

Cenos Offshore Windfarm Limited



Cenos EIA

Chapter 22 – Statement of Combined Effects

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REVISIONS & APPROVALS

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ACRONYMS

ACRONYM	DEFINITION
AARA	Air-to-Air Refuelling Area
AEZ	Archaeological Exclusion Zone
AIS	Automatic Identification System
ATC	Air Traffic Control
BGS	British Geological Survey
CCME	Canadian Council of Ministers of the Environment
CEA	Cumulative Effects Assessment
CNS	Central North Sea
CO _{2e}	Carbon dioxide equivalent
eDNA	Environmental DNA
EGMF	East of Gannet and Montrose Fields
EIA	Environmental Impact Assessment
EIAR	Environmental Impact Assessment Report
EICC	Export/Import Cable Corridor
EMF	Electromagnetic fields
EMP	Environmental Management Plan
ERL	Effects range low
ES	East Scotland
EUNIS	European Nature Information System
FLO	Fisheries Liaison Officer
ft	Feet
FTU	Floating Turbine Unit
GHG	Greenhouse gas
GVA	Gross Value Added
HDD	Horizontal directional drilling
HMRI	Helicopter main route indicator
HVAC	High voltage alternating current
HVDC	High voltage direct current
IAC	Inter-array Cables
ICES	International Council for the Exploration of the Seas
INNS	Invasive Non-native Species
INNSMP	Invasive Non-native Species Management Plan

ACRONYM	DEFINITION
INTOG	Innovation and Targeted Oil & Gas
ISQG	Interim Sediment Quality Guidelines
JNCC	Joint Nature Conservation Committee
kg	Kilograms
km	Kilometres
LAT	Lowest Astronomical Tide
MAIB	Marine Accident Investigation Branch
MCA	Maritime and Coastguard Agency
MCZ	Marine Conservation Zone
MDAC	Methane-derived authigenic carbonate
MD-LOT	Marine Directorate – Licensing Operations Team
MGN	Marine Guidance Note
MHWS	Mean High-Water Springs
MLA	Marine Licence Applications
MMMP	Marine Mammal Monitoring Plan
m	Metres
MPA	Marine Protected Area
MPCP	Marine Pollution Contingency Plan
MU	Management Unit
NATS	National Air Traffic Services
NM	Nautical miles
NCMPA	Nature Conservation Marine Protected Area
NOAA	National Oceanic and Atmospheric Administration
NVZ	Nitrate Vulnerable Zone
OFLO	Offshore Fisheries Liaison Officer
OSCP	Offshore Substation Converter Platform
OSPAR	The Convention for the Protection of the Marine Environment of the North-East Atlantic
OWF	Offshore wind farm
PAD	Protocol for Archaeological Discovery
PAH	Polycyclic aromatic hydrocarbons
PLGR	Pre-lay grapnel run
PDE	Project Design Envelope
PMF	Priority marine feature
PSA	Particle Size Analysis

ACRONYM	DEFINITION
RAF	Royal Air Force
RIAA	Report to Inform Appropriate Assessment
RNLI	Royal National Lifeboat Institution
RSPB	Royal Society for the Protection of Birds
RYA	Royal Yachting Association
SAC	Special Area of Conservation
SAR	Search and Rescue
SCANS	Small Cetaceans in European Atlantic waters and the North Sea
SMU	Seal Management Unit
SSC	Suspended Sediment Concentrations
TAEZ	Temporary Archaeological Exclusion Zones
TEL	Threshold Effect Level
THC	Total Hydrocarbon Content
TLP	Tension Leg Platform
TOG	Targeted Oil & Gas
UK	United Kingdom
UKBAP	UK Biodiversity Action Plan
UKCS	UK Continental Shelf
UKHO	United Kingdom Hydrographic Office
UXO	Unexploded Ordnance clearance
VMP	Vessel Management Plan
VMS	Vessel Monitoring System
WTGs	Wind Turbine Generators
WSI	Written Scheme of Investigation

GLOSSARY

TERM	DEFINITION
2023 Scoping Opinion	Scoping Opinion received in June 2023, superseded by the 2024 Scoping Opinion.
2023 Scoping Report	Environmental Impact Assessment (EIA) Scoping Report submitted in 2023, superseded by the 2024 Scoping Report.
2024 Scoping Opinion	Scoping Opinion received in September 2024, superseding the 2023 Scoping Opinion.
2024 Scoping Report	EIA Scoping Report submitted in April 2024, superseding the 2023 Scoping Report.
Area of Opportunity	The area in which the limits of electricity transmission via High Voltage Alternating Current (HVAC) cables can reach oil and gas assets for decarbonisation. This area is based on assets within a 100 kilometre (km) radius of the Array Area.
Array Area	The area within which the Wind Turbine Generators (WTGs), floating substructures, moorings and anchors, Offshore Substation Converter Platforms (OSCPs) and Inter-Array Cables (IAC) will be present.
Cenos Offshore Windfarm ('the Project')	'The Project' is the term used to describe Cenoss Offshore Windfarm. The Project is a floating offshore windfarm located in the North Sea, with a generating capacity of up to 1,350 Megawatts (MW). The Project which defines the Red Line Boundary (RLB) for the Section 36 Consent and Marine Licence Applications (MLA), includes all offshore components seaward of Mean High Water Springs (MHWS) (WTGs, OSCP, cables, floating substructures moorings and anchors and all other associated infrastructure). The Project is the focus of this Environmental Impact Assessment Report (EIAR).
Cenos Offshore Windfarm Ltd. (The Applicant)	The Applicant for the Section 36 Consent and associated Marine Licences.
Cumulative Assessment	The consideration of potential impacts that could occur cumulatively with other relevant projects, plans, and activities that could result in a cumulative effect on receptors.

TERM	DEFINITION
Developer	Cenos Offshore Windfarm Ltd., a Joint Venture between Flotation Energy and Vårgrønn As (Vårgrønn).
Environmental Assessment (EIA)	Impact The statutory process of evaluating the likely significant environmental effects of a proposed project or development. Assessment of the potential impact of the proposed Project on the physical, biological and human environment during construction, operation and maintenance and decommissioning.
Environmental Assessment Regulations	Impact This term is used to refer to the Environmental Impact Assessment Regulations which are of relevance to the Project. This includes the Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017, the Marine Works (Environmental Impact Assessment) (Scotland) Regulations 2017 (as amended); and the Marine Works (Environmental Impact Assessment) Regulations 2007.
Environmental Assessment Report	Impact A report documenting the findings of the EIA for the Project in accordance with relevant EIA Regulations.
Export/Import Cable	High voltage cable used to export/import power between the OSCPs and Landfall.
Export/Import Cable (EICB)	Bundle Comprising two Export/Import Cables and one fibre-optic cable bundled in a single trench.
Export/Import Cable (EICC)	Corridor The area within which the Export/Import Cable Route will be planned and the Export/Import Cable will be laid, from the perimeter of the Array Area to MHWS.
Export/Import Cable Route	The area within the Export/Import Export Corridor (EICC) within which the Export/Import Cable Bundle (EICB) is laid, from the perimeter of the Array Area to MHWS.
Floating Turbine Unit (FTU)	The equipment associated with electricity generation comprising the WTG, the floating substructure which supports the WTG, mooring system and the dynamic section of the IAC.
Flotation Energy	Joint venture partner in Cenos Offshore Windfarm Ltd.

TERM	DEFINITION
Habitats Regulations	The Habitats Directive (Directive 92/43/ECC) and the Wild Birds Directive (Directive 2009/147/EC) were transposed into Scottish Law by the Conservation (Natural Habitats &c) Regulations 1994 ('Habitats Regulations') (up to 12 NM); by the Conservation of Offshore Marine Habitats and Species Regulations 2017 ('Offshore Marine Regulations') (beyond 12 NM); the Conservation of Habitats and Species Regulations 2017 (of relevance to consents under Section 36 of the Electricity Act 1989); the Offshore Petroleum Activities (Conservation of Habitats) Regulations 2001; and the Wildlife and Countryside Act 1981. The Habitats Regulations set out the stages of the Habitats Regulations Appraisal (HRA) process required to assess the potential impacts of a proposed project on European Sites (Special Areas of Conservation, Special Protection Areas, candidate SACs and SPAs and Ramsar Sites).
Habitats Regulations Appraisal	The assessment of the impacts of implementing a plan or policy on a European Site, the purpose being to consider the impacts of a project against conservation objectives of the site and to ascertain whether it would adversely affect the integrity of the site.
High Voltage Alternating Current (HVAC)	Refers to high voltage electricity in Alternating Current (AC) form which is produced by the WTGs and flows through the IAC system to the OSCP. HVAC may also be used for onward power transmission from the OSCP to assets or to shore over shorter distances.
High Voltage Direct Current (HVDC)	Refers to high voltage electricity in Direct Current (DC) form which is converted from HVAC to HVDC at the OSCP and transmitted to shore over longer distances.
Horizontal Directional Drilling (HDD)	An engineering technique for laying cables that avoids open trenches by drilling between two locations beneath the ground's surface.
Innovation and Targeted Oil & Gas (INTOG)	In November 2022, the Crown Estate Scotland (CES) announced the Innovation and Targeted Oil & Gas (INTOG) Leasing Round, to help enable this sector-wide commitment to decarbonisation. INTOG allowed developers to apply for seabed rights to develop offshore windfarms for the purpose of providing low carbon electricity to power oil and gas installations and help to decarbonise the sector. Cenos is an INTOG project and in November 2023 secured an Exclusivity Agreement as part of the INTOG leasing round.
Inter-Array Cable (IAC)	The cables which connect the WTGs to the OSCP. WTGs may be connected with IACs into a hub or in series as a 'string' or a 'loop' such that

TERM	DEFINITION
	power from the connected WTGs is gathered to the OSCPs via a single cable.
Joint Venture	The commercial partnership between Flotation Energy and Vårgrønn, the shareholders which hold the Exclusivity Agreement with CES to develop the Cenossite as an INTOG project.
Landfall	The area where the Export/Import Cable from the Array Area will be brought ashore. The interface between the offshore and onshore environments.
Marine Licence	Licence required for certain activities in the marine environment and granted under the Marine and Coastal Access Act 2009 and/or the Marine (Scotland) Act 2010.
Marine Protected Area (MPA)	Marine sites protected at the national level under the Marine (Scotland) Act 2010 out to 12 NM, and the Marine and Coastal Access Act 2009 between 12-200 NM. In Scotland MPAs are areas of sea and seabed defined so as to protect habitats, wildlife, geology, undersea landforms, historic shipwrecks and to demonstrate sustainable management of the sea.
Marine Protected Area (MPA) Assessment	A three-step process for determining whether there is a significant risk that a proposed development could hinder the achievement of the conservation objectives of an MPA.
Mean High Water Springs (MHWS)	The height of Mean High Water Springs is the average throughout the year, of two successive high waters, during a 24-hour period in each month when the range of the tide is at its greatest.
Mean Low Water Springs (MLWS)	The height of Mean Low Water Springs is the average throughout a year of the heights of two successive low waters during periods of 24 hours (approximately once a fortnight).
Mitigation Measures	<p>Measures considered within the topic-specific chapters in order to avoid impacts or reduce them to acceptable levels.</p> <ul style="list-style-type: none"> • Primary mitigation - measures that are an inherent part of the design of the Project which reduce or avoid the likelihood or magnitude of an adverse environmental effect, including location or design; • Secondary mitigation – additional measures implemented to further reduce environmental effects to ‘not significant’ levels (where appropriate) and do not form part of the fundamental design of the Project; and

TERM	DEFINITION
	<ul style="list-style-type: none"> Tertiary mitigation – measures that are implemented in accordance with industry standard practice or to meet legislative requirements and are independent of the EIA (i.e. they would be implemented regardless of the findings of the EIA). <p>Primary and tertiary mitigation are referred to as embedded mitigation. Secondary mitigation is referred to as additional mitigation.</p>
Mooring System	Comprising the mooring lines and anchors, the mooring system connects the floating substructure to the seabed, provides station-keeping capability for the floating substructure and contributes to the stability of the floating substructure and WTG.
Nature Conservation Marine Protected Area (NCMPA)	MPA designated by Scottish Ministers in the interests of nature conservation under the Marine (Scotland) Act 2010.
Offshore Substation Converter Platforms (OSCPs)	An offshore platform on a fixed jacket substructure, containing electrical equipment to aggregate the power from the WTGs and convert power between HVAC and HVDC for export/import via the export/import cable to/from the shore. The OSCP's will also act as power distribution stations for the Oil & Gas platforms.
Onward Development	Transmission projects which are anticipated to be brought forward for development by 3 rd party oil and gas operators to enable electrification of assets via electricity generated by the Project. All Onward Development will subject to separate marine licensing and permitting requirements.
Onward Development Area	The area within which oil and gas assets would have the potential to be electrified by the Project.
Onward Development Connections	Oil and gas assets located in the waters surrounding the Array Area will be electrified via transmission infrastructure which will connect to the Project's OSCP's. These transmission cables are referred to as Onward Development Connections.
Project Area	The area that encompasses both the Array Area and EICC.
Project Design Envelope	A description of the range of possible elements that make up the Project design options under consideration and that are assessed as part of the EIA for the Project.
Study Area	Receptor specific area where potential impacts from the Project could occur.

TERM	DEFINITION
Transboundary Assessment	The consideration of impacts from the Project which have the potential to have a significant effect on another European Economic Area (EEA) state's environment. Where there is a potential for a transboundary effect, as a result of the Project, these are assessed within the relevant EIA chapter.
Transmission Infrastructure	The infrastructure responsible for moving electricity from generating stations to substations, load areas, assets and the electrical grid, comprising the OSCPs, and associated substructure, and the Export/Import Cable.
Vårgrønn As (Vårgrønn)	Joint venture partner in Cenoss Offshore Windfarm Ltd.
Wind Turbine Generator (WTG)	The equipment associated with electricity generation from available wind resource, comprising the surface components located above the supporting substructure (e.g., tower, nacelle, hub, blades, and any necessary power transformation equipment, generators, and switchgears).
Worst-Case Scenario	The worst-case scenario based on the Project Design Envelope which varies by receptor and/or impact pathway identified.

22 STATEMENT OF COMBINED EFFECTS

22.1 Introduction

The Project shall generate renewable electricity to the UK grid from up to 95 Floating Turbine Units (FTUs) in addition to enabling efficient electrification of offshore oil and gas assets via transmission infrastructure connecting to the Project's Offshore Substation Converter Platforms (OSCPs). These prospective electrification projects form part of the anticipated future Onward Development which will be made possible by the Project; they are collectively referred to as Onward Development Connections.

The Onward Development Connections for oil and gas electrification will be defined and brought forward by third-party oil and gas operators, subject to separate marine licensing and permitting requirements (including separate Environmental Impact Assessment (EIA), as appropriate). At this very early stage in the process, the information available about these Onward Development Connections is limited and cannot be confirmed by the Project. In accordance with standard practice and relevant industry guidance (see **EIAR Vol. 3, Chapter 7: EIA Methodology**), the level of information available means there is insufficient detail to enable inclusion within a typical cumulative effects assessment. However, recognising industry feedback and a keen interest in this topic from stakeholders (Section 22.2), the Applicant has provided a qualitative, high-level review of the combined effects of the Project and potential Onward Development Connections, to the extent possible given the limited available detail on anticipated future Onward Development.

This chapter provides a review of the effects associated with the Project when combined with the potential effects associated with Onward Development Connections within the Onward Development Area, illustrated in Figure 22-1. The Onward Development Area can be considered as a 100 km buffer around the Array Area. To identify the potential for combined effects between the Project and prospective Onward Development Connections, this Chapter:

- Summarises the environmental baseline of the Project and Onward Development Connections (Section 22.4);
- Summarises potential environmental effects and proposed mitigation (Section 22.5) relevant to the Project;
- Sets out the anticipated environmental effects and potential mitigation which may be applied by third-parties, for the Onward Development Connections; and
- Provides a review of the potential for combined effects (Section 22.7), including in relation to the potential to hinder the conservation objectives of the East of Gannet and Montrose Fields Nature Conservation Marine Protected Area (NCMPA, Section 22.8).

At this early stage of development and prior to any projects being proposed, the review of environmental effects associated with potential Onward Development Connections is, by necessity, high-level. Sufficient information exists however to allow an initial, indicative review of Onward Development Connections and potential associated effects, accompanied by professional judgement where necessary.

The Applicant cannot dictate the future regulation of the Onward Development Connections which will be subject to their own regulatory and permitting requirements. Notwithstanding, it is expected that future applications will carry out environmental assessments (as required) in support of any Onward Development Connections. Subsequent environmental assessments will incorporate development-specific and site-specific information that will become available as definition of Onward Development Connections progresses.

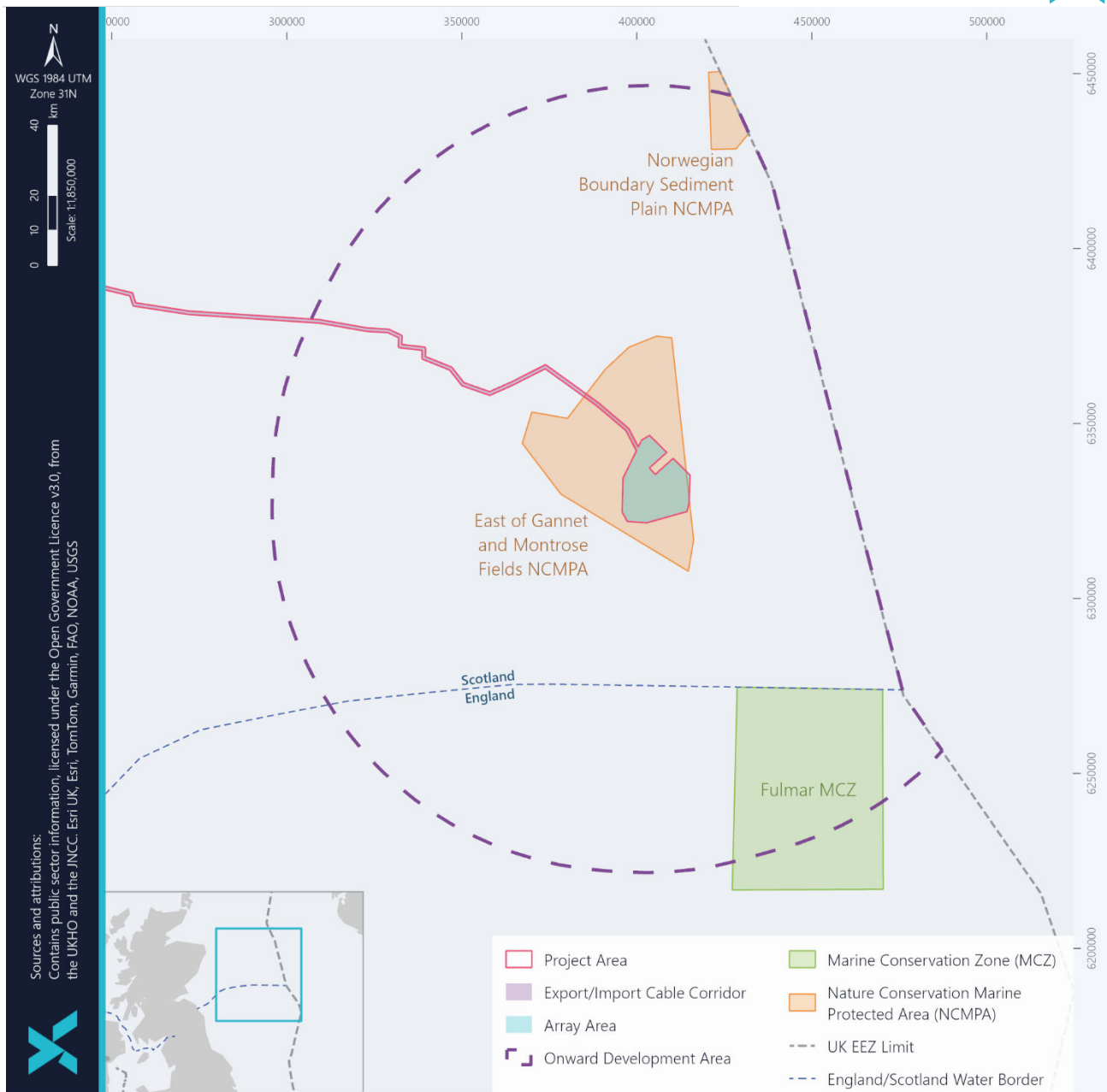


Figure 22-1 Location of the Onward Development Area relative to the Project Area

The indicative review presented herein draws upon information provided in other impact assessments within this Environmental Impact Assessment Report (EIAR). Table 22-1 below provides a list of all the relevant EIAR chapters which relate to, and should be read in conjunction with, this Statement of Combined Effects. Where information is used to inform the review in this chapter, reference to the relevant EIAR chapter is given.

Table 22-1 EIA chapters used to inform this Statement of Combined Effects

EIA CHAPTER	DETAILS OF STUDY
EIA Vol. 3, Chapter 8: Marine Geology, Oceanography and Coastal Processes	Assesses the impacts of the Project on water and sediment through the interaction with physical and coastal processes, including the effects of temporary increases in Suspended Sediment Concentrations (SSC) and associated sediment deposition.
EIA Vol. 3, Chapter 9: Marine Water and Sediment Quality	Assesses the impacts associated with changes in water quality, including the disturbance and release of contaminated sediments.
EIA Vol. 3, Chapter 10: Benthic Ecology	Assesses the impacts of the Project on sensitive and protected benthic habitats which may also support other marine species, including temporary and long-term habitat loss.
EIA Vol. 3, Chapter 11: Marine Mammal Ecology	Assesses the impacts of the Project on marine mammal species that use the Project Area, including effects from underwater noise, changes to prey distribution and entanglement.
EIA Vol. 3, Chapter 12: Ornithology	Assesses the impacts of the Project on ornithological receptors that may use the Project Area for foraging and migration, e.g. disturbance and displacement effects and changes to prey availability.
EIA Vol. 3, Chapter 13: Fish and Shellfish Ecology	Assesses the impacts of the Project on important fish and shellfish species.
EIA Vol. 3, Chapter 14: Commercial Fisheries	Assesses the impacts of the Project on commercial fisheries activity, including consideration of effects to commercially sensitive species.
EIA Vol. 3, Chapter 15: Shipping and Navigation	Assesses the impacts of the Project on third-party vessels: these may be associated with other marine infrastructure.
EIA Vol. 3, Chapter 16: Marine Archaeology	Assesses the impacts of the Project on known and unknown marine cultural heritage and archaeological receptors, including historic environment assets and submerged prehistoric landscape.
EIA Vol. 3, Chapter 17: Marine Infrastructure and Other Users	Assesses the impacts of the Project on third-party assets and users, including oil and gas operations, other offshore renewable energy developments, telecommunications and power, unexploded ordnance, licenced dredge spoil disposal sites, and sterilisation of areas for marine aggregates.
EIA Vol. 3, Chapter 18: Military and Civil Aviation	Assesses the impacts of the Project on physical obstruction, effects on aviation radar systems and the provision of radar-based Air Traffic Systems, and communication, navigation and surveillance equipment.
EIA Vol. 3, Chapter 19: Socio-economics, Tourism and Recreation	Assesses the impacts of the Project, both on- and offshore, on socio-economic factors such as (but not limited to) population, labour supply, economic performance, size and structure, supply chain, tourism, housing, and education.
EIA Vol. 3, Chapter 20: Carbon and Greenhouse Gases	Presents the climate, carbon and Greenhouse Gas (GHG) assessment for the Project, specifically considering the potential

EIA CHAPTER	DETAILS OF STUDY
<p>EIAR Vol. 3, Chapter 21: Major Accidents and Disasters</p>	<p>effect of the Project on the climate, as well as the combined effect of climate and the Project on the environment.</p> <p>Assesses the potential significant effects arising from the vulnerability of the Project to Major Accidents and Disasters, including both natural disasters and manmade hazards. The Chapter assesses both the potential for the Project to cause a major accident and/or disaster, and the potential for the Project to interact with an external hazard to increase the risk of a major accident and/or disaster.</p>

The following specialists have contributed to the review:

- Jenni O'Neill, Xodus;
- Christina McIntyre, Xodus;
- Mairi Dorward, Xodus; and
- Ed Walker, Xodus.

