onshore Scheme specifically; the Applicant's intention is to provide a qualitative ornithological assessment within the Onshore Scheme which is supported by a HRA carried out for the Marine Scheme. The ornithology impact assessment for the Onshore Scheme will therefore be marine-led and focus on functional linkages with onshore receptors.

It is recognised that both MS-LOT, MMO and NCC will need to carry out their own statutory obligations in accordance with Regulation 63 of The Conservation of Habitats and Species Regulations 2017 by carrying out an Appropriate Assessment prior to a consent decision for both the Marine and Onshore Schemes. It is anticipated that the regulators will consult the appropriate nature conservation body for their respective geographies and consent decisions.

The principal methods of assessment to be employed within the EIA Report relating to each of the identified at risk receptors are summarised below in Table 7-3. These methods will be used alongside input from the relevant guidance as identified in section 2.

Table 7-3 Principal method of assessment to be conducted within the EIA report

Impact Scoped In	EIA Survey Work	EIA Assessment Methodology
Permanent or temporary habitat loss affecting breeding or wintering birds.	Wintering bird surveys are proposed in line with consultation	These will focus on the landfall area at Cambois, including 500 m either side along the shore (access permitting), covering a range of times of day and tidal states. The nearshore area from the 1 km stretch will be surveyed (from shore) for eiders and other waterbirds. The surveys will not include the marine cable route, as agreed with Natural England, due to the

Impact Scoped In	EIA Survey Work	EIA Assessment Methodology
	with Natural England	nature of the cable installation process and limited potential for disturbance..
Disturbance and damage/injury as a result of construction/decommissioning activity	No additional surveys are proposed above the wintering bird surveys.	Desk based study utilising up to date guidance and literature with input from the findings of the proposed wintering bird surveys. The impact assessment methodology will be based on that described in section 4, adapted to make it applicable to assessment of ornithological receptors, and in line with industry standard guidance (CIEEM, 2018).
Indirect effects on habitats or individual birds	No surveys are proposed.	The impact assessment methodology will be based on that described in section 4, adapted to make it applicable to assessment of ornithological receptors, and in line with industry standard guidance (CIEEM, 2018).
Direct impacts (killing/injury) to nesting birds	No surveys are proposed. As detailed in the Designed in Measures section above, pre-construction nesting bird surveys will be undertaken and detailed in the CEMP.	The impact assessment methodology will be based on that described in section 4, adapted to make it applicable to assessment of ornithological receptors, and in line with industry standard guidance (CIEEM, 2018).
Disturbance and damage to habitats or to individual birds	No surveys are proposed.	The impact assessment methodology will be based on that described in section 4, adapted to make it applicable

Impact Scoped In	EIA Survey Work	EIA Assessment Methodology
		to assessment of ornithological receptors, and in line with industry standard guidance (CIEEM, 2018).
Indirect effects on habitats or individual birds	No surveys are proposed.	The impact assessment methodology will be based on that described in section 4, adapted to make it applicable to assessment of ornithological receptors, and in line with industry standard guidance (CIEEM, 2018).
Cumulative impacts	No surveys are proposed.	Desk based study using methodologies outlined above.

7.11. SCOPING QUESTIONS

- Do you agree with the data sources which are suggested for the assessment?
- Are there any additional data sources which should be considered?
- Do you agree with the proposed approach for a marine-led assessment, focussed on functional linkages with the onshore receptors?
- Do you agree with the proposed scope of the wintering bird surveys?
- Do you agree that all relevant receptors have been identified?
- Do you agree with the impacts that have been scoped in and out of the EIA?
- Do you agree with the proposed approach with regards to the HRA?

8. LANDSCAPE AND VISUAL AMENITY

8.1. INTRODUCTION

This section of the Scoping Report identifies the landscape and visual amenity receptors of relevance to the Onshore Scheme and considers the potential effects from the construction, operation and maintenance, and decommissioning phases of the Onshore Scheme. This section also sets out the proposed approach to assessing the potential effects of the Onshore Scheme on landscape character and visual amenity through a Landscape and Visual Impact Assessment (LVIA).

The LVIA will be conducted in line with the primary guidance for this topic (the Guidelines for Landscape and Visual Impact Assessment, 3rd Edition (GLVIA3). The LVIA will consider direct and indirect effects on landscape resources, landscape character, and the implications for designated landscapes, and cumulative effects, i.e., the incremental effects of the Onshore Scheme in combination with other existing and proposed developments. It will examine the nature and extent of effects arising from the introduction of the Onshore Scheme which will be assessed during both the construction and operational phases of the Onshore Scheme.

8.2. LEGISLATION, POLICY AND GUIDANCE

In addition to the legislation outline in section 2, the following legislation, policy and guidance is specifically relevant to landscape and visual amenity:

8.2.1. LEGISLATION

- No additional legislation.

8.2.2. POLICY

- Northumberland Local Plan 2016 – 2036: Policy ENV3 (Landscape) is of particular relevance to landscape and visual amenity.

8.2.3. GUIDANCE

- Landscape Institute and the Institute of Environmental Management and Assessment (2013), GLVIA3;
- Countryside Agency and SNH (2002), Landscape Character Assessment: Guidance for England and Scotland;
- Landscape Institute (2019) Visual Representation of Development Proposals – Technical Guidance Note 06/19; and
- Landscape Institute (2019), Residential Visual Amenity Assessment – Technical Guidance Note 02/19.

8.3. KEY DATA SOURCES

In addition to relevant literature listed above in section 2, the data sources shown in Table 8-1 have been used to inform this Scoping Report and are proposed to inform the baseline characterisation for landscape and visual in the EIA.

Table 8-1 Available data and information sources – Landscape and Visual

Title	Source	Year	Author
National Character Area Profile - South East Northumberland Coastal Plain	http://publications.naturalengland.org.uk/publication/6175975133937664?category=587130	2013	Natural England
Northumberland Landscape Character Assessment	https://www.northumberland.gov.uk/NorthumberlandCountyCouncil/media/Planning-and-Building/planning%20policy/Studies%20and%20Evidence%20Reports/Landscape%20Green%20Spaces%20Studies/1.%20Landscape%20Character/Landscape-Character-Part-A.pdf	2010	Land Use Consultants for NCC
	https://www.northumberland.gov.uk/NorthumberlandCountyCouncil/media/Planning-and-Building/planning%20policy/Studies%20and%20Evidence%20Reports/Landscape%20Green%20Spaces%20Studies/1.%20Landscape%20Character/Landscape-Character-Part-B.pdf	2010	Land Use Consultants for NCC
Northumberland Local Plan – Policy ENV3 Landscape	https://www.northumberland.gov.uk/NorthumberlandCountyCouncil/media/Planning-and-Building/planning%20policy/Local%20Plan/Northumberland-Local-Plan-Adopted-March-2022.pdf	2022	NCC

Title	Source	Year	Author
Northumberland Key Land Use Impact Study	https://www.northumberland.gov.uk/Planning/Reports.aspx#:~:text=The%20Landscape%20Character%20Assessment%20looks,what%20things%20make%20it%20distinctive.	2010	Land Use Consultants for NCC
Public Rights of Way (PRoW)	https://northumberland.maps.arcgis.com/apps/webappviewer/index.html?id=59bccc5416b144a28def537994bf7d10	2022	NCC
Historic Landscape Characterisation	https://historicengland.org.uk/research/methods/characterisation/historic-landscape-characterisation/	2022	Historic England
Looking After Parks, Gardens and Landscapes	https://historicengland.org.uk/advice/technical-advice/parks-gardens-and-landscapes/	2022	Historic England
Protected Landscapes	https://www.northumberland.gov.uk/Planning/Conservation/Landscapes.aspx	2022	NCC
Digital Terrain Model (DTM)	DTM Datasets	2022	Ordnance Survey
Ordnance Survey mapping at a range of scales	Topographical maps	2022	Ordnance Survey
Aerial and street-level photography	Aerial and street level photography available online	2022	Google

To inform the EIA, the assessment of visual effects arising from the introduction of the Onshore Scheme will be informed by analysis of ZTVs, field studies and consideration of changes in views from representative

viewpoints. Visualisations will be prepared to illustrate the potential changes in view from representative viewpoints, in line with relevant guidance from the Landscape Institute.

8.4. ENGAGEMENT

Technical engagement will be carried out with NCC early in the LVIA process. This activity will help to inform the detailed baseline survey and data collection exercise, agreement of the location of representative viewpoints (which will subsequently form the basis of the visual assessment) and in order to agree any required mitigation measures, for inclusion within the EIA or to be secured via condition, as required.

8.5. STUDY AREA

It is proposed that the LVIA Study Area will cover a radius of 3 km from the convertor station location and a radius of 1 km from the landfall and onshore export cables and grid cables. For the purposes of this scoping exercise and in the absence of a fixed location for the convertor station, the Indicative Convertor Station boundary is referred to. The extent of the Study Area is based on descriptions of the Onshore Components, and good working knowledge of the area and baseline environment. It is judged that significant effects on landscape and visual receptors beyond this distance are unlikely, although this will be reviewed once the convertor station design parameters are known. This relates to the large-scale built environment which is industrial in nature and blocks of surrounding woodland.

Professional judgment and the development of a Zone of Theoretical Visibility (ZTV) will be used to identify which landscape and visual receptors require consideration in the assessment, and which can be scoped out because they are unlikely to be significantly affected. At this early stage, and on the basis that the converter station dimensions and location are not known and in the absence of a defined cable route, no ZTV has been produced.

Once the Onshore Scheme PDE is refined, the LVIA Study Area for the EIA will be refined to assess only the Proposed Development Site. Similarly, if, following production of the ZTV, it is shown that visibility of the Onshore Scheme will extend beyond the identified LVIA Study Area, the LVIA Study Area for the EIA will be revisited and redefined, in agreement with NCC.

8.6. BASELINE ENVIRONMENT

An initial desk-based review of literature and available data sources (see Table 8-1) has been undertaken to support this Scoping Report; the findings of this research are presented below.

8.6.1. LANDSCAPE DESIGNATIONS

No national or statutory landscape designations have been identified within the LVIA Study Area. There is a single (non-statutory) landscape designation to the north (outside of the LVIA Study Area but presented for completeness); this is the North Northumberland Heritage Coast, which is approximately 8 km to the north of the onshore scoping area).

8.6.2. LANDSCAPE BASELINE

The LVIA Study Area is located within the South East Northumberland Coastal Plain National Character Area, as defined by Natural England (2013) as shown on Figure 8-1. Key characteristics include:

- A flat, low-lying strip along the coast of the North Sea, extending from north Tyneside in the south to Amble and the Coquet Estuary in the north;
- Largely urbanised in the south and more rural to the north, with large fields, restored and active open cast coal mines and a coast of rocky headlands and wide, sandy bays;
- The rivers Blyth, Wansbeck, Coquet, Pont and Seaton Burn drain through the coastal plain from the uplands to the west into the North Sea to the east, often passing through incised valleys with fragments of ancient woodland;
- The coast supports a wide diversity of habitats including sand dunes, maritime cliffs and slopes, coastal and flood plain grazing marsh and mudflats;
- The area supports a diverse range of marine species and ecosystems as a consequence of its geological diversity and the natural variation in the sediment loading of the water.

The LVIA Study Area is located within Landscape Character Type 41: Developed Coast (NCC, 2010). Key characteristics include:

- Intensively developed landscape, comprising a coastal urban edge;
- River mouths with mudflats or modified to form harbours;
- Large-scale industrial and former industrial sites; and
- Fragmented farmland amongst urban development.

The LVIA Study Area is relatively flat with some gentle undulations in the topography. Elevation ranges from sea level at the coast to approximately 15 m Above Ordnance Datum (AOD) adjacent to the A189 in the west of the LVIA Study Area.

There are a number of developments (either built or in various stages of planning) which vary in size and type. Most of the large-scale built environment is heavily industrial in nature. In addition to Sleekburn and Ferguson business parks which are located adjacent to the A189, the NSL converter station is located immediately adjacent to the Indicative Converter Station Boundary. The Northumberland Energy Park Phase 1 (under construction) is located approximately 600 m southwest of the Indicative Convertor Station boundary. Once constructed, the LVIA Study Area will be dominated by the BritishVolt battery manufacturing facility which is located immediately adjacent to the Indicative Convertor Station boundary on the north-east.

There are a number of watercourses within the LVIA Study Area. Maw Burn is a small watercourse which has been heavily modified during previous land uses, and is culverted at various points. Cow Gut flows to the south of Maw Burn in culvert. Several drainage ditches are also present within the LVIA Study Area which generally follow field boundaries. In terms of larger watercourses, to the north of the LVIA Study Area

is the River Wansbeck, and immediately to the south is Sleek Burn which flows into the River Blyth as it meets the sea at the Port of Blyth.

There are several blocks of woodland and farmland within the LVIA Study Area, which are often intersected by watercourses and drainage ditches, and have likely been planted to screen views of the industrial environment from the residential areas. An extensive block of woodland is adjacent to the A189, which screens views of the Indicative Convertor Station boundary from the road. There is also significant woodland located along Maw Burn after it is culverted beneath the A189 and continues to the sea. Further woodland is located around the NSL converter station and the residential neighbourhood to the south, and it is expected that more will be planted around the BritishVolt battery manufacturing facility upon its completion.

There are small residential neighbourhoods located throughout the LVIA Study Area. Blyth and Cambois have a large concentration of properties, however these are relatively distant from the Indicative Converter Station Boundary and are separated by intervening infrastructure and woodland. 150 m south and 500 m east of the Indicative Converter Station Boundary are two clusters of residential properties, intersected from the Boundary by Brock Lane.

There are no formally designated Core Paths within the LVIA Study Area but there are a number of PRoW as identified by NNC. The England Coast Path Route (National Trail) is located adjacent to the onshore scoping area on the south-east point. Gallacher Park and Grange Park are both located within the LVIA Study Area, to the west of the A189.

8.6.3. VISUAL RECEPTORS

As informed by the relevant technical guidance and based on professional expertise, visual receptors who are considered likely to experience views of the construction of the Onshore Scheme include:

- Members of the public at nearby settlements, primarily East Sleekburn, Cambois, Bedlington and Blyth;
- Users of the road networks in proximity to the Onshore Scheme, primarily the A189, Brock Lane, Moorland Avenue and Wembley Gardens;
- Recreational users of Cambois Beach and Blyth Beach; and
- Recreational users of PRoW.

A list of proposed viewpoints to represent these visual receptors for the assessment will be agreed with consultees. All viewpoints will be illustrated with photomontages to show the scale and extent of the Onshore Scheme in the view.

8.7. DESIGNED IN MEASURES CONSIDERED WITHIN THE EIA

Designed in mitigation measures that could be implemented in respect of landscape and visual amenity would relate wholly to the consideration of landscape character, designations and visual amenity throughout the development of the PDE for Onshore Scheme. Once surveys of the onshore scoping area have been

completed and baseline conditions are fully understood, specialist landscape architects will work with the project team to achieve a design that minimises the potential landscape and visual effects for identified receptors.

The requirement for additional mitigation measures (secondary mitigation) will be dependent on the significance of effects on the landscape and visual receptors and will be consulted upon with consultees throughout the EIA process.

8.8. SCOPING OF POTENTIAL IMPACTS

Several potential effects on landscape and visual receptors have been identified which may occur during the construction, operation and maintenance, and decommissioning phases of the Onshore Scheme. These effects are outlined below in Table 8-2.

Table 8-2 Potential landscape and visual impacts during construction/ decommissioning, operations and maintenance of the Onshore

Potential Impact	Scoping Justification	Scoped In / Out
Construction / Decommissioning		
Temporary loss of landscape features and changes to landscape character during installation of the onshore cables	The installation of the onshore cables will be a localised event carried out within a limited corridor within the onshore scoping area. As described above, the installation method of the onshore cables is not known at this stage, but the extent of impact will be highly limited and temporary in nature and fully reversible. Whilst the timing of reinstatement is difficult to predict, as it is dependent on time of year and re-seeding, it is expected that reinstatement of the ground will be complete with vegetative cover recovering fully within a full season. Furthermore, construction will occur in an area where industrial installations and infrastructure already have an influence on the baseline landscape, and therefore will moderate the impact on the landscape features and landscape character. Visibility of the installation to sensitive receptors is likley to be screened by existing buildings, topography and forestry.	**Scoped Out**

Potential Impact	Scoping Justification	Scoped In / Out
Temporary change to views and visual amenity during installation of the onshore cables	As above.	**Scoped Out**
Temporary loss of landscape features and changes to landscape character during construction of the converter station	There is potential for significant effects on landscape features and character during the construction phase of the converter station.	**Scoped In**
Temporary change to views and visual amenity during construction of the converter station	There is potential for significant effects on visual amenity during the construction phase of the converter station.	**Scoped In**
Operation and Maintenance		
Permanent loss of landscape features and changes to landscape character and quality of designated landscapes during operation of the onshore cables	Following construction the cable trenches will be reinstated, leaving little to no sign of construction after natural cover (e.g. grass or other) is in place, therefore there is no potential for signficiant effects on landscape features and character, and designated landscapes as a result of the introduction of the onshore cables.	**Scoped Out**
Permanent change to views and visual amenity during operation of the onshore cables	As above.	**Scoped Out**
Permanent loss of landscape features and changes to landscape character and changes to quality of designated	There is potential for significant effects on landscape features and character, and designated landscapes as a result of the introduction of the converter station.	**Scoped In**

Potential Impact	Scoping Justification	Scoped In / Out
landscapes during operation of the converter station		
Permanent change to views and visual amenity during operation of the converter station	There is potential for significant effects on visual amenity as experienced by people across the ZTV, as a result of the introduction of the converter station.	**Scoped In**

As potential impacts from the construction and decommissioning of the onshore cables are proposed to be scoped out of the EIA, the LVIA Study Area for the EIA will comprise a 3 km buffer from the convertor station location only.

8.9. POTENTIAL TRANSBOUNDARY IMPACTS

Any effects on landscape and visual receptors are likely to be localised (i.e. limited to the LVIA Study Area). There is no potential for transboundary impacts to occur given the intervening distance between the Onshore Site and the closest nation state. This impact pathway can therefore be scoped out of the EIA in respect of onshore landscape and visual receptors.

8.10. PROPOSED EIA METHODOLOGY

The LVIA will be undertaken by experienced Chartered Landscape Architects (Chartered Members of the Landscape Institute [CMLI]), and in accordance with relevant good practice documents and specific provisions of GLVIA3.

Landscape and visual effects will be considered separately. GLVIA3 states that the nature of landscape and visual receptors, commonly referred to as their sensitivity, should be assessed in terms of the susceptibility of the receptor to change and the value attached to the existing landscape or views. The nature of the effect, commonly referred to as the magnitude of change, should be assessed in terms of the size and scale, geographical extent, duration and reversibility of the effect. These aspects will all be considered together, to form a judgement regarding the overall significance of landscape and visual effects.

Whilst informed by the general structure and principles of the methodology described above, the approach to the LVIA will be based on the topic-specific principles set out in the following guidance:

- GLVIA3;
- Landscape Institute: Visual Representation of Development Proposals, Technical Guidance Note 06/19 (2019); and
- Natural England: An Approach to Landscape Character Assessment (2014).

The principal methods of assessment to be employed within the EIA Report relating to each of the identified at risk receptors are summarised below in Table 8-3. These methods will be used alongside input from the relevant guidance as identified in section 2.

Table 8-3 Principal method of assessment to be conducted within the EIA report

Impact Scoped In	EIA Survey Work	EIA Assessment Methodology
Temporary loss of landscape features and changes to landscape character during construction of the converter station	Baseline photography visualisations will be prepared to illustrate the potential changes in view from representative viewpoints. The visualisations will accord with Type 4 in the Landscape Institute's guidance (2019) unless otherwise agreed with NCC.	Predicted changes to the physical landscape of the LVIA Study Area and landscape character will be identified. The assessment of landscape effects will take account of the sensitivity of the landscape, and any value placed on the landscape through formal designation or other indicators. The significance of landscape effects will be determined in relation to the magnitude of change to the landscape.
Temporary change to views and visual amenity during construction of the converter station	Baseline photography visualisations will be prepared to illustrate the potential changes in view from representative viewpoints.	Visual effects are experienced by people (visual receptors) at different locations across the onshore scoping area, including at static locations (for example from settlements or promoted viewpoints) and transitional locations (such as sequential views experienced from routes, including roads, footpaths, cycle routes or ferry routes). Visual receptors are the people who will be affected by changes in views at these places, and they are usually grouped by what they are doing at those locations (for example residents, motorists, recreational users etc.). Assessment viewpoints will be identified and agreed with stakeholders to represent the key groups of sensitive visual

Impact Scoped In	EIA Survey Work	EIA Assessment Methodology
		receptors that may be affected by the Onshore Scheme. Baseline photography and visualisations will be presented for agreed viewpoints, in line with relevant guidance from the Landscape Institute. Visual effects resulting from the Onshore Scheme will be considered within the context of the existing baseline conditions, including operational developments and those which are under construction, where relevant. The assessment of visual effects arising from the introduction of the onshore development will be informed by analysis of ZTVs, field studies and consideration of changes in views from representative viewpoints. Visualisations will be prepared to illustrate the potential changes in view from representative viewpoints. Effects on the closest residential properties may need to be considered in terms of potential to affect residential visual amenity in accordance with Landscape Institute guidance on RVAA (Landscape Institute, 2019).
Permanent loss of landscape features and changes to landscape character and changes to quality of designated landscapes during operation of the converter station	Baseline photography visualisations will be prepared to illustrate the potential changes in view from representative viewpoints.	Predicted changes to the physical landscape of the LVIA Study Area and landscape character will be identified. The assessment of landscape effects will take account of the sensitivity of the landscape, and any value placed on the landscape through formal designation or other indicators. The significance of landscape effects will be determined in relation to the magnitude of change to the landscape.
Permanent change to views and visual amenity during operation of the converter station	Baseline photography visualisations will be prepared to illustrate the potential changes	Visual effects are experienced by people (visual receptors) at different locations across the onshore scoping area, including at static locations (for example from settlements or promoted viewpoints) and transitional locations (such as sequential views experienced from routes, including roads, footpaths, cycle routes or ferry routes). Visual receptors are the people

Impact Scoped In	EIA Survey Work	EIA Assessment Methodology
	in view from representative viewpoints.	who will be affected by changes in views at these places, and they are usually grouped by what they are doing at those locations (for example residents, motorists, recreational users etc.). Assessment viewpoints will be identified and agreed with stakeholders to represent the key groups of sensitive visual receptors that may be affected by the Onshore Scheme. Baseline photography and visualisations will be presented for agreed viewpoints, in line with relevant guidance from the Landscape Institute. Visual effects resulting from the Onshore Scheme will be considered within the context of the existing baseline conditions, including operational developments and those which are under construction, where relevant. The assessment of visual effects arising from the introduction of the onshore development will be informed by analysis of ZTVs, field studies and consideration of changes in views from representative viewpoints. Visualisations will be prepared to illustrate the potential changes in view from representative viewpoints. Effects on the closest residential properties may need to be considered in terms of potential to affect residential visual amenity in accordance with Landscape Institute guidance on RVAA (Landscape Institute, 2019).

8.11. SCOPING QUESTIONS

- Can consultees confirm that the guidance listed is an appropriate methodological starting point for the LVIA assessment?
- Are there any comments on the overall methodology proposed to assess effects on landscape and visual receptors, including cumulative effects?
- Are there any comments on the extent of the LVIA Study Area, and is anything missing from the baseline description?
- Are there any comments on the effects scoping in and out of the assessment, as listed in Table 8-2?

9. NOISE AND VIBRATION

9.1. INTRODUCTION

This section of the Scoping Report identifies the noise and vibration receptors of relevance to the onshore aspects of the Onshore Scheme, and considers the potential impacts from the construction, operation and maintenance and decommissioning of Project.

The importance of potential noise and vibration impacts is identified by consideration to the prevailing local noise environment, the proximity and sensitivity of local receptors, and the potential for the development to generate noise and/or vibration during both the construction and operational phases.

The primary focus of the scoping assessment will be the generation noise and vibration and the potential impacts of this on human health. In order to comprehensively assess the potential noise and vibration impacts that may arise from the Onshore Scheme, this section will interface with both the Traffic and Access assessment and the Ecology assessment.

The assessment of noise and vibration will include the extent of the Onshore Scheme down to the seaward-extent of the landfall at MLWS. On this basis, there is a necessary level of overlap between the assessment of potential impacts in the Onshore Scheme and the Marine Scheme between MLWS and MHWS; this is discussed in further detail below.

9.2. LEGISLATION, POLICY AND GUIDANCE

In addition to the legislation outline in section 2, the following legislation, policy and guidance is specifically relevant to noise and vibration:

9.2.1. LEGISLATION

- Environmental Protection Act 1990; and
- Control of Pollution Act 1974.

9.2.2. POLICY

- DEFRA (2010) Noise Policy Statement for England (NPSE); and
- Northumberland Local Plan 2016 – 2036: Policy STP5 (Health and wellbeing), TRA 2 (The effects of development on the transport network), QOP 6 (Delivering well-designed places), POL 2 (Pollution and air, soil and water quality) and REN 1 (Renewable and low carbon energy and associated energy storage) are of particular relevance to noise and vibration.

9.2.3. GUIDANCE

- Department for Levelling Up, Housing and Communities (2019) NPPF Guidance: Noise;
- British Standards Institution (2014, amended 2019) - Methods for rating and assessing industrial and commercial sound (BS 4142);
- British Standards Institution (2003) Description and measurement of environmental noise — Part 1: Guide to quantities and procedures (BS 7445-1);
- British Standards Institution (2014) Code of Practice for Noise and Vibration Control on Construction and Open Sites – Part 1: Noise (BS 5228-1);
- British Standards Institution (2014) Code of Practice for Noise and Vibration Control on Construction and Open Sites – Part 2: Vibration (BS 5228-2);
- British Standards Institution (2014) Guidance on sound insulation and noise reduction for buildings (BS 8233); and
- Highways England (2020) Design Manual for Roads and Bridges LA 111 – Noise and vibration.

9.3. KEY DATA SOURCES

In addition to relevant literature listed above in section 2, the data sources shown in Table 9-1 been used to inform this Scoping Report and are proposed to inform the baseline characterisation for noise and vibration in the EIA.

Where appropriate, relevant planning applications, including those identified in Table 4, have been used to inform the baseline and the scoping of potential impacts.

Table 9-1 Available data and information sources – Noise and Vibration

Title	Source	Year	Author
Google Earth	https://www.google.co.uk/intl/en_uk/earth/	2022	Google
Ordnance Survey mapping at a range of scales	Topographical maps	2022	Ordnance Survey
MagiMaps 2022	https://magic.defra.gov.uk/MagicMap.aspx	2022	DEFRA
DEFRA Strategic Noise Mapping Dataset	https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_d	2019	DEFRA

Title	Source	Year	Author
	ata/file/902825/strategic-noise-mapping-round3.pdf		
North Sea Link Environmental Statement - Baseline noise survey	https://northsealink.com/media/1229/environmental-statement-for-nsn-link_july-070714-2.pdf	2014	National Grid
Description and measurement of environmental noise — Part 1: Guide to quantities and procedures (BS 7445-1)	https://gat04-live-1517c8a4486c41609369c68f30c8-aa81074.divio-media.org/filer_public/d8/fd/d8fdfc54-9b79-4ded-91c5-ca7436ef6f01/d39_-_british_standards_institution_20031991_british_standard_7445-1-2_description_and_measurement_of_environmental_noise_bsi81832924_1.pdf	2003	British Standards Institution

To inform the EIA, a desk-based review and consultation will be undertaken to identify potentially sensitive receptors. Site visits will also be undertaken and will involve a walkover of the Noise and Vibration Study Area to confirm desktop sources and identify Noise Sensitive Receptors (NSR) in the vicinity of the Onshore Scheme.

Background noise monitoring will be undertaken at receptors where the potential for significant noise effects from the Onshore Scheme are identified, and where needed to inform the noise assessment. Where appropriate, baseline data presented in the ES or EIA Reports for other nearby developments, such as those identified in Table 9-1, will be used to inform the EIA baseline. Any baseline noise surveys will be agreed in consultation with NCC and will be carried out for a sufficient period to allow typical sound levels to be established, taking account of different types of noise sources and weather conditions that occur.

9.4. ENGAGEMENT

Technical engagement will be carried out with NCC early in the development of the noise and vibration assessment process, as well as other relevant stakeholders such as environmental health officers within NCC, Natural England and – where required – the UK Health Security Agency. This activity will help to inform the detailed baseline survey and data collection exercise, and agreement of the location of any NSR sites (which will subsequently form the basis of the assessment). Where it is deemed necessary (considered likely), noise modelling will be carried out.

9.5. STUDY AREA

For this Scoping Report, the Noise and Vibration Study Area is defined as the onshore scoping area plus a 2 km buffer. This buffer is based on recent industry examples for comparable development. Noise-sensitive receptors located further away would experience reduced effects of noise and vibration from the Onshore Scheme and therefore the assessment at the nearest receptors within a 2 km buffer is considered sufficiently representative and takes a conservative approach to identifying receptors.

Once the Onshore Scheme PDE is finalised, the Noise and Vibration Study Area for the EIA will be refined to assess only the Proposed Development Site which will be refined following from the onshore scoping area. For Noise and Vibration, this will be defined by the onshore cable corridor extent and convertor station location (i.e. the Onshore Scheme) plus a 2 km buffer. During the EIA process, once there is a more developed understanding of the baseline environment for noise and vibration and the types of equipment and methods used for the Onshore Scheme, the Noise and Vibration Study Area may be refined.

9.6. BASELINE ENVIRONMENT

An initial desk-based review of literature and available data sources (see Table 9-1) has been undertaken to support this Scoping Report. The findings of this research are presented below in order to provide an understanding of the Onshore Scheme environment, including the presence of receptors sensitive to noise and vibration, and to inform the Scoping process.

The Noise and Vibration Study Area is sited within an area with substantial and varied industrial installations and there are environmental noise sources present from the heavily trafficked roads. In addition to the industrial areas the Noise and Vibration Study Area is also surrounded by several agricultural sites, undeveloped areas of coastline, amenities, and residential areas described in Table 9-2. The residential areas most likely to be potentially impacted include East Sleekburn, West Sleekburn, and Cambois.

Considering the existing baseline environment, it is considered that ambient noise levels are likely to be sufficiently high to provide a degree of masking of both construction and operational noise. Furthermore, noise impacts related to operation and maintenance activities will be limited to noise from the convertor station only, as buried cables will not be a source of noise or vibration discernible at ground level.

The key noise and vibration sensitive receptors which are likely to require consideration within the EIA are:

- Hospitals, care homes and schools;
- Residential and non-residential properties;
- Local amenities;
- Areas of conservation or scientific interest (including designated sites);
- Protected species; and
- Other areas which are utilised by the public e.g. public parks.

Within the Noise and Vibration Study Area, human receptors were identified that have the potential to be impacted by noise and vibration. The findings are as summarised in Table 9-2 below. As detailed above, once the Onshore Scheme PDE is finalised, the Noise and Vibration Study Area for the EIA will be refined

to assess only the Proposed Development Site (i.e. the route for onshore cables, as well as the converter station). Therefore it should be noted that not all of the NSRs identified in Table 9-2 below will be carried forward to the assessment stage.

As detailed in sections 6 and 7, there are a number of ecological and ornithological species of conservation concern and designated sites within the respective Study Areas. There is the potential for impacts on these species to occur from noise and vibration occurring as a result of the Onshore Scheme... For the avoidance of doubt, potential impacts on these species from noise and vibration will be assessed within the Ecology and Ornithology impact assessment chapters, and are therefore not considered further here.

Table 9-2 Key noise and vibration sensitive receptors within the Noise and Vibration Study Area

Receptor Type	Specific Receptor
Hospitals, Care Homes and Schools	Blyth Community Hospital Bedlington Station Primary School Bedlington Academy Cambois Primary School Stakeford Primary School Malvins Close Primary School The Dales School Horton Grange Primary School The Blyth Academy Chasedale Care Home Handinhand Pre-school Malvin's Close Academy St Wilfrid's Roman Catholic Primary School Stead Lane Primary School Northumberland College Duke's Secondary School
Residential Areas	Cambois East Sleekburn West Sleekburn Bedlington Stakeford Bebside Cowpen Bomardsund North Seaton Choppington Guide Post
Non – Residential Areas	Sleekburn business park Ferguson business park North Seaton Industrial Estate

Receptor Type	Specific Receptor
	Port of Blyth Battleship Wharf Terminal
Amenity Areas	Multiple amenities are located within and around the Noise and Vibration Study Area these include: Public parks and gardens Camping and Caravan Sites Beach and coastal areas
Designated Sites	Berwick to St Mary's MCZ Northumberland Marine SPA
Red Data List Species	Corn bunting (*Emberiza calandra)* Grey partridge (*Perdix perdix)* Kestrel (*Falco tinnunculus)* Lapwing (*Vanellus vanellus)* Linnet (*Carduelis cannabina)* Reed bunting (*Emberiza schoeniclus)* Skylark (*Alauda arvensis)* Starling (*Sturnus vulgaris)* Tree sparrow (*Passer montanus)* Yellow wagtail (*Motacilla flava)* Yellowhammer (*Emberiza citronella)* Peregrine (*Falco peregrinus)* Grasshopper warbler (*Locustella naevia)* Mistle thrush (*Turdus viscivorus)* Twite (*Linaria flavirostris)*

9.7. DESIGNED IN MEASURES CONSIDERED WITHIN THE EIA

Designed in mitigation measures in respect of noise and vibration will be determined once surveys of the onshore scoping area have been completed and baseline conditions are fully understood. Embedded measures that could be implemented include:

- Control of selected construction works to within specified hours to minimise noise impacts where this is practicable and achievable based on the requirements of the Onshore Scheme. Engagement with NCC will be carried out to inform how noise impacts are managed for the Onshore Scheme;
- The selection of quieter equipment where reasonably practicable will be undertaken; and
- Best Practicable Means (BPM) will be used to limit the impacts of noise and vibration at sensitive receptors.

The requirement for additional mitigation measures (secondary mitigation) will be dependent on the significance of effects on the noise and vibration receptors. As there will not be a confirmed detailed design at the EIA stage, the Noise and Vibration assessment will be based on the PDE with the aim of

demonstrating that appropriate noise levels can be achieved. Therefore the most appropriate mitigation strategy is unlikely to be confirmed until after the detailed design stage, rather than at the EIA stage.

9.8. SCOPING OF POTENTIAL IMPACTS

The potential impacts of the Onshore Scheme on onshore noise and vibration have been summarised in Table 9-3. This table identifies potential impacts during the construction, operation and maintenance and decommissioning phases of the Onshore Scheme, with a scoping justification and scoping decision provided.

Table 9-3 Potential impacts of noise and vibration during construction/ decommissioning, operations and maintenance of the Onshore Scheme

Potential Impact	Scoping Justification	Scoped In / Out
Construction / Decommissioning		
Noise associated with construction of onshore components	Due to the localised nature of the onshore cable installation/decommissioning process, temporary noise generated is likely to be concentrated to areas immediately adjacent to the chosen cable route. Notwithstanding, installation of the converter station may give rise to more prolonged sources of noise and vibration. Simialrly, depenending on the chosen methodology, the instalation of cables at the landfall location may give rise to sources of noise and vibration during construction. Further study is required to understand effects of noise on sensitive receptors.	**Scoped In**
Ground-borne vibration associated with construction of onshore components	Due to the localised nature of the onshore cable installation/decommissioning process, temporary noise generated is likely to be concentrated to areas immediately adjacent to the chosen cable route. Notwithstanding, installation of the converter station may give rise to more prolonged sources of vibration. Further study is required to understand effects of vibration on sensitive receptors. Due to the short term and localised nature of the onshore construction/ decommissioning process, any temporary vibration generated is likely to be minimal and concentrated to the Noise and Vibration Study Area.	**Scoped In**

Potential Impact	Scoping Justification	Scoped In / Out
Onshore noise associated with vehicle use	Use of construction machinery, plant equipment, haulage / freight and other vehicles has the potential to give rise to local noise issues. Further study required to understand the effects on sensitive receptors.	**Scoped In**
Ground-borne vibration associated with vehicle use	Ground-bourne vibration impacts arising from vehicle use during construction are likley to be minimal. Any impacts will be short-term and concentrated at the construction site, and unlikely to give rise to signficiant impacts at any receptor.	**Scoped Out**
Operation and Maintenance		
Onshore noise associated with operation and maintenance of onshore components	Noise impacts related to the onshore operation and maintenance activities will be limited to noise from the converter station. Scoped into the EIA until confirmation of the Onshore Scheme final location and proximity/effects to sensitive receptors.	**Scoped In**
Ground-borne vibration associated with operation and maintenance of onshore components	The HVDC and HVAC cables will not cause discernible vibrations due to the nature of the electricity transmission process. The nature of the converter station means that the extent of any vibration arising from day-to-day routine operation will be minimal and likely to be undiscernible beyond the main compound described above. Furthermore, the nature of the converter station and the largely unmanned operation means that vehicle access, which could give rise to some vibration, will be minimal. When there is vehicular access to the converter station, this is likely to be via personnel cars rather than HGVs. Sporadic access with larger vehicles will be very infrequent and associated with deliveries of spare components / equipment.	**Scoped Out**

9.9. POTENTIAL TRANSBOUNDARY IMPACTS

Any effects on noise and vibration receptors are likely to be localised (i.e. limited to the Noise and Vibration Study Area). No transboundary impacts are considered likely, and this impact pathway can therefore be scoped out of the EIA in respect of onshore noise and vibration receptors.

9.10. PROPOSED EIA METHODOLOGY

The assessment of the Onshore Scheme noise and vibration impacts arising from the Onshore Scheme will use a combination of Project-specific data (including long-term (~1 week) and short-term (~weekday hourly windows) noise monitoring) and publicly available data and will be augmented by consultation during the EIA phase. Consultation will be undertaken with:

- NCC Environmental Health Department;
- Natural England; and
- Local landowners, communities and other interest groups/organisations, as required.

The views and information gathered from these consultations will be used to help shape the Onshore Scheme and ensure that wherever possible, adverse effects on people, the natural environment and cultural heritage have been avoided or reduced, and where possible benefits have been delivered.

The principal methods of assessment to be employed within the EIA Report relating to each of the identified at risk receptors are summarised below in Table 9-4. These methods will be used alongside input from the relevant guidance as identified in section 2.

Table 9-4 Principal method of assessment to be conducted within the EIA report

Impact Scoped In	EIA Survey Work	EIA Assessment Methodology
Noise associated with construction of onshore components	Project specific noise monitoring	Noise impacts from construction and decommissioning would be based on the likely construction programme and associated activities, including, convertor station works, cable laying using open trench and trenchless techniques, construction traffic and access routes. The type and number of vehicles and plant equipment/machinery required for construction/decommissioning will be estimated and the main sources of noise from the Onshore Scheme will be identified.

