XLINKS MOROCCO-UK POWER PROJECT

Preliminary Environmental Information Report

Volume 3, Chapter 5: Shipping and Navigation

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Glossary

Term	Meaning
AIS	A system by which vessels transmit data concerning their position, Mobile Maritime Service Identity (MMSI) etc., on two individual Very High Frequency (VHF) channels to the shore and other vessels, at very frequent intervals. The data is transmitted automatically via VHF to other vessels and coastal stations/authorities. The carriage of AIS is required on board all vessels of greater than 300 Gross Tonnage (GT) engaged on international voyages, cargo vessels of more than 500 GT not engaged on international voyages, passenger vessels irrespective of size built on or after 1 July 2002. UK and EU fishing vessels over 15 m LOA are also required to carry AIS. It is noted that other vessels may carry AIS on a voluntary basis (such as recreational vessels).
Baseline	The status of the environment without the Proposed Development in place.
Environmental Impact Assessment (EIA)	The process of identifying and assessing the significant effects likely to arise from a project. This requires consideration of the likely changes to the environment, where these arise as a consequence of a project, through comparison with the existing and projected future baseline conditions.
Deadweight Tonnage	A measure of the total weight a vessel can carry including cargo, crew, passengers, fuel, ballast water and supplies.
Demersal Fishing	Methods of fishing which target species which are found on or close to the seabed. Examples of demersal fishing gear include certain types of dredgers, trawlers and seiners.
Flag State Regulations	The Flag State of a vessel is the state in which that is registered, and will have a number of rules and regulations that vessels registered under their flag are required to follow.
Mean High Water Springs	The height of mean high water during spring tides in a year.
National Policy Statement(s)	The current national policy statements published by the Department for Energy Security and Net Zero in 2023.
Navigational Risk Assessment	A technical appendix identifying the shipping and navigation baseline environment and risks, assessing the risks to safe navigation and outlining possible mitigation measures to reduce these risks.
Navigational Telex	Navigational Telex is an automated medium frequency direct-printing service for the delivery of navigational and meteorological warnings, forecasts, and marine safety information to vessels.
Notice to Mariners	Notices to Mariners are issued to advise mariners of matters affecting navigational safety. These notices may include information such as hydrographic information, changes to aids to navigation or changes to navigation channels. Notices to Mariners may also advise of ongoing works which may affect passage planning.
Policy	A set of decisions by governments and other political actors to influence, change, or frame a problem or issue that has been recognized as in the political realm by policy makers and/or the wider public.
Preliminary Environmental Information Report	A report that provides preliminary environmental information in accordance with the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017. This is information that enables consultees to understand the likely significant environmental effects of a project, and which helps to inform consultation responses.
Proposed Development	The element of the Xlinks Morocco-UK Power Project within the UK, which includes the offshore cables (from the UK Exclusive Economic Zone to landfall), landfall site, onshore Direct Current and Alternating Current cables, converter

Term	Meaning
	stations, road upgrade works and, based on current assumptions, the Alverdiscott Substation Connection Development.
Study area	This is an area which is defined for each environmental topic which includes the Proposed Development Draft Order Limits as well as potential spatial and temporal considerations of the impacts on relevant receptors. The study area for each topic is intended to cover the area within which an impact can be reasonably expected.
Traffic Separation Scheme	A routeing measure aimed at the separation of opposing streams of traffic by appropriate means and by the establishment of traffic lanes. Within each lane, one-way traffic is established, with crossing vessels required to cross the traffic lanes at as close to a 90 degree angle as possible.
Unique vessels per day	Vessels are only counted once per day in order to avoid over-counting of vessels due to exiting and re-entering the study area or broken AIS tracks
Vessel Management Plan	A Vessel Management Plan provides details of the operations of marine vessels required for all phases of the Proposed Development. The types, numbers and indicative routes of vessels are presented. The plan forms part of the overall Construction Environmental Management Plan.
Xlinks Morocco- UK Power Project (the 'Project')	The overall scheme from Morocco to the national grid, including all onshore and offshore elements of the transmission network and the generation site in Morocco (referred to as the 'Project').

Acronyms

Acronym	Meaning
AIS	Automatic Identification System
ALARP	As Low As Reasonably Practicable
AtoN	Aids to Navigation
CBRA	Cable Burial Risk Assessment
CD	Chart Datum
CEA	Cumulative Effects Assessment
CEMP	Construction Environmental Management Plan
CLV	Cable Lay Vessel
COLREGs	International Regulations for Preventing Collisions at Sea
DfT	The Department for Transport
DWT	Deadweight Tonnage
EEZ	Exclusive Economic Zone
EIA	Environmental Impact Assessment
EMF	Electromagnetic Field
ES	Environmental Statement
EU	European Union
FOC	Fiber Optic Cable
FLO	Fisheries Liaison Officer
FSA	Formal Safety Assessment
GIS	Geographical Information System
GT	Gross Tonnage

Acronym	Meaning
HDD	Horizontal Directional Drilling
HMCG	His Majesty's Coastguard
HVDC	High Voltage Direct Current
IMO	International Maritime Organization
ITZ	Inshore Traffic Zone
JRCC	Joint Rescue Coordination Centre
MAIB	Marine Accident Investigation Branch
MARPOL	International Convention for the Prevention of Pollution from Ships
MCA	Maritime and Coastguard Agency
MPCP	Marine Pollution Contingency Plan
MGN	Marine Guidance Note
MHWS	Mean High Water Springs
MMO	Marine Management Organisation
MRCC	Marine Rescue Coordination Centre
NAVTEX	Navigational Telex
NRA	Navigational Risk Assessment
NtM	Notice to Mariners
NTZ	No Take Zone
OREI	Offshore Renewable Energy Installation
OWF	Offshore Wind Farm
PEIR	Preliminary Environmental Information Report
PEXA	Military Practice Exercise Area
PLL	Potential Loss of Life
RAM	Restricted in Ability to Manoeuvre
RNLI	Royal National Lifeboat Institution
RYA	Royal Yachting Association
SAR	Search and Rescue
SOLAS	International Convention for the Safety of Life at Sea
TEU	Twenty Foot Equivalent Unit
TSS	Traffic Separation Scheme
UK	United Kingdom
UKHO	United Kingdom Hydrographic Office
UNCLOS	United Nations Convention on the Law of the Sea
VHF	Very High Frequency
VMP	Vessel Management Plan
VMS	Vessel Monitoring System

Units

Units	Meaning
DWT	Deadweight Tonnage

Units	Meaning
km	Kilometres
kV	Kilovolt
m	Metres
nm	Nautical miles
nm^2	Square nautical miles
%	Percentage

5 SHIPPING AND NAVIGATION

5.1 Introduction

5.1.1 This chapter of the Preliminary Environmental Information Report (PEIR) presents the preliminary findings of the Environmental Impact Assessment (EIA) work undertaken to date for the United Kingdom (UK) elements of the Xlinks Morocco-UK Power Project. For ease of reference, the UK elements of the Xlinks Morocco-UK Power Project are referred to in this chapter as the 'Proposed Development'.

5.1.2 This chapter considers the potential impacts and effects of the Proposed Development on Shipping and Navigation users during the construction, operation and maintenance and decommissioning phases. Specifically, it relates to the offshore elements of the Proposed Development seaward of Mean High Water Springs (MHWS).

5.1.3 In particular, this PEIR chapter:

- sets out the existing and future environmental baseline conditions, established from desk studies and consultation undertaken to date;
- presents the potential environmental impacts and effects on all aspects of Shipping and Navigation arising from the Proposed Development, based on the information gathered and the analysis and assessments undertaken to date;
- identifies any assumptions and limitations encountered in compiling the Shipping and Navigation information; and
- highlights any necessary monitoring and/or mitigation measures that could prevent, minimise, reduce or offset the possible environmental effects identified in the EIA process.

5.1.4 The assessment presented is informed by the following technical chapters:

- Volume 1, Chapter 2: Policy and Legislation Context;
- Volume 1, Chapter 3: Project Description;
- Volume 1, Chapter 5: EIA Methodology;
- Volume 3, Chapter 4: Commercial Fisheries; and
- Volume 3, Chapter 10: Other Marine Users.

5.1.5 This chapter also draws upon information contained within the Navigational Risk Assessment (NRA) presented in Volume 3, Appendix 5.1: Navigational Risk Assessment of the PEIR.

5.1.6 The PEIR will inform pre-application consultation. Following consultation, comments on the PEIR and any refinements in design will be reviewed and taken into account, where appropriate, in preparation of the Environmental Statement that will accompany the application to the Planning Inspectorate for development consent.

5.2 Legislative and Policy Context

Legislation

5.2.1 A summary of relevant legislation considered within this PEIR chapter is presented in **Table 5.1**.

Table 5.1: Summary of relevant legislation

Summary of Legislation	How and where considered in the PEIR
United Nations Convention on the Law of the Sea (UNCLOS) (UNCLOS, 1982)	
UNCLOS defines the rights and responsibilities of all nations with respect to their use of the sea throughout the world. Article 60(7) states '*Artificial islands, installations and structures and the safety zones around them may not be established where interference may be caused to the use of recognised sea lanes essential to international navigation'*.	UNCLOS is considered fully throughout this PEIR chapter. Particular regard is given to internationally recognised sea lanes (main commercial routes) which are considered a key element of the Shipping and Navigation baseline presented in **section 5.5** and have been considered when assessing the significance of impacts in **sections 5.8, 5.9 and 5.10**.
Convention on International Regulations for Preventing Collisions at Sea (COLREGs) (IMO, 1972/78)	
The COLREGs define the rules which must be adhered to by all vessels navigating internationally. Rule 8 Part (a) states '*Any action taken to avoid collision shall be taken in accordance with the Rules of this Part and shall, if the circumstances of the case admit, be positive, made in ample time and with due regard to the observance of good seamanship'*.	The COLREGs in full are considered throughout this PEIR chapter with particular regard to collision avoidance (Rule 8) and conduct of vessels in restricted visibility (Rule 19) when considering collision risk in the impact assessment contained within **sections 5.8, 5.9 and 5.10**.
Chapter V, Safety of Navigation, of the Annex to the International Convention for the Safety of Life at Sea (SOLAS) (IMO, 1974)	
SOLAS Chapter V is an international agreement that sets basic minimum criteria for all seafarers, dependent on the size and type of vessel. Regulation 33 states '*The master of a ship at sea which is in a position to be able to provide assistance on receiving a signal from any source that persons are in distress at sea, is bound to proceed with all speed to their assistance'*.	SOLAS Chapter V in full is considered throughout this PEIR chapter with particular regard to rendering assistance to persons in distress (Regulation 33) and passage planning (Regulation 34) when considering anchor interaction with subsea cables and emergency response capability in the impact assessment contained within **sections 5.8, 5.9 and 5.10**.
The Marine and Coastal Access Act (2009)	
This act sets out provisions for marine management, in the UK, and outlines the ways in which licensing of marine functions and activities are to be enforced. The Act also establishes the Marine Management Organisation (MMO) as the public body responsible for enforcing marine regulations and for the preparation and implementation of new marine plans.	This act does not include anything specific to shipping and navigation.

Planning Policy Context

5.2.2 The Proposed Development will be located within UK inshore waters and the UK EEZ offshore waters – beyond 12 nautical miles (nm) from the English coast (with the onshore infrastructure located wholly within Devon, England). As set out in

Volume 1, Chapter 1: Introduction, of the PEIR, the Secretary of State for the Department for Energy Security and Net Zero (DESNZ) has directed that elements of the Proposed Development are to be treated as development for which development consent is required under the Planning Act 2008, as amended.

National Policy Statements

5.2.3 There are currently six energy National Policy Statements (NPSs), three of which contain policy relevant to the Proposed Development, specifically:

- Overarching NPS for Energy (NPS EN-1), which sets out the UK Government's policy for the delivery of major energy infrastructure (Department for Energy Security & Net Zero 2023a);
- NPS for Renewable Energy Infrastructure (NPS EN-3) (Department for Energy Security & Net Zero 2023b); and

5.2.4 NPS for Electricity Networks Infrastructure (NPS EN-5) (Department for Energy Security & Net Zero 2023c).

5.2.5 **Table 5.2** sets out key aspects from the NPSs relevant to the Proposed Development, with particular reference to the need for and approach to consenting such infrastructure. It is noted that the guidance in NPS EN-3 is intended to apply to offshore wind developments and associated infrastructure, however the requirements relating to offshore transmission infrastructure are considered relevant to the Proposed Development.

Table 5.2: Summary of relevant NPS policy

Summary of NPS requirement	How and where considered in the PEIR
NPS EN-1	
Applicants should make early contact with relevant regulators, including EA or NRW and the MMO, to discuss their requirements for Environmental Permits and other consents. (Paragraph 4.11.7)	Consultation was undertaken with the MCA and Trinity House at an early stage, as summarised in **section 5.3**, with further input gathered through the Scoping Opinion. Further consultation will be undertaken to inform the final ES Chapter, as outlined in **section 5.14**.
NPS EN-3	
Applicants should engage with interested parties in the navigation sector early in the pre-application phase to help identify mitigation measures to reduce navigational risk to ALARP. (Paragraph 2.8.184)	Consultation was undertaken with the MCA and Trinity House at an early stage, as summarised in **section 5.3**, with further input gathered through the Scoping Opinion. Further consultation with both the MCA and Trinity House, as well as other stakeholders, will be undertaken to inform the final ES Chapter, as outlined in **section 5.14**.
Prior to undertaking assessments, applicants should consider information on internationally recognised sea lanes, which is publicly available. (Paragraph 2.8.187)	Internationally recognised sea lanes, including the Traffic Separation Schemes (TSSs) are highlighted within the discussion of the baseline environment presented in **section 5.5**. Consideration is given to established vessel routes including internationally recognised sea lanes throughout the impact assessment presented in **sections 5.8, 5.9** and **5.10**.
Applicants must undertake a Navigational Risk Assessment (NRA) in accordance with relevant	An NRA has been undertaken and is included in Volume 3, Appendix 5.1: Navigational Risk Assessment of the PEIR.

Summary of NPS requirement	How and where considered in the PEIR
government guidance prepared in consultation with the MCA and other navigation stakeholders. (Paragraph 2.8.189)	
NPS EN-5	
Onshore connection locations for offshore transmission must seek to minimise environmental and other impacts, both onshore and in the marine environment and including to local communities. (Paragraph 2.13.23	Impacts on Shipping and Navigation receptors in proximity to the landfall are considered within the impact assessments presented in **sections 5.8, 5.9** and **5.10**.

The National Planning Policy Framework

5.2.6 The National Planning Policy Framework (NPPF) was published in 2012 and updated in 2018, 2019 and 2021 (Department for Levelling Up, Housing and Communities, 2021). The NPPF sets out the Government's planning policies for England.

5.2.7 **Table 5.3** sets out a summary of the NPPF policies relevant to this chapter.

Table 5.3: Summary of NPPF requirements relevant to this chapter

Key provisions	How and where considered in the PEIR
Local planning authorities have a key role to play in encouraging other parties to take maximum advantage of the pre-application stage. They cannot require that a developer engages with them before submitting a planning application, but they should encourage take-up of any pre-application services they offer. They should also, where they think this would be beneficial, encourage any applicants who are not already required to do so by law to engage with the local community and, where relevant, with statutory and non-statutory consultees, before submitting their applications. (Paragraph 40)	Consultation was undertaken with the MCA and Trinity House at an early stage, as summarised in **section 5.3**, with further input gathered through the Scoping Opinion. Further consultation will be undertaken to inform the final ES Chapter, as outlined in **section 5.14**.

5.2.8 The Planning Practice Guidance (PPG) (Department for Levelling Up, Housing and Communities and Ministry of Housing, Communities and Local Government, 2021) supports the NPPF and provides guidance across a range of topic areas.

Marine Policy

UK Marine Policy Statement

5.2.9 The UK Marine Policy Statement (MPS) provides a framework for preparing Marine Plans and taking decisions affecting the marine environment.

5.2.10 Paragraph 3.4.7 of the MPS states 'Increased competition for marine resources may affect the sea space available for the safe navigation of ships. Marine plan authorities and decision makers should take into account and seek to minimise any negative impacts on shipping activity, freedom of navigation and navigational safety and ensure that their decisions are in compliance with international maritime law'.

South West Inshore and South West Offshore Marine Plans

5.2.11 **Table 5.4** sets out a summary of the specific policies set out in the South West Inshore and South West Offshore Marine Plans (MMO, 2021) relevant to this chapter.

Table 5.4: Summary of inshore and offshore marine plan policies relevant to this chapter

Policy	Key provisions	How and where considered in the PEIR
South-West Inshore and South-West Offshore Marine Plan (MMO, 2021).	SW-PS-1: Ports and harbours are essential to realise economic and social benefits for the south west marine plan areas and the UK. SW-PS-1 makes sure that proposals do not restrict current port and harbour activity or future growth, enabling long-term strategic decisions and supporting competitive and efficient port and shipping operations.	All marine planning policies for ports, harbours and shipping have been considered fully in this PEIR chapter. Particular regard has been given to the possibility of the displacement of vessel traffic and the reduction in access to local ports in **sections 5.8, 5.9** and **5.10**. Mitigation measures have been identified in **section 5.7** to reduce the effect of these impacts.
	SW-PS-2: Within the south west marine plan areas, there are International Maritime Organization routeing systems that are essential for shipping activity, freedom of navigation and navigational safety. SW-PS-2 confirms that proposals that compromise these important navigation routes should not be authorised. SW-PS-2 enables and supports safe, profitable and efficient marine businesses.	
	SW-PS-3: The south west marine plan areas is very busy with respect to high-density navigation routes, strategically important navigation routes and passenger services. SW-PS-3 confirms that proposals that pose a risk to safe navigation or the viability of these routes and services should not be authorised. SW-PS-3 aims to protect these routes and services by enabling and promoting safe, profitable and efficient marine businesses.	
	SW-CAB-1: Subsea cabling is important to the growth and sustainability of telecommunications, offshore wind farms and electricity transmission. SW-CAB-1 supports and encourages cable burial where possible to meet the needs of the sector while enabling co-existence with other users of the south west marine plan areas.	The primary means of cable protection is planned to be cable burial, with external protection anticipated to be installed at cable crossings or where seabed characteristics do not allow for burial.