22.2 Scoping and Consultation

Stakeholder consultation has been ongoing throughout the EIA and has played an important part in ensuring the scope of the baseline characterisation and impact assessment are appropriate with respect to the Project and the requirements of the regulators and their advisors.

The 2024 Scoping Report was submitted to Marine Directorate – Licensing Operations Team (MD-LOT) in April 2024 and relevant statutory and non-statutory stakeholders were consulted in advance of publication of the Scoping Opinion, which was received by the Project in September 2024. The 2024 Scoping Report and Scoping Opinion supersede the 2023 Scoping Report and Scoping Opinion for the Project. A Scoping Workshop was held on the 29th February 2024 (as detailed in **EIAR Vol. 2, Chapter 1: Introduction**).

Further consultation has been undertaken throughout the pre-application phase. The list below summarises the Project's pre-application consultation which is relevant to the Statement of Combined Effects:

- Post-Scoping consultation meeting with the Applicant, MD-LOT, Joint Nature Conservation Committee (JNCC), NatureScot, and Xodus, held on 7th October 2024;
- Correspondence with the Applicant and Kate Forbes of the Scottish Government (Deputy First Minister and Cabinet Secretary for Economy and Gaelic) received on 18th November 2024 in response to correspondence sent on 15th October 2024 – Ms Forbes reiterated the expectations of Scottish Ministers regarding inclusion of the consideration of the Onward Development Connections within the EIAR; and
- Two additional post-Scoping consultation meetings involving the Applicant, MD-LOT and the JNCC, held between October and November 2024, during which the approach to the assessment of potential combined effects was discussed and agreed.

For further details, please refer to **EIAR Vol. 2, Chapter 6: Stakeholder Engagement**. Relevant comments from the Scoping Opinion and from consultation on the Project's consideration of Combined Effects with Onward Development Connections are summarised in Table 22-2 below. This table additionally provides responses and an explanation of how the advice received has been addressed within the EIAR.

Table 22-2 Comments from the Scoping Opinion relevant to the Statement of Combined Effects

REGULATOR/CONSULTEE	COMMENT	RESPONSE
Scottish Ministers	<p>Additionally, Scottish Ministers note that the Developer states that the onward connections from the OSCP to the oil and gas assets will not form part of the application and will be assessed only within the cumulative effects assessment (CEA).</p> <p>Scottish Ministers strongly advise that the Developer consider submitting one EIA Report for the Proposed Development, including the onward connections to oil and gas installations, in order that the impacts from the project can be assessed holistically. This view is supported by NatureScot and JNCC in its joint representation. The Developer is directed to the joint NatureScot and JNCC representations in regard to the above matters and it must engage further with Scottish Ministers, NatureScot and JNCC on this before finalising the EIA Report. The Developer is required to submit an EIA Report for any cables in relation to a renewable energy project to Scottish Ministers.</p>	<p>Onward Development Connections do not form part of the application for consent which this EIAR supports. Onward Development Connections will be finalised and brought forward by third-party oil and gas operators, subject to separate marine licencing and permitting requirements (including separate EIA as appropriate).</p> <p>This Statement of Combined Effects presents a consideration of effects that may result from the simultaneous development of both the Project and Onward Development Connection. This is based on the present understanding of Onward Development Connections (described in Section 22.3) and the detailed Project information in the PDE (EIAR Vol. 2, Chapter 5: Project Description).</p> <p>The approach contained in this Statement of Combined Effects chapter was discussed with MD-LOT, JNCC and NatureScot in a consultation meeting held on 07 October 2024.</p>
Scottish Ministers	<p>The Developer states in section 3.5.1.6 of the Scoping Report that the onward connections from the OSCP to the oil and gas assets for the purposes of electrification will not form part of the application. Scottish Ministers reiterate its concerns regarding this consenting strategy and the need for further discussion on this point as detailed in paragraph 2.4.2 of this scoping opinion, but advise the following in relation to both consenting scenarios.</p>	<p>Onward Development Connections do not form part of the application for consent which this EIAR supports. Onward Development Connections will be finalised and brought forward by third-party oil and gas operators, subject to separate marine licencing and permitting requirements (including separate EIA as appropriate).</p> <p>This Statement of Combined Effects presents a consideration of effects that may result from the development (e.g. temporal overlap) of both the Project and Onward Development Connection. This is based on the present understanding of Onward Development Connections</p>

REGULATOR/CONSULTEE	COMMENT	RESPONSE
		<p>(described in Section 22.3) and the detailed Project information in the PDE (EIAR Vol. 2, Chapter 5: Project Description).</p> <p>The approach contained in this Statement of Combined Effects chapter was discussed with MD-LOT, JNCC and NatureScot in a consultation meeting held on 07 October 2024.</p>
<p>Scottish Ministers</p>	<p>If the EIA Report includes an assessment of the onward connections, this may be used to support associated marine licence applications should they be submitted independently. This will be dependent on the passage of time between completion of the EIA Report and submission of the subsequent marine licence applications. Taking this into consideration, the Developer may wish to consider how the EIA Report is presented in relation to the Proposed Development and onward connections to ensure the relevant information is accessible for the different regulators and respective consultees</p>	<p>Noted. This Statement of Combined Effects is based on a worst-case design envelope (Section 14.4), to enable indicative review at this early design stage.</p> <p>The approach contained in this Statement of Combined Effects chapter was discussed with MD-LOT, JNCC and NatureScot in a consultation meeting held on 07 October 2024.</p> <p>Any forthcoming EIA developed to support the Marine Licence Applications (MLA) for Onward Development Connections will consider the Project within the respective cumulative assessments, in line with the relevant EIA Regulations.</p>
<p>Scottish Ministers</p>	<p>If the EIA Report does not include an assessment of the onward connections, the applicant is advised to engage with Scottish Ministers in relation to EIA screening of any proposed works for each marine licence application in relation to the onward connections. Additionally, should the EIA Report not include an assessment of the onward connections, it is essential that the EIA Report does consider these as part of the assessment of cumulative impacts.</p>	<p>Noted. This Statement of Combined Effects provides an indicative review of the effects associated with the Project when combined with the potential effects associated with Onward Development Connections within the Onward Development Area.</p>
<p>Scottish Ministers</p>	<p>In relation to the regulatory boundaries of the project, the Developer is advised that Scottish Ministers will have regulatory responsibilities for any marine licence application for a cable from the OSCP(s) to the oil and gas assets (including within the 500m safety zone) up until the point that it meets the riser of the asset, unless the cable is related to oil and gas activities.</p>	<p>Noted. Onward Development Connections will be finalised and brought forward by third-party oil and gas operators, subject to separate marine licencing and permitting requirements (including separate EIA as appropriate).</p>

REGULATOR/CONSULTEE	COMMENT	RESPONSE
NatureScot	<p>Power generation from the proposed wind farm will be provided via onward connections to oil and gas assets for decarbonisation of existing oil/gas platforms. Marine licences for these cables will be applied for separately at some point in the future. This aspect will be included in the cumulative assessment for the current Cenoss Project.</p>	<p>This statement remains correct. An overview of the expected design, installation, operation and maintenance, and decommissioning details for Onward Development Connections is provided in Section 22.3 to support this Statement of Combined Effects which provides a review of the effects associated with the Project when combined with the potential effects associated with Onward Development Connections within the Onward Development Area.</p>
NatureScot	<p>In addition, we have concerns that not all the impacts of the development will be assessed at this stage. The Scoping Report indicates that onward interconnector cables linking into the oil and gas assets to be decarbonised will be considered as a cumulative effect within this EIA Report. We consider that these cables are an integral part of the development (and is indeed how the developers have justified the targeted oil & gas (TOG) location within the NCMPA) and should not be seen as an additional licensable activity to be assessed only cumulatively. Given the proposed development's location is within an NCMPA, and the likelihood for any cables between the windfarm and oil and gas assets to lie within the NCMPA, we consider that this should be considered as one project and details of the interconnectors be provided and assessed as part of one EIA Report. We request further discussion with Marine Directorate, including JNCC, around the assessment to be undertaken for the East of Gannet and Montrose Fields NCMPA and Turbot Bank NCMPA, preferably prior to a further Scoping Opinion being issued.</p>	<p>Onward Development Connections do not form part of the application for consent which this EIAR supports. Onward Development Connections will be finalised and brought forward by third-party oil and gas operators, subject to separate marine licencing and permitting requirements (including separate EIA as appropriate). This document seeks to review the combined effects of the Project and the potential Onward Development Connections at a high-level. This review is preliminary in nature. Any future applications will carry out environmental assessments in full (as required) once the Onward Development Connections are developed further and more information becomes available.</p> <p>This Statement of Combined Effects provides a review of the effects associated with the Project when combined with the potential effects associated with Onward Development Connections within the Onward Development Area. This is based on the present understanding of Onward Development Connections (described in Section 22.3) and the detailed Project information in the PDE (EIAR Vol. 2, Chapter 5: Project Description).</p> <p>The approach contained in this Statement of Combined Effects chapter was discussed with MD-LOT, JNCC and NatureScot in a consultation meeting held on 07 October 2024.</p>



REGULATOR/CONSULTEE	COMMENT	RESPONSE
		<p>Given the location of the Turbot Bank NCMPA in relation to the Onward Development Connection, there is no potential for combined effects. This is not considered further within this review.</p> <p>A review of potential combined effects of the Project and the Onward Development Connections on the East of Gannet and Montrose Fields NCMPA is provided in Section 22.8. Given the level of information currently available, this review did not identify a likely potential for combined effects produced by the installation of the Onward Development Connections to change, or worsen, the conclusions of the MPA Assessment stated for the Project alone.</p>
<p>NatureScot</p>	<p>The EIA Report should consider the impact of all aspects and all phases of the proposed development on the receiving environment, including effects from pre-construction activities as well as the construction, operation and maintenance and decommissioning phases. We recommend that the following aspects are considered further and included in the EIA Report, in addition to the issues raised above regarding interconnector cables to the oil and gas targets, as well as the interconnector cable to shore.</p>	<p>An overview of the expected design, installation, operation and maintenance, and decommissioning details for Onward Development Connections are provided in Section 22.3 to support this Statement of Combined Effects which provides a review of the effects associated with the Project when combined with the potential effects associated with Onward Development Connections within the Onward Development Area.</p>
<p>NatureScot</p>	<p>The project is located within the East of Gannet and Montrose Fields NCMPA and includes the entirety of the Array Area, part of the Export/Import Cable Corridor (EICC), and the onward cable connections to decarbonise the oil and gas fields (not detailed within the EIA Scoping documentation). Turbot Bank NCMPA is located 6 km from the EICC and 122 km from the Array Area.</p>	<p>A review of the combined effects on the East of Gannet and Montrose Fields NCMPA is provided in Section 22.8. Given the level of information currently available, this review did not identify a likely potential for combined effects produced by the installation of the Onward Development Connections to change, or worsen, the conclusions of the MPA Assessment stated for the Project alone.</p> <p>Given the location of the Turbot Bank NCMPA in relation to the Onward Development Connection, there is no potential for combined effects. This is not considered further within this review.</p>

REGULATOR/CONSULTEE	COMMENT	RESPONSE
NatureScot	<p>As this is an Innovation and Targeted Oil & Gas (INTOG) licensed project with the purpose of decarbonising the offshore oil and gas industry, we would expect to see all cable connections fully detailed within the documentation to allow JNCC to fully assess the impact which this proposed development could have on the East of Gannet and Montrose Fields NCMPA. Clear details of which oil and gas infrastructure the proposed development will be connecting into, proposed cable routing, all crossings, and remediation is crucial information required in this regard throughout all phases of the project. Connections to the oil and gas industry are a fundamental element of the Targeted Oil and Gas (TOG) project, a “project connected directly to oil and gas infrastructure, to provide electricity and reduce the carbon emissions associated with production”⁸, and as such this information should be included to allow a complete assessment of potential impacts to the NCMPA. Without details of the onward oil and gas connection routes, it is hard to understand how the project falls within the remits of an INTOG project, as detailed by Crown Estate Scotland, and justifies its location within an NCMPA. It is JNCC’s view that without this information, the project alone details are incomplete and therefore unable to be fully assessed (please refer to our comments below on Chapter 1). Impacts of this project are further complicated as there is a delay to the Sectoral Marine Plan Iterative Plan Review, which will include INTOG sites. We (JNCC and NatureScot) have raised concerns relating to this proposed development as part of the Sectoral Marine Plan Iterative Plan Review as to the suitability of siting development within a NCMPA.</p>	<p>The Planning Statement (which accompanies the EIAR and Report to Inform Appropriate Assessment (RIAA) as part of the applications for Marine Licences in accordance with the Marine and Coastal Access Act 2009 and the Marine (Scotland) Act 2010) demonstrates in detail how the delivery of the Project aligns with UK and Scottish Net Zero policies whilst meeting the requirements of Scotland’s marine and National planning policies. The Planning Statement addresses the role of the Project in the wider INTOG remit. Further details can be found in the Planning Statement submitted alongside the EIAR.</p>
NatureScot	<p>Other Comments Chapter 1: Introduction Section 1.2.1.5; Figure 1-1; Section 1.3.3.9: See overall comments above relating to the need for detailed information of onward connections to oil and gas facilities to allow for a complete assessment of the project’s impact on the East of Gannet and Montrose Fields NCMPA. Section 1.3.3.9: JNCC do not</p>	<p>A review of the combined effects on the East of Gannet and Montrose Fields NCMPA is provided in Section 22.8. Given the level of information currently available, this review did not identify a likely potential for combined effects produced by the installation of the</p>



REGULATOR/CONSULTEE	COMMENT	RESPONSE
	<p>believe that such a consenting approach is appropriate considering the location of the proposed development, with the Array Area wholly within the East of Gannet and Montrose Fields NCMPA. Specific details of the oil and gas assets (and the associated cable routes) that may benefit from exported power from the Project must be finalised before the full impact to the NCMPA can be assessed. We would advise that the Targeted Oil and Gas (TOG) Onward Development Area mentioned in Section 1.3.3.10 of the Scoping Report will need to contain sufficient detailed information on such onward work in order for as comprehensive an NCMPA assessment to be made as possible and the risks associated with deviating from this onward plan in terms of future licences in an environmentally sensitive area are fully understood by the Applicant.</p>	<p>Onward Development Connections to change, or worsen, the conclusions of the MPA Assessment stated for the Project alone.</p> <p>As noted above, the Applicant cannot dictate the future regulation of the Onward Development Connections – they will be subject to their own regulatory and permitting requirements. Notwithstanding, it is expected that future applications will carry out environmental assessments (as required), including impacts on the NCMPA within a dedicated and development-specific MPA Assessment, in support of any Onward Development Connections. Subsequent assessments will incorporate development-specific and site-specific information that will become available as definition progresses of Onward Development Connections.</p>
<p>NatureScot</p>	<p>Chapter 3: Project Description Section 3.5.1.4: JNCC welcomes the base case option of one Offshore Substation and Converter Platform (OSCP), however, we would expect a worst case scenario to be assessed in relation to environmental impact, particularly within the NCMPA. In this regard, Option 2, utilising two platforms, should be considered when assessing impacts. Section 3.5.1.6: JNCC do not agree with "These onward connections will be considered as part of the environmental assessment within the CEA but will not form part of the Project consent application". The onward connections are an integral component of a TOG project and should be part of the Project consent application to allow for a full assessment of impact to the environment, particularly the East of Gannet and Montrose Fields NCMPA. Figure 3-3: It would be useful to show all the MPAs on this map. Section 3.5.2.15: JNCC would expect all infrastructure to be removed at decommissioning in-line with current guidelines.</p>	<p>Onward Development Connections do not form part of the application for consent which this EIA supports. Onward Development Connections will be finalised and brought forward by third-party oil and gas operators, subject to separate marine licencing and permitting requirements (including separate EIA as appropriate).</p> <p>This Statement of Combined Effects provides a review of the effects associated with the Project when combined with the potential effects associated with Onward Development Connections within the Onward Development Area. This is based on the present understanding of Onward Development Connections (described in Section 22.3) and the detailed Project information in the PDE (EIA Vol. 2, Chapter 5: Project Description).</p> <p>The approach contained in this Statement of Combined Effects chapter was discussed with MD-LOT, JNCC and NatureScot in a consultation meeting held on 07 October 2024.</p>

REGULATOR/CONSULTEE	COMMENT	RESPONSE
NatureScot	<p>Section 5.6.2.10: To allow for a complete assessment of environmental impacts to the NCMPA, JNCC would need the 'project' to be assessed in full and not just the topics of a project. It is JNCC's view that, as a TOG project under the INTOG leasing round, the onward cable connections to oil and gas assets are fundamental in that regard.</p>	<p>Impacts on the East of Gannet and Montrose Fields NCMPA are considered in Section 22.8.</p> <p>A high-level overview of the expected design, installation, operation and maintenance, and decommissioning details for Onward Development Connections are provided in Section 22.3 to support this Statement of Combined Effects which provides a review of the effects associated with the Project when combined with the potential effects associated with Onward Development Connections within the Onward Development Area.</p> <p>Consideration of the combined effects of the Project and the Onward Development Connection, on the NCMPA, is provided in Section 22.7. It should be noted that this review does not consider effects from Onward Development Connections alone; this would be undertaken as part of the forthcoming applications to support the Marine Licence consent for the Onward Development Connection, which will be the responsibility of the respective asset owners.</p>
RSPB	<p>For clarity and to aid general understanding of the proposal, Royal Society for the Protection of Birds (RSPB) Scotland believes it would be helpful to provide a little bit more information about the relationship between the development and the 'Onward Development Area' referenced in paragraph 4.5.1.6 and Figure 4-3 in the report. It might also help to define 'Onward Development Area' in the report Glossary.</p>	<p>A high-level overview of the design, installation, operation and maintenance, and decommissioning details for Onward Development Connections are provided in Section 22.3 to support this Statement of Combined Effects.</p> <p>The Onward Development Area is defined in the report Glossary as "<i>the area within which oil and gas assets would have the potential to be electrified by the Project</i>".</p>
Scoping Workshop – 29th February 2024		
JNCC	<p>Noted that cables connecting to oil and gas platforms are forming part of later applications. Queried what worst-case scenario would be assessed in terms of the NCMPA.</p>	<p>A high-level overview of the expected design, installation, operation and maintenance, and decommissioning details for Onward Development Connections are provided in Section 22.3 to support this</p>



REGULATOR/CONSULTEE	COMMENT	RESPONSE
<p>Scottish Ministers</p>	<p>Noted the challenges and uncertainties decarbonisation projects face in relation to on onward connections to oil and gas installations while recognising that this is an important feature of decarbonisation projects. Stated that Scottish Ministers included clear direction in the EIA scoping opinion on the expectations for the assessment of onward connections within the EIA Report, whilst allowing for some optionality. For clarity, if the Cenoss Project EIA Report does not include an assessment of the onward connections, it is important that the applicant engages with MD-LOT on the EIA Screening process for the onward connections cable specific marine licence applications that will be required. Whilst a full assessment of the potential impacts of the onward connections within the EIA Report for the Cenoss Project has not been required by Scottish Ministers, as much detail as possible on the potential options is encouraged, and the onward connections should be included within the assessment of cumulative impacts, even if this is at a high level.</p>	<p>Statement of Combined Effects which provides a review of the effects associated with the Project when combined with the potential effects associated with Onward Development Connections within the Onward Development Area.</p> <p>Consideration of the combined effects of the Project and the Onward Development Connection, on the NCMPS, is provided in Section 22.7. It should be noted that this review does not consider effects from Onward Development Connections alone; this would be undertaken as part of the forthcoming applications to support the Marine Licence consent for the Onward Development Connection, which will be the responsibility of the respective asset owners.</p> <p>A high-level overview of the expected design, installation, operation and maintenance, and decommissioning details for Onward Development Connections are provided in Section 22.3 to support this Statement of Combined Effects which provides a review of the effects associated with the Project when combined with the potential effects associated with Onward Development Connections within the Onward Development Area.</p> <p>Consideration of the combined effects of the Project and the Onward Development Connection, on the NCMPS, is provided in Section 22.7. It should be noted that this review does not consider effects from Onward Development Connections alone; this would be undertaken as part of the forthcoming applications to support the Marine Licence consent for the Onward Development Connection, which will be the responsibility of the respective asset owners.</p>

22.3 Overview of Project and Onward Development Connections

This Section outlines the Project Design Envelope (PDE) for both the Project (Table 22-3) and Onward Development Connections. At this very early stage in the process, the information available about Onward Development Connections is limited and cannot be confirmed by the Project. Consequently, the nature, scale and level of detail associated with the Project and Onward Development Connections (henceforth collectively referred to as the 'two schemes') differs. A high-level description of a typical cable scheme is outlined in the paragraphs below to inform the review of potential combined effects. Note, it is anticipated that the Onward Development Connections will be taken forward for full environmental assessment by third-party asset owners (as required).

EIAR Vol. 2, Chapter 5: Project Description provides a full description of the Project design, comprising all offshore components seaward of Mean High-Water Springs (MHWS), including all activities associated with the Project phases from construction, operation and maintenance, to decommissioning. Key parameters are summarised in Table 22-3 to support this Statement of Combined Effects.

Significant effects associated with the combined construction of the Project and Onward Development Connections in their entirety are considered highly unlikely. Based on a review of the detailed information in the PDE and information with regards to Onward Development Connections, it is considered that combined construction effects would only be likely in the overlapping zones of influence. This is therefore the focus of this review.

Following construction of the Project and the Onward Development Connection, there is limited operational activity that could lead to combined effects. The primary operational activity associated with Onward Development Connections is anticipated to be infrequent vessel activity conducting cable maintenance.

The construction timelines for the potential Onward Development Connections and the Project may run simultaneously to maximise opportunity for asset electrification or Onward Development Connections may be installed following construction of the Project. Worst-case, there is the potential for combined effects associated with the construction works, or effects which are more significant when both the Project and Onward Development Connections are constructed together. The review presented in Section 22.7 assumes full alignment of the construction phases for the two schemes, as this is considered the worst-case scenario for combined effects. Consequently, this review assumes that combined effects would only occur during the construction phase and that combined operational effects can be scoped out.

As described **EIAR Vol. 2, Chapter 4: Site Selection and Consideration of Alternatives**, oil and gas installations as candidates for decarbonisation were narrowed to those within a 100 km radius of the Array Area (the 'Onward Development Area'). This is the operational limit for High Voltage Alternative Current (HVAC) cables, without the need for additional infrastructure beyond a single transmission cable. Therefore, this distance represents the realistic worst-case extent within which Onward Development Connections can be located. It is considered likely that Onward Development Connections will comprise static subsea HVAC power cables which will provide power and communications from the OSCPs (within the Array Area) to the oil and gas assets located within the Onward Development Area that are targeted for electrification.