Impact Scoped In	EIA Survey Work	EIA Assessment Methodology
		Following finalisation of the Onshore Scheme PDE, receptors within the Noise and Vibration Study Area (e.g. a 2 km buffer from the onshore cable corridor extent and convertor station location) will be identified for assessment. Noise issues associated with the construction of the Onshore Scheme would be assessed using the guidance contained in BS 5228-1:2009+A1:2014 'Code of practice for noise and vibration control on construction and open sites – Part 1: Noise', which defines the most suitable accepted prediction methods, limits and source data for various construction plant and activities. Guidance from BS 7445-1:2003 'Description and Environment of Environmental Noise – Part 1: Guide to quantities and procedures' was considered and will be followed to help identify how the combination and sources of noise contribute towards the overall environmental noise. The guidance defines the basic quantities which should be used in assessments to describe the noise within a community environment as well as describing the basic procedures required to determine these measurements.
Onshore noise associated with vehicle use during construction	No surveys are proposed.	Use of large-scale construction and decommissioning vehicles has the potential to impact noise sensitive receptors. The assessment will be desk study based and will be based on the likely construction programme and associated activities, along with approximate vehicle usage. The type and number of vehicles required for construction/decommissioning will

Impact Scoped In	EIA Survey Work	EIA Assessment Methodology
		be estimated, drawing from the Traffic and Transport impact assessment where appropriate. A desk study will be undertaken to assess potential impacts on receptors. Following finalisation of the Onshore Scheme PDE, receptors within the Noise and Vibration Study Area (e.g. a 2 km buffer from the onshore cable corridor extent and convertor station location) will be identified for assessment. As above, guidance from BS 7445-1:2003 'Description and Environment of Environmental Noise – Part 1: Guide to quantities and procedures' was considered and will be followed to help identify how the combination and sources of noise contribute towards the overall environmental noise. The assessment will follow Highways England (2020) Design Manual for Roads and Bridges LA 111 guidance, which sets out the requirements for assessing and reporting the effects of highways noise and vibration from construction, operation and maintenance projects. Using this guidance, an initial screening assessment will be undertaken on whether there would be any significant changes in traffic volumes and composition on surrounding roads as a result of the Onshore Scheme. Road links within the Noise and Vibration Study Area which are assessed to have an increase in traffic volume of 25%, a decrease in traffic volume of 20%, or signficiant change to composition will be identified. Changes outwith these limits would not be considered to result in adverse impact and therefore no further assessment required in

Impact Scoped In	EIA Survey Work	EIA Assessment Methodology
		accordance with the relevant guidance (Highways England, 2020). . Where these thresholds are exceeded, the signficiance of predicted change in noise level will be assessed in accordance with the criteria outlined in Highways England (2020).
Ground-borne vibration associated with construction of onshore components	No surveys are proposed.	As above, vibration impacts from construction and decommissioning would be based on the likely construction programme and associated activities, namely the onshore cable installation/decommissioning process. Following finalisation of the Onshore Scheme PDE, receptors within the Noise and Vibration Study Area (e.g. a 2 km buffer from the onshore cable corridor extent and convertor station location) will be identified for assessment. Vibration issues associated with the construction of the Onshore Scheme would be assessed using the guidance contained in BS 5228-2:2009+A1:2014 ‘Code of practice for noise and vibration control on construction and open sites – Part 2: Vibration’, which gives recommendations for basic methods of vibration control / recomended limits relating to construction sites where work activites generate signficiant vibration levels, including industry specific guidance.
Onshore noise associated with operation and maintenance of	Project specific noise monitoring	Operational and maintenance impacts would include noise impacts associated with the converter station. The guidance and methodology contained in BS 4142:2014+A1:2019, ‘Methods for rating and

Impact Scoped In	EIA Survey Work	EIA Assessment Methodology
onshore components		assessing industrial and commercial sound.', would be used to assess noise impacts arising from the substation. Whilst it is acknowledged that BS 4142 guidance is only applicable for residential receptors, the guidance will be followed for assessing impacts on other receptors identified within the Noise and Vibration Study Area (e.g. schools). It is considered that this is a conservative approach to the assessment.
Cumulative impacts	No surveys are proposed.	Desk based study using methodologies outlined above.

9.11. SCOPING QUESTIONS

- Do you agree with the Study Areas defined for noise and vibration?
- Do you agree with the data sources which are suggested for the assessment? Are there any additional data sources or guidance documents that should be considered?
- Do you agree that all receptors and impacts have been identified?
- Do you agree that the Onshore Scheme site-specific studies are sufficient to inform the proposed assessment approach?
- Do you agree with the proposed assessment approach?

10. AIR QUALITY

10.1. INTRODUCTION

This section considers potential impacts from onshore construction, operation and maintenance and decommissioning activities that could impact localised air quality within the onshore scoping area.

10.2. LEGISLATION, POLICY AND GUIDANCE

In addition to the legislation outlined in section 2, the following legislation, policy and guidance is specifically relevant to air quality:

10.2.1. LEGISLATION

- EU Directive 2008/50/EC Ambient Air Quality and Cleaner Air for Europe;
- The Environment Act 2021; and
- Air Quality Standards Regulations 2010.

10.2.2. POLICY

- Northumberland Local Plan 2016 – 2036: Policy POL 2 (pollution and air, soil and water quality) is of particular relevance to air quality;
- Consultation on the draft National Air Pollution Control Programme (NAPCP) (DEFRA, 2022) and the extant 2019 Air Quality: National Air Pollution Control Programme (DEFRA, 2019). These programmes set out measures and analysis for how emission reduction commitments can be met across the UK. An updated NAPCP is due to be published later in 2022; and
- GEN 14 Air quality: Development and use of the marine environment should not result in the deterioration of air quality and should not breach any statutory air quality limits.

10.2.3. GUIDANCE

- Guidance on the Assessment of dust from demolition and construction (IAQM, 2014);
- Guidance on land-use planning and development control: Planning for air quality (IAQM, 2017);
- Air Quality Monitoring in the vicinity of Demolition and Construction Sites (IAQM, 2018);
- A guide to the assessment of air quality impacts on designated nature conservation sites (IAQM, 2020); and
- PPG6: Working at Construction and Demolition Sites (currently under review) (SEPA et al., 2012).

10.3. KEY DATA SOURCES

In addition to relevant literature listed above in section 2, the data sources shown in Table 10-1 have been used to inform this Scoping Report and are proposed to inform the baseline characterisation for air quality in the EIA

Table 10-1 Available data and information sources – Air Quality

Title	Source	Year	Author
Air Quality in England	https://www.airqualityengland.co.uk/	2022	DEFRA
AirQWeb	https://www.airqweb.co.uk/	2022	Northumberland CC
UK-AIR Air Quality Information Resource	https://uk-air.defra.gov.uk	2022	DEFRA
Background Concentration Map	https://uk-air.defra.gov.uk/data/laqm-background-maps?year=2018	2022	DEFRA
UK Pollutant Release and Transfer Register: National Implementation Report 2021	https://consult.defra.gov.uk/airquality/uk-prtr-2021-draft-nir/	2021	DEFRA
2020 Northumberland Air Quality Annual Status Report	https://www.northumberland.gov.uk/NorthumberlandCountyCouncil/media/Public-Protection/Pollution/2020-LAQM-Annual-Status-Report.pdf	2020	Northumberland CC
North Sea Link Environmental Statement – Air quality baseline	https://northsealink.com/media/1229/environmental-statement-for-nsn-link_july-070714-2.pdf	2014	National Grid

Title	Source	Year	Author
Guidance on the assessment of dust from demolition and construction V1.1	https://iaqm.co.uk/text/guidance/construction-dust-2014.pdf	2014	Institute of Air Quality Management (IAQM)
Land-Use Planning & Development Control: Planning For Air Quality	https://www.iaqm.co.uk/text/guidance/air-quality-planning-guidance.pdf	2017	IAQM
A guide to the assessment of air quality impacts on designated nature conservation sites	https://iaqm.co.uk/text/guidance/air-quality-impacts-on-nature-sites-2019.pdf	2019	IAQM

10.4. ENGAGEMENT

Technical engagement will be carried out with NCC early in the development of the air quality assessment, as well as other relevant stakeholders such as environmental health officers within NCC and the Environment Agency. This activity will help confirm the technical details of the assessment.

10.5. STUDY AREA

Air quality impacts associated with dust will be localised around the onshore scoping area, as shown in Figure 10-1. A 100 m and 500 m buffer around the onshore scoping area has been assumed for the purpose of the assessment, to create a 100 m and 500 m Air Quality Study Area. This buffer is inclusive of the preferred 350 m buffer for the identification of human receptors, and 50 m for ecological receptors as specified by the IAQM, 2014 Guidance on the Assessment of dust from demolition and construction. Once the Onshore Scheme PDE is finalised, the Air Quality Study Area for the EIA will be refined to assess only the Proposed Development Site.

10.6. BASELINE ENVIRONMENT

An initial desk-based review of literature and available data sources defined in Table 10-1 has been undertaken to support this Scoping Report. The findings of this research are presented below in order to provide an understanding of the Onshore Scheme environment and inform the Scoping process. The Air Quality Study Area for the Onshore Scheme currently has large sections of farmlands, contains a major road (the A189) passing through, and various industrial sites within very close proximity of the Indicative

Converter Station. There are residential properties located within the Air Quality Study Areas, and all these factors have been considered alongside the supporting literature to inform the Scoping process

NCC reported values for both Particulate Matter $(PM)_{2.5}$ and PM_{10}in the 2020 Status Report (NCC, 2020), meeting the national air quality objectives. There are no Air Quality Management Areas (AQMA) within the Air Quality Study Areas – the nearest AQMA to the Air Quality Study Area is the Gosforth AQMA, located 8 km south-west.

The main source of impacts to air quality from the onshore construction, operations and maintenance, and decommissioning is likely to occur from dust (IAQM, 2014). The main offshore source of atmospheric emissions in proximity to the Onshore Scheme with the potential to impact air quality is anticipated to be from exhaust emissions from existing vessel traffic. The primary pollutants from vessel emissions are sulphur dioxide (SO_2), nitrogen oxides (NOx) and carbon dioxide (CO_2).

NCC have not identified any areas where national or European air quality objectives are under threat, with the National Atmospheric Emissions Inventory (NAEI) showing a reduction in all priority pollutants between from 2005 to 2019, aside from NH_3 for which no strong decline was seen (NAEI, 2021).

The key air quality sensitive receptors which are likely to require consideration within the EIA are:

- Hospitals, care homes and schools;
- Residential and non-residential properties;
- Local amenities;
- Areas of conservation or scientific interest;
- Protected species; and
- Other areas which are utilised by the public e.g. carparks

Within the Air Quality Study Area, human and ecological receptors were identified that have the potential to be impacted by air quality within the Study Area and surrounding buffer area. The findings are as summarised in Table 10-2 below. As detailed above, once the Onshore Scheme PDE is finalised, the Air Quality Study Area for the EIA will be refined to assess only the Proposed Development Site. Therefore it should be noted that not all of the receptors identified in Table 10-2 below will be carried forward to the assessment stage.

Table 10-2 Key air quality sensitive receptors

Receptor Type	Specific Receptor
Hospitals, Care Homes and Schools	Bedlington Station Primary School Bedlington Academy Cambois Primary School Stakeford Primary School
Residential Areas	Cambois East Sleekburn West Sleekburn Bedlington Stakeford Bomardsund Choppington Guide Post
Non – Residential Areas	Sleekburn business park Ferguson business park
Amenity Areas	Multiple amenities are located within and around the Air Quality Study Area these include: Public parks and gardens Camping and Caravan Sites Beach and coastal areas
Designated Sites	Berwick to St Mary's MCZ Northumberland Marine SPA
Red Data List Species	Corn bunting (*Emberiza calandra)* Grey partridge (*Perdix perdix)* Kestrel (*Falco tinnunculus)* Lapwing (*Vanellus vanellus)* Linnet (*Carduelis cannabina)* Reed bunting (*Emberiza schoeniclus)* Skylark (*Alauda arvensis)* Starling (*Sturnus vulgaris)* Tree sparrow (*Passer montanus)* Yellow wagtail (*Motacilla flava)* Yellowhammer (*Emberiza citronella)* Peregrine (*Falco peregrinus)* Grasshopper warbler (*Locustella naevia)* Mistle thrush (*Turdus viscivorus)* Twite (*Linaria flavirostris)*

10.7. DESIGNED IN MEASURES CONSIDERED WITHIN THE EIA

Designed in mitigation measures in respect of air quality will be determined once surveys of the onshore scoping area have been completed and baseline conditions are fully understood. Embedded measures that could be implemented include:

- Preparation of a Dust Management Plan (DMP) which would be secured within the CEMP via a planning condition, would be produced with approval from NCC prior to construction; and
- Plan site layouts so that machinery and dust causing activities are located away from receptors, as far as possible.

The requirement for additional mitigation measures (secondary mitigation) will be dependent on the significance of effects on the air quality receptors and will be consulted upon with consultees throughout the EIA process.

10.8. SCOPING OF POTENTIAL IMPACTS

A number of potential impacts on onshore air quality receptors have been identified which may occur during the construction, operation and maintenance, and decommissioning phases of the Onshore Scheme. Table 10-3 provides a summary of potential impacts on air quality that have been identified at this stage and justification for scoping in or out.

Table 10-3 Potential impacts on air quality during construction/ decommissioning, operations and maintenance of the Onshore

Impact	Justification	Scoped In / Out
Construction		
Dust from onshore construction works, including convertor station, onshore cable laying and installation, landfall installation, and access roads	Ground works and the use of aggregates and cements on converter station construction site has the potential to give rise to local dust issues. Onshore cable laying will involve excavations, if stored spoil becomes dry it can give rise to dust. Landfall installation methods (HDD or OCT) may give rise to local dust issues. Ground works and the use of aggregates associated with the construction of a temporary access road has the potential to give rise to local dust issues.	**Scoped In**
Dust and emissions (construction vehicles)	Vehicle use on and in close proximity to the Onshore Scheme does not have the potential to give rise to	**Scoped Out**

Impact	Justification	Scoped In / Out
	significant local dust issues owing to the relatively low levels of construction transport traffic associated with a development of this nature. IAQM guidance (2017) states that, outside of an AQMA, a detailed air quality impact assessment is required for traffic emissions when it is predicted that light goods vehicles will increase by more than 500 annual average daily traffic (AADT) or heavy goods vehicles will increase by more than 100 AADT. It is not predicted that the either of these thresholds will be exceeded during the construction phase and therefore no further assessment is required. Furthermore, a CEMP will be adopted for the Onshore Scheme which will also serve to manage and minimise potential impacts arising from construction vehicle dust.	
Operation and Maintenance		
Dust and emissions resulting from operation and maintenance works	It is not expected that any significant volumes of dust or vehicle emissions will be generated once construction is complete. The number of vehicle trips required during operation will be limited. Hence, the impact has been scoped out of the EIA.	**Scoped Out**

10.9. POTENTIAL TRANSOUNDARY IMPACTS

Any effects on onshore ornithology receptors are likely to be localised (i.e. limited to the Air Quality Study Area). No transboundary impacts are considered likely, and this impact pathway can therefore be scoped out of the EIA in respect of onshore air quality receptors.

10.10. PROPOSED EIA METHODOLOGY

The principal methods of assessment to be employed within the EIA Report relating to each of the identified at risk receptors are summarised below in Table 10-4. These methods will be used alongside input from the relevant guidance as identified in section 2.

It is not proposed that any baseline air quality measurements are required as with the mitigation measures implemented, it is predicted that there will be no significant effects on air quality. Therefore, no air quality specific surveys are proposed to support the EIA.

Table 10-4 Principal method of assessment to be conducted within the EIA report

Impact Scoped In	EIA Survey Work	EIA Assessment Methodology
Dust (onshore construction/decommissioning, onshore cable laying and access road)	No surveys are proposed.	Desk study and accurate estimations/quantities for a material inventory along with a proposed activities schedule. It is proposed that an assessment of dust impacts is carried out utilising the IAQM Assessment of Dust from Demolition and Construction Sites (IAQM, 2014) methodology and the IAQM Guide to the assessment of air quality impacts on designated nature conservation sites (IAQM, 2020). The methodology will assist in ensuring that appropriate mitigation methods are identified. Dust can be managed using standard construction management techniques, such as those discussed in PPG6: Working at Construction and Demolition Sites (Environment Agency et al., 2012). As such with mitigation no significant impact is predicted.
Cumulative impacts	No surveys are proposed.	Desk based study using methodologies outlined above.

10.11. SCOPING QUESTIONS

- Do you agree with the Study Areas defined for air quality?
- Do you agree with the data sources which are suggested for the assessment of air quality? Are there any additional data sources or guidance documents that should be considered?
- Do you agree with the suggested designed in mitigation measures and is this mitigation appropriate?
- Do you agree that all receptors and impacts have been identified for air quality?
- Do you agree with the proposed assessment approach?
- Do you agree that the impacts suggested can be scoped out of the air quality EIA Chapter?

11. ARCHAEOLOGY AND CULTURAL HERITAGE

11.1. INTRODUCTION

This section considers archaeology and cultural heritage baseline receptors within the onshore scoping area by considering the potential direct and indirect effects resulting during construction, operation, and decommissioning phases of the Onshore Scheme and cumulative impacts on archaeology and cultural heritage assets and their setting.

Archaeology and cultural heritage relate to both above and below-ground archaeological assets, buildings, structures or landmarks of historic interest, landscape features and wider (other) elements which may be of cultural interest. The assessment of archaeology and cultural heritage is linked to the LVIA described in section 8 above; this is discussed in further detail below.

The potential for as yet unknown archaeological finds and cultural heritage assets will also be identified, such resources include:

- Scheduled Monuments;
- Archaeological setting;
- Listed Buildings;
- Conservation Areas;
- Other archaeological sites and monuments; and
- Other non-designated historic environment assets.

11.2. LEGISLATION, POLICY AND GUIDANCE

In addition to the legislation outline in section 2, the following legislation, policy and guidance is specifically relevant to archaeology and cultural heritage:

11.2.1. LEGISLATION

- The Ancient Monuments and Archaeological Areas Act (as amended) (1979);
- The Planning (Listed Buildings and Conservation Areas) Act (as amended) (1990);
- Historic Buildings and Ancient Monuments Act 1953; and
- Ancient Monuments and Archaeological Areas Act 1979.

11.2.2. POLICY

- Northumberland Local Plan 2016 – 2036: Policy ENV 1 (Approaches to assessing the impact of development on the natural historic and built environment) and ENV7 (Historic environment and heritage assets) are of particular relevance archaeology and cultural heritage; and
- UNESCO Convention Concerning the Protection of the World Cultural and National Heritage 1972.

11.2.3. GUIDANCE

- Planning and Archaeology (Planning Advice Note (PAN) 2/2011);
- Conservation area management: Planning Advice Note (PAN 71/2004); and
- The Chartered Institute for Archaeologists. Standard and guidance for historic environment desk-based assessment (2014).

11.3. KEY DATA SOURCES

The data sources shown in Table 11-1 have been used to inform this Scoping Report and are proposed to inform the baseline characterisation for archaeology and cultural heritage in the EIA. Additional heritage baseline data which are publicly available from third party developments will also be reviewed to inform the EIA baseline.

Table 11-1 Available data and information sources – Archaeology and Cultural Heritage

Title	Source	Year	Author
Historic England National Heritage List	https://historicengland.org.uk/listing/the-list/map-search	2022	Historic England
Archaeological Data Service	https://archaeologydataservice.ac.uk/	2022	Archaeological Data Service
Historic Maps - National Library of Scotland Map Images	https://maps.nls.uk/geo/explore/side-by-side/#zoom=12&lat=55.16303&lon=-1.56599&layers=1&right=ESRIWorld	2022	National Library of Scotland
Northumberland Historic Environment Record	https://www.heritagegateway.org.uk/gateway/chr/herdetail.aspx?crit=&ctid=91&id=4725	2020	NCC
Archaeology in Northumberland	https://www.northumberland.gov.uk/NorthumberlandCountyCouncil/media/Planning-and-Building/Conservation/Archaeology/AinN_20.pdf	2016	NCC

Title	Source	Year	Author
North Sea Link Environmental Statement – Historic Environment baseline	https://northsealink.com/media/1229/environmental-statement-for-nsn-link_july-070714-2.pdf	2014	National Grid

11.4. ENGAGEMENT

Technical engagement will be carried out with Historic England early in the development of the archaeological appraisal, as well as other relevant stakeholders such as local curators of the historic environment records (HER). This activity will help to the need for any survey activity and/or the most efficient way of incorporating any archaeological investigations into planned GI.

11.5. STUDY AREA

Two study areas will be utilised to inform this assessment:

- **Direct Archaeology Study Area**: at this stage, and in the absence of a defined footprint for the Onshore Scheme, this includes the entirety of the onshore scoping area. This study area will be used to identify heritage assets which could receive direct effects during construction.
- **Indirect Archaeology Study Area**: a wider study area extending from 3 km from the onshore scoping area will be used for the identification of cultural heritage assets where their setting may be impacted by the Onshore Scheme. The assessment of indirect impacts on heritage setting will be carried out in-parallel with the LVIA detailed above.

The Study Areas will include the intertidal area (down to MLWS) and in this respect, there will be a necessary level of overlap with the assessment of *marine* archaeology which shall be completed for the Marine Scheme. The Study Areas are shown on Figure 11-1. Once the infrastructure design is refined, the Direct and Indirect Archaeology Study Area for the EIA will be refined to assess only the Proposed Development Site.

11.6. BASELINE ENVIRONMENT

An initial desk-based review of literature and available data sources (see Table 11-1) has been undertaken to support this Scoping Report. The findings of this research are presented below in order to provide a general understanding and characterisation of the Onshore Scheme environment and inform the Scoping process. It has been completed in accordance with the relevant sections of the Chartered Institute for Archaeologists (CIfA) Standard and Guidance for historic environment desk-based assessment (2014, revised January 2020).

Archaeological sites and monuments are an important and finite resource that should be protected and preserved in-situ whenever possible. The relative importance of the historic environment is recognised on

an International (European), National (England / UK), Regional (north east England) and Local (Northumberland) level. The historic environment needs to be considered throughout the development process in order to prevent, reduce and offset any adverse impacts resulting from a proposed development. The setting of scheduled monuments, listed buildings, registered parks and gardens, registered battlefields and World Heritage Sites are of material consideration as well (Department for Levelling Up, Housing and Communities, 2012). The historic environment also includes non-designated archaeological and cultural heritage assets, that whilst not formally designated, still merit consideration in planning decisions (Department for Levelling Up, Housing and Communities, 2019).

11.6.1. DESIGNATED AND NON-DESIGNATED ASSETS

There are no scheduled monument designations within the Direct or Indirect Study Areas. The nearest designations to the Study Areas are the Woodhorn Colliery in Ashington, located approximately 4.2 km north of the Direct Study Area, and the Coastal Artillery Battery on Blyth Links approximately 5 km south of the Direct Study Area.

The Historic England Interactive Map search highlighted one Listed Building within the Direct Study Area which has the potential to be directly impacted by the Onshore Scheme, which is the Cambois war memorial (Grade 2 Listed Building) in Cambois village. During design of cable routes and infrastructure PDE, both temporary and permanent, a commitment will be made to avoid all designated assets, and wherever possible any non-designated heritage assets identified as a result of conducting the DBA and archaeological walkover surveys. Where avoidance is not possible, appropriate mitigation strategies will be developed in consultation with consultees. This mitigation will ensure no direct impacts on the Cambois war memorial in any way by the Onshore Scheme. There are approximately 71 Listed Buildings of varying grades within the Indirect Study Area.

There are no World Heritage Sites, Registered Battlefields or Registered Parks and Gardens within the Indirect Study Area, therefore there is no potential for direct or indirect impacts on these designations.

In terms of non-designated heritage assets, the EIA will consider potential impacts on non-designated assets within the Direct Study Area.

11.7. DESIGNED IN MEASURES CONSIDERED WITHIN THE EIA

Designed in mitigation measures in respect of archaeology and cultural heritage will be determined once surveys of the onshore scoping area have been completed and baseline conditions are fully understood. Embedded measures that could be implemented include:

- Archaeological walkover surveys will be conducted as part of the EIA phase to identify known or visible receptors thus informing protection (through avoidance) for known historic environment within the Onshore Scheme boundary across all phases of the Onshore Scheme;
- Where possible cable routes and infrastructure, both temporary and permanent, will avoid all designated assets and wherever possible any heritage assets identified as a result of conducting the

DBA and archaeological walkover surveys. Where avoidance is not possible, appropriate mitigation strategies will be developed in consultation with consultees;

- Cable trenches will be reinstated, leaving little to no sign of construction after natural cover (e.g. grass or other) is in place to avoid any impacts on the setting of heritage assets by the onshore cables;
- Operations, Maintenance and Decommissioning activities will ensure no further disturbance outwith ground already disturbed during the Construction phase and thus no further disturbance to historic environment assets; and
- A Written Scheme of Investigation (WSI) will be developed, that will set out the design and implementation of mitigation with regard to potential archaeological and cultural heritage assets during the course of the Onshore Scheme.

The requirement for additional mitigation measures (secondary mitigation) will be dependent on the significance of effects on the archaeology and cultural heritage receptors and will be consulted upon with consultees throughout the EIA process.

11.8. SCOPING OF POTENTIAL IMPACTS

Temporary construction impacts which are anticipated to last for some or all of the construction phase of the Onshore Scheme relate to the construction operations (including temporary compounds), presence and movement of construction traffic / plant equipment and associated light / noise. These impacts may change the setting of heritage assets. The key potential impacts on the onshore archaeology and cultural heritage within the onshore scoping area are considered to be these indirect impacts (those that would produce an impact on the historical landscape and setting of identified cultural heritage sites and resources).

Direct physical impacts are those that would produce a physical impact on heritage assets and archaeological features. Due to there being just one designated site of cultural heritage present in the onshore scoping area, direct disturbance to known archaeological finds, features and/or landscapes of cultural significance is unlikely to occur.

Notwithstanding, there is some potential for direct impacts on previously *unknown* archaeological remains as a result of the installation of onshore cables and the development of the converter station. Should any subsurface archaeological deposits be present, these have the potential to be damaged during the construction phase. The potential for unknown archaeology remains to have survived within the Direct Study Area is considered low, due to the heavily built up environment, however the EIA will undertake a thorough archaeology desk-based assessment (DBA) and walkover survey to understand the potential for unknown remains to survive within the Direct Study Area.

Table 11-2 provides a summary of potential impacts on onshore cultural heritage and archaeology that have been identified at this stage and justification for scoping in or out.

Table 11-2 Potential impacts on archaeology and cultural heritage during construction/ decommissioning, operations and maintenance of the Onshore Scheme

Potential Impact	Scoping Justification	Scoped In / Out
Construction / Decommissioning		
Direct physical disturbance to or loss of known onshore cultural heritage assets	Any aspects of the converter station, onshore cable route and associated infrastructure that cuts into the ground surface have the potential to result in the damage/loss of archaeological features, including paleoenvironmental interests. Effects are considered to be permanent however known sites will be avoided through design, and therefore there is no potential for impacts. Although known sites will be avoided, impacts cannot be scoped out until the information required to inform the assessment has been collected, reviewed, and suitable mitigation and management plans formulated.	**Scoped In**
Disturbance to or potential loss or damage of any unknown sub-surface archaeological features	As detailed above, a review of the potential for unknown archaeology to remain and survive within the Direct Study Area will be undertaken. If required, mitigation will be considered to avoid damage or loss to any unknown sub-surface features, such as watching briefs.	**Scoped In**
Indirect impacts that affect the setting of Scheduled Monuments, Listed Buildings and other designated archaeological and cultural heritage assets	The impacts on setting of archaeological and cultural heritage assets during the construction phase is expected to be fully reversible following the completion of construction.. Construction will occur in an area where large-scale industrial developments and infrastructure already have an influence on the baseline setting, and therefore will moderate the impact on the setting of designations. Visibility of the construction to sensitive receptors is likely to be well screened by existing buildings, topography and forestry. No signficiants impacts on setting during construction are predicted, therefore, this will not be considered further in the EIA process. Permanent	**Scoped Out**

Potential Impact	Scoping Justification	Scoped In / Out
	setting impacts are considered below in Operation and Maintenance.	
Operation and Maintenance		
Direct physical disturbance to or loss of known onshore cultural heritage assets and disturbance to or potential loss of any unknown sub-surface archaeological features	No new disturbance that would affect cultural heritage assets would be anticipated during the operational phase as operation and maintenance activities will ensure no further ground disturbance out with ground already disturbed during the construction phase thus no further impacts on historic environment assets. Therefore this has been scoped out of assessment in the EIA.	**Scoped Out**
Indirect impacts that affect the setting of Scheduled Monuments, Listed Buildings and other designated archaeological and cultural heritage assets	There is a possibility that the converter station could have long-term effects on the setting of an onshore historic environment asset, impacting the way in which the asset is understood, appreciated and experienced, and thus the significance/ importance of the historic asset. The impacts of the Onshore Scheme on the setting of onshore cultural heritage assets will be considered within the EIA.	**Scoped In**

11.9. POTENTIAL TRANSBOUNDARY IMPACTS

Any effects on onshore cultural heritage and archaeology receptors are likely to be localised (i.e. limited to the Direct and Indirect Study Areas). No transboundary impacts are considered likely, and this impact pathway can therefore be scoped out of the EIA in respect of onshore cultural heritage and archaeology receptors.

11.10. PROPOSED EIA METHODOLOGY

A detailed DBA will be carried out in accordance with the applicable standards and best practice guidelines. This is anticipated to include:

- The CIfA Standard and Guidance for Historic Environment Desk-Based Assessment (2020);
- Northumberland Local Plan 2016-2036: policies on Historic and Built Environment (NCC, 2022);

- National Policy Framework – Policy 16 on 'conserving and enhancing the historic environment' (Ministry of Housing, Communities and Local Government, 2021);
- Guidance: Historic environmental (Department for Levelling Up, Housing and Communities, 2019);
- Planning (Listed Buildings and Conservation Areas) Act 1990;
- Ancient Monuments and Archaeological Areas Act 1979;
- Historic England's Good Practice Advice in Planning Notes 2, 3 and 12 (Ref 7-9); and
- Stakeholder advice, as detailed above (this shall include responses to this Scoping Report from relevant bodies, such as Historic England).

A full desk-based survey using data sources listed above in Table 11-1 and other relevant sources, including surveys undertaken in the area for other projects, if available, will be undertaken to inform the EIA. In addition, walkover surveys will be undertaken as part of the EIA phase, and will be reviewed for historic environment assets. The walkover survey will undertaken by an appropriately qualified and experienced team of archaeologists to assess the current state of previously identified heritage assets, to identify any previously unrecorded heritage assets that are visible on the ground, and to assess the potential for undisturbed archaeological remains to be present within the Onshore Scheme boundary.

The surveys will be conducted to appropriate professional standards for archaeological review (as outlined in relevant CIfA Standards and Guidance CIfA regulations, standards and guidance CIfA).

The assessment of impacts arising from the Onshore Scheme on the historic environment will utilise Project-specific and publicly available data and will be augmented by consultation during the EIA phase. Consultees will include:

- Historic England; and
- NCC.

The approaches used to identify and analyse the historic environment baseline and assess the potential impacts will be in accordance with standards and guidelines produced by the UK Government, Historic England, the Licensing and Planning Authorities and the CIfA.

The relative importance (e.g. national, regional, local) or sensitivity (high, medium, low) of each cultural heritage asset identified in the datasets will be assessed (with reference to Historic England Listing Selection Guides 2017).

In terms of setting, statutorily designated assets including Scheduled Monuments, Listed Buildings, Gardens & Designed Landscapes, and Conservation Areas within 3 km from the convertor station and a radius of 1 km from the landfall and onshore cables (both onshore export cables and grid cables) and within the ZTV, will be identified using Historic England datasets. It is judged that significant effects on receptors beyond this distance are unlikely, although this will be reviewed once the PDE details of the converter station are defined. Consideration will also be given to any sites outwith the ZTV that may be affected. In order to keep the size of the assessment reasonable and proportionate, it is proposed that a selection of designated sites and areas, such as Scheduled Monuments and Listed Buildings, will be considered for

setting assessment rather than every such site and area outwith the ZTV. These selected sites and areascan act as proxy for the range of effects on other designated and undesignated sites. For those designations that fall outwith the ZTV, justification will be given within the EIA as to why they are scoped out of the assessment.

Relevant non-designated sites will be identified in consultation with the LPA archaeologists. The importance of sites and sensitivity of setting will be identified using the Historic England Advice Note Making Changes to Heritage Assets (2016). Key receptors for viewpoints, visualisations, photomontages, and wireframes will be agreed with the Landscape and Visual consultants and the statutory authority and produced according to standard best practice guidance (GLVIA3).

The principal methods of assessment to be employed within the EIA Report relating to each of the identified at risk receptors are summarised below in Table 11-3. These methods will be used alongside input from the relevant guidance as identified in section 2.

Table 11-3 Proposed EIA

Impact Scoped In	EIA Survey Work	EIA Assessment Methodology
Direct physical disturbance to or loss of any unknown sub-surface archaeological features	Archaeology walkover survey	Desk based study utilising up to date guidance and literature supplemented with findings of an archaeology DBA and walkover survey. The assessment of potential impacts within the EIA Reports will be completed following best practice guidance including: NPPF (2021) and The Chartered Institute for Archaeologists Standard and guidance for historic environment desk-based assessment (2014). Additionally, once mitigation measures have been agreed, a WSI will be developed, that will set out the design and implementation of mitigation with regard to potential archaeological and cultural heritage assets during the course of the Onshore Scheme.
Indirect impacts that affect the setting of Scheduled Monuments, Listed Buildings and other designated	Archaeology walkover survey	Desk based study utilising up to date guidance and literature supplemented with findings of an archaeology DBA and walkover survey. The assessment of potential impacts within the EIA Reports will be completed following best practice guidance including: NPPF (2021)

Impact Scoped In	EIA Survey Work	EIA Assessment Methodology
archaeological and cultural heritage assets		and The Chartered Institute for Archaeologists Standard and guidance for historic environment desk-based assessment (2014). Additionally, once mitigation measures have been agreed, a WSI will be developed, that will set out the design and implementation of mitigation with regard to both known and potential archaeological and cultural heritage assets during the course of the Onshore Scheme.
Cumulative Impact	None Identified	Desk based study on cumulative impacts utilising available consenting documents written for each of the developments, as well as consultation with NCC and other developers to be understand timelines and potential cumulative impacts.

11.11. SCOPING QUESTIONS

- Do you agree with the study areas defined for onshore archaeology and cultural heritage?
- Do you agree with the data sources which are suggested for the assessment of onshore archaeology and cultural heritage? Are there any additional data sources or guidance documents that should be considered?
- Do you agree with the suggested designed in mitigation measures and is this mitigation appropriate?

12. GEOLOGY AND CONTAMINATED LAND

12.1. INTRODUCTION

This section of the Scoping Report identifies the geology and contaminated land receptors of relevance to the Onshore Scheme, and considers the potential impacts from the construction, operation and maintenance, and decommissioning of the Onshore Scheme.

These concerns relate to the nature of soils within the study area, ground stability and the potential for contaminated land. Areas designated for aspects relating to geology and contaminated land are also of importance.

12.2. LEGISLATION, POLICY AND GUIDANCE

In addition to the legislation outlined in section 2, the following legislation, policy and guidance is specifically relevant to geology and contaminated land:

12.2.1. LEGISLATION

- Environmental Protection Act 1990; and
- Water Environment (Water Framework Directive) (England and Wales) Regulations 2003.

12.2.2. POLICY

- Northumberland Local Plan 2016 – 2036: Policy POL1 (Unstable and contaminated land) and POL2 (pollution and air soil and water quality) are of particular relevance to geology and contaminated land;
- The Coal Authority: Policy for Building Over Or Within The Influencing Distance of a Mine Entry (2021); and
- The Coal Authority – Guidance for developers: Risk based approach to development management (2017).

12.2.3. GUIDANCE

- Department for Levelling Up, Housing and Communities – Minerals (2014); and
- Department for Levelling Up, Housing and Communities – Land affected by contamination (2019).

12.3. KEY DATA SOURCES

In addition to relevant literature listed above in section 6, the data sources shown in Table **12-1** have been used to inform this Scoping Report and are proposed to inform the baseline characterisation for geology and contaminated land in the EIA.

Table 12-1 **Available data and information sources – Geology and Contaminated Land**

Title	Source	Year	Author
GeoIndex Onshore Geological Mapping	https://www.bgs.ac.uk/map-viewers/geoindex-onshore/	2022	British Geological Survey (BGS)
UK Soil Observatory – Soilscapes for England and Wales Peatland Coverage	https://mapapps2.bgs.ac.uk/ukso/home.html	2022	BGS
1:625,000 scale digital hydrogeological dataset	https://www.bgs.ac.uk/datasets/hydrogeology-625k/	2022	BGS
The Coal Authority – Interactive Map Viewer	https://mapapps2.bgs.ac.uk/coalauthority/home.html	2022	The Coal Authority
Contaminated Land	https://www.northumberland.gov.uk/Protection/Pollution/Contaminated.aspx	2022	NCC
UK maps of radon	https://www.ukradon.org/information/ukmaps	2022	UK Health Security Agency
Unexploded Ordnance (UXO) Risk Maps	https://zeticauxo.com/downloads-and-resources/risk-maps/	2022	Zetica UXO
Soilscapes for England and Wales	https://mapapps2.bgs.ac.uk/ukso/home.html	2022	BGS
Brownfield Land Register	https://www.northumberland.gov.uk/NorthumberlandCountyCouncil/media/Planning-and-Building/planning%20policy/Studies%20and%20Evidence%20Reports/Housing%20Studies/7.%20Brownfield/Northumberla	2020	NCC

Title	Source	Year	Author
	nd_Brownfield_Land_Register_2020-pdf.pdf		
Onshore mineral resource maps	https://www2.bgs.ac.uk/mineralsuk/download/england/northumberlandMap.pdf	2000	BGS

An initial site assessment has been undertaken for the landfall to assess geohazards to help manage risk associated with cable installation. This included a desk-based study, development of a conceptual ground model, site walkover, constraints mapping exercise and risk register. The study reviewed the available historical, geological and geotechnical information within the immediate surrounding area of the onshore scoping area and has been used to inform this scoping exercise.

12.4. ENGAGEMENT

Engagement with NCC and the Environment Agency will be carried out to help inform the assessment in the EIA. This will include technical discussions surrounding the Scope and adequacy of baseline information, as well as the requirement for any further baseline surveys. This engagement will also be used to confirm the nature and extent of any mitigation required (i.e. trial pits and pre-construction ground investigations).

12.5. STUDY AREA

For this Scoping Report, the Study Area for geology and contaminated land will follow the extent of the onshore scoping area (Figure 1-1). Once the Onshore Scheme PDE is finalised, the Geology and Contaminated Land Study Area for the EIA will be refined to assess only the Proposed Development Site.

12.6. BASELINE ENVIRONMENT

An initial desk-based review of literature and available data sources (see Table **12**-**1**) has been undertaken to support this Scoping Report. The findings of this research are presented below in order to provide an understanding of the Onshore Scheme environment and inform the scoping process.

The main land uses within the onshore scoping area comprise a mix of industrial installations, 'brown field' construction areas and residential settlements. The key features of geology and contaminated land which are likely to require consideration within the EIA are:

- Bedrock and superficial geology;
- Soils including areas of peat;
- Mineral resources;
- Contaminated land; and

- Sites designated for geological features.

12.6.1. BEDROCK GEOLOGY

The bedrock geology of the onshore scoping area is dominated by rocks of the Pennine Middle Coal Measures Formation. It is sedimentary in nature and is made up of a mix of predominantly sandstone with siltstone and mudstone. They were formed between 310 to 318 million years ago in the Carboniferous period and are fluvial, palustrine (wetland) and shallow-marine in origin. They are detrital, forming deposits reflecting the channels, floodplains and deltas of a river in a coastal setting.

The bedrock is cut in an east-west direction by a mull Dyke-swarm (see Figure 12-1) which is a form of silica-poor igneous intrusion that was formed approximately 23 to 66 million years ago in the Palaeogene period.