5.3 Consultation and Engagement

5.3.1 In January 2024, the Applicant submitted a Scoping Report to the Planning Inspectorate, which described the scope and methodology for the technical studies being undertaken to provide an assessment of any likely significant effects for the construction and operational phases of the Proposed Development. It also described those topics or sub-topics which are proposed to be scoped out of the EIA process and provided justification as to why the Proposed Development would not have the potential to give rise to significant environmental effects in these areas.

5.3.2 Following consultation with the appropriate statutory bodies, the Planning Inspectorate (on behalf of the Secretary of State) provided a Scoping Opinion on 07 March 2024. Key issues raised during the scoping process specific to Shipping and Navigation are listed in **Table 5.5**, together with details of how these issues have been addressed within the PEIR.

Table 5.5: Summary of Scoping Responses

Comment	How and where considered in the PEIR
Planning Inspectorate	
Several aspect chapters in the Scoping Report refer to fixed distance study areas with no explanation as to why these have been selected. The ES should ensure the study area for each aspect reflects the Proposed Development's ZoI and the impact assessment should be based on the ZoI from the Proposed Development with reference to potential effect pathways. Clear justification should be provided to support any distances applied.	The study area for Shipping and Navigation, and the justification for the study area defined, is presented in **section 5.4.**
The Inspectorate acknowledges that data and knowledge regarding the baseline environment exists for the offshore area in which the Proposed Development would be located. The Inspectorate understands the benefits of utilising this information to supplement site-specific survey data but advises that suitable care should be taken to ensure that the information in the ES remains representative and fit for purpose. The Applicant should make effort to agree the suitability of information used for the assessments in the ES with relevant consultation bodies.	The data sources used to establish the baseline environment are presented in **Table 5.11**. The data sources used will be presented during consultation with the stakeholders listed in **section 5.14**.

Comment	How and where considered in the PEIR
The Scoping Report states that changes could occur from presence of rock berms, which may be required for cable protection at crossings or in isolated hard seabed areas during operation. It appears possible that rock berms would be in place for extended periods of construction activity in advance of the cable becoming operational and that mitigation may also be required during this period. The Inspectorate advises that the potential for change to the hydrodynamic regime due to the presence of cable protection should be assessed for the phases during which it is likely to give rise to significant effects and that the ES should describe any mitigation required and explain how this would be secured in the DCO.	Impacts on Shipping and Navigation receptors due to the presence of rock berms and any other external cable protection measures are assessed in the impact assessment presented in **sections 5.8, 5.9,** and **5.10.** This includes assessment of the construction phases where protection may be partially or fully in place prior to the cable becoming operational. Mitigation measures are presented in **section 5.7**.
The ES should consider the removal of hard substate in the decommissioning (removal) phase, where likely significant effects could occur, or provide evidence demonstrating agreement with the relevant consultation bodies that significant effects are not likely to occur.	The removal of rock berms is not anticipated to have any effect on Shipping and Navigation receptors. Impacts relating to vessels involved in the decommissioning of the cable, including those removing rock berms or any other external cable protection are assessed in **section 5.10.**
On the basis that no/very few vessels would be present during the operational (excluding repair) and decommissioning (in situ) phases, the Inspectorate is content that collision of a passing third-party vessel with a vessel associated with cable installation, maintenance or decommissioning can be scoped out of further assessment for these phases of the Proposed Development	No action required (scoped out).

Comment	How and where considered in the PEIR
The Applicant proposes to scope out an assessment of vessel drags anchor over the cable, vessel anchors over the cable in an emergency, and a vessel engaged in fishing snags its gear on the cable during operational (repair) and decommissioning (removal). However, no justification has been provided to explain why these activities would not result in similar impacts compared to the construction and operation phases of the Proposed Development. It appears likely that the presence of infrastructure will remain a risk for vessel anchors and snagging of fishing gear during operational repair activities and until the cable is entirely removed at decommissioning stage (where this method is selected). The Inspectorate therefore does not agree that that these potential impacts can be scoped out of the assessment for these phases of the Proposed Development. accordingly, the ES should include an assessment of these matters or provide a justification (for instance through explaining the relevant mitigation and how it has been secured) as to why likely significant effects would not arise	The impacts noted have been considered in the assessment of operational effects in **section 5.9** and the assessment of decommissioning effects in **section 5.10**.
The Inspectorate considers that the presence of infrastructure would result in a reduction in under keel clearance during the construction phase as it progresses and also remain until removed entirely (where removal is sought). Therefore, the Inspectorate does not agree this potential impact can be scoped out of the assessment for these phases of the Proposed Development. The ES should include an assessment of this matter, where likely significant effects could occur.	Consideration has been given to the reduction in under keel clearance due to the laid cable and associated protection during the construction phase in **section 5.8** and during the decommissioning phase in **section 5.10**.
The Scoping Report states that the cable and associated protection may lead to a reduction in under-keel clearance, which could pose a risk of vessels grounding. However, no evidence has been provided to explain why operational repairs would not lead to potential impacts resulting from a reduction in under-keel clearance. In the absence of this information, the Inspectorate is not in a position to agree to scope out this matter from further assessment.	Consideration has been given to the reduction in under keel clearance due to the laid cable and associated protection during the operational phase in **section 5.9**.

Comment	How and where considered in the PEIR
The Scoping Report acknowledges that the EMF created by buried direct current cables has the potential to create interference on a vessel's magnetic compass and thus this matter is scoped into the assessment for the operational phase. On the basis that EMF would only be generated when the cable is active/live, the Inspectorate agrees that this matter can be scoped out from an assessment for the construction, operational (repair) and decommissioning phases.	No action required (scoped out)
On the basis that access to local ports is unlikely to arise during operation and decommissioning (where the cable is left in situ), the Inspectorate is content that this matter can be scoped out of further assessment. However, it is unclear whether the operational maintenance (repair) stage could result in reduced access to local ports. The ES should include an assessment of this matter for the Operational (repair) stage, where likely significant effects could occur	Reduction in access to local ports has been considered in the assessment of operational effects in **section 5.9**.
The Scoping Report proposes to determine significance as either broadly acceptable, tolerable, or unacceptable. The ES should clearly set out how the risk assessment approach leads to an assessment of significance of effect consistent/ compatible with the terminology used in the ES, for which the intended approach is set out in Chapter 5 (Section 5.5) of the Scoping Report	The impact assessment methodology for shipping and navigation is outlined in **section 5.4**, and includes how the terms used in the impact assessment relate to the terms defined in EIA Regulations. The impact assessment presented in **sections 5.8, 5.9,** and **5.10** also notes how the significance of each impact relates to the terminology defined in the EIA Regulations.
The ES should assess impacts from climate change, including extreme weather events over the construction and decommissioning periods, where significant effects are likely to occur and describe and secure any relevant mitigation measures.	Impacts from climate change is considered within Volume 4, Chapter 1: Climate Change of the PEIR.
The ES should set out the methodologies used to explain any departure from the proposed approach where professional judgement is applied. Outputs from other assessments should be clearly explained where these have been applied.	The impact assessment methodology for shipping and navigation is outlined in **section 5.4**.
Where significance criteria are not explicitly defined within the guidance, the ES should clearly set out where deviation from guidance has occurred and professional judgement has been applied.	The impact assessment methodology for shipping and navigation is outlined in **section 5.4** including setting out the significance criteria used within the impact assessment.

Comment	How and where considered in the PEIR
A standalone ES chapter for major accidents and disasters is not proposed on the basis that potential accidents and disasters will be assessed in other aspect chapters, where relevant, including significant effects arising from the vulnerability of the Proposed Development to major accidents and disasters. The Inspectorate notes that various aspect chapters in the Scoping Report do not clearly identify those impacts scoped-in to the assessment that include an assessment of major accidents and disasters. The Inspectorate advises that the ES ensures clarity on what has been considered within the technical assessments. The Inspectorate would expect an overarching section in the ES which explains how potential impacts have been identified and where in the ES the assessment of their effects is presented.	The risk of accidental pollution occurring due to vessel-based incidents including grounding and collision incidents has been considered within the impact assessment presented in **sections 5.8, 5.9** and **5.10**. For any accidental pollution occurring either involving a project vessel or in proximity to the Proposed Development, the Marine Pollution Contingency Plan (MPCP) will be implemented as per the mitigation measures listed in **section 5.7**. An overarching section on Major Accidents and Disasters will be included in the ES to signpost where these have been assessed in individual chapters.
The Scoping Report confirms that EMFs generated during the operation of the Proposed Development will be considered in relevant aspect chapters, including shipping and navigation, and would not be included in a standalone ES chapter in respect of heat and radiation. The Inspectorate is content with this approach.	The effects of EMF on marine navigational equipment are considered within **section 5.10**.
Maritime & Coastguard Agency	
The development area carries a significant amount of through traffic to major ports, with a number of important international shipping routes in close proximity, including the Traffic Separation Scheme (TSS) South of the Scilly Isles, West of the Scilly Isles and the TSS off Lands End. Attention needs to be paid to changes in vessel routing, particularly in heavy weather ensuring shipping can continue to make safe passage without large-scale deviations, and any reduction in navigable depth referenced to chart datum.	Vessel traffic, including routeing and the TSSs are highlighted within the discussion of the baseline environment presented in **section 5.5**. The displacement of vessels from established routes and reduction in navigable depth in the impact assessment presented in **sections 5.8, 5.9** and **5.10**.

Comment	How and where considered in the PEIR
The Environmental Statement (ES) will consider the potential impacts of the construction, operation, maintenance and decommissioning phases of the proposed development and will follow the IMO Formal Safety Assessment methodology, which we welcome. The information from the Navigation Risk Assessment (NRA) will feed into the shipping and navigation chapter of the ES. The ES should supply detail on the possible impact on navigational issues for both commercial, fishing and recreational craft, specifically: ▪ Collision Risk ▪ Navigational Safety ▪ Visual intrusion and noise ▪ Risk Management and Emergency response ▪ Marking and lighting of site and information to mariners ▪ Effect on small craft navigational and communication equipment ▪ The risk to drifting recreational craft in adverse weather or tidal conditions ▪ The likely squeeze of small craft into the routes of larger commercial vessels.	An assessment of the impacts carried out in line with the IMO Formal Safety Assessment methodology is presented in **sections 5.8, 5.9** and **5.10**. An NRA has been carried out and is included in Volume 3, Appendix 5.1: Navigational Risk Assessment of the PEIR. The assessment covers all listed items where considered relevant to a subsea cable project.
The MCA welcomes the commitment in section 8.6.44 to undertake an NRA including a baseline study which will summarise the navigational features, historical incident data, vessel activity including anchoring and fishing activity, and any other navigational data available. The NRA should establish how the phases of the project are managed to a point where risk is reduced and considered to be 'as low as reasonably practicable' (ALARP). The MCA would also welcome a hazard identification workshop to bring together relevant navigational stakeholders for the area to discuss the potential impacts on navigational safety associated with the proposed development.	An NRA has been carried out and is included in Volume 3, Appendix 5.1: Navigational Risk Assessment of the PEIR. A summary of the shipping and navigation baseline is presented in **section 5.5**. Consultation with key stakeholders will be undertaken to discuss the potential impacts on navigational safety associated with the Proposed Development, as described in **section 5.14**.
Attention should be paid to cabling routes and where appropriate burial depth for which a Burial Protection Index study should be completed and subject to the traffic volumes, an anchor penetration study may be necessary. Where cable protection measures are required e.g., rock bags or concrete mattresses, the MCA would be willing to accept a 5% reduction in surrounding depths referenced to Chart Datum. This will be particularly relevant where depths are decreasing towards shore and at cable crossings where potential impacts on navigable water increase. Where this is not achievable, the applicant must discuss further with the MCA.	Reduction in under keel clearance due to the implementation of external cable protection is considered within the impact assessment presented in **sections 5.8, 5.9** and **5.10**. Compliance with the MCA guidance on the reduction in water depths is included within the mitigation measures adopted as part of the Proposed Development, detailed in **section 5.7**.

Comment	How and where considered in the PEIR
Safe realistic under keel clearance (UKC) assessment should be undertaken for the maximum drafts of vessel both observed and anticipated, using the MCA's Under Keel Clearance Policy paper for guidance.	An assessment of the reduction in under keel clearance due to the presence of external cable protection has been undertaken and is presented in the impact assessment presented in **sections 5.8, 5.9** and **5.10**. Vessel draughts both within the study area and specific to shallow waters have been considered within this. Compliance with the MCA guidance on the reduction in water depths is included within the mitigation measures adopted as part of the Proposed Development, detailed in **section 5.7**.
A study should be undertaken to establish the electromagnetic deviation, affecting ship compasses and other navigating systems, of the high voltage cable route to the satisfaction of the MCA. On receipt of the study, the MCA reserves the right to request a deviation survey of the cable route post installation. There must be no more than a 3-degree electromagnetic compass deviation for 95% of the cable route and for the remaining 5% of the cable route there must be no more than a 5 degree electromagnetic compass deviation. If the MCA requirement cannot be met, a post installation actual electromagnetic compass deviation survey should be conducted for the cable in areas where compliance has not been achieved. We note this has been scoped in for the operational phase of the project, which we welcome.	The impact of the Proposed Development on marine navigational equipment is assessed within the impact assessments presented in **sections 5.9** and **5.10**, It is assumed that a compass deviation assessment will be carried out post-consent to ensure compass deviation is within the stated limits and a post-installation survey carried out if this cannot be demonstrated. Compass deviation assessments and compliance with the MCA guidance is included within the mitigation measures adopted as part of the Proposed Development, detailed in **section 5.7**.
We note that there are no potential impacts on shipping and navigation that have been scoped out for the ES, which the MCA welcomes. The MCA will of course provide full consideration of the detailed proposals, along with the supporting Navigation Risk Assessment which may highlight further areas for consideration and risk mitigation measures.	No further action
Defence Infrastructure Organisation	
Please note, there are other defence interests in the locality relating to navigational interests and installations that are not defined in the public domain. The MOD will be able to provide specific advice, as may be necessary, on the proposed cable installation when more detailed information becomes available.	Consultation with the MoD in relation to any required/necessary mitigation measures will be carried out by the Project.

5.3.3 Prior to scoping, initial introductory consultation meetings were carried out with the Maritime & Coastguard Agency (MCA) and Trinity House. Following scoping, consultation and engagement with interested parties specific to shipping and navigation has continued.

5.3.4 A summary of the key issues raised during consultation activities undertaken to date is presented in **Table 5.6**, together with how these issues have been considered in the production of this PEIR chapter.

Table 5.6: Summary of consultation relevant to this chapter

Date	Consultee and type of response	Issues raised	How and where considered in the PEIR
December 2023	MCA consultation meeting	MCA queried if there were plans for cable protection as opposed to burial.	Proposed protection is outlined in **Table 5.6**. Impact of reduction in under keel clearance due to external protection assessed in **section 5.9**.
		MCA noted that the RYA coastal atlas may be a useful resource, that liaison with local ports may be required and that locations of renewables projects in the area should be considered.	**5.5**Liaison with local ports to be undertaken via Notice to Mariners (NtM) (**e.g. Table 5.14**). Locations of renewables projects presented in baseline (and considered elsewhere in this PEIR e.g. Volume 3, Chapter 6: Other Marine Users; Volume 1, Appendix 5.3: Cumulative Effects Assessment Screening Matrix. The RYA Coastal Atlas will be used to inform on recreational activities in the final ES Chapter.
		MCA noted the importance of considering IMO Routing Measures in the area within the risk mitigation procedures for the project vessels, and that considering the impact on these when determining vessel timings and lighting of construction vessels would be an important mitigation.	To be considered in Vessel Management Plan as part of the Construction Environmental Management Plan (CEMP) (**section 5.7**).
		MCA noted that the 5% rule on water depth reduction should be followed, and that the MCA would expect to see electromagnetic interference considered, dependent on the findings of the electromagnetic deviation support document.	Included in mitigation measures (**section 5.7**) and within impact assessment (**section 5.9**).
December 2023	Trinity House consultation meeting	Trinity House noted that reductions of water depth were a primary concern for Trinity House, as were cables becoming exposed due to the seabed movements.	Reduction in water depth assessed in **section 5.9**. Monitoring of cable protection included in mitigation measures (**section 5.7**).
		Trinity House noted that there would be no expectation to mark the landfall physically in the interests of data security, but that cable routes should be charted.	Charting of cable included as mitigation measure (**section 5.7**).

Date	Consultee and type of response	Issues raised	How and where considered in the PEIR
		Trinity House noted the military exercise areas in the area and added that there is a naval training centre nearby. Anatec noted that consultation with the Ministry of Defence would be undertaken by the Project.	Consultation with the MoD in relation to any required/necessary mitigation measures will be carried out by the Project.

5.4 Methodology

Relevant Guidance

5.4.1 The Shipping and Navigation assessment of effects has followed the Formal Safety Assessment (FSA) (IMO, 2018) methodology, which is the internationally recognised approach for assessing the impact to Shipping and Navigation users and a requirement of the Maritime and Coastguard Agency (MCA).

5.4.2 The following guidance documents have been considered:

- Revised Guidelines for FSA for Use in the IMO (International Maritime Organization) Rule-Making Process (IMO, 2018)
- Marine Guidance Note (MGN) 654 (Merchant and Fishing) Safety of Navigation: Offshore Renewable Energy Installations (OREIs) – Guidance on UK Navigational Practice, Safety and Emergency Response and its annexes (MCA, 2021a); and
- MGN 661 (Merchant and Fishing) Navigation – Safe and Responsible Anchoring and Fishing Practices (MCA, 2021b)

Scope of the Assessment

5.4.3 The scope of this chapter of the PEIR has been developed in consultation with relevant statutory and non-statutory consultees as detailed in **Table 5.5** and **Table 5.6**. A range of potential impacts on Shipping and Navigation have been identified, which may occur during the construction, operation and maintenance, and decommissioning phases of the Proposed Development.

5.4.4 Taking into account the scoping and consultation process, **Table 5.7** summarises the issues considered as part of this assessment.