The Onward Development Connections for oil and gas decarbonisation will be defined and brought forward by third-party oil and gas operators, subject to separate marine licensing and permitting requirements. At this very early stage

in the process, the information available about these Onward Development Connections is limited to that outlined below.

The Onward Development may comprise up to a maximum of ten HVAC cables, each cable with a voltage of up to 66 kilovolts (kV) – collectively termed Onward Development Connections. Within the Array Area, the cables constituting the Onward Development Connections will be laid in up to three pre-determined corridors that are designed into the array layout and provide a clear route between the edge of the array and the OSCPs. The corridors have been identified to optimise connection distances and minimise impact in the NCMPA. In the worst-case scenario, up to an additional 200 km of HVAC cabling could be installed within the Array Area, which falls within the NCMPA. This scenario is considered unrealistic, as the majority of assets being reviewed for their electrification potential lie to the east, southeast, and west of the Project, and it is anticipated that Onward Development Connections developers may look to maximise installation efficiencies by bundling or daisy-chaining Onward Development Connections.

Any routing beyond the Array Area is outside the control of the Project and will be undertaken at the discretion of the third-party oil and gas operators. It is anticipated that the third-party oil and gas operators would follow industry standard practice and seek to minimise any effects within the NCMPA resulting from cable construction.

As is industry standard practice, it is expected that any prospective cables as part of the Onward Development Connections will be buried, where practicable. Where target burial depths cannot be reached, cable protection (e.g. rock placement, mattresses or bags, etc.) may be required. For each cable, rock protection will be required at the base of the OSCPs (i.e. at the cable transition from the OSCPs to the seabed), on approach to each oil and gas asset (all of which are located outside the NCMPA boundary) and where a cable crosses other seabed infrastructure (e.g. cables or pipelines). To prepare the seabed and subsequently install and protect each cable, a number of different vessels will be required. Required vessel types are expected to include (but are not limited to) survey vessels, site preparation vessels, cable installation vessels and rock placement vessels.

Table 22-3 Summary Project Design Envelope

AREA	PROJECT ASPECT	DESCRIPTION
Seabed preparation activities	Boulder clearance	<ul style="list-style-type: none"> 1,198,000 m² within the EICC 5,600,000 m² across the Inter-Array Cables (IACs)
	Sandwave clearance	<ul style="list-style-type: none"> Sandwave clearance is not required in the Array Area.
	Pre-lay grapnel run (PLGR)	<ul style="list-style-type: none"> A corridor of 100 m (i.e. 50 m either side the centre line) should be the width of the PLGR operation, however only 10 m of disturbance within the corridor will occur from the PLGR
	Unexploded Ordnance clearance (UXO)	<ul style="list-style-type: none"> Maximum size of UXO: 227 kilograms (kg) sea-mines. Total duration of clearance (days): None, expectation to be able to micro-route around UXO where necessary.
Generation Assets	Wind Turbine Generators (WTGs)	<ul style="list-style-type: none"> Number of WTGs: up to 95 Maximum rotor diameter: 232 m to 280 m Maximum WTG hub height above lowest astronomical tide (LAT): 180 m Maximum upper blade tip height above LAT for Tension Leg Platform: 320 m Maximum rotor swept area (per turbine, using 95 FTU scenario): 61,575 m²
	Floating turbine units (FTUs)	<ul style="list-style-type: none"> Two floating foundation options – tension leg platform or semi-submersible Maximum seabed footprint per FTU: 198 m² (semi-submersible) and 297 m² (TLP) Maximum seabed footprint for Array Area: 15,840 m² (semi-submersible) and 28,215 m² (Tension Leg Platform (TLP))
	OSCPs	<ul style="list-style-type: none"> Fixed jacket structures pin-pilled to the seabed Total seabed footprint for Array Area: 1,209 m² per jacket, 2,418 m² total
	IACs	<ul style="list-style-type: none"> Maximum voltage: 132 kV Maximum cable length: 350 km of which 280 km are static, and 70 km are dynamic (no contact with seabed) Target burial depth: 0.4 – 1.5 m Maximum depth of trench: 1.8 m

AREA	PROJECT ASPECT	DESCRIPTION
Transmission Assets	Export/Import Cable	<ul style="list-style-type: none"> • Installation methods: Jet trenching, mechanical trenching and ploughing (simultaneous lay & burial) • Maximum area of seabed disturbance from installation: 5.6 km² • Cable protection materials: Concrete mattresses, rock placement, rock bags, grout/cement bags, polyurethane Cable Protection System. No rock placement, as a cable protection method, will be required within the Array Area except at cable/pipeline crossings. • Maximum total IACs cable/pipeline crossings footprint: 36,480 m² • Maximum total IACs cable/pipeline crossings volume: 3,056 m³ (of rock) and 24,448 m³ total <hr/> <ul style="list-style-type: none"> • Maximum voltage: 320 or 525 kV (High Voltage Direct Current (HVDC)) • Maximum cable length: 230 km • Target burial depth: 0.4 – 1.5 m • Maximum depth of trench: 1.8 m • Installation methods: Jet trenching, mechanical trenching and ploughing (simultaneous lay & burial) • Total area of seabed disturbance from installation: 4.6 km² • Cable protection materials: concrete mattresses, rock placement, rock bags, grout/cement bags, polyurethane Cable Protection System. • Maximum length of Export/Import Cable requiring protection: <ul style="list-style-type: none"> - Up to 18 km within 12 Nautical Miles (NM); - Up to 8.35 km between 12 NM and East of Gannet and Montrose Fields NCMPA; and - 0 km within the East of Gannet and Montrose Fields NCMPA. • Maximum total Export/Import Cable protection footprint: <ul style="list-style-type: none"> - 75,000 m² within 12 NM; - 91,850 m² between 12 NM and the East of Gannet and Montrose Fields NCMPA; and - 700 m² within East of Gannet and Montrose Fields NCMPA at base of OSCPS. • Maximum total Export/Import Cable protection volume: <ul style="list-style-type: none"> - 38,339 m² within 12 NM; - 91,349 m² between 12 NM and the East of Gannet and Montrose Fields NCMPA; and - 400 m² within the East of Gannet and Montrose Fields NCMPA at base of OSCPS.

AREA	PROJECT ASPECT	DESCRIPTION
Cable/pipeline crossings	Export/Import Cable	<ul style="list-style-type: none"> • Total number of Export/Import Cable crossings: 20 • Cable/pipeline crossing protection dimensions: <ul style="list-style-type: none"> - 3.5 m height; - 520 m length; and - 24 m width, reducing to 17 m over the first 50 m rock berm each side of the crossing. • Maximum total area of cable/pipeline crossings: <ul style="list-style-type: none"> - 9,063 m² per crossing; - MHWS to 12 NM: 63,441 m² total (7 crossings); - 12 NM to East of Gannet and Montrose Fields NCMPA: 99,693 m² total (11 crossings); and - East of Gannet and Montrose Fields NCMPA to OSCPS: 18,126 m² total (2 crossings). • Maximum total volume of cable/pipeline crossing protection material: <ul style="list-style-type: none"> - MHWS to 12 NM: 88,326 m³ (7 crossings); - 12 NM to the East of Gannet and Montrose Fields NCMPA: 138,798 m³ (11 crossings); and - The East of Gannet and Montrose Fields NCMPA to OSCPS: 25,236 m³ (2 crossings).
Landfall	Landfall	<ul style="list-style-type: none"> • Installation method – Horizontal directional drilling (HDD) • Volume of HDD drilling material losses (m³): 3,000

22.4 Environmental Baseline

This Section summarises the baseline for the Project and the Onward Development Area. The Project baseline has been summarised based on the information presented in the individual EIAR chapters. Each EIAR chapter has a topic-specific Study Area. These Study Areas represent the environmental area which may be affected by the Project. The environmental baseline conditions for each chapter/receptor are described in turn in Table 22-4. The environmental baseline conditions were derived through site-specific survey outputs and from publicly available data sources.

The Onward Development Area is more broadly described, although the characterisation has been centred on the area shown in Figure 22-1, as far as possible. The baseline characterisation has been undertaken through a desk-based review of publicly available data sources and is largely underpinned by the Project baseline, with particular reference to conditions within the Array Area, as appropriate. Onward Development Connections baseline characterisation is additionally informed by stakeholder engagement and consultation (as detailed in Section 22.2 above). Onward Development Connections environmental baseline is described in Table 22-5.

Table 22-4 Environmental Baseline – the Project

EIAR CHAPTER	TOPIC	KEY BASELINE INFORMATION
8	Marine Geology, Oceanography and Coastal Processes	<ul style="list-style-type: none"> • A number of designated sites overlap with the Marine Geology, Oceanography and Coastal Processes Study Area. This includes the Southern Trench NCMPSA and the East of Gannet and Montrose Fields NCMPSA; • Although Quaternary deposits are more variable, outcropping or sub-cropping is consistent across the Project, at various depths below the seabed; • Surficial sediment cover is relatively thin at <3 m thick, with the seabed sediment being typically coarse in nature along the EICC, dominantly comprising sands; • Water depths within the Array Area range between approximately 82 meters Lowest Astronomical Tide (mLAT) and 105 mLAT, deepening from the northwestern-most extent to the southwestern boundary and with seabed slopes being typically <1°. Along the EICC water depths approximately range between 80 mLAT and 107 mLAT, with more variable seabed slopes associated with the presence of bedforms including sinusoidal transverse and linguoid sandwaves; • Tidal water levels decrease in an offshore direction across the Project. Flow speeds also decrease in an offshore direction, with flow speeds during the spring tidal phase of up to 1.2 m/s occurring near the landfall, reducing to 0.7 m/s midway along the EICC and reducing further to 0.5 m/s within the Array Area. Equivalent flows during the neap tidal phase are typically around 50% less than those observed during the spring phase. Residual flow within the Array Area is towards the north, with residual speeds typically being <0.1 m/s. This is indicative of an ebb tidal dominance across the Project; • Wave approach varies across the Project, approaching from the north – east – south sectors closer to the coast and most dominantly from the north along the EICC and within the Array Area. This is due to wave modification and sheltering effects at the coastline. Wave height and wave period increase in the offshore direction, ranging from about 1.4 m and 7.7 seconds at the landfall, to up to 2 m and 7.9 seconds offshore towards and within the Array Area; • Sediment mobility potential decreases in the offshore direction associated with the reduction in flow speeds. Overall, baseline suspended sediment concentration (SSC) and turbidity across the Project Area are low, indicating clear waters; • There is evidence of seasonal thermal and salinity stratification across the Project, evident from late spring until autumn and occurring at a depth between 20 mLAT to 40 mLAT. Changes in salinity correspond to the variation in temperature; and • The coastline where the EICC landfalls is characterised as erosion-resistant rock and/or cliff, without loose eroded material in the fronting sea.

EIA CHAPTER	TOPIC	KEY BASELINE INFORMATION
9	Marine Water and Sediment Quality	<ul style="list-style-type: none"> • The Project overlaps with two designated coastal waterbodies: the Ugie Estuary to Buchan Ness (Peterhead) waterbody which currently has 'Good ecological potential' for the overall condition, and the Buchan Ness to Cruden Bay waterbody which is in 'High' overall condition; • There are an additional three designated coastal waterbodies in the Marine Water and Sediment Quality Study Area which are all in 'High' overall condition and three designated bathing waters which are in 'Excellent' and 'Good' condition for the 2023/24 bathing water season; • There are no shellfish water protected areas within the Marine Water and Sediment Quality Study Area; • The Marine Water and Sediment Quality Study Area overlaps with the Moray, Aberdeenshire/Banff and Buchan Nitrate Vulnerable Zone (NVZ). The urban wastewater treatment sensitive areas include the designated bathing waters and the River Ugie catchment; • With regards to sediment quality, the presence of metals exceeded one or more thresholds for all sediment sample locations, with arsenic exceeding the Canadian Council of Ministers of the Environment (CCME) Interim Sediment Quality Guidelines (ISQG)/ Threshold Effect Level (TEL) and National Oceanic and Atmospheric Administration (NOAA) effects range low (ERL) thresholds at seven locations and mercury exceeding the CCME ISQG/TEL at four locations; and • Total Hydrocarbon Content (THC) concentrations did not exceed the Dutch National Institute for Public Health and the Environment threshold for any location; however, polycyclic aromatic hydrocarbons (PAH) concentrations exceeded one or more thresholds for all locations in the Array Area and five locations along the EICC.
10	Benthic Ecology	<ul style="list-style-type: none"> • The Array Area overlaps directly with the East of Gannet and Montrose Fields NCMPA; • Two European Nature Information System (EUNIS) sediments characterise the Array Area: A5.27 'Deep circalittoral sand' and A5.37 'Deep circalittoral mud'. This was generally in agreement with the site-specific habitat assessment results; • Analysis of geophysical data, drop down camera and grab sampling identified the following UK and Ireland classification system habitats: <ul style="list-style-type: none"> – <i>Offshore circalittoral mud (SS.SMu.Omu/MD6);</i> – <i>SS.SMu.Omu.PjefThyAfil 'Paramphinome jeffreysii, Thyasira sp. and Amphiuira filiformis in offshore circalittoral sandy mud';</i> – <i>Offshore circalittoral mixed sediment (SS.SMx.Omx/MD4); and</i> – <i>SS.SMx.Omx.PoVen 'Polychaete-rich deep Venus community'.</i> • Environmental DNA (eDNA) results did not reveal any matches to Invasive Non-native Species (INNS) in the Array Area.

EIA CHAPTER	TOPIC	KEY BASELINE INFORMATION
		<ul style="list-style-type: none"> • Key conservation habitats and species found within the Array Area are as follows: <ul style="list-style-type: none"> – Offshore deep-sea muds (UK Biodiversity Action Plan (UK BAP), priority marine feature (PMF)); – <i>Arctica islandica</i> (ocean quahog) (OSPAR¹, PMF); – Burrowed mud/Seapens and burrowing megafauna communities (OSPAR, PMF); – Subtidal sands and gravels (UK BAP, PMF); and – Geogenic (stony) reef (Annex I). • The Benthic Ecology Study Area overlaps with the Turbot Bank NCMPA (which is designated for sandeel); • Along the offshore EICC, EUNIS sediment types A5.27 'Deep circalittoral sand', A5.15 'Deep circalittoral coarse sediment' and A5.37 'Deep circalittoral mud' were prevalent. This was corroborated by the results of the habitat assessment; • Within the inshore section of the EICC, EUNIS sediment types 'A5.27 - Deep circalittoral sand', 'A5.15 - Deep circalittoral coarse sediment' and 'A5.14 - Circalittoral coarse sediment' were characteristic; • Analysis of geophysical data, drop down camera and grab sampling identified the following UK and Ireland classification system habitats: <ul style="list-style-type: none"> – Offshore circalittoral sand (SS.SSa.Osa/MD5); – SS.Ssa.Osa.OfusAfil 'Owenia fusiformis and Amphiuira filiformis in Offshore circalittoral sand or muddy sand'; – Offshore Circalittoral Mud (SS.Smu.Omu/MD6); – SS.SMu.Omu.PjefThyAfil 'Paramphinome jeffreysii, Thyasira sp. and Amphiuira filiformis in Offshore circalittoral sandy mud'; – Offshore circalittoral mixed sediment (SS.SMx.Omx/MD4).; and – SS.SMx.OMx.PoVen 'Polychaete-rich deep Venus community in offshore mixed sediments'. • Key conservation habitats and species found within the offshore EICC are as follows: <ul style="list-style-type: none"> – Offshore deep-sea muds (UK BAP, PMF); – Subtidal sands and gravels (UK BAP, PMF); – Sabellaria spinulosa biogenic reef (Annex I); and – <i>Arctica islandica</i> (ocean quahog) (OSPAR, PMF). • Within the inshore section of the EICC, EUNIS sediment types 'A5.27 - Deep circalittoral sand', 'A5.15 - Deep circalittoral coarse sediment' and 'A5.14 - Circalittoral coarse sediment' were characteristic;

¹ The Convention for the Protection of the Marine Environment of the North-East Atlantic.

EIA CHAPTER	TOPIC	KEY BASELINE INFORMATION
11	Marine Mammal Ecology	<ul style="list-style-type: none"> • Analysis of video and still data identified the following UK and Ireland classification system habitats: <ul style="list-style-type: none"> – Offshore circalittoral sand (SS.SSa.Osa/MD5); – Circalittoral muddy sand (SS.SSa.CmuSa/A5.26); – Offshore circalittoral coarse sediment (SS.SCS.OCS/MD3); – Circalittoral mixed sediment (SS.SMx.CMx/MC4); – Moderate energy circalittoral rock (CR.MCR/A4.2); – Mixed faunal turf communities (CR.HCR.Xfa); and – <i>S spinulosa</i> encrusted circalittoral rock (CR.MCR.Csab.Sspi). • Key conservation habitats and species found within the inshore EICC are as follows: <ul style="list-style-type: none"> – Subtidal sands and gravels (UK BAP, PMF); – Geogenic (bedrock) reef (Annex I); – Geogenic (stony) reef (Annex I); – <i>S. spinulosa</i> biogenic reef (Annex I); – <i>Arctica islandica</i> (ocean quahog) (OSPAR, PMF); and – Burrowed mud/Seapens and burrowing megafauna communities (OSPAR, PMF). • There are four cetacean species which regularly occur throughout the Marine Mammal Study Area, these species are: harbour porpoise, bottlenose dolphin, white-beaked dolphin and minke whale. These species are listed as EPS under Annex IV of the Habitats Directive; • The Project overlaps with the Southern Trench NCMPA which is designated for minke whale (amongst other non-marine mammal features). The Project does not overlap with any other marine protected areas for cetaceans; the closest are the Moray Firth Special Area of Conservation (SAC; designated for bottlenose dolphins), located ~100 km west of the Project, and the Southern North Sea SAC (designated for harbour porpoise), located ~300 km south of the Project; • Population, abundance and density estimated for each cetacean species were obtained from Small Cetaceans in European Atlantic waters and the North Sea (SCANS) surveys (SCANS-III and SCANS-IV), cetacean Management Unit (MU) data, and other sources. • Harbour porpoise are found at the highest densities throughout the Project Area across all cetaceans. They are a relatively abundant species within the North Sea (NS), with ca. 159,000 individuals in the UK portion of the NS MU;

EIA CHAPTER	TOPIC	KEY BASELINE INFORMATION
		<ul style="list-style-type: none"> • Of the other regularly occurring cetacean species, white-beaked dolphin are likely to occur at comparatively lower densities. Minke whale are found at very low densities in the Project Area, even in coastal waters of the Southern Trench NCMPA. Bottlenose dolphin are found at the low densities offshore but occur at higher densities close (<2 km) to the coast, are therefore the least likely to be found within the Project Area compared to the other regularly-occurring cetacean species; • Several other cetacean species are known to occur in the Marine Mammal Study Area, although their distributions and occurrence are poorly understood. These species are Risso’s dolphin, short-beaked common dolphin, Atlantic white sided dolphin, long-finned pilot whale, killer whale, and humpback whale; and • Harbour and grey seals live and breed in United Kingdom (UK) waters. Of these two species, harbour seals have a typically coastal distribution rarely occur in offshore (>50 km) waters. Within the East Scotland (ES) Seal Management Unit (SMU), there were an estimated 262 harbour seals in 2021. The 2021 grey seal August count for the ES SMU was 2,712 animals, and this species is distributed more widely across the Marine Mammal Study Area.
12	Ornithology	<ul style="list-style-type: none"> • The most abundant seabird species recorded in the Array Area during site-specific Digital Aerial Surveys were fulmar, gannet and guillemot; • Kittiwake and gannet are at risk of collision with WTGs within the Array Area; • Kittiwake, gannet and guillemot are at risk of distributional responses in the Array Area plus a 2 km buffer; • Seabird abundance may be impacted by the effects of climate change such through changes in prey availability and distribution, particularly for species with limited foraging ranges; • The 2021 / 2022 Highly Pathogenic Avian Influenza outbreak impacted many seabird species, with severe declines recorded in gannet colonies, however recent surveys of Bass Rock in the Forth Islands SPA suggests productivity is increasing, post outbreak; • With regards to the EICC, the most abundant species recorded during vantage point counts of the landfall site were kittiwake, guillemot and herring gull; • Seabird diversity and abundance decreased with distance from the shore, with the exception of kittiwake in June 2024; and • Relatively low numbers of waterfowl and wader species were recorded along the EICC, peaking with 16 observations of eider in April 2024.
13	Fish and Shellfish Ecology	<ul style="list-style-type: none"> • The Fish and Shellfish Ecology Study Area overlaps with the River Dee SAC (designated for fresh water pearl mussel and Atlantic salmon) and the Turbot Bank NCMPA (designated for sandeel);

EIA CHAPTER	TOPIC	KEY BASELINE INFORMATION
14	Commercial Fisheries	<ul style="list-style-type: none"> • A number of species utilise the Fish and Shellfish Ecology Study Area as a spawning or nursery ground, including species of commercial or conservation importance (e.g. PMF species) (e.g. mackerel, cod and haddock); • Site-specific survey Particle Size Analysis (PSA) determined that sediments sampled along the EICC and within the Array Area were 'unsuitable' for herring spawning; • Similarly, PSA found the Project Area was 'unsuitable' for sandeel spawning at all but three locations, which were otherwise 'sub-prime (preferred)' or 'suitable (marginal)'; • Much of the Fish and Shellfish Ecology Study Area is located within areas of muddy sediments which indicates preferred <i>Nephrops</i> habitat; • Haddock, herring and whiting were the marine finfish species which made up the majority of catch by weight across the Project Area. With regards to shellfish, <i>Nephrops</i>, king scallops and brown crabs dominate landings; • No basking shark have been sighted in the vicinity of the Project in the past 10 years. Generally, within Scottish waters they are more prevalent on the west coast and not within the North Sea; and • Due to a lack of evidence on migratory pathways, there is potential for diadromous fish to migrate through the Fish and Shellfish Ecology Study Area, including Atlantic salmon, sea trout, lamprey species and European eel. <hr/> <ul style="list-style-type: none"> • The most commonly operated gear type within the Array Area are demersal trawls, followed by pelagic trawls and otter trawls. • The most commonly landed species from within the Array Area is <i>Nephrops</i>; • Vessel Monitoring System (VMS) effort and value data for all gear types is low to moderate within the Array Area; • According to available Automatic Identification System (AIS) evidence, there are limited fishing vessel tracks within the Array Area; • The most commonly operated gear type within the inshore environment along the EICC are demersal trawlers and pots and traps; • With increasing distance offshore along the EICC the most commonly operated gear type is demersal trawlers, followed by demersal seines and pelagic trawls; • The most commonly landed species within the inshore environment are crabs, haddock and <i>Nephrops</i>; • with increasing distance offshore along the EICC the most commonly landed species is <i>Nephrops</i>, followed by haddock and herring. • VMS effort and value data for all gear types is low to moderate along the length of the EICC; and