12.6.2. SUPERFICIAL GEOLOGY

A review of the relevant BGS geological mapping indicates that most of the onshore scoping area is underlain by till-based Devensian deposits. These are superficial deposits formed up to 12 thousand years ago in the Quaternary period and are glacial in origin. They are detrital, created by the action of ice and meltwater and can form a wide range of geomorphologies associated with glacial and inter-glacial periods during the Quaternary.

Where the onshore scoping area approaches the coast, the superficial geology changes to blown sand formed up to three million years ago, in the Quaternary period. These deposits are comprised of medium to fine grained materials, forming lenses, beds and dunes.

Adjacent to the North Sea the superficial geology is dominated by marine beach deposits, mostly sand and gravel. Formed in the Quaternary period, these are shallow-marine in origin and are generally coarse-grained forming beaches and bars in the coastal setting. The superficial geology is illustrated on Figure 12-2.

12.6.3. SOILS

The Soilscapes interactive map indicate a limited extent of classified soils within the Geology and Contaminated Land Study Area. The only classified soils are located to the south-west corner of the Geology and Contaminated Land Study Area and are classified as base-rich loamy and clayey soils. They are slowly permeable and therefore are seasonally wet due to the impeded drainage. They also have a moderate amount of fertility due to the slightly acid nature of its composition, making it mostly suitable for grass production for dairying or beef with some cereal production often for feed.

A review of the Peat Coverage map provided by the UK Soil Observatory (as derived from the BGS geology surface dataset) confirms that carbon-rich, deep-peat and priority peatland habitat is not present at the site. The nearest area of peatland is found approximately 12 km to the south-west of the Geology and

Contaminated Land Study Area. Furthermore, a review of the BGS trial pit log data for the Geology and Contaminated Land Area further indicates the absence of peat. The borehole logs confirm that the area is predominantly fine sandy clay at the made ground level, and dense brown clayey sand at the superficial level.

12.6.4. CONTAMINATED LAND

NCC have a responsibility to ensure sites in the county are not causing harm to human health or the environment and therefore maintain an up-to-date record of sites listed for further investigation. Currently there are no entries on the public register of contaminated land and the Geology and Contaminated Land Study Area is clear of any such sites.

The UKradon map was consulted which identified the Geology and Contaminated Land Study Area as having a maximum radon potential of less than 1%.

12.6.5. MINING AND UXO

The Blyth area has a long industrial heritage predominantly associated with coal mining and shipbuilding. The Coal Authority Interactive Map Viewer shows the extent of historic coal mining: there are several recorded mine entries near Cambois and East Sleekburn, and the west of the Geology and Contaminated Land Study Area from Bedlington to West Sleekburn is identified as a Development High Risk Area (defined as '*where recorded coal mining risks are present at the surface or shallow depth and are likely to affect new development*') with known coal outcrops and shallow coal mine workings. Where sites are located within a High Risk Area, a Coal Mining Risk Assessment (CMRA) is required to support a planning application.

The risk to development includes ground subsidence or collapse caused by upward migration of voids created during coal extraction, which could adversely affect development in the north area of the onshore scoping area. Information from the initial site assessment indicates that this northern area is likely to be within the area of probable shallow historic mining and the risk associated with this geohazard has been classified as high. For the rest of the onshore scoping area, the risk is assumed to be low.

Cables will generally be placed in shallow trenches and backfilled or in HDD ducts and will be less susceptible to ground movements than the buildings and ancillary structures. Therefore the requirement for a Coal Mining Risk Assessment will be agreed with NCC and The Coal Authority once the PDE details of the converter station are defined, and there is a more developed understanding of the extent, if any, of development within the Development High Risk Area.

If it is deemed that a Coal Mining Risk Assessment is required for the EIA and planning application, one will be undertaken to demonstrate that the Onshore Scheme will be safe and stable taking full account of former coal mining activities. Additional information will be sourced from the Coal Authority to gain more information regarding past mining activities at the Site, to provide a baseline overview for the EIA and a high level assessment based on proposed infrastructure locations i.e., abandonment plans and Consultants

Coal Mining Report from the Coal Authority, which will identify areas of the site that may be more suitable to develop. This topic has therefore been scoped in for further assessment.

Zetica, a UXO specialist, have undertaken a pre-desk study for the Onshore Scheme landfall area to further assess the potential for UXO risk. Whilst the risk from unexploded bombs is low, a potential hazard from pipe mines has been identified. Based on these findings, a non-intrusive UXO detection survey may be required in the areas of potential pipe mines (moderate hazard zones), in advance of intrusive works to detect pipe mine features. As above, the requirement for this will be confirmed following confirmation of the PDE and confirmation of interaction with the moderate hazard zones identified for pipe mines. This topic has therefore been scoped in for further assessment.

12.7. DESIGNED IN MEASURES CONSIDERED WITHIN THE EIA

Designed in mitigation measures in respect of geology and contaminated land will be determined once surveys of the onshore scoping area have been completed and baseline conditions are fully understood. Embedded measures that could be implemented include:

- Avoidance of suspected areas of land contamination through design for the cable route and other infrastructure, where practicable;
- Measures to control construction-related pollution/discharges;
- Following construction, land not required through the operational phase will be reinstated to ensure it can return to agricultural or recreational use; and
- The land take for the Onshore Scheme will be kept to the minimum necessary for safe construction and operation of the works.

The requirement for additional mitigation measures (secondary mitigation) will be dependent on the significance of effects on the geology and contaminated land receptors and will be consulted upon with consultees throughout the EIA process.

12.8. SCOPING OF POTENTIAL IMPACTS

There is the potential that localised onshore geology and contaminated land (including mining) may be impacted as a result of the Onshore Scheme.. Impacts may arise during the cable laying operations and the construction of all other onshore components e.g. cable joint transition bay and the sub-station. These impacts will relate to construction work involved in bringing the cable to landfall and siting the onshore cable to the onshore substation e.g. through potentially trenching of the cable from landfall to the substation or potentially utilising local areas of HDD.

Table 12-2 provides a summary of potential impacts on geology and contaminated land that have been identified at this stage and justification for scoping in or out.

Table 12-2 Potential impacts on geology and contaminated land during construction/ decommissioning, operations and maintenance of the Onshore Scheme.

Potential Impact	Scoping Justification	Scoped In / Out
Construction / Decommissioning		
Impact on geology	The onshore cable route and landfall will cut across geology, surface sediments, dunes, Quaternary glacial sediments and soils and as such is scoped in for further assessment.	**Scoped In**
Impact on soils	Disturbance of deposits in the onshore scoping area from trenching works resulting in modifications to natural drainage patterns and potential increase in flood risk. This includes changes to soil quality, compaction and erosion.	**Scoped In**
Impact on contaminated land	Disturbance of historic contamination in the onshore scoping area from trenching works which have the potential to expose contaminants that may be bound in soils and superficial deposits resulting in contamination of non-contaminated areas.	**Scoped In**
Impact on land use	Construction works may impact on localised land use via direct loss of agricultural land, indirect changes to soil quality, changes to agricultural drainage, potential interference with agricultural operations, and changes to access.	**Scoped In**
Impacts on mining	Potential for historic mining activites to present risk to development. The requirement for a Coal Mining Risk Assessment will be agreed with NCC and The Coal Authority once the PDE details of the converter station are defined, and there is a more developed understanding of the extent, if any, of development within the Development High Risk Area.	**Scoped In**
Impacts on UXO	Potential risk identified with pipe mines. The requirement for survey and assessment will be confirmed following confirmation of the PDE and confirmation	**Scoped In**

Potential Impact	Scoping Justification	Scoped In / Out
	of interaction with the moderate hazard zones identified for pipe mines. This topic has therefore been scoped in for further assessment.	
Operation and Maintenance		
Impact on ground conditions	Localised heating impacts arising from the buried cable has the potential to impact ground conditions through localised drying of soils over time. However the burial depth of the cable and backfill material used will reduce localised heating of soils. The backfill material chosen will be one with low thermal conductivity and moderate increases in cable temperature will be incorporated into the cable design.	**Scoped Out**
Impact on soils	Pollution or contamination of soils from chemical spills, erosion and potential mobilisation of historic contamination due to maintenance activities.	**Scoped In**
Impact on land use	Operation and maintenance works may impact on localised land use via direct loss of agricultural land, indirect changes to soil quality, interference with agriculture activities and changes to access.	**Scoped In**

12.9. POTENTIAL TRANSBOUNDARY IMPACTS

Any effects on geology and contaminated land receptors are likely to be localised (i.e. limited to the Geology and Contaminated Land Study Area). No transboundary impacts are considered likely, and this impact pathway can therefore be scoped out of the EIA in respect of geology and contaminated land receptors.

12.10. PROPOSED EIA METHODOLOGY

The principle methods of assessment to be employed within the EIA Report relating to each of the identified at risk receptors are summarised below in Table 12-3. These methods will be used alongside input from the relevant guidance as identified in section 3.

Table 12-3 Proposed EIA Methodology for Geology and Contaminated

Impact Scoped In	EIA Survey Work	EIA Assessment Methodology
Impact on geology	Walkover survey	Desk based study utilising BGS mapping, borehole logs, trial pit data and regional reports and other relevant data. A walkover will be carried out to support the desk based study and fill in any data gaps and missing information.
Impact on surface sediments	None identified	Desk based study utilising BGS mapping, borehole logs, trial pit data and regional reports and other relevant data.
Impact on contaminated land	None identified	Desk based study utilising available monitoring reports and anecdotal input from other key stakeholders for expert advice.
Impact on land use	Walkover survey	The walkover survey will identify current land use in the immediate vicinity of the onshore scoping area. Additionally, consultation with landowners to ensure potential impacts are captured and appropriately mitigated against.
Impacts on mining	None identified	Further consultation with NCC and The Coal Authority required once the PDE details of the converter station are defined, and there is a better understanding of the extent, if any, of development within the

Impact Scoped In	EIA Survey Work	EIA Assessment Methodology
		Development High Risk Area. Based on this exercise, a Coal Mining Risk Assessment may be required, which will comrpise a desk based study utilising information sourced from the Coal Authority.
Impacts from UXO	Potential requirement for non-intrusive UXO detection survey	The requirement for survey and assessment will be confirmed following confirmation of the PDE and confirmation of interaction with the moderate hazard zones identified for pipe mines. Based on these findings, a non-intrusive UXO detection survey may be required prior to construction.
Cumulative Impact	None Identified	Desk based study on cumulative impacts utilising available consenting documents written for each of the developments, as well as consultation with NCC and other developers to be understand timelines and potential cumulative impacts.

12.11. SCOPING QUESTIONS

- Do you agree with the study area defined for geology and contaminated land?
- Do you agree with the data sources which are suggested for the assessment of geology and contaminated land?
- Are there any additional data sources or guidance documents that should be considered?
- Do you agree with the suggested designed in mitigation measures and is this mitigation appropriate?
- Do you agree that all receptors and impacts have been identified for geology and contaminated land?
- Do you agree that the Onshore Scheme site-specific studies are sufficient to inform the proposed assessment approach?
- Do you agree with the proposed assessment approach?

13. HYDROGEOLOGY AND CONTAMINATED LAND

13.1. INTRODUCTION

This section of the Scoping Report identifies the hydrogeology receptors of relevance to the Onshore Scheme and the potential impacts from the construction, operation and maintenance, and decommissioning of the Onshore Scheme.

Key issues of likely interest for hydrology include control of surface water, water crossings and any public and private water supply assets within the study area. For hydrogeology, matters of interest relate to groundwater-dependent wetland habitats and the potential for modifying groundwater flow paths. Areas designated for aspects relating to hydrology are also of importance.

This section of the Scoping Report also considers flood risk, including the necessary onward requirement for Flood Risk Assessment (FRA) and assessment under the Water Framework Directive (WFD).

13.2. LEGISLATION, POLICY AND GUIDANCE

In addition to the legislation outline in section 2, the following legislation, policy and guidance is specifically relevant to hydrology and flood risk:

13.2.1. LEGISLATION

- Water Environment (Water Framework Directive) (England and Wales) Regulations 2017
- The Conservation of Habitats and Species Regulations 2017 (as amended); and
- The Environmental Permitting (England and Wales) (Amendment) (No. 2) Regulations 2016.

13.2.2. POLICY

- Northumberland Local Plan 2016 – 2036: Policy WAT1 (Water quality) and WAT3 (Flooding) are of particular relevance to hydrology and flood risk.

13.2.3. GUIDANCE

- Flood Risk activities: environmental permits (Environmental Agency, 2022);
- Environmental permitting: Core guidance (DEFRA, 2020);
- European Commission Water Framework Directive Guidance Documents (2003);
- Water Framework Directive assessment: estuarine and coastal waters (2017);
- Advice Note Eighteen: The Water Framework Directive (National Infrastructure Planning, 2017); and
- Flood risk and coastal change guidance (Department for Levelling Up, Housing and Communities, 2014).

13.3. KEY DATA SOURCES

In addition to relevant literature listed above in section 2, the data sources shown in Table 13-1 have been used to inform this Scoping Report and are proposed to inform the baseline characterisation for hydrogeology and flood risk in the EIA

Table 13-1 Available data and information sources – Hydrogeological and Flood Risk

Title	Source	Year	Author
1:625,000 scale digital hydrogeological dataset	https://www.bgs.ac.uk/datasets/hydrogeology-625k/	2022	BGS
Magic Map	https://magic.defra.gov.uk/home.htm	2022	DEFRA
Flood map for planning	https://flood-map-for-planning.service.gov.uk/	2022	Environment Agency
Long term flood risk map	https://www.gov.uk/check-long-term-flood-risk	2022	Environment Agency
Statutory Main River Map	https://environment.maps.arcgis.com/apps/webappviewer/index.html?id=17cd53dfc524433980cc333726a56386	2022	Environment Agency
WFD River, Canal and Surface Water Transfer Water Bodies	https://data.catchmentbasedapproach.org/datasets/theriverstrust::wfd-river-canal-and-surface-water-transfer-water-bodies-cycle-2/explore?location=55.231391%2C-1.559392%2C9.42	2022	The Rivers Trust
Environment Agency Catchment Data Explorer – Northumberland Rivers	https://environment.data.gov.uk/catchment-planning/ManagementCatchment/3067	2022	Environment Agency

Title	Source	Year	Author
Northmbria river basin district – River basin management plan	https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/718333/Northumbria_RBD_Part_1_river_basin_management_plan.pdf	2015	Environment Agency
North Sea Link Environmental Statement – Hydrology and Flood Risk Assessment	https://northsealink.com/media/1229/environmental-statement-for-nsn-link_july-070714-2.pdf	2014	National Grid
Wansbeck and Blyth Catchment Flood Management Plan	https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/289180/Rivers_Wansbeck_and_Blyth_Catchment_Flood_Management_Plan.pdf	2009	Environment Agency

13.4. ENGAGEMENT

Engagement will be carried out with NCC, the Environment Agency and Northumbrian Water to inform the Scope of the EIA. This will include technical discussions surrounding the FRA / WFD assessments, and also the requirement for any site surveys. During the course of the EIA, engagement with these bodies will also relate to the requirement for surface water management systems, SuDS and ultimately, discharge (anticipated to be via a surface water outfall on the Sleek Burn, consistent with the recent NSL development).

13.5. STUDY AREA

The River Blyth and Sleek Burn are located within the onshore scoping area. The northern bank of River Blyth and Sleek Burn therefore has the potential for surface water discharge from the construction area. The Hydrogeology and Flood Risk Study Area is therefore proposed to be a 2 km buffer, upstream and downstream, from any watercourse within the onshore scoping area. This is shown on Figure 13-1.

Once the Onshore Scheme PDE is finalised, the Hydrogeology and Flood Risk Study Area for the EIA will be refined to assess only the Proposed Development Site.

13.6. BASELINE ENVIRONMENT

An initial desk-based review of literature and available data sources (see Table 13-1) has been undertaken to support this Scoping Report. The findings of this research are presented below in order to provide an understanding of the Onshore Scheme environment and inform the scoping process.

The key features of hydrogeology and flood risk which are likely to require consideration within the EIA are:

- Groundwater quality and quantity;
- Surface water quality and quantity;
- Flood risk; and
- Designated sites.

Potential impacts could occur from:

- Chemical pollution;
- Sedimentation from construction works;
- Acidification of watercourses and waterbodies;
- Impediments to watercourse and near-surface water flow;
- Increased run-off and flood risk;
- Migration of pollutants from contaminated land; and
- Compaction of superficial deposits.

13.6.1. WFD SURFACE WATER BODIES

The WFD established a framework across the England and Wales for the protection of water bodies (National Infrastructure Planning, 2017) (this included both terrestrial ecosystems as well as wetlands directly linked to them). The WFD aims to prevent deterioration of waterbodies whilst enhancing status, promoting sustainable use of water, reducing pollution and mitigation effects arising from drought / flooding. Water bodies include:

- **Surface water bodies** (rivers, lakes, canals as well as transitional & coastal bodies); and
- **Groundwater bodies** (superficial / bedrock aquifers).

Environmental objectives are set for each water body, and they are given a classification based on their ecological status. The following are located within the Hydrogeology and Flood Risk Study Area:

- The ‘Sleek Burn / Hepscott Burn Source to Tidal Limit’ WFD water body is located within the western extent of the Hydrogeology and Flood Risk Study Area, and is of Moderate ecological status; and
- The ‘Blyth from Pont to Tidal Limit’ WFD water body is located within the south western extent of the Hydrogeology and Flood Risk Study Area, and is of Moderate ecological status.

13.6.2. MAIN RIVERS

The main watercourses within the Hydrogeology and Flood Risk Study Area are the River Wansbeck, the River Blyth, and Sleek Burn.

The River Wansbeck runs through Northumberland from Sweethope Loughs and discharges to the North Sea at Cambois. The River Blyth runs through Northumberland for approximately 44 km, before discharging into the North Sea at Blyth. Sleek Burn is a tributary of the River Blyth, joining the River Blyth at the tidal limit of the River Blyth.

13.6.3. OTHER WATERCOURSES

As discussed in section 8: Landscape and Visual there are some minor watercourses within the Hydrogeology and Flood Risk Study Area in addition to the main rivers cited above. Maw Burn is a small watercourse which has been heavily modified during previous land uses and is culverted at various points. Cow Gut flows to the south of Maw Burn in culvert. Several drainage ditches are also present within the Hydrogeology and Flood Risk Study Area which generally follow agricultural field boundaries.

13.6.4. GROUNDWATER

The geological units such as the Pennine Middle Coal Measures Formation form a framework for the hydrogeology of the area. The hydrogeology defines the pattern of groundwater flow (aquifers) beneath the site. A review of the BGS 1:625,000 scale digital hydrogeological dataset indicates that this formation is classified as a moderate-productivity aquifer, with moderate yields from sandstones and many springs. Flow is virtually all trough fractures and other discontinuities.

The Defra MagicMap Aquifer Designation layer reflect the importance of aquifers in terms of groundwater as a drinking water resource but also their role in supporting surface water flows and wetland ecosystems. The map refers to the underlying groundwater body in the Hydrogeology and Flood Risk Study Area as a ‘secondary A aquifer’, which is the second most important designation after ‘principal aquifer’. Furthermore, the groundwater vulnerability map shows the vulnerability of groundwater to a pollutant discharged at ground level based on the hydrological, geological, hydrogeological and soil properties within a single square kilometre. Most of the Hydrogeology and Flood Risk Study Area is classified as low to medium-low vulnerability with some sparse points of medium vulnerability closer to the coast.

13.6.5. FLOOD RISK

The UK Government provides a service to determine the long term flood risk for an area, and the level of risk that is posed by rivers and the sea, surface water, reservoirs, and groundwater (where data is available). The flood maps are mostly indicative based on a regional approach to the analysis. Therefore, local understanding of the general risk will help consideration of local risk associated with any individual development at the detailed design stage. Flood risk is illustrated in Figure 13-2.

Tidal and fluvial

The Hydrogeology and Flood Risk Study Area is largely identified as being within a 'Very low risk' area (Flood zone 1, as defined by Environment Agency), meaning there is a less than 0.1% chance of flooding each year. There are areas identified as High risk (Flood zone 3, as defined by Environment Agency) along Cambois beach front, and throughout the extent of River Blyth, River Wansbeck and Sleek Burn. High risk is defined as a greater than 3.3% chance of flooding each year.

Surface Water

There are areas within the Hydrogeology and Flood Risk Study Area, and also within the Indicative Converter Station area, that are identified as being at low, medium and high risk of surface water flooding. Flooding from surface water is difficult to predict as rainfall location and volume are difficult to forecast. In addition, local features can greatly affect the chance and severity of flooding. Both areas are predominantly at 'very low' risk of flooding, however, there are localised extents of low to high risk in areas with a high concentration of drainage ditches.

Climate Change

Flood risk on coastal sites comes from the potential of sea-level rise and storm surges associated with climate change, and also changes in the rainfall pattern within the watershed, including storm surges associated with climate change. The Hydrogeology and Flood Risk Study Area lies in the basin of the Rivers Blyth and Wansbeck and contains an important burn (Sleek Burn).

Sewers and Drains

As detailed in the sections above, there are localised extents of low to high risk surface water flooding in areas of drainage ditches and drainage networks.

Reservoir

There are no reservoirs within the Hydrogeology and Flood Risk Study Area which would have the potential to be affected by or affect the Onshore Development with regards to flooding.

Groundwater

The groundwater unit underlying the Hydrogeology and Flood Risk Study Area is identified by the BGS as the Pennine Middle Coal Measures Formation and South Wales Middle Coal Measures Formation. This unit is characterised by the BGS as a 'Moderately productive aquifer', with moderate yields from sandstones.

13.6.6. PRIVATE WATER SUPPLIES

Identification of private water supplies in the area will be identified as part of the EIA process where engagement with local landowners will help to reveal the extent of private water supplies. Information

pertaining to the location, type and source of any public and private water supplies will be identified through this consultation exercise.

13.7. DESIGNED IN MEASURES CONSIDERED WITHIN THE EIA

Designed in mitigation measures in respect of hydrogeology and flood risk will be determined once surveys of the onshore scoping area have been completed and baseline conditions are fully understood. Embedded measures that could be implemented include:

- Technical engagement and collaboration with NCC during the course of detailed-design package for infrastructure related to surface water management (anticipated to be secured through condition under planning permission from NCC);
- Minimisation of watercourse crossings;
- Avoidance of cable routes parallel to watercourses for distances greater than 500 m;
- Measures to control construction-related pollution/discharges; and
- Associated development for the adequate management of surface water on site / SuDS (expected to include a surface water retention pond within the footprint of the substation site and a surface water discharge outfall on the north bank of the Sleek Burn).

The requirement for additional mitigation measures (secondary mitigation) will be dependent on the significance of effects on the hydrology and flood risk receptors and will be consulted upon with consultees throughout the EIA process.

13.8. SCOPING OF POTENTIAL IMPACTS

Construction activities may potentially impact other sediments (soil, sand and till) in the area causing loose sediments to enter the water table. Although unlikely due to its low permeability, the addition of fine sediment to the hydrological environment could affect the transmissibility of the aquifers and lead to potential flooding.

Depending on the onshore cable installation methods, there is the potential that existing drainage processes may be impacted including an area of sand dunes which will interact with the cable landfall site and various watercourses that can be found throughout the onshore scoping area.

During the operations and maintenance phase it is considered that the presence of the cable and onshore substation may permanently impact on localised water and drainage flows. There is also the potential that localised pollution or water quality issues may arise as a result of onshore works during scheduled or emergency maintenance.

In terms of nutrient pollution, Natural England has identified a list of designated sites that are in unfavourable condition due to high nutrient levels (Natural England, 2022). A review of this list of designations shows that none of these designated sites are located within 50 km of the onshore scoping area, and they are not hydrologically linked. There will therefore be no continuous, operational discharge from the Onshore Scheme and as noted above, there is no pathway for potential impacts associated with

these waterbodies. On this basis, there is no requirement for the HRA to specifically consider impacts on nutrient pollution.

Table 13-2 provides a summary of potential impacts on hydrogeology and flood risk that have been identified at this stage and justification for scoping in or out.

Table 13-2 Potential impacts on hydrogeology and flood risk during construction/ decommissioning, operation and maintenance of the Onshore

Potential Impact	Scoping Justification	Scoped In / Out
Construction / Decommissioning		
Impact on hydrogeology	Interaction with the water table causing modifications to natural drainage patterns and potential increase in flood risk from inappropriate drainage and surface water treatment around the construction works.	**Scoped In**
Impact on surface sediments	Disturbance of deposits in the onshore scoping area from trenching works resulting in modifications to natural drainage patterns and potential increase in flood risk. This includes changes to soil quality, compaction and erosion.	**Scoped In**
Damage to riverbanks	The construction and decommissioning of the Onshore Scheme has the potential to create significant effects on the riverbanks of the River Wansbeck or Sleek Burn. These could be temporary or permanent depending on the specific suite of activities required during construction and decommissioning; this shall be considered further within the EIA.	**Scoped In**
Impact on groundwater and aquifers	Pollution of surface water due to disturbance of sediments and/or accidental spills from construction machinery and trenching works and HDD. These activities have the potential to alter existing surface water and groundwater flows through excavation, storage and reinstatement of soils and superficial materials, and installation of solid linear infrastructure.	**Scoped In**

Potential Impact	Scoping Justification	Scoped In / Out
Impact on private water supplies	No private water supplies have been identified either within or in close proximity to the site boundary as of yet but this will be investigated further in the EIA process through engagement with local stakeholders.	**Scoped In**
Operation and Maintenance		
Impact on hydrogeology	Interaction with streams and water table causing modifications to natural drainage patterns and potential increase in flood risk.	**Scoped In**
Impact on water quality	Further assessment of the potential impacts of the Onshore Scheme on watercourses and/or private water supplies located within the onshore scoping area is required. There is the potential for interactions between the Onshore Scheme and watercourses and/or private water bodies to result in a reduction in water quality.	**Scoped In**
Changes to local morphology	Potential for changes to the sediment transport regime resulting in impacts on hydrological and riverine morphology, particularly at landfall. The focus will be the interaction between the surface water discharge point on the Sleek Burn and riverine morphology.	**Scoped In**

13.9. POTENTIAL TRANSBOUNDARY IMPACTS

Any effects on hydrogeology and flood risk receptors are likely to be localised (i.e. limited to the Hydrogeology and Flood Risk Study Area). No transboundary impacts are considered likely, and this impact pathway can therefore be scoped out of the EIA in respect of hydrogeology and flood risk receptors.

13.10. PROPOSED EIA METHODOLOGY

The principal methods of assessment to be employed within the EIA Report relating to each of the identified at risk receptors are summarised below in Table 13-3. These methods will be used alongside input from the relevant guidance as identified in section 2.

Table 13-3 Proposed EIA Methodology for Hydrogeology and Flood

Impact Scoped In	EIA Survey Work	EIA Assessment Methodology
Impact on hydrogeology, aquifers and groundwater	Walkover Survey	Desk based study utilising BGS mapping, borehole logs, trial pit data and regional reports and other relevant data. A walkover will be carried out to support the desk based study and fill in any data gaps and missing information.
Impact on surface sediments	None identified	Desk based study utilising BGS mapping, borehole logs, trial pit data and regional reports and other relevant data.
Impact on contaminated land	None identified	Desk based study utilising available monitoring reports and anecdotal input from other key stakeholders for expert advice.
Impact on land use	Walkover survey	The walkover survey will identify current land use in the immediate vicinity of the onshore scoping area. Additionally, consultation with landowners to ensure potential impacts are captured and appropriately mitigated against.
Cumulative Impact	None Identified	Desk based study on cumulative impacts utilising available consenting documents written for each of the developments, as well as consultation with NCC and other developers to be understand timelines and potential cumulative impacts.

13.10.1. WFD ASSESSMENT

A WFD assessment will be carried out in accordance with the WFD Directive guidance (Environmental Agency, 2017) for the water bodies identified in the baseline. In the first instance, a Stage 1 assessment is anticipated with an expectation that the Stage 2 assessment will be required and undertaken; as described above, the Environment Agency will be fully consulted on the Scope and extent of the WFD assessment, including supporting data / data requests. The WFD assessment will be provided as an Appendix to the EIA chapter.

13.10.2. FRA

In accordance with the NPPF (Department for Levelling Up, Housing and Communities, 2012) and owing to the anticipated footprint of the Onshore Scheme (which will be >1 ha) (DEFRA and Environment Agency, 2017), a desk-based FRA will be carried out to assess the flood risk to the Onshore Scheme as well as any potential impacts during construction and operation. The FRA will be carried out with a specific focus on permanent above ground infrastructure (i.e. the converter station). The onshore cables and works to integrate into the existing National Grid substation will not be assessed. The FRA assessment will be provided as an Appendix to the EIA chapter.

Flood risk outside of the remit of the formal (statutory) FRA will be considered as required through the CEMP, however this approach will be reviewed and discussed with the Environment Agency as informed by the outputs from the formal request for a Scoping Opinion which this report supports.

Allowances for climate change will be factored into the FRA – this will also be confirmed with the Environment Agency and NCC to inform the assessment.

Considering the proximity to the various watercourses, a flood risk activity environment permit will be required (Environment Agency, 2022). Certain specified works on or near a main river, flood defence structure, flood plain or near a sea defence are regulated under environmental permits. Whilst it is assumed a permit will be required, this will be confirmed with the Environment Agency and NCC.

13.11. SCOPING QUESTIONS

- Do you agree with the study area defined for hydrogeology and flood risk?
- Do you agree with the data sources which are suggested for the assessment of hydrogeology and flood risk?
- Are there any additional data sources or guidance documents that should be considered?
- Do you agree with the suggested designed in mitigation measures and is this mitigation appropriate?
- Do you agree that all receptors and impacts have been identified for hydrogeology and flood risk?
- Can you provide any information on private water supply receptors through consultation?
- Do you agree that the Onshore Scheme site-specific studies are sufficient to inform the proposed assessment approach?
- Do you agree with the proposed assessment approach?

14. TRAFFIC AND TRANSPORT

14.1. INTRODUCTION

This section of the Scoping Report identifies the traffic, transport and access receptors of relevance to the Onshore Scheme and the potential impacts upon the local and trunk road network. During the construction, operation and maintenance, and decommissioning of the Onshore Scheme both materials and personnel will need to travel to the site, hence it is important to understand whether or not this will have a significant adverse impact on traffic and transport in the vicinity of the Onshore Scheme.

14.2. LEGISLATION, POLICY AND GUIDANCE

In addition to the legislation outlined in section 2, the following legislation, policy and guidance is specifically relevant to traffic and transport:

14.2.1. LEGISLATION

- The Highways (Environmental Impact Assessment) Regulations 2007.

14.2.2. POLICY

- Northumberland County Council Transport plan 2011 - 2026: Policy TRA 2 (The effects of development on the transport network) is of particular relevance to traffic and transport; and
- Northumberland County Council Transport Policy.

14.2.3. GUIDANCE

- Institution of Highways and Transportation (IHT), Guidelines for Traffic Impact Assessment (IHT,1994);
- Institute of Environmental Assessment, Guidelines for the Environmental Assessment of Road Traffic, Guidance Notes No. 1 (referred to as ‘the IEMA Guidelines’) (IEMA, 1993); and
- The Royal Society for the Prevention of Accidents (ROSPA) Road Safety Engineering Manual (ROSPA, 2007).

14.3. KEY DATA SOURCES

Traffic and vehicle types required for the construction, and associated number of vehicle movements, are yet to be developed and this detail will be included in the EIA when assessing potential impacts. This Scoping Report has been prepared in the absence of this detail and is therefore considered to present a precautionary approach to the scoping in or out of impacts for the EIA.

In addition to relevant literature listed above in section 2, the data sources shown in Table 14-1 have been used to inform this Scoping Report and are proposed to inform the baseline characterisation for traffic and

transport in the EIA. Where appropriate, relevant planning applications have been used to inform the baseline and the scoping of potential impacts.

Table 14-1 Available data and information sources – Traffic and Transport

Title	Source	Year	Author
Road accidents and safety statistics	https://www.gov.uk/government/collections/road-accidents-and-safety-statistics	2022	Department for Transport
CrashMaps	https://www.crashmap.co.uk/	2022	CrashMap
21/00818/FULES | BritishVolt Project Phoenix Environmental Statement: Main Report	https://publicaccess.northumberland.gov.uk/online-applications/applicationDetails.do?keyVal=QPE48BQS0ME00&activeTab=summary	2021	Ridge
UK – Northway Electricity Interconnector (NSN Link) Environmental Statement: Chapter 14 Traffic and Transport	https://northsealink.com/media/1229/environmental-statement-for-nsn-link_july-070714-2.pdf	2014	The Environment Partnership (TEP) for National Grid
Department of Transport Road Traffic Statistics interactive map	https://roadtraffic.dft.gov.uk/manualcountpoints/81563	2010 - 2020	DfT

14.4. ENGAGEMENT

It is anticipated that Automated Traffic Counts will be carried out in order to obtain up-to-date data within the Scoping boundary. Engagement will be carried out with NCC to help confirm this requirement, and the locations of ATC surveys.

14.5. STUDY AREA

The Traffic and Transport Study Area is defined as the onshore scoping area and more specifically, a series of specific individual roads and footpaths within it. The roads and routes of primary interest at this stage are as follows:

- A189;
- A1147;
- Webley Gardens; and
- Brock Lane.

It is likely that temporary access tracks will be required within the onshore scoping area to access the construction sites, such as the cable route. The converter station will require permanent access during the construction, and operation and maintenance phase. However as shown on Figure 1-1, the Indicative Converter Station is located adjacent to Brock Lane, in order to reduce the length of access tracks required for the Onshore Scheme. The routing for these tracks is not as yet known.

The final Traffic and Transport Study Area for the EIA will consider routes along the public road network which traffic will most likely be utilised during the construction phase of the Onshore Scheme. The Traffic and Transport Study Area will be refined in the EIA Report once the preferred infrastructure locations (converter station and onshore cable route) have been refined.

14.6. BASELINE ENVIRONMENT

The Onshore Scheme is located in an area of relatively busy infrastructure development, as shown on Figure 14-1. As such there are a number of roads throughout the Traffic and Transport Study Area:

- The A189 spine road runs through the onshore scoping area on a roughly north-south axis;
- Brock Lane runs from the northwest to the southeast, adjacent to the Indicative Converter Station;
- Webley Gardens is located to the north east, within Cambois; and
- The A1147 is located outwith but abutting the onshore scoping area, to the southwest.

All construction vehicles will require to access the site via the A189. It is a dual carriageway that is approximately 20 m wide Connecting Newcastle to Ashington, the A189 is a crucial part of the Northumberland trunk road network, and serves as an important urban distributor road. The road cuts through the centre of the onshore scoping area and is not part of the National Cycle Network and sees few pedal cyclists.

Materials can also be sourced locally or brought to Northumberland by sea, rail or road. Port of Blyth is the closest harbour to the onshore scoping area and as such it has been assumed that materials brought by sea would be offloaded here and be transported to the site via the West Bridge road which runs parallel to the coast from the Port of Blyth to Cambois.

Although there are no passenger railway stations in the immediate vicinity of the onshore scoping area, there is a freight line (the West Sleekburn and Blyth Branch) which runs north from the Port of Blyth and cuts inland to the north of the Britishvolt battery manufacturing facility. It cuts underneath the A189 where it joins the Blyth and Tyne Line which marks the western border of the Traffic and Transport Study Area. It is therefore possible that rail could be utilised to transport components, however it is considered more likely that materials will be transported by road.

14.6.1. BASELINE TRAFFIC FLOW

Traffic flow data for the road sections that may be affected by the Onshore Scheme has been obtained from count point data available from the Department of Transport (detailed in Table 14-1). Traffic Flow Data from manual count points is provided in Table 14-2, and Annual Average Daily Flow (AADF) data collected from manual Count Points for 2019 and 2020 within the vicinity of the Traffic and Transport Study Area is summarised in Table 14-3. These data have been used as a traffic flow baseline for the Onshore Scheme in this Scoping Report. 2019 data has been provided as well as the 2020 data, due to the effect that COVID-19 restrictions may have had on traffic flow in 2020.

Table 14-2 Traffic Flow Data from Manual Count Points in the vicinity of the Onshore

Location	Count Point ID	Relevance to Project	Distance from Project	Year	AADF (total no. of vehicles)	HGV %
East Sleekburn (A189)	81563	Vehicles coming in from the south	Adjacent to	2020	30,451	4.0
East Sleekburn (A189)	81563	Vehicles coming in from the south	Adjacent to	2019	40,391	3.4
SE of Ashington	80774	Vehicles coming in from the north	Adjacent to	2020	27,360	3.4
SE of Ashington	80774	Vehicles coming in from the north	Adjacent to	2019	36,405	2.9

For completeness, average traffic flow data between 2016 – 2020 has been collated for these two traffic count points detailing the breakdown of all vehicle types encountered at each point within Table 14-3. It

should be noted that, despite the two count points being in the same vicinity on the same road, there is noticeably less traffic flow (in particular HGVs) at 80774 which is to the north of the Traffic and Transport Study Area. This suggests that the destination for much of the HGV traffic coming from the south is within the Traffic and Transport Study Area, where the data suggests vehicles exit the dual-carriageway.

Table 14-3 Average Daily Traffic Flow (ADTF) Data for Relevant Traffic Count Points Between 2016 – 2020

Count Point ID	5-year Average	Pedal Cycles	Motorcycles	Cars and Taxis	Buses and Coaches	Light Goods Vehicles	All HGVs	All Motor Vehicles
81563	2016 - 2020	20	219	31,002	109	5,705	1,404	38,439
80774	2016 - 2020	6	145	28,006	97	4,575	898	33,722

14.6.2. ACCIDENTS AND SAFETY

The history of traffic incidents which occurred along the most likely route to access the onshore scoping area was examined using the website CrashMaps.co.uk, between 2016-2021. This website provides details of the location and severity of traffic incidents occurring on UK roads, with severity divided into 3 categories of; slight, serious, and fatal.

Examining the A189 between East Sleekburn and the River Wansbeck indicated that nine traffic accidents have occurred over the 5-year period, none of which were fatal, one was serious and the remaining eight were slight. An incident hotspot was identified with several accidents, one of which was serious, occurring at junction where the A189 meets Brock Lane. This is likely a result of the speed reduction necessary when coming off the dual-carriageway. Although outside the Traffic and Transport Study Area, there are also a number of recorded accidents further north on the A189, just after it passes over the River Wansbeck - where the road approaches the North Seaton roundabout there is a hotspot with two fatal accidents, one serious and seven slight. Roundabouts are a common cause of accidents so, although outside the Traffic and Transport Study Area, the potential for this to be a hazard will be considered.

14.7. DESIGNED IN MEASURES CONSIDERED WITHIN THE EIA

Designed in mitigation measures in respect of traffic and transport will be determined once surveys of the onshore scoping area have been completed and baseline conditions are fully understood. Embedded measures could include a Traffic Management Plan (TMP). If required a TMP could be developed and agreed with NCC, and other relevant parties, outlining the mechanisms for managing the movement of construction related traffic.

The requirement for additional mitigation measures (secondary mitigation) will be dependent on the significance of effects on the traffic and transport receptors and will be consulted upon with consultees throughout the EIA process.

14.8. SCOPING OF POTENTIAL IMPACTS

At this stage of project development, the number of vehicles (including HGVs) required during construction is not currently known, therefore all traffic impacts during construction are scoped in for assessment in the EIA.