Table 5.7: Issues considered within this assessment

Activity	Potential effects scoped into the assessment
Construction Phase	
Offshore pre-installation and installation works which require project vessel presence.	Collision of a passing third-party vessel with a vessel associated with cable installation
	Cable installation causing disruption to passing vessel routeing/timetables.
	Increase in the risk of a vessel-to-vessel collision due to construction vessel activity
	Cable installation causing disruption to fishing and recreational activities.
	Cable installation causing disruption to third party marine activities (e.g., military, dredging)
	Reduced access to local ports
Presence of the Offshore Cable	Anchor interaction with the cable
	A vessel engaged in fishing snags its gear on the cable

Activity	Potential effects scoped into the assessment
	Reduction in under keel clearance resulting from laid cable and associated protection
Operational Phase	
Presence of the Offshore Cable	Anchor interaction with the cable
	A vessel engaged in fishing snags its gear on the cable
	Reduction in under keel clearance resulting from laid cable and associated protection
	Interference with marine navigational equipment
Operational Phase – repair	
Offshore maintenance works which require project vessel presence.	Collision of a passing third-party vessel with a vessel associated with cable maintenance
	Reduced access to local ports
Presence of the Offshore Cable	Anchor interaction with the cable
	A vessel engaged in fishing snags its gear on the cable
	Reduction in under keel clearance resulting from laid cable and associated protection
	Interference with marine navigational equipment
Decommissioning Phase – removal	
Offshore decommissioning works which require project vessel presence.	Collision of a passing third-party vessel with a vessel associated with cable decommissioning
	Cable decommissioning causing disruption to passing vessel routeing/timetables.
	Increase in the risk of a vessel-to-vessel collision due to decommissioning vessel activity
	Cable decommissioning causing disruption to fishing and recreational activities.
	Cable decommissioning causing disruption to third party marine activities (e.g., military, dredging)
	Reduced access to local ports
Presence of the Offshore Cable prior to removal	Anchor interaction with the cable
	A vessel engaged in fishing snags its gear on the cable
	Reduction in under keel clearance resulting from laid cable and associated protection
Decommissioning Phase – *in situ*	
Presence of the Offshore Cable	Anchor interaction with the cable
	A vessel engaged in fishing snags its gear on the cable
	Reduction in under keel clearance resulting from laid cable and associated protection

5.4.5 No potential impacts on Shipping and Navigation have been scoped out of the assessment.

Study Area

5.4.6 The Shipping and Navigation study area covers an area of 5 nm around the Offshore Cable Corridor from MHWS to the EEZ boundary and is shown in Volume 3, Figure 5.1. This is standard practice and is sufficient to characterise the shipping activity and navigational features close to the Offshore Cable Corridor and to encompass any vessel traffic that may be impacted by the cable and associated operations, while also remaining project-specific in terms of the vessel activity and navigational features that it captures. Where navigational features have been identified outside of the study area, this is done for context and wider discussion purposes. Following the PEIR stage, the study area will be presented to stakeholders and discussed during consultation.

Methodology for Baseline Studies

Desk Studies

5.4.7 The baseline environment within the study area has been characterised using a number of desk-based sources, which are presented in **Table 5.11**. Limitations of the data sources used are discussed below.

Site-Specific Surveys

5.4.8 Due to the nature and scale of the Offshore Cable Corridor, vessel-based surveys to collect site-specific AIS, radar and visual observation data are impractical, with long-term terrestrial AIS data considered to offer a more complete overview of the baseline vessel traffic. Therefore, no site-specific surveys have been undertaken to inform the Shipping and Navigation baseline. This is in line with standard industry practice for subsea cables and it will be agreed with key stakeholders that site-specific surveys are not required, as part of discussions on the NRA approach.

Assumptions and Limitations of the Assessment

Navigational Features

5.4.9 UKHO Admiralty Charts and Admiralty Sailing Directions have been reviewed to establish the key navigational features in proximity to the Proposed Development.

5.4.10 The Admiralty Charts and Sailing Directions published by the UKHO are updated periodically, and therefore the information shown may not reflect the real-time features within the area with complete accuracy. Admiralty Charts are considered to be a suitably comprehensive and adequate resource for the assessment of navigational features within the area and the Sailing Directions are a useful resource to supplement the charts. The most up-to-date available editions of the Admiralty Charts and Sailing Directions have been used to inform the review of navigational features (see **section 5.5**). For aids to navigation, only those charted

and considered key to establishing the Shipping and Navigation baseline are shown.

5.4.11 Data sources used, including those used to inform navigational features, will be presented and agreed during consultation, and updated where necessary for the ES.

Vessel Traffic Baseline

5.4.12 The primary data source to inform the vessel traffic baseline is 12-months of Automatic Identification System (AIS) data used to characterise vessel traffic movements within the study area. The data cover the period from September 2022 to August 2023, in order to capture the full range of seasonal variation.

5.4.13 AIS equipment is required to be fitted on all vessels of 300 gross tonnes (GT) and upwards engaged on international voyages, cargo vessels of 500 GT and upwards not engaged on international voyages, and passenger vessels irrespective of size, built on or after 1st July 2002. Under the Merchant Shipping (Vessel Traffic Monitoring and Reporting Requirements) Regulations 2004 (as amended in 2011), fishing vessels of 15 m or more in length, UK registered or operating in UK waters, must be fitted with an approved (Class A) AIS (regulation 8A). In addition, all European Union (EU) registered fishing vessels of 15 m or more in length are required to carry AIS equipment. Smaller fishing vessels (below 15 m) as well as recreational craft are not required to carry AIS, but a small proportion of these vessels do so voluntarily. It is also noted that military vessels are not obligated to broadcast on AIS at all times. Therefore, these vessels (e.g. fishing, recreational and military vessels) will be under-reported within the AIS data.

5.4.14 It is assumed that vessels under an obligation to broadcast information via AIS have done so, across all vessel traffic datasets. It has also been assumed that the details broadcast via AIS (such as vessel type and dimensions) are accurate unless clear evidence to the contrary was identified. There may be occasional range limitations in tracking certain vessels, especially smaller (Class B AIS) vessels in winter. However, it is not considered that the comprehensiveness of the AIS data compromises confidence in the assessment.

5.4.15 Since the vessel traffic data for the study area consists of AIS only, the data has limitations associated with non-AIS targets. Therefore, additional data sources such as Vessel Monitoring System (VMS) data and consultation feedback have been considered when assessing the baseline environment.

5.4.16 Given that military vessels are not required to broadcast on AIS and are likely to be under-represented, it is assumed that the Ministry of Defence will be consulted as part of the consenting programme.

5.4.17 Data sources used, including those informing on vessel movements, will be presented and agreed during consultation. Any additional sources suggested will be considered in the final ES chapter.

Emergency Response Resources and Historical Incident Data

5.4.18 Historical incident data from the Marine Accident Investigation Branch (MAIB) and the Royal National Lifeboat Institution (RNLI) has been used to establish the baseline incident rates in proximity to the Proposed Development. Search and

Rescue (SAR) helicopter taskings have also been reviewed to illustrate the emergency response resources in the area.

5.4.19 Although all UK commercial vessels are required to report incidents to the MAIB, this is not mandatory for non-UK vessels unless they are in a UK port, within territorial waters or carrying passengers to a UK port. There are also no requirements for non-commercial recreational craft to report incidents to the MAIB. Nevertheless, the MAIB incident database is considered to be a suitable source for the characterisation of historical incidents and adequate for the assessment.

5.4.20 The RNLI incident data cannot be considered comprehensive of all incidents in the study area. Although hoax and false alarms are excluded, any incident to which an RNLI resource was not mobilised has not been accounted for in this dataset. Nevertheless, the RNLI incident data is still considered to be an appropriate resource for the characterisation of historical incidents and adequate for the assessment.

Impact Assessment Methodology

5.4.21 The Shipping and Navigation assessment for the offshore elements of the Proposed Development will be undertaken in accordance with the IMO's FSA approach and terminology for impact assessment, in line with standard marine risk assessment. The FSA differs from the EIA methodology described in Volume 1, Chapter 5: EIA methodology of the PEIR, but is a requirement of the MCA for any NRA.

5.4.22 Potential impacts at construction, operation and decommissioning phases have been identified. To inform the assessment of impact significance, hazards have been identified, ranked and, where appropriate, quantified.

5.4.23 The FSA methodology is centred on risk control and assesses each impact in terms of its frequency and consequence in order that its significance can be determined as 'broadly acceptable', tolerable or unacceptable via a risk matrix as shown in **Table 5.8**.

Table 5.8: Risk ranking matrix

Frequency	**Frequent**	Tolerable	Tolerable	Unacceptable	Unacceptable	Unacceptable
	Reasonably Probable	Broadly Acceptable	Tolerable	Tolerable	Unacceptable	Unacceptable
	Remote	Broadly Acceptable	Broadly Acceptable	Tolerable	Tolerable	Unacceptable
	Extremely Unlikely	Broadly Acceptable	Broadly Acceptable	Broadly Acceptable	Tolerable	Tolerable
	Negligible	Broadly Acceptable	Broadly Acceptable	Broadly Acceptable	Broadly Acceptable	Tolerable
		Negligible	**Minor**	**Moderate**	**Serious**	**Catastrophic**
		Severity				

5.4.24 The criteria for defining severity of consequence are outlined in **Table 5.9**.

Table 5.9: Definition of Severity of Consequences

Severity of Consequence	Definition
Negligible	No perceptible risk to people, property, the environment or business.
Minor	Slight injury(s) to people
	Minor damage to property, i.e. superficial damage
	Tier 1 environmental damage with local assistance required
	Minor reputational risk to business limited to users
Moderate	Multiple minor or single serious injury to people
	Damage to property not critical to operations
	Tier 2 environmental damage with limited external assistance required
	Local reputational risk to business.
Serious	Multiple serious injuries or single fatality to people
	Damage to property resulting in critical risk to operations
	Tier 2 environmental damage with regional assistance required
	National reputational risk to business
Catastrophic	Multiple fatalities to people
	Total loss of property
	Tier 3 environmental damage with national assistance require
	International reputational risk to business

5.4.25 The criteria for defining frequency are presented in **Table 5.10**.

Table 5.10: Definitions for Frequency of Occurrence

Frequency of Occurrence	Description
Frequent	Yearly
Reasonably Probable	One per one to 10 years
Remote	One per 10 to 100 years
Extremely Unlikely	One per 100 to 10,000 years
Negligible	Less than one occurrence per 10,000 years

5.4.26 The impact assessment has been informed by baseline data, expert opinion, consideration of embedded mitigation and consultation feedback. Where an impact has been assessed as ‘unacceptable’, then additional mitigation measures, beyond those considered embedded, will be required to bring the impact to ‘broadly acceptable’ or ‘tolerable’ significance and to ensure the impact is within As Low as Reasonably Practicable (ALARP) parameters. Similarly, additional mitigation measures may require consideration for ‘tolerable’ impacts to ensure they are ALARP.

5.4.27 For the purposes of this assessment, impacts assessed to be ‘broadly acceptable’ or ‘tolerable’ (if ALARP) are considered to be not significant in terms of the EIA Regulations. Impacts assessed to be ‘unacceptable’ are considered significant in terms of the EIA Regulations.

5.5 Baseline Environment

5.5.1 A summary of the Shipping and Navigation baseline environment is provided in the following sections. Further detailed analysis of the baseline environment is

presented within the NRA, contained in Volume 3, Appendix 5.1: Navigational Risk Assessment of the PEIR.

Desk Study

5.5.2 Information on Shipping and Navigation within the study area was collected through a detailed review of existing studies and datasets. These are summarised at **Table 5.11.**

Table 5.11: Summary of desk study sources used

Title	Source	Year	Author
AIS Shipping Data	12 Months AIS Data (September 2022 – August 2023)	2022/2023	Anatec Ltd
United Kingdom (UK) Hydrographic Office (UKHO) Admiralty Sailing Directions	Admiralty Sailing Directions NP37 West Coast of England Pilot used to inform on navigational features in the area.	2022	UKHO
UKHO Admiralty Charts	UKHO Admiralty Charts (1121, 1123, 1164, 1178, 1179, 2565, 2649, 2675) used to inform on navigational features in the area.	2023/24	UKHO
Aggregate Dredging Areas	GIS for aggregate dredging areas in England, Wales and Northern Ireland provided by The Crown Estate (TCE, 2023a)	2024	TCE
Wind Site Agreements	GIS for wind farm sites in England, Wales and Northern Ireland provided by The Crown Estate. (TCE, 2023b)	2024	TCE
Additional Fishing Data	Vessel Monitoring System (VMS) satellite fishing data 2020, MMO	2020	MMO
Maritime Incident Data	Marine Accident and Investigation Branch (MAIB) incident data, 2012-2021	2023	MAIB
	Royal National Lifeboat Institution (RNLI) incident data, 2013-2022	2023	RNLI
	Department for Transport (DfT) UK civilian SAR helicopter taskings (April 2015 – 2023)	2023	DfT
Port Arrival Statistics	Port Arrival Statistics (2017 – 2022)	2023	DfT

Navigational Features

5.5.3 This section provides an overview of the navigational features in the study area. Where navigational features are further identified outside of the study area, this is done for context and wider discussion purposes. An overview of the navigational features is presented in Volume 3, Figure 5.2, while Volume 3, Figure 5.3 shows a more detailed view of the navigational features in proximity to the landfall.

5.5.4 There are several IMO-adopted Traffic Separation Schemes (TSS) in place near the Offshore Cable Corridor. The West and South of The Isles of Scilly TSS lanes, as well as Off Land's End TSS lanes are located immediately to the east of the study area, on approach to the western English Channel. In addition to the TSS lanes, Inshore Traffic Zones (ITZ) are in place inshore of each TSS around the Isles of Scilly and off the west coast of Cornwall. Vessels may only use the ITZ if they are less than 20 m in length, recreational craft, or vessels engaged in fishing. Vessels may also use the ITZ to avoid immediate danger.

5.5.5 As can be seen, there are numerous charted subsea cables in the vicinity of the Offshore Cable Corridor. As noted in Volume 1, Chapter 3: Project Description, there are 21 potential cable crossings within UK waters, with the majority of these intersections occurring towards the north of the study area associated with cables extending westwards from Bude. It is advised that vessels should not anchor or trawl in the vicinity of these cables.

5.5.6 Aids to navigation (AtoNs) are generally located close to the landfall and at Lundy. The closest AtoN to the Offshore Cable Corridor is a lighted buoy located approximately 500 m away, roughly 4 nm from the landfall, marking the edge of a seaweed farm along with five other AtoNs.

5.5.7 Numerous ports and harbours are located along the south west coast of England. The nearest to the Offshore Cable Corridor are Bideford, Appledore and Yelland, accessed through the Torridge and Taw estuaries respectively. At the Port of Bideford, commercial vessels up to 96 m in length are accepted, whereas Appledore is mostly frequented by fishing and recreational vessels. Yelland is a largely disused quay formerly used by a power station which operated alongside the river.

5.5.8 Other harbours along the coast include Padstow, Port Isaac, Newquay, Perranporth, Portreath, St Ives, Penzance and Porth Mellin. In addition to the harbours on the English mainland, there are also a number of harbours on the Isles of Scilly. Due to the international nature of the shipping in the area, ports of relevance to the shipping traffic may be further afield, such as Southampton, Rotterdam and a number of ports on the north coast of France.

5.5.9 There are two charted anchorages in the study area; Lundy Road east of Lundy Island, 3.6 nm north of the Offshore Cable Corridor, and Clovelly Road 4.8 nm southwest of the cable landfall.

5.5.10 The closest pilot boarding station is 2.6 nm north of the landfall, near Bideford Fairway Light Buoy. Pilotage provides assistance to vessels crossing the Bideford Bar due to the danger of shifting sands. It is compulsory for all vessels over 350 Gross Tonnes (GT), transiting to Appledore, Bideford and Yelland. Entry is only advised at certain times of day. Prior to pilotage, anchoring is advisable in Bideford Bay as well as Lundy Road.

5.5.11 The Island of Lundy is situated within the study area roughly 2.6 nm north of the Offshore Cable Corridor and is encompassed within a marine conservation area

which is subject to restricted anchoring and diving activities. A No Take Zone (NTZ) exists on the eastern side of the Island. It should be noted that no living natural resources such as lobsters, crabs and fish are allowed to be removed from this zone.

5.5.12 There are a number of charted wrecks located throughout the study area, with none located within the Offshore Cable Corridor (noting that archaeological and heritage features were avoided when developing the route). The closest wreck to the Offshore Cable Corridor is located just outside of its boundary, within Bideford Bay. Further details are provided within Volume 3, Chapter 7: Marine Archaeology and Cultural Heritage of the PEIR.

5.5.13 Three firing practice areas are located in the vicinity, the nearest being two overlapping areas within the study area approximately 3.3 nm north of the cable landfall, within Bideford Bay. A larger firing practice area exists west of Trevose Head, approximately 6.2 nm south east of the Offshore Cable Corridor, covering an area of 230 nm2 but which does not intersect the study area. These firing practice areas are operated using a clear range procedure, meaning that firing and exercises take place when the areas are considered to be clear of shipping. No restriction is placed on the right to transit the firing practice areas at any time.

5.5.14 In addition to the charted firing practice areas, there are four military practice exercise areas (PEXAs) overlapping the Offshore Cable Corridor, with three of these (D064A, D064B and D064C) being marked as Air Force areas. The other, X5001: Southern Fleet Exercise Area, is a Navy exercise area used for non-firing exercises, practices and trials. As in the case of firing practice areas, these areas are operated under clear range procedures, with no restriction on the right to transit at any time.

5.5.15 It is noted that there are no aggregate dredging areas in the study area. The closest area is approximately 19 nm north of the Offshore Cable Corridor, at Nobel Banks in the Bristol Channel.

5.5.16 No operational Offshore Wind Farm (OWF) exists within the study area, however there are planned OWF sites in early planning stages noted near the Offshore Cable Corridor. Planned OWF sites are discussed further in **paragraph 5.5.45**.

Vessel Traffic Baseline

5.5.17 This section presents analysis of vessel traffic data within the study area. The vessel traffic baseline has been identified from 12 months of AIS data, from September 2022 – August 2023.