EIA CHAPTER	TOPIC	KEY BASELINE INFORMATION
15	Shipping and Navigation	<ul style="list-style-type: none"> • According to available AIS evidence, there are limited fishing vessel tracks within the Project Area, with AIS data showing vessels activity decreases within increasing distance offshore along the length of the EICC. • Navigational features within the Project Area are mainly concentrated in the vicinity of the Array Area and landfall. • The majority of navigational features within the Project Area are associated with oil and gas infrastructure, including pipelines, subsea wells, platforms and safety zones; • Around the Array Area, the majority of the traffic was comprised of oil and gas vessels, accounting for 82% of the total. An average of 15 to 16 vessels per day was recorded; • Three years of fishing vessel AIS data (September 2021 to August 2024) aligned with the long-term dataset and the 21-day survey in terms of the average number of fishing vessels per day, with each dataset indicating an average of one per day; • A total of 20 commercial routes were identified around the Array Area – these were mostly associated with vessels originating in Aberdeen travelling to oil and gas fields/assets. All were low use, with each being used by less than a vessel a day on average; • Inshore, traffic density was concentrated within 15 NM of the landfall, corresponding to traffic travelling to/from Peterhead port (either fishing or oil and gas vessels) and north/south routeing of commercial traffic (which mainly comprised cargo vessels); • Recreational vessel traffic density is at its highest in proximity to Peterhead, where the closest Royal Yachting Association (RYA) facilities are located; • Further offshore, a total of three marine incidents were reported within the Shipping and Navigation Study Area between 2023 and 2022 by the Marine Accident Investigation Branch (MAIB). No Royal National Lifeboat Institution (RNLI) incidents were documented within the Shipping and Navigation Study Area during the ten-year period assessed (2013 to 2022), noting the distance offshore of the Array Area; and • Closer to the coast, along the EICC, RNLI data indicated a total of 96 lifeboat responses to 89 unique incidents, corresponding to an average of nine incidents per year. The MAIB data indicated a total of 35 incidents involving 39 casualties, corresponding to an average of three to four per year. The majority of these MAIB incidents were located within 2 NM of the coast.
16	Marine Archaeology	<ul style="list-style-type: none"> • Provisionally, 15 Quaternary units within the Project Area were identified. These represent a sequence of glaciomarine, cool to temperate marine and, to a lesser extent, glacial depositional environments, holding a very limited potential to contain in situ or ex situ archaeological remains; • Wood fragments derived from a British Geological Survey (BGS) borehole within the Central North Sea (CNS) highlight a slight potential for palaeoenvironmental remains within basal elements of the Coal Pit Formation (which underlies the Array Area and

EIAR CHAPTER	TOPIC	KEY BASELINE INFORMATION
		<p>the EICC). Upper elements of the Coal Pit Formation may contain evidence relating to temperate, intertidal depositional environments (as identified within a further BGS borehole in the CNS), also with potential for palaeoenvironmental remains. All other geological units hold very limited potential for such remains;</p> <ul style="list-style-type: none"> • Three United Kingdom Hydrographic Office (UKHO) wreck records were identified within the Project Area, one of which aligns with an identified geophysical anomaly of high archaeological potential. A further UKHO record, lying slightly beyond the Project Area, was identified as a wreck (anomaly of high archaeological potential) extending into the EICC; • Four further geophysical anomalies of high archaeological potential, four of medium potential, 122 of low potential and 56 magnetic anomalies were also identified within the Project Area; and • Three documented loss records relate to aviation losses within the Marine Archaeology Study Area, though these broad locations are not known to relate to physical remains.
17	Infrastructure and Other Users	<ul style="list-style-type: none"> • The Project Area falls within a number of active licenced blocks for oil and gas activities; • The Madoes hydrocarbon field is located within the Array Area, although there is no overlap of infrastructure within the field.; • A number of other oil and gas fields are present around the Array Area; • The Culzean 22" Gas Export Flowline passes through the Array Area; • The EICC will overlap with the following infrastructure: 20" Gas Fulmar A – St. Fergus Pipeline (at three locations); Forties C to Cruden Bay Pipeline; Langed Pipeline; Cats 36" Gas Export Pipeline; • The Project is in close proximity to planned and existing offshore wind farm (OWF) developments; the closest being the Campion Wind development (0.2 km from the Project) which is in early planning. The nearest operational OWF is the Hywind Scotland development (8.4 km from the Project); • The Project is also close to a number of planned and existing subsea and telecommunications cables; • There are a number of open and closed disposal sites located close to the Project, mostly close to the coast • A UXO Threat and Risk Assessment determined the risk of UXO as being 'low' within the Array Area, and 'medium' toward the western end of the EICC; and • There is currently limited demand for marine aggregate extraction in Scottish waters, although there are some potential productive sources of marine aggregates within the Project Area. However, these are yet to be pursued.
18	Military and Civil Aviation	<ul style="list-style-type: none"> • The Array Area is situated in relatively uncomplicated airspace but with active helicopter main route indicators (HMRIs) routing west to east through the Array Area;

EIAR CHAPTER	TOPIC	KEY BASELINE INFORMATION
		<ul style="list-style-type: none"> • The nearest major civil airport to the Array Area is Aberdeen Airport, located approximately 123 NM (228 km) to the west. The published obstacle safeguarding area for airports of this nature is 30 NM (56 km), therefore the proposed WTGs will not impact any airport Initial Flight Plan Processing System; • The nearest civil Air Traffic Control (ATC) radars to the Array Area are the National Air Traffic Services (NATS) Allanshill and Perwinnes radars both of which are located more than 110 NM (204 km) from the Array Area; • The nearest military ATC and Automatic Dependent radars are the Royal Air Force (RAF) Lossiemouth ATC radar and the Buchan Automatic Dependent radar both of which are located more than 110 NM (204 km) from the Array Area; • The Array Area is located more than 12 NM (22 km) from the UK coastline, therefore is technically outside the UK Military Low Flying System. However, military aircraft may still be required to operate at low-level in the vicinity of the Array Area; • HMRI 098 and 108 route through the Array Area and HMRI 095 routes approximately 1 NM (1.8 km) to the north of the Array Area. These HMRIs are primarily used for helicopter flights from Aberdeen Airport to oil and gas installations; • The Array Area lies underneath Air-to-Air Refuelling Area (AARA) 3 which is established from Flight Level 100 (10,000 feet (ft)) up to Flight Level 290 (29,000 ft), meaning operations with the AARA are carried out no lower than 10,000 ft; and • The nearest Met Office radar system to the Array Area is located at Hill of Dudwick near Ellon, Aberdeenshire.
19	Socio-economics, Tourism and Recreation	<ul style="list-style-type: none"> • Aberdeen City and Aberdeenshire have both seen population growth from 2001 to 2022, but Aberdeenshire's increase is more substantial compared to both Aberdeen City and Scotland overall; • Aberdeen City and Aberdeenshire both boast high levels of economic activity and employment. Generally, it is expected that unemployment is lower than Scottish levels; • In terms of Gross Value Added (GVA) per capita, the combined Aberdeen City and Aberdeenshire area is approximately as productive as the Scottish average and household earnings are broadly comparable; • Compared to the national baseline, there is high employment in mining and quarrying and manufacturing industries; • There are indications of a robust match between some of the sectors required to complete the Project and the skills and capabilities in Aberdeen City and Aberdeenshire; • In 2023, tourism in Aberdeen City and Aberdeenshire generated over £1.2 billion, accounting for 6.2% of GVA and supporting 15,470 jobs in the area. Evidence points towards the area's growing appeal as a destination for both short stays and repeat visits; • There is a need for 10,330 new homes by 2042 in Aberdeen City and Aberdeenshire;

EIA CHAPTER	TOPIC	KEY BASELINE INFORMATION
		<ul style="list-style-type: none"> • Aberdeenshire faces challenges with public transport, especially in linking smaller rural communities, while Aberdeen City has better connections via its airport, port, and train services; • While Aberdeenshire shows low levels of deprivation, Peterhead faces significant challenges, including high crime rates and low educational outcomes; and • Community initiatives in Peterhead highlight local engagement, however issues such as health-related concerns and the need for higher-skilled jobs remain.
20	Carbon and Greenhouse Gases	<ul style="list-style-type: none"> • The baseline characterisation for this topic is limited to consideration of blue carbon in the environment; • Carbon density in the surficial layer of sediments at the Project Area is considered to be relatively low based on modelled data; • The Project Area contains a mixture of sediment types, including some mud sediments which typically have a higher organic carbon density; and • The only blue carbon habitats/species identified within the Project Area include brittlestars and <i>Flustra foliacea</i> (a species of bryozoan). However, no extensive brittlestar beds were identified and the extent of <i>F. foliacea</i> was also low, suggesting that the blue carbon contribution of these features in the Project Area is minimal.
21	Major Accidents and Disasters	<ul style="list-style-type: none"> • In line with EIA Directive requirements, the baseline characterisation herein is informed by the baselines provided in several EIA Chapters in order to identify the hazards of relevance to the Project The following baselines contribute to the understanding of Major Accidents and Disasters: <ul style="list-style-type: none"> – EIA Vol. 3, Chapter 8: Marine Geology, Oceanography and Coastal; – EIA Vol. 3, Chapter 14: Commercial Fisheries; – EIA Vol. 3, Chapter 15: Shipping and Navigation; – EIA Vol. 3, Chapter 17: Marine Infrastructure and Other Sea Users; – EIA Vol. 3, Chapter 18: Military and Aviation; and – EIA Vol. 3, Chapter 20: Carbon and Greenhouse Gases.

Table 22-5 Environmental Baseline – Onward Development Connections

TOPIC	KEY BASELINE INFORMATION
<p>Marine Geology, Oceanography and Coastal Processes</p>	<p>As marine geology and physical environmental processes occur at much larger scales than the Project, much of the characterisation of the Array Area is likely to be applicable to the Onward Development Connections. Metocean properties, including water levels, flows, and waves are likely to be consistent across the Onward Development Area and in line with the Project Area. The Onward Development Area is likely to be characterised by relatively slow flow speeds (ABPmer, 2008), and a wave climate dominated by waves approaching from the north (ABPmer, 2018).</p> <p>The geology of the Onward Development Area consists of siliciclastic, argillaceous and sandstone of Eocene to Pliocene age (BGS, 2024), with the bedrock geology generally occurring at depths >30 m below the seabed. This is consistent with the Project Area and, more broadly, much of the CNS. Quaternary geology is likely to be more variable across the Onward Development Area.</p> <p>Surficial sediments across the Onward Development Area are consistent with the Project Area and are characterised primarily by muddy sand and sand. Pockets of slightly gravelly sand also occur locally throughout the Onward Development Area. The most northern extent of the Onward Development Area constitutes sandy mud (BGS, 2024). Therefore, it is likely that SSC levels will be similar within the Onward Development Area and that sediment mobility will be similarly limited in line with local flows. It is expected that site-specific survey data would be required to further refine the information relating to sediments within the Onward Development Area.</p>
<p>Marine Water and Sediment Quality</p>	<p>Cuttings piles and deposits, which can include potential contaminants, frequently occur in the immediate surroundings of oil and gas wells and assets. These piles result from drilling activities and can therefore contain contaminants. If undisturbed, these piles typically have limited effect on the surrounding environment. It is reasonable to assume that sediment contamination levels decrease with increasing distance from an oil and gas asset. Site-specific surveys within the Project Area which were conducted for the EIAR found elevated levels of some metals, organics, hydrocarbons and other contaminants; however, these infrequently exceeded various set thresholds. While this is likely to be equally applicable to the Onward Development Area, levels of some contaminants (namely metals, hydrocarbons, and PCBs) may be higher locally around oil and gas assets.</p>

TOPIC	KEY BASELINE INFORMATION
	<p>With regards to water quality, this is largely discussed with reference to designated water bodies which are a coastal feature and therefore of less relevance further offshore. As described in Table 22-4, waters within the Array Area are generally clear and of good quality (low SSC and turbidity).</p> <p>With increasing water depths, disturbance of the seabed and any associated contaminants which could affect water and sediment quality, will be limited to the waters at depth closest to the seabed where turbidity is highest due to the influence of near-bed flows.</p>
	<p>The EUNIS sediments which characterise the Onward Development Area are A5.27 'Deep circalittoral sand' and A5.37 'Deep circalittoral mud' (EMODnet, 2024). This is consistent with the Project Area and much of the wider region. Therefore, it can be assumed that many of the key conservation habitats and species documented within the Array Area will be found within the Onward Development Area, namely:</p> <ul style="list-style-type: none"> • Offshore deep-sea muds (UK BAP, PMF); • <i>Arctica islandica</i> (ocean quahog) (OSPAR, PMF); • Burrowed mud/Seapens and burrowing megafauna communities (OSPAR, PMF); and • Subtidal sands and gravels (UK BAP, PMF).
<p>Benthic Ecology</p>	<p>With regards to 'Geogenic (stony) reef (Annex I)', there are no publicly available datasets with coverage of this feature so far offshore. Therefore, this would have to be confirmed through site specific survey. In addition to these key conservation habitats, the Onward Development Area will overlap with some additional designated sites. Onward Development Connections may overlap with the Norwegian Boundary Sediment Plain NCMPS, designated for 'Offshore subtidal sands and gravels' and 'Ocean quahog aggregations', and the Fulmar Marine Conservation Zone, designated for 'Subtidal mixed sediments', 'Subtidal mud', 'Subtidal sand', and <i>A islandica</i> (ocean quahog). Site-specific survey data would be required to further refine the information surrounding sediments, benthic habitats and key conservation habitats/species within the Onward Development Area. The northernmost reach of the Onward Development Area comes within approximately 20 km of the Scanner Pockmark SAC, designated for 'Submarine structures made by leaking gases'. The SAC is considered to be one of the best areas in the UK. Given the proximity of the SAC, it is possible that pockmarks and evidence of methane-derived authigenic carbonate (MDAC) may occur within the Onward Development Area.</p>
<p>Marine Mammal Ecology</p>	<p>Marine mammals are highly mobile and wide-ranging. Estimates of population size, abundance and density are frequently reported on much larger scales (e.g. SCANS-III and SCANS-IV) than the Project and Onward Development Connection. Therefore, the characterisation per Table 22-4, is expected to be applicable to much of the Onward Development Area. Harbour porpoise, bottlenose dolphin, white-beaked dolphin</p>

TOPIC	KEY BASELINE INFORMATION
Ornithology	<p>and minke whale may all be encountered within the Onward Development Area. The Onward Development Area is also located within the same ES SMU, therefore estimates of seal density as reported for the Project Area also apply to the Onward Development Area.</p> <p>Birds are highly mobile and can be wide-ranging. Fulmar, gannet and guillemot were the most abundant species in the Array Area and this is likely to be the case across the Onward Development Area. As with the Project Area, seabird diversity and abundance are lower further from shore. Consequently, it is anticipated that relatively few species will be affected by any Onward Development Connection works. Considering the distance of the Onward Development Area from shore, coastal colonies are not likely to be affected directly by any future works. Additionally, waterfowl and wader species will not be affected by Onward Development Connections.</p>
Fish and Shellfish Ecology	<p>As with the Project Area, a large number of fish species are likely to utilise the Onward Development Area for spawning and as a nursery habitat. Sediments across the Array Area were 'unsuitable' for sandeel and herring spawning. Given the likely similarity between the sediments within the Onward Development Area and those within the Array Area, it is probable that neither herring nor sandeel will utilise the Onward Development Area for spawning. Site-specific survey data would be required within the Onward Development Area to establish which fish species may depend on the area for spawning (particularly sandeel and herring).</p> <p>Being so far offshore, diadromous fish species are less likely to migrate through the Onward Development Area. However, there is much uncertainty over migratory routes of species like Atlantic salmon; therefore, diadromous fish may be found within the Onward Development Area.</p> <p><i>Nephrops</i> are likely to be found in the muddy sediments across much of the Onward Development Area, they are targeted by commercial fisheries, particularly in the south (see below).</p>
Commercial Fisheries	<p>The Onward Development Area falls predominantly within International Council for the Exploration of the Seas (ICES) Rectangles 44F0, 44F1, 44F2, 43F0, 43F1, 43F2, 42F0, 42F1, 42F2, 41F0, 41F1, and 41F2. Most of these ICES Rectangles were considered within the Commercial Fisheries Study Area for the Project. Fishing trends within the Onward Development Area have therefore been documented within EIAR Vol. 3, Chapter 14: Commercial Fisheries. In summary, fishing effort is low so far offshore, particularly close to the Norwegian boundary line. Based on VMS data, fishing effort within the Onward Development Area is highest immediately to the south and southwest of the Array Area in 42F0 and 42F1. The limited fishing that does take place in the Onward Development Area targets <i>Nephrops</i>. This southern extent of the Onward Development Area overlaps with a <i>Nephrops</i> Functional Unit 34 (Devils' Hole). Consequently, demersal trawls, in particular otter trawls, are the primary gear type used within the Onward Development Area.</p>

TOPIC	KEY BASELINE INFORMATION
<p>Shipping and Navigation</p>	<p>Much of the vessel traffic within the Array Area is associated with vessels transiting from Aberdeen to oil and gas assets. Given the nature of the Onward Development Connection, this is likely to remain the primary vessel activity in the Onward Development Area. The main commercial routes through the Array Area are shown in EIAR Vol. 3, Chapter 15: Shipping and Navigation. As described in Table 22-4, there are 20 main routes, largely associated with oil and gas infrastructure. It is important to note that, following Project installation, these routes will change to circumvent the new infrastructure. However, for the duration of the oil and gas asset lifespans, vessels will be required to transit to and from such assets so there will be a continued requirement for this traffic. Therefore, it is expected that the volume and type of vessel traffic within the Onward Development Area will not differ significantly from as that assessed for the Project Area.</p>
	<p>The broader characterisation of the Onward Development Area can be inferred from the Project Area (per Table 22-4). However, at present, description of archaeological features of interest, other than wrecks, within the Onward Development Area is sparse, owing to a lack of such comprehensive survey data.</p> <p>Paleolandscapes are likely to occur on much greater scales than the Project and Onward Development Connections will. As described in Table 22-4, these paleolandscapes relate closely to geological units. The underlying geology of the Onward Development Area is likely to be consistent with the Project Area. Therefore, it is assumed there is limited potential for archaeological and palaeoenvironmental remains.</p>
<p>Marine Archaeology</p>	<p>Wrecks are relatively well mapped across the UK Continental Shelf (UKCS). There appear to be no dangerous wrecks across the Onward Development Area but there are many non-dangerous wrecks and other obstructions, including areas of foul ground (NMPi, 2024). These wrecks and obstructions are not necessarily indicative of any areas of archaeological importance. There is one possible known area of (conventional) dumped munitions in the very south of the Onward Development Area close to the Norwegian border (European Atlas of the Seas, 2024). The Onward Development Area does not overlap with any historic munitions (i.e. mining) or armament training areas (Ordtek, 2024).</p> <p>Further archaeological interpretation of site-specific data will be required to support assessment conducted in advance of installation activity associated with the Onward Development Connection.</p>
<p>Infrastructure and Other Users</p>	<p>The Onward Development Area will cover a number of oil and gas licence blocks. The Onward Development Area includes numerous oil and gas surface infrastructure assets across a number of existing operational oil and gas fields. In particular, within the northernmost extent of the Onward Development Area, are six platform installations associated with the Forties field; these are located within 20 km of one another. The surface installations are all associated with many more pieces of subsurface infrastructure and pipelines. Dependent on the final</p>

TOPIC	KEY BASELINE INFORMATION
	<p>scope of the Onward Development Connection, multiple pipelines and cables are likely to be crossed by Onward Development Connections (exact numbers cannot be determined at this stage).</p> <p>The Campion windfarm will be located within 30 km of the Onward Development Area. The timeline for Campion is presently not known; Considering the UXO threat was 'low' within the Array Area, and the marine archaeology information described above, it is likely that UXO threat will remain 'low' within the Onward Development Area.</p>
Military and Civil Aviation	<p>Activities likely to occur as part of Onward Development Connections will be limited to activities at the seabed and associated vessel presence. The nature of these activities is such that there is no anticipated pathway to military and civil aviation receptors. The characterisation of these receptors, as presented in Table 22-4, applies to the Onward Development Connection.</p>
Socio-economics, Tourism and Recreation	<p>Socio-economics, tourism and recreation are all economic considerations which occur at a large scale, relative to the Project and the Onward Development Connection. Therefore, the characterisation of socio-economics, tourism, and recreation, as presented in Table 22-4, applies to Onward Development Connections as the closest UK coastline is that of Aberdeen City and Aberdeenshire.</p>

22.5 Effects and Mitigation Review

This section aims to detail the construction phase effects which were assessed as part of the Project throughout the EIAR. Assessed effects, and any associated mitigation measures, are presented in Table 22-6.

In Table 22-7, construction phase effects which are likely to require assessment in subsequent EIAR(s) as part of Onward Development Connections scope(s) are listed. Generic mitigation measures associated with each impact pathway are additionally provided therein. Please note, this is a preliminary screening of effects. The Applicant cannot dictate the future regulation of the Onward Development Connections which will be subject to stand-alone regulatory and permitting requirements.

Table 22-6 Effects and Mitigation Review – the Project

TOPIC	IMPACT ASSESSED	MITIGATION MEASURES
Marine Geology, Oceanography and Coastal Processes	<ul style="list-style-type: none"> • Potential changes to suspended sediment concentrations, bed levels and sediment type (pathway); • Potential modifications to sediment transport pathways (pathway); • Potential impacts to designated seabed interest features within protected sites (receptor); and • Potential changes to coastal/inshore seabed morphology (receptor). 	Please see EIAR Vol. 3, Chapter 8: Marine Geology, Oceanography and Coastal Processes for appropriate topic-specific mitigation measures.
Marine Water and Sediment Quality	<ul style="list-style-type: none"> • Potential changes to SSC (Array Area); • Potential changes to SSC (EICC); • Mobilisation of sediment contaminants (Array Area); • Mobilisation of sediment contaminants (EICC); and • Loss of drilling fluids and cutting into the sea from the subtidal exit of HDD undertaken beneath the littoral zone. 	Please see EIAR Vol. 3, Chapter 9: Marine Water and Sediment Quality for appropriate topic-specific mitigation measures.
Benthic Ecology	<ul style="list-style-type: none"> • Temporary impacts to the seabed and benthic habitats; • Long-term impacts to the seabed and benthic habitats; • Introduction of hard substrates in a predominantly sedimentary environment/increased predation; • Potential changes to suspended sediment concentrations; and • Introduction of INNS. 	Please see EIAR Vol. 3, Chapter 10: Benthic Ecology for appropriate topic-specific mitigation measures.
Marine Mammal Ecology	<ul style="list-style-type: none"> • Injury and disturbance from underwater noise generating activities; and • Changes to prey distribution. 	Please see EIAR Vol. 3, Chapter 11: Marine Mammal Ecology for appropriate topic-specific mitigation measures.
Ornithology	<ul style="list-style-type: none"> • Disturbance and / or displacement of ornithology receptors from vessels; • Disturbance and / or displacement of ornithology receptors during HDD ; and • Changes to prey availability. 	Please see EIAR Vol. 3, Chapter 12: Ornithology for appropriate topic-specific mitigation measures.
Fish and Shellfish Ecology	<ul style="list-style-type: none"> • Long-term impacts to the seabed and sensitive fish habitats (e.g. spawning and/or nursery habitats); • Temporary impacts to the seabed and sensitive fish habitats (e.g. spawning and/or nursery habitats); • Underwater noise and vibration; 	Please see EIAR Vol. 3, Chapter 13: Fish and Shellfish Ecology for

TOPIC	IMPACT ASSESSED	MITIGATION MEASURES
	<ul style="list-style-type: none"> • Potential changes to SSC; and • Basking shark collision with vessels. 	appropriate topic-specific mitigation measures.
Commercial Fisheries	<ul style="list-style-type: none"> • Temporary loss of or restricted access to fishing grounds; • Displacement of fishing effort to other areas; • Interference with fishing activity as a result of increased vessel traffic; • Increased steaming distances and times; • Increased risk of loss or damage to fishing gear (snagging risk); and • Changes to exploited fish and shellfish resources. 	Please see EIAR Vol. 3, Chapter 14: Commercial Fisheries for appropriate topic-specific mitigation measures.
Shipping and Navigation	<ul style="list-style-type: none"> • Displacement of vessels; • Collision risk (third-party to third-party); • Collision risk (project to third-party); • Allision risk; • Floating structure loses station; • Under keel clearance reduction; • Potential impacts to emergency response capability; and • Reduced access to local ports and harbours. 	Please see EIAR Vol. 3, Chapter 15: Shipping and Navigation for appropriate topic-specific mitigation measures.
Marine Archaeology	<ul style="list-style-type: none"> • Disturbance and / or damage to known wrecks and geophysical anomalies of high or medium archaeological potential; • Disturbance and / or damage to geophysical anomalies of low archaeological potential; • Disturbance and / or damage to magnetic anomalies; • Disturbance and / or damage to unknown wrecks or unidentified archaeological remains; and • Disturbance and / or damage to sub-seabed deposits of palaeoenvironmental potential 	Please see EIAR Vol. 3, Chapter 16: Marine Archaeology for appropriate topic-specific mitigation measures.
Infrastructure and Other Users	<ul style="list-style-type: none"> • Potential effects on existing oil and gas operations; • Potential effects on other offshore renewable energy developments; • Potential effects on subsea telecommunications and power infrastructure; • Potential effects on licenced dredge spoil disposal sites; • Potential effects of UXO clearance (if required); and • Potential sterilisation of areas for marine aggregates. 	Please see EIAR Vol. 3, Chapter 17: Infrastructure and Other Users for appropriate topic-specific mitigation measures.