The following construction impacts will be assessed within the EIA:

- Impacts on traffic flows arising from increased generation of traffic on the A189, including HGVs on the local road network;
- Impacts on road safety as a result of increased traffic, including HGVs, on the local road network;
- Impacts on the local community who use the road network, from increased traffic, severance and driver delay; and
- Impacts on road carriageways, verges and associated structures due to increased traffic flows.

During operation, no routine access to the cable route is anticipated, and the operation of the connection is anticipated to require only low levels of access, expected to almost entirely relate to the operation of the converter station.

A permanent access road to the converter substation will be required during operations along with temporary access during construction works; the routing for this is not as yet known.

Table 14-4 provides a summary of potential impacts from traffic and transport that have been identified at this stage and justification for scoping in or out.

Table 14-4 Potential impacts on traffic and transport during construction/ decommissioning, operations and maintenance of the Onshore Scheme

Potential Impact	Scoping Justification	Scoped In / Out
Construction / Decommissioning		
Impacts arising from the increased generation of traffic	Potential increases to traffic flows, including HGVs on the local road networks as a result of construction traffic.	**Scoped In**

Potential Impact	Scoping Justification	Scoped In / Out
Impacts on road safety as a result of the generation of increased traffic	Potential impacts on road safety as a result of the increase to traffic flows, including HGVs on the local road networks as a result of construction traffic.	**Scoped In**
Impacts on the local community	Potential for increased traffic, severance and driver delay in residential areas due to project construction.	**Scoped In**
Impact on road carriageway, verges and associated structures; and impact on road users	Potential for impacts on roads and associated structures as well as road users due to increase traffic flows.	**Scoped In**
Operation and Maintenance		
Impacts during operations and maintenance on existing traffic flows and the local road network (All vehicle, including HGV, movements)	HGV movements will only be required in the event of equipment failure where a large component needs replaced. It is not expected that vehicle movements during operation will result in an increase of 30% (or 10% for specifcally sensitive areas) in average daily movement levels for the Traffic and Transport Study Area (IEMA, 1993) therefore there is no potential of a significant impact to occur. Vehicle movements associated with operations will mainly be associated with personnel carrying out operations and maintenance activities. The number of people involved will be limited and as such will not give rise to significant vehicle movements, no potential significant impacts are predicted.	**Scoped Out**

14.9. POTENTIAL TRANSBOUNDARY IMPACTS

Any effects on traffic and transport receptors are likely to be localised (i.e. limited to the Traffic and Transport Study Area). No transboundary impacts are considered likely, and this impact pathway can therefore be scoped out of the EIA in respect of traffic and transport receptors.

14.10. PROPOSED EIA METHODOLOGY

Consideration will be given to the full extent of the development and its component parts, including construction programme, the anticipated number and type of vehicles, including abnormal loads, that will be generated at each stage of construction. Taking account of expected equipment and material sources, the routes to site shall be clearly identified, as well as a schedule of likely access and egress points to/from the adopted road network.

As part of the EIA process consultation will be undertaken with:

- NCC;
- National Highways;
- Other statutory consultees;
- Local landowners and communities; and
- Other interest groups/organisations.

The views and information gathered from these consultations will be used to help shape the Onshore Scheme and ensure that wherever possible, adverse effects on people, the natural environment and cultural heritage have been avoided or reduced, and where possible benefits have been delivered.

The principal methods of assessment to be employed within the EIA Report relating to each of the identified at risk receptors are summarised below in Table 14-5. These methods will be used alongside input from the relevant guidance as identified in section 2.

Table 14-5 Principal method of assessment to be conducted within the EIA report

Impact Scoped In	EIA Survey Work	EIA Assessment Methodology
Impacts arising from the increased generation of traffic	No surveys are proposed.	The principal approach to assessing environmental impacts of road traffic associated with new developments are set out within Guidance Notes No. 1: Guidelines for the Environmental Assessment of Road Traffic (IEMA, 1993) and the EIA Update to Guidelines for the Environmental Assessment of Road Traffic 1993 (IEMA, 2020/21). The
Impacts on road safety as a result of the	No surveys are proposed.	

Impact Scoped In	EIA Survey Work	EIA Assessment Methodology
generation of increased traffic		IEMA Guidelines suggest the following rules to define the extent and scale of the assessment required: • Rule 1: Include roads where traffic flows are predicted to increase by more than 30% (or where the number of HGVs are predicted to increase by more than 30%); and • Rule 2: Include any specifically sensitive areas where traffic flows are predicted to increase by 10% or more. Following the IEMA Guidelines the predicted significance of effects will be determined on the relationship between the magnitude of impact and receptor sensitivity through a standard assessment method based on professional judgement and the application of appropriate evaluation criteria. Predicted traffic volumes will be compared to existing baseline traffic volumes to determine whether there are any exceedances of the thresholds set out in the rules above. Effects arising from additional traffic on driver delay, road safety and community effects will be assessed.
Impacts on the local community	No surveys are proposed.	
Impact on road carriageway, verges and associated structures; and impact on road users	No surveys are proposed.	

14.11. SCOPING QUESTIONS

- Do you agree with the study area defined for traffic and transport?
- Do you agree with the data sources which are suggested for the assessment of traffic and transport? Are there any additional data sources or guidance documents that should be considered?
- Do you agree with the suggested designed in mitigation measures and is this mitigation appropriate?
- Do you agree that all receptors and impacts have been identified for traffic and transport?
- Do you agree with the proposed assessment approach?
- Do you agree that the impacts suggested can be scoped out of the traffic and transport EIA Chapter?

15. SOCIOECONOMICS, RECREATION AND TOURISM

15.1. INTRODUCTION

This section will provide an overview of the sensitivities associated with socio-economics, recreation and tourism receptors of potential relevance to the Onshore Scheme. Owing to the coastal nature of the Onshore Scheme, there may be some effects which originate within the Marine Scheme but which have relevance to onshore receptors; this will also be discussed within this section, and shall be considered in the ensuing ES.

15.2. LEGISLATIVE POLICY AND CONTEXT

In addition to the legislation outlined in section 2, the following policy and guidance is specifically relevant to socio-economics, recreation and tourism:

POLICY

- Northumberland Local Plan 2016 – 2036: Policy ECN1 (Planning strategy for the economy) is of particular relevance to socio-economics, recreation and tourism.

GUIDANCE

- UK census data - Office for National Statistics (ONS); and
- Marine planning in England.

15.3. KEY DATA SOURCES

In addition to relevant literature listed above in section 2, the data sources shown in Table 15-1 have been used to inform this Scoping Report and are proposed to inform the baseline characterisation for socio-economics in the EIA.

Table 15-1 Available data and information sources – Socio-economics, Recreation and Tourism

Title	Source	Year	Author
Northumberland Local Plan – Sustainable Development	https://www.northumberland.gov.uk/NorthumberlandCountyCouncil/media/Planning-and-Building/planning%20policy/Local%20Pla	2022	NCC

Title	Source	Year	Author
	n/Northumberland-Local-Plan-Adopted-March-2022.pdf		
Northumberland Knowledge - Economic Performance	https://www.northumberland.gov.uk/NorthumberlandCountyCouncil/media/Northumberland-Knowledge/Know%20bulletins/Economic-Performance-bulletin-Autumn-2021.pdf	2021	NCC
The Northumberland Economic Strategy 2019 - 2024	https://www.northumberland.gov.uk/NorthumberlandCountyCouncil/media/Planning-and-Building/planning%20policy/Studies%20and%20Evidence%20Reports/Economy%20Retail%20Studies/Economic%20Strategy/Northumberland-Economic-Strategy-2019-2024-DRAFT-FINAL-11-12-18.pdf	2018	NCC
North of Tyne Devolution Deal	https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/754719/North_of_Tyne_Deal.pdf	2018	HM Government
North-east Local Enterprise Partnership (LEP) – Independent Economic Review (Summary and Evidence Base)	https://www.northeastlep.co.uk/wp-content/uploads/2015/02/NE-Economic-Review-Evidence-Base-Summary.pdf	2015	North-east LEP
Regional Gross Value Added (balanced) by industry: all Nomenclature of Territorial Units for	https://www.ons.gov.uk/economy/grossvalueaddedgva/datasets/nominalandrealregionalgrossvalueaddedbalancedbyindustry	2022	ONS

Title	Source	Year	Author
Statistics (NUTS) level regions			
Population profiles for local authorities in England	https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationestimates/articles/populationprofilesforlocalauthoritiesinengland/2020-12-14	2020	ONS
All People in employment, economically active and unemployed: local authorities	https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/employmentandemployeetypes/methodologies/aguidetolabourmarketstatistics	2020	ONS
2019 STEAM Economic Impact Report	https://www.northumberlandtourism.org.uk/research-insights/regional-national/tourism-economic-impact-report	2019	Visit Northumberland

15.4. STUDY AREA

The Socio-economic, Recreation and Tourism impacts of the Onshore Scheme have the potential to spread beyond the fixed location of the onshore scoping area due to the potential for indirect and induced impacts on a wider scale. Therefore there is no defined Study Area for this assessment, but the potential impacts of the Onshore Scheme at a local (Northumberland), regional (the north-east of England), national (England) and wider UK scale will be assessed.

15.5. BASELINE ENVIRONMENT

A baseline review of the available data and literatures (as identified in Table 15-1) has been undertaken and summarised below to inform the scoping process relating to the socio-economic, recreational and tourism impacts of the Onshore Scheme.

15.5.1. DEMOGRAPHIC CHARACTERISTICS

An overview of the population counts and demographic structure for Northumberland, North Tyneside and the city of Newcastle is provided in Table 15-2.

Table 15-2 Estimated Mid-2019 populations (ONS, 2020)

Local Authority	Population Count	Median Age	Under 16 (%)	Working Age (%)	Pensionable Age (%)
Northumberland	319,030	48.4	16.3	59.0	24.7
Newcastle-upon-Tyne	300,820	32.3	17.4	68.2	14.5
North Tyneside	209,000	43.3	18.1	61.7	20.3

The Northumberland Local Plan has a spatial strategy at its core which is divided into 4 key delivery areas: south-east; central; north and west Northumberland. The onshore scoping area is located within the south-east delivery area which is home to more than half of the county's population. It is where many of Northumberland's key employment centres are located, including those of regional importance. The Plan proposes to reinforce the role of the delivery area by:

- Promoting strategic employment areas around the Port of Blyth and Cramlington;
- Directing more than half of the plan's proposed housing to this area, particularly the towns of Cramlington, Blyth and Ashington; and
- Supporting the re-introduction of passenger services on the Northumberland Rail Line, to provide better access to jobs.

15.5.2. LABOUR SUPPLY POTENTIAL

Renewable energy is one of the fastest growing sectors in England. In 2020 the Low Carbon and Renewable Energy Economy (LCREE) generated an estimated turnover of £32.6 billion in England, 9% of which was related to offshore wind energy (ONS, 2022). Furthermore, the LCREE employed 207,800 full time equivalent (FTE) employees across the UK in 2020, in direct, indirect and induced roles relating to renewable energy, 171,100 FTEs of these are estimated to be in England. 5% of the total employment from the LCREE within the UK is estimated to be from the offshore wind industry, which is approximately 10,400 FTE within 2020.

The Applicant will consider local labour and supply chain engagement events to gauge local interest. The Applicant has held these events for other projects and it has proven to be successful in engaging local parties. The Blyth Estuary is identified within the Northumberland Local Plan (NCC, 2022) as a 'strategic employment site', owing to its concentration of energy generation industry, specialist manufacturing and port logistics. The Local Plan states that this area has the potential to 'deliver significant new investment and jobs', which is supported by the Northumberland Economic Strategy (NCC, 2018). The Onshore

Scheme has the potential to add to the range of quality of NCC's employment, in line with Strategic Policy ECN 2: Blyth Estuary Strategic Employment Area (NCN, 2022).

15.5.3. SIZE AND STRUCTURE OF THE LOCAL BUSINESS BASE

A review of the ONS labour market profile for Northumberland shows that total employment in December 2021 was estimated at 133,900, which represents 69.8% of the total population of Northumberland. This proportion is lower than the average for the UK which is 74.8%. The percentage of employment for those industries related to all phases of the Onshore Scheme is as follows (ONS, 2020):

- Manufacturing – 11.1%;
- Electricity, Gas, Steam and Air Conditioning Supply – 0.5%;
- Construction – 4.5%; and
- Accommodation and Food Service Activities – 13.1%.

15.5.4. ECONOMIC OUTPUT PERFORMANCE

Gross Value Added (GVA) is a key indicator used to measure the economic performance of a region or country. In the UK and England, total GVA in 2017 was £1,820 billion and £1,554 billion, respectively. The annual growth for GVA in England in 2017 was 3.1%, falling short of the of the 3.6% GVA growth that was recorded for the UK (ONS, 2018). For the counties of Northumberland and Tyneside, the GVA values per head were significantly lower when compared to the rest of England, with a 2017 GVA per head of £16,588 for Northumberland and £23,257 for Tyneside. This compares to the average GVA per head in England £27,949 in 2017. Despite this, the north-east region is well positioned for GVA improvement through its many core strengths such as the ports in the local area, strong links to European ports and markets, growing renewable energy sector and the potential to develop the supply chain associated with this.

15.5.5. VOLUME AND VALUE OF TOURISM

STEAM (Scarborough tourism economic activity modelling) is a tourism economic impact modelling process which allows measurements of tourism using local data, tourism performance and visitor survey data. Although the STEAM report for 2020 is available, it was not a representative year due to the impacts of Covid-19. Therefore a review of the 2019 STEAM Economic Impact report for Northumberland revealed key findings that 10.7 million people visited the county and spent over £1 billion which were both a 2% increase on the year prior. Of these visitors, 1.93 million stayed overnight, meaning that 82% of all visits were day visits. However, these only represent 35% of the total expenditure by tourists. The largest sector for expenditure was food and drink which accounted for 36% of all money spent and 31% of all employment. The scenery and landscape of the region is one of the main reasons that tourists visit Northumberland.

15.5.6. RECREATIONAL RESOURCE

The recreational recourse of the area immediately surrounding the onshore scoping area is low due to the presence of the Northumberland Energy Park Phase 1, BritishVolt battery manufacturing facility and NSL

converter station. However there are many PRoW present, and the Cambois Beach and Blyth Beach. The presence of the PRoWs suggest the area is host to recreational walking, and the potential effects of these paths being temporarily affected during construction will be a key consideration as part of the assessment. The wider area of Northumberland has a vast range of recreation and leisure activities including country parks, visitor centres and coastal sites.

15.6. DESIGNED IN MEASURES CONSIDERED WITHIN THE EIA

Designed in mitigation measures in respect of socio-economics, recreation and tourism will be determined once baseline conditions are fully understood. At this stage no designed in mitigation measures for socio-economics, recreation and tourism are proposed.

The requirement for additional mitigation measures (secondary mitigation) will be dependent on the significance of effects on the socio-economics, recreation and tourism receptors and will be consulted upon with consultees throughout the EIA process.

15.7. SCOPING OF POTENTIAL IMPACTS

The potential impacts of the Onshore Scheme on socio-economic impacts have been summarised in Table 15-3. This table identifies potential impacts during the construction, operation and maintenance, and decommissioning phases of the Onshore Scheme, with a scoping justification and scoping decision provided.

Table 15-3 Potential impacts on socioeconomics during construction/ decommissioning, operations and maintenance of the Onshore Scheme

Potential Impact	Scoping Justification	Scoped In / Out
Construction / Decommissioning		
Employment in the supply chain	There is the potential for the construction and decommissioning phases of the Onshore Scheme to support employment within local and national companies directly engaged in providing services to the Onshore Scheme. There is also the potential to indirectly support jobs through supply chain activity.	**Scoped In**
Economic output effects in the supply chain	There is the potential to generate GVA through the construction and decommissioning phases of the Onshore Scheme with local and national companies directly engaged in providing services to	**Scoped In**

Potential Impact	Scoping Justification	Scoped In / Out
	the Onshore Scheme. There is also the potential to indirectly generate GVA through supply chain activity.	
Access to job opportunities by local residents	There is the potential for direct, indirect and induced employment related to the construction and decommissioning of the Onshore Scheme. The Onshore Scheme also has the potential to generate new job opportunities within the region.	**Scoped In**
Impacts on demand for housing and local services	There is the potential for direct, indirect and induced employment related to the construction and decommissioning of the Onshore Scheme which could generate a demand on local housing and services.	**Scoped In**
Impacts on the economic value of tourism and recreation activities	The construction and decommissioning phases of the Onshore Scheme have the potential to disrupt location tourism and recreation activities, with the potential for negative results including deterrence of visitors.	**Scoped In**
Socio-cultural effects	Given the location of the Onshore Scheme and relatively short-term duration of construction and decommissioning activities associated with the Onshore Scheme, the potential for significant impacts on socio-cultural effects are considered to be limited. Therefore, this potential impact has not been taken forward for further assessment.	**Scoped Out**
Operation and Maintenance		
Employment in the supply chain	There is the potential for the operation and maintenance phases of the Onshore Scheme to support employment within local and national companies directly engaged in providing services to the Onshore Scheme. There is also the potential to indirectly support jobs through supply chain activity.	**Scoped In**

Potential Impact	Scoping Justification	Scoped In / Out
Employment output effects in the supply chain	There is the potential to generate GVA through the operation and maintenance phases of the Onshore Scheme with local and national companies directly engaged in providing services to the Onshore Scheme. There is also the potential to indirectly generate GVA through supply chain activity.	**Scoped In**
Access to job opportunities by local residents	There is the potential for direct, indirect and induced employment related to the operation and maintenance of the Onshore Scheme. The Onshore Scheme also has the potential to generate new job opportunities within the region.	**Scoped In**
Impacts for housing and local services	There is the potential for direct, indirect and induced employment related to the operation and maintenance of the Onshore Scheme could generate a demand on local housing and services.	**Scoped In**
Impacts on tourism, recreation activity and associated economic value	The operation and maintenance phases of the Onshore Scheme have the potential to disrupt location tourism and recreation activities, with the potential for negative results including deterrence of visitors.	**Scoped In**
Socio-cultural effects	Given the location of the Onshore Scheme, activities associated with the operation and maintenance phases of the Onshore Scheme and the potential for significant impacts on socio-cultural effects are considered to be limited. Therefore, this potential impact has not been taken forward for further assessment.	**Scoped Out**

15.8. POTENTIAL TRANSBOUNDARY IMPACTS

The Socio-economic, Recreation and Tourism impacts of the Onshore Scheme have the potential to be seen in other countries within the UK, particularly with regards to supply chain and employment opportunities. Therefore transboundary impacts for Socio-economic, Recreation and Tourism are considered likely, and this impact pathway is therefore be scoped into the EIA.

15.9. PROPOSED EIA METHODOLOGY

The assessment of the potential impacts of the Onshore Scheme on socio-economic, recreation and tourism receptors will be completed through a desk-based study of publicly available data and information sources (as identified in Table 15-1). This will be supplemented by stakeholder communication during the EIA phase of the Onshore Scheme. Consultation will be undertaken with:

- NCC;
- Community Councils; and
- Local Stakeholders.

The assessment of potential impacts associated with the Onshore Scheme will include an analysis on the potential impacts that may arise during the construction, operation and maintenance and decommissioning phases of the Onshore Scheme.

The principal methods of assessment to be employed within the EIA Report relating to each of the identified at risk receptors are summarised below in Table 15-4. These methods will be used alongside input from the relevant guidance as identified in section 2.

Table 15-4 Principal method of assessment to be conducted within the EIA report

Impact Scoped In	EIA Survey Work	EIA Assessment Methodology
Employment in the supply chain	No surveys are proposed.	A quantification of potential impacts will be developed, and this will inform estimates regarding the impact of the Onshore Scheme on local, English and UK economies. The quantification of these impacts will be assessed through the following indicators: Employment; GVA; Potential for additional revenues to local businesses (either through supplying services or benefiting from expenditure); Types of jobs needed; Implications for workforce recruitment, training opportunities etc.; Potential extent of local recruitment for Project workforce;
Economic output effects in the supply chain	No surveys are proposed.	
Access to job opportunities by local residents	No surveys are proposed.	
Impacts on demand for housing and local services	No surveys are proposed.	
Impacts on the economic value of	No surveys are proposed.	

Impact Scoped In	EIA Survey Work	EIA Assessment Methodology
tourism and recreation activities		Potential scale of non-local recruitment for Project workforce; and Implication for potential demand on local house, services, health and educational facilities. Estimates on the capital and operation expenditure of the Onshore Scheme can be used to generate estimates of the direct and indirect impacts of the Onshore Scheme. The following project specific information will be used to develop a socio-economic impact model: Estimates of capital expenditure for the construction and decommissioning phases; and Estimates on Project operation expenditure. Several scenarios will be developed to inform estimates of the Onshore Scheme on indicators such as employment and GVA. It is envisaged that two scenarios will be assessed, a 'low' scenario (covering the minimum realistic levels of local and regional impacts) and a 'high' scenario (covering the maximum realistic levels of local and regional impacts).
Employment in the supply chain	No surveys are proposed.	
Employment output effects in the supply chain	No surveys are proposed.	
Access to job opportunities by local residents	No surveys are proposed.	
Impacts for housing and local services	No surveys are proposed.	
Impacts on tourism, recreation activity and associated economic value	No surveys are proposed.	

15.10. SCOPING QUESTIONS

- Are the identified data sources appropriate for the baseline characterisation?
- Are there any additional data sources or guidance documents that should be considered?
- Do you agree that all receptors and impacts have been identified for socio-economics?
- Do you agree that the impacts suggested can be scoped out of the EIA Chapter?
- Are there any other major energy or other infrastructure projects that should be included as part of the cumulative impact assessment?
- Do you agree with the proposed approach assessment?

16. CLIMATE CHANGE AND CARBON ASSESSMENT

16.1. INTRODUCTION

This section will provide an overview of the proposed approach to the assessment of potential effects of the Onshore Scheme on climate change and carbon balance, including the scope of a climate change resilience (CCR) assessment and the In-Combination Climate Impact (ICCI) assessment.

16.2. LEGISLATION, POLICY AND GUIDANCE

In addition to the legislation outline in section 2, the following legislation, policy and guidance is specifically relevant to climate change and carbon assessment:

16.2.1. LEGISLATION

- The Climate Change Act 2008, as amended by the Climate Change Act 2008 (2050 Target Amendment) Order 2019; and
- International frameworks that the United Kingdom (UK) is a signatory to, such as the UN Framework Convention on Climate Change, the Kyoto Protocol and the Paris Agreement.

16.2.2. POLICY

- NPS for Overarching National Policy Statement for Energy (EN-1);
- NPS for Renewable Energy Infrastructure (EN-3);and
- Draft NPS for Electricity Networks Infrastructure (EN-5).

16.2.3. GUIDANCE

- NPPF Guidance: Climate Change (Department for Levelling Up, Housing and Communities, 2019);
- Guidance on Integrating Climate Change and Biodiversity into Environmental Impact Assessment (European Commission, 2013);
- Guidelines for Project Managers: Making vulnerable investments climate resilient (European Commission, 2011);
- 2015 UK Greenhouse Gas Emissions, Final Figures (Department for Energy and Climate Change, 2017);
- IEMA EIA Guide to: Climate Change Resilience and Adaptation (IEMA, 2020); and
- IEMA EIA Guide to: Assessing Greenhouse Gas Emissions and Evaluating their Significance (IEMA, 2017).

16.3. KEY DATA SOURCES

In addition to relevant literature listed above in section 2, the data sources shown in Table 16-1have been used to inform this Scoping Report and are proposed to inform the baseline characterisation for climate change and carbon balance in the EIA.

Table 16-1 Available data and information sources – Climate Change and Carbon Assessment

Title	Source	Year	Author
UK Climate Projeections18 (UKCP18)	https://www.metoffice.gov.uk/research/approach/collaboration/ukcp	2018	Met Office

16.4. STUDY AREA

Climate change issues associated with greenhouse gas emissions are on a global scale and have the potential to spread beyond the fixed location of the onshore scoping area, hence no specific Study Area has been defined for the assessment because the receptor is the global environment. The potential impacts of the Onshore Scheme will be assessed at a UK-wide scale, to be refined for targeted, specific assessments in due course and to ensure proportionality in the EIA. Carbon emissions associated with the Onshore Scheme will be accounted for within the EIA Report once final decisions on the PDE are made.

16.5. BASELINE ENVIRONMENT

The primary data source used in this section is the UKCP18 climate projections which are recommended for use in the IEMA EIA Guide to: Climate Change Resilience and Adaptation (IEMA, 2020). The UKCP18 projections are available from the Met Office website. UK Climate Projections are most applicable to onshore and coastal areas (Met Office, 2021), such as the onshore scoping area. The most recent climate change iteration, UKCP18 has identified the following climatic trends as a result of climate change:

- Increased temperature;
- Changes in the frequency, intensity and distribution of rainfall events (e.g. an increase in the contribution to wind rainfall from heavy precipitation event and decreases in summer rainfall);
- Increased wind storms; and
- Sea level rise.

The EIA will used projections based on the latest findings in climate science to determine the baseline environment, and, as per IEMA guidance, predictions associated with the highest emissions scenario (Representative Concentration Pathway [RCP] 8.5).

Potential effects include:

- Effects of the Onshore Scheme on climate change;
- Effects of climate change on the Onshore Scheme (Climate Resilience); and
- Effects of the Onshore Scheme on all relevant EIA receptors in the context of future climatic conditions (ICCI).

16.5.1. EFFECTS OF THE ONSHORE SCHEME ON CLIMATE CHANGE

There is a carbon cost of construction associated with materials utilised and their transport to the Onshore Scheme. The current baseline with respect to greenhouse gas emissions from existing methods of electricity generation will be identified using existing data from the Government, operational sites, and experience of other similar developments. This information will provide the baseline information against which to assess the contribution of the Onshore Scheme to reducing greenhouse gas emissions and potential for significant effects. The carbon cost of the construction phase will be scoped into the EIA.

During operation, the Onshore Scheme is considered to make a negligible contribution to carbon emissions. The operation of cables associated with the Onshore Scheme as well as the converter station is not anticipated to give rise to significant emissions. Alongside regular operational energy requirements associated with the Onshore Scheme, emissions would relate to to highly limited volumes of operational and maintenance vehicle traffic.

The emissions from the Onshore Scheme are therefore proposed to be scoped out of the EIA on the basis that no significant effects are foreseen based on the scale and nature of the development.

The BBWF will produce low carbon power, reducing the need for fossil fuel burning and hence provide a carbon saving and impacting positively towards climate change. Whilst the overall carbon saving associated with the BBWF has the potential to have a significant positive environmental impact on climate change, this is not within the scope of the application for the Onshore Scheme, and therefore will not be assessed within the EIA for the Onshore Scheme and is not discussed further.

16.5.2. CLIMATE RESILIENCE

It is proposed that the Onshore Scheme's vulnerabilities and resilience to climate change during construction and operation can be scoped out of the EIA. None of the identified climate change trends discussed above are reasonably considered to affect the Onshore Scheme with the exception of increased rainfall events and sea level rise. It is expected that a Drainage Strategy will be prepared for the Onshore Scheme which will detail site drainage design e.g. SuDS if required, including any necessary ponds, swales, cross drains and bunds, to ensure that runoff from hard surfaces within the substation / switchgear will be controlled and managed.

Therefore, climate change is not expected to have a significant effect on the Onshore Scheme, and this topic can be scoped out.

16.5.3. IN-COMBINATION CLIMATE IMPACT ASSESSMENT

An ICCI assessment is scoped in, and will consider how any of the predicted impacts from the Onshore Scheme alone could be exacerbated or reduced by any predicted future changes in the physical environment.

16.6. DESIGNED IN MEASURES CONSIDERED WITHIN THE EIA

Designed in mitigation measures in respect of climate change and carbon balance will be determined once surveys of the onshore scoping area have been completed and the baseline conditions and PDE are fully understood. Embedded measures that could be implemented include:

- Minimisation of watercourse crossings;
- Avoidance of cable routes parallel to watercourses for distances greater than 500 m;
- Measures to control construction-related pollution/discharges; and
- Associated development for the adequate management of surface water on site (such as a Drainage Strategy) / SuDS (expected to include a surface water retention pond within the footprint of the substation site and a surface water discharge outfall on the north bank of the Sleek Burn).

The requirement for additional mitigation measures (secondary mitigation) will be dependent on the significance of effects on the hydrology and flood risk receptors and will be consulted upon with consultees throughout the EIA process.

16.7. SCOPING OF POTENTIAL IMPACTS

Table 16-2 Potential impacts on climate change and carbon during construction/ decommissioning, operations and maintenance of the Onshore Scheme

Potential Impact	Scoping Justification	Scoped In / Out
Construction / Decommissioning		
Carbon cost	Carbon dioxide is the primary greenhouse gas emitted through human activities. The use of materials such as cement and steel, and their transport to the Onshore Scheme, has an associated carbon cost.	**Scoped In**

Potential Impact	Scoping Justification	Scoped In / Out
Operation and Maintenance		
Carbon cost (operation and maintenance)	Operation of cables and the convertor station is not anticipated to give rise to significant emissions and would equate only to regular operational energy requirements. Vehicle movements expected throughout operation is not expected to give rise to significant carbon emissions.	**Scoped Out**
Climate resilience	None of the identified climate change trends listed above could affect the Onshore Scheme with the exception of increased rainfall events and sea level rise, which will be managed through designed in mitigation measures.	**Scoped Out**
ICCI	An ICCI assessment is scoped in and will consider how any of the predicted impacts from the Onshore Scheme alone could be exacerbated or reduced by any predicted future changes in the physical environment.	**Scoped In**

16.8. POTENTIAL TRANSBOUNDARY IMPACTS

The potential for transboundary impacts on receptors will be considered within the ICCI assessment. In terms of carbon cost, the EIA will assess the potential for transboundary impacts to occur in terms of global climate change.

16.9. PROPOSED EIA METHODOLOGY

Consideration will be given to the full extent of the development and its component parts, including construction materials and sources, transportation routes, the anticipated number and type of vehicles, including abnormal loads, that will be generated at each stage of construction.

As part of the EIA process consultation will be undertaken with NCC to agree the scope of the Climate Change and Carbon Assessment.

The principal methods of assessment to be employed within the EIA Report relating to each of the identified at risk receptors are summarised below in Table 16-3. These methods will be used alongside input from the relevant guidance as identified in section 2.

Table 16-3 Principal method of assessment to be conducted within the EIA report

Impact Scoped In	EIA Survey Work	EIA Assessment Methodology
Carbon cost (construction and decommissioning)	None proposed	An estimate of the carbon cost of the construction and decommissioning of the Onshore Scheme will be made based on the proposed construction materials, quantities and published carbon equivalences where available. The carbon cost of transport will be estimated, taking account of where the components are to be transported from and how they will be moved.
ICCI	None proposed	The ICCI will consider the potential in which any of the predicted impacts from the Onshore Scheme may be excarerbated or reduced by changes in the physical environment. The ICCI assessment will place the impact of the Onshore Scheme on receptors in the context of future climatic conditions. Only impacts associated with operation and maintenance will be considered within the ICCI assessment, as current climate conditions are considered to be applicable for the approximately short term construction phase.

16.10. SCOPING QUESTIONS

- Are the identified data sources appropriate for the baseline characterisation?
- Are there any additional data sources or guidance documents that should be considered?
- Do you agree that all impacts have been identified for climate change and carbon assessment?
- Do you agree that a climate resilience assessment and carbon cost assessment can be scoped out of the EIA Chapter?
- Are there any other major energy or other infrastructure projects that should be included as part of the cumulative impact assessment?
- Do you agree with the proposed approach assessment?

17. SUMMARY OF SCOPING REPORT

17.1. OVERVIEW

The EIA Scoping Report has identified the main receptors that may potentially be significantly impacted by the construction, operation and maintenance, and decommissioning of the Onshore Scheme, and therefore, scoped into the EIA. For each of the relevant impacts and receptors that have been scoped in, the proposed approach for assessment has been described, and questions have been posed to consultees for comment. Table 17-1 summarises the topic and impacts to be scoped in and out of the Onshore Scheme EIA. The proposed structure of the EIA Report is provided in Table 17-2 below.

Table 17-1 Summary of Scoping of Potential Impacts for the Cambois Connection Onshore Scheme (Scoped in (✓) / Scoped Out (X))

Potential Impact	Construction Phase	O&M Phase	Decommissioning Phase	Cumulative Impacts	Transboundary Impacts
Onshore Ecology					
Possible damage to designated sites including the Northumbria Coast SPA and Ramsar and Northumberland Shore SSSI	✓	**N/A**	✓	✓	**X**
Possible damage to other designated sites	**X**	**N/A**	**X**	**X**	**X**
Habitat loss or damage (permanent and temporary)	✓	**N/A**	✓	✓	**X**

Potential Impact	Construction Phase	O&M Phase	Decommissioning Phase	Cumulative Impacts	Transboundary Impacts
Severance of habitat connectivity	✓	N/A	✓	✓	X
Loss of habitat suitable for shelter, foraging and commuting by protected/notable species	✓	N/A	✓	✓	X
Disturbance to, displacement and inadvertent mortality/injuring of protected/notable fauna	✓	N/A	✓	✓	X
Sedimentation or other pollution of watercourses due to construction activities and vehicular traffic; including indirect impacts to aquatic species and/or hydrologically connected designated sites	✓	N/A	✓	✓	X

Potential Impact	Construction Phase	O&M Phase	Decommissioning Phase	Cumulative Impacts	Transboundary Impacts
Spread of invasive non-native species through the activities on site	✓	N/A	✓	✓	X
Disturbance, displacement and inadvertent mortality/injury of fauna due to vehicular traffic and presence of site operatives, e.g., for maintenance	N/A	✓	N/A	✓	X
Environmental incidents and accidents (e.g., spillages) leading to adverse effects on aquatic habitats and associated species	N/A	✓	N/A	✓	X
Onshore Ornithology					

Potential Impact	Construction Phase	O&M Phase	Decommissioning Phase	Cumulative Impacts	Transboundary Impacts
Permanent or temporary habitat loss affecting breeding or wintering birds.	✓	N/A	✓	✓	X
Disturbance and damage/injury as a result of construction/decommissioning activity	✓	N/A	✓	✓	X
Indirect effects on habitats or individual birds	✓	N/A	✓	✓	X
Direct impacts (killing/injury) to nesting birds	✓	N/A	✓	✓	X
Collision with Onshore Scheme infrastructure	N/A	X	N/A	X	X

Potential Impact	Construction Phase	O&M Phase	Decommissioning Phase	Cumulative Impacts	Transboundary Impacts
Disturbance and damage to habitats or to individual birds	N/A	✓	N/A	✓	X
Indirect effects on habitats or individual birds	N/A	✓	N/A	✓	X
Landscape and Visual					
Temporary loss of landscape features and changes to landscape character during installation of the onshore cables	X	N/A	X	X	X

Potential Impact	Construction Phase	O&M Phase	Decommissioning Phase	Cumulative Impacts	Transboundary Impacts
Temporary change to views and visual amenity during installation of the onshore cables	X	N/A	X	X	X
Temporary loss of landscape features and changes to landscape character during construction of the converter station	✓	N/A	✓	✓	X
Temporary change to views and visual amenity during construction of the converter station	✓	N/A	✓	✓	X
Permanent loss of landscape features and changes to landscape character during operation of the onshore cables	N/A	X	N/A	X	X

Potential Impact	Construction Phase	O&M Phase	Decommissioning Phase	Cumulative Impacts	Transboundary Impacts
Permanent change to views and visual amenity during operation of the onshore cables	N/A	X	N/A	X	X
Permanent loss of landscape features and changes to landscape character and changes to quality of designated landscapes during operation of the converter station	N/A	✓	N/A	✓	X
Permanent change to views and visual amenity during operation of the converter station	N/A	✓	N/A	✓	X
Noise and Vibration					

Potential Impact	Construction Phase	O&M Phase	Decommissioning Phase	Cumulative Impacts	Transboundary Impacts
Noise associated with construction of onshore components	✓	N/A	✓	✓	X
Ground-borne vibration associated with construction of onshore components	✓	N/A	✓	✓	X
Onshore noise associated with vehicle use	✓	N/A	✓	✓	X
Ground-borne vibration associated with vehicle use	X	N/A	X	X	X
Onshore noise associated with operation and maintenance of onshore components	N/A	✓	N/A	✓	X

Potential Impact	Construction Phase	O&M Phase	Decommissioning Phase	Cumulative Impacts	Transboundary Impacts
Ground-borne vibration associated with operation and maintenance of onshore components	N/A	X	N/A	X	X
Air Quality					
Dust from onshore construction works, including convertor station, onshore cable laying and installation, landfall installation, and access roads	✓	N/A	✓	✓	X
Dust and emissions (construction vehicles)	X	N/A	X	X	X

Potential Impact	Construction Phase	O&M Phase	Decommissioning Phase	Cumulative Impacts	Transboundary Impacts
Dust and emissions resulting from operation and maintenance works	N/A	X	N/A	X	X
Archaeology and Cultural Heritage					
Direct physical disturbance to or loss of known onshore cultural heritage assets	✓	N/A	✓	X	X
Disturbance to or potential loss or damage of any unknown sub-surface archaeological features	✓	N/A	✓	X	X

Potential Impact	Construction Phase	O&M Phase	Decommissioning Phase	Cumulative Impacts	Transboundary Impacts
Indirect impacts that affect the setting of Scheduled Monuments, Listed Buildings and other designated archaeological and cultural heritage assets	X	N/A	X	X	X
Direct physical disturbance to or loss of known onshore cultural heritage assets and disturbance to or potential loss of any unknown sub-surface archaeological features	N/A	X	N/A	X	X
Indirect impacts that affect the setting of Scheduled Monuments, Listed Buildings and other designated archaeological and cultural heritage assets	N/A	✓	N/A	✓	X

Potential Impact	Construction Phase	O&M Phase	Decommissioning Phase	Cumulative Impacts	Transboundary Impacts
Geology and Contaminated Land					
Impact on geology	✓	N/A	✓	X	X
Impact on soils	✓	N/A	✓	X	X
Impact on contaminated land	✓	N/A	✓	X	X
Impact on land use	✓	N/A	✓	✓	X

Potential Impact	Construction Phase	O&M Phase	Decommissioning Phase	Cumulative Impacts	Transboundary Impacts
Impacts on mining	✓	N/A	✓	X	X
Impacts on UXO	✓	N/A	✓	X	X
Impact on ground conditions	N/A	X	N/A	X	X
Impact on soil	N/A	✓	N/A	X	X
Impact on land use	N/A	✓	N/A	✓	X

Potential Impact	Construction Phase	O&M Phase	Decommissioning Phase	Cumulative Impacts	Transboundary Impacts
Hydrogeology and Flood Risk					
Impact on hydrogeology	✓	N/A	✓	✓	X
Impact on surface sediments	✓	N/A	✓	✓	X
Damage to riverbanks	✓	N/A	✓	✓	X
Impact on groundwater and aquifers	✓	N/A	✓	✓	X

Potential Impact	Construction Phase	O&M Phase	Decommissioning Phase	Cumulative Impacts	Transboundary Impacts
Impact on private water supplies	✓	N/A	✓	✓	X
Impact on hydrogeology	N/A	✓	N/A	✓	X
Impact on water quality	N/A	✓	N/A	✓	X
Changes to river morphology	N/A	✓	N/A	✓	X
Traffic and Transport					

Potential Impact	Construction Phase	O&M Phase	Decommissioning Phase	Cumulative Impacts	Transboundary Impacts
Impacts arising from the increased generation of traffic	✓	N/A	✓	✓	X
Impacts on road safety as a result of the generation of increased traffic	✓	N/A	✓	✓	X
Impacts on the local community	✓	N/A	✓	✓	X
Impact on road carriageway, verges and associated structures; and impact on road users	✓	N/A	✓	✓	X

Potential Impact	Construction Phase	O&M Phase	Decommissioning Phase	Cumulative Impacts	Transboundary Impacts
Impacts during operations and maintenance on existing traffic flows and the local road network (All vehicle, including HGV, movements)	N/A	X	N/A	X	X
Socioeconomics					
Employment in the supply chain	✓	N/A	✓	✓	✓
Economic output effects in the supply chain	✓	N/A	✓	✓	✓
Access to job opportunities by local residents	✓	N/A	✓	✓	✓

Potential Impact	Construction Phase	O&M Phase	Decommissioning Phase	Cumulative Impacts	Transboundary Impacts
Impacts on demand for housing and local services	✓	N/A	✓	✓	✓
Impacts on the economic value of tourism and recreation activities	✓	N/A	✓	✓	✓
Socio-cultural effects	X	N/A	X	X	X
Employment in the supply chain	N/A	✓	N/A	✓	✓
Employment output effects in the supply chain	N/A	✓	N/A	✓	✓

Potential Impact	Construction Phase	O&M Phase	Decommissioning Phase	Cumulative Impacts	Transboundary Impacts
Access to job opportunities by local residents	**N/A**	✓	**N/A**	✓	✓
Impacts for housing and local services	**N/A**	✓	**N/A**	✓	✓
Impacts on tourism, recreation activity and associated economic value	**N/A**	✓	**N/A**	✓	✓
Socio-cultural effects	**N/A**	**X**	**N/A**	**X**	**X**
Climate Change and Carbon Assessment					

Potential Impact	Construction Phase	O&M Phase	Decommissioning Phase	Cumulative Impacts	Transboundary Impacts
Carbon cost (construction and decommissioning)	✓	N/A	✓	✓	✓
Carbon cost (operation and maintenance)	N/A	X	N/A	X	X
Climate resilience	N/A	X	N/A	X	X
In-combination climate impacts	N/A	✓	N/A	X	X

Table 17-2 Proposed Structure of EIA Report

Chapter	Title	Appendices
1	Introduction	
2	Approach to EIA	
3	PolicyPolicy and Legislation	
4	SiteSite Selection and Alternatives	
5	Project Description	
6	Landscape and Visual	
7	Terrestrial Ecology	Survey Outputs, as required

Chapter	Title	Appendices
8	Ornithology	HRA, noting that the Applicant intends to provide a single HRA in support of the Onshore Scheme and the Marine Scheme, as described above
9	Noise and Vibration	
10	Archaeology and Cultural Heritage	
11	Geology and Contaminated Land	
12	Hydrogeology and Flood Risk	FRA and WFD Assessment
13	Air Quality	

Chapter	Title	Appendices
14	Traffic and Transport	
15	Socio-economics, Recreation and Tourism	
16	Summary and Conclusion	

18. REFERENCES

Biggs J, Ewald N, Valentini A, Gaboriaud C, Griffiths RA, Foster J, Wilkinson J, Arnett A, Williams P and Dunn F. (2014). Analytical and methodological development for improved surveillance of the Great Crested Newt. Appendix 5. Technical advice note for field and laboratory sampling of great crested newt (Triturus cristatus) environmental DNA. Freshwater Habitats Trust, Oxford.