5.5.18 A plot of the vessel tracks recorded on AIS within the study area is presented in Volume 3, Figure 5.4. It is noted that tracks classified as temporary or non-routine have been removed, including the tracks of vessels undertaking surveys. Vessels remaining stationary in port have also been removed to ensure a fair representation is given to typical vessel traffic movements in the area.

5.5.19 **Plate 5.1** presents the average daily vessel count per month within the study area, based on unique vessels per day.

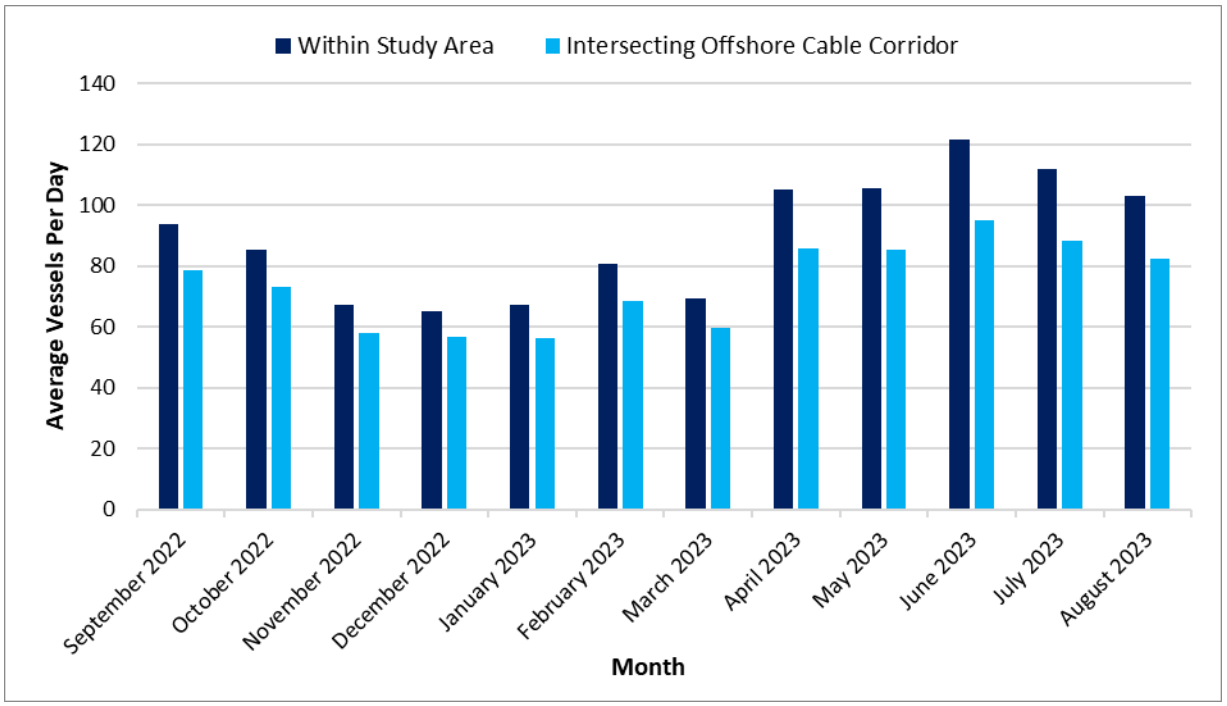

Plate 5.1: Average Daily Vessel Count per Month (September 2022 – August 2023)

5.5.20 Over the year, there was an average of 90 vessels per day recorded within the study area, with 74 intersecting the Offshore Cable Corridor each day. The busiest month was June 2023, during which 122 vessels were recorded within the study area each day. The quietest month was December 2023, with an average of 65 vessels per day. The difference in vessel numbers between the winter and summer months can largely be attributed to a greater presence of recreational, fishing and passenger vessels during the summer period.

5.5.21 A vessel density heatmap is presented in Volume 3, Figure 5.5. The heatmap is based on a grid of 500 m x 500 m cells, with cells colour-coded according to the number of vessel tracks intersecting them over the 12-month study period.

5.5.22 The distribution of vessel types recorded within the study area is presented in **Plate 5.2**.

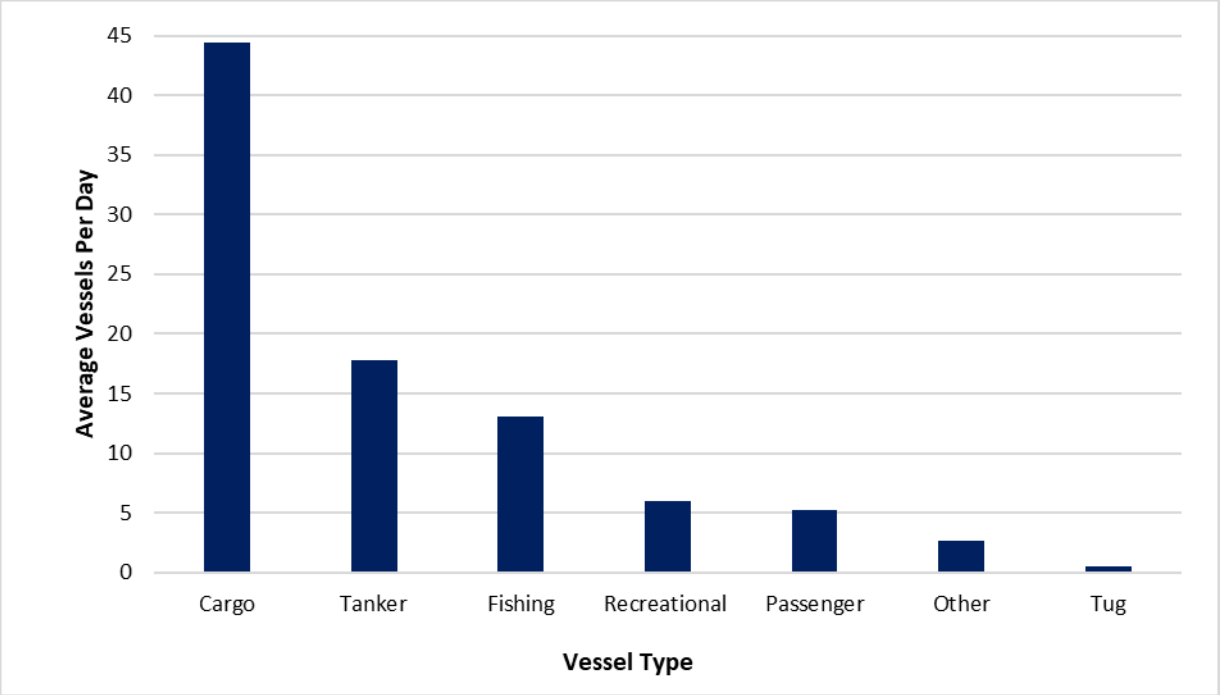

Plate 5.2: Distribution of Vessel Type

5.5.23 The most common vessel type was cargo vessels, accounting for 50% of vessels within the study area with an average of 44 vessels per day. Tankers (20%), fishing vessels (15%) and recreational vessels (7%) also accounted for a large proportion of vessel traffic.

5.5.24 On average there were 44 cargo vessels and 18 tankers per day within the study area. Common destinations for these vessel types included major European ports such as Rotterdam, Antwerp, Zeebrugge and Cherbourg, reflecting the volume of traffic using the English Channel and crossing in the southern extents of the Offshore Cable Corridor. Popular UK ports included Southampton, Liverpool, and Belfast, with Irish ports such as Dublin, Cork and Rosslare also being very common destinations.

5.5.25 Main commercial vessel routes are highlighted by the vessel density plot in Volume 3, Figure 5.5, with key routes crossing the Offshore Cable Corridor located around the TSS lanes around the Isles of Scilly, as well as traffic to/from ports in the Bristol Channel such as Bristol and Newport.

5.5.26 There was an average of five passenger vessels recorded within the study area per day, including both regular ferries and large cruise ships. Regular ferry routes in the study area included a 38 m vessel passing regularly between Bideford, Lundy and Ilfracombe in the vicinity of the Offshore Cable Landfall. Another 186 m ferry was recorded crossing the Offshore Cable Corridor while using the TSS east of Isles of Scilly on passage between Dunkirk, France and Rosslare, Ireland. The largest passenger vessel recorded within the study area was a 345 m cruise ship which was recorded making several trips between New York and Southampton over the year, crossing the Offshore Cable Corridor while using the TSS south of the Isles of Scilly.

5.5.27 The average length of vessels recorded within the study area was 134 m, with the largest vessel being a 400 m container ship recorded crossing the Offshore Cable Corridor while on passage to Tanger-Med in Morrocco. Large vessels of greater than 300 m in length were most commonly recorded crossing the southern extents

of the study area, while on passage to/from the English Channel. Small vessels (less than 20 m in length) were more typically recorded in greater numbers in the Celtic Sea to the north and west of the Isles of Scilly, and were primarily recreational and fishing vessels, as well as some other vessels including RNLI lifeboats.

5.5.28 The average vessel draught recorded within the study area was 7.4 m, with the deepest draught vessel being a crude oil tanker heading to Rotterdam with a draught of 21.6 m. The majority of deep draught vessels (greater than 15 m) were recorded in the southern extents of the study area. Rotterdam was a commonly reported destination for the deepest draught vessels, while other deep draught vessels reported destinations including Port Talbot and Falmouth in the UK, Ijmuiden and Vlissingen in the Netherlands, as well as further afield destinations such as Egypt, China and India.

5.5.29 Deadweight Tonnage (DWT) traffic patterns were similar to length and draught, with the largest vessels typically recorded in the southern extent of the study area, crossing the Offshore Cable Corridor on passage through the English Channel. The average DWT recorded was 23,971, with the largest being a 333 m crude oil tanker, with a DWT of 321,225, heading to Mexico. The largest DWTs were typically recorded by similar crude oil tankers, passing between Rotterdam and the US.

5.5.30 The average speed of vessels recorded on AIS within the study area was 10.4 knots, with the maximum speeds recorded being in excess of 30 knots. The fastest vessels typically consisted of wind farm crew transfer vessels, passenger vessels, recreational vessels, and RNLI lifeboats. Vessels travelling at greater than 20 knots made up only 3% of traffic, with lower speeds much more common.

5.5.31 There was an average of approximately one unique anchored vessel recorded within the study area every three days during the 12 months, with these all located either within Bideford Bay, close to the Offshore Cable Corridor, or off Lundy, approximately 3 nm to the north of the Offshore Cable Corridor. The most common types of anchored vessels were recreational vessels (33%) and fishing vessels (16%). “Other” vessels accounted for 29% of anchored vessels, and typically consisted of dive vessels off Lundy.

5.5.32 During the 12-month data period, there was an average of 13 fishing vessels per day recorded within the study area, with significant seasonal variation observed over the course of the year. April was the busiest month for fishing, with an average of 25 vessels per day recorded within the study area. Generally, the autumn and winter months were quieter in terms of fishing vessel activity than late spring and summer months, with December and January being the quietest with 6 to 7 vessels per day. A plot of the fishing vessels recorded within the study area, colour-coded by gear type is presented in Volume 3, Figure 5.6.

5.5.33 Demersal trawlers were recorded throughout the study area, while beam trawlers, gillnets and potter/whelkers were most prominent in the centre of the study area. Longliner/drift netters were recorded transiting through the centre of the study area using the TSS lanes around the Isles of Scilly.

5.5.34 In addition to AIS, VMS satellite data for 2020 was reviewed to inform on fishing vessel movements. Fishing density as reported by the MMO showed a good correlation between with the baseline as established using AIS data.

5.5.35 Over the course of the 12-month data period, there was an average of six recreational vessels per day within the study area. Recreational vessels were recorded throughout the study area, with particularly dense areas of activity

recorded in / transiting past Bideford Bay. Recreational vessel density is presented in Volume 3, Figure 5.7, highlighting the lower levels of recreational traffic south of the Isles of Scilly.

Emergency Response Resources and Historical Incident Review

5.5.36 This section summarises the existing emergency response resources and historical incident data associated with the study area.

5.5.37 SAR helicopter provision is provided by Bristow Group on behalf of His Majesty's Coastguard (HMCG) from 10 base stations around the UK. The closest SAR helicopter bases to the study area are Newquay, located 25 nm east of the Offshore Cable Corridor on the north coast of Cornwall, and St Athan, approximately 38 nm to the northeast of the Offshore Cable Corridor in the Bristol Channel.

5.5.38 From April 2015 to March 2023, there were a total of 89 SAR helicopter taskings within the study area, with 41 of these clustered around the island of Lundy. A further 20 were located around the Offshore Cable Corridor Landfall in Bideford Bay. The remaining taskings were spread throughout the study area. The most common type of tasking was "Rescue/Recovery" accounting for 75% of tasking within the study area. All taskings were launched from St Athan or Newquay.

5.5.39 The HMCG coordinates SAR operations through a network of 11 Maritime Rescue Coordination Centres (MRCC), including a Joint Rescue Coordination Centre (JRCC) based in Hampshire.

5.5.40 All of the MCA's operations, including SAR, are divided into 18 geographical regions. The study area lies within Areas 11 and 12, "Cornwall including Isles of Scilly" and "North Devon including Severn Estuary". The closest MRCCs to the Proposed Development are at Falmouth, 38.5 nm to the south east of the Offshore Cable Corridor in Cornwall, and Milford Haven, approximately 37.0 nm north of the Offshore Cable Corridor in Wales. It is noted that incident response is not necessarily coordinated by the nearest MRCC, as operators may be unavailable and calls re-routed to another MRCC.

5.5.41 The location of the RNLI stations in proximity to the Proposed Development, along with the incidents recorded between 2013 and 2022 are presented in Volume 3, Figure 5.8. The RNLI operate a fleet of more than 350 lifeboats out of more than 230 stations across the UK and Ireland, with several of these located close to the Proposed Development. The closest stations to the Offshore Cable Corridor are at Appledore, 2.9 nm to the north east of the landfall in the entrance to the Rivers Taw and Torridge, and Clovelly, 3 nm south of the Offshore Cable Corridor on the coast of Bideford Bay. Along the west coast, nearby stations are located at Bude, Port Isaac, Rock, Padstow, Newquay, St Agnes, St Ives and Sennen Cove, with the St Mary's station also located on the Isles of Scilly

5.5.42 In the ten-year period from 2013 to 2022 (inclusive), there was an average of 37 incidents per year within the study area. The majority of these were located within Bideford Bay or the Rivers Taw and Torridge close to the landfall, with another concentration of incidents around the island of Lundy. Incidents further offshore were less common. The most common incident types were "person in danger" incidents in near-shore areas, accounting for 30% of the incidents. Machinery failures were also common, making up 20% of incidents within the study area. Three incidents were located within the Offshore Cable Corridor, all of which were

machinery failures. Recreational vessels were the most common casualty type, accounting for 38% of RNLI callouts. Non-vessel based incidents accounted for 25% of incidents.

5.5.43 All UK flagged vessels, as well as non-UK flagged vessels within UK waters which are within harbour limits or carrying passengers to or from a UK port, are required to report accidents to the MAIB. The MAIB also investigate incidents involving UK flagged vessels worldwide, or vessels of any flag within UK territorial waters, as detailed in MGN 564 (MCA, 2019). In the ten-year period from 2012 to 2021(inclusive), there was an average of three to four incidents per year recorded by the MAIB, with 46% of these being machinery failures. Accident to person incidents (14%), damage/loss of equipment (9%) and collision incidents (9%) also made up significant proportions of the incidents recorded by the MAIB. Fishing vessels accounted for 49% of MAIB-recorded incidents, with other commercial vessels (17%) and dry cargo vessels (14%) also notable.

Future Baseline Conditions

5.5.44 An assessment of the future baseline conditions has been carried out and is described within this section.

Wind Farm Developments

5.5.45 There are currently nine proposed offshore wind farm sites in the vicinity of the study area which have the potential to impact shipping in the area. This includes the White Cross wind farm, which has submitted a consent application, as well as several projects in early planning phases including Petroc, Gwynt Glas, Llywelyn and Llŷr sites. Further south, off St Ives, the TwinHub has consent to install four floating turbines. The Erebus Wind Farm has consent to install seven floating turbines, approximately 30 nm to the north west of the Offshore Cable Corridor.

5.5.46 Although mostly in early planning stages, these developments may lead to changes to the baseline shipping if they are granted consent and are constructed, including increased traffic volumes due to the presence of project vessels both during construction and throughout the lifetime of the wind farm, as well as the displacement of existing shipping routes. In line with industry experience to date, it is anticipated that commercial vessels would typically maintain a minimum mean distance from wind farm structures, though smaller vessels such as fishing vessels may opt to pass through wind farms.

Port Trends and Developments

5.5.47 Port statistics for some of the most common commercial destinations have been reviewed to understand how traffic patterns might be expected to change over the lifetime of the Proposed Development.

5.5.48 Rotterdam was the most common destination reported by commercial vessels. Commercial throughput at Rotterdam has steadily increased since 2017, except for 2020, 2022, and 2023 which saw declines associated with the Covid-19 pandemic in 2020, as well as sanctions against Russia and the flattening of the Dutch economy in 2022. Depressed volumes of commercial throughput continued in 2023 due to the disruptive effects of continuing geopolitical unrest and low economic growth on shipping.

5.5.49 Rotterdam is currently undergoing construction on new deep-sea and inland shipping quays in the Prinses Amaliahaven, which will facilitate increased throughput in the future. It is anticipated that this will be completed in 2024. Furthermore, plans are in place to expand the existing container terminal, expected to be completed in 2025.

5.5.50 The Irish ports of Dublin and Rosslare were also frequently broadcast destinations by commercial vessels. Overall port arrivals at Rosslare Port have increased by 23% in the last five years, whilst arrivals at Dublin Port during the same period decreased by roughly 6%. However, combined arrivals for the two ports remained generally consistent between years. The largest decrease at Dublin Port occurred between 2019 and 2021 which could reflect the effects of the Covid-19 pandemic. It is noted that arrivals at Dublin Port increased by roughly 3% between 2021 and 2022, suggesting numbers may continue to rise in the future.