TOPIC	IMPACT ASSESSED	MITIGATION MEASURES
Military and Civil Aviation	<ul style="list-style-type: none"> • Impact on military low flying and UK Search and Rescue (SAR) helicopter operations due to the presence of obstacles (WTGs in construction); • Impact on helicopter operations on HMRI due to the presence of obstacles (WTGs in construction); and • Impact on helicopter operations in the vicinity of oil and gas installations due to the presence of obstacles (WTGs in construction). 	Please see EIAR Vol. 3, Chapter 18: Military and Civil Aviation for appropriate topic-specific mitigation measures.
Socio-economics, Tourism and Recreation	<ul style="list-style-type: none"> • Project activities leading to an effect on employment; • Project activities leading to an effect on economic output (GVA); • Project activities leading to an effect on demand for housing; • Project activities leading to an effect on demand for education, healthcare, recreation resources, and other local services; • Project activities leading to an effect on recreation and tourism; • Project activities leading to an effect on marine commercial activity components located onshore; • Project activities leading to socio-cultural impacts; and • Project activities leading to distributional impacts. 	Please see EIAR Vol. 3, Chapter 19: Socio-economics, Tourism and Recreation for appropriate topic-specific mitigation measures.
Carbon and Greenhouse Gases	<ul style="list-style-type: none"> • Carbon and GHG assessment: Construction CO₂e emissions; and • Blue carbon assessment: Direct blue carbon habitat loss/disturbance. 	Please see EIAR Vol. 3, Chapter 20: Carbon and Greenhouse Gases for appropriate topic-specific mitigation measures.
Major Accidents and Disasters	<p>The Major Accidents and Disasters chapter follows a staged process – screening, scoping and assessment. The assessment stage involves identification of hazards followed by a risk assessment (considering likelihood and consequence). The hazards identified as requiring consideration within the assessment of Major Accidents and Disasters are:</p> <ul style="list-style-type: none"> • Major fires; • Third-party vessel or aviation collision and allision; • Project vessel or aviation collision or allision; • Third-party cable snagging; • UXO detonation; and • FTU breaking free. 	Please see EIAR Vol. 3, Chapter 21: Major Accidents and Disasters for appropriate topic-specific mitigation measures.

Table 22-7 Effects and Mitigation – Onward Development Connections

TOPIC	IMPACTS REVIEWED	MITIGATION MEASURES
Marine Geology, Oceanography and Coastal Processes	<ul style="list-style-type: none"> • Potential changes to suspended sediment concentrations, bed levels and sediment type (pathway); • Potential modifications to sediment transport pathways (pathway); and • Potential impacts to designated seabed interest features within protected sites (receptor). 	Please see the list below for a range of possible mitigation measures that may be deployed as part of the Onward Development Connections. These measures are considered to be in line with best practice and standard industry expectation.
Marine Water and Sediment Quality	<ul style="list-style-type: none"> • Potential changes to SSC; and • Mobilisation of sediment contaminants. 	Please see the list below for a range of possible mitigation measures that may be deployed as part of the Onward Development Connections. These measures are considered to be in line with best practice and standard industry expectation.
Benthic Ecology	<ul style="list-style-type: none"> • Temporary impacts to the seabed and benthic habitats; • Long-term impacts to the seabed and benthic habitats; • Introduction of hard substrates in a predominantly sedimentary environment/increased predation; • Potential changes to suspended sediment concentrations; and • Introduction of INNS. 	Please see the list below for a range of possible mitigation measures that may be deployed as part of the Onward Development Connections. These measures are considered to be in line with best practice and standard industry expectation.
Marine Mammal Ecology	<ul style="list-style-type: none"> • Injury and disturbance from underwater noise generating activities; and • Changes to prey distribution. 	Please see the list below for a range of possible mitigation measures that may be deployed as part of the Onward Development Connections. These measures are considered to be in line with best practice and standard industry expectation.
Ornithology	<ul style="list-style-type: none"> • Disturbance and / or displacement of ornithology receptors from vessels; • Disturbance and / or displacement of ornithology receptors during HDD; and 	Please see the list below for a range of possible mitigation measures that may be deployed as part of the Onward Development Connections. These measures are considered to be in line with best practice and standard industry expectation.

TOPIC	IMPACTS REVIEWED	MITIGATION MEASURES
Fish and Shellfish Ecology	<ul style="list-style-type: none"> • Changes to prey availability. • Long-term impacts to the seabed and sensitive fish habitats (e.g. spawning and/or nursery habitats); • Temporary impacts to the seabed and sensitive fish habitats (e.g. spawning and/or nursery habitats); • Underwater noise and vibration; • Potential changes to Suspended Sediment Concentrations (SSC); and • Basking shark collision with vessels. 	<p>Please see the list below for a range of possible mitigation measures that may be deployed as part of the Onward Development Connections. These measures are considered to be in line with best practice and standard industry expectation.</p>
Commercial Fisheries	<ul style="list-style-type: none"> • Temporary loss of or restricted access to fishing grounds; • Displacement of fishing effort to other areas; • Interference with fishing activity as a result of increased vessel traffic; • Increased steaming distances and times; • Increased risk of loss or damage to fishing gear (snagging risk); and • Changes to exploited fish and shellfish resources. 	<p>Please see the list below for a range of possible mitigation measures that may be deployed as part of the Onward Development Connections. These measures are considered to be in line with best practice and standard industry expectation.</p>
Shipping and Navigation	<ul style="list-style-type: none"> • Displacement of vessels; • Collision risk (third-party to third-party); • Collision risk (project to third-party); • Allision risk; • Under keel clearance reduction; • Potential impacts to emergency response capability; and • Reduced access to local ports and harbours. 	<p>Please see the list below for a range of possible mitigation measures that may be deployed as part of the Onward Development Connections. These measures are considered to be in line with best practice and standard industry expectation.</p>

TOPIC	IMPACTS REVIEWED	MITIGATION MEASURES
Marine Archaeology	<ul style="list-style-type: none"> • Disturbance and / or damage to known wreck and geophysical anomalies of high or medium archaeological potential; • Disturbance and / or damage to geophysical anomalies of low archaeological potential; • Disturbance and / or damage to magnetic anomalies; • Disturbance and / or damage to unknown wrecks or unidentified archaeological remains; and • Disturbance and / or damage to sub-seabed deposits of palaeoenvironmental potential. 	Please see the list below for a range of possible mitigation measures that may be deployed as part of the Onward Development Connections. These measures are considered to be in line with best practice and standard industry expectation.
Infrastructure and Other Users	<ul style="list-style-type: none"> • Potential effects on existing oil and gas operations; • Potential effects on other offshore renewable energy developments; • Potential effects on subsea telecommunications and power infrastructure; and • Discovery and/or disturbance of UXO. 	Please see the list below for a range of possible mitigation measures that may be deployed as part of the Onward Development Connections. These measures are considered to be in line with best practice and standard industry expectation.
Military and Civil Aviation	n/a (please see Table 22-9)	n/a
Socio-economics, Tourism and Recreation	n/a (please see Table 22-9)	n/a
Carbon and Greenhouse Gases	<ul style="list-style-type: none"> • Carbon and GHG assessment: Construction CO₂e emissions; and • Blue carbon assessment: Direct blue carbon habitat loss/disturbance. 	Please see the list below for a range of possible mitigation measures that may be deployed as part of the Onward Development Connections. These measures are considered to be in line with best practice and standard industry expectation.
Major Accidents and Disasters	n/a (please see Table 22-9)	n/a

A number of mitigation measures may be applicable to works constituting the Onward Development Connections. These may include, but are not limited to, the following mitigation measures, which are generally considered to be in line with best practice and standard industry expectation for cable projects:

- Environmental Management Plan including Marine Mammal Mitigation Protocol;
- Construction Method Statement;
- Cable Plan;
- Decommissioning Programme;
- Marine Pollution Contingency Plan;
- Use of Anti-fouling Systems;
- INNS Management Plan;
- Vessel Management Plan;
- Fisheries Management and Mitigation Strategy;
- Appointment of a Fisheries Liaison Officer;
- Promulgation of information, such as Notice to Mariners, Kingfisher notifications and other navigational warnings;
- Compliance from all project vessels with International Regulations for the Prevention of Collision at Sea and International Regulations for the Safety of Life at Sea;
- Procedure for accidental deposit of object(s) at sea;
- Charting of installed infrastructure;
- Compliance with Marine Guidance Note 654;
- Protocol for Archaeological Discoveries; and
- Written Scheme of Investigation.

22.6 Identification and Review of Potential Combined Effects

The area in which impact pathways have the potential to result in combined effects is limited to where there is an overlap between the 'Zone of Influence' of the Project and the 'Zone of Influence' defined for the Onward Development Connections. This approach is utilised in the screening of effects below. The Zone of Influence for each receptor assessed within the Project EIAR is detailed within each EIAR chapter. Zols have not yet been defined for Onward Development Connections and therefore professional judgement and the results from comparable projects have been used in this review.

Effects associated with the EICC extent and landfall are excluded from further review, as there is no potential for combined effects in these areas.

Once the Project and Onward Development Connections are fully operational, it is considered that there will be very limited potential for combined effects. Combined effects during the operational phase are expected to be limited to potential effects from Electromagnetic Fields (EMF) and heat generated by the cables, and vessel presence effects arising from maintenance and repair activities. EMF effects are extremely localised (see Section 13.6.2.3 of **EIAR Vol. 3, Chapter 13: Fish and Shellfish Ecology**) and therefore highly unlikely to result in any combined effect between the two schemes. Additionally, it is unlikely that maintenance and/or repair vessels for the Project will be required at the same time as that for the Onward Development Connection, therefore removing any temporal overlap. On this basis, combined effects during the operations and maintenance phase are screened out of further consideration within the review presented here.

The key potential environmental impacts associated with the Project and Onward Development Connections in this area of overlap are summarised in Table 22-8. These are based on the predicted high-level scope of Onward Development Connections. The potential effects in Table 22-8 have all been assessed in relation to the Project alone throughout the EIAR.

Table 22-8 Summary of Potential Combined Effects

TOPIC	POTENTIAL IMPACTS
Marine Geology, Oceanography and Coastal Processes	<ul style="list-style-type: none"> • Potential changes to suspended sediment concentrations, bed levels and sediment type (pathway); • Potential modifications to sediment transport pathways (pathway); • Potential to designated seabed interest features within protected sites (receptor); and • Potential changes to coastal/inshore seabed morphology (receptor).
Marine Water and Sediment Quality	<ul style="list-style-type: none"> • Potential changes to SSC; and • Mobilisation of sediment contaminants.
Benthic Ecology	<ul style="list-style-type: none"> • Temporary impacts to the seabed and benthic habitats; • Long-term impacts to the seabed and benthic habitats; • Introduction of hard substrates in a predominantly sedimentary environment/Increased predation; • Potential changes to SSC; and • Introduction of INNS.
Marine Mammal Ecology	<ul style="list-style-type: none"> • Injury and disturbance from underwater noise generating activities; and • Changes to prey distribution due to construction activities.
Ornithology	<ul style="list-style-type: none"> • Disturbance and / or displacement of ornithology receptors from vessels; • Disturbance and / or displacement of ornithology receptors during HDD; and • Changes to prey availability.
Fish and Shellfish Ecology	<ul style="list-style-type: none"> • Long-term impacts to the seabed and sensitive fish habitats (e.g. spawning and/or nursery habitats); • Temporary impacts to the seabed and sensitive fish habitats (e.g. spawning and/or nursery habitats); • Underwater noise and vibration; • Potential changes to SSC; and • Basking shark collision with vessels.
Commercial Fisheries	<ul style="list-style-type: none"> • Temporary loss of or restricted access to fishing grounds; • Displacement of fishing effort to other areas; • Interference with fishing activity as a result of increased vessel traffic; • Increased steaming distances and times; • Increased risk of loss or damage to fishing gear (snagging risk); and • Changes to exploited fish and shellfish resources.
Shipping and Navigation	<ul style="list-style-type: none"> • Displacement of vessels; • Collision risk (third-party to third-party); • Collision risk (scheme to third-party); • Allision risk; • Floating structure loses station;

TOPIC	POTENTIAL IMPACTS
	<ul style="list-style-type: none"> • Under keel clearance reduction; • Potential impacts to emergency response capability; and • Reduced access to local ports and harbours.
Marine Archaeology	<ul style="list-style-type: none"> • Disturbance and / or damage to known wrecks and geophysical anomalies of high or medium archaeological potential; • Disturbance and / or damage to geophysical anomalies of low archaeological potential; • Disturbance and / or damage to magnetic anomalies; • Disturbance and / or damage to unknown wrecks or unidentified archaeological remains; and • Disturbance and / or damage to sub-seabed deposits of paleoenvironmental potential.
Marine Infrastructure and Other Users	<ul style="list-style-type: none"> • Effects on existing oil and gas operations; • Effects on other offshore renewable energy developments; • Effects on subsea telecommunications and power infrastructure; • Effects on licenced dredge spoil disposal sites; • Discovery and/or disturbance of UXO; and • Potential sterilisation of areas for marine aggregates.
Military and Civil Aviation	<ul style="list-style-type: none"> • Impact on military low flying and UK Search and Rescue helicopter operations due to the presence of obstacles (WTGs in construction); • Impact on helicopter operations on HMRI due to the presence of obstacles (WTGs in construction); and • Impact on helicopter operations in the vicinity of oil and gas installations due to the presence of obstacles (WTGs in construction).
Socio-economics, Tourism and Recreation	<ul style="list-style-type: none"> • Effect on employment; • Effect on economic output; • Effect on demand for housing; • Effect on demand for education, healthcare, recreation resources, and other local services; • Effect on recreation and tourism; • Effect on marine commercial activity components located onshore; • Socio-cultural impacts; and • Distributional impacts.
Carbon and Greenhouse Gases	<ul style="list-style-type: none"> • CO_{2e} emissions; and • Direct blue carbon habitat loss/disturbance.
Major Accidents and Disasters	<ul style="list-style-type: none"> • Major fires; • Third-party vessels or aviation collision • Project vessel or aviation collision • Third-party cable snagging; • UXO detonation; and • FTU breaking free.

Each of the impact pathways above have been considered, inclusive of consideration of embedded mitigation (Section 22.5), to identify the predicted significance of effect. This process has been used to screen in and out impact



pathways to identify which have the potential to produce a 'combined effect' on receptors, from the Project and Onward Development Connection. The results of this screening exercise are presented in Table 22-9 below.

Table 22-9 Screening of impacts into review of potential Combined Effects

RECEPTOR TOPIC	PROJECT	ONWARD DEVELOPMENT CONNECTIONS	SCREENING SUMMARY
Marine Geology, Oceanography and Coastal Processes	✓	✓	Installation of the HVAC cables associated with Onward Development Connections have the potential to generate changes to SSC, bed levels and sediment type. There is also the potential for the Onward Development Connections to modify sediment transport pathways. These impact pathways are therefore screened into further review of combined effects.
			The impact on designated seabed interest features of the East of Gannet and Montrose Fields NCMFA is provided in Section 22.8 and is not considered further in this section.
			Given the location of the Onward Development Connections, the potential changes to coastal/inshore seabed morphology is screened out of further review.
Marine Water and Sediment Quality	✓	✓	Installation of the HVAC cables associated with Onward Development Connections have the potential to generate SSC and mobilise sediment contaminants. There is potentially a temporal overlap of the installation phases where a combined effect may occur, and therefore these impact pathways are screened into further review.
			Installation of Onward Development Connections has the potential to result in temporary and long-term impacts to the seabed and benthic habitats within the Zone of Influence, as well as increases in SSC. These pathways have been screened into further review of combined effects.
Benthic Ecology	✓	✓	As detailed in Section 22.3, it is anticipated that the Onward Development Connections will be buried where practicable. Where target burial depths cannot be reached, cable protection (e.g. rock) may be required. Therefore, there will be introduction of hard substrate to the seabed which has the potential for temporary and long-term impacts to the seabed. These impact pathways are therefore screened into further review.

RECEPTOR TOPIC	PROJECT	ONWARD DEVELOPMENT CONNECTIONS	SCREENING SUMMARY
			<p>The movement of vessels during installation have the potential to result in the introduction of INNS. Given the mitigation outlined in Section 22.5, the potential for the introduction of INNS is minimised. This impact pathway is therefore screened out of further review.</p>
<p>Marine Mammal Ecology</p>	<p>✓</p>	<p>✓</p>	<p>Injury and disturbance from underwater noise generating activities is related to piling activities and vessel presence, respectively. Injury from noise generated by vessels is not considered to be a potential pathway. No piling activities are expected to be required for the Onward Development Connections, therefore this impact pathway (injury from underwater noise) is screened out of further review for combined effects. However, disturbance from underwater noise (attributed to vessel presence) is screened in for further consideration.</p> <p>Installation of Onward Development Connections has the potential to disturb the seabed and cause increased sedimentation within the water column; this can restrict visibility and make it difficult for foraging prey species resulting in changes to their distribution. As detailed in Section 22.3, Onward Development Connections will be buried where practicable. Where target burial depths cannot be reached, cable protection (e.g. rock) may be required. Sediment suspended into the water column during installation of Onward Development Connections will be small in volume, highly localised and transient as the installation progresses. Given this will be a transient activity occurring along the length of the cable route, this is not likely to have any measurable impact on prey populations upon which marine mammals depend based on the limited spatial footprint of potential impact. Additionally, the highly mobile nature of all marine mammal species identified in the baseline (see Section 22.4) means that their foraging success is not likely to be affected by any localised impacts to their prey within the zone of influence. Therefore, the effects on marine mammals due to change of distribution to prey species is therefore screened out of further review for combined effects.</p>
<p>Ornithology</p>	<p>✓</p>	<p>✓</p>	<p>There is no potential for combined effect from HDD activities due to the intervening distance between the Project landfall (where HDD activities will occur) and the Onward Development Area. This impact pathway is therefore screened out of further review.</p> <p>The physical presence of vessels may result in disturbance and / or displacement of bird species however, the number of vessels required for Onward Development Connections will be limited in addition to those required for</p>

RECEPTOR TOPIC	PROJECT	ONWARD DEVELOPMENT CONNECTIONS	SCREENING SUMMARY
			<p>the Project, and it is not considered that this will constitute a significant increase, or result in the introduction of a significant combined effect. Any disturbance from installation or survey vessels, both in transit or in situ, will be of low magnitude and short duration and will represent negligible additional disturbance over the baseline of vessel movements from the Project. This impact pathway is therefore screened out of further review.</p> <p>There is the potential for the installation of the Onward Development Connections to result in a combined effect through changes to prey availability. This impact pathway is therefore screened in for further review.</p>
<p>Fish and Shellfish Ecology</p>	<p>✓</p>	<p>✓</p>	<p>Injury and disturbance from underwater noise generating activities is related to vessel presence and piling activities. No piling activities are anticipated to be required for the Onward Development Connection, and this impact pathway (injury from underwater noise) is therefore screened out of further review for combined effects. However, disturbance from underwater noise as a result of vessel presence is screened in for further review.</p> <p>The installation of the Onward Development Connections will introduce a limited number of vessels to the area, however this is considered highly unlikely to constitute a combined effect, regarding basking shark collision, with that of the Project. This impact pathway is therefore screened out of further review.</p> <p>Installation of Onward Development Connections has the potential to result in temporary impacts to the seabed and sensitive fish habitats, as well as increases in SSC. These pathways have been screened into further review of combined effects.</p>
<p>Commercial Fisheries</p>	<p>✓</p>	<p>✓</p>	<p>Installation of Onward Development Connections within the Zone of Influence has the potential to impact access to, or loss of, fishing grounds, and subsequently displacement of fishing effort, which may result in a combined effect when considered with the Project. There is the potential of a combined effect to arise from interference with fishing activity as a result of the vessels introduced, as well as increased steaming distances and times. Finally, changes to exploited fish and shellfish resources may occur as a result of Onward Development Connections installation, and therefore there is the potential for a combined effect. These pathways have been screened into further review of combined effects.</p>

RECEPTOR TOPIC	PROJECT	ONWARD DEVELOPMENT CONNECTIONS	SCREENING SUMMARY
			<p>Snagging of fishing gear only has the potential to occur during the operational phase (e.g. when cables are in situ). The Project alone assessment (EIA Vol. 3, Chapter 14: Commercial Fisheries) has concluded, for both passive gears and mobile gears, that this impact is extremely unlikely and tolerable, and not significant. Given the scale of the Onward Development Connections, and the statutory requirements and/or industry best practice measures that will be implemented to reduce the risk, this impact is screened out of further review.</p>
Shipping and Navigation	✓	✓	<p>Installation of Onward Development Connections will require vessels to be present within the Onward Development Area and the Zone of Influence. Increased vessel presence in this area has the potential to result in combined effects with the Project, through the following pathways: displacement of vessels, collision risk (both third-party to third-party, and project to third-party), and under keel clearance reduction. These pathways have been screened into further review of combined effects.</p> <p>The size and nature of the Onward Development Connections, and the limited anticipated footprint of the Zone of Influence, means it is unlikely that combined effects will arise through reduced access to local ports and harbours. Additionally, there are not anticipated to be any stationary objects on the sea surface associated with the Onward Development Connections, therefore there is no potential for a combined effect to arise through collision or if a floating structure were to lose its station. Considering the size and scale of the Onward Development Connections, it is not considered likely that emergency response capability will be impacted with the developments when considered cumulatively. These impacts have therefore been screened out of further review.</p>
Marine Archaeology	✓	✓	<p>The installation of the Onward Development Connections has the potential to result in combined effects for each impact pathway identified in Table 22-8. These pathways have been screened into further review of combined effects.</p>
Marine Infrastructure and Other Users	✓	✓	<p>Any third-party activities or pieces of infrastructure located within the Zone of Influence has the potential to be adversely impacted by the installation of the Onward Development Connection, and therefore has the potential to result in a combined effect when considered with the Project. Whilst these impacts will be temporary and short-term during the installation phase, these impact pathways are screened in for further review of combined effect.</p>

RECEPTOR TOPIC	PROJECT	ONWARD DEVELOPMENT CONNECTIONS	SCREENING SUMMARY
Military and Civil Aviation	✓	X	There is no potential pathway for Onward Development Connections to result in a combined effect with the pathways identified for the Project, due to the nature of Onward Development Connections being a subsea cable that has no above sea level element. These impact pathways are therefore screened out of further review.
Socio-economics, Tourism and Recreation	✓	X	The potential socio-economic impact of the installation phase of Onward Development Connections is related to limited numbers of installation vessels and relatively small numbers of supporting crew. It is considered that, based on the size and nature of the Onward Development Connection, there is no potential for a combined effect to occur with the Project. These impact pathways are therefore screened out of further review.
Carbon and Greenhouse Gases	✓	✓	<p>CO_{2e} from Onward Development Connections is associated with embodied carbon of cables and emissions from vessel emissions, which are not anticipated to give rise to significant combined effects when considered in combination with the Project. This impact pathway is therefore screened out of further review.</p> <p>Installation of Onward Development Connections has the potential to result in combined effects with the Project through blue carbon habitat loss/disturbance. These impact pathways are therefore screened into further review.</p>
Major Accidents and Disasters	✓	X	The installation phase of Onward Development Connections within the Zone of Influence is not anticipated to include activities that will give rise to a major accident or create circumstances to increase the potential for a disaster. Industry best practice will minimise and manage any potential safety risk associated with infrastructure, waste management and chemical risk (see Section 22.5). Therefore, it is considered there is no potential for a combined effect to occur with the Project, and these impact pathways are therefore screened out of further review.