Bright P, Morris P and Mitchell-Jones T. (2006) The Dormouse Conservation Handbook (2nd Edition). Natural England, Peterborough.Collins J. (ed.) (2016) Bat Surveys for Professional Ecologists, Good Practice Guidelines. 3rd Edition. BCT

BSI Standards Publications (2003). Description and measurement of environmental noise. Available at: https://www.en-standard.eu/bs-7445-1-2003-description-and-measurement-of-environmental-noise-guide-to-quantities-and-procedures/

BSI Standards Publications (2014). Code of practice for noise and vibration control on construction and open sites. Available at: https://www.warrington.gov.uk/sites/default/files/2020-08/cf53_bs_5228_pt1-2009a1-2014.pdf

BSI Standards Publications (2019). BS 4142 – Methods for Rating and Assessing Industrial and Commercial Sound. Available at: https://www.bsigroup.com/en-GB/standards/bs-4142/

Chanin P. (2003a) Ecology of the European Otter. Conserving Natura 2000 Rivers, Ecology Series No. 10. English Nature, Peterborough.

Chanin P. (2003b) Monitoring the Otter Lutra lutra. Conserving Natura 2000 Rivers Monitoring Series No 10. English Nature, Peterborough.

Chartered Institute for Archaeologists (2014). Standard and guidance for historic environment desk-based assessment. Available at: https://www.archaeologists.net/sites/default/files/CIfAS%26GDBA_4.pdf

Chartered Institute of Ecology and Environmental Management (2022). Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine. Available at: https://cieem.net/wp-content/uploads/2019/02/Combined-EclA-guidelines-2018-compressed.pdf

Chartered Institute of Ecology and Environmental Management (2019). Biodiversity Net Gain: Good Practice Principles for Development, A Practical Guide. Available at: https://cieem.net/resource/biodiversity-net-gain-good-practice-principles-for-development-a-practical-guide/Chartered Institute of Ecology and Environmental Management (2022). Guidance for Bird Surveys in Relation to Development (Natural England). Available at: https://cieem.net/resource/guidance-for-bird-surveys-in-relation-to-development-natural-england/

Committee on Climate Change (2019). Net Zero – The UK's Contribution to stopping global warming. Available at: https://www.theccc.org.uk/publication/net-zero-the-uks-contribution-to-stopping-global-warming/

Dean, M., Strachan, R., Gow, D. and Andrews, R. (2016). 'The Water Vole Mitigation Handbook', The Mammal Society Mitigation Guidance Series, Fiona Mathews and Paul Chanin (eds.), (London: The Mammal Society).

Department of Energy and Climate Change (2011). National Policy Statement for Renewable Energy. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/37048/1940-nps-renewable-energy-en3.pdf

DEFRA (2022). Consultation on Biodiversity Net Gain Regulations and Implementation. Available at: https://consult.defra.gov.uk/defra-net-gain-consultation-team/consultation-on-biodiversity-net-gain-regulations/

DEFRA (2020). Environmental permitting guidance: Core guidance. Available at: https://www.gov.uk/government/publications/environmental-permitting-guidance-core-guidance--2

DEFRA and Environment Agency (2017). Flood risk assessments if you're applying for planning permission. Available at: https://www.gov.uk/guidance/flood-risk-assessment-for-planning-applications#when-you-need-an-assessment

Department for Business, Energy and Industrial Strategy (2011). Draft National Policy Statement for Electricity Networks Infrastructure. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/47854/1938-overarching-nps-for-energy-en1.pdf

Department for Business, Energy and Industrial Strategy (2019). Decommissioning of Offshore Renewable Energy Installations. Available at: https://www.gov.uk/government/publications/decommissioning-offshore-renewable-energy-installations

Department for Business, Energy and Industrial Strategy (2021). Net Zero Strategy: Build Back Greener. Available at: https://www.gov.uk/government/publications/net-zero-strategy

Business, Energy and Industrial Strategy (2021a) Draft Overarching National Policy Statement for Energy (EN-1). Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1015233/en-1-draft-for-consultation.pdf

Business, Energy and Industrial Strategy (2021b) Draft Overarching National Policy Statement for Renewable Energy Infrastructure (EN-3). Available at:

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1015236/en-3-draft-for-consultation.pdf

Department for Business, Energy and Industrial Strategy (2022). British Energy Security Strategy. Available at: https://www.gov.uk/government/publications/british-energy-security-strategy

Department for Business, Energy and Industrial Strategy (2022). Energy Security Bill: policy statements and draft regulations. Available at: https://www.gov.uk/government/publications/energy-security-bill-policy-statements-and-draft-regulations

Department for Environment, Food and Rural Affairs (2010). Noise Policy Statement for England. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/69533/pb13750-noise-policy.pdf

Department for Environment, Food and Rural Affairs (2019). Air Quality: National Air Pollution Control Programme. Available at: https://www.gov.uk/government/publications/air-quality-uk-national-air-pollution-control-programme

Department for Environment, Food and Rural Affairs (2022). Draft National Air Pollution Control Programme. Available at: https://www.gov.uk/government/consultations/draft-national-air-pollution-control-programme-napcp

Department for Levelling Up, Housing and Communities (2012). National Planning Policy Framework, Policy 16: Conserving and enhancing the historic environment. Available at: https://www.gov.uk/guidance/national-planning-policy-framework/16-conserving-and-enhancing-the-historic-environment

Department for Levelling Up, Housing and Communities (2012). National Planning Policy Framework – Meeting the challenge of climate change, flooding and coastal change. Available at: https://www.gov.uk/guidance/national-planning-policy-framework/14-meeting-the-challenge-of-climate-change-flooding-and-coastal-change#para158

Department for Levelling Up, Housing and Communities (2019). Guidance – Noise. Available at: https://www.gov.uk/guidance/noise--2

Department for Levelling Up, Housing and Communities (2019). Guidance: Historic environment. Available at: https://www.gov.uk/guidance/conserving-and-enhancing-the-historic-environment#:~:text=Non%2Ddesignated%20heritage%20assets%20are,criteria%20for%20designated%20heritage%20assets.

Department for Levelling Up, Housing and Communities (2019). Guidance: Climate change. Available at: https://www.gov.uk/guidance/climate-change

Department for Energy and Climate Change (2017). 2015 UK Greenhouse Gas Emissions, Final Figures. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/957887/2019_Final_greenhouse_gas_emissions_statistical_release.pdf

English Nature (2001) Great crested newt mitigation guidelines. English Nature, Peterborough.

Environment Agency (2014). Construction and demolition sites, PPG6: prevent pollution. Available at: https://www.gov.uk/government/publications/construction-and-demolition-sites-ppg6-prevent-pollution

Environment Agency (2016). Flood risk activities: environmental permits. Available at: https://www.gov.uk/guidance/flood-risk-activities-environmental-permits

Environmental Agency (2017). Water Framework Directive assessment: estuarine and coastal waters. Available at: https://www.gov.uk/guidance/water-framework-directive-assessment-estuarine-and-coastal-waters

European Commission (2003). Water Framework Directive Guidance Documents. Available at: https://ec.europa.eu/environment/water/water-framework/facts_figures/guidance_docs_en.htm

European Commission (2011). Guidelines for Project Managers: Making vulnerable investments climate resilient. Available at: https://climate-adapt.eea.europa.eu/en/metadata/guidances/non-paper-guidelines-for-project-managers-making-vulnerable-investments-climate-resilient/guidelines-for-project-managers.pdf

European Commission (2013) Guidance on Integrating Climate Change and Biodiversity into Environmental Impact Assessment. Available at: https://ec.europa.eu/environment/eia/pdf/EIA%20Guidance.pdf

Froglife (1999). Reptile Survey: An Introduction to Planning, Conducting and Interpreting Surveys for Snakes and Lizard Conservation. Froglife Advice Sheet 10. Froglife, Halesworth.

Gent T and Gibson S. (1998). Herpetofauna Workers' Manual. Joint Nature Conservation Committee, Peterborough.

Highways England (2019). Introduction to environmental assessment (LA101). Available at: https://www.standardsforhighways.co.uk/dmrb/search/54b0eb69-fd65-4fa5-a86b-7313f70b3649

Highways England (2020). Environmental assessment and monitoring (LA104). Available at: https://standardsforhighways.co.uk/dmrb/search/0f6e0b6a-d08e-4673-8691-cab564d4a60a

Highways England (2020) LA 111 – Noise and vibration. Available at: https://www.standardsforhighways.co.uk/dmrb/search/cc8cfcf7-c235-4052-8d32-d5398796b364

Historic England (2016). Making Changes to Heritage Assets. Available at: https://historicengland.org.uk/images-books/publications/making-changes-heritage-assets-advice-note-2/heag023-making-changes-to-heritage-assets/

Historic England (2017). Listed Selection Guides. Available at: https://historicengland.org.uk/listing/selection-criteria/listing-selection/

IAQM (2014). Guidance on the assessment of dust from demolition and construction. Available at: https://iaqm.co.uk/text/guidance/construction-dust-2014.pdf

IAQM (2020). A guide to the assessment of air quality impacts on designated nature conservation sites. Available at: https://iaqm.co.uk/text/guidance/air-quality-impacts-on-nature-sites-2020.pdf

IEMA (1993). Guidelines for the Environmental Assessment of Road Traffic.

IEMA (2004). Environmental Impact Assessment Guide To: Delivering Quality Development.

IEMA (2007). Delivering Proportionate EIA.

IEMA (2017). EIA Guide to: Assessing Greenhouse Gas Emissions and Evaluating their Significance. Available at: https://www.iema.net/preview-document/assessing-greenhouse-gas-emissions-and-evaluating-their-significance

IEMA (2019). Impact Assessment Strategy. Available at: https://www.iema.net/resources/watch-again/2020/02/13/iema-impact-assessment-guidance

IEMA (2020). EIA Guide to: Climate Change Resilience and Adaption. Available at: https://www.iema.net/resources/reading-room/2020/06/26/iema-eia-guide-to-climate-change-resilience-and-adaptation-2020IEMA2020

IEMA (2022). A New Perspective on Land and Soil in Environmental Impact Assessment.

IEMA (2020/21). Impact Assessment Working Group with Chartered Institution of Highways and Transportation – EIA Update to Guidelines for the Environmental Assessment of Road Traffic 1993.

International Commission on Non-Ionizing Radiation Protection (2020). RF EMF Guidelines 2020. Available at: https://www.icnirp.org/en/activities/news/news-article/rf-guidelines-2020-published.html

Landscape Institute (2013). Guidelines for Landscape and Visual Impact Assessment (GLVIA3).

Landscape Institute (2019). Visual Representation of Development Proposals. Available at: https://landscapewpstorage01.blob.core.windows.net/www-landscapeinstitute-org/2019/09/LI_TGN-06-19_Visual_Representation.pdf

Landscape Institute (2019). Residential Visual Amenity Assessment (RVAA) Technical Guidance Note 2/19. Available at: https://landscapewpstorage01.blob.core.windows.net/www-landscapeinstitute-org/2019/03/tgn-02-2019-rvaa.pdf

MarLIN (2020). The Marine Life Information Network. Available online at https://www.marlin.ac.uk/

Ministry of Housing, Communities and Local Government (2016). Planning practice guidance. Available at: https://www.gov.uk/government/collections/planning-practice-guidance

NAEI (2021). UK emissions data selector. Available at: https://naei.beis.gov.uk/data/data-selector

National Grid Electricity System Operator (2022). Pathway to 2030. Available at: https://www.nationalgrideso.com/document/262676/download

National Infrastructure Planning (2017). Advice Note Eighteen: The Water Framework Directive. Available at: https://infrastructure.planninginspectorate.gov.uk/legislation-and-advice/advice-notes/advice-note-18/

National Infrastructure Planning (2019). Advice Note Seventeen: Cumulative effects assessment relevant to nationally significant infrastructure projects. Available at: https://infrastructure.planninginspectorate.gov.uk/legislation-and-advice/advice-notes/advice-note-17/

National Infrastructure Strategy (2020) Fairer, Faster and Greener. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/938539/NIS_Report_Web_Accessible.pdf

Natural England (2000). Northumbria Coast European Marine Site: English Nature's advice given under Regulation 33(2) of the Conservation (Natural Habitats &c.) Regulations 1994. Available at: http://publications.naturalengland.org.uk/publication/4528018

Natural England (2019). Provisional Agricultural Land Classification (ALC) (England). Available at: https://naturalengland-defra.opendata.arcgis.com/datasets/Defra::provisional-agricultural-land-classification-alc-england/explore?location=55.138974%2C-1.518220%2C13.73

Natural England (2013). NCA Profile: 13 South East Northumberland Coastal Plain (NE498). Available at: http://publications.naturalengland.org.uk/publication/6175975133937664

Natural England (2014). An Approach to Landscape Character Assessment. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/691184/landscape-character-assessment.pdf

Natural England (2022). Nutrient Neutrality: A summary guide and frequently asked questions (NE776). Available at: http://publications.naturalengland.org.uk/publication/6248597523005440

Neal E. and Cheeseman C. (1996). Badgers. Poyser Natural History

Northumberland County Council (2009). Northumberland Consolidated Planning Policy Framework. Available at: https://gat04-live-1517c8a4486c41609369c68f30c8-aa81074.divio-media.org/filer_public/8e/05/8e059fad-f537-43a8-9fc3-ba16856e7f72/app29-_northumberland_consolidated_planning_policy_framework.pdf

Northumberland County Council (2013). Northumberland East Sleekburn Sites – Local Development Order. Available at: https://www.northeastlep.co.uk/wp-content/uploads/2014/11/EZ-LDO-Sleekburn.pdf

Northumberland County Council (2020). 2020 Air Quality Annual Status Report. Available at: https://www.northumberland.gov.uk/NorthumberlandCountyCouncil/media/Public-Protection/Pollution/2020-LAQM-Annual-Status-Report.pdf

Northumberland County Council (2022). Northumberland Local Plan 2016-2036. Available at: https://www.northumberland.gov.uk/NorthumberlandCountyCouncil/media/Planning-and-Building/planning%20policy/Local%20Plan/Northumberland-Local-Plan-Adopted-March-2022.pdf

Northumberland County Council (2022). The Northumberland Economic Strategy 2019-2024. Available at: https://gat04-live-1517c8a4486c41609369c68f30c8-aa81074.divio-media.org/filer_public/a8/85/a885409d-b1df-44b9-a31a-2b6223d7949d/app35_-_northumberland_economic_strategy_2019-2024.pdf

ONS, 2017. Gross Value Added. Available at: https://www.ons.gov.uk/economy/grossvalueaddedgva

ONS, 2021. Wind energy in the UK: June 2021. Available at: https://www.ons.gov.uk/economy/environmentalaccounts/articles/windenergyintheuk/june2021#:~:text=Employment%20in%20offshore%20wind%20in,levels%20of%20wind%20energy%20generation.

ONS, 2022. Low carbon and renewable energy economy, UK: 2020. Available at: https://www.ons.gov.uk/economy/environmentalaccounts/bulletins/finalestimates/2020

Sewell D, Griffiths R, Beebee T, Foster J and Wilkinson J (2013). Survey Protocols for the British Herpetofauna.

SSE Renewables (2022). Berwick Bank Wind Farm Boundary Reduction. Available at: https://www.berwickbank.com/news/berwick-bank-thank-local-stakeholders-lf59t-xcfy8

SSE Renewables. 2022. Berwick Bank and Marr Bank Offshore Windfarms: Marr Bank Cable Corridor Routing Optioneering Study. Report No.: C9000-12T01-01

Stanbury et al., (2021). The status of our bird populations: the fifth Birds of Conservation Concern in the United Kingdom, Channel Islands and Isle of Man and second IUCN Red List assessment of extinction risk for Great Britain. Available at: https://www.bto.org/our-science/publications/birds-conservation-concern/status-our-bird-populations-fifth-birds

UK Government (2022). Offshore Transmission Network Review: Early Opportunities, Pathways to 2030 and Enduring Regime. Available at: https://www.gov.uk/government/groups/offshore-transmission-network-review

UK Government (2021). National Planning Policy Framework. Available at: https://www.gov.uk/government/publications/national-planning-policy-framework--2

UK Government (2022). The Energy White Paper – Powering our Net Zero Future. Available at: https://www.gov.uk/government/publications/energy-white-paper-powering-our-net-zero-future

UK Government (2020). Ten Point Plan for a Green Revolution. Available at: https://www.gov.uk/government/publications/the-ten-point-plan-for-a-green-industrial-revolution

United Nations Climate Change (2015). The Paris Agreement. Available at: https://unfccc.int/process-and-meetings/the-paris-agreement/the-paris-agreement

UK Government (2016). The Environmental Permitting (England and Wales) (Amendment) (No. 2) Regulations 2016. Available at: https://www.legislation.gov.uk/ukdsi/2016/9780111143261/contents

19. APPENDICES

19.1. APPENDIX A: PRELIMINARY ECOLOGICAL APPRAISAL

CAMBOIS- CABLE LANDFALL PROJECT

Preliminary Ecological Appraisal

Prepared for: **Xodus Group Ltd**

SLR Ref: 414.63808.00001
Version No: 2
October 2022

Document Control	
Document Properties	
Organisation	SLR Consulting
Project Name	Cambois- Cable Landfall Project
Report Title	Preliminary Ecological Appraisal
Author(s)	Callum Taylor
Draft version/final	Final
Document reference	20221006_414.63808.00001_Cambois Cable Landfall Project_PEA_Rev1

Date	Revision No	Prepared By	Reviewed By	Approved By	Status	Comments
01/09/2022	0	Callum Taylor	Duncan Watson	Duncan Watson	Draft	Draft for Client Review
05/10/2022	1	Callum Taylor	Duncan Watson	Duncan Watson	Final	Edits based on client feedback

BASIS OF REPORT

CONTENTS

DOCUMENT REFERENCES

TABLES

FIGURES

APPENDICES

1.0 Introduction

SLR was commissioned by Xodus Group Ltd in June 2022 to undertake an ecological desk study, initial habitat survey and Preliminary Ecological Appraisal (PEA)[1] of areas that may be affected by construction and operation of the proposed onshore aspects of the 'Cambois Connection' (herein referred to as 'The Project').

The Project is a proposed development, linked to the Berwick Bank Offshore Wind Farm (OWF), which is currently in the development stage. Located in the North Sea, in the outer Firth of Forth, Berwick Bank OWF has the potential to deliver up to 4.1 GW of installed capacity, making it one of the largest offshore opportunities in the world.

Berwick Bank OWF has already secured a grid connection at Branxton, near Torness in East Lothian. However, for a project of this unprecedented scale and nature, a single grid connection may not represent the optimal approach to exporting green energy into the UK energy network.

Berwick Bank OWF has three signed grid connection agreements with the network operator. Two agreements are for connection at the Branxton substation, with a third additional connection at Blyth, Northumberland, the Cambois Connection. The third additional connection agreement (Cambois Connection), was signed in June 2022 following National Grid's Electricity System Operator (ESO) Holistic Network Design (HND) Review and will enable Berwick Bank to reach full generating capacity (4.1GW) by the early 2030s. The Berwick Bank OWF is being consented separately.

This report provides a summary of baseline ecological data and recommendations for the Project within the indicative red line boundary at Cambois (the 'Site'), as shown in drawing number BER-T-DES-0025-01 (see **Appendix 01),** provided on 9th June 2022.

At the time of writing this report there were no final scheme designs available and the indicative red line boundary is representative of the area in which the client will explore to refine the project design, which will include, but not be limited to, the construction of cable landfall, cable corridor, a converter station and works to integrate into the existing grid connection point at Blyth. The contents of this report will inform the identification of constraints and opportunities within the indicative red line boundary and will be used to help establish the scheme design and inform the scope of further ecological assessment required for the project.

1.1 Study Area

The Site is located approximately 1 km north of Blyth and 0.7 km south of Ashington, in southeast Northumberland. For most receptors this report is limited to the area above Mean High Water Springs (MHWS) but also includes intertidal habitats down to Mean Low Water Springs (MLWS) for birds.

The desk study is designed to give an overview of relevant existing ecological data, including data for protected and notable (e.g. rare or invasive), species and designated sites in the vicinity of the Site. The desk study included the area within 10 km for European designated sites and Sites of Special Scientific Interest (SSSI) plus up to 2 km for protected/notable species and for other designated sites. These distances were used to identify designated sites and other receptors which could potentially be subject to indirect effects resulting from the Project.

The initial habitat survey included all habitats within the indicative red line boundary (see **Appendix 01)**, plus an additional 250m buffer, to enable adjacent habitats which could potentially be subject to indirect effects resulting from the Project to be identified. A desk-based assessment of habitats was undertaken using aerial imagery which was confirmed, where possible, during a walkover survey. The walkover survey was limited to habitats which were in viewing range from roads, public rights of way and other areas of publicly accessible land.

[1] CIEEM (2017) Guidelines for Preliminary Ecological Appraisal, Second Edition, December 2017.

1.2 Details of the Project

The project design was not confirmed at the time of writing this report. The Site includes a much larger red line boundary than will ultimately be affected by the project.

1.2.1 Site Description

The Site is approximately 710 ha in area, centred on grid reference NZ 29311 84281 and is adjacent to the A189, including land to the east and west of the A189. The land to the west of the A189 consists predominantly of grassland habitats, historically used for arable crop and grazed pastures, with parcels of woodland and scrub habitats. The land to the east of the A189 is dominated by developed land of industrial nature with two active construction sites at the time of survey. A section of the River Blyth and Sleek Burn can be found at the southern area of the Site boundary. To the east is the North Sea coast.

1.2.2 Surrounding Area

The surrounding habitat is varied due to the coastal location of the Site. Immediately adjacent to the northern boundary is the River Wansbeck, lying between the Site and the town of Ashington. The River Blyth is located to the south of Site, to the north of the town of Blyth. The habitat to the west and southwest is dominated by rural grassland, predominantly used for farming, with areas of woodland and scrub habitat. The area to the east of site is formed by the North Sea.

1.3 Purpose of this Report

This report presents the findings of the PEA. The report seeks to:

- establish baseline conditions and identify important ecological and ornithological features present (or those that could be present), as far as is possible at this time;
- identify important ecological features that could be impacted by the project, where possible;
- provide initial suggestions for mitigation, where required, (noting that at this stage all recommendations are preliminary, depending on results of further surveys and final project design);
- to establish requirements for more detailed surveys; and
- to identify potential opportunities for biodiversity enhancements as part of the project as required under the National Planning Policy Framework[2] and local Planning Policy[3] (these suggestions also remain preliminary, depending on results of further surveys or final project design).

1.4 Evidence of Technical Competence and Experience

This PEA report has been authored by Callum Taylor, a Senior Ecologist at SLR Consulting with over four years' experience as a professional ecologist. He is a Qualifying member of the Chartered Institute of Ecology and Environmental Management (CIEEM) (QualCIEEM). Callum undertook the initial habitat surveys and undertook the desk study detailed within this report.

Niamh Ni Nagy assisted with the quality assurance of mapping data from desk-based review. Niamh is a Graduate Ecologist at SLR with 1 year of experience working in ecological consultancy. She has Student level CIEEM membership, a BSc in Animal and Conservation Biology and has received training in the use of the UKHab classification.

[2] https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1005759/NPPF_July_2021.pdf
3 For example, Policy ENV2 of the Northumberland Local Plan 2016 – 2036.

Additional technical support and Quality Assurance review has been provided by Duncan Watson. Duncan is a Technical Director at SLR Consulting with over 24 years' professional ecological experience. He is a Chartered Environmentalist (CEnv) and a full member of CIEEM (MCIEEM).

2.0 Methodology

2.1 Baseline Data Collection

2.1.1 Desk Study

Table 2-1 lists the data sources that have been identified and obtained for this PEA. The review of existing ecological reports was limited to projects within the Site boundaries and focussed on reports submitted within the last two years. CIEEM guidance recommends that use of ecological data in excess of 18 months likely requires further survey to confirm the validity of the data[4]. Some of the sources listed below also reported data from sources obtained before this time period, where relevant this has been included to provided contextual information.

Table 2-1
Baseline Data Sources

Source	Summary
Environmental Records Information Centre (ERIC) North East	Data request for designated sites of ecological importance, priority habitats, protected and notable species, of up to 2 km from the red line boundary.
Multi-agency Geographic Information Centre (MAGIC) website and Natural England's Designated Sites Viewer	Up to 10 km -The spatial extent and citations for: • Special Areas of Conservation (SAC) and possible SACs and Impact Risk Zones. • Special Protection Areas (SPA) and potential SPAs and Impact Risk Zones. • Ramsar Sites and proposed Ramsar Sites. • SSSIs and National Nature Reserves (NNR) and Impact Risk Zones. Up to 2 km- the spatial extent for: • Local Nature Reserves (LNR). • Ancient woodland Inventory. The type and spatial extent for: • Priority Habitat Inventory for grasslands, heathlands, wetland, woodland, other habitats. The location for: • Great Crested Newt (GCN) Pond Surveys 2017-2019, location of GCN breeding ponds. • GCN Survey Licence Returns, location of GCN breeding

[4] https://cieem.net/wp-content/uploads/2019/04/Advice-Note.pdf#:~:text=AGE%20OF%20DATA%20REPORT%20%2F%20SURVEY%20VALIDITY%20Less,12%20monthsLikely%20to%20be%20valid%20in%20most%20cases.

Source	Summary
	ponds. The Location and species for: • Granted European Protected Species Licences.
BritishVolt Project Phoenix Environmental Statement (ES): Main Report (Ridge 2021)[36].	Environmental Statement on the behalf of BritishVolt in relation to an application for a Battery Manufacturing Plant at Northumberland Energy Park Phase 3 (NEP3). The approximate 9 ha site of the proposed development is located on previously developed land that was formerly used for the storage of coal for the former Blyth Power Station.
BritishVolt Project Phoenix Environmental Statement Volume 3: Appendices (Ridge 2021)[39].	Ecological appendices for the above main ES report containing more detailed reports concerning ornithology and biodiversity metric.
Project Phoenix EN20037 Construction Environmental Management Plan (ISG 2021)[38].	Construction Environmental management Plan on the behalf of BritishVolt in relation to the application for a Battery Manufacturing Plant at Northumberland Energy Park Phase 3 (NEP3).
Construction of two ponds at nature reserve site, deposition of arising soil materials at site | Land North East Of Cambois, Wembley Gardens Cambois, Northumberland.	The ecological assessment of the Blyth and East Sleekburn Local Development Orders (LDO) identified the potential for modest levels of increased disturbance to migratory and wintering wading birds, including species which are interest features of the Northumberland Shore SSSI, arising from development permitted through the LDO process. To compensate for this, a scheme has been developed to create suitable feeding and roosting habitat for species such as curlew *Numenius arquata*, redshank *Tringa totanus*, golden plover *Pluvialis apricaria* and lapwing *Vanellus vanellus* on 22 ha of Council-owned farmland at Cambois. A planning application was submitted and approved to permit these works.[5]
Battery Storage Site, West Sleekburn, Bedlington, Preliminary Ecological Appraisal (Quants Environmental 2022[6])	PEA carried out in March 2022 for the purpose of performing an assessment to inform the planning application for a battery storage site at West Sleek Burn.
Battery Storage Site, West Sleekburn, Bedlington, Dusk Emergence Survey (Quants Environmental 2022[7])	As per the recommendations of the above assessment, the report presents the findings of a single bat emergence dusk survey carried out on 9 August 2022.

[5] It is unclear at what stage the works are for this project. Access could not be gained.
[6] https://publicaccess.northumberland.gov.uk/online-applications/files/6D0C92A0464B23AB8EA2BCC4E3ABF34A/pdf/22_01725_FUL-PRELIMINARY_ECOLOGICAL_APPRAISAL-2139815.pdf
[7] https://publicaccess.northumberland.gov.uk/online-applications/files/8498AF369F49E479E5D8EE81CE844057/pdf/22_01725_FUL-BAT_SURVEY-2193986.pdf

2.1.2 Initial Habitat Survey

The field survey comprised two main elements:

- mapping of habitats - habitats mapped were confirmed using UKHab v1.1[8] to capture the presence of Section 41 (of the Natural Environment and Rural Communities (NERC) Act 2006) and Annex 1 (of the EC Habitats Directive) habitat types; and
- noting evidence of, or potential for, protected or notable species, or other important ecological features (such as veteran trees or invasive non-native species), such that specific follow up surveys can be scoped and undertaken thereafter.

Habitat Survey

Most of the area surveyed was not accessible for detailed field survey and was therefore surveyed through interpretation of aerial imagery and limited ground-truthing from public roads and rights of way. Some areas were accessible however and these areas were subject to full survey in the field.

The aerial images used in this process were the most recent commercially available OS Mastermap Aerial Imagery at 25 cm resolutions and are dated April 2020 (supplied by Ordnance Survey). The minimum mapping unit used was 400 m^2 and a minimum length of 20 m for linear features. Where more detailed data were available for trees these were mapped to the highest level possible to highlight potential constraints. Due to the large extent of the survey area, lack of access for field survey and early project stage, habitat boundaries were "snapped" to the nearest OS Mastermap topography vectors. These habitat boundaries should be reviewed during subsequent field surveys, once access is possible (see Section 5.0).

Aerial photograph interpretation and a combination of OS Mastermap Topography and OS Vector Map Local datasets [July 2022] were used to identify the presence of waterbodies and watercourses within 250 m of the Site. This method was used as small watercourses and ponds are often difficult to discern on aerial images; and although it remains fairly crude it is considered appropriate for PEA. The identification of smaller field ditches and ponds should be reviewed during subsequent field surveys, once access is possible (see Section 5.0).

Habitats were mapped to the highest level of the UKHab Primary Habitat Hierarchy possible, including mandatory secondary codes (10 – 41). This was governed by habitat type and levels of access; in most cases it was possible to map to level 3. Boundary fences were not mapped. Additional secondary codes or photographs were recorded where possible; these have been retained in a GIS and are not presented in this report but will be available for any more detailed habitat survey in future.

Open data sources showing priority habitats were found on MAGIC and imported into the UKHab maps to incorporate the detail of higher value habitats which could be classified to at least level 3. These habitats should be reviewed during subsequent field surveys once project design informs the requirements for more detailed surveys.

Aerial photograph interpretation was undertaken in July 2022 and August 2022. It was conducted by SLR's GIS team who mapped the polygons/linear features and assigned the relevant codes. The output was checked by Callum Taylor and SLR Project Ecologist Niamh Ni Nagy.

Field-based ground-truthing was undertaken during 20 July and 17 August 2022. The surveys were undertaken by Callum Taylor.

Protected/Notable Species Survey/Habitat Based Assessments

During the field surveys, additional notes were made in respect of signs of, or habitat suitability for, protected or notable species (for example; identifying trees or structures with potential for use by bats or observations of

[8]UK Habitat (UKHab) Classification (https://ukhab.org/)

owl boxes).

Details of these additional notes have been retained on a GIS database and are not presented in this report. However, pertinent findings that inform the scope of additional survey requirements have been included in Sections 3 and 4.

2.1.3 Limitations

Desk Study

Desk study data are unlikely to be exhaustive, especially in respect of species, and are intended mainly to set a context for the study. It is therefore possible that important habitats or protected species not identified during the data search do in fact occur within the study area. Interpretation of maps and aerial photography has been conducted in good faith, using recent imagery, but it has not been possible to verify the accuracy of any statements relating to land use and habitat context outside of the areas that were subject to field survey.

Priority habitats have been mapped using open data sources and assumed to be correct without detailed survey. It is likely that some of these habitats may no longer be present (e.g. areas which are currently construction sites) but with a lack of access, this could not be confirmed. However, where these habitats are currently undergoing construction works, the desk study revealed that the affected habitats would be improved or replaced through appropriate mitigation measures.

Field Survey

The majority of the Site was not accessible for field survey such that aerial photograph interpretation and where possible, limited ground-truthing from publicly accessible areas were used to determine habitat type and protected species habitat suitability. Most notably, this means that signs of protected species could not be sought for those areas which were not accessible and could also mean that Section 41 habitats or other ecologically important features are present but as yet undetected. Nevertheless, it is still considered possible to meet the purpose of this PEA report (as set out in Section 1.3).

The bulk of the field survey was undertaken during late summer (August), and therefore could have missed spring and early summer flowering species that may have died back. Due to the majority of the survey area comprising grassland habitat with common flowering plants, plus other habitats that are readily identified at any time of year, this is not considered to be a significant constraint to the PEA.

The late summer timing of the field survey is also suboptimal with regard to locating signs of protected or notable faunal species, due to the density and height of vegetation. It is therefore possible that evidence for species such as otter, badger or water vole may have been missed as a result. The survey also took place too late in the season to record any evidence of breeding birds. Nevertheless, it is considered that sufficient field survey and desk study information are available to undertake the PEA in respect of faunal species. In this regard, it is noted that the PEA is not intended to include detailed survey results for protected or notable faunal species but rather to determine the potential for them to occur and therefore highlight further survey requirements.

2.2 Determining Important Ecological Features

Ecological features can be important for a variety of reasons and the rationale used to identify them is explained below and follows CIEEM guidance[9]. Importance may relate, for example, to protected status, the quality or extent of the site or habitats therein; habitat and/ or species rarity; the extent to which such habitats and/ or species are threatened throughout their range, or to their rate of decline.

Important habitats are considered here to be those which:

[9] CIEEM (2018) Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine version 1.2. Chartered Institute of Ecology and Environmental Management, Winchester.

- match descriptions of habitats listed on Annex 1 of the Habitats Directive, so far as it applies to the UK and as transposed by The Conservation of Habitats and Species Regulations 2017 (as amended);
- match descriptions of habitats of principal importance for biodiversity under Section 41 of the NERC Act 2006;
- match Local Wildlife Site Selection Criteria[10];
- match descriptions of habitats with Habitat Action Plans (HAPs) contained within Local Biodiversity Action Plans[11];
- comprise irreplaceable habitats; such as (but not limited to) ancient woodland and veteran trees[12]; and/or
- comprise a significant habitat resource for an important species (see below).

Important species are considered here to be those which are:

- of European conservation importance (as listed on Annexes II, IV and V of the Habitats Directive or Annex 1 of the Birds Directive[13]) so far as it applies to the UK and as transposed by The Conservation of Habitats and Species Regulations 2017 (as amended);
- specially protected under the terms of the Wildlife and Countryside Act 1981 (as amended);
- of principal importance for biodiversity under Section 41 of the NERC Act 2006;
- Red Listed using International Union for the Conservation of Nature (IUCN) criteria[14] (e.g. in one of the UK Species Status Project[15] reviews, in the Bird Species of Conservation Concern Red List[16], or, where a more recent assessment of the taxonomic group has not yet been undertaken, listed in a Red Data Book);
- listed as Near Threatened or Amber Listed (e.g., in one of the UK Species Status Project reviews or in the Bird Species of Conservation Concern Amber List[16]);
- listed as a Nationally Rare or Nationally Scarce species (e.g., in one of the Species Status Project reviews) or listed as a Nationally Notable species where a more recent assessment of the taxonomic group has not yet been undertaken; and/or
- endemic to a country or geographic location (it is appropriate to recognise endemic sub-species, phenotypes, or cultural behaviours of a population that are unique to a particular place; and
- listed within Local Biodiversity Action Plans[11].

[10] Local Sites | Northumberland Wildlife Trust (nwt.org.uk)
[11] https://www.nwt.org.uk/sites/default/files/2018-10/Nland_Biodiversity_Action_Plan.pdf
[12] Referenced in Natural England Standing Advice for ancient woodland and veteran trees https://www.gov.uk/guidance/ancient-woodland-ancient-trees-and-veteran-trees-advice-for-making-planning-decisions)
[13] These pieces of legislation are based upon data that remains relevant to the UK, regardless of its non-EU status.
[14] IUCN (2012) IUCN Red List Categories and Criteria. Version 3.1. Second edition. IUCN, Gland.
IUCN (2012) Guidelines for Application of IUCN Red List Criteria at Regional and National Levels. Version 4.0. IUCN, Gland.
IUCN (2016) Guidelines for Appropriate Uses of IUCN Red List Data. Version 3.0. Adopted by the IUCN Red List Committee.
IUCN (2019) Guidelines for Using the IUCN Red List Categories and Criteria. Version 14. Prepared by the Standards and Petitions Subcommittee.
[15] The Species Status project is the successor to the JNCC's Species Status Assessment project, providing up-to-date assessments of the threat status of various taxa using the internationally accepted Red List guidelines (http://jncc.defra.gov.uk/page-1773)
[16] The status of our bird populations: the fifth Birds of Conservation Concern in the United Kingdom, Channel Islands and Isle of Man and Second IUCN Red List assessment of extinction risk for Great Britain. British Birds 114, 723–747.