5.5.51 Antwerp was also a common destination recorded on AIS. In October 2022, the Port of Antwerp-Bruges (Belgium) officially approved plans for the renewal of the quayside and terminal at Europa Terminal. This includes the deepening of the terminal by 2.5 m to accommodate larger vessels which will increase the terminal's capacity by over 700,000 Twenty Foot Equivalent Units (TEU) annually. Works are expected to take place over nine years. This development will allow the port to adapt to future shipping demands and host larger container ships, which will increase the number of vessels able to berth in the future.

Fishing Vessels

5.5.52 Fishing trends are difficult to project into the future, noting that trends are dependent on numerous factors including fish stocks and quotas. Changes to legislation following Brexit may also impact the size and make-up of the fishing fleet in UK waters (see Volume 3, Chapter 3: Commercial Fisheries).

Recreational Vessels

5.5.53 Recreational activity can be similarly difficult to predict but is assumed to remain similar or to slightly increase in future years. Similarly, the make-up of recreational traffic may vary, with sail and electric-powered vessels expected to become more prominent in place of diesel-fuelled craft. The locations of recreational activity may also vary, while volume of activity may be dependent on other factors such as the weather, climate change and the economy.

Key Receptors

5.5.54 **Table 5.12** identifies the receptors taken forward into the assessment.

Table 5.12: Key receptors taken forward to assessment

Receptor	Description
Commercial Vessels	Cargo vessels, tankers, passenger vessels, tugs, dredgers and other commercial vessels.
Fishing Vessels	Fishing vessels (both in transit and actively fishing).
Recreational Vessels	Recreational vessels
Military Vessels	Military vessels

5.6 Key Parameters for Assessment

Maximum Design Scenario

5.6.1 The maximum design scenarios identified in **Table 5.13** have been selected as those having the potential to result in the greatest effect on an identified receptor or receptor group. These scenarios have been selected from the Project Design Envelope provided in Volume 1, Chapter 3: Project description of the PEIR. Effects of greater adverse significance are not predicted to arise should any other development scenario, based on details within the Project Design Envelope (e.g., different cable installation method), to that assessed here be taken forward in the final design scheme. Therefore, this comprises a conservative assessment of a worst case scenario.

Table 5.13: Maximum design scenario considered for the assessment of potential impacts

Potential Impact	Phase[1]					Maximum Design Scenario	Justification
	C	Op	Op repair	D in-situ	D remove		
Collision of a passing third-party vessel with a vessel associated with cable installation, maintenance or decommissioning.	Yes	No	Yes	No	Yes	**Construction phase** Phased construction activities. Pre-lay works may commence in 2027. Cable lay activities due to start Q1 2028. Second bundle cable lay due to start 2030. Burial and protection activities to progress broadly in parallel, with protection taking longer to completion. Activities assumed 24 hours a day but transient (progressing along the Offshore Cable Corridor at typical rates of e.g. trenching at c.50 to 400 m per hour). Vessels to be involved in the cable installation include: one (two at changeovers) CLV; four trenching vessels; 20 guard vessels; two rock placement vessels. A maximum of two jack-up/multi-cat vessels will also be required for HDD works, while tugs, workboats and and survey vessels will also be required for survey works, route preparation and cable crossing works.	Maximum vessel numbers and construction period will be assumed, with the presence of vessels with restricted manoeuvrability causing the greatest increase to collision risk. Design life selected to reflect the full duration of the impact.

Potential Impact	Phase[1]					Maximum Design Scenario	Justification
	C	Op	Op repair	D in-situ	D remove		
						Operation phase No routine maintenance anticipated. Surveys of the cables to be undertaken up to once per year in the first 5 years, then approximately once every 5 years thereafter. 50 year design life for the cable. **Operation phase (repair)** Unplanned repair works may require similar vessels (on temporary, localised basis) to those used in the construction phase.	
						Decommissioning phase (*in-situ*) No vessel traffic anticipated. **Decommissioning phase (removal)** Assumed similar to construction phase.	

Potential Impact	Phase[1]					Maximum Design Scenario	Justification
	C	Op	Op repair	D in-situ	D remove		
Cable installation / decommissioning causing disruption to passing vessel routeing/timetables	Yes	No	No	No	Yes	**Construction phase** Phased construction activities. Pre-lay works may commence in 2027. Cable lay activities due to start Q1 2028. Second bundle cable lay due to start 2030. Burial and protection activities to progress broadly in parallel, with protection taking longer to completion. Activities assumed 24 hours a day but transient (progressing along the Offshore Cable Corridor at typical rates of e.g. trenching at c.50 to 400 m per hour). Vessels to be involved in the cable installation include: one (two at changeovers) CLV; four trenching vessels; 20 guard vessels; two rock placement vessels. A maximum of two jack-up/multi-cat vessels will also be required for HDD works, while tugs, workboats and survey vessels will also be required for survey works, route preparation and cable crossing works. **Decommissioning phase (removal)** Assumed similar to construction phase	Maximum vessel numbers and construction period will be assumed, with the presence of vessels with restricted manoeuvrability causing the greatest disruption.

Potential Impact	Phase[1]					Maximum Design Scenario	Justification
	C	Op	Op repair	D in-situ	D remove		
Increase in the risk of a vessel-to-vessel collision due to construction / decommissioning vessel activity	Yes	No	No	No	Yes	**Construction phase** Phased construction activities. Pre-lay works may commence in 2027. Cable lay activities due to start Q1 2028. Second bundle cable lay due to start 2030. Burial and protection activities to progress broadly in parallel, with protection taking longer to completion. Activities assumed 24 hours a day but transient (progressing along the Offshore Cable Corridor at typical rates of e.g. trenching at c.50 to 400 m per hour). Vessels to be involved in the cable installation include: one (two at changeovers) CLV; four trenching vessels; 20 guard vessels; two rock placement vessels. A maximum of two jack-up/multi-cat vessels will also be required for HDD works, while tugs, workboats and survey vessels will also be required for survey works, route preparation and cable crossing works. **Decommissioning phase (removal)** Assumed similar to construction phase	Maximum vessel numbers and construction period will be assumed, with the presence of vessels with restricted manoeuvrability causing the greatest displacement of vessels and therefore the greatest increase in collision risk.

Potential Impact	Phase[1]					Maximum Design Scenario	Justification
	C	Op	Op repair	D in-situ	D remove		
Cable installation / decommissioning causing disruption to fishing and recreational activities.	Yes	No	No	No	Yes	**Construction phase** Phased construction activities. Pre-lay works may commence in 2027. Cable lay activities due to start Q1 2028. Second bundle cable lay due to start 2030. Burial and protection activities to progress broadly in parallel, with protection taking longer to completion. Activities assumed 24 hours a day but transient (progressing along the Offshore Cable Corridor at typical rates of e.g. trenching at c.50 to 400 m per hour). Vessels to be involved in the cable installation include: one (two at changeovers) CLV; four trenching vessels; 20 guard vessels; two rock placement vessels. A maximum of two jack-up/multi-cat vessels will also be required for HDD works, while tugs, workboats and survey vessels will also be required for survey works, route preparation and cable crossing works. **Decommissioning phase (removal)** Assumed similar to construction phase.	Maximum vessel numbers and construction period will be assumed, with the presence of vessels with restricted manoeuvrability causing the greatest disruption.

Potential Impact	Phase[1]					Maximum Design Scenario	Justification
	C	Op	Op repair	D in-situ	D remove		
Cable installation / decommissioning causing disruption to third party marine activities (e.g., military, dredging)	Yes	No	No	No	Yes	**Construction phase** Phased construction activities. Pre-lay works may commence in 2027. Cable lay activities due to start Q1 2028. Second bundle cable lay due to start 2030. Burial and protection activities to progress broadly in parallel, with protection taking longer to completion. Activities assumed 24 hours a day but transient (progressing along the Offshore Cable Corridor at typical rates of e.g. trenching at c.50 to 400 m per hour). Vessels to be involved in the cable installation include: one (two at changeovers) CLV; four trenching vessels; 20 guard vessels; two rock placement vessels. A maximum of two jack-up/multi-cat vessels will also be required for HDD works, while tugs, workboats and survey vessels will also be required for survey works, route preparation and cable crossing works. **Decommissioning phase (removal)** Assumed similar to construction phase.	Maximum vessel numbers and construction period will be assumed, with the presence of vessels with restricted manoeuvrability causing the greatest disruption.

Potential Impact	Phase[1]					Maximum Design Scenario	Justification
	C	Op	Op repair	D in-situ	D remove		
Reduced Access to Local Ports/Harbours	Yes	No	Yes	No	Yes	**Construction phase** Phased construction activities. Pre-lay works may commence in 2027. Cable lay activities due to start Q1 2028. Second bundle cable lay due to start 2030. Burial and protection activities to progress broadly in parallel, with protection taking longer to completion. Activities assumed 24 hours a day but transient (progressing along the Offshore Cable Corridor at typical rates of e.g. trenching at c.50 to 400 m per hour). Vessels to be involved in the cable installation include: one (two at changeovers) CLV; four trenching vessels; 20 guard vessels; two rock placement vessels. A maximum of two jack-up/multi-cat vessels will also be required for HDD works, while tugs, workboats and survey vessels will also be required for survey works, route preparation and cable crossing works. HDD ducts to either 540 m or 1360 m offshore from the landfall.	Maximum vessel numbers and construction period will be assumed, with the presence of vessels with restricted manoeuvrability causing the greatest disruption.

Potential Impact	Phase[1]					Maximum Design Scenario	Justification
	C	Op	Op repair	D in-situ	D remove		
						Operation phase No routine maintenance anticipated. Surveys of the cables to be undertaken up to once per year in the first 5 years, then approximately once every 5 years thereafter. 50 year design life for the cable. **Operation phase (repair)** Unplanned repair works may require similar vessels (on temporary, localised basis) to those used in the construction phase.	
						Decommissioning phase (removal) Assumed similar to construction phase.	

Potential Impact	Phase[1]					Maximum Design Scenario	Justification
	C	Op	Op repair	D in-situ	D remove		
Anchor interaction with the Cable	Yes	Yes	Yes	Yes	Yes	**Construction phase** Approximately 370 km Offshore Cable Corridor with two trenches for cables within the 500m corridor. Corridor width increasing to a maximum of 1500 m at cable crossings. Post-lay burial is planned, meaning the cable may be exposed on the seabed temporarily. Burial and protection activities would progress broadly in parallel with the expectation that cable lay and the start of burial would be just a few days apart (noting that burial and protection activities would take longer to complete than the cable lay).. Where target burial depth (1.5 m) is not achievable, additional protection to be installed, principally rock cover in-trench and as berms (up to c. 1 m above bed level).	The full extent of the Offshore Cable Corridor and minimum burial depth have been selected, giving the greatest likelihood of anchor interaction. Design life selected to reflect the full duration of the impact.

Potential Impact	Phase[1]					Maximum Design Scenario	Justification
	C	Op	Op repair	D in-situ	D remove		
						Operation phase 50-year design life for the cable. Approximately 370 km Offshore Cable Corridor with two trenches for cables within the 500m corridor. Corridor width increasing to a maximum of 1500 m at cable crossings. Two cable bundles (bipoles) to be buried in separate trenches with spacing of 50-180 m. Target burial depth of 1.5 m. The preliminary BAS indicates that there is significant burial risk (due to e.g. hard seabed and / or boulder fields) across c. 150 km of the route. Rock protection (in trench and above seabed level where necessary) to be used where target depth cannot be achieved, with a maximum height of 1.0 m. Estimated 21 cable crossings within UK waters with rock protection to a height of approximately 1.4 m above the surrounding seabed. **Decommissioning phase (in situ)** As above for operational phase **Decommissioning phase (removal)** Assumed similar to construction phase.	

Potential Impact	Phase[1]					Maximum Design Scenario	Justification
	C	Op	Op repair	D in-situ	D remove		
A vessel engaged in fishing snags its gear on the cable	Yes	Yes	Yes	Yes	Yes	**Construction phase** Approximately 370 km Offshore Cable Corridor with two trenches for cables within the 500 m corridor. Corridor width increasing to a maximum of 1500 m at cable crossings. Post-lay burial is planned, meaning the cable may be exposed on the seabed temporarily. Burial and laying are to be carried out in parallel to limit periods where the cable is exposed on the seabed, with burial expected to begin a few days after laying, and expected to take longer. Where target burial depth (1.5 m) is not achievable, additional protection to be installed, principally rock cover in-trench and as berms (up to c. 1 m above bed level).	The full extent of the Offshore Cable Corridor and minimum burial depth have been selected, giving the greatest likelihood of fishing gear interaction. Design life selected to reflect the full duration of the impact.

Potential Impact	Phase[1]					Maximum Design Scenario	Justification
	C	Op	Op repair	D in-situ	D remove		
						Operation phase 50-year design life for the cable. Approximately 370 km Offshore Cable Corridor with two trenches for cables within the 500m corridor. Corridor width increasing to a maximum of 1500 m at cable crossings. Two cable bundles (bipoles) to be buried in separate trenches with spacing of 50-180 m. Target burial depth of 1.5 m. The preliminary BAS indicates that there is significant burial risk (due to e.g. hard seabed and / or boulder fields) across c. 150 km of the route. Rock protection (in trench and above seabed level where necessary) to be used where target depth cannot be achieved, with a maximum height of 1.0 m. Estimated 21 cable crossings within UK waters with rock protection to a height of approximately 1.4 m above the surrounding seabed.	
						Decommissioning phase (in situ) As above for operational phase **Decommissioning phase (removal)** Assumed similar to construction phase.	

Potential Impact	Phase[1]					Maximum Design Scenario	Justification
	C	Op	Op repair	D in-situ	D remove		
Reduction in under keel clearance resulting from laid cable and associated protection	Yes	Yes	Yes	Yes	Yes	**Construction phase** Phased construction activities. Pre-lay works may commence in 2027. Cable lay activities due to start Q1 2028. Second bundle cable lay due to start 2030. Burial and protection activities to progress broadly in parallel, with protection taking longer to completion. Activities assumed 24 hours a day but transient (progressing along the Offshore Cable Corridor at typical rates of e.g. trenching at c.50 to 400 m per hour). Estimated 21 cable crossings within UK waters with rock protection to a height of approximately 1.4 m above the surrounding seabed. Rock protection to be used where full target depth burial cannot be achieved (some degree of rock protection may be required across c. 150 km of offshore cable corridor), with a maximum berm height of 1.0 m.	Maximum number of crossings and maximum height of protection at crossings, giving the greatest likelihood of under keel interaction. Design life selected to reflect the full duration of the impact.

Potential Impact	Phase[1]					Maximum Design Scenario	Justification
	C	Op	Op repair	D in-situ	D remove		
						Operation phase Estimated 21 cable crossings within UK waters with rock protection to a height of approximately 1.4 m above the surrounding seabed. Rock protection to be used where full target depth burial cannot be achieved (some degree of rock protection may be required across c. 150 km of offshore cable corridor), with a maximum berm height of 1.0 m. 50-year design life for the cable. **Decommissioning phase (in situ)** As above for operational phase **Decommissioning phase (removal)** Assumed similar to construction phase.	

Potential Impact	Phase[1]					Maximum Design Scenario	Justification
	C	Op	Op repair	D in-situ	D remove		
Interference with Marine Navigational Equipment	No	Yes	Yes	No	No	**Operation phase** Approximately 370 km Offshore Cable Corridor with two trenches for cables within the 500 m corridor. Corridor width increasing to a maximum of 1500 m at cable crossings. 50-year design life for the cable. Two cable bundles (bipoles) to be buried in separate trenches with spacing of 50-180 m. Cable EMF 79 µT (790 Mg).	Full extent of the Offshore Cable Corridor and design life selected to reflect the full duration extent of the impact.

[1] C=Construction phase, Op=Operational phase, Op_{repair}=Operational phase repair activities, $D_{in\text{-}situ}$=Decommissioning phase assuming cable de-energised and left *in-situ,* D_{remove}=Decommissioning phase assuming cable removed

5.7 Mitigation Measures Adopted as Part of the Proposed Development

5.7.1 Mitigation measures adopted as part of the Proposed Development are presented in **Table 5.14**. The mitigation measures proposed as part of the Proposed Development include the following types of mitigation:

- Primary (inherent) mitigation – measures included as part of the Proposed Development design. The Institute of Environmental Management and Assessment (IEMA) describes these as 'modifications to the location or design of the development made during the pre-application phase that are an inherent part of the Proposed Development and do not require additional action to be taken'. This includes modifications arising through the iterative design process. These measures will be secured through the consent itself, through the description of the Proposed Development and the parameters secured in the DCO and/or marine licences. For example, a reduction in footprint or height.
- Secondary (foreseeable) mitigation. IEMA describes these as 'actions that will require further activity in order to achieve the anticipated outcome'. These include measures required to reduce the significance of environmental effects (such as lighting limits) and may be secured through an environmental management plan.
- Tertiary (inexorable) mitigation. IEMA describes these as 'actions that would occur with or without input from the EIA feeding into the design process. These include actions that will be undertaken to meet other existing legislative requirements, or actions that are considered to be standard practices used to manage commonly occurring environmental effects'. It may be helpful to secure such measures through Construction Environmental Management Plan or similar.