22.7 Review of Potential Combined Effects

22.7.1 Marine Geology, Oceanography and Coastal Processes

As outlined in EIA Vol. 3, Chapter 8: Marine Geology, Oceanography and Coastal Processes, the two impacts screened in for review of combined effects are pathways rather than receptors. As such, it is not appropriate to carry out a review of significance which considers the magnitude of effect to a receptor and the sensitivity of that receptor. Instead, this section focuses on describing the spatial and temporal characteristics of potential sediment plumes, which are a 'pathway' connecting an impact source (i.e. construction activities) with potential receptors (such as designated benthic and seabed habitats).

22.7.1.1 Potential changes to SSC, bed levels and sediment type (pathway)

Installation of the HVAC cables associated with Onward Development Connections have the potential to disturb sediment which will then be released into the water column. This will give rise to suspended sediment plumes and localised changes in bed levels as material settles out of suspension. Based on the assessment provided in EIA Vol. 3, Chapter 8: Marine Geology, Oceanography and Coastal Processes, the 'worst-case' extent of SSC in the water column (based on distance from the source of disturbance) is between 500 m and the tidal excursion² buffer distance (approximately 4.5 km). However, within this zone, increased SSC will be limited to the duration of installation activities that interact with the seabed, with return to background concentrations occurring over approximately six to 24 hours from the cessation of activities. There is expected to be no measurable change from baseline SSC after 24 to 48 hours following cessation of activities. Furthermore, the SSC itself within this zone will be much lower than within the immediate vicinity of the disturbance (i.e. SSC rapidly decreases with distance from the source).

Based on the outlined baseline (Section 22.4), the receiving environment is not considered to be sensitive. With regards to the NCMPSA designated for seabed features, a separate review is provided in Section 22.8. The overall combined effect is therefore considered to be highly localised, and the combined effect would be not significant.

22.7.1.2 Potential modifications to sediment transport pathways (pathway)

Whilst cable burial will be the likely preferred approach to protection of the Onward Development Connections, where target burial depths cannot be reached, cable protection (e.g. rock) may be required. The installation of cable protection for the Onward Development Connections has the potential to result in a localised blockage of waves, tides and sediment transport. The use of cable protection is expected to be minimal (e.g. only where target burial depths cannot be reached). Any associated changes in sediment transport are therefore expected to be limited and almost entirely unchanged from the baseline.

Within the Array Area, rates of sediment transport are extremely low, due to the very weak tidal currents and deep water (see Section 22.4). Accordingly, the absolute volume of sediment which could potentially be blocked by the presence of any rock berms would be very small. It is noted here that the only sediment which could theoretically be intercepted by the presence of any rock berms is the muddy sand which is occasionally mobile. Any larger material (inc. the gravels which are occasionally present and which are an interest feature of the East of Gannet and Montrose

² The approximate distance over which water (or a section of plume with elevated SSC) is advected during one flood or ebb tide. It varies in proportion to the peak current speed on a given tide.

Fields NCMPA) are found to be immobile (EIAR Vol. 3, Marine Geology, Oceanography and Coastal Process) and will therefore be unaffected.

It is therefore considered the overall combined effect is considered to be no greater than that assessed for the Project, and the combined effect would be not significant.

22.7.2 Marine Water and Sediment Quality

22.7.2.1 Potential changes to SSC

Installation of the HVAC cables associated with Onward Development Connections have the potential to generate SSC and mobilise sediment contaminants; so there is the potential for coalescence of sediment plumes during the installation of Onward Development Connections and the Project.

Increased SSC will be limited to the duration of installation activities that interact with the seabed, with return to background concentrations occurring over approximately six to 24 hours from the cessation of activities based on known water column properties for the Array Area (as defined in EIAR Vol. 3, Chapter 9: Marine Water and Sediment Quality). As a worst-case, the sediment plume may extend up to 4 km from the point of disturbance. Should the plumes from the Project and Onward Development Connections coalesce, it is not anticipated that there would be an increase in SSC, instead flocculation would occur, with increased sedimentation, meaning the extents, suspended concentration magnitude and duration would be no greater than that modelled for the Project.

Based on the outlined baseline (Section 22.4), the receiving environment is not considered to be sensitive. With regards to the NCMPA designated for benthic features (e.g. ocean quahog), a separate review is provided in Section 22.8. The overall combined effect is therefore considered to be highly localised, low magnitude and the combined effect would be not significant.

22.7.2.2 Mobilisation of sediment contaminants

The sensitivity of the receiving environment (i.e. the sediment and water column within the Zone of Influence) is considered to be low (as identified for the Project), given there is no overlap with any designated waters.

There is considered to be little to no occurrence of contaminants within the Zone of Influence (Section 22.4). Sediment disturbance and the resultant dispersion will be of short duration and temporary, and dissolved contaminants will be rapidly diluted. Therefore, the overall combined effect is considered to be negligible and the combined effect would be not significant.

22.7.3 Benthic Ecology

22.7.3.1 Temporary impacts to the seabed and benthic habitats

There is the potential for the Project and Onward Development Connections to result in combined seabed and benthic habitat loss. This impact pathway relates to the direct disturbances associated with pre-construction and construction activities which are expected to be transient and short-term, leaving behind seabed which is relatively unchanged in its composition and enable biological recovery to occur following the temporary disturbance.

The temporary footprint of seabed and habitat loss that will arise as a result of Project Array Area is calculated as 6.73 km². The installation of Onward Development Connections would temporarily increase this footprint, including an area of temporary habitat loss within the East of Gannet and Montrose Fields NCMPA (designated for offshore deep-sea muds and ocean quahog aggregations). However, the proportion of the habitat temporarily affected by the combined effects will be relatively low compared to the wider occurrence of the habitat types present within the baseline environment, and it is considered that the wider ecological function of the habitats will remain intact. Additionally, there is expected to be a high recoverability following disturbance (EIA Vol. 3, Chapter 10: Benthic Ecology). Based on localised spatial and temporal disturbance compared to their highly widespread distribution, and low frequency of construction/installation events, any combined effects introduced by Onward Development Connections are unlikely to affect the long-term functioning of the wider habitat and associated biotopes.

For the Project alone, effects were concluded as minor for each habitat type assessed, and it is considered the overall combined effect is considered to be no greater than minor, and the combined effect would be not significant.

22.7.3.2 Long-term impacts to the seabed and benthic habitats

There will be localised permanent habitat loss associated with the installation of the Onward Development Connection. The long-term footprint of seabed and habitat loss that will arise as a result of Project Array Area is calculated as 1.57 km².

Whilst cable burial will be the preferred approach to protection of the Onward Development Connection, where target burial depths cannot be reached, cable protection (e.g. rock) may be required. The introduction of the hard substrata including supporting rock will essentially result in long-term loss of the habitats in the immediate vicinity with no possibility of future recovery. Rock placement would increase the footprint of long-term habitat loss, including potentially an area of habitat loss within the East of Gannet and Montrose Fields NCMPA. However, the proportion of the habitat lost as a result of the combined effects will be relatively low compared to the wider occurrence of the habitat types present within the baseline environment, and it is considered that the wider ecological function of the habitats will remain intact. For the Project alone, effects were concluded as minor for each habitat type assessed, and it is considered that the overall combined effect will be no greater than minor, and the combined effect would be not significant.

22.7.3.3 Introduction of hard substrates in a predominantly sedimentary environment/increased predation

The use of rock placement as cable protection when target burial depth cannot be achieved can provide hard substrate for colonisation by epilithic species. The introduction of hard infrastructure may alter previously soft sediment habitat areas which can attract new species with a preference for hard substrates. These species may colonise the installed structures, typically increasing the habitat complexity and biodiversity of the area.

Whilst cable burial is anticipated to be the preferred approach to protection of the Onward Development Connections, where target burial depths cannot be reached, cable protection (e.g. rock) may be required which will increase hard substrata along lengths of the cable route. As noted in Section 22.7.3.2 above, the long-term footprint of the Project Array Area is 1.57 km². The spatial extent of the habitats that will be affected from the installation of infrastructure and rock protection across the Project Area is small and would be increased by the rock required for the Onward Development Connections. However, a substantial change in the benthic community is not expected from the combined effects of the two schemes. The introduction of hard structures in a predominantly sedimentary environment will represent a minor shift away from the existing baseline conditions.

The assessment of the Project alone concluded a minor effect, which is not significant. The overall combined effect is considered to remain minor, and the combined effect would be not significant.

22.7.3.4 Potential changes to SSC

As concluded for Marine Water and Sediment Quality (summarised above in Section 22.7.2.1), the combined effect of SSC increases are considered to be not significant. Based on the extents, magnitude and duration of potential SSC plumes presented, the combined effect of changes to SSC on benthic receptors is therefore considered to be not significant.

22.7.4 Marine Mammals

22.7.4.1 Disturbance from underwater noise

If installation vessels for the Project and Onward Development Connections are present and operating, there may be a combined increase in underwater noise which has the potential for disturbance to marine mammals species.

As detailed within **EIAR Vol. 2, Chapter 5: Project Description**, it is anticipated that a maximum of 22 vessels will be operating consecutively within the Project Area at any one time. Whilst the construction timelines for Onward Development Connections and the Project are expected to fully align, it is unlikely the vessels will be operational simultaneously for extended periods of time. Additionally, it is anticipated that a large portion of construction vessels will be stationary or slow-moving for significant periods during the construction phase.

The underwater noise pressure levels associated with any Onward Development Connections survey(s) and construction vessels will primarily be non-impulsive, continuous and low frequency (i.e. below 1 kHz). Additionally, the marine mammals species identified within the baseline (harbour porpoise, grey and harbour seals) are classified as having low sensitivity to potential effects of underwater noise from construction vessels.

The embedded mitigation measures adopted for the Project (see Section 22.5) are expected to further reduce the potential for physiological and behavioural effects to marine mammals as a result of underwater noise from construction vessels. A number of these measures are industry best practice and therefore are expected to also be adopted for the Onward Development Connections, including:

- Development of an Environmental Management Plan (EMP) (**EIAR Vol. 4, Appendix 32: Environmental Management Plan**) in line with the protocols outlined in the Scottish Marine Wildlife Watching Code and Guide to Best Practice for Watching Marine Wildlife;
- All construction vessels will maintain a steady speed and direction while passing marine mammals in order to reduce the severity and magnitude of disturbance to marine mammals; and
- Development of and adherence to a Vessel Management Plan (VMP) which will outline indicative transit routes for construction vessels within the marine environment.

At worst, the combined effect of behavioural disturbance would be temporary, short-term and localised. The overall combined effect of underwater noise from construction and installation vessels is therefore considered to be low and the combined effect would be not significant.

22.7.5 Ornithology

22.7.5.1 Changes to prey availability

There is potential for the Project and Onward Development Connections to result in combined changes to prey availability, which may indirectly affect seabirds foraging within the Project and Onward Development Area.

Construction activities may affect seabird prey species through underwater noise (e.g. vessel noise, UXO clearance, piling) in addition to habitat change (seabed disturbance and suspended sediments). The potential combined effect for each of these impact pathways are concluded as minor for underwater noise on fish and shellfish receptors (Section 22.7.6.3) and negligible to minor for habitat change via seabed disturbance and suspended sediments (Section 22.7.3).

For the Project alone, effects were concluded as minor for each species group (1 – kittiwake, guillemot, puffin, and 2 – gannet). It is considered the overall combined effect will be no greater than minor, and the combined effect would be not significant.

22.7.6 Fish and Shellfish Ecology

22.7.6.1 Temporary impacts to the seabed and sensitive fish habitats (e.g. spawning and/or nursery habitats)

There is potential for the Project and Onward Development Connections to result in combined seabed effects and loss of sensitive fish habitats. The seabed disturbance could result in loss of deposited eggs or larvae and spawning habitat, displacement of fish that live in the sediment (e.g. sandeels) as well as loss of shellfish on (e.g. king scallop) or buried in (e.g. *Nephrops*) the seabed.

The temporary footprint of seabed and sensitive fish habitat loss that will arise as a result of Project Array Area is calculated as 6.73 km². The installation of Onward Development Connections would temporarily increase this footprint, including an area of temporary habitat loss within the East of Gannet and Montrose Fields NCMPA (as noted above in Section 22.7.3, the NCMPA is designated for offshore deep-sea muds and ocean quahog, and due to the high mud composition is potentially prime *Nephrops* habitat). However, the proportion of the seabed habitat temporarily affected by the combined effects will be relatively low compared to the wider occurrence of the habitat types present within the baseline environment, and it is considered that the wider ecological function of the habitats will remain intact. Based on localised spatial and temporal disturbance compared to their highly widespread distribution, and low frequency of construction/installation events, any combined effects introduced by Onward Development Connections are unlikely to affect the long-term functioning of the fish populations, as there is not predicted to be significant loss of spawning and nursery grounds.

For the Project alone, effects were concluded as negligible for each species group assessed, and it is considered the overall combined effect will be no greater than negligible, and the combined effect would be not significant.

22.7.6.2 Long-term impacts to the seabed and sensitive fish habitats (e.g. spawning and/or nursery habitats)

There is potential for long-term combined effects on spawning and nursery grounds as a result of the placement of Project and Onward Development Connections infrastructure. The presence of anchors, cables and associated

protection, will result in the loss of available habitat which may be currently utilised as spawning and nursery grounds by the fish species identified within the environmental baseline.

The long-term footprint of seabed and habitat loss that will arise as a result of Project Array Area is calculated as 1.57 km². Whilst cable burial will be the preferred approach to protection of the Onward Development Connection, cable protection (e.g. rock) may be required where target burial depths cannot be reached. The introduction of the hard substrata including supporting rock will essentially result in long-term loss of the habitats in the immediate vicinity with no possibility of future recovery. The installation of Onward Development Connections would increase the footprint of long-term seabed and habitat loss, including an area of long-term habitat loss within the East of Gannet and Montrose Fields NCMPA. Spawning and nursery grounds are extensive and extend widely beyond the Project Area and Onward Development Area. Therefore it is considered that the proportion of spawning and nursery ground on the seabed that may be affected by the Project and Onward Development Connections in combination is very small in relation to the available spawning and nursery grounds.

For the Project alone, effects were concluded as negligible for each species group assessed, and it is considered the overall combined effect will be no greater than negligible, and the combined effect would be not significant.

22.7.6.3 Disturbance from underwater noise

As outlined in Section 22.7.4.1, the combined effect of behavioural disturbance effects would be temporary, short-term, localised, and not significant.

The overall combined effect of underwater noise from construction and installation vessels is therefore considered to be minor, and the combined effect on fish and shellfish receptors would be not significant.

22.7.6.4 Potential changes to SSC

As for Marine Water and Sediment Quality above (see Section 22.7.2.1), the combined effect of SSC increases are considered to be not significant. Based on the extents, magnitude and duration of potential SSC plumes presented, the combined effect of changes to SSC on fish and shellfish receptors is therefore considered to be not significant.

22.7.7 Commercial Fisheries

22.7.7.1 Temporary loss of or restricted access to fishing grounds

If installation activities for the Project and Onward Development Connections occur simultaneously, there may be a combined effect of temporary loss of or restricted access to fishing grounds. As a worst-case, concurrent activity is assumed.

At the time of writing, it is acknowledged that the 'Fisheries management measures within Scottish Offshore Marine Protected Areas (MPAs)' (Marine Directorate, 2024) legislation is undergoing consultation and has not been formally published. The recommendations from the legislation would be to cease all mobile demersal fishing gear (including demersal trawls and dredges) activity within the East of Gannet and Montrose Fields NCMPA. This has the potential to reduce the magnitude of combined effect on fisheries operating demersal gears within the NCMPA. However, the assessment has been undertaken in consideration of the worst-case scenario, on the basis that existing fishing activity will continue within the NCMPA.

The Project will implement a statutory 500 m safety zone around proposed FTU and OSCPs locations, which will be implemented on a 'rolling' basis where construction work is ongoing and while Restricted in Ability to Manoeuvre vessels are present. As such, when construction is completed at one location, the 500 m statutory safety zone will be lifted and a subsequent 500 m statutory safety zone will be placed around the next construction location. It is expected that there will be a maximum of five safety zones at one time during Project construction. Where construction work is not ongoing, the safety zones will be reduced to 50 m around any completed structure prior to commissioning. The EICC will not have a statutory construction safety zone; however, heavy maintenance Project vessels for the Export/Import Cable will have a 500 m advisory safety zone around them while undertaking construction works. By adopting this approach, the area occupied by statutory safety zones will increase and decrease across the Project and Onward Development Area over the construction phase, owing to the transient nature of construction activities. It is anticipated that, as implementation of safety zones are industry best practice, these will also be adopted for the Onward Development Connections

These measures will minimise the loss of and restricted access to fishing grounds across the construction phase.

The Project alone assessment considered the effect on demersal trawlers, pelagic trawlers, scallop dredgers, passive gear and non-UK vessels, and has concluded a minor effect and not significant impact for all instances (following implementation of secondary mitigation for passive gear). Even if all installation activities associated with Onward Development Connections were to occur concurrently with those of the Project, the effect on fishing grounds would remain minor and as such the potential combined effect is considered to be not significant.

22.7.7.2 Displacement of fishing effort to other areas

The temporary loss of access to fishing grounds has the potential to displace fishing activity from within the area where construction/installation is occurring, to alternative areas. Displacement of fishing activity can result in competition for both space and resources both within a fleet (e.g. if passive gears are displaced to an area which is already utilised by passive gears) or between fleets (e.g. if passive gears are displaced into an area utilised by mobile gears). This will primarily affect vessels with limited operational ranges, such as vessels deploying static gear. Therefore, there is potential for conflict and/or competition resulting from displaced vessels.

The Project alone assessment has considered the effect on demersal trawlers, pelagic trawlers, scallop dredgers, passive gear and non-UK vessels, and has concluded a negligible to minor effect, and not significant impact for all instances (following implementation of secondary mitigation for passive gear).

The combined effect will be temporary in nature, and intermittent as, whilst the construction timelines for Onward Development Connections and the Project are expected to fully align, it is unlikely the vessels – and thus the safety zones – will be operational simultaneously for an extended period of time. In between occurrences, the loss of access to fishing grounds and displacement will be minimal in spatial extent.

Even if all installation activities associated with prospective Onward Development Connections were to occur concurrently with those of the Project, the effect on displacement to fishing effort is expected to remain as minor and as such the potential combined effect is considered to be not significant.

22.7.7.3 Increased steaming distances and times

The physical presence of vessels, and safety zones around vessels and partially construction infrastructure, has the potential to result in the temporary loss of or restricted access to fishing grounds and the displacement of fishing

vessels from the area into adjacent waters. These potential effects consequently have the potential to result in fishing vessels having to adopt alternative transit routes, therefore resulting in a potential increase to steaming times and distances to and from fishing grounds. The combined effect for temporary loss of or restricted access to fishing grounds and the displacement of fishing vessels are both considered to be minor and not significant, and therefore it is not considered likely that these pathways would result in a subsequent increase to steaming distances and times. Additionally, the introduction of installation vessels for Onward Development Connections is not considered to represent a significant increase of vessels. The combined effect of increased steaming distances and times on commercial fishing receptors is therefore considered to be not significant.

22.7.7.4 Interference with fishing activity as a result of increased vessel traffic

The physical presence of installation and construction vessels during construction throughout the Project Area and Onward Development Area has the potential to result in a combined effect on interference with fishing activity. As noted above in Section 22.7.7.3, the introduction installation vessels for Onward Development Connections is not considered to represent a significant increase of vessels. The combined effect of increased vessel traffic interfering with fish activity is therefore considered to be not significant.

22.7.7.5 Changes to exploited fish and shellfish resources

During the construction phase of the Project and Onward Development Connection, there is the potential for works associated to result in potential combined effects to fish and shellfish stocks within the marine environment. Potential effects may result from temporary and long-term effects to the seabed and sensitive fish habitats (summarised in Section 22.7.6.1 and 22.7.6.2 respectively), underwater noise (in Section 22.7.6.3) and potential changes to SSC (in Section 22.7.6.4). Combined effects for the above impact pathways were concluded as not significant in EIA terms.

Potential combined effects to commercial fish and shellfish species are considered to occur over a highly localised spatial extent. Overall, the potential combined effect of changes to exploited fish and shellfish resources is assessed as being of negligible, and is therefore considered to be not significant.

22.7.8 Shipping and Navigation

22.7.8.1 Displacement of vessels

The presence of Project and Onward Development Connections installation vessels have the potential to displace transiting third-party vessels from their routes. The assessment of the Project alone has concluded a negligible effect which is deemed tolerable, and not significant. The addition of vessels from Onward Development Connections is not considered to be a significant increase from the existing volume of traffic within the Onward Development Area and from the vessels required for the installation and construction of the Project. The combined effect is therefore considered to remain as negligible, and as such the potential combined effect is considered to be not significant.

22.7.8.2 Collision risk

There is the potential for a combined effect on collision risk (both third-party to third-party, and project to third-party) as a result of Project and Onward Development Connections construction/installation vessels operating and causing route displacement (detailed in Section 22.7.8.1 above). For the Project alone, collision risk for both pathways was assessed as extremely unlikely, tolerable and not significant.