3.0 Results

3.1 Designated Sites

There are 11 terrestrial statutory designated sites, excluding Local Nature Reserves (LNR), located within 10 km of the site boundary, including one Ramsar site, one Special Protection Area (SPA) and nine SSSIs, plus five LNRs within 2 km. **Table 3-1** details the sites and their distance and direction from the Site. **Appendix 2** includes a plan provided by ERIC North East, which shows all designated sites within a 2 km buffer. Please note that the plan provided in **Appendix 2** also includes marine sites, but these are excluded from **Table 3-1** because the focus of this report is the terrestrial environment.

Table 3-1 Statutory Designated Sites

Site name & Designation	Closest distance from theSite (m)	Direction from Site	Reason for Notification / Designation
Northumbria Coast Ramsar[17]	Within/ Adjacent to Site	East	The Northumbria Coast Ramsar site comprises several discrete sections of rocky foreshore between Spittal, in the North of Northumberland, and an area just south of Blackhall Rocks in County Durham. These stretches of coast regularly support internationally important numbers of purple sandpiper *Calidris maritima* and turnstone *Arenaria interpres*. The Ramsar site also includes an area of sandy beach at Low Newton, which supports a nationally important breeding colony of little tern *Sternula albifrons*, and parts of three artificial pier structures which form important roost sites for purple sandpiper.
Northumbria Coast SPA[18]	Within/ Adjacent to Site	East	The Northumbria Coast SPA was classified in 2000, qualifying under Article 4.1 of the EC Birds Directive because it supported 1.7% of the GB population of breeding little tern listed in Annex I of the Directive and under Article 4.2 of the Directive because it supported two regularly occurring migratory species: 2.6% of the biogeographic population of turnstone and 1.6% biogeographic population of purple sandpiper. The Northumbria Coast SPA includes much of the coastline between the Tees and Tweed Estuaries. The site consists of mainly discrete sections of rocky shore with associated boulder and cobble beaches. The SPA also includes parts of three artificial pier structures and a small section of sandy beach.
Northumberland	Within Site	East	The Northumberland Shore includes most of the coastline

[17] https://rsis.ramsar.org/RISapp/files/RISrep/GB1019RIS.pdf
[18] https://designatedsites.naturalengland.org.uk/SiteGeneralDetail.aspx?SiteCode=UK9006131&SiteName=&countyCode=&responsiblePerson=&unitId=&SeaArea=&IFCAArea=

Site name & Designation	Closest distance from theSite (m)	Direction from Site	Reason for Notification / Designation
Shore SSSI[19]			between the Scottish border and the Tyne Estuary. This complements the Lindisfarne SSSI, which it abuts, in providing important wintering grounds for shore birds, and it is of international, or national significance for six species, purple sandpiper, turnstone, sanderling *Calidris alba*, golden plover, ringed plover *Charadrius hiaticula* and redshank. The Northumberland Shore consists largely of sandy bays separated by rocky headlands with wave-cut platforms, backed by dunes or soft and hard cliffs. Discrete areas of estuarine intertidal mudflats and saltmarsh are also included.
Cresswell and Newbiggin Shores SSSI[20]	0.03 km	Northeast	This site has been identified as of national importance by the Geological Conservation Review. Cresswell and Newbiggin Shores is important for both Westphalian and Quaternary studies.
Willow Burn Pasture SSSI[21]	2.6 km	West	Willow Burn Pasture is an area of unimproved species-rich neutral grassland established on former ridge and furrow cultivation, and now managed as pasture. There has been some invasion by scrub, and wetter areas support tall herb communities.
Hawthorn Cottage Pasture SSSI[22]	3.25 km	Northwest	Hawthorn Cottage Pasture comprises an unimproved neutral grassland in an area of former ridge and furrow cultivation. It is a valuable example of a habitat which is now scarce in Northumberland and the surviving sites are under increasing threat from further agricultural intensification and urban development. The site includes both an area of dry grassland currently managed as pasture and an adjacent area of marshy grassland.
New Hartley Ponds SSSI[23]	6.3 km	South	The seasonal ponds at New Hartley, with their vegetation cover of amphibious bistort *Polygonum amphibian*, common spike-rush *Eleocharis palustris*, water horsetail *Equisetum fluviatile* and water crowfoot *Ranunculus aquatilis*, are frequented by five species of breeding amphibian. Of particular note is the great crested newt with a population in some years in excess of 500 individuals. The other species are smooth newt *Lissotriton vulgaris* with a population of 500–1000 individuals, small numbers of palmate newt *Lissotriton helveticus* (12) and about 150 individuals each of frog *Rana*

[19] https://designatedsites.naturalengland.org.uk/PDFsForWeb/Citation/2000134.pdf
[20] https://designatedsites.naturalengland.org.uk/PDFsForWeb/Citation/1002926.pdf
[21] https://designatedsites.naturalengland.org.uk/PDFsForWeb/Citation/1004545.pdf
[22] https://designatedsites.naturalengland.org.uk/PDFsForWeb/Citation/1002908.pdf
[23] https://designatedsites.naturalengland.org.uk/PDFsForWeb/Citation/1000365.pdf

Site name & Designation	Closest distance from theSite (m)	Direction from Site	Reason for Notification / Designation
			temporaria and toad *Bufo bufo*. The ponds are also frequented by damselflies with good populations of the blue-tailed damselfly *Ischnura elegans* and the common darter *Sympetrum striolatum*.
Tynemouth to Seaton Sluice SSSI[24]	6.8 km	South	The coast from Tynemouth to Seaton Sluice provides one of the best exposures of Coal Measures strata in Great Britain, showing a continuous lower Westphalian B sequence from the Plessey to the High Main seams. It includes outcrops of numerous coal seams, and several mudstone horizons yielding non-marine bivalve faunas, which together provide a tight stratigraphical control on the sequence. Of particular importance are outcrops of sandstone bodies, which have been interpreted as braided river deposits in marked contrast to the meandering river deposits which dominate the Pennines Coalfields to the south. This implies that the Northumberland Coalfield was formed in a more elevated area relative to the Pennines Coalfield, and was then probably rather further from the sea. The site is thus of considerable importance for interpreting the palaeogeographical structure of Britain during the Middle Carboniferous. This section of the coast supports a significant proportion of the internationally important winter populations of purple sandpiper (over 10%), sanderling (over 10%) and turnstone (over 5%) which occur on the Northumberland coast. In addition, there are locally important numbers of knot *Calidris canutus*, ringed plover and golden plover.
Holywell Pond SSSI[25]	7.7 km	South	Holywell Pond is a subsidence pond, up to 2 m deep in places, overlying old coal workings. It is attractive to wintering and migratory waterfowl, including teal, wigeon, pochard, goldeneye and tufted duck. Of particular note is a large roosting herd of whooper swans numbering up to 180 birds, comprising more than 1% of the British wintering population of this species. Breeding species include little grebe *Tachybaptus ruficollis*, great-crested grebe *Podiceps cristatus*, tufted duck *Aythya fuligula* and yellow wagtail *Motacilla flava*.
Arcot Hall Grassland and Ponds SSSI[26]	7.9 km	Southwest	Arcot Hall Grasslands and Ponds comprises a complex of species-rich grasslands, with heaths, ponds and associated damp habitats. It supports probably the largest area of lowland species-rich unimproved grassland in North East

[24] https://designatedsites.naturalengland.org.uk/PDFsForWeb/Citation/1001176.pdf
[25] https://designatedsites.naturalengland.org.uk/PDFsForWeb/Citation/1000949.pdf
[26] https://designatedsites.naturalengland.org.uk/PDFsForWeb/Citation/1000498.pdf

Site name & Designation	Closest distance from theSite (m)	Direction from Site	Reason for Notification / Designation
			England. The grassland contains a number of plant species now uncommon in the county. Both this grassland and the heathland are now extremely rare in Northumberland and threatened by agricultural improvement and development. The intricate mosaic of habitats and the occurrence of all stages of ecological succession from open water to woodland are particular features of the site. The site supports a population of the least minor moth *Photedes captiuncula*, a nationally rare species confined to a few localities in Northern England. The assemblage of invertebrates at the site is considered to be of regional importance and includes 33 species of water beetles. The main pond is used by wintering waterfowl and passage migrants.
Cresswell Ponds SSSI[27]	8.3 km	North	These comprise a large pond which is the only permanent brackish water lagoon on the Northumberland Coast and two, smaller, freshwater ponds. The main pond is connected to the sea by a short outfall stream which allows an in-flow of sea water during some high tides. Cresswell Ponds are noted for the occurrence of unusual birds on migration and are used as feeding and roosting areas by wintering waders and wildfowl.
Castle Island LNR	Adjacent	North	No description available.
Wansbeck Riverside Park LNR[28]	0.8 km	Northwest	Sightings of red squirrel *Sciurus vulgaris* and common mammals are possible along the river as well as pipistrelle and Daubenton's bats and a variety of birds including mallard *Anas platyrhynchos*, moorhen *Gallinula chloropus*, heron *Ardea cinerea* and kingfisher *Alcedo atthis*. The area of woodland at Blackclose Dene is listed as Ancient Semi-Natural Woodland and is of significant importance supporting a wealth of birds, mammals and insects. New woodland has been planted on the south side of the river at Stakeford.
Paddock Wood LNR[29]	1.4 km	North	The Woodland Trust planted the wood in 1998. It contains a variety of different trees.

[27] https://designatedsites.naturalengland.org.uk/PDFsForWeb/Citation/1000606.pdf

[28] https://designatedsites.naturalengland.org.uk/SiteLNRDetail.aspx?SiteCode=L1421784&SiteName=Wansbeck%20Riverside%20Park&countyCode=&responsiblePerson=&SeaArea=&IFCAArea=

[29] https://designatedsites.naturalengland.org.uk/SiteLNRDetail.aspx?SiteCode=L1460414&SiteName=Paddock%20Wood&countyCode=&responsiblePerson=&SeaArea=&IFCAArea=

Site name & Designation	Closest distance from theSite (m)	Direction from Site	Reason for Notification / Designation
Ha'penny Woods LNR[30]	1.4 km	Southwest	Oak *Quercus robur*, beech *Fagus sylvatica* and sycamore *Acer pseudoplatanus* dominated woodland with large areas of wildflower. Various birds and mammals recorded including; great spotted woodpecker *Dendrocopos major* and roe deer *Capreolus capreolus*.
Choppington Community Woods LNR[31]	1.8 km	West	A wide variety of native woodland birds and migratory species use the woodland and include long-tailed tit *Aegithalos caudatus*, wren *Troglodytes troglodytes*, blackbird *Turdus merula*, blue tit *Cyanistes caeruleus*, whitethroat, yellowhammer and grasshopper warbler. The semi-improved neutral grassland among the young plantation near the miner's welfare centre supports a wealth of invertebrate including at least 10 butterfly species, several species of spider crab, scorpion flies and a range of moths. Choppington Community Woods is an important site for red squirrel in southeast Northumberland with regular reported sightings of red squirrels. Otter are present on this section of the Willow Burn and roe deer are present on the site.

A further four non-statutory Local Wildlife Sites (LoWS) occur within the 2 km Study Area (**Appendix 2**). Blyth Estuary LoWS and Wansbeck Estuary LoWS are within the Site boundaries. Sleekburn Fen LoWS is approximately 240 m west and Plessey Wood LoWS is approximately 1.6 km southwest. Further details in respect of the reason for importance of these LoWS were not available from ERIC North East.

Designated sites of geological importance are outside the scope of this report and will not be discussed further within this report.

3.2 Habitats

General descriptions for the various habitats encountered within the Site are provided below. All data are stored in a GIS and can be made available upon request.

Refer to Figure 1 for locations of habitats within the Site.

3.2.1 Neutral and Modified Grassland

Grassland is extensive throughout the Site. Historically the land was used for arable purposes but has since been unmanaged or reverted to grassland. Grassland is difficult or impossible to robustly characterise from aerial imagery alone, nevertheless it has been ascertained from ground truthing that modified grassland and other neutral grassland both occur within the Site.

30 https://designatedsites.naturalengland.org.uk/SiteLNRDetail.aspx?SiteCode=L1082950&SiteName=ha%27&countyCode=&responsiblePerson=&SeaArea=&IFCAArea=

31 https://designatedsites.naturalengland.org.uk/SiteLNRDetail.aspx?SiteCode=L1009609&SiteName=Choppington%20Community%20Woods&countyCode=&responsiblePerson=&SeaArea=&IFCAArea=

3.2.2 Hedgerows and Scrub

Hedgerows are widespread across the Site though much more common west of the A189. It is considered likely that most hedgerows will meet the criteria of priority habitat hedgerows (h2a,) although this could only be confirmed once full access is obtained.

Small amounts of blackthorn *Prunus spinosa*, bramble *Rubus fruticosus*, hawthorn *Crataegus monogyna* and mixed scrub were also identified, typically at field margins.

3.2.3 Standing Open Water

Ponds and lakes are relatively frequent across the Site and 250 m buffer and are often associated with the drainage and river network. The majority appeared to be of man-made origin, or have been modified, based upon the regular shape of the waterbody. North of Wembley Gardens Road it was proposed that two wading bird ponds (see **Table 2.1** for further details on the project) would be created but it could not be confirmed whether these were present during ground-truthing visits due to lack of visibility across that area from publicly accessible areas. These waterbodies should be considered in further assessments however.

3.2.4 Rivers and Streams

The River Wansbeck and the River Blyth are the largest water courses within the area surveyed, with smaller watercourses, Maw Burn and Sleek Burn leading from the River Blyth. The watercourses have not yet been subject to detailed survey.

Numerous small ditches and streams are present throughout the Site. To the southern area of the Site is a small watercourse with reedbeds, which runs parallel to open mosaic habitats.

3.2.5 Fen, Marsh and Swamp

Fen, marsh and swamp has been identified within the survey area within the River Wansbeck and northeast of West Sleekburn. Access was not gained for detailed survey, but it is assumed that these categorisations are likely correct.

3.2.6 Open Mosaic Habitat

A search on MAGIC returned records of the priority habitat Open Mosaic Habitat at three locations across the Site, two in the south eastern area of the Site and one in the north eastern area of the Site. Access was not gained to these three sites, but it is assumed that these categorisations are likely correct. The Britishvolt survey results confirm the presence of open mosaic habitat within their red line boundary. Note that the extent of this may have changed due to the construction activities at the Britishvolt site and may change again following the implementation of proposed mitigation measures there.

3.2.7 Intertidal Mudflats

ERIC returned records of intertidal mudflats within the River Blyth. These areas were not surveyed but have been assumed to be correct.

3.2.8 Coastal Saltmarsh

ERIC returned records of Coastal Saltmarsh within the River Blyth, Sleek Burn and River Wansbeck. These areas were not surveyed but have been assumed to be correct.

3.2.9 Coastal Dunes

ERIC and a search on MAGIC, categorised a linear area of the coast to be defined as the priority habitat coastal

sand dune. While a detailed assessment has not been undertaken of habitats it is likely that this habitat is present with marram *Ammophila arenaria*. Some areas to the northern end of the coastal section of the Site have been inhabited by less sand tolerant indicator species more representative of g3 neutral grassland.

3.2.10 Littoral Sediment

This habitat is focused in the areas associated with the Northumberland coast in the eastern area of survey, with areas stretching along the banks of the River Wansbeck and the River Blyth.

3.2.11 Sparsely Vegetated Land

The coastal area includes man-made coastal defences (mapped as urban, below), but also includes sparsely vegetated areas above high water, comprising sandy beaches and an area identified as the priority habitat maritime cliff and slope.

3.2.12 Urban

Urban areas within the Site mainly comprise coastal defences, roads, railways, industrial sites and small settlements.

3.2.13 Woodland and Forest

Woodland is present in mostly linear parcels within the Site. Access restrictions prevented field survey of most of the woodlands present, to the extent it was not possible to classify beyond UKHab level 3 Broadleaved Mixed and Yew woodland. However, stands of the priority habitat lowland mixed and deciduous woodland were present along the north and south borders of the River Wansbeck and in scattered parcels within the red line boundary, mainly towards the south.

3.2.14 Cropland – Arable and Horticulture

The area surveyed supports cropland comprising cereal crops which would offer little ecological value. This habitat is more common west of the A189. There is potential that field margins which have not been observed contain the priority habitat Arable Field Margins but this cannot be confirmed without further survey, once access is possible.

3.2.15 Section 41 Habitats & Ancient Woodland

The following habitats of Principal Importance (i.e., those included under Section 41 of the NERC Act (2006), many of which are also included on Annex 1 of the Habitats Directive) are confirmed to be present either through identification during habitat survey, in Natural England's Priority Habitat Inventory dataset or data provided by ERIC North East. Due to the ecological importance of priority habitats, a precautionary approach has been implemented here whereby potential priority habitats have been included in the classification even where it has not been possible to confirm their status through detailed survey. Figure 1 identifies the priority habitats within the Site and up to a 250 m buffer including open mosaic habitats but does not include 'Good quality semi-improved grassland' where UKHab Codes could not be defined. **Appendix 3** identifies the locations of priority habitats within the Site and up to 2 km, excluding open mosaic habitat, based on Priority Habitat Inventory dataset. Figure 2 identifies all ponds which have been identified within site and up to a 250m buffer.

The following priority habitats are either present or potentially present within the Site and/or 250 m buffer:

- Lowland mixed deciduous woodland – the largest blocks of woodland are considered likely to include this category[32]. The definition for this habitat type is:

  "*Lowland mixed deciduous woodland includes woodland growing on the full range of soil conditions, from very acidic to base-rich, and takes in most semi-natural woodland in southern and eastern England, and in parts of lowland Wales and Scotland*".

- Ancient Woodland[33] - There is one block of ancient woodland (Ancient Semi-Natural Woodland ASNW), within the Site, Hospital Wood adjacent to the northern Site boundary along the River Wansbeck. The definition of ancient woodland is as follows:

  "*any area that has been wooded continuously since at least 1600AD. It includes:*

  ancient semi-natural woodland mainly made up of trees and shrubs native to the site, usually arising from natural regeneration;

  plantations on ancient woodland sites - replanted with conifer or broadleaved trees that retain ancient woodland features, such as undisturbed soil, ground flora and fungi"

- Hedgerows – most of the hedgerows within the survey area are likely to meet the Section 41 definition[32] which states:

  "*A hedgerow is defined as any boundary line of trees or shrubs over 20m long and less than 5m wide, and where any gaps between the trees or shrub species are less that 20m wide. Any bank, wall, ditch or tree within 2m of the centre of the hedgerow is considered to be part of the hedgerow habitat, as is the herbaceous vegetation within 2m of the centre of the hedgerow. All hedgerows consisting predominantly (i.e., 80% or more cover) of at least one woody UK native species are covered by this priority habitat, where each UK country can define the list of woody species native to their respective country*".

- Reedbeds – areas within a small watercourse in the southern part of the Site are considered to meet the Section 41 description[32].

  "*Reedbeds are wetlands dominated by stands of the common reed Phragmites australis, wherein the water table is at or above ground level for most of the year. They tend to incorporate areas of open water and ditches, and small areas of wet grassland and carr woodland may be associated with them.*"

- Rivers – The River Wansbeck, River Blyth, Sleek Burn and Maw Burn are considered more likely to meet the definition by virtue of supporting protected and/or Section 41 species such as otter, rather than for habitat type/quality *per se*.

  "*This habitat type includes a very wide range of types, encompassing all natural and near-natural running waters in the UK (i.e. with features and processes that resemble those in 'natural' systems). These range from torrential mountain streams to meandering lowland rivers*."

- Open Mosaic Habitat- present at three locations on previously disturbed ground, two in the southeast of the survey area and one in the northeast. The Britishvolt survey results confirm the presence of open mosaic habitat within their red line boundary. The extent of this may have changed

[32] Section 41 Habitat definitions align with the UK Biodiversity Action Plan Priority Habitat Descriptions published in 2008 and updated in 2011, available at https://data.jncc.gov.uk/data/2728792c-c8c6-4b8c-9ccd-a908cb0f1432/UKBAP-PriorityHabitatDescriptions-Rev-2011.pdf

[33] Natural England and Forestry Commission 'standing advice' for ancient woodland, ancient trees and veteran trees available online at https://www.gov.uk/guidance/ancient-woodland-ancient-trees-and-veteran-trees-advice-for-making-planning-decisions

due to the construction activities at the Britishvolt site and may change again following the implementation of proposed mitigation measures there.

"These are generally primary successions, and as such unusual in the British landscape, especially the lowlands. The vegetation can have similarities to early/pioneer communities (particularly grasslands) on more 'natural' substrates but, due to the edaphic conditions, the habitat can often persist (remaining relatively stable) for decades without active management (intervention). Stands of vegetation commonly comprise small patches and may vary over relatively small areas, reflecting small-scale variation in substrate and topography."

- Coastal Saltmarsh – the River Blyth, Sleek Burn and River Wansbeck are considered to contain these habitats.

  "Coastal saltmarshes in the UK (also known as 'merse' in Scotland) comprise the upper, vegetated portions of intertidal mudflats, lying approximately between mean high water neap tides and mean high water spring tides. For the purposes of this action plan, however, the lower limit of saltmarsh is defined as the lower limit of pioneer saltmarsh vegetation (but excluding seagrass Zostera beds) and the upper limit as one metre above the level of highest astronomical tides to take in transitional zones. Saltmarshes are usually restricted to comparatively sheltered locations in five main physiographic situations: in estuaries, in saline lagoons, behind barrier islands, at the heads of sea lochs, and on beach plains. The development of saltmarsh vegetation is dependent on the presence of intertidal mudflats."

- Coastal Sand Dunes- coastal dunes in the east of the Site are considered likely to contain these habitats.

  "Coastal sand dunes develop where there is an adequate supply of sand (sediment within the size range 0.2 to 2.0 mm) in the intertidal zone and where onshore winds are prevalent. The critical factor is the presence of a sufficiently large beach plain whose surface dries out between high tides. The dry sand is then blown landwards and deposited above high water mark, where it is trapped by specialised dune-building grasses which grow up through successive layers of deposited sand."

- Intertidal Mudflats- the River Blyth is considered to contain this habitat in large areas.

  "Mudflats are sedimentary intertidal habitats created by deposition in low energy coastal environments, particularly estuaries and other sheltered areas. Their sediment consists mostly of silts and clays with a high organic content. Towards the mouths of estuaries where salinity and wave energy are higher the proportion of sand increases. Mudflats are intimately linked by physical processes to, and may be dependent on, other coastal habitats such as soft cliffs and saltmarshes. They commonly appear in the natural sequence of habitats between subtidal channels and vegetated saltmarshes. In large estuaries they may be several kilometres wide and commonly form the largest part of the intertidal area of estuaries. However, in many places they have been much reduced by land claim."

- Ponds – many ponds within the Site and surrounding 250 m buffer could meet the Section 41 definition by supporting GCN and/ or other Section 41 or Red Data Book species. The definition of this type of habitat is:

  "*Permanent and seasonal standing water bodies up to 2 ha in extent which meet one or more of the following criteria:*

  - *Habitats of international importance: Ponds that meet criteria under Annex I of the Habitats Directive.*
  - *Species of high conservation importance: Ponds supporting Red Data Book species, UK BAP species, species fully protected under the Wildlife and Countryside Act Schedule 5 and 8,*

Habitats Directive Annex II species, a Nationally Scarce wetland plant species, or three Nationally Scarce aquatic invertebrate species.

- *Exceptional assemblages of key biotic groups: Ponds supporting exceptional populations or numbers of key species. Based on (i) criteria specified in guidelines for the selection of biological SSSIs (currently amphibians and dragonflies only), and (ii) exceptionally rich sites for plants or invertebrates (i.e. supporting ≥30 wetland plant species or ≥50 aquatic macroinvertebrate species).*
- *Ponds of high ecological quality: Ponds classified in the top PSYM category ("high") for ecological quality (i.e., having a PSYM score ≥75%). [PSYM (the Predictive SYstem for Multimetrics) is a method for assessing the biological quality of still waters in England and Wales; plant species and / or invertebrate families are surveyed using a standard method; the PSYM model makes predictions for the site based on environmental data and using a minimally impaired pond dataset; comparison of the prediction and observed data gives a % score for ponds quality].*
- *Other important ponds: Individual ponds or groups of ponds with a limited geographic distribution recognised as important because of their age, rarity of type or landscape context e.g., pingos, duneslack ponds, machair ponds*."

3.3 Species

The following sections are based on a combination of desk study information, field survey data and an assessment of the likely value of the habitats present for each species or group of species. The records should not be seen as definitive; other species may be present, and some may no longer occur.

3.3.1 Plants

The desk study data returned records of 64 species of protected and notable flowering plant species on or within 2 km of Site, see Table 3-2.

Table 3-2 Protected and Notable Plants Recorded within 2km of the Site

Common Name	Scientific Name	Status
Field Garlic	*Allium oleraceum*	IUCN Red List Vulnerable (Great Britain), Scottish Biodiversity List
Pyramidal Orchid	*Anacamptis pyramidalis*	EC CITES - ANNEX B
Corn Chamomile	*Anthemis arvensis*	Farm Environmental Plan, IUCN Red List Endangered (England), IUCN Red List Endangered (Great Britain)
Purple Milk-vetch	*Astragalus danicus*	Biodiversity Action Plan 2007, Natural Environment and Rural Communities Act 2006 S.41, IUCN Red List Endangered (England), IUCN Red List Endangered (Great Britain), Scottish Biodiversity List, Tees Valley BAP
Quaking-grass	*Briza media*	IUCN Red List Near Threatened (England)
Box	*Buxus sempervirens*	Farm Environmental Plan, Nationally Rare (excludes), IUCN Redlist Data Deficient (Great Britain)

Common Name	Scientific Name	Status
Heather	*Calluna vulgaris*	IUCN Red List Near Threatened (England)
Harebell	*Campanula rotundifolia*	IUCN Red List Near Threatened (England)
Divided Sedge	*Carex divisa*	Biodiversity Action Plan 2007, Natural Environment and Rural Communities Act 2006 S.41, Nationally Scarce (excludes), IUCN Red List Vulnerable (Great Britain)
Star Sedge	*Carex echinata*	IUCN Red List Near Threatened (England)
Flea Sedge	*Carex pulicaris*	IUCN Red List Near Threatened (England)
Bladder-sedge	*Carex vesicaria*	IUCN Red List Vulnerable (England)
Whorl-grass	*Catabrosa aquatica*	IUCN Red List Vulnerable (England)
Cornflower	*Centaurea cyanus*	Biodiversity Action Plan 2007, Natural Environment and Rural Communities Act 2006 S.41, Farm Environmental Plan, Scottish Biodiversity List
Seaside Centaury	*Centaurium littorale*	Nationally Scarce (excludes), Schedule 9 (Part 1)of the Wildlife and Countryside Act 1981
Field Mouse-ear	*Cerastium arvense*	IUCN Red List Near Threatened (England)
Chamomile	*Chamaemelum nobile*	Biodiversity Action Plan 2007, Natural Environment and Rural Communities Act 2006 S.41, IUCN Red List Vulnerable (England), IUCN Red List Vulnerable (Great Britain)
Good-King-Henry	*Chenopodium bonus-henricus*	IUCN Red List Vulnerable (England), IUCN Red List Vulnerable (Great Britain), Scottish Biodiversity List
Melancholy Thistle	*Cirsium heterophyllum*	IUCN Red List Near Threatened (England), Schedule 9 (Part 1)of the Wildlife and Countryside Act 1981
Crosswort	*Cruciata laevipes*	IUCN Red List Near Threatened (England)
Common Spotted-orchid	*Dactylorhiza fuchsii*	EC CITES - ANNEX B
Northern Marsh-orchid	*Dactylorhiza purpurella*	EC CITES - ANNEX B
Maiden Pink	*Dianthus deltoides*	Nationally Scarce (excludes), IUCN Red List Vulnerable (England), IUCN Red List Near Threatened (Great Britain)
Needle Spike-rush	*Eleocharis acicularis*	IUCN Red List Near Threatened (England)
Bell Heather	*Erica cinerea*	IUCN Red List Near Threatened (England)
Common Cottongrass	*Eriophorum angustifolium*	IUCN Red List Vulnerable (England)
Sun Spurge	*Euphorbia helioscopia*	EC CITES - ANNEX B, Scottish Biodiversity List
Petty Spurge	*Euphorbia peplus*	EC CITES - ANNEX B
Eyebright	*Euphrasia nemorosa*	IUCN Red List Near Threatened (England)
Wild Strawberry	*Fragaria vesca*	IUCN Red List Near Threatened (England)
Snowdrop	*Galanthus nivalis*	EC CITES - ANNEX B

Common Name	Scientific Name	Status
Dyer's Greenweed	*Genista tinctoria*	IUCN Red List Vulnerable (England)
Bloody Crane's-bill	*Geranium sanguineum*	IUCN Red List Near Threatened (England)
Wood Crane's-bill	*Geranium sylvaticum*	IUCN Red List Near Threatened (England), Schedule 9 (Part 1)of the Wildlife and Countryside Act 1981
Corn Marigold	*Glebionis segetum*	Farm Environmental Plan, IUCN Red List Vulnerable (England), IUCN Red List Vulnerable (Great Britain)
Hawkweed	*Hieracium piligerum*	RedList_ENG_post2001-CR
Sea-buckthorn	*Hippophae rhamnoides*	Farm Environmental Plan, Nationally Scarce (excludes)
Bluebell	*Hyacinthoides non-scripta*	WACA-Sch8
Marsh Pennywort	*Hydrocotyle vulgaris*	IUCN Red List Near Threatened (England)
Field Scabious	*Knautia arvensis*	IUCN Red List Near Threatened (England)
Bitter-vetch	*Lathyrus linifolius*	IUCN Red List Near Threatened (England)
Field Pepperwort	*Lepidium campestre*	IUCN Red List Near Threatened (England), Scottish Biodiversity List
Fly Honeysuckle	*Lonicera xylosteum*	Nationally Rare (excludes)
Ragged-Robin	*Lychnis flos-cuculi*	IUCN Red List Near Threatened (England)
Welsh Poppy	*Meconopsis cambrica*	Nationally Scarce (excludes)
Cat-mint	*Nepeta cataria*	IUCN Red List Vulnerable (England), IUCN Red List Vulnerable (Great Britain)
Wood-sorrel	*Oxalis acetosella*	IUCN Red List Near Threatened (England)
Tormentil	*Potentilla erecta*	IUCN Red List Near Threatened (England)
Marsh Cinquefoil	*Potentilla palustris*	IUCN Red List Near Threatened (England)
Oxlip	*Primula elatior*	Nationally Scarce (excludes), IUCN Red List Near Threatened (Great Britain)
Lesser Spearwort	*Ranunculus flammula*	IUCN Red List Vulnerable (England)
Mountain Currant	*Ribes alpinum*	Farm Environmental Plan, Nationally Scarce (excludes)
Bramble	*Rubus rotundifolius*	Nationally Rare (excludes)
Knotted Pearlwort	*Sagina nodosa*	IUCN Red List Vulnerable (England)
Yellow Glasswort	*Salicornia fragilis*	Nationally Scarce (excludes)
Shiny Glasswort	*Salicornia nitens*	Nationally Scarce (excludes), IUCN Redlist Data Deficient (Great Britain)
Creeping Willow	*Salix repens*	Farm Environmental Plan, IUCN Red List Near Threatened (England)
Sanicle	*Sanicula europaea*	IUCN Red List Near Threatened (England)
Marsh Ragwort	*Senecio aquaticus*	IUCN Red List Near Threatened (England)

Common Name	Scientific Name	Status
Devil's-bit Scabious	*Succisa pratensis*	IUCN Red List Near Threatened (England)
Marsh Arrowgrass	*Triglochin palustre*	IUCN Red List Near Threatened (England)
Common Valerian	*Valeriana officinalis*	IUCN Red List Near Threatened (England)
Heath Dog-violet	*Viola canina*	IUCN Red List Vulnerable (England), IUCN Red List Near Threatened (Great Britain)
Dwarf Eelgrass	*Zostera noltei*	Nationally Scarce (excludes), IUCN Red List Vulnerable (England), IUCN Red List Vulnerable (Great Britain)

The majority of the habitats where these plants would be expected to be found would be those of higher quality such as dune, woodland, wetland and open mosaic priority habitats.

3.3.2 Invertebrates

Records of 52 species of protected or notable invertebrates within 2 km of the application Site were returned in the data search.

Most recently, surveys in 2019 conducted for the Britishvolt recorded high numbers of grayling *Hipparchia semele* within their site boundaries in 2019, associated with ephemeral and short perennial vegetation and grassland, in the southeast part of the Site, as well as identifying potential for other notable invertebrates such as wall brown *Lasiommata megera* and dingy skipper *Erynnis tages* with suitable habitat in the area and records returned from ERIC, however, no sightings were recorded. It is likely that these species are also present in areas of similar habitat elsewhere within the Site.

Other protected and notable invertebrate species are most likely to be associated with priority habitats such as grasslands, dunes, open mosaic, mature woodland and wetland.

3.3.3 Amphibians

GCN is protected through its inclusion in Schedule 5 of the Wildlife and Countryside Act (as amended) and in Schedule 2 of the Conservation of Habitats and Species Regulations 2017 (as amended), it is also a Section 41 species.

ERIC North East returned recent records for smooth newt *Lissotriton vulgaris*, common frog *Rana temporaria*, and common toad *Bufo bufo* within the 2 km Study Area. Historical records of GCN exist, the most recent from 2006. However, surveys carried out east of the A189 between 2013 and 2020[39] returned no records of GCN. Whilst this suggests likely absence east of the A189, the presence of GCN within potentially suitable ponds across the Site, or within 250 m of the Site, cannotbe ruled out. The locations of ponds within 250 m of the Site can be seen in Figure 2.

No ponds were accessible during the ground truthing survey and therefore would require further survey to determine their suitability for GCN.

Rough grassland, scrub, hedgerow, wetland and woodland habitats are suitable for use by this species group and are present across the Site.

3.3.4 Reptiles

Two species of reptile were identified in records from ERIC North East for the 2 km Study Area. These include:

- Slow worm *Anguis fragilis*; and
- Common lizard *Zootoca vivipara*.

However, the most recent record returned was of the slow worm in 2010, approximately 1.7 km southeast of the Site.

BritishVolt[39] reported historical surveys undertaken in 2007 by White Young Green, which recorded a single common lizard but no records have been identified since, with systematic surveys carried out by EcoNorth in 2013 returning no reptiles, other than anecdotal evidence of an incidental sighting of common lizard at the disused railway.

The above species are protected from intentional killing, injuring and sale under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) and are listed on Section 41 of the NERC Act (2006).

Habitats that may be suitable for use by reptiles occur across the Site and include rough grassland, field margins, hedgerows, scrub, woodland edges, watercourse edges, dunes and wetlands, although the large arable fields within the Site are not likely to support reptile species.

3.3.5 Birds

The desk study data provided by ERIC North East included records for a wide range of legally protected or otherwise notable bird species within the 2 km Study Area. These include 58 species that are protected through inclusion on Schedule 1 of the Wildlife and Countryside Act 1981 (as amended), 14 Section 41 species, 29 species listed under Annex 1 of the EU Birds Directive, 43 species red listed as 'Birds of Conservation Concern'[34] and 67 species amber listed as 'Birds of Conservation Concern'[35]. Many of these records relate to birds recorded within nearby statutory and non-statutory designated sites. It is noted that most of the Schedule 1 species are unlikely to breed within the 2 km Study Area and most of the records of Schedule 1 species are likely to relate to wintering birds or birds on passage.

Other relevant data sources were reviewed (see Table 2-1), notably bird surveys undertaken for the Britishvolt project in 2020 and 2021 and included records for a wide range of legally protected or otherwise notable bird species within the Site. These are discussed further below.

Breeding Birds

Of the records provided by ERIC North East there are records of four Schedule 1 species, which could potentially breed within the Site, based on habitat suitability and known distribution and range. These are little ringed plover *Charadrius dubius*, barn owl *Tyto alba*, kingfisher *Alcedo atthis* and peregrine *Falco peregrinus*. There are also records for a number of other red and amber list species which could potentially breed.

Breeding bird surveys undertaken at the Britishvolt site in 2020 and 2021[39] identified one Schedule 1 species breeding within the site, little ringed plover. There were also records of other breeding wader species including curlew, lapwing and ringed plover plus a range of red and amber list passerine species, including the locally rare willow tit *Poecile montanus*.

There are no records of breeding little tern (a qualifying species for the Northumbria Coast SPA and Ramsar) within 2 km of the Site and the closest known colony is located several miles to the north of the Site at the Long Nanny, between Low Newton and Beadnell.

[34] Stanbury, A.J., Eaton, M.A., Aebischer, N.J., Balmer, D., Brown, A.F., Douse, A., Lindley, P., McCulloch, N., Noble, D.G. & Win, I. (2021) The status of our bird populations: the fifth Birds of Conservation Concern in the United Kingdom, Channel Islands and Isle of Man and Second IUCN Red List assessment of extinction risk for Great Britain. British Birds 114, 723–747.
[35] *NB – Some species will have more than one designation.

Non-Breeding Birds

Non-breeding bird survey was undertaken for the Britishvolt site plus a 500 m buffer in the winter of 2020-21[36]. The surveys recorded a number of waterbird species, including several of the species forming part of the notified interest of the Northumberland Shore SSSI, including golden plover, ringed plover, turnstone and redshank. A further seven wader species were also recorded. Barn owl and peregrine were both also recorded.

The intertidal habitats within the Site are considered likely to support all of the wintering birds listed as qualifying or notified features for the Northumbria Coast SPA and Ramsar and the Northumberland Shore SSSI. It is also possible that some of these species may use suitable habitats within the inland parts of the site (e.g. wet fields or large areas of open mosaic habitats).

3.3.6 Mammals

Bats

ERIC North East returned records for the following species within the 2km Study Area:

- Common pipistrelle *Pipistrellus pipistrellus*;
- Soprano pipistrelle *P. pygmaeus*;
- Nathusius' pipistrelle *P. nathusii;*
- *Pipistrellus* sp.;
- Daubenton's bat *Myotis daubentonii*;
- *Myotis sp*.;
- Natterer's bat *Myotis nattereri*;
- Whiskered bat *Myotis mystacinus;*
- Whiskered/Brandts bat *Myotis brandtii;*
- Noctule *Nyctalus noctula*;
- *Nyctalus* sp.; and
- Bat sp.

While the majority of these species are relatively common and/or widespread, Nathusius' pipistrelle and Brandt's bat are rare species, while Natterer's and whiskered bat[37] are uncommon. These species have been recorded at scattered locations around the 2 km Study Area, with the commoner species, common and soprano pipistrelle, recorded within the red line boundary.

Surveys for the BritishVolt application in 2020[39] found the presence of common pipistrelle, soprano pipistrelle, pipistrelle species and *Myotis* species. Surveys in 2022[7] at West Sleekburn found the presence of noctule and common pipistrelle.

MAGIC identified six European Protected Species Licences (EPSL) for bats within the 2 km Study Area, all of which were for common pipistrelle and none of which were within the Site itself.