Table 5.14: Mitigation measures adopted as part of the Proposed Development

Measure Adopted	How the Measure Will be Secured
Primary mitigation	
Suitable implementation and monitoring of cable protection as informed by CBRA, taking into account anchoring and fishing practices. Burial is preferred method of protection, with rock protection expected to be used at cable crossings and where target depth and burial with existing sediments is not possible.	Design parameters taken forward into DCO and will form basis for specific contractor specifications.
Compass deviation effects will be minimised through cable design and burial, and separation distance between the two trenches. A compass deviation assessment will be undertaken post-consent, once the detailed design and cable configuration is available, to confirm interference with magnetic position-fixing equipment is within acceptable limits. If it cannot be demonstrated that MCA deviation requirements can be met pre-construction, a post-construction compass deviation survey of the 'as laid' Offshore Cable Corridor will be undertaken.	Compass deviation effects will be required to be minimised in line with MCA requirements, which will be required to be met as part of the consent conditions.
Secondary mitigation	

Measure Adopted	How the Measure Will be Secured
N/A	
Tertiary mitigation	
Development of a Vessel Management Plan which would set out pre-agreed vessel routes, speeds, safety measures, communication expectations etc.	Pre-requisite contractor requirement – secured via final Offshore CEMP.
Relevant policy guidance on water depth reduction to be followed during the design and construction of the project. Following further survey and detailed engineering, if areas are identified where external protection is required and the MCA condition of no more than 5% reduction in water depth is not achievable, a location specific review of impacts to shipping and consultation with the MCA will be carried out and additional mitigations agreed as required.	Water depth reduction will be required to be in line with MCA requirements, which will be required to be met as part of the consent conditions.
Promulgation of information via NtM, Kingfisher bulletins, the Kingfisher Information Service – Offshore Renewable & Cable Awareness (KIS-ORCA) service, Radio Navigational Warnings on Very High Frequency (VHF) radio, Navigational Telex (NAVTEX), and/or broadcast warnings in advance of and during the offshore works. Details to be set out in the Vessel Management Plan.	Pre-requisite contractor requirement – secured via final Offshore CEMP. Details of how information will be promulgated will be set out in the Vessel Management Plan (as part of Offshore CEMP).
Compliance with international legislation, both for Project vessels and third-party vessels. This includes the COLREGs and SOLAS.	Legal requirement to comply with international legislation.
A Fisheries Liaison Officer (FLO) will be appointed to allow for the communication and liaison between the applicant and commercial fisheries during the construction phases.	An FLO has already been appointed to the project and will continue to be engaged for the duration of the construction phase as a minimum. Listed in outline Offshore CEMP (although likely continue to be contracted to main client) and FLO requirement may be listed in deemed Marine Licence under DCO.
Cable installation vessels and support vessels will display appropriate lights and marks at all times, and where possible, broadcast their status on AIS. This will include indication of the nature of the work in progress and highlight their restricted manoeuvrability.	Pre-requisite contractor requirement – secured via final Offshore CEMP.
Guard vessel(s) will be employed to work alongside the installation vessel(s) during the construction period. These will alert third-party vessels to the presence of the installation activity and provide support in the event of an emergency.	Pre-requisite contractor requirement – secured via final Offshore CEMP.
Project vessel movements will be managed through marine coordination and communication.	Pre-requisite contractor requirement – secured via final Offshore CEMP.
Passing vessels will be requested to maintain a “safe” distance from installation vessels restricted in manoeuvrability. This will be monitored by guard vessels.	Pre-requisite contractor requirement – secured via final Offshore CEMP.

Measure Adopted	How the Measure Will be Secured
The cable will be clearly marked on Admiralty Charts with associated note/warning about anchoring, trawling or seabed preparation.	Ongoing consultations and commitments to data sharing with The Maritime and Coastguard Agency (MCA) and Trinity House. Data sharing commitment to the UK Hydrographic Office (UKHO) direct as required to update Admiralty Charts. Data sharing commitment secured via DCO.
Liaison with pilotage service at Bideford to reduce impact on vessel access and disruption to activities.	Good practice, and via NtM.
An MPCP will be produced as part of the final Offshore CEMP and will include measures to minimise the impact of any events as well as compliance with the International Convention for the Prevention of Pollution from Ships (MARPOL).	Pre-requisite contractor requirement – secured via final Offshore CEMP.

5.8 Preliminary Assessment of Construction Effects

5.8.1 The impacts of the construction of the Proposed Development have been assessed. The potential preliminary impacts arising from the construction phase of the Proposed Development are listed in **Table 5.13**, along with the maximum design scenario against which each impact has been assessed.

5.8.2 A description of the potential effect on receptors caused by each identified impact is given below.

Collision of a Passing Third-Party Vessel with a Vessel Associated with Cable Installation

5.8.3 There is an increased risk of collision due to the presence of vessels associated with the installation of the Proposed Development. This includes vessels involved in HDD works, pre-lay surveys, preparation of the route, cable-lay and post-lay burial and protection works.

5.8.4 The nature of certain aspects of cable installation requires large, slow-moving vessels which will be RAM. Therefore, these vessels may have limited ability to take avoidance action to prevent a collision with a passing vessel. The risk is considered to be lower for smaller support vessels such as tugs and guard vessels due to their increased mobility.

5.8.5 Vessel collision risk will be higher in busier areas of shipping. The vessel traffic baseline identified busy areas of shipping associated with vessels utilising the TSS lanes around the Isles of Scilly, as well as crossing the Offshore Cable Corridor between Lundy and the landfall, associated with vessels entering the Bristol Channel.

5.8.6 The construction phase of the Proposed Development is anticipated to commence in late 2027 (initial pre-lay works). Main cable installation works are expected to take place over several campaigns between the two cable bundles, with Bipole 1 (first cable bundle) scheduled to begin in Q1 2028; it is anticipated that these works would be completed in three sections each taking approximately one month. It is currently envisaged that two sections will be laid in 2028 and a third

section laid in 2029. Dates are indicative at this time and may be influenced by e.g. weather limitations of the CLV, with further detail and clarification on the timetable to be provided in the ES.

5.8.7 For Bipole 2 (second cable bundle), offshore works would begin in 2030 and would follow a similar schedule. At any given time, the spatial extent to which vessels are required to deviate is expected to be small.

5.8.8 In addition to the main cable installation works, there will be project vessel movements associated with HDD works, pre-lay surveys, preparation of the route, pre-sweeping, and post-lay burial and protection works. HDD works are planned to be carried out ahead of the main cable installation and may involve the use of up to two jack-up vessels working in the nearshore area. Burial and protection activities would progress broadly in parallel with the expectation that cable lay and the start of burial would be just a few days apart (noting that burial and protection activities would take longer to complete than the cable lay).

5.8.9 Project vessels will be managed by marine coordination, will display suitable marks and lights, will broadcast on AIS (including relevant navigational status where appropriate) and will be compliant with relevant Flag State regulations including the COLREGs and SOLAS. Details of construction activities, including any advisory safe passing distances will be suitably promulgated via NtM, Kingfisher bulletins, Radio Navigational Warnings, NAVTEX and/or broadcast warnings to maximise awareness of ongoing construction activities. Communications with local ports and harbours, including pilot vessel operators at Bideford, about the construction activities and appointment of a FLO will also help to ensure local users are aware of works and minimise collision risk. Guard vessels will also be used where deemed necessary to raise awareness of construction work to passing vessels, and guide vessels around any areas of construction activities.

Severity of Consequence

5.8.10 The most likely consequences in the event of a collision incident between a project vessel and third-party vessel are minor contact between the vessels resulting in minor damage to property and minor reputational effects on business but no perceptible effect on people. The worst-case scenario could involve one of the vessels foundering resulting in Potential Loss of Life (PLL) and the environmental consequence of pollution. Such a scenario would be more likely if the third-party vessel involved was a small craft which may have weaker structural integrity than a commercial vessel. If pollution were to occur in proximity to the Proposed Development, or as a result of a collision involving a project vessel, then the MPCP would be implemented to minimise the impact on the environment.

5.8.11 Overall, the severity of consequence is considered to be **moderate**.

Frequency of Occurrence

5.8.12 With the mitigation measures noted above implemented, it is considered unlikely that a close encounter between a third-party vessel and a project vessel will occur. In the event that such an encounter does occur, collision avoidance action would be implemented by the vessels as per the COLREGs, including Rule 18 which governs responsibilities between vessels if one is RAM, thus ensuring that the likelihood of the encounter developing into a collision incident is very low.

5.8.13 The frequency of occurrence is therefore considered to be **remote**.

Significance of the Effect

5.8.14 Overall, the severity of consequence is deemed to be moderate, and the frequency of occurrence is considered to be remote. Therefore, the effect is of **tolerable** adverse significance, which is **not significant** in EIA terms.

Further Mitigation

5.8.15 The effect is assessed to be not significant and ALARP with embedded mitigations in place. Therefore, no further mitigation is proposed.

Future Monitoring

5.8.16 No future monitoring requirements have been identified.

Cable Installation Causing Disruption to Passing Vessel Routeing/Timetables

5.8.17 Construction works may also cause disruption to vessel routeing/timetables. This will most likely affect busier areas of shipping where vessels are transiting on regular routes with a defined schedule. Within the study area, this is most likely to affect vessels making use of the TSS lanes around the Isles of Scilly, crossing the Offshore Cable Corridor entering or leaving the Bristol Channel, or regular vessels passing between Bideford and Lundy.

5.8.18 The construction phase of the Proposed Development is anticipated to commence in 2027 (initial pre-lay works). Main cable installation works are expected to take place over several campaigns between the two cable bundles, with the first bundle scheduled to begin in Q1 2028; it is anticipated that these works would be completed in three sections each taking approximately one month. It is currently envisaged that two sections will be laid in 2028 and a third section laid in 2029. Dates are indicative at this time and may be influenced by e.g. weather limitations of the CLV.

5.8.19 Additionally, cable installation will be a 24-hour operation to reduce the overall number of days required for the construction phase. At any given time, the spatial extent to which vessels are required to deviate is expected to be small.

5.8.20 In addition to the main cable installation works, there will be project vessel movements associated with HDD works, pre-lay surveys, preparation of the route and post-lay burial and protection works. HDD works are planned to be carried out ahead of the main cable installation and may involve the use of up to two jack-up vessels working in the nearshore area. Burial and protection activities would progress broadly in parallel with the expectation that cable lay and the start of burial would be just a few days apart (noting that burial and protection activities would take longer to complete than the cable lay).

5.8.21 In nearshore areas, disruption may be caused to vessels on approach to ports and harbours in proximity to the Offshore Cable Corridor, particularly vessels within Bideford Bay near the landfall.

5.8.22 Through promulgation of information, the majority of vessels should be aware of ongoing construction activities, allowing passage planning to be carried out to minimise impact on schedules.

Severity of Consequence

5.8.23 The most likely consequences are minor reputational effects on business but no perceptible effect on people.

5.8.24 The severity of consequence is therefore considered to be **minor**.

Frequency of Occurrence

5.8.25 The impact will be present throughout the construction phase, which will take place over several phases, beginning in 2027. The spatial extent around which vessels are required to deviate around vessels which are RAM is expected to be small at any given time. Cable installation will also be a 24-hour operation, which will reduce the overall length of the construction phase. Promulgation of information ensuring vessels are aware of works should also allow third-party vessels to passage plan if required to minimise disruption.

5.8.26 The frequency of occurrence is considered to be **reasonably probable**.

Significance of Effect

5.8.27 Overall, the severity of consequence is deemed to be minor, and the frequency of occurrence is considered to be reasonably probable. Therefore, the effect is of **tolerable** adverse significance, which is **not significant** in EIA terms.

Further Mitigation

5.8.28 The effect is assessed to be not significant and ALARP with embedded mitigations in place. Therefore, no further mitigation is proposed.

Future Monitoring

5.8.29 No future monitoring requirements have been identified.

Increase in the Risk of Vessel-to-Vessel Collision due to Construction Activity

5.8.30 Construction activities may also cause displacement of third-party vessels, leading to an increased risk of collision between two third-party vessels. In particular, vessels may be required to deviate around large, slow-moving vessels such as CLVs which may be RAM.

5.8.31 The risk of vessel displacement leading to increased encounters between third-party vessels and therefore increased collision risk is likely to be greatest in high density shipping areas, such as routes associated with the TSS lanes around the Isles of Scilly and between Lundy and the landfall.

5.8.32 The construction phase of the Proposed Development is anticipated to commence in 2027 (initial pre-lay works). Main cable installation works are expected to take

place over several campaigns between the two cable bundles, with the first bundle scheduled to begin in Q1 2028; it is anticipated that these works would be completed in three sections each taking approximately one month. It is currently envisaged that two sections will be laid in 2028 and a section laid in 2029. Dates are indicative at this time, and may be influenced by e.g. weather limitations of the CLV, with further detail and clarification on the timetable to be provided in the ES.

5.8.33 Additionally, cable installation will be a 24-hour operation to reduce the overall number of days required for the construction phase. At any given time, the spatial extent to which vessels are required to deviate is expected to be small.

5.8.34 In addition to the main cable installation works, there will be project vessel movements associated with HDD works, pre-lay surveys, preparation of the route, and post-lay burial and protection works. HDD works are planned to be carried out ahead of the main cable installation and may involve the use of up to two jack-up vessels working in nearshore area. Burial and protection activities would progress broadly in parallel with the expectation that cable lay and the start of burial would be just a few days apart (noting that burial and protection activities would take longer to complete than the cable lay).

5.8.35 Ensuring third-party vessels are aware of construction activities through mitigation measures such as promulgation of information will allow vessels to review, and revise if necessary, their passage plans prior to departure. In addition, project vessels will be managed by marine coordination, will display suitable marks and lights, will broadcast on AIS where appropriate (including relevant navigational status for vessels which are RAM) and will comply with relevant Flag State regulations including both SOLAS and the COLREGs. Guard vessels will also be used to raise awareness and guide vessels around any areas of construction activity.

Severity of Consequence

5.8.36 In the event of a collision incident between third-party vessels, the most likely consequences are minor contact between the vessels resulting in minor property damage and minor reputational effects on business, but no perceptible effects on people. The maximum adverse scenario could involve the foundering of one or more vessels, resulting in PLL and the environmental consequence of pollution. Such a scenario would be more likely to occur if a collision incident involved a smaller craft, which may have weaker structural integrity than a commercial vessel. If pollution were to occur in proximity to the Proposed Development, then the MPCP would be implemented to minimise the impact on the environment.

5.8.37 Overall, the severity of consequence is considered to be **moderate**.

Frequency of Occurrence

5.8.38 The impact will be present throughout the construction phase, which will take place overall several phases, beginning in 2027. As previously noted, the spatial extent around which vessels are required to deviate around vessels which are RAM is expected to be small at any given time. Cable installation will also be a 24-hour operation, which will reduce the overall length of the construction phase. Promulgation of information ensuring vessels are aware of works should also allow third-party vessels to passage plan if required.

5.8.39 The frequency of occurrence is therefore considered to be **remote**.

Significance of Effect

5.8.40 Overall, the severity of consequence is deemed to be moderate, and the frequency of occurrence is considered to be remote. Therefore, the effect is of **tolerable** adverse significance, which is **not significant** in EIA terms.

Further Mitigation

5.8.41 The effect is assessed to be not significant and ALARP with embedded mitigations in place. Therefore no further mitigation is proposed.

Future Monitoring

5.8.42 No future monitoring requirements have been identified.

Cable Installation Causing Disruption to Fishing and Recreational Activity

5.8.43 During the construction phase, there is a risk that construction works cause disruption to fishing and recreational vessels within the study area. From the baseline characterisation, it can be seen that there are fishing and recreational vessels recorded throughout the study area. This impact is likely to be greatest for recreational users in nearshore areas, such as close to the cable landfall within Bideford Bay, and for fishers throughout the study area. This impact will be present throughout the construction phase, including the main cable installation, as well as HDD works, pre-lay surveys, preparation of the route and post-lay burial and protection works.

5.8.44 The construction phase of the Proposed Development is anticipated to commence in 2027 (initial pre-lay works). Main cable installation works are expected to take place over several campaigns between the two cable bundles, with the first bundle scheduled to begin in Q1 2028; it is anticipated that these works would be completed in three sections each taking approximately one month. It is currently envisaged that two sections will be laid in 2028 and a section laid in 2029. Dates are indicative at this time, and may be influenced by e.g. weather limitations of the CLV.

5.8.45 Additionally, cable installation will be a 24-hour operation to reduce the overall number of days required for the construction phase. At any given time, the spatial extent to which vessels are required to deviate is expected to be small.

5.8.46 In addition to the main cable installation works, there will be project vessel movements associated with HDD works, pre-lay surveys, preparation of the route, pre-sweeping, and post-lay burial and protection works. HDD works are planned to be carried out ahead of the main cable installation and may involve the use of up to two jack-up vessels working in nearshore area. Burial and protection activities would progress broadly in parallel with the expectation that cable lay and the start of burial would be just a few days apart (noting that burial and protection activities would take longer to complete than the cable lay).

5.8.47 Promulgation of information and the use of guard vessels where required are expected to ensure sea users are aware of construction works. However, recreational users may be less aware of construction works than commercial vessels. Liaison with local ports/harbours and distribution of local NtM will help to

inform recreational vessels of construction works. The use of promulgation methods including Kingfisher bulletins should also assist with increasing awareness among fishers and recreational users. The appointment of an FLO will help raise awareness among local fishers. All vessels will be expected to comply with international marine legislation, including the COLREGs and SOLAS.

Severity of Consequence

5.8.48 The most likely consequences from fishing and recreational disruption are minor reputational effects on business, with no perceptible impact on people.

5.8.49 The severity of consequence is therefore considered to be **minor**.

Frequency of Occurrence

5.8.50 The frequency of occurrence is therefore considered to be **reasonably probable**.

Significance of Effect

5.8.51 Overall, the severity of consequence is deemed to be minor, and the frequency of occurrence is considered to be reasonably probable. Therefore, the effect is of **tolerable** adverse significance, which is **not significant** in EIA terms.

Further Mitigation

5.8.52 The effect is assessed to be not significant and ALARP with embedded mitigations in place. Therefore no further mitigation is proposed.

Future Monitoring

5.8.53 No future monitoring requirements have been identified.

Cable Installation Causing Disruption to Third-Party Marine Activities

5.8.54 There is a potential for construction works to cause disruption to third-party marine activities, such as military exercises or dredging. As noted in the baseline environment characterisation, there are military exercise areas within the study area, with one of these being a Navy exercise area overlapping the south of the Offshore Cable Corridor. A further three exercise areas relating to the Air Force are located overlapping the north of the Offshore Cable Corridor. Therefore, there is potential for military exercises to be disrupted by cable installation works. Military vessels were generally observed to be transiting through the study area, except for vessels in Bideford Bay and to the east of Lundy. It is noted that military vessels are not required to broadcast on AIS and therefore may be under-represented.