The addition of vessels from Onward Development Connections is not considered to be a significant increase from the existing volume of traffic within the Onward Development Area and from the vessels required for the installation and construction of the Project. Therefore, it is not considered likely that Onward Development Connections vessels will increase the likelihood of collision risk. The combined effect is therefore considered to remain as negligible, and as such the potential combined effect is considered to be not significant.

22.7.8.3 Under keel clearance reduction

The presence of protection over subsea cables may reduce charted water depths leading to increased risk of grounding for passing vessels. For the Project alone, under keel clearance reduction was assessed as extremely unlikely, tolerable and not significant.

Whilst cable burial will be the preferred approach to protection of the Onward Development Connection, cable protection (e.g. rock) may be required where target burial depths cannot be reached. The requirements of Marine Guidance Note (MGN) 654 in relation to cable protection will apply to the Onward Development Connection, namely cable protection will not reduce the charted water depth by more than 5% unless agreed with the Maritime and Coastguard Agency (MCA). This aligns with the RYA's recommendation that the "minimum safe under keel clearance over submerged structures and associated infrastructure should be determined in accordance with the methodology set out in MGN 543 [since superseded by MGN 654]" (RYA, 2019). This will ensure any effect from reductions in water depth on under keel clearance are managed. In general, the higher risk areas are coastal waters where existing water depths are shallower rather than in the Offshore Waters of the Onward Development Area. Based on the above, it is considered the overall combined effect is considered to be no greater than that assessed for the Project alone, and the combined effect would be not significant.

22.7.9 Marine Archaeology

Given the similar nature of the impact pathways screened in, these are considered collectively. For the Project alone, impacts were concluded as negligible to minor for all impact pathways, which is considered not significant.

Installation of the Onward Development Connections will involve contact with the seabed, which may lead to direct physical effects (disturbance and / or damage) to assets (including wrecks and geophysical anomalies, magnetic anomalies, unknown wrecks or unidentified archaeological remains, and sub-seabed deposits). Various embedded mitigation measures have been committed to by the Project to reduce effects to the identified receptors, including:

- Implementation of and adherence to Archaeological Exclusion Zones (AEZs) or Temporary Archaeological Exclusion Zones (TAEZs) around identified known or potential Marine Archaeology receptors;
- Archaeological input into specifications for and archaeological analysis of any further pre-construction surveys, including (but not limited to) UXO, Remotely Operated Vehicle, diver, geophysical and geotechnical surveys;
- Implementation of a protocol for recording finds of archaeological interest, following the guidance for the Protocol for Archaeological Discovery (PAD);
- Operational awareness of the location of geophysical / magnetic anomalies identified as having a low archaeological potential. Reporting through the PAD will be undertaken should material of potential archaeological interest be encountered;
- Archaeologists to be consulted in the preparation of site preparation activities or other pre-construction operations and, if appropriate, to carry out archaeological monitoring of such work;

- Implementation of and adherence to a Marine Archaeological Written Scheme of Investigation (WSI) and PAD.

These measures are statutory requirements and/or industry best practice and therefore it is expected that the developers of Onward Development Connections will adopt a similar approach.

Considering the industry best-practice mitigation measures employed by the Project (and subsequently the Onward Development Connections) to minimise effects from the Project-alone, it is considered that combined effects would remain as negligible to minor, and as such the potential combined effect is considered to be not significant.

22.7.10 Marine Infrastructure and Other Users

Potential combined effects on marine infrastructure and other user groups have been approached collectively, including consideration of; existing oil and gas operations, other offshore renewable energy developments, subsea telecommunications and power infrastructure, licence dredge and disposal sites, discovery and/or disturbance of UXO, and sterilisation of areas for marine aggregates.

For the Project alone, effects were concluded as negligible to minor for the above receptors, which is considered not significant.

As noted above in Section 22.7.7.3, the introduction of installation vessels for Onward Development Connections is not considered to represent a significant increase of vessels. Therefore, there is very little potential for a combined effect on the identified receptors to occur, as a result of increases to vessel traffic. Additionally, as detailed in Section 22.7.7.1, safety zones will increase and decrease across the Project and Onward Development Area over the construction phase, owing to the transient nature of construction activities, thereby minimising temporary disruption.

Various embedded mitigation measures have been committed to by the Project to reduce potential disruption or damage to third-party activities, including distribution of NtMs prior to construction and ongoing consultation between the Applicant and the relevant operators, and implementation of crossing and proximity agreements. These measures are statutory requirements and/or industry best practice and therefore it is expected that the developers of Onward Development Connections will adopt a similar approach.

Considering the limited addition of vessels introduced by the Onward Development Connection, and the industry best-practice mitigation measures employed by the Project to minimise effects from the Project-alone, it is considered that combined effects would remain as negligible to minor, and as such the potential combined effect is considered to be not significant.

22.7.11 Carbon and Greenhouse Gases

Installation of Onward Development Connections has the potential to result in a combined effect on blue carbon habitat loss/disturbance, when considered cumulatively with the Project.

The blue carbon assessment has assessed the potential for the Project to result in disturbance or loss of blue carbon stores, including in blue carbon habitats and marine sediments. The overall effect on blue carbon from the Project is assessed as minor and not significant. It is assumed that, similar to the Array Area, the Onward Development area



contains surficial sediment layers of relatively low carbon density, and no extensive brittlestar beds and or *F. foliacea*, indicating that the blue carbon contribution of these features in the Onward Development Area is minimal. It is considered the overall combined effect is considered to be no greater than that assessed for the Project alone, and the combined effect would be not significant.

22.7.12 Summary

Table 22-10 below summarises the conclusions of the combined effects review against that assessed for the Project alone, for the impact pathways screened in (Table 22-9).

Table 22-10 Summary of Combined Effects Review

EIA TOPIC	IMPACT	RELEVANT PROJECT EMBEDDED MITIGATION MEASURES	SIGNIFICANCE [PROJECT ALONE]	ONWARD CONNECTION EMBEDDED MITIGATION MEASURES	POTENTIAL COMBINED EFFECT	SIGNIFICANCE [COMBINED]	JUSTIFICATION
Marine Geology, Oceanography and Coastal Processes	Potential changes to SSC, bed levels and sediment type (pathway)	Table 22-6.	N/A [Potential pathway of effect for other topics]	Table 22-7.	Higher SSC levels and greater changes to bed levels and sediment type.	Not significant.	Highly localised, low magnitude.
	Potential modifications to sediment transport pathways (pathway)		N/A [Potential pathway of effect for other topics]		Additional modifications to sediment transport pathways.	Not significant.	Highly localised, low magnitude.
Marine Water and Sediment Quality	Potential changes to SSC.		Minor and not significant.	Please see Table 22-7.	Higher SSC levels.	Not significant.	Highly localised, low magnitude.
	Mobilisation of sediment contaminants.	Table 22-6.	Negligible and not significant.	Please see Table 22-7.	Greater levels of sediment contaminants mobilised.	Not significant.	Short duration and temporary

EIA TOPIC	IMPACT	RELEVANT PROJECT EMBEDDED MITIGATION MEASURES	SIGNIFICANCE [PROJECT ALONE]	ONWARD CONNECTION EMBEDDED MITIGATION MEASURES	POTENTIAL COMBINED EFFECT	SIGNIFICANCE [COMBINED]	JUSTIFICATION
Benthic Ecology	Temporary impacts to the seabed and benthic habitats.		Minor and not significant.		Greater temporary effect to seabed and benthic habitats.	Not significant.	Spatially localised, short-term, and low frequency.
	Long-term impacts to the seabed and benthic habitats.		Minor and not significant.		Greater long-term effect to seabed and benthic habitats.	Not significant.	Spatially localised, long-term.
	Introduction of hard substrates in a predominantly sedimentary environment/increased predation.	Table 22-6.	Minor and not significant.	Table 22-7.	Higher extent of hard substrates introduced.	Not significant.	Spatially localised, long-term.
	Potential changes to SSC.		Minor and not significant.		Higher SSC levels.	Not significant.	Highly localised, low magnitude.
Marine Mammal Ecology	Disturbance from underwater noise.	Table 22-6.	Negligible and not significant.	Table 22-7.	Higher level of underwater noise.	Not significant.	Temporary, short-term and localised
Ornithology	Changes to prey availability	Table 22-6.	Minor and not significant.	Table 22-7.	Greater changes to prey availability.	Not significant.	Temporary, short-term and localised
Fish and Shellfish Ecology	Temporary impacts to the seabed and sensitive fish habitats	Table 22-6.	Negligible and not significant.	Table 22-7.	Greater temporary effect to seabed and sensitive fish habitats.	Not significant.	Spatially localised, short-term, and low frequency.

EIA TOPIC	IMPACT	RELEVANT PROJECT EMBEDDED MITIGATION MEASURES	SIGNIFICANCE [PROJECT ALONE]	ONWARD CONNECTION EMBEDDED MITIGATION MEASURES	POTENTIAL COMBINED EFFECT	SIGNIFICANCE [COMBINED]	JUSTIFICATION
	(e.g. spawning and/or nursery habitats).						
	Long-term impacts to the seabed and sensitive fish habitats (e.g. spawning and/or nursery habitats).		Negligible and not significant.		Greater long-term effect to seabed and sensitive fish habitats.	Not significant.	Spatially localised, long-term.
	Disturbance from underwater noise.		Minor and not significant.		Higher level of underwater noise.	Not significant.	Temporary, short-term, localised.
	Potential changes to SSC.		Minor not significant.		Higher SSC levels.	Not significant.	Highly localised, low magnitude.
Commercial Fisheries	Temporary loss of or restricted access to fishing grounds.		Minor, and not significant.		Greater loss of fishing grounds, and/or more restricted access.		
	Displacement of fishing effort to other areas.	Table 22-6.	Minor, and not significant.	Table 22-7.	Higher extent of displacement.	Not significant.	Spatially localised, intermittent, short-term.
	Increased steaming distances and times.		Minor, and not significant.		Further increases to steaming distances and times.	Not significant.	Highly unlikely, short-term.

EIA TOPIC	IMPACT	RELEVANT PROJECT EMBEDDED MITIGATION MEASURES	SIGNIFICANCE [PROJECT ALONE]	ONWARD CONNECTION EMBEDDED MITIGATION MEASURES	POTENTIAL COMBINED EFFECT	SIGNIFICANCE [COMBINED]	JUSTIFICATION
	Interference with fishing activity as a result of increased vessel traffic.		Minor, and not significant.		Greater interference with fishing activity.	Not significant.	Spatially localised, intermittent, short-term.
	Changes to exploited fish and shellfish resources.		Negligible, and not significant.		Greater effect to fish and shellfish resources.	Not significant.	Spatially localised, intermittent, short-term.
Shipping and Navigation	Displacement of vessels.		Negligible, tolerable and not significant.		Higher extent of vessel displacement.	Not significant.	Spatially localised, intermittent, short-term.
	Collision risk.	Table 22-6.	Extremely unlikely, tolerable and not significant.	Table 22-7.	Greater risk of collision.	Not significant.	Spatially localised, intermittent, short-term.
	Under keel clearance reduction.		Extremely unlikely, tolerable and not significant.		Greater risk of under keel clearance being reduced.	Not significant.	Highly unlikely, and spatially localised.
Marine Archaeology	Disturbance and / or damage to known wrecks and geophysical anomalies of high or medium archaeological potential.	Table 22-6.	Negligible, not significant.	Table 22-7.	Greater risk of disturbance and / or damage to known wrecks, geophysical anomalies.	Not significant.	Sufficient statutory requirements and/or industry best practice measures in place to ensure impact is avoided or minimised.

EIA TOPIC	IMPACT	RELEVANT PROJECT EMBEDDED MITIGATION MEASURES	SIGNIFICANCE [PROJECT ALONE]	ONWARD CONNECTION EMBEDDED MITIGATION MEASURES	POTENTIAL COMBINED EFFECT	SIGNIFICANCE [COMBINED]	JUSTIFICATION
	Disturbance and / or damage to geophysical anomalies of low archaeological potential.		Minor, not significant.		Greater risk of disturbance and / or damage to geophysical anomalies.	Not significant.	Sufficient statutory requirements and/or industry best practice measures in place to ensure impact is avoided or minimised.
	Disturbance and / or damage to magnetic anomalies.		Minor, not significant.		Greater risk of disturbance and / or damage to magnetic anomalies.	Not significant.	Sufficient statutory requirements and/or industry best practice measures in place to ensure impact is avoided or minimised.
	Disturbance and / or damage to unknown wrecks or unidentified archaeological remains.		Negligible, not significant.		Greater risk of disturbance and / or damage to unknown wrecks or unidentified archaeological remains.	Not significant.	Sufficient statutory requirements and/or industry best practice measures in place to ensure impact is avoided or minimised.
	Disturbance and / or damage to sub-seabed deposits of paleoenvironmental potential.		Negligible, not significant.		Greater risk of disturbance and / or damage to sub-seabed deposits.	Not significant.	Sufficient statutory requirements and/or industry best practice measures in place to ensure impact is avoided or minimised.

EIA TOPIC	IMPACT	RELEVANT PROJECT EMBEDDED MITIGATION MEASURES	SIGNIFICANCE [PROJECT ALONE]	ONWARD CONNECTION EMBEDDED MITIGATION MEASURES	POTENTIAL COMBINED EFFECT	SIGNIFICANCE [COMBINED]	JUSTIFICATION
Marine Infrastructure and Other Users	Effects on existing oil and gas operations.	Table 22-6.	Minor, and not significant.	Table 22-7.	Greater adverse effect on operations.	Not significant.	Temporary, highly localised and unlikely.
	Effects on other offshore renewable energy developments.		Minor, and not significant.		Greater adverse effect on operations.	Not significant.	Temporary, highly localised and unlikely.
	Effects on subsea telecommunications and power infrastructure.		Minor, and not significant.		Greater adverse effect on operations.	Not significant.	Temporary, highly localised and unlikely.
	Effects on licenced dredge spoil disposal sites.		Negligible, and not significant.		Greater adverse effect on operations.	Not significant.	Highly localised, short-term duration, occurring at a very low intensity.
	Discovery and/or disturbance of UXO.		Negligible, and not significant.		Greater potential for discovery and/or disturbance.	Not significant.	Low risk, minimal disruption, and highly localised
	Potential sterilisation of areas for marine aggregates.		Negligible, and not significant.		Greater potential for sterilisation.	Not significant.	Long-term, but highly unlikely.
Military and Civil Aviation	All impact pathways screened out of combined effects review. There is no potential for Onward Development Connections to result in a combined effect with the pathways identified for the Project. Therefore, impact significance remains as assessed for the Project alone.						

EIA TOPIC	IMPACT	RELEVANT PROJECT EMBEDDED MITIGATION MEASURES	SIGNIFICANCE [PROJECT ALONE]	ONWARD CONNECTION EMBEDDED MITIGATION MEASURES	POTENTIAL COMBINED EFFECT	SIGNIFICANCE [COMBINED]	JUSTIFICATION
Socio-economics, Tourism and Recreation	All impact pathways screened out of combined effects review. There is no potential for Onward Development Connections to result in a combined effect with the pathways identified for the Project. Therefore, impact significance remains as assessed for the Project alone.						
Carbon and Greenhouse Gases	Direct blue carbon habitat loss/disturbance.	Table 22-6.	Minor, and not significant.	Table 22-7.	Greater loss/disturbance of blue carbon habitat.	Not significant.	Long-term, but spatially localised.
Major Accidents and Disasters	All impact pathways screened out of combined effects review. There is no potential for Onward Development Connections to result in a combined effect with the pathways identified for the Project. Therefore, impact significance remains as assessed for the Project alone.						

22.8 MPA Review: East of Gannet and Montrose Fields

22.8.1 Introduction

This is an initial review of potential combined effects resulting from the construction of the Project and the Onward Development Connections which may have the potential to hinder achievement of the conservation objectives of the designated features of the NCMPA. This review is based on the available information at the time of submission of this EIAR.

The Applicant cannot dictate the future regulation of the Onward Development Connections which will be subject to stand-alone regulatory and permitting requirements. Notwithstanding, it is expected that future applications will carry out full environmental assessments (as required), including assessment of potential impacts on the NCMPA, in support of any Onward Development Connections.

Whilst Fulmar Marine Conservation Zone (MCZ) and the Norwegian Boundary Sediment Plan NCMPA are both located within the Onward Development Area (Figure 22-1), it is not considered that there is any potential for combined effect on these sites due to the intervening distance between the sites and the area within which combined effects might occur. Additionally, consultation with stakeholders (Table 22-2) has not raised concerns with potential combined effects on these sites. Fulmar MCZ and the Norwegian Boundary Sediment Plan NCMPA are therefore not considered further within this review.

22.8.2 Baseline Characterisation

The Array Area and part of the EICC overlap directly with the East of Gannet and Montrose Fields NCMPA in the central North Sea as illustrated in Figure 22-1. The East of Gannet and Montrose Fields NCMPA is designated for the protection of 'Offshore deep-sea muds', aggregations of the long lived bivalve ocean quahog and their supporting 'Offshore subtidal sands and gravels' habitat.

The East of Gannet and Montrose Fields NCMPA lies within a relatively shallow sediment plain (ranging from approximately 83 m to 102 m water depth) and comprises sedimentary habitats covering a total area of 1,839 km² (JNCC, 2024a). Of this area, the NCMPA is broadly comprised of approximately 900 km² (~49% of the total area) of 'Offshore deep-sea muds' which are situated in the eastern and southern portion of the site and approximately 939 km² (~51% of the total area) of sand and gravel habitat which broadly occupies the western and northern portion of the site (McCabe *et al.*, 2020).

Table 22-11 summarises the characteristics of the designated features, including commentary on their distribution, sensitivity and condition. Figure 22-2 illustrates the distribution of 'Offshore deep-sea muds', 'Offshore subtidal sands and gravels' and ocean quahog in the Onward Development Area, and the East of Gannet and Montrose Fields NCMPA.

Table 22-11 Characterisation of designated features of the East of Gannet and Montrose Fields NCMPA

FEATURE	CHARACTERISATION
<p>Offshore deep-sea muds</p>	<p>‘Offshore deep-sea muds’ habitats are one of the most common deep-water habitats in the UK. They are rich in biological diversity, and are an important long-term carbon sink. These habitats are primarily inhabited by infaunal polychaetes, echinoderms (such as brittlestars, sea urchins, and sea cucumbers), seapens, and burrowing megafauna like the commercially important Norway lobster. Species like sea spiders, molluscs, crustaceans, and fish also inhabit the seabed.</p> <p>‘Offshore deep-sea muds’ habitat has been determined to support the OSPAR threatened and declining ‘Seapens and burrowing megafaunal communities’ which are recorded within the NCMPA. Project specific survey results across 51 transects identified burrows in 44 locations (EIAR Vol. 4, Appendix 11: Environmental Baseline Report – OWF), with large burrows classified from “Occasional” to “Common” and small burrows ranging from “Rare” to “Frequent.” The observed densities, especially for large burrows, indicate alignment with OSPAR’s protected habitat definitions and Scotland’s Priority Marine Features (PMFs) for “Burrowed mud.”</p>
<p>Ocean quahog aggregations (including subtidal sands and gravels as their supporting habitat)</p>	<p>Ocean quahog is listed as both a threatened species on the OSPAR List of Threatened and/or Declining Species and Habitats and is a Scottish PMF. Ocean quahog supports marine ecosystems by serving as prey for higher trophic levels, including demersal fish and invertebrates, and provides regulatory functions through filter-feeding, removing detritus and plankton from the water. Its lifespan of up to 500 years makes it valuable for studying long-term environmental and climate changes as well as pollutant exposure. Ocean quahogs also contribute to carbonate deposition through shell growth.</p> <p>Site specific surveys (EIAR Vol. 4, Appendix 11: Environmental Baseline Report – OWF) recorded no adult ocean quahogs in the Array Area, aligning with previous findings by JNCC (McCabe <i>et al.</i>, 2020) and JNCC (2024a) which showed the species more commonly aggregated in the western East of Gannet and Montrose Fields NCMPA, where sands and gravel habitats predominate over circalittoral muds.</p> <p>While juveniles may be present in the Array Area, there was no strong evidence that the Array Area supports the presence of large aggregations. The greater prominence of adult specimens from records in the western portion of the NCMPA correlates with predicted sands and gravels habitat which are interpreted to be more representative of the suitable habitat for this species. This aligns with the conservation objectives of the site (JNCC, 2024a).</p> <p>‘Offshore subtidal sands and gravels’ are also a UK Biodiversity Action Plan (BAP) habitat and a Scottish PMF. ‘Offshore subtidal sands and gravels’ are one of the most common habitats in the UK offshore marine environment and is widespread in Scottish offshore waters (Tyler-Walters and Sabatini, 2017). This habitat hosts various species of polychaetes, crustaceans, and fish that depend on it for breeding, feeding, and shelter. Additionally, it supports significant fish and shellfish fisheries, provide important ecosystem services, and acts as a carbon sink. Within the East of Gannet and Montrose Fields NCMPA, these ‘Offshore subtidal sands and gravels’ habitats are primarily found in the western and northern areas, outside the Array Area but intersected by the EICC.</p>

22.8.2.1 Conservation objectives

The conservation objectives for the East of Gannet and Montrose Fields NCMPA (JNCC, 2024a) are that the designated features:

- So far as already in favourable condition, remain in such condition; and
- So far as not already in favourable condition, be brought into such condition, and remain in such condition.

The East of Gannet and Montrose Fields NCMPA has been designated for the protection of ‘Offshore deep-sea muds’ and ocean quahog aggregations (including offshore subtidal sands and gravels as their supporting habitat) (JNCC, 2024a). The spatial extent of each of the designated features as well as the conservation objectives for each of the attributes in each feature (i.e. extent/distribution, structure/function, and supporting processes) are shown in Table 22-12.