All bat species in the UK are protected through inclusion in Schedule 5 of the Wildlife and Countryside Act (as amended) and in Schedule 2 of the Conservation of Habitats and Species Regulations 2017 (as amended). Noctule, common pipistrelle, soprano pipistrelle, brown long-eared bat and barbastelle are also Section 41

[36] BritishVolt Project Phoenix Environmental Statement Volume 3: Appendices (Ridge 2021).
[37] https://neenp.org.uk/wp-content/uploads/2017/03/Bats.pdf

Species.

The Site includes numerous habitats that are suitable for use by commuting and foraging bats, such as hedgerows, woodland edges, watercourses and wetlands, although the large arable fields in the west of the Site are unlikely to be of great value to commuting and foraging bats. Potential roost locations within the Site include mature trees within hedgerows and woodlands, as well as numerous buildings. Note that bat roost potential has not been assessed for individual trees or buildings due to the lack of access.

Badger

ERIC North East returned 20 records of Badger (*Meles meles*) within 2 km of the Site. The majority of the records were of dead individuals found on the roadside.

Britishvolt did not find any field signs for badger within their site.

Badger receives protection under the Protection of Badgers Act 1992. Badger was not recorded in the Site during the ground-truthing surveys, although large parts of the Site were not accessible. Woodland and hedgerows within the Site are potentially suitable for sett digging, and the grassland fields for foraging.

Otter

Otter is fully protected through its inclusion in Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) and in Schedule 2 of The Conservation of Habitats and Species Regulations 2017 (as amended), it is also a Section 41 species.

ERIC North East returned 40 records of otter and surveys completed in 2019[39] by Britishvolt found suspected field signs in the wider area near settling ponds. The majority of records returned are from the River Wansbeck and River Blyth.

In addition to the rivers and streams, otter may utilise the ditch and pond network present in the area, particularly during the amphibian breeding season when frog, toad and newt prey would be abundant.

Water Vole

Water vole is fully protected through its inclusion in Schedule 5 of the Wildlife and Countryside Act 1981 (as amended), it is also a Section 41 species.

ERIC North East returned only one record of water vole north of the Site which may be within the northern Site boundary in the River Wansbeck (the precision of the record does not enable distinction).

Several water courses and ponds within the Site may be suitable for use by this species, although this can't be confirmed without access for survey.

Red Squirrel

Red squirrel is fully protected through its inclusion in Schedule 5 of the Wildlife and Countryside Act 1981 (as amended), it is also a Section 41 species.

ERIC North East returned over 500 records of red squirrel within the 2 km area of search with at least 20 records intersecting with the Site boundary, albeit the precision of the locations cannot be ascertained.

The Site supports habitats suitable for red squirrel with dense woodlands present in scattered, mostly linear, parcels across the Site.

Other Mammals

Two other Section 41 mammal species are noted to occur within the 2 km Study Area, based on the desk study data: hedgehog *Erinaceus europaeus* and brown hare *Lepus europaeus.* The Site includes numerous habitats that are suitable for use by hedgehog such as hedgerows, woodland edges, scrub and gardens. Suitable habitat for brown hare is also present across the Site, including grassland for foraging and woodland and hedgerows for

cover.

3.3.7 Invasive Non-Native Species

ERIC North East returned records of the non-native American mink *Mustela vison* and grey squirrel *Sciurus carolinensis* within the 2 km Study Area and in the wider landscape which are included in Schedule 9 Part 1 of the Wildlife & Countryside Act 1981 (as amended). The most recent records are over seven years old for American mink and over five years old for grey squirrel, although both are likely to still be present in the area.

The following invasive non-native plant species records were returned from ERIC North East for the 2 km Study Area:

- Hollyberry Cotoneaster *Cotoneaster bullatus*;
- Wall Cotoneaster *Cotoneaster horizontalis*;
- Himalayan Cotoneaster *Cotoneaster simonsii*;
- New Zealand Pigmyweed *Crassula helmsii*;
- Japanese Knotweed *Fallopia japonica*;
- Giant Hogweed *Heracleum mantegazzianum*;
- Indian Balsam *Impatiens glandulifera*;
- Rhododendron *Rhododendron ponticum*; and
- Japanese Rose *Rosa rugosa*.

These species above are all included on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended), which could result in an offence if they are caused to grow or spread.

Additionally, pirri-pirri burr *Aceana novae-zelandiae* was found to be widespread throughout open mosaic habitat during surveys undertaken for the BritishVolt EIA, as well as Japanese rose, cotoneaster species, New Zealand pygmy weed, Indian Balsam, buddleja *Buddleja davidii*, lady's mantle *Alchemilla mollis* and sea buckthorn *Hipphophae rhamnoides*[38,39,40]. It should be noted that pirri-pirri burr, buddleja, lady's mantle and sea buckthorn are considered invasive as they can become widespread and do not naturally occur in this location. However, they are not Schedule 9 species.

The records indicate that several invasive non-native plant species could be present within the Site.

[38] BritishVolt Project Phoenix-Advanced Works, Construction Environmental Management Plan (2021)
[39] BritishVolt Project Phoenix Environmental Statement Volume 3: Appendices (Ridge 2021).

[40] BritishVolt Project Phoenix Environmental Statement: Main Report (Ridge 2021).

4.0 Confirmation of Important Ecological Features and Requirements for Further Survey

4.1 Important Ecological Features and Further Survey Requirements

This section provides additional detail in respect of important ecological features (IEFs) that may be affected by the proposed development and outlines the scope of additional ecological surveys that may be necessary to inform the EIA process. IEFs that could be affected will depend on the project design and the precise scope of additional survey work required will also depend on the location and extent of proposed infrastructure and should be reviewed once further information on the project design is available. Readers should also bear in mind that the recommendations here are made based upon the best available data collected to date but may be subject to update and amendment as required, as additional ecological field survey data is gathered.

The IEFs identified to date that may be affected by the proposed development are identified in Table 4-1. A precautionary approach has been taken in respect of identification of IEFs at locations where detailed field survey has not been undertaken. Since the following Level 3 habitats may include Priority Habitats, they have been taken forward as IEFs within this PEA:

- w1 – broadleaved, mixed and yew woodland
- g3 – neutral grassland
- h2 – hedgerow;
- h3 – dense scrub
- f2 – fen, marsh and swamp;
- r1 and r2 – standing open water, rivers and streams; and
- s3 – supralittoral sediment.
- t2 – littoral sediment
- u1– Urban

Table 4-1 identifies where further survey may be necessary in order to robustly evaluate potential ecological impacts of the project as part of the EIA (subject to the project design), where no such information is needed, and where potential impacts have been scoped out. The scope proposed below will also be subject to continual iterative refinement, as data is gathered and/ or in response to the provision of additional design information.

Table 4-1
Important Ecological Features that may be Affected and Potential Requirements for Further Survey (Subject to the Project Design)

Important Ecological Feature	Reason for Importance	Further Survey Required
Northumbria Coast RamsarNorthumbria Coast SPA Northumberland Shore SSSI	Statutory Designated Sites	Located within the Site and may be affected by works on any landfall (and potentially other works, if likely to affect inland areas used by wintering wader populations). Wintering bird surveys are recommended (further details are provided below), to inform an assessment of whether bird populations associated with these designated sites are likely to be affected.

Important Ecological Feature	Reason for Importance	Further Survey Required
Willow Burn Pasture SSSI Hawthorn Cottage Pasture SSSI New Hartley Ponds SSSI Holywell Pond SSSI Arcot Hall Grassland and Ponds SSSI Cresswell Ponds SSSI Castle Island LNR Wansbeck Riverside Park LNR Paddock Wood LNR Ha'penny Woods LNR Choppington Community Woods LNR	Statutory Designated Sites	Based on the distance from site, over 800 m, and a lack of downstream hydrological connections it is unlikely that these sites would be impacted. These sites have therefore been scoped out of further assessment.
LoWS within c.100m of the Site, including: Blyth Estuary LoWS Wansbeck Estuary LoWS Sleekburn Fen LoWS	LoWS	Depending on the proposed design and whether these sites could be directly or indirectly affected, a range of surveys may be required (further details are provided below).
All other LoWS listed at in Section 3	LoWS	Remaining LoWS are all located >250 m from the Site and are not hydrologically linked to it. No direct or indirect impacts are anticipated as a result of lack of potential impact pathways. It is therefore proposed to scope these sites out of further assessment.
Habitats	Section 41 Habitats (see Section 3.2.14), plus areas that may meet Annex 1 definitions.	Field-based habitat survey of all areas within 100 m of proposed development areas is recommended, once the proposed development areas have been identified and access is obtained. All areas should be classified to UKHab level 4 (where applicable), plus mandatory codes (10 – 41) as a minimum. Section 41 habitats should be assessed to UKHab level 5 (where applicable), plus mandatory codes (10 – 41). Mapping should be undertaken based upon a 25 m^2 minimum mapping unit (MMU). In addition to the habitat survey, all areas should also be subject to Condition Assessment[41] to enable later biodiversity loss/gain calculations to be made. Hedgerow assessment should be undertaken at any locations which may be breached, in order to ascertain if hedgerows meet the definition of "Important Hedgerow" under the wildlife and landscape criteria of the Hedgerow Regulations 1992. This assessment should be targeted,

[41] Undertaken in accordance with Defra Biodiversity Metric 3.1.

Important Ecological Feature	Reason for Importance	Further Survey Required
		informed by a review undertaken during the habitat survey where species rich (more than five woody species noted) hedgerows should be identified, and detailed scrutinising of desk study data to determine if the hedge is likely to support important species defined in the Regulations. Habitat surveys should ideally be undertaken during the period May to September (inclusive), although survey of some habitats may be possible outside this period.
Plant species	Protected or notable species	Field-based habitat survey of all areas within 100 m of proposed development areas is recommended, once the proposed development areas have been identified and access is obtained. Protected or notable plant species should be recorded as seen during this survey. Detailed survey of areas that are known or suspected to support protected or notable plant species, and that may be significantly impacted, may be required subject to the project design and findings of the field-based habitat survey. Such surveys would comprise searching discrete areas of suitable habitat specifically looking for rare species, during the appropriate season (dependent on likely species). Invasive non-native plant species should be recorded during the habitat survey.
Invertebrates	Protected or notable species	Surveys for certain protected or notable invertebrate species may be required, depending on the project design. Assessment of impacts to this species group should initially take place via a precautionary habitat-based assessment, focussing on a) areas where permanent habitat loss is likely and b) areas that are known or suspected (based on the habitats present) to support potentially important populations of rare/notable species. The requirement for further survey will depend on the project design and the findings of the initial habitat-based assessment.
GCN and common toad	Protected or notable species	Despite the lack of recent records, as all existing survey data are over two years old, any ponds within 250 m of proposed development areas should be subject to Habitat Suitability Index (HSI) survey[42] and, if suitable, presence/absence survey following standard methods[43]

[42] Oldham R.S., Keeble J., Swan M.J.S. & Jeffcote M. (2000). Evaluating the suitability of habitat for the Great Crested Newt (Triturus cristatus). Herpetological Journal 10(4), 143-155.
[43] Biggs, J., Ewald, N., Valentini, A., Gaboriaud, C., Griffiths, R.A., Foster, J., Wilkinson, J., Arnett, A., Williams, P. and Dunn, F. (2014). 'Analytical and

Important Ecological Feature	Reason for Importance	Further Survey Required
		All ponds that support GCN and that are within 250 m of permanent or 100 m of temporary habitat loss should also be subject to population size class assessment. Presence/ absence surveys using eDNA should be undertaken between mid-April and the end of June and population size class surveys, if required, should be undertaken between mid-March and mid-June.
Reptiles	Protected or notable species	The habitat survey completed to date has indicated that potentially suitable reptile habitat in the form of coastal sand dunes, hedgerows, scrub, woodland and grassland (except for modified grassland) occurs at many locations within the Site. More detailed habitat suitability assessment should be undertaken at the above locations once proposed development areas are known, with presence/ absence survey undertaken at areas of moderate or highly suitable habitat where permanent habitat loss and/ or significant impacts to populations are possible. Presence/ absence survey should be undertaken between April and September following standard methods[44]. Surveys for reptiles in areas that would only be subject to relatively small-scale temporary loss are not considered necessary provided Reasonable Avoidance Measures are employed during construction.
Breeding Birds	Protected or notable species	Breeding bird surveys may be required, depending on the project design, if areas in which significant effects on protected or notable bird species are possible. Given the nature of the project most effects on breeding bird species will be temporary in nature (e.g. disturbance or temporary habitat loss), although permanent effects are likely at the converter station location and even temporary effects may be significant if Schedule 1 species or important populations of other notable species could be affected Bird Survey Guidelines published online in 2021[45] adopt a default position that a minimum of six survey visits should be carried out during the breeding season, unless a robust justification can be made as to why fewer visits are required. These methods should form the default

methodological development for improved surveillance of the Great Crested Newt', in Appendix 5. Technical advice note for field and laboratory sampling of great crested newt (*Triturus cristatus*) environmental DNA.
Langton, T., Beckett, C. and Foster, J. (2001). 'Great Crested Newt Conservation Handbook', (Halesworth: Froglife).
[44] Froglife (1999). Froglife Advice Sheet 10: reptile survey. Froglife, London.
[45] https://birdsurveyguidelines.org/ [last accessed 15 March 2022]

Important Ecological Feature	Reason for Importance	Further Survey Required
		survey methodology here, if surveys are required. Survey, if needed, should also be designed to meet any specific requirements for target species, for example, all potentially suitable trees and potentially suitable structures within the Site (where accessible) should be inspected at least once for evidence of the presence of barn owl following standard methods[46].
Non-Breeding Birds	Protected or notable species	Although there are previous survey data for the Britishvolt site from 2020-21, their surveys only covered a small proportion of the Site and may not cover areas affected by the proposed development. Surveys of wintering birds using inter-tidal areas at the proposed landfall are therefore recommended. Surveys should include a 500 m buffer either side of the proposed landfall location (to allow for an assessment of potential disturbance effects) and should also include any inland areas that are potentially suitable for wintering waders and wildfowl and may be affected by the proposed development. Surveys should take place twice per month, from October to March inclusive, as per recent discussions with Natural England regarding the project[47]. On each survey date all waterbirds using intertidal areas should be recorded through-the-tide, i.e. during six, approximately hourly counts undertaken throughout the tidal cycle, either starting at low tide and finishing at high tide or vice versa.
Bats	Protected or notable species	If required, surveys should be undertaken in accordance with published good practice guidelines[48] unless otherwise stated. Depending on the project design, bat activity survey may be required at hedgerows, woodlands and/or riparian areas which may be removed, illuminated or breached. If required, survey would involve a combination of manual transect surveys and static recording, in accordance with the published guidelines. Survey should take place throughout the bat active season (May to September) with the frequency of survey to be determined once proposed development areas are known and a more detailed habitat-based assessment has been undertaken. Preliminary roost assessment to determine if trees or structures have potential roost features (PRF) should be

[46] Gilbert, G, Gibbons, D.W. & Evans, J. (1998) *Bird Monitoring Methods: A Manual of Key Techniques*. RSPB, Sandy.
[47] Consultation between Xodus and Natural England dated 18 August 2022.
[48] Collins, J. (ed.) (2016) Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edn).
The Bat Conservation Trust, London.

Important Ecological Feature	Reason for Importance	Further Survey Required
		undertaken at trees likely to be affected by the proposed development once project designs and access are available. Trees or structures with PRF which could potentially be lost or damaged or disturbed by the project (excluding those able to be avoided via use of HDD) should then be subject to more detailed survey; either an at-height/ internal PRF inspection (where safe to do so) and/or dusk emergence and/or dawn re-entry surveys during the active season (May – September) to better determine roost potential and gather evidence of roosting bats (if present). The level of survey effort required would depend on the level of bat roost potential identified by the preliminary roost assessment. Dusk emergence and/or dawn re-entry surveys should use full spectrum bat detectors and potentially also thermal imaging or infra-red cameras. Deviations from this may be necessary due to structural safety issues or difficult sight lines, in which case tree or structure-specific alternative methods should be used.
Badger	Protected or notable species	Survey of all potentially suitable areas for badgers within at least 30 m of proposed development areas is recommended. This could potentially be undertaken in conjunction with the habitat survey, once access is obtained. Survey should follow standard methods[49] and include a search for the presence of active badger setts and signs.
Otter	Protected or notable species	Surveys should be carried out at any potentially suitable watercourses crossed by or close to proposed development areas, once known and once access is obtained. In line with standard good practice, survey should include the area 250 m up and downstream. Survey methods should be informed by current references[50] and surveys could take place in conjunction with surveys for water vole (below).
Water Vole	Protected or notable species	Surveys should be carried out at any potentially suitable watercourses crossed by or close to proposed development areas, once known and once access is obtained. In line with standard good practice, survey should include the area 200 m up and downstream. If required, surveys should be undertaken in accordance

[49] Scottish Natural Heritage (SNH) (2003). 'Best Practice Guidance - Badger Surveys', Inverness Badger Survey 2003, Commissioned Report No. 096.
[50] Chanin, P. (2003). 'Ecology of the European Otter', in Conserving Natura 2000 Rivers, Ecology Series No. 10, (Peterborough: English Nature).
Chanin, P. (2003). 'Monitoring the Otter', in Conserving Natura 2000 Rivers, Monitoring Series No 10, (Peterborough: English Nature).

Important Ecological Feature	Reason for Importance	Further Survey Required
		with standard methods[51], which require up to two visits, two months apart, between April and October.
Red Squirrel	Protected or notable species	Depending on the project design, surveys may be required for any potentially suitable woodlands, which may be impacted by the survey through the felling of trees, including where this causes a severance in woodland. If required, surveys should follow current best practice guidance[52, 53].
Other Section 41 Mammal Species: hedgehog and brown hare.	Protected or notable species	Detailed surveys are not considered necessary given that most habitat loss will only be temporary in nature and will only affect a relatively small proportion of most of the habitats affected. Instead, habitat-based assessment should be undertaken for these species and used as a basis for impact assessment.

4.2 Potential Requirements for Mitigation or Compensation Measures

A brief outline of possible mitigation/ compensation requirements that have so far been identified is described below. It is limited to mitigation/ compensation that is likely to be required based on current data but does not include things which would be entirely dependent on the results of further surveys and project design, e.g. mitigation for loss of tree bat roosts. Final mitigation/compensation proposals should be subject to detailed, species and location-specific refinement, once all necessary data have been obtained, with full details provided in an Outline Ecological Management Plan (OEMP) (or equivalent) submitted alongside the ES as part of the planning application. At this stage it is envisaged that general points are likely to include:

- compensation for any loss of Section 41 habitats; to include reinstatement and/ or planting/ creation of equivalent habitat type, quality and extent, as appropriate;
- mitigation/compensation for temporary loss of other habitat – to include reinstatement and other measures as described above;
- mitigation to minimise impacts to important species, if required, through careful alignment, scheduling and/or deterrence and/ or exclusion measures, with translocation as necessary (under licence, if appropriate). Details will depend on the results of further surveys and the detailed design; and
- "dead hedge" blocking of any hedgerow breaches during construction and/or whilst replacement hedges establish afterward, to minimise barrier effects to bats and other mobile species, and to enable continued use as a foraging/sheltering resource by reptiles and breeding birds.

4.3 Potential Opportunities for Biodiversity Enhancements

Detailed development plans are not available at this time and a number of recommended surveys have not yet been undertaken. Therefore, the options listed below to provide nature conservation enhancements and

[51] Dean, M., Strachan, R., Gow, D. and Andrews, R. (2016). 'The Water Vole Mitigation Handbook', The Mammal Society Mitigation Guidance Series, Fiona Mathews and Paul Chanin (eds.), (London: The Mammal Society).
[52] Standing advice for planning consultations - Red Squirrels | NatureScot
[53] https://treesforlife.org.uk/docs/079_360__practicaltechniquesforsurveyingandmonitoringsquirrels_1446049986.pdf

biodiversity net gain (BNG), as required under relevant planning policy, are necessarily generic at this stage. The list below is not exhaustive and may change depending on the detailed design of the project, the results of further survey work and land ownership constraints. Full details should be provided in an OEMP (or equivalent) submitted alongside the ES as part of the planning application.

- Planting new species-rich hedgerows, or gap-planting existing hedgerows, with a specific focus on providing habitat for notable species which may be present in the relevant areas;
- Pond and wetland creation and maintenance for potential use by amphibians, reptiles, otter and water vole;
- New woodland creation and maintenance, to link and/or fortify the existing habitat network;
- Creation and maintenance of sheltered wildflower meadows and glades, including dry stony areas for use by invertebrates and nesting/foraging bird species;
- Creation and maintenance of open mosaic habitat for use by invertebrates and bird species;
- Creation of reptile and amphibian refugia at field boundaries;
- Installation of bird and bat boxes at appropriate trees/woodland;
- Installation of artificial holts and/or water vole platforms adjacent to watercourses;
- Ecological improvements to water courses, where practical; and
- Conducting biodiversity improvement works to existing woodland, where possible.

The Environment Act 2021 requires that developers in England must demonstrate a net biodiversity gain of at least 10% to obtain planning consent. Although submission of a detailed BNG assessment may not be mandatory by the time of submission, provision of BNG and submission of a detailed BNG assessment using a metric are recommended to demonstrate that existing policy requirements to provide biodiversity enhancements will be met.

5.0 Conclusions and Recommendations

This report comprises a PEA of the areas that may be affected by construction and operation of the onshore aspects for the proposed Cable Landfall Project at Cambois. At the time of writing, scheme designs are not yet available and the PEA relates to an indicative red line boundary (the Site) that is representative of the area in which the client will refine the project design including, but not be limited to, the construction of cable landfall, cable corridor and substation. This PEA is informed by desk study and limited field survey undertaken in summer 2022. Limitations to the desk study and field survey are described within the report but are not considered to significantly affect the conclusions of the PEA.

IEFs that are, or could be, present within the Site have been determined and described. IEFs that could be affected by the project, and therefore where further survey is required, will depend on the project design but an initial summary of IEFs that could be affected and possible further survey requirements is provided in Table 5-1, with further details provided in Section 4.1

Table 5-1
Summary of Important Ecological Features and Potential Further Survey Requirements (Subject to the Project Design)

Important Ecological Feature	Reason for Importance	Further Survey or Desk-based Assessment Required
Northumbria Coast Ramsar	Statutory and	These sites either lie within or immediately adjacent to

Important Ecological Feature	Reason for Importance	Further Survey or Desk-based Assessment Required
Northumbria Coast SPA Northumberland Shore SSSI	Non-statutory Designated Sites	the Site. Habitat survey of areas within 100m of the onshore infrastructure options is recommended (see below). Wintering bird surveys are also recommended (see below).
Blyth Estuary LoWS Wansbeck Estuary LoWS Sleekburn Fen LoWS	Statutory and Non-statutory Designated Sites	Depending on the proposed design and whether these sites could be directly or indirectly affected, a range of surveys may be required.
Habitats	Section 41 Habitats, plus areas that may meet Annex 1 definitions	Field-based habitat survey, using the UKHab classification, of areas within 100m of proposed development areas is recommended. Hedgerow assessment is recommended at any species-rich hedgerows which may be breached.
Plant species	Protected or notable species	Protected or notable plant species should be recorded as seen during the recommended habitat survey (see above). Invasive non-native plant species should be recorded during the habitat survey.
Invertebrates	Protected or notable species	Initially surveys will take place via a precautionary habitat-based assessment. The requirement for further survey will depend on the project design and the findings of the initial habitat-based assessment.
GCN and common toad	Protected or notable species	Any ponds within 250m of proposed development areas should be subject to Habitat Suitability Index (HSI) survey and, if suitable, presence/absence survey and potentially population size class assessment.
Reptiles	Protected or notable species	Assessment of habitats for their suitability for common reptile species, followed by presence/ absence survey undertaken where permanent loss of suitable habitat or significant impacts to populations may occur.
Breeding Birds	Protected or notable species	Breeding bird surveys may be required, depending on the project design, if areas in which significant effects on protected or notable bird species are possible.
Non-Breeding Birds	Protected or notable species	Surveys of wintering birds using inter-tidal areas at the proposed landfall are recommended.
Bats	Protected or notable species	Surveys are proposed for roosting bats are likely to be required for any trees and structures likely to be directly affected by the Project. Depending on the project design, bat activity survey

Important Ecological Feature	Reason for Importance	Further Survey or Desk-based Assessment Required
		may be required at hedgerows, woodlands and/or riparian areas which may be removed, illuminated or breached.
Badger	Protected or notable species	Survey of all potentially suitable areas for badgers within at least 30m of proposed development areas is recommended.
Otter	Protected or notable species	Surveys should be carried out at any potentially suitable watercourses crossed by or close to proposed development areas.
Water Vole	Protected or notable species	Surveys should be carried out at any potentially suitable watercourses crossed by or close to proposed development areas.
Red Squirrel	Protected or notable species	Depending on the project design, surveys may be required for any potentially suitable woodlands, which may be impacted by the survey through the felling of trees.
Other Section 41 Mammal Species: hedgehog, brown hare, and harvest mouse.	Protected or notable species	Habitat based assessment will be undertaken for these species and used as a basis for impact assessment. Detailed surveys are not considered necessary.

A brief outline of possible mitigation/ compensation requirements that have so far been identified is described within Section 4.2 of the report. Final mitigation/ compensation proposals should be subject to detailed, species and location-specific refinement, once all necessary data has been obtained, with full details provided in an OEMP (or equivalent) submitted alongside the ES as part of the planning application.

Possible options for providing biodiversity enhancements are also suggested and described in section 4.3. The list of enhancements is likely to change depending on the detailed design of the project, the results of further survey work and land ownership constraints, in addition to the likely requirement to provide BNG gain, in accordance with the Defra Metric 3.1. Full details should be provided in an OEMP (or equivalent) submitted alongside the ES as part of the planning application.

FIGURE 1

UK Habitat Classification Map

427000 427500 428000 428500 429000 429500 430000 430500 431000 431500

586000 585500 585000 584500 584000 583500 583000

Page 2 Page 3 Page 4

Page 5 Page 6 Page 7

Page 8 Page 9 Page 10

Stakeford West Sleekburn Moor House Bomarsund Cambois East Sleekburn Mount Pleasant Farm North Blyth The Rockers

0 100 200 300 400 500

Metres

N

LEGEND

Site Boundary
Site Boundary 250 m Buffer

UK Habitat - Linear Feature
h3 - Dense Scrub
h2 - Hedgerow
r2 - River and Stream
f2 - Fen Marsh and Swamp
w1 - Broadleaved Mixed and Yew Woodland

UK Habitat - Area Feature

Cropland - Arable and Horticulture
c1 - Arable and Horticulture

Wetland - Fen Marsh and Swamp
f2 - Fen Marsh and Swamp

Grassland - Neutral Grassland
g3 - Neutral Grassland

Grassland - Modified Grassland
g4 - Modified Grassland

Heathland and Shrub - Dense Scrub
h3 - Dense Scrub

Sparsely Vegetated Land - Supralittoral Rock
s2a - Maritime Cliff and Slopes

Sparsely Vegetated Land - Supralittoral Sediment
s3 - Supralittoral Sediment

Urban - Built-up Areas and Gardens
u1 - Built-up Area and Garden
u1a - Open Mosaic Habitats on Previously Developed Land

Woodland and Forest - Broadleaved Mixed and Yew Woodland
w1 - Broadleaved Mixed and Yew Woodland
w1f - Lowland Mixed Deciduous Woodland

Woodland and Forest - Coniferous Woodland
w2 - Coniferous Woodland

Rivers and Lakes - Standing Open Water and Canals
r1 - Standing Open Water and Canal

Rivers and Lakes - Rivers and Streams
r2 - Rivers and Streams

Marine Inlets and Transitional Waters - Littoral Sediment
t2 - Littoral Sediment
t2a - Coastal Saltmarsh
t2d - Intertidal Mudflats

XODUS

SLR
4/5 LOCHSIDE VIEW
EDINBURGH PARK
EDINBURGH
EH12 9DH

T: +44 (0)131 335 6830
www.slrconsulting.com

CAMBOIS - CABLE LANDFALL PROJECT

PRELIMINARY ECOLOGICAL APPRAISAL REPORT

UK HABITAT CLASSIFICATION MAP

FIGURE 1.1

Scale 1:15,000 @ A3

Date OCTOBER 2022

63808.00001.0002.2 Baseline Habitat V2

63808.00001.0002.2 Baseline Habitat V2

LEGEND

- 🟥 Site Boundary
- ▭ Site Boundary 250 m Buffer

UK Habitat - Linear Feature

- — h2 - Hedgerow
- — r2 - River and Stream

UK Habitat - Area Feature

Cropland - Arable and Horticulture

- 🟧 c1 - Arable and Horticulture

Wetland - Fen Marsh and Swamp

- 🟪 f2 - Fen Marsh and Swamp

Grassland - Neutral Grassland

- 🟩 g3 - Neutral Grassland

Grassland - Modified Grassland

- 🟩 g4 - Modified Grassland

Heathland and Shrub - Dense Scrub

- 🟪 h3 - Dense Scrub

Urban - Built-up Areas and Gardens

- ▨ u1 - Built-up Area and Garden

Woodland and Forest - Broadleaved Mixed and Yew Woodland

- 🟩 w1 - Broadleaved Mixed and Yew Woodland
- 🟩 w1f - Lowland Mixed Deciduous Woodland

Woodland and Forest - Coniferous Woodland

- 🟩 w2 - Coniferous Woodland

Rivers and Lakes - Standing Open Water and Canals

- 🟦 r1 - Standing Open Water and Canal

Rivers and Lakes - Rivers and Streams

- 🟦 r2 - Rivers and Streams

Marine Inlets and Transitional Waters - Littoral Sediment

- 🟫 t2 - Littoral Sediment

XODUS

SLR

4/5 LOCHSIDE VIEW
EDINBURGH PARK
EDINBURGH
EH12 9DH

T: +44 (0)131 335 6830
www.slrconsulting.com

CAMBOIS - CABLE LANDFALL PROJECT

PRELIMINARY ECOLOGICAL APPRAISAL REPORT

UK HABITAT CLASSIFICATION MAP

FIGURE 1.2

Scale	Date
1:5,000 @ A3	OCTOBER 2022

428500 429000 429500 430000

585500

585000

63808.00001.0002.2 Baseline Habitat V2

N

Path
Track
Path (um)
Cycle Track
A189
WB
Layby
WEMBLEY GARDENS

0 100 200 300 400 500
Metres

LEGEND

Site Boundary
Site Boundary 250 m Buffer

UK Habitat - Linear Feature
- h3 - Dense Scrub
- h2 - Hedgerow
- r2 - River and Stream
- w1 - Broadleaved Mixed and Yew Woodland

UK Habitat - Area Feature

Cropland - Arable and Horticulture
- c1 - Arable and Horticulture

Wetland - Fen Marsh and Swamp
- f2 - Fen Marsh and Swamp

Grassland - Neutral Grassland
- g3 - Neutral Grassland

Grassland - Modified Grassland
- g4 - Modified Grassland

Heathland and Shrub - Dense Scrub
- h3 - Dense Scrub

Urban - Built-up Areas and Gardens
- u1 - Built-up Area and Garden
- u1a - Open Mosaic Habitats on Previously Developed Land

Woodland and Forest - Broadleaved Mixed and Yew Woodland
- w1 - Broadleaved Mixed and Yew Woodland
- w1f - Lowland Mixed Deciduous Woodland

Woodland and Forest - Coniferous Woodland
- w2 - Coniferous Woodland

Rivers and Lakes - Standing Open Water and Canals
- r1 - Standing Open Water and Canal

Rivers and Lakes - Rivers and Streams
- r2 - Rivers and Streams

Marine Inlets and Transitional Waters - Littoral Sediment
- t2 - Littoral Sediment
- t2a - Coastal Saltmarsh

XODUS

SLR
4/5 LOCHSIDE VIEW
EDINBURGH PARK
EDINBURGH
EH12 9DH
T: +44 (0)131 335 6830
www.slrconsulting.com

CAMBOIS - CABLE LANDFALL PROJECT

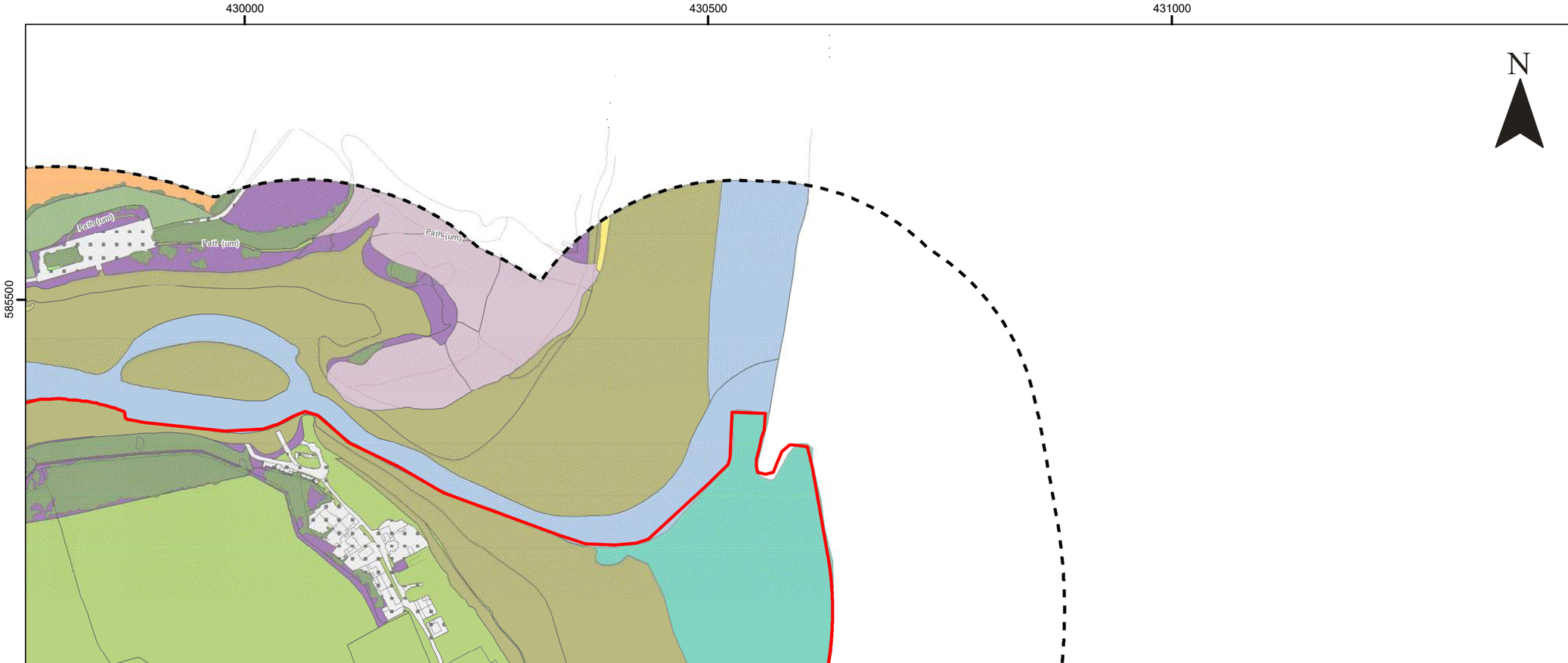
PRELIMINARY ECOLOGICAL APPRAISAL REPORT

UK HABITAT CLASSIFICATION MAP

FIGURE 1.3

Scale 1:5,000 @ A3

Date OCTOBER 2022



LEGEND

Site Boundary

Site Boundary 250 m Buffer

UK Habitat - Linear Feature

r2 - River and Stream

UK Habitat - Area Feature

Cropland - Arable and Horticulture

c1 - Arable and Horticulture

Grassland - Neutral Grassland

g3 - Neutral Grassland

Grassland - Modified Grassland

g4 - Modified Grassland

Heathland and Shrub - Dense Scrub

h3 - Dense Scrub

Sparsely Vegetated Land - Supralittoral Rock

s2a - Maritime Cliff and Slopes

Sparsely Vegetated Land - Supralittoral Sediment

s3 - Supralittoral Sediment

Urban - Built-up Areas and Gardens

u1 - Built-up Area and Garden

u1a - Open Mosaic Habitats on Previously Developed Land

Woodland and Forest - Broadleaved Mixed and Yew Woodland

w1 - Broadleaved Mixed and Yew Woodland

w1f - Lowland Mixed Deciduous Woodland

Woodland and Forest - Coniferous Woodland

w2 - Coniferous Woodland

Rivers and Lakes - Standing Open Water and Canals

r1 - Standing Open Water and Canal

Rivers and Lakes - Rivers and Streams

r2 - Rivers and Streams

Marine Inlets and Transitional Waters - Littoral Sediment

t2 - Littoral Sediment

t2a - Coastal Saltmarsh

XODUS

SLR

4/5 LOCHSIDE VIEW
EDINBURGH PARK
EDINBURGH
EH12 9DH

T: +44 (0)131 335 6830
www.slrconsulting.com

CAMBOIS - CABLE LANDFALL PROJECT

PRELIMINARY ECOLOGICAL APPRAISAL REPORT

UK HABITAT CLASSIFICATION MAP

FIGURE 1.4

Scale 1:5,000 @ A3

Date OCTOBER 2022

63808.00001.0002.2 Baseline Habitat V2

427500 428000 428500

584500

584000

63808.00001.0002.2 Baseline Habitat V2

N

LEGEND

Site Boundary
Site Boundary 250 m Buffer

UK Habitat - Linear Feature
h2 - Hedgerow
r2 - River and Stream

UK Habitat - Area Feature

Cropland - Arable and Horticulture
c1 - Arable and Horticulture

Grassland - Neutral Grassland
g3 - Neutral Grassland

Grassland - Modified Grassland
g4 - Modified Grassland

Heathland and Shrub - Dense Scrub
h3 - Dense Scrub

Urban - Built-up Areas and Gardens
u1 - Built-up Area and Garden
u1a - Open Mosaic Habitats on Previously Developed Land

Woodland and Forest - Broadleaved Mixed and Yew Woodland
w1 - Broadleaved Mixed and Yew Woodland
w1f - Lowland Mixed Deciduous Woodland

Woodland and Forest - Coniferous Woodland
w2 - Coniferous Woodland

Rivers and Lakes - Standing Open Water and Canals
r1 - Standing Open Water and Canal

Rivers and Lakes - Rivers and Streams
r2 - Rivers and Streams

Marine Inlets and Transitional Waters - Littoral Sediment
t2 - Littoral Sediment
t2a - Coastal Saltmarsh
t2d - Intertidal Mudflats

0 100 200 300 400 500
Metres

XODUS

SLR
4/5 LOCHSIDE VIEW
EDINBURGH PARK
EDINBURGH
EH12 9DH

T: +44 (0)131 335 6830
www.slrconsulting.com

CAMBOIS - CABLE LANDFALL PROJECT

PRELIMINARY ECOLOGICAL APPRAISAL REPORT

UK HABITAT CLASSIFICATION MAP

FIGURE 1.5

Scale 1:5,000 @ A3

Date OCTOBER 2022

428500 429000 429500 430000

584500 584000

LEGEND

Site Boundary
Site Boundary 250 m Buffer
UK Habitat - Linear Feature
h2 - Hedgerow
r2 - River and Stream
UK Habitat - Area Feature
Cropland - Arable and Horticulture
c1 - Arable and Horticulture
Grassland - Neutral Grassland
g3 - Neutral Grassland
Grassland - Modified Grassland
g4 - Modified Grassland
Heathland and Shrub - Dense Scrub
h3 - Dense Scrub
Urban - Built-up Areas and Gardens
u1 - Built-up Area and Garden
u1a - Open Mosaic Habitats on Previously Developed Land
Woodland and Forest - Broadleaved Mixed and Yew Woodland
w1 - Broadleaved Mixed and Yew Woodland
w1f - Lowland Mixed Deciduous Woodland
Woodland and Forest - Coniferous Woodland
w2 - Coniferous Woodland
Rivers and Lakes - Standing Open Water and Canals
r1 - Standing Open Water and Canal
Rivers and Lakes - Rivers and Streams
r2 - Rivers and Streams
Marine Inlets and Transitional Waters - Littoral Sediment
t2 - Littoral Sediment
t2a - Coastal Saltmarsh
t2d - Intertidal Mudflats