5.8.55 The construction phase of the Proposed Development is anticipated to commence in 2027 (initial pre-lay works). Main cable installation works are expected to take place over several campaigns between the two cable bundles, with the first bundle scheduled to begin in Q1 2028; it is anticipated that these works would be completed in three sections each taking approximately one month. It is currently

envisaged that two sections will be laid in 2028 and a section laid in 2029. Dates are indicative at this time and may be influenced by e.g. weather limitations of the CLV.

5.8.56 Additionally, cable installation will be a 24-hour operation to reduce the overall number of days required for the construction phase. At any given time, the spatial extent to which vessels are required to deviate is expected to be small.

5.8.57 In addition to the main cable installation works, there will be project vessel movements associated with HDD works, pre-lay surveys, preparation of the route, pre-sweeping, and post-lay burial and protection works. HDD works are planned to be carried out ahead of the main cable installation and may involve the use of up to two jack-up vessels working in nearshore area. Burial and protection activities would progress broadly in parallel with the expectation that cable lay and the start of burial would be just a few days apart (noting that burial and protection activities would take longer to complete than the cable lay).

5.8.58 Dredgers were recorded within the study area; however these were observed to be transiting rather than carrying out dredging.

Severity of Consequence

5.8.59 The most likely consequences from disruption to third-party marine activities are minor reputational effects on business but no perceptible effect on people.

5.8.60 The severity of consequence is therefore considered to be **minor**.

Frequency of Occurrence

5.8.61 Given the low volumes of military vessels and dredgers recorded within the study area, and that the vast majority of these were recorded transiting rather than engaged in activities, it is anticipated that any disruption can be suitably managed by liaison with the MoD in advance of construction works. The Defence Infrastructure Organisation noted in the Scoping Opinion that the MoD would be able to provide specific advice relating to navigation when more detail on the Proposed Development is available. The EIA team have reached out to the MoD to ensure specific consultation discussions inform the ES.

5.8.62 The frequency of occurrence is therefore considered to be **remote**.

Significance of Effect

5.8.63 Overall, the severity of consequence is deemed to be minor, and the frequency of occurrence is considered to be remote. Therefore, the effect is of **broadly acceptable** adverse significance, which is **not significant** in EIA terms.

Further Mitigation

5.8.64 The effect is assessed to be not significant and ALARP with embedded mitigations in place. Therefore, no further mitigation is proposed.

Future Monitoring

5.8.65 No future monitoring requirements have been identified.

Reduced Access to Local Ports/Harbours

5.8.66 There is potential for reduced access to local ports and harbours due to construction works, particularly for nearshore works in Bideford Bay close to the landfall. This is most likely to affect ports and harbours within the Rivers Taw and Torridge, namely Bideford, Appledore and Yelland. The entrance to the rivers lies approximately 2.7 nm to the north of the landfall of the Offshore Cable Corridor, with entrance only recommended two hours either side of high water. Pilotage is operated by the Port of Bideford, with the pilot boarding station located 2.6 nm north of the cable landfall.

5.8.67 Vessel movements associated with construction activities may lead to temporary reduction of access or disruption to pilotage, particularly if project vessels are using one of the local harbours. HDD works in particular have potential to lead to disruption given these may involve large jack-up vessels which are RAM in nearshore areas.

5.8.68 The construction phase of the Proposed Development is anticipated to commence in 2027 (initial pre-lay works). Main cable installation works are expected to take place over several campaigns between the two cable bundles, with the first bundle scheduled to begin in Q1 2028; it is anticipated that these works would be completed in three sections each taking approximately one month. It is currently envisaged that two sections will be laid in 2028 and a section laid in 2029. Dates are indicative at this time, and may be influenced by e.g. weather limitations of the CLV.

5.8.69 Additionally, cable installation will be a 24-hour operation to reduce the overall number of days required for the construction phase. At any given time, the spatial extent to which vessels are required to deviate is expected to be small.

5.8.70 In addition to the main cable installation works, there will be project vessel movements associated with HDD works, pre-lay surveys, preparation of the route and post-lay burial and protection works. HDD works are planned to be carried out ahead of the main cable installation and may involve the use of up to two jack-up vessels working in the nearshore area. Burial and protection activities would progress broadly in parallel with the expectation that cable lay and the start of burial would be just a few days apart (noting that burial and protection activities would take longer to complete than the cable lay).

5.8.71 Project vessels will be managed by marine coordination, will display suitable marks and lights, will broadcast on AIS (including relevant navigational status where appropriate) and will be compliant with relevant Flag State regulations including the COLREGs and SOLAS. Promulgation of information and liaison with local pilots, ports and harbours should also limit disruption to access.

Severity of Consequence

5.8.72 Vessels which are RAM used during both HDD works and the main cable installation, such as the CLV or jack-up vessels may lead to a temporary reduction in access to vessels using Bideford, Yelland or Appledore. The most likely consequences are minor reputational effects on business but no perceptible effect on people.

5.8.73 The severity of consequence is therefore considered to be **minor**.

Frequency of Occurrence

5.8.74 The impact will be present during installation of the cable, particular during nearshore works at the landfall. Cable-lay is expected to take place over several stages, with works beginning in March 2028.

5.8.75 Based on the AIS data, less than one vessel per day was recorded entering the rivers. Vessel types using ports/harbours within the rivers were mainly fishing and recreational vessels, with a regular passenger route to Lundy and Ilfracombe also recorded. It is noted that small craft entering the area may be under-represented on AIS.

5.8.76 The frequency of occurrence is therefore considered to be **reasonably probable**.

Significance of Effect

5.8.77 Overall, the severity of consequence is deemed to be minor, and the frequency of occurrence is considered to be reasonably probable. Therefore, the effect is of **tolerable** adverse significance, which is **not significant** in EIA terms.

Further Mitigation

5.8.78 The effect is assessed to be not significant and ALARP with embedded mitigations in place. Therefore, no further mitigation is proposed.

Future Monitoring

5.8.79 No future monitoring requirements have been identified.

Anchor Interaction with the Cable

5.8.80 There is a potential for risk of interaction from anchors with surface-laid cables prior to burial, during which time the cable will be exposed. Burial and protection activities would progress broadly in parallel, minimising the length of time the cable is exposed on the seabed, with the expectation that cable lay and the start of burial would be just a few days apart (noting that burial and protection activities would take longer to complete than the cable lay).

5.8.81 There is a risk that a nearby anchored vessel may lose its holding ground, and subsequently drag anchor over the cable. Vessels at anchor within the study area (baseline assessment) were mostly located within Bideford Bay or in proximity to Lundy. There was a low level of anchoring recorded across the majority of the study area.

5.8.82 There is also a risk that a vessel may suffer engine failure and choose to drop anchor to avoid drifting into an emergency situation such as collision, allision or grounding. This is most likely to occur in areas of busy shipping, such as those associated with the TSS lanes around the Isles of Scilly or on passage to/from the Bristol Channel.

5.8.83 In open waters, where depths are deeper and anchoring not always feasible, it is more likely that a vessel attempts to fix the problem or awaits assistance.

Severity of Consequence

5.8.84 While the cable is exposed, any vessel anchor could interact with it. Should an anchor become snagged on the cable, there could be a risk of injury while trying to free it. If the anchor cannot be freed from the cable, the safest action is to the slip the anchor, rather than attempting to raise or cut the cable.

5.8.85 The most likely consequences are limited damage to property (anchoring vessel or subsea cable), with greater damage possible depending on the anchor size and the nature of the interaction.

5.8.86 The severity of consequence is therefore considered to be **moderate**.

Frequency of Occurrence

5.8.87 As noted, the majority of anchoring activity takes place within Bideford Bay, close to the cable landfall, or off Lundy. Anchoring activity within the study area is generally low, with less than a vessel every two days recorded at anchor.

5.8.88 Within the study area, the busiest areas of shipping are associated with vessels using the TSS lanes around the Isles of Scilly and crossing the Offshore Cable Corridor in proximity to the landfall on passage to / from the Bristol Channel. A review of historical incident data from the RNLI revealed that machinery failures were among the most common incident type in the study area, with these having the potential to lead to an emergency anchoring situation.

5.8.89 Although there may be limited decision-making time in the event of a vessel drifting towards a hazard, charting of infrastructure including all subsea cables will inform any decision to anchor, as per Regulation 34 of SOLAS.

5.8.90 Mitigation measures will include promulgation of information, to ensure vessels are aware of the exposed cable, and the use of guard vessels where exposed areas of cable are considered to present a significant risk to navigation.

5.8.91 The frequency of occurrence is considered to be **extremely unlikely**.

Significance of Effect

5.8.92 Overall, the severity of consequence is deemed to be moderate, and the frequency of occurrence is considered to be extremely unlikely. Therefore, the effect is of **broadly acceptable** adverse significance, which is **not significant** in EIA terms.

Further Mitigation

5.8.93 The effect is assessed to be not significant and ALARP with embedded mitigations in place. Therefore, no further mitigation is proposed.

Future Monitoring

5.8.94 No future monitoring requirements have been identified.

Vessel Engaged in Fishing Snags its Gear on the Cable

5.8.95 Similar to impacts associated with vessel anchors, there is the potential for risk of interaction from fishing gear with surface-laid cables prior to burial or installation of external protection. As previously noted, this is expected to be a short period as cable lay and burial / protection are expected to be carried out in parallel.

Severity of Consequence

5.8.96 Although fishers are advised to follow the current maritime industry guidance (MGN 661, the Mariner's and all Admiralty charts) and avoid demersal trawling (and anchoring) in the immediate vicinity of the cables, it is acknowledged that fishing may still occur over the cables either inadvertently, or at the discretion of fishing vessel operators.

5.8.97 There is higher risk of snagging from demersal gear if the cable is exposed. The response from the crew includes reducing/reversing the propulsive force, attempting to unfasten the equipment, or releasing the gear and therefore in the majority of snagging incidents, it should be possible to recover the situation without any serious consequences (e.g. injury or fatality to crew members). However, accident data from the MAIB indicates that safe recovery from a snagging incident is not always the outcome. Consequences of snagging therefore range from damage to gear and the cable, loss of stability due to lines being put under strain and in the worst case, capsize of the vessel, men overboard and risk of injury or fatality. For example, a risk of capsize could occur if the vessel attempted to free its gear by raising the cable rather than releasing the gear.

5.8.98 The severity of consequence is therefore considered to be **serious**.

Frequency of Occurrence

5.8.99 Fishing vessels carrying demersal gear that interacts with the seabed when deployed present the greatest risk of snagging on subsea cables. Static gear types (e.g., potters/whelkers and gill netters) are not considered to present a safety risk from snagging, as they are able to select the position of their gear to avoid any subsea cables. Demersal trawlers made up 34% of all fishing vessels recorded in the study area. Demersal fishing was prevalent throughout the study area, with the exception of near Lundy and off the north west of the Devon coast. It is noted that fishing vessels may be under-represented on AIS, particularly in coastal areas. However, vessels not on AIS are most likely to be using static gear, which is not considered a snagging risk.

5.8.100 It is expected that mitigation measures including the appointment of an FLO, promulgation of information via means including Kingfisher bulletins and local communications will help ensure fishers are aware of exposed cable and avoid fishing directly over it. Guard vessels will also be in place to raise awareness of exposed cable where a significant risk to navigation has been found.

5.8.101 The frequency of occurrence is therefore considered to be **remote**.

Significance of Effect

5.8.102 Overall, the severity of consequence is deemed to be serious, and the frequency of occurrence is considered to be remote. Therefore, the effect is of **tolerable** adverse significance, which is **not significant** in EIA terms.

Further Mitigation

5.8.103 It is recommended that the period between cable lay and burial/protection is minimised, in order to reduce the risk of fishing gear interaction with the unprotected cable.

Future Monitoring

5.8.104 No future monitoring requirements have been identified.

Reduction in Under Keel Clearance from Laid Cable and Associated Protection

5.8.105 There is a risk that external cable protection measures reduce under keel clearance leading to potential vessel grounding incidents. This could lead to subsequent capsize, injury, loss of life, oil spills, etc. In general, this risk is greatest in coastal areas where existing water depths are shallower. Burial and protection activities would progress broadly in parallel with the expectation that cable lay and the start of burial would be just a few days apart (noting that burial and protection activities would take longer to complete than the cable lay). This impact may be present during the construction phase as soon as the first section of cable requiring external protection has been laid.

5.8.106 It is planned to bury the cable to a target depth of 1.5 m. External protection up to an approx. maximum height of 1.4 m will be required at 21 cable crossings. Where seabed characteristics do not allow full burial protection, rock protection may extend above seabed level, up to 1 m in height. The minimum water depth at the cable crossing locations is 42.5 m. The maximum height of external protection is 1.4 m therefore corresponding to a 3% reduction in water depth at cable crossings.

5.8.107 The provisional Burial Assessment Study has indicated a low risk to full target depth burial across Bideford Bay, where the seabed is dominated by sandy sediments. Thus the potential requirement for any rock placement in this area, where water depths are most shallow, is considered to be very low probability.

5.8.108 Should external protection reduce water depth by more than 5% in any area, this will require consultation with the MCA and further detailed assessment may be required following further surveys and detailed engineering to ensure navigational safety is not compromised.

Severity of Consequence

5.8.109 Should a vessel grounding occur, the most likely consequences are minor damage to property and minor reputational effects on business but no perceptible effect on people. The maximum adverse scenario may include the vessel foundering resulting in PLL and the environmental consequence of pollution. If

pollution were to occur in proximity to the Proposed Development, then the MPCP would be implemented to minimise the impact on the environment.

5.8.110 Overall, the severity of consequence is considered to be **moderate**.

Frequency of Occurrence

5.8.111 The likelihood of a grounding is greater for larger vessels with deeper draughts noting that deep draught vessels within the study area were typically recorded passing further offshore in deeper water as opposed to coastal areas.

5.8.112 The maximum height of external protection will be 1.4 m, which will be used at the 21 cable crossings. Elsewhere rock protection extending above the seabed level is considered to be the last resort in terms of preferred protection, with other burial techniques pursued in the first instance.

5.8.113 The average draught of vessels recorded within the study area was 7.0 m, while the maximum draught was 21.6 m. The maximum draught was recorded by a crude oil tanker visiting Rotterdam, crossing the Offshore Cable Corridor south of the Isles of Scilly in water depths in excess of 100 m. Draughts in the shallower areas around the landfall did not typically exceed 5 m in water depths below 20 m.

5.8.114 Due to the temporary nature of this impact during the construction phase, the frequency of occurrence is considered to be **extremely unlikely**.

Significance of Effect

5.8.115 Overall, the severity of consequence is deemed to be moderate, and the frequency of occurrence is considered to be extremely unlikely. Therefore, the effect is of **broadly acceptable** adverse significance, which is **not significant** in EIA terms.

Further Mitigation

5.8.116 The effect is assessed to be not significant and ALARP with embedded mitigations in place. Therefore, no further mitigation is proposed.

Future Monitoring

5.8.117 No future monitoring requirements have been identified.

5.9 Preliminary Assessment of Operational Effects

5.9.1 The impacts of the operation and maintenance phase of the Proposed Development have been assessed. The potential preliminary impacts arising from the operation and maintenance phase of the Proposed Development are listed in **Table 5.13**, along with the maximum design scenario against which each impact has been assessed.

5.9.2 A description of the potential effect on receptors caused by each identified impact is given below. Unless otherwise specified, each impact is relevant to both the operational and operational-repair phases.

Collision of a Passing Third-Party Vessel with a Vessel Associated with Cable Maintenance

5.9.3 Once the Proposed Development is operational, the risk of collision between third-party vessels and a project vessel remains only during periods of maintenance and repair work, or during inspection surveys. In the five years following installation, it is anticipated that surveys will be conducted up to once a year, then approximately every five years for the 50 year operational lifetime of the cables. Surveys would be carried out by a single survey vessel.

5.9.4 Unplanned maintenance works (operational-repair) may require cable repairs involving the de-burial and recovery of the cable, before following a similar procedure to installation for repair, but at a smaller, local scale. Therefore, vessels which are RAM may be required to carry out repairs. Project vessels will be managed by marine coordination, will display suitable marks and lights, will broadcast on AIS and be compliant with relevant Flag State regulations including SOLAS and the COLREGs.

5.9.5 As per the construction phase, other key mitigation measures will include promulgation of information via means such as NtM, Kingfisher bulletins, Radio Navigational Warnings, NAVTEX and/or broadcast warnings to maximise awareness of repair works.

Severity of Consequence

5.9.6 The most likely consequences in the event of a collision incident between a Project vessel and third-party vessel are minor contact between the vessels resulting in minor damage to property and minor reputational effects on business but no perceptible effect on people. The worst-case scenario could involve one of the vessels foundering resulting in Potential Loss of Life (PLL) and the environmental consequence of pollution. Such a scenario would be more likely if the third-party vessel involved was a small craft which may have weaker structural integrity than a commercial vessel. If pollution were to occur in proximity to the Proposed Development, or involving a project vessel, then the MPCP would be implemented to minimise the impact on the environment.

5.9.7 Overall, the severity of consequence is considered to be **moderate**.

Frequency of Occurrence

5.9.8 With the mitigation measures noted above implemented, it is considered unlikely that a close encounter between a third-party vessel and a Project vessel will occur. In the event that such an encounter does occur, collision avoidance action would be implemented by the vessels as per the COLREGs, including Rule 18 which governs responsibilities between vessels if one is RAM, thus ensuring that the likelihood of the encounter developing into a collision incident is very low. Furthermore, although the risk will be present throughout the 50 year operational lifetime of the project, project vessel presence during the operational phase will be limited to single survey vessels during routine surveys (operational phase--normal), or vessels carrying out unplanned repair works (operational phase-repair).

5.9.9 The frequency of occurrence is therefore considered to be **extremely unlikely**.

Significance of the Effect

5.9.10 Overall, the severity of consequence is deemed to be moderate, and the frequency of occurrence is considered to be extremely unlikely. Therefore, the effect is of **broadly acceptable** adverse significance, which is **not significant** in EIA terms.

Further Mitigation

5.9.11 The effect is assessed to be not significant and ALARP with embedded mitigations in place. Therefore, no further mitigation is proposed.

Future Monitoring

5.9.12 No future monitoring requirements have been identified.

Reduced Access to Local Ports/Harbours

5.9.13 There is potential for reduced access to local ports and harbours due to repair works during the operational phase, particularly for nearshore works in Bideford Bay close to the landfall.