Table 22-12 Conservation objectives for the East of Gannet and Montrose Fields NCMPA

DESIGNATED FEATURE	SPATIAL EXTENT (km ²)	CONSERVATION OBJECTIVES
Offshore deep-sea muds	900 (approximately 49% of the total size of the NCMPA)	<ul style="list-style-type: none"> • Attribute: Extent and distribution Conservation objective: Recover (JNCC, 2024a); • Attribute: Structure and function Conservation objective: Recover (JNCC, 2024a); and • Attribute: Supporting processes Conservation objective: Conserve (JNCC, 2024a)
Ocean quahog aggregations (including offshore subtidal sands and gravels as their supporting habitat)	939 (approximately 51% of the total size of the NCMPA)	<ul style="list-style-type: none"> • Attribute: Extent and distribution Conservation objective: Recover (JNCC, 2024a); • Attribute: Structure and function Conservation objective: Recover (JNCC, 2024a); and • Attribute: Supporting processes Conservation objective: Recover (JNCC, 2024a)

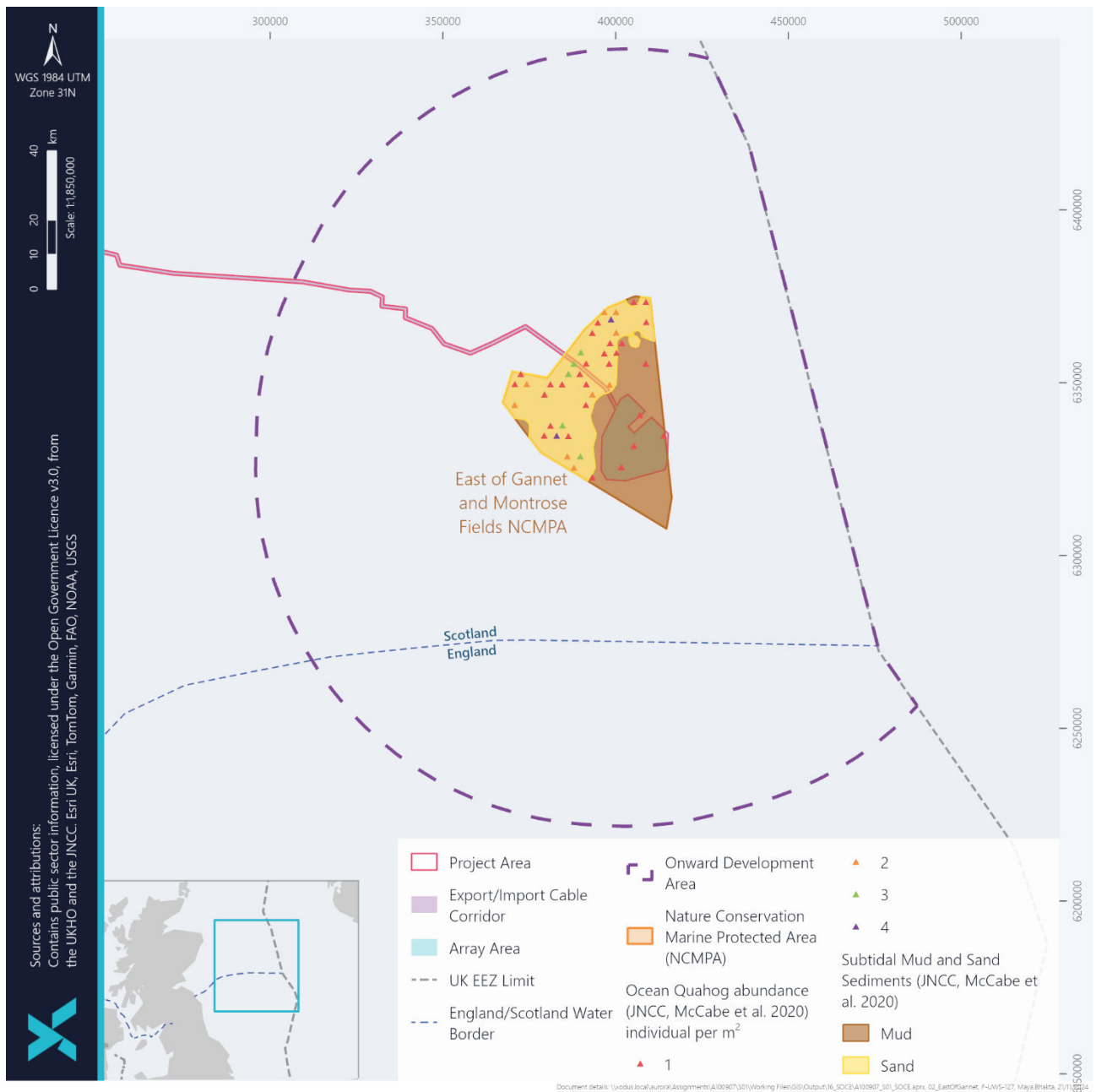


Figure 22-2 Distribution of 'Offshore deep-sea muds', 'Offshore subtidal sands and gravels' and ocean quahog in the Onward Development Area, and the East of Gannet and Montrose Fields NCMPA

22.8.3 MPA Review of the Project Alone

Table 22-13 below summarises the conclusions of the Project alone MPA Assessment for the East of Gannet and Montrose Fields NCMPA (see MPA Assessment, submitted alongside this EIAR).

Table 22-13 Summary of Project Alone MPA Assessment - East of Gannet and Montrose Fields NCMPA

DESIGNATED FEATURE	IMPACTS ASSESSED – CONSTRUCTION	ASSESSMENT CONCLUSION
Offshore deep-sea mud	Temporary impacts to the seabed and benthic habitats	Potential effects resulting from temporary disturbance would not have the potential to hinder (other than insignificantly) achievement of the conservation objectives for 'Offshore deep-sea muds'.
	Long-term impacts to the seabed and benthic habitats ³	Potential effects arising from long-term seabed habitat impacts would not have the potential to hinder (other than insignificantly) achievement of the conservation objectives for 'Offshore deep-sea muds'.
	Potential changes to SSC and deposition	Potential effects of sediment suspension and deposition would not have the potential to hinder (other than insignificantly) achievement of the conservation objectives for 'Offshore deep-sea muds'.
	Introduction of INNS	Potential effects resulting from the introduction of INNS during construction will not have the potential to hinder (other than insignificantly) achievement of the conservation objectives for 'Offshore deep-sea muds'.
	Mobilisation of sediment contaminants	Potential effects due to sediment contamination will not have the potential to hinder (other than insignificantly) achievement of the conservation objectives for 'Offshore deep-sea muds'.
	Removal of hard structures during decommissioning resulting in loss of colonised surfaces	Potential effects due to removal of hard structures will not have the potential to hinder (other than insignificantly) achievement of the conservation objectives for 'Offshore deep-sea muds'.
Ocean quahog aggregations (including their supporting offshore subtidal)	Temporary impacts to the seabed and benthic habitats	Potential effects of the temporary disturbance during construction will not have the potential to hinder (other than insignificantly) achievement of the conservation objectives for ocean quahog aggregations (including offshore subtidal sands and gravels as their supporting habitat).

³ While this impact is applicable for both construction and operation and maintenance, in the interest of not duplicating text, the impact is considered under construction and the conclusion of this assessment is also applicable to operation and maintenance.

DESIGNATED FEATURE	IMPACTS ASSESSED – CONSTRUCTION	ASSESSMENT CONCLUSION
sands and gravels habitat)	Long-term impacts to the seabed and benthic habitats ⁴	Potential effects arising from long-term seabed habitat impacts will not have the potential to hinder (other than insignificantly) achievement of the conservation objectives for ocean quahog aggregations (including offshore subtidal sands and gravels as their supporting habitat).
	Potential changes to SSC and deposition	Potential effects of sediment suspension and deposition will not have the potential to hinder (other than insignificantly) achievement of the conservation objectives for ocean quahog aggregations (including offshore subtidal sands and gravels as their supporting habitat).
	Introduction of INNS	Potential effects resulting from the introduction of INNS during construction will not have the potential to hinder (other than insignificantly) achievement of the conservation objectives for ocean quahog aggregations (including offshore subtidal sands and gravels as their supporting habitat).
	Mobilisation of sediment contaminants	Potential effects due to sediment contamination will not have the potential to hinder (other than insignificantly) achievement of the conservation objectives for ocean quahog aggregations (including offshore subtidal sands and gravels as their supporting habitat).
	Removal of hard structures during decommissioning resulting in loss of colonised surfaces	Potential effects due to removal of hard structures will not have the potential to hinder (other than insignificantly) achievement of the conservation objectives for ocean quahog aggregations (including offshore subtidal sands and gravels as their supporting habitat).

⁴ While this impact is applicable for both construction and operation and maintenance, in the interest of not duplicating text, the impact is considered under construction and the conclusion of this assessment is also applicable to operation and maintenance.

22.8.4 Potential Combined Effects on the East of Gannet and Montrose Fields NCMPA

The Onward Development Connections may comprise up to a maximum of ten 66 kV cables (Section 22.3).

There will be temporary disturbance associated with seabed clearance activities, which will be required prior to cable installation. This will be localised to the disturbance width of the cable corridor. As stated in Section 22.3, it is expected that the Onward Development Connections cables will be buried, where practicable. Where target burial depth cannot be achieved, it is assumed cable protection will be placed on the seabed. Rock protection will also be required at the base of the OSCP's within the Array Area, on the approach to each oil and gas asset (all of which are located outside the NCMPA boundary), and at cable/pipeline crossings. As the cable routes have not yet been determined, it is not possible to identify the number of cable/pipeline crossings required.

Table 22-14 presents a review of combined effects resulting from the construction of the Project and the Onward Development Connections to identify whether there is potential to hinder achievement of the conservation objectives of the designated features of the NCMPA. Importantly, this includes a justification of whether the potential combined effects arising from the installation of the Onward Development Connections has the potential to change the conclusions of the MPA Assessment from the Project alone.

As stated in Section 22.3, once the Project and Onward Development Connections are fully operational, it is considered that there will be very limited potential for combined effects. On this basis, combined effects during the operations and maintenance phase are screened out of further consideration within the review presented here and only impacts during the construction phase are considered.

Impact pathways within the decommissioning phase have also been screened out. The impacts during the decommissioning phase are considered analogous with, or likely less than, those of the construction phase. Therefore, the decommissioning pathway of 'Removal of hard structures during decommissioning resulting in loss of colonised surfaces' has also been screened out.

Table 22-14 East of Gannet and Montrose Fields - Potential combined effects NCMPA review

IMPACT PATHWAY	DESIGNATED FEATURE	PROJECT ALONE SIGNIFICANCE	POTENTIAL COMBINED EFFECTS CONCLUSION AND JUSTIFICATION
<p>Temporary impacts to the seabed and benthic habitats</p>	<p>Offshore deep-sea mud</p>	<p>Potential effects resulting from temporary disturbance during construction would not have the potential to hinder (other than insignificantly) achievement of the conservation objectives for 'Offshore deep-sea muds'.</p>	<p>There will be temporary disturbance to the offshore deep-sea mud habitat from Onward Development Connections seabed preparation and clearance activities, which may result in mortality of species present within the immediate disturbance footprint. Some recovery can be expected. Direct temporary disturbances will be short-term and limited in extent. There may be some physical scarring of the seabed by the activities which, due to the weak currents and low energy present at the site, may take many years to return to pre-construction conditions. However, as the existing habitats will remain present, the disturbance will be temporary and biological recovery is expected, particularly given the relatively low proportion of the offshore deep-sea mud habitat affected compared with the existing unaffected surrounding habitat. Therefore, it is considered that the wider ecological function of the 'Offshore deep-sea muds' habitat will remain intact across the East of Gannet and Montrose Fields NCMPA.</p> <p>Overall, it is concluded that potential combined effects resulting from temporary disturbance during construction would not have the potential to hinder (other than insignificantly) achievement of the conservation objectives for 'Offshore deep-sea muds', and conclusions will remain as stated for the Project alone.</p>
	<p>Ocean quahog aggregations (including their supporting offshore subtidal sands and gravels habitat)</p>	<p>Potential effects of the temporary disturbance during construction would not have the potential to hinder (other than insignificantly) the conservation objectives for ocean quahog aggregations (including their supporting offshore subtidal sands and gravels habitat).</p>	<p>Temporary disturbance from seabed preparation and clearance activities, and cable installation within the NCMPA will have the potential to cause direct impacts including mortality of ocean quahog individuals in the immediate vicinity of the activities and will incur a temporary disturbance to the supporting 'Offshore subtidal sands and gravels' and muddy habitats.</p> <p>The designated sands and gravels habitat covers 939 km², which may be affected by installation of the Onward Development Connections. The area of supporting habitat for ocean quahog aggregations temporarily affected by the Onward Development Connections activities is very small relative to the existing extent of the both the primary habitat sands and gravels as well as the supporting mud habitats. There will be direct disturbance during construction causing potential mortality to any ocean quahog specimens in the immediate disturbance footprint. However, the supporting sediment habitats will remain, which can become resettled. These direct temporary disturbances will be short-term and limited in extent. It is expected that a relatively low proportion of the supporting habitat will be affected compared with the existing unaffected surrounding habitat. It is important to note, that site-specific surveys recorded no adult ocean quahog within the Array Area (EIAR Vol. 4, Appendix 11: Environmental Baseline Report – OWF). While future survey efforts in support of Onward Development Connections would need to consider this further, the likelihood of ocean quahog aggregations being affected by Onward Development Connections activities in combination with the Project is low. Considering the relatively low density of ocean quahog presence, the retention of the integrity of the supporting habitats present, there is limited potential for the temporary disturbance to affect ocean quahog aggregations at a population level.</p> <p>Overall, it is concluded that potential combined effects of the temporary disturbance during construction would not have the potential to hinder (other than insignificantly) achievement of the conservation objectives for ocean quahog aggregations (including offshore subtidal sands and gravels as their supporting habitat), and conclusions will remain as stated for the Project alone.</p>
<p>Long-term impacts to the seabed and benthic habitats</p>	<p>Offshore deep-sea mud</p>	<p>Potential effects arising from long-term seabed habitat impacts would not have the potential to hinder (other than insignificantly) achievement of the conservation objectives for 'Offshore deep-sea muds'.</p>	<p>The introduction of the hard substrata such as rock protection (where required) from Onward Development Connections will result in long-term loss of the deep-sea muds habitat in the immediate vicinity with no possibility of future recovery. These muddy habitats will essentially be lost. The sensitivity of the habitat 'Deep-sea muds' to 'Physical change (to another seabed type)' and 'surface abrasion' is high (FeAST, 2024). The spatial extent of offshore deep-sea muds in this NCMPA is approximately 900 km². Where target burial depths cannot be achieved, rock placement will be required for the installation of Onward Development Connections which would increase the footprint of long-term habitat loss. However, the proportion of the habitat lost as a result of the combined effects will be relatively low compared to the wider occurrence of the habitat types present within the baseline environment, and it is considered that the wider ecological function of the habitats will remain intact.</p> <p>Given the relatively small size of the long-term footprint and that the majority of the existing deep-sea mud habitat will not be lost in the long-term its structure, composition and ecosystem function with regards to other receptors such as fish, and marine mammals will remain intact. Overall, it is concluded</p>

IMPACT PATHWAY	DESIGNATED FEATURE	PROJECT ALONE SIGNIFICANCE	POTENTIAL COMBINED EFFECTS CONCLUSION AND JUSTIFICATION
	Ocean quahog aggregations (including their supporting offshore subtidal sands and gravels habitat)	Potential effects arising from long-term seabed habitat impacts would not have the potential to hinder (other than insignificantly the conservation objectives for ocean quahog aggregations (including their supporting offshore subtidal sands and gravels habitat).	<p>that potential combined effects resulting from long-term impacts during construction would not have the potential to hinder (other than insignificantly) achievement of the conservation objectives for 'Offshore deep-sea muds', and conclusions will remain as stated for the Project alone.</p> <p>The long-term loss of sediment substrata through the installation of hard structures will incur direct mortality to any ocean quahog individuals present as well as remove any possibility of recovery within the footprint of the activities. Ocean quahog is fully reliant on the availability of sediment substrata for it to survive and has a high sensitivity to 'Physical change (to another seabed type)' (Tyler-Walters and Sabatini, 2017, FeAST, 2024). the spatial extent of the supporting offshore sands and gravels in the NCMPA is approximately 939 km². The proportion of the habitat lost as a result of the combined effects will be relatively low compared to the wider occurrence of the habitat types present within the baseline environment, and it is considered that the wider ecological function of the habitats will remain intact. The long-term loss is not predicted to significantly reduce the quality or quantity of the existing ocean quahog habitat or negatively affect the sites ability to maintain a thriving ocean quahog populations.</p> <p>Overall, it is concluded that potential effects of the direct long-term habitat loss would not have the potential to hinder (other than insignificantly) achievement of the conservation objectives for ocean quahog aggregations (including offshore subtidal sands and gravels as their supporting habitat), and conclusions will remain as stated for the Project alone.</p>
Potential changes to SSC and deposition	Offshore deep-sea mud	Potential effects of sediment suspension and deposition would not have the potential to hinder (other than insignificantly) achievement of the conservation objectives for 'Offshore deep-sea muds'.	<p>Suspension feeding benthic fauna within the deep-sea habitat are most vulnerable to SSC as feeding apparatus can become clogged. Long-term impacts such as reduced growth and change in abundance are not expected, considering the short-term nature of the Onward Development Connections installation activities. Burrowing megafauna are not likely to be affected adversely, based on the expected levels of deposition that would be produced by the Onward Development Connections installation activities.</p> <p>The extent of the deposition will be localised limited to the areas along the cable routes, and any impact would be temporary in nature as the suspended sediment resettles. Sediment resuspension and deposition will mobilise limited material that is expected to present a light smothering event along the cable routes. The majority of temporary disturbance will occur across the deep-sea mud habitat, which has a wider footprint of approximately 900 km², therefore the area affected would be a relatively low proportion of the wider habitat. Sediment that is redeposited will be similar in composition to the existing sediment profiles present across the affected areas. Therefore, areas affected by deposition will continue to retain the biological function and characteristic benthic communities.</p> <p>Overall, it is concluded that potential combined effects of sediment suspension and deposition would not have the potential to hinder (other than insignificantly) achievement of the conservation objectives for 'Offshore deep-sea muds', and conclusions will remain as stated for the Project alone.</p>
	Ocean quahog aggregations (including their supporting offshore subtidal sands and gravels habitat)	Potential effects of sediment suspension and deposition would not have the potential to hinder (other than insignificant the conservation objectives for ocean quahog aggregations (including their supporting offshore subtidal sands and gravels habitat).	<p>The ocean quahog is a low-mobility species and a filter feeder which has the potential to be affected by suspended sediments and associated sediment deposition. However, it has been recorded in field conditions that the species can bury through sediments to reach the sediment surface and therefore has a natural resilience to burial pressure (Tyler-Walters and Sabatini, 2017).</p> <p>The temporary impacts will be localised and limited to the duration of the construction activities. High recoverability is expected following disturbance. The increased suspended sediment concentration and associated deposition is likely to present some non-lethal, temporary effects to any affected ocean quahog aggregations such as energetic costs to bury up to the surface.</p> <p>Considering that the quality and quantity of the supporting habitat will remain unaffected, it is concluded that potential combined effects due to changes in suspended sediments and deposition would not have the potential to hinder (other than insignificantly) achievement of the conservation objectives for ocean quahog aggregations (including offshore subtidal sands and gravels as their supporting habitat), and conclusions will remain as stated for the Project alone.</p>
Introduction of INNS	Offshore deep-sea mud	Potential effects resulting from the introduction of INNS during construction would not have the potential to hinder (other	JNCC advice for offshore deep-sea muds is that it is sensitive to INNS (JNCC, 2024b). Any introduction of INNS by installation of the Onward Development Connections could affect the long-term functioning of habitat and associated biotopes and therefore it is acknowledged that there is a potential risk from non-native species.

IMPACT PATHWAY	DESIGNATED FEATURE	PROJECT ALONE SIGNIFICANCE	POTENTIAL COMBINED EFFECTS CONCLUSION AND JUSTIFICATION
		<p>than insignificantly) achievement of the conservation objectives for 'Offshore deep-sea muds'.</p>	<p>Nonetheless, based on the localised workings of the Onward Development Connections vessels within the installation corridor, the temporary nature of the activities, and the embedded mitigation for INNS impacts (see Section 22.5) it is concluded that potential combined effects resulting from the introduction of INNS during construction would not have the potential to hinder (other than insignificantly) achievement of the conservation objectives for 'Offshore deep-sea muds', and conclusions will remain as stated for the Project alone.</p>
	Ocean quahog aggregations (including their supporting offshore subtidal sands and gravels habitat)	<p>Potential effects resulting from the introduction of INNS during construction would not have the potential to hinder (other than insignificant the conservation objectives for ocean quahog aggregations (including their supporting offshore subtidal sands and gravels habitat).</p>	<p>JNCC advice for ocean quahog is that the species is sensitive to INNS (JNCC, 2024b). Therefore, it is acknowledged that there is a potential risk from non-native species.</p> <p>Nonetheless, based on the localised workings of the Onward Development Connections vessels within the installation corridor, the temporary nature of the activities, and the embedded mitigation for INNS impacts (see Section 22.5) it is concluded that potential combined effects resulting from the introduction of INNS during construction would not have the potential to hinder (other than insignificantly) achievement of the conservation objectives for ocean quahog aggregations (including offshore subtidal sands and gravels as their supporting habitat), and conclusions will remain as stated for the Project alone.</p>
Mobilisation of sediment contaminants	Offshore deep-sea mud	<p>Potential effects due to sediment contamination would not have the potential to hinder (other than insignificantly) achievement of the conservation objectives for 'Offshore deep-sea muds'.</p>	<p>There is the potential that existing sediment contamination could be released via sediment disturbance and spread through the Onward Development Connections construction activities, potentially having an impact on the conservation features of the NCMPA.</p> <p>As noted in Table 22-4, within the Array Area, there is a low occurrence of contaminants above Cefas AF1, ISQG/TEL and Dutch RIVM guidelines guidance thresholds (see EIAR Vol. 3, Chapter 9: Marine Water and Sediment Quality). The expected low disturbance volume, the temporary nature of the sediment dispersion impacts associated with the cable installation, and short-duration of increased SSC expected with the cable installation, all reduce the potential for the wider dispersion of any disturbed contaminants. This, coupled with the highly dispersive nature of the environment, ensures that associated impacts are low across the NCMPA.</p>
	Ocean quahog aggregations (including their supporting offshore subtidal sands and gravels habitat)	<p>Potential effects due to sediment contamination would not have the potential to hinder (other than insignificant the conservation objectives for ocean quahog aggregations (including their supporting offshore subtidal sands and gravels habitat).</p>	<p>Based on the low level of contamination in the Array Area within the NCMPA, it is concluded that potential combined effects due to sediment contamination would not have the potential to hinder (other than insignificantly) achievement of the conservation objectives for 'Offshore deep-sea muds' or ocean quahog aggregations (including offshore subtidal sands and gravels as their supporting habitat), and conclusions will remain as stated for the Project alone.</p>

22.8.5 Conclusion

Available information available about the Onward Development Connections is limited and cannot be confirmed by the Applicant. In accordance with standard practice and relevant industry guidance, the level of information available means there is insufficient detail to enable inclusion within a typical cumulative effects assessment. However, recognising industry feedback and a keen interest in this topic from stakeholders, the Applicant has provided a qualitative, high-level review of the combined effects of the Project and potential Onward Development Connections.

The review presented in Table 22-14 did not identify a likely potential for combined effects produced by the Project combined with the installation of the Onward Development Connections. Similarly, it is considered that the Project combined with the installation of the Onward Development Connections will not alter the conclusions of the MPA Assessment conducted for the Project alone in relation to the East of Gannet and Montrose Fields NCMFA.

22.9 Summary, Conclusions and Next-Steps

As demonstrated via Table 22-10, the conclusions of significance of the Project alone impact assessment on the receiving environment is likely to be unchanged when considering the potential combined effects introduced by the installation of the Onward Development Connections.

Onward Development Connections will be consented separately, with Marine Licences for these cables applied for by individual assets owners. Any forthcoming EIA developed to support the Marine Licence Applications (MLA) for Onward Development Connections will consider the Project within the respective cumulative assessments, in line with the relevant EIA Regulations. With regards to interactions with the East of Gannet and Montrose Fields NCMFA, a high-level review is presented in Section 22.8. It is concluded that based on the level of information currently available, no likely potential for combined effects will result from the installation of the Onward Development Connections. It is considered that the installation of the Onward Development Connections will not alter the conclusions of the MPA Assessment conducted for the Project alone.

The Applicant cannot dictate the future regulation of the Onward Development Connections which will be subject to stand-alone regulatory and permitting requirements. Notwithstanding, it is expected that future applications will carry out environmental assessments (as required) in support of any Onward Development Connections. Subsequent environmental assessments will incorporate development-specific and site-specific information that will become available as definition of Onward Development Connections progresses.

22.10 References

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