N

0 100 200 300 400 500
Metres

XODUS

SLR
4/5 LOCHSIDE VIEW
EDINBURGH PARK
EDINBURGH
EH12 9DH
T: +44 (0)131 335 6830
www.slrconsulting.com

CAMBOIS - CABLE LANDFALL PROJECT

PRELIMINARY ECOLOGICAL APPRAISAL REPORT

UK HABITAT CLASSIFICATION MAP

FIGURE 1.6

Scale 1:5,000 @ A3

Date OCTOBER 2022

63808.00001.0002.2 Baseline Habitat V2

430000
430500
431000
584500
584000
N
Track
Path (um)
Path
WATERFIELD ROAD
WILSON AVENUE
WEST BROOKE STREET
0
100
200
300
400
500
Metres

LEGEND

- Site Boundary
- Site Boundary 250 m Buffer

UK Habitat - Linear Feature

- h2 - Hedgerow
- r2 - River and Stream
- f2 - Fen Marsh and Swamp

UK Habitat - Area Feature

Cropland - Arable and Horticulture

- c1 - Arable and Horticulture

Grassland - Neutral Grassland

- g3 - Neutral Grassland

Grassland - Modified Grassland

- g4 - Modified Grassland

Heathland and Shrub - Dense Scrub

- h3 - Dense Scrub

Sparsely Vegetated Land - Supralittoral Sediment

- s3 - Supralittoral Sediment

Urban - Built-up Areas and Gardens

- u1 - Built-up Area and Garden
- u1a - Open Mosaic Habitats on Previously Developed Land

Woodland and Forest - Broadleaved Mixed and Yew Woodland

- w1 - Broadleaved Mixed and Yew Woodland
- w1f - Lowland Mixed Deciduous Woodland

Rivers and Lakes - Standing Open Water and Canals

- r1 - Standing Open Water and Canal

Rivers and Lakes - Rivers and Streams

- r2 - Rivers and Streams

Marine Inlets and Transitional Waters - Littoral Sediment

- t2 - Littoral Sediment

XODUS

SLR
4/5 LOCHSIDE VIEW
EDINBURGH PARK
EDINBURGH
EH12 9DH

T: +44 (0)131 335 6830
www.slrconsulting.com

CAMBOIS - CABLE LANDFALL PROJECT

PRELIMINARY ECOLOGICAL APPRAISAL REPORT

UK HABITAT CLASSIFICATION MAP

FIGURE 1.7

Scale 1:5,000 @ A3

Date OCTOBER 2022

63808.00001.0002.2 Baseline Habitat V2

427500
428000
428500
583500
583000
582500

LEGEND

- Site Boundary
- Site Boundary 250 m Buffer

UK Habitat - Linear Feature

- h2 - Hedgerow
- r2 - River and Stream

UK Habitat - Area Feature

Cropland - Arable and Horticulture

- c1 - Arable and Horticulture

Grassland - Neutral Grassland

- g3 - Neutral Grassland

Grassland - Modified Grassland

- g4 - Modified Grassland

Heathland and Shrub - Dense Scrub

- h3 - Dense Scrub

Urban - Built-up Areas and Gardens

- u1 - Built-up Area and Garden
- u1a - Open Mosaic Habitats on Previously Developed Land

Woodland and Forest - Broadleaved Mixed and Yew Woodland

- w1 - Broadleaved Mixed and Yew Woodland
- w1f - Lowland Mixed Deciduous Woodland

Rivers and Lakes - Rivers and Streams

- r2 - Rivers and Streams

Marine Inlets and Transitional Waters - Littoral Sediment

- t2 - Littoral Sediment
- t2a - Coastal Saltmarsh
- t2d - Intertidal Mudflats

0 100 200 300 400 500

Metres

XODUS

SLR
4/5 LOCHSIDE VIEW
EDINBURGH PARK
EDINBURGH
EH12 9DH

T: +44 (0)131 335 6830
www.slrconsulting.com

CAMBOIS - CABLE LANDFALL PROJECT

PRELIMINARY ECOLOGICAL APPRAISAL REPORT

UK HABITAT CLASSIFICATION MAP

FIGURE 1.8

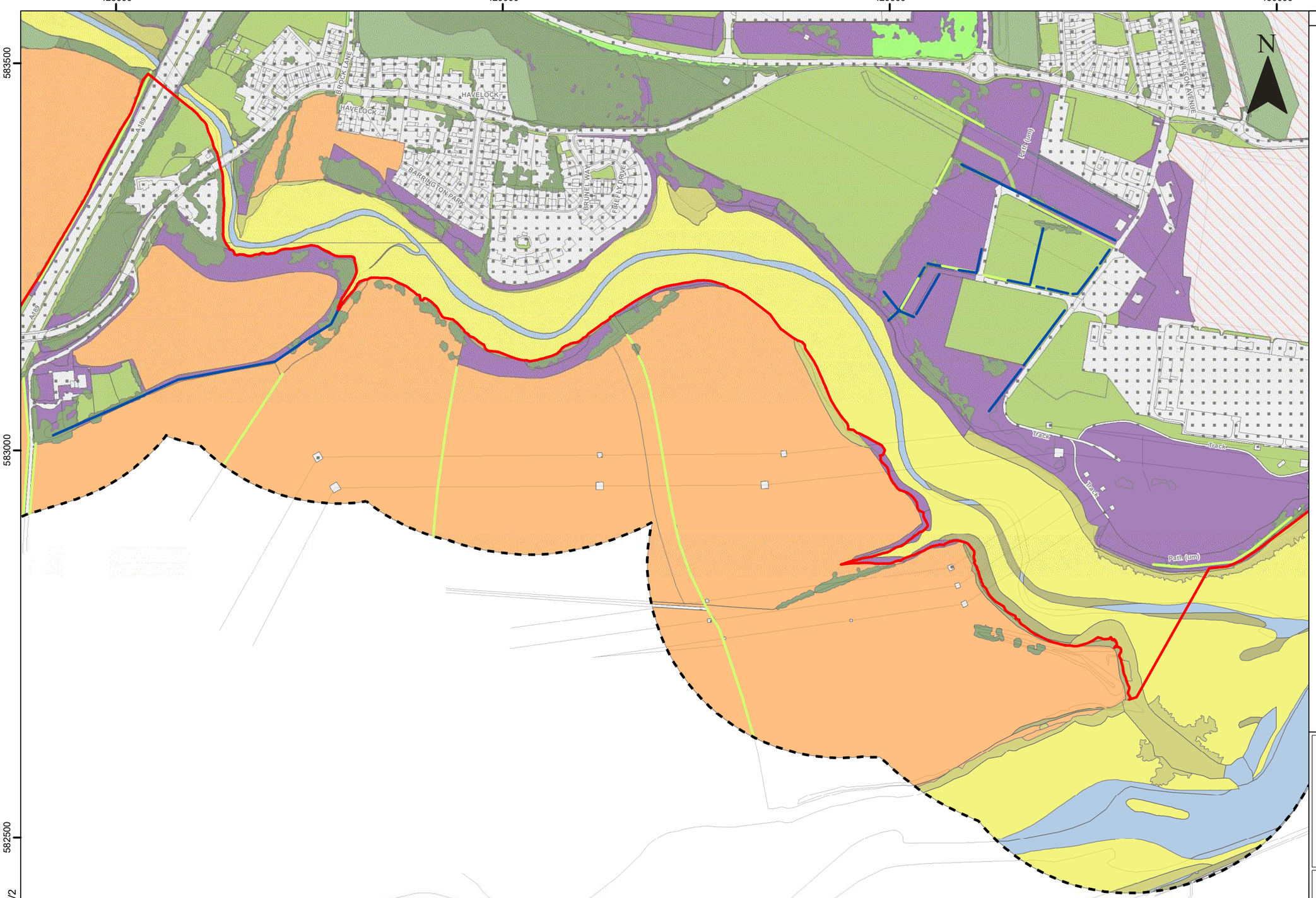
Scale 1:5,000 @ A3

Date OCTOBER 2022

63808.00001.0002.2 Baseline Habitat V2

428500 429000 429500 430000

583500 583000 582500



0 100 200 300 400 500

Metres

LEGEND

- Site Boundary
- Site Boundary 250 m Buffer

UK Habitat - Linear Feature

- h2 - Hedgerow
- r2 - River and Stream

UK Habitat - Area Feature

Cropland - Arable and Horticulture

- c1 - Arable and Horticulture

Grassland - Neutral Grassland

- g3 - Neutral Grassland

Grassland - Modified Grassland

- g4 - Modified Grassland

Heathland and Shrub - Dense Scrub

- h3 - Dense Scrub

Urban - Built-up Areas and Gardens

- u1 - Built-up Area and Garden
- u1a - Open Mosaic Habitats on Previously Developed Land

Woodland and Forest - Broadleaved Mixed and Yew Woodland

- w1 - Broadleaved Mixed and Yew Woodland
- w1f - Lowland Mixed Deciduous Woodland

Woodland and Forest - Coniferous Woodland

- w2 - Coniferous Woodland

Rivers and Lakes - Standing Open Water and Canals

- r1 - Standing Open Water and Canal

Rivers and Lakes - Rivers and Streams

- r2 - Rivers and Streams

Marine Inlets and Transitional Waters - Littoral Sediment

- t2 - Littoral Sediment
- t2a - Coastal Saltmarsh
- t2d - Intertidal Mudflats

XODUS

SLR
4/5 LOCHSIDE VIEW
EDINBURGH PARK
EDINBURGH
EH12 9DH
T: +44 (0)131 335 6830
www.slrconsulting.com

CAMBOIS - CABLE LANDFALL PROJECT

PRELIMINARY ECOLOGICAL APPRAISAL REPORT

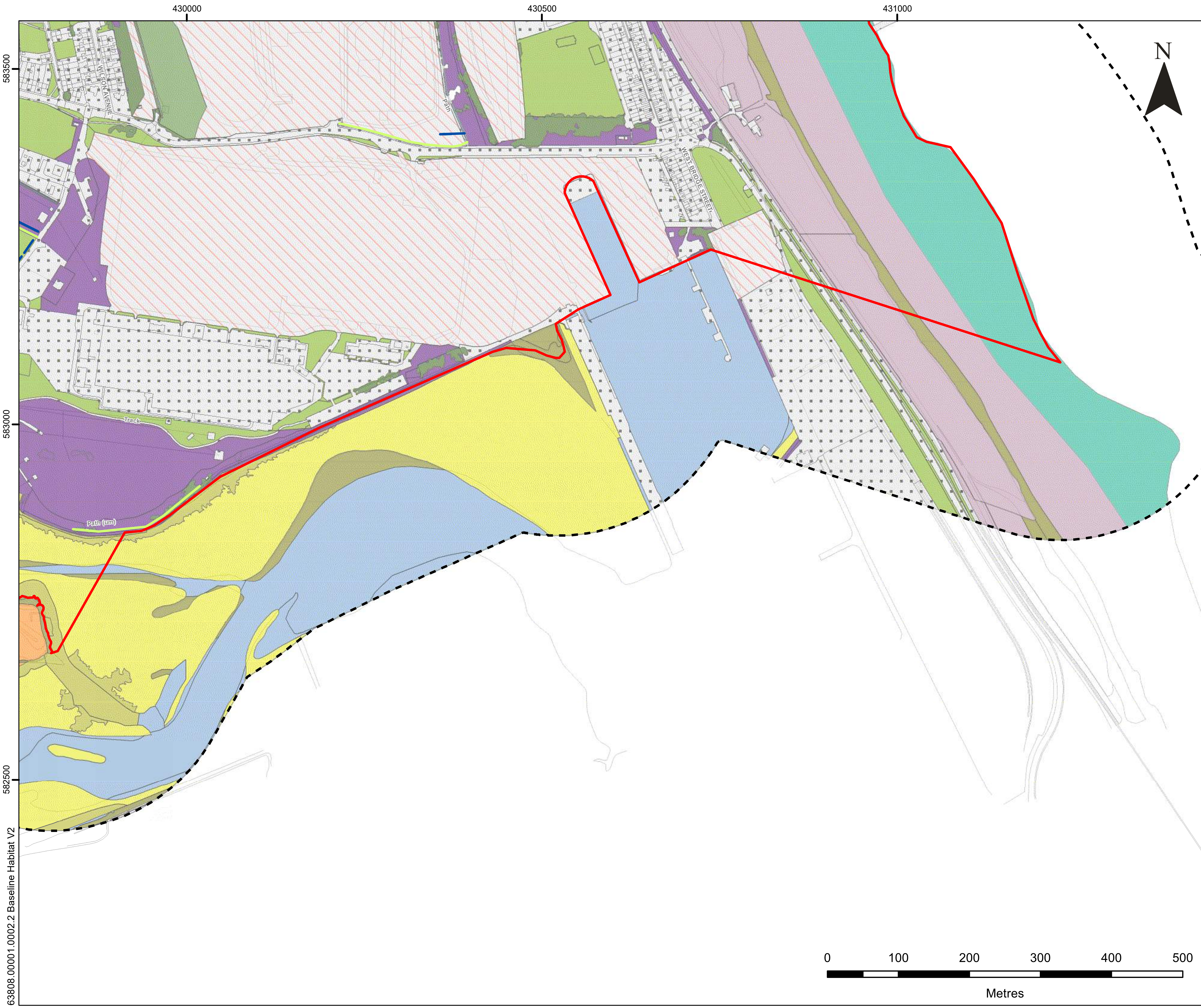
UK HABITAT CLASSIFICATION MAP

FIGURE 1.9

Scale 1:5,000 @ A3

Date OCTOBER 2022

63808.00001.0002.2 Baseline Habitat V2



LEGEND

- Site Boundary
- Site Boundary 250 m Buffer

UK Habitat - Linear Feature

- h2 - Hedgerow
- r2 - River and Stream

UK Habitat - Area Feature

Cropland - Arable and Horticulture

- c1 - Arable and Horticulture

Grassland - Neutral Grassland

- g3 - Neutral Grassland

Heathland and Shrub - Dense Scrub

- h3 - Dense Scrub

Sparsely Vegetated Land - Supralittoral Sediment

- s3 - Supralittoral Sediment

Urban - Built-up Areas and Gardens

- u1 - Built-up Area and Garden
- u1a - Open Mosaic Habitats on Previously Developed Land

Woodland and Forest - Broadleaved Mixed and Yew Woodland

- w1 - Broadleaved Mixed and Yew Woodland
- w1f - Lowland Mixed Deciduous Woodland

Rivers and Lakes - Standing Open Water and Canals

- r1 - Standing Open Water and Canal

Rivers and Lakes - Rivers and Streams

- r2 - Rivers and Streams

Marine Inlets and Transitional Waters - Littoral Sediment

- t2 - Littoral Sediment
- t2a - Coastal Saltmarsh
- t2d - Intertidal Mudflats

XODUS

SLR
4/5 LOCHSIDE VIEW
EDINBURGH PARK
EDINBURGH
EH12 9DH

T: +44 (0)131 335 6830
www.slrconsulting.com

CAMBOIS - CABLE LANDFALL PROJECT

PRELIMINARY ECOLOGICAL APPRAISAL REPORT

UK HABITAT CLASSIFICATION MAP

FIGURE 1.10

Scale 1:5,000 @ A3

Date OCTOBER 2022

63808.00001.0002.2 Baseline Habitat V2

FIGURE 2

Ponds Map

427000 428000 429000 430000 431000

586000 585000 584000 583000

N

LEGEND

Site Boundary

Site Boundary 250 m Buffer

0 0.5 1

Kilometres

XODUS

SLR

4/5 LOCHSIDE VIEW
EDINBURGH PARK
EDINBURGH
EH12 9DH

T: +44 (0)131 335 6830
www.slrconsulting.com

CAMBOIS - CABLE LANDFALL PROJECT

PRELIMINARY ECOLOGICAL APPRAISAL REPORT

UK HABITAT CLASSIFICATION PONDS

FIGURE 2.1

Scale	Date
1:15,000 @ A3	SEPTEMBER 2022

63808.00001.00006.0 Baseline Habitat Ponds

427800 427900 428000 428100 428200

585200

585100

585000

r1

r1

0 50 100

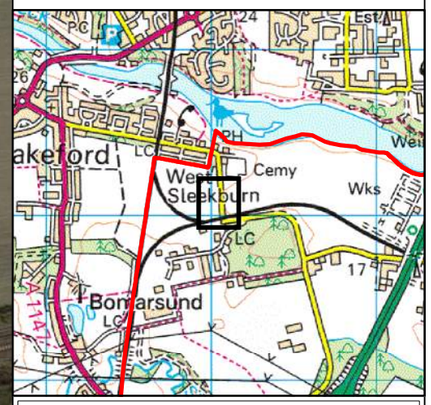
Metres

LEGEND

Site Boundary

Site Boundary 250 m Buffer

r1 - Standing Open Water and Canal



XODUS

SLR

4/5 LOCHSIDE VIEW
EDINBURGH PARK
EDINBURGH
EH12 9DH

T: +44 (0)131 335 6830
www.slrconsulting.com

CAMBOIS - CABLE LANDFALL PROJECT

PRELIMINARY ECOLOGICAL APPRAISAL REPORT

UK HABITAT CLASSIFICATION PONDS

FIGURE 2.2

Scale 1:1,500 @ A3

Date SEPTEMBER 2022

63808.00001.0006.0 Baseline Habitat Ponds

429600 429700 429800 429900 430000

585100

585000

584900

84800

63808.00001.0006.0 Baseline Habitat Ponds

r1 r1 r1 r1

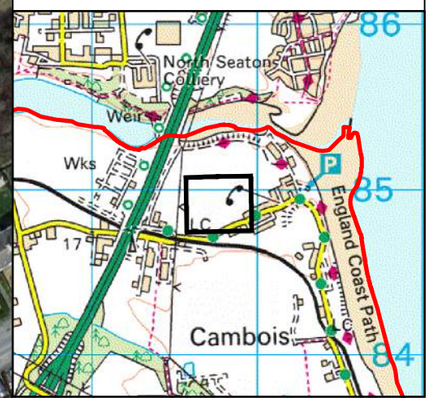
N

LEGEND

Site Boundary

Site Boundary 250 m Buffer

r1 - Standing Open Water and Canal



0 50 100

Metres

XODUS

SLR

4/5 LOCHSIDE VIEW
EDINBURGH PARK
EDINBURGH
EH12 9DH

T: +44 (0)131 335 6830
www.slrconsulting.com

CAMBOIS - CABLE LANDFALL PROJECT

PRELIMINARY ECOLOGICAL APPRAISAL REPORT

UK HABITAT CLASSIFICATION PONDS

FIGURE 2.3

Scale 1:1,500 @ A3

Date SEPTEMBER 2022

428800 428900 429000 429100 429200 429300 429400 429500 429600 429700 429800 429900 430000 430100

584500 584400 584300 584200 584100 584000 583900 583800 583700

r1 r1 r1

N

LEGEND

Site Boundary

Site Boundary 250 m Buffer

r1 - Standing Open Water and Canal

0 50 100

Metres

XODUS

SLR

4/5 LOCHSIDE VIEW
EDINBURGH PARK
EDINBURGH
EH12 9DH

T: +44 (0)131 335 6830
www.slrconsulting.com

CAMBOIS - CABLE LANDFALL PROJECT

PRELIMINARY ECOLOGICAL APPRAISAL REPORT

UK HABITAT CLASSIFICATION PONDS

FIGURE 2.4

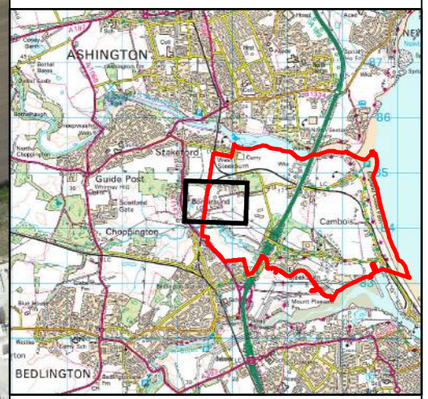
Scale 1:4,000 @ A3

Date SEPTEMBER 2022

63808.00001.0006.0 Baseline Habitat Ponds

LEGEND

- Site Boundary
- Site Boundary 250 m Buffer
- r1 - Standing Open Water and Canal



XODUS

SLR
4/5 LOCHSIDE VIEW
EDINBURGH PARK
EDINBURGH
EH12 9DH
T: +44 (0)131 335 6830
www.slrconsulting.com

CAMBOIS - CABLE LANDFALL PROJECT

PRELIMINARY ECOLOGICAL APPRAISAL REPORT

UK HABITAT CLASSIFICATION PONDS

FIGURE 2.5

Scale 1:4,500 @ A3

Date SEPTEMBER 2022

427800 427900 428000 428100 428200

583900

583800

583700

63808.00001.0006.0 Baseline Habitat Ponds

r1

r1

N

0 50 100

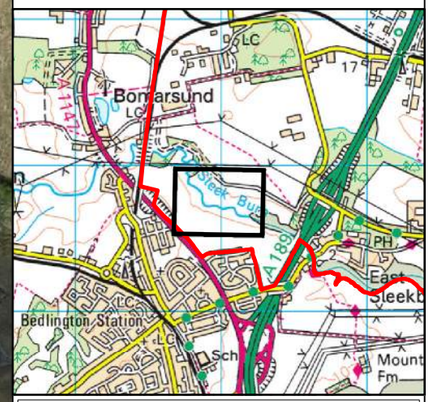
Metres

LEGEND

Site Boundary

Site Boundary 250 m Buffer

r1 - Standing Open Water and Canal



XODUS

SLR

4/5 LOCHSIDE VIEW
EDINBURGH PARK
EDINBURGH
EH12 9DH

T: +44 (0)131 335 6830
www.slrconsulting.com

CAMBOIS - CABLE LANDFALL PROJECT

PRELIMINARY ECOLOGICAL APPRAISAL REPORT

UK HABITAT CLASSIFICATION PONDS

FIGURE 2.6

Scale 1:1,700 @ A3

Date SEPTEMBER 2022

429500 429600 429700 429800 429900

583500

583400

583300

r1

r1

0 50 100

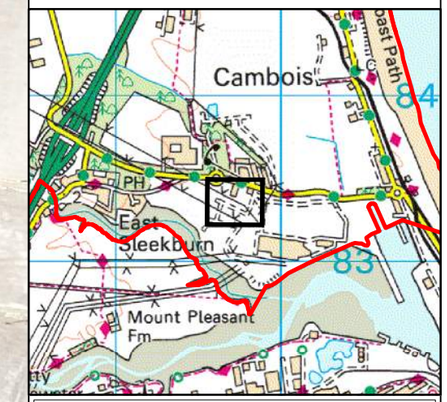
Metres

LEGEND

Site Boundary

Site Boundary 250 m Buffer

r1 - Standing Open Water and Canal



XODUS

SLR

4/5 LOCHSIDE VIEW
EDINBURGH PARK
EDINBURGH
EH12 9DH

T: +44 (0)131 335 6830
www.slrconsulting.com

CAMBOIS - CABLE LANDFALL PROJECT

PRELIMINARY ECOLOGICAL APPRAISAL REPORT

UK HABITAT CLASSIFICATION PONDS

FIGURE 2.7

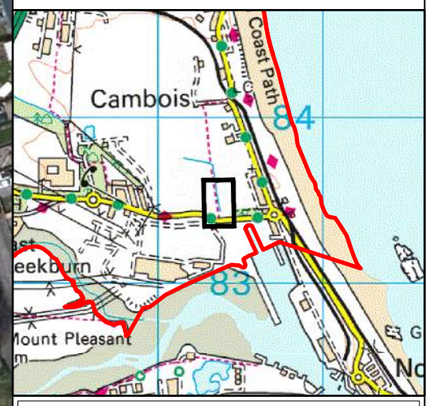
Scale 1:1,500 @ A3

Date SEPTEMBER 2022

63808.00001.0006.0 Baseline Habitat Ponds

LEGEND

- Site Boundary
- Site Boundary 250 m Buffer
- r1 - Standing Open Water and Canal



XODUS

SLR

4/5 LOCHSIDE VIEW
EDINBURGH PARK
EDINBURGH
EH12 9DH

T: +44 (0)131 335 6830
www.slrconsulting.com

CAMBOIS - CABLE LANDFALL PROJECT

PRELIMINARY ECOLOGICAL APPRAISAL REPORT

UK HABITAT CLASSIFICATION PONDS

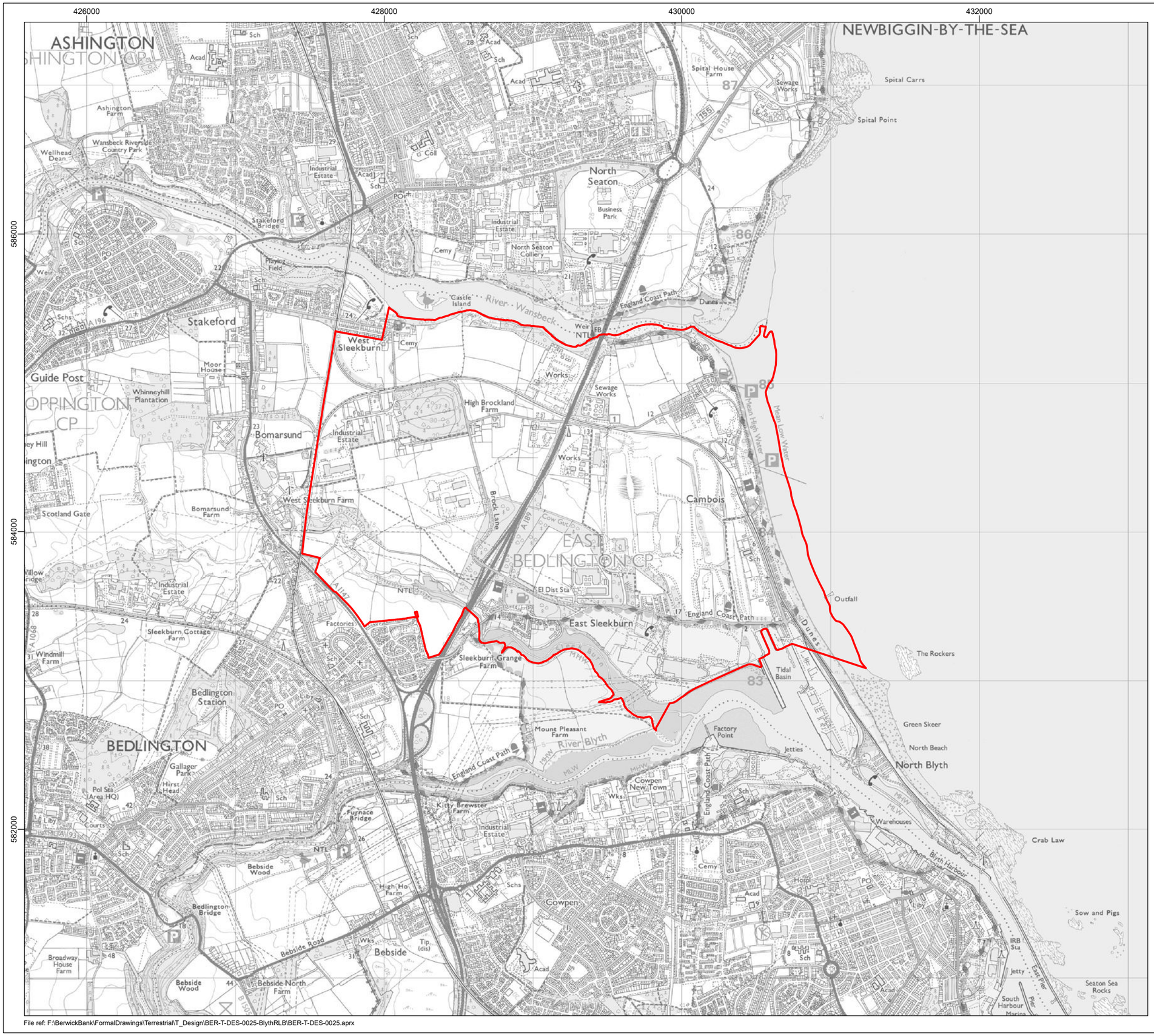
FIGURE 2.8

Scale: 1:1,500 @ A3

Date: SEPTEMBER 2022

APPENDIX 1

Red Line Boundary



File ref: F:\BerwickBank\Formal\Drawings\Terrestrial\T_Design\BER-T-DES-0025-BlythRLB\BER-T-DES-0025.aprx

Legend

Blyth Site Boundary

0 0.5 1 km

N

Project Name

BERWICK BANK WIND FARM

Drawing Title

BLYTH SITE BOUNDARY

Rev	Date	Details	Status	Drwn	Rqst	Chkd	Appd
R1	09/06/22	First Issue	APPROVED FOR USE	RB	KE	[illegible]	
R2	-	-	-	-	-	-	-
R3	-	-	-	-	-	-	-
R4	-	-	-	-	-	-	-

Drawing Number

BER-T-DES-0025-01

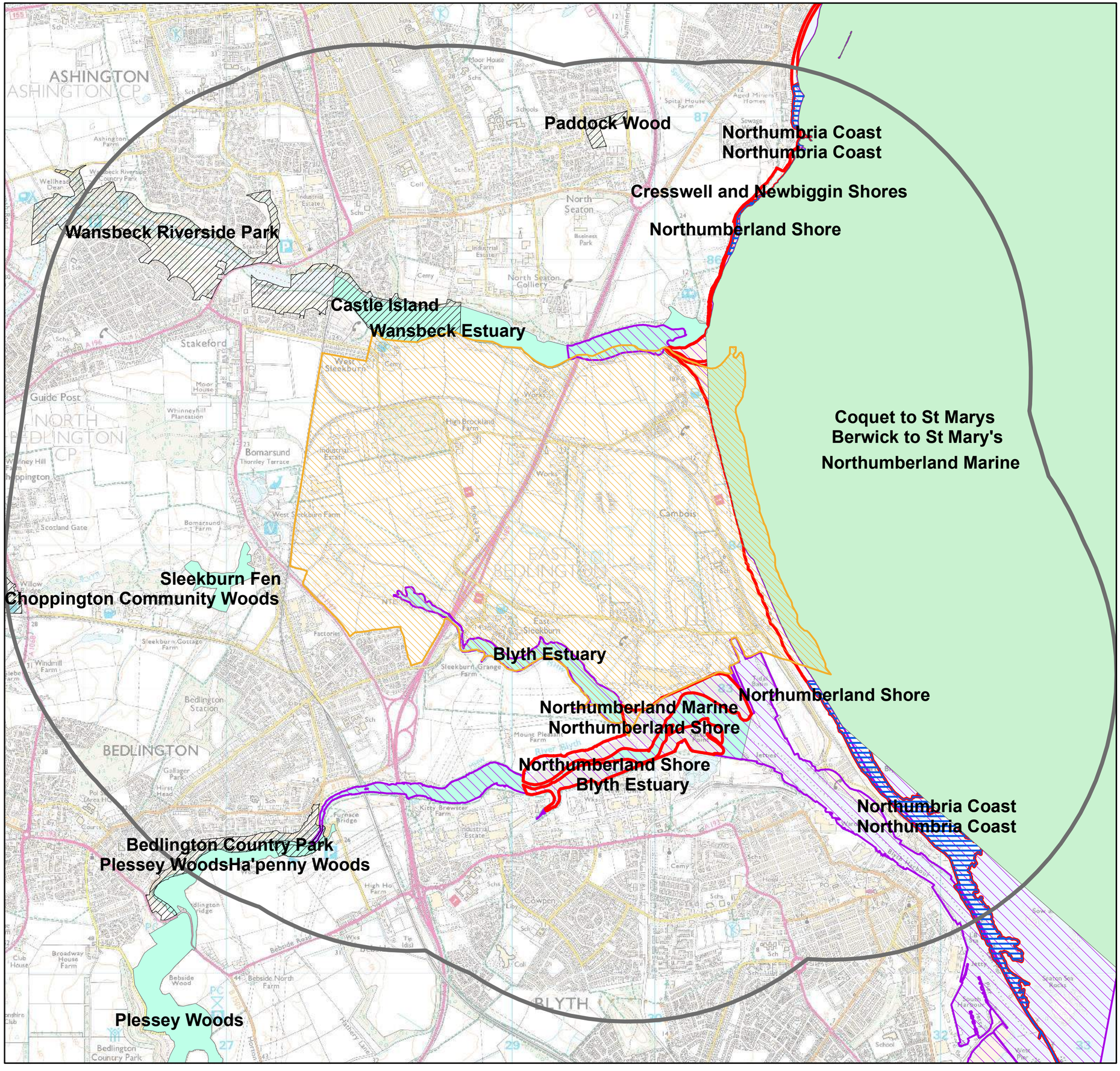
Scale	Plot Size	Datum	Projection
1:25,000	A3	OSGB36	BNG

sse Renewables

Berwick Bank Wind Farm

APPENDIX 2

Designated Sites Plan



ECOLOGICAL DATA SEARCH - STATUTORY & NON STATUTORY SITES

CAMBOIS

SLR

PLOT PRODUCED: 17 June 2022

- Site Boundary
- 2000m Search Area
- Local Nature Reserve
- Marine Conservation Zone
- Ramsar
- SSSI
- Special Protection Area
- Northumberland Local Wildlife Sites

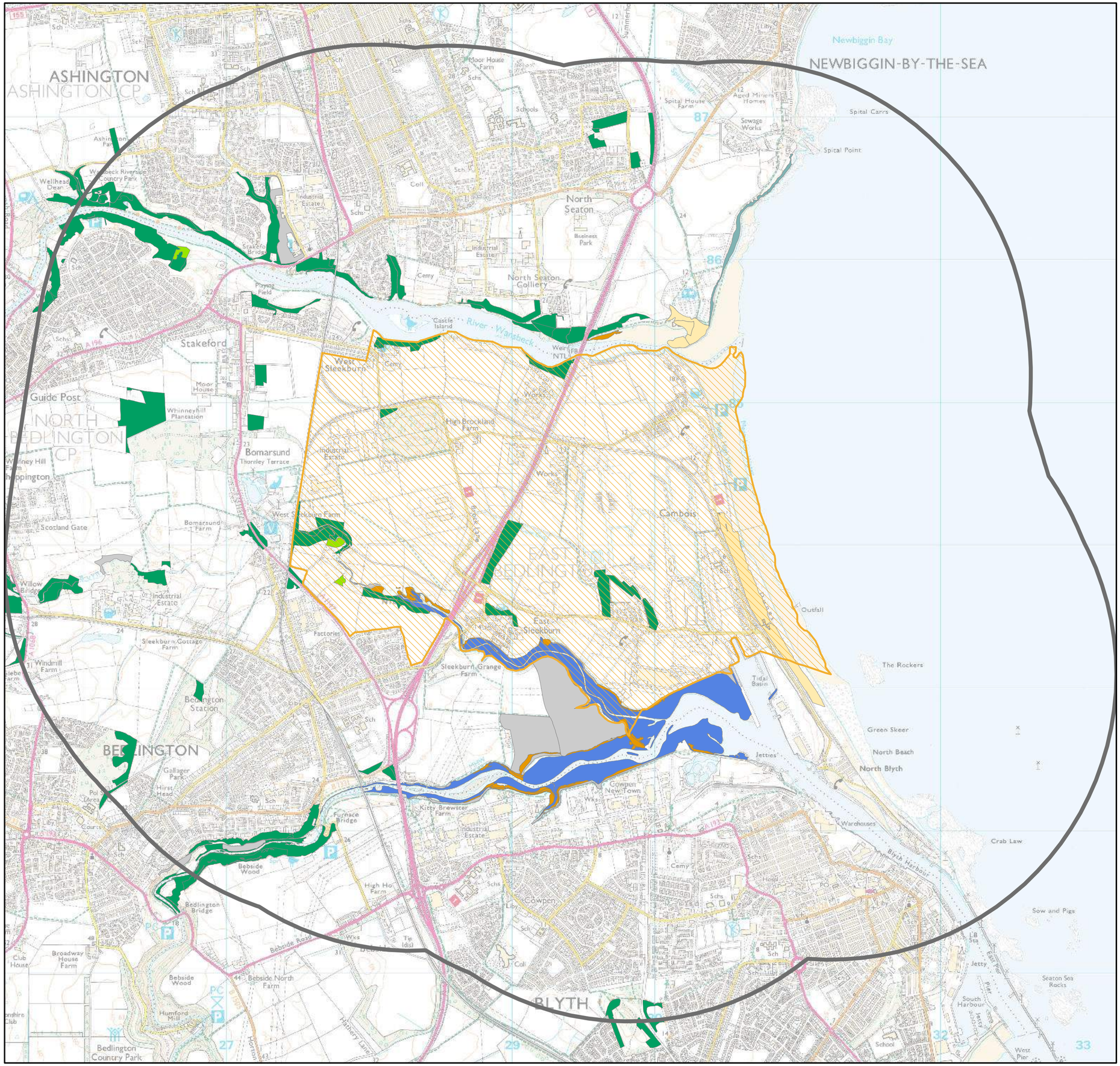
Produced by

Environmental Records Information Centre North East

Great North Museum: Hancock
Barras Bridge
Newcastle upon Tyne
Tyne & Wear
NE2 4PT

APPENDIX 3

Priority Habitats Plan



ECOLOGICAL DATA SEARCH - PRIORITY HABITATS

CAMBOIS

SLR

PLOT PRODUCED: 17 June 2022

- Site Boundary
- 2000m Search Area
- **Coastal saltmarsh**
- **Coastal sand dunes**
- **Deciduous woodland**
- **Good quality semi-improved grassland**
- **Maritime cliff and slope**
- **Mudflats**
- **No main habitat but additional habitats**

Produced by

Environmental Records Information Centre North East

Great North Museum: Hancock
Barras Bridge
Newcastle upon Tyne
Tyne & Wear
NE2 4PT

EUROPEAN OFFICES

United Kingdom

AYLESBURY
T: +44 (0)1844 337380

BELFAST
belfast@slrconsulting.com

BRADFORD-ON-AVON
T: +44 (0)1225 309400

BRISTOL
T: +44 (0)117 9064280

CARDIFF
T: +44 (0)2920 491010

CHELMSFORD
T: +44 (0)1245 392170

EDINBURGH
T: +44 (0)131 3356830

EXETER
T: +44 (0)1392 490152

GLASGOW
T: +44 (0)141 3535037

GUILDFORD
T: +44 (0)1483 889800

.

LONDON
T: +44 (0)203 6915810

MAIDSTONE
T: +44 (0)1622 609242

MANCHESTER (Denton)
T: +44 (0)161 5498410

MANCHESTER (Media City)
T: +44 (0)161 8727564

NEWCASTLE UPON TYNE
T: +44 (0)191 2611966

NOTTINGHAM
T: +44 (0)115 9647280

SHEFFIELD
T: +44 (0)114 2455153

SHREWSBURY
T: +44 (0)1743 239250

STIRLING
T: +44 (0)1786 239900

WORCESTER
T: +44 (0)1905 751310

Ireland

DUBLIN
T: +353 (0)1 296 4667

France

GRENOBLE
T: +33 (0)4 76 70 93 41