5.9.14 Unplanned maintenance works (operational-repair) may require cable repairs involving the de-burial and recovery of the cable, before following a similar procedure to installation for repair, but at a smaller, local scale. Therefore, vessels which are RAM may be required to carry out repairs.

5.9.15 Project vessels will be managed by marine coordination, will display suitable marks and lights, will broadcast on AIS (including relevant navigational status where appropriate) and will be compliant with relevant Flag State regulations including the COLREGs and SOLAS. Promulgation of information via NtM should also limit disruption to access.

Severity of Consequence

5.9.16 The severity of consequence is therefore considered to be **minor**.

Frequency of Occurrence

5.9.17 Given the brief and localised nature of any repair works required during the operational phase, the probability of access to local ports and harbours being reduced is considered to be low.

5.9.18 The frequency of occurrence is therefore considered to be **extremely unlikely**.

Significance of Effect

5.9.19 Overall, the severity of consequence is deemed to be minor, and the frequency of occurrence is considered to be extremely unlikely. Therefore, the effect is of **broadly acceptable** adverse significance, which is **not significant** in EIA terms.

Further Mitigation

5.9.20 The effect is assessed to be not significant and ALARP with embedded mitigations in place. Therefore no further mitigation is proposed.

Future Monitoring

5.9.21 No future monitoring requirements have been identified.

Anchor Interaction with the Cable

5.9.22 As per the construction phase, there is a risk that a vessel drags anchor over the cable. Baseline characterisations found anchoring activity within the study area to be low, with anchored vessels recorded within Bideford Bay and off Lundy. It is noted that during repair works during the operational phase, there may be a requirement to de-bury the cable or remove external protection, thus exposing a section of the cable. During these times, it is anticipated that the presence of project vessels involved with the repair, and the effective promulgation of information would ensure that vessels do not drop anchor on or near the exposed cable section.

5.9.23 During the operational phase, the cable will be marked on UKHO Admiralty Charts, with associated warning regarding anchoring, trawling or seabed operations.

5.9.24 There is also the possibility that a vessel drops anchor over the cable in an emergency, leading to potential interaction between the anchor and the cable. As noted in the construction phase, a vessel suffering engine failure may drop anchor to prevent drifting, particularly to avoid an incident such as a collision, allision or grounding. The greatest areas of risk are those with high density shipping, such as where vessels utilising the TSS lanes cross the Offshore Cable Corridor, or those entering/exiting the Bristol Channel. RNLI incident data reviewed for 2013 to 2022 showed that machinery failures, which in some cases may lead to vessels drifting, were among the most common incident types within the study area.

5.9.25 As per the impact on anchor dragging, cable burial to a target depth of 1.5 m (final burial depths will be dictated by the CBRA and local bed conditions) will protect the cable from vessel anchors. The preliminary BAS has identified that up to 150 km of the route will present challenges to achieving a full target trenching depth (on account of hard rock substrate types etc) and which may require some or total protection with rock placement. The cable will also be charted on UKHO Admiralty Charts to help inform anchoring decisions, noting that decision-making time may be limited if a vessel is drifting towards a hazard.

Severity of Consequence

5.9.26 Once the cable is protected by either burial or external protection, larger vessel anchors pose a greater threat to the cable than those belonging to smaller vessels, as they are able to penetrate deeper into the seabed and cause greater damage. The target burial depth of 1.5 m, or external rock protection where this is not feasible, will mitigate the risk from vessel anchors.

5.9.27 The most likely consequences are limited damage to property (anchoring vessel or subsea cable), with greater damage possible depending on the anchor size and the nature of the interaction.

5.9.28 The severity of consequence is considered to be **minor**.

Frequency of Occurrence

5.9.29 Protection of the cable via burial or external protection will reduce the frequency of anchor interaction. As noted, decision-making time may be limited in a drifting scenario, however it is anticipated that charted infrastructure including subsea cables will inform any decision to anchor, as per Regulation 34 of SOLAS.

5.9.30 The frequency of occurrence is therefore considered to be **extremely unlikely**.

Significance of Effect

5.9.31 Overall, the severity of consequence is deemed to be minor, and the frequency of occurrence is considered to be extremely unlikely. Therefore, the effect is of **broadly acceptable** adverse significance, which is **not significant** in EIA terms.

Further Mitigation

5.9.32 The effect is assessed to be not significant and ALARP with embedded mitigations in place. Therefore, no further mitigation is proposed.

Future Monitoring

5.9.33 Surveys of the Offshore Cable Corridor will be undertaken up to once per year for the first five years of the operational phase, and every five years following this to ensure that burial and protection measures remain sufficient.

Vessel Engaged in Fishing Snags its Gear on the Cable

5.9.34 As per the construction phase, there is a risk of fishing gear interaction with the cable, as discussed in the same impact for the construction phase. Demersal fishing, using gear which interacts with the seabed, poses the greatest snagging risk, and has been recorded throughout the study area.

5.9.35 It is noted that during repair works during the operational phase, there may be a requirement to de-bury the cable or remove external protection, thus exposing a section of the cable. During these times, it is anticipated that the presence of project vessels involved with the repair, and the effective promulgation of information would ensure that vessels do not fish over or close to the exposed cable section.

5.9.36 During the operational phase, the cables will be marked on UKHO Admiralty Charts and KIS-ORCA, with associated note/warning regarding trawling, anchoring or seabed operations. This will inform decisions by the crew on choice of fishing grounds.

5.9.37 A CBRA will also be undertaken to provide burial recommendations, including those associated with risks to the cable from third party hazards, including fishing

activities. It is anticipated that cables will be buried to a target depth of 1.5 m, with the provisional BAS confirming an average minimum achievable depth of 0.8 m (as predicted from 42 assessment locations along the Offshore Cable Corridor). Where burial depth needs supplementing with external protection, rock placement (within trench or above seabed) will be deployed (max height 1 m). The 21 crossings will also result in above seabed level structures designed according to best practice, and to an approximate. maximum height of 1.4 m. Cable protection measures will be monitored by operational phase surveys to confirm their integrity.

5.9.38 All above ground cable protection will be designed according to best practice guidelines, which although not to be promoted, deems them overtrawlable.

Severity of Consequence

5.9.39 The planned cable protection, including burial and the use of external protection such as rock berms at cable crossings and where burial is not feasible (or does not provide full protection), is assumed to provide effective mitigation from fishing gear snagging, reducing the risk of serious consequences such as snagging, capsize of the vessel and PLL.

5.9.40 The severity of consequence is therefore considered to be **minor**.

Frequency of Occurrence

5.9.41 Once the cables are installed, the depiction of the cables on nautical and Kingfisher charts may discourage fishing in the vicinity of the cables, however evidence shows that this is not always the case with installed cables. The planned cable protection through burial and/or external protection is assumed to provide adequate protection against fishing gear interaction. It is the responsibility of fishers to dynamically risk assess whether it is safe to undertake fishing activities in proximity to the subsea cables and to make a decision as to whether or not to fish. Commercial issues regarding fishing activity are considered further in Volume 3, Chapter 4: Commercial Fisheries of the PEIR.

5.9.42 The frequency of occurrence is therefore considered to be **extremely unlikely**.

Significance of Effect

5.9.43 Overall, the severity of consequence is deemed to be minor, and the frequency of occurrence is considered to be extremely unlikely. Therefore, the effect is of **broadly acceptable** adverse significance, which is **not significant** in EIA terms.

Further Mitigation

5.9.44 The effect is assessed to be not significant and ALARP with embedded mitigations in place. Therefore, no further mitigation is proposed.

Future Monitoring

5.9.45 Surveys of the Offshore Cable Corridor will be undertaken up to once per year for the first five years of the operational phase, and approximately every five years following this to ensure that burial and protection measures remain sufficient.

Reduction in Under Keel Clearance from Laid Cable and Associated Protection

5.9.46 There is a risk that external cable protection measures reduce under keel clearance leading to potential vessel grounding incidents. This could lead to subsequent capsize, injury, loss of life, oil spills, etc. In general, this risk is greatest in coastal areas where existing water depths are shallower.

5.9.47 It is planned to bury the cable to a target depth of 1.5 m. External protection up to an approx. maximum height of 1.4 m will be required at 21 cable crossings. Where seabed characteristics do not allow full burial protection, rock protection may extend above seabed level, up to 1 m in height. The minimum water depth at the cable crossing locations is 42.5 m. The maximum height of external protection is1.4 m therefore corresponding to a 3% reduction in water depth at cable crossings.

5.9.48 The provisional Burial Assessment Study has indicated a low risk to full target depth burial across Bideford Bay, where the seabed is dominated by sandy sediments. Thus the potential requirement for any rock placement in this area, where water depths are shallow, is considered to be very low probability.

5.9.49 Should external protection reduce water depth by more than 5% in any area, this will require consultation with the MCA and further detailed assessment may be required following further surveys and detailed engineering to ensure navigational safety is not compromised.

Severity of Consequence

5.9.50 Should a vessel grounding occur, the most likely consequences are minor damage to property and minor reputational effects on business but no perceptible effect on people. The maximum adverse scenario may include the vessel foundering resulting in PLL and the environmental consequence of pollution. If pollution were to occur in proximity to the Proposed Development, then the MPCP would be implemented to minimise the impact on the environment.

5.9.51 Overall, the severity of consequence is considered to be **moderate**.

Frequency of Occurrence

5.9.52 The likelihood of a grounding is greater for larger vessels with deeper draughts noting that deep draught vessels within the study area were typically recorded passing further offshore in deeper water as opposed to coastal areas.

5.9.53 The maximum height of external protection will be 1.4 m, which will be used at the 21 cable crossings. Elsewhere rock protection extending above the seabed level is considered to be the last resort in terms of preferred protection, with other burial techniques pursued in the first instance.

5.9.54 The average draught of vessels recorded within the study area was 7.0 m, while the maximum draught was 21.6 m. The maximum draught was recorded by a crude oil tanker visiting Rotterdam, crossing the Offshore Cable Corridor south of the Isles of Scilly in water depths in excess of 100 m. Draughts in the shallower areas around the landfall did not typically exceed 5 m in water depths below 20 m.

5.9.55 The frequency of occurrence is therefore considered to be **remote**.

Significance of Effect

5.9.56 Overall, the severity of consequence is deemed to be moderate, and the frequency of occurrence is considered to be remote. Therefore, the effect is of **tolerable** adverse significance, which is **not significant** in EIA terms.

Further Mitigation

5.9.57 The effect is assessed to be not significant and ALARP with embedded mitigations in place. Therefore, no further mitigation is proposed.

Future Monitoring

5.9.58 Surveys of the Offshore Cable Corridor will be undertaken up to once per year for the first five years of the operational phase, and every five years following this to ensure that burial and protection measures remain sufficient.

Interference with Marine Navigational Equipment

5.9.59 A magnetic compass is a navigational instrument for determining direction relative to the earth's magnetic poles. It consists of a magnetised pointer (usually marked on the north end) free to align itself with the earth's magnetic field. Like any magnetic device, compasses are affected by nearby ferrous materials as well as by local electromagnetic forces, such as magnetic fields emitted from power cables. The majority of commercial vessels use a non-magnetic gyrocompass as the primary means of navigation, Which is unaffected by the earth’s magnetic field. However, as the magnetic compass still serves as an essential means of navigation in the event of power loss or as a secondary source, it must not be affected to the extent that safe navigation is threatened.

5.9.60 The proposed cables will consist of four 525 kV HVDC power cables buried in two bundled pairs, with a FOC included with each bundle. The HVDC cable may result in localised static EMF up to 79 µT (Amplitude Consultants, 2021), with the potential to affect magnetic compasses.

5.9.61 The important mitigating factors to reduce EMF effects on magnetic compasses are:

- Cable spacing;
- Water depth; and
- Burial depth.

5.9.62 The cables will be buried in two pairs, in trenches with a spacing of 50 – 180 m, potentially rising to 250 m in areas of high-density shipping. Target burial depth is 1.5 m, with external protection applied to the remainder (effectively using rock protection to bury the cable). The vast majority of the Offshore Cable Corridor is located in water depths of greater than 10 m below Chart Datum (CD). Therefore, there will be significant vertical distance between the cables and surface vessels along the majority of the Offshore Cable Corridor. The strength of the magnetic fields decreases exponentially with distance from the cables, and as such compass deviation will reduce with increasing water depth. Similarly, increasing burial depth also increases the vertical separation between a surface vessel and the cables in a given water depth.

Severity of Consequence

5.9.63 The majority of commercial vessel traffic uses non-magnetic gyrocompasses as the primary means of navigation, which are unaffected by EMF. Therefore, in general it is considered unlikely that any EMF interference created by the Proposed Development will have a significant impact on vessel navigation. However, as magnetic compasses can still serve as an essential means of navigation in the event of power loss, as a secondary source, or as some smaller craft (fishing or leisure) may rely on it as their sole means of navigation, it has been assessed within this chapter of the PEIR.

5.9.64 Vessels in shallower water should also be able to navigate visually using coastal features when conditions are suitable.

5.9.65 The severity of consequence is therefore considered to be **minor**.

Frequency of Occurrence

5.9.66 Given HVDC cables produce static magnetic fields which decrease with the horizontal distance from the cables, magnetic compass interference should only be experienced directly above or in direct proximity to the cables. Therefore, the greatest impact will be on vessels transiting parallel to the cable. However, given the water depths in the area it is expected that the vertical separation between surface vessels and the cables will mean interference is experienced rarely.

5.9.67 The frequency of consequence is therefore considered to be **extremely unlikely**.

Significance of Effect

5.9.68 Overall, the severity of consequence is deemed to be minor, and the frequency of occurrence is considered to be extremely unlikely. Therefore, the effect is of **broadly acceptable** adverse significance, which is **not significant** in EIA terms.

Further Mitigation

5.9.69 The effect is assessed to be not significant and ALARP with embedded mitigations in place. Therefore, no further mitigation is proposed.

Future Monitoring

5.9.70 It is not assumed necessary at this stage, however a compass deviation assessment will be undertaken post-consent, once the detailed design and cable configuration is available, to confirm interference with magnetic position fixing equipment is within acceptable limits. If it cannot be demonstrated that MCA deviation requirements can be met pre-construction, a post construction compass deviation survey of the ‘as laid’ Offshore Cable Corridor will be undertaken.

5.10 Assessment of Decommissioning Effects

5.10.1 The impacts of the decommissioning phase of the Proposed Development have been assessed. The potential impacts arising from the decommissioning phase of the Proposed Development are listed in **Table 5.13,** along with the maximum design scenario against which each impact has been assessed.

5.10.2 A description of the potential effect on receptors caused by each identified impact is given below.

Collision of a Passing Third-Party Vessel with a Vessel Associated with Decommissioning

5.10.3 Similarly, to the construction phase, there is a risk of collision between third-party vessels and projects vessels associated with decommissioning works.

Severity of Consequence

5.10.4 In the scenario where the cable is removed following its operational lifetime rather than left *in-situ*, the types and numbers of vessels expected to be used for decommissioning are expected to be similar (worst case) to those used in the construction phase.

5.10.5 The severity of consequence is therefore considered to be **moderate**.

Frequency of Occurrence

5.10.6 The frequency of occurrence is therefore considered to be **remote**.

Significance of Effect

5.10.7 Overall, the severity of consequence is deemed to be moderate, and the frequency of occurrence is considered to be remote. Therefore, the effect is of **tolerable** adverse significance, which is **not significant** in EIA terms.

Further Mitigation

5.10.8 The effect is assessed to be not significant and ALARP with embedded mitigations in place. Therefore, no further mitigation is proposed.

Future Monitoring

5.10.9 No future monitoring requirements have been identified.

Cable Decommissioning Causing Disruption to Passing Vessel Routeing/Timetables

5.10.10 As per the construction phase, there is a potential that decommissioning activities (decommissioning-removal) cause disruption to passing vessel routeing and timetables of vessels.

Severity of Consequence

5.10.11 In the scenario where the cable is removed following its operational lifetime rather than left *in-situ*, the types and numbers of vessels expected to be used for decommissioning are expected to be similar (worst case) to those used in the construction phase.

5.10.12 The severity of consequence is therefore considered to be **minor**.

Frequency of Occurrence

5.10.13 The frequency of occurrence is therefore considered to be **reasonably probable**.

Significance of Effect

5.10.14 Overall, the severity of consequence is deemed to be minor, and the frequency of occurrence is considered to be reasonably probable. Therefore, the effect is of **tolerable** adverse significance, which is **not significant** in EIA terms.

Further Mitigation

5.10.15 The effect is assessed to be not significant and ALARP with embedded mitigations in place. Therefore, no further mitigation is proposed.

Future Monitoring

5.10.16 No future monitoring requirements have been identified.

Increase in the Risk of a Vessel-to-Vessel Collision Due to Decommissioning Vessel Activity

5.10.17 As per the construction phase, vessel displacement due to the presence of project vessels during decommissioning works may lead to an increase in vessel-to-vessel collision risk between third-party vessels.

Severity of Consequence

5.10.18 In the scenario where the cable is removed following its operational lifetime rather than left *in-situ*, the types and numbers of vessels expected to be used for decommissioning are expected to be similar (worst case) to those used in the construction phase.

5.10.19 The severity of consequence is therefore considered to be **moderate**.

Frequency of Occurrence

5.10.20 The frequency of occurrence is therefore considered to be **remote**.

Significance of Effect

5.10.21 Overall, the severity of consequence is deemed to be moderate, and the frequency of occurrence is considered to be remote. Therefore, the effect is of **tolerable** adverse significance, which is **not significant** in EIA terms.

Further Mitigation

5.10.22 The effect is assessed to be not significant and ALARP with embedded mitigations in place. Therefore, no further mitigation is proposed.

Future Monitoring

5.10.23 No future monitoring requirements have been identified.

Cable Decommissioning Causing Disruption to Fishing and Recreational Activities

5.10.24 As per the construction phase, there is potential for decommissioning works to cause disruption to fishing and recreational activity.

Severity of Consequence

5.10.25 In the scenario where the cable is removed following its operational lifetime rather than left *in-situ*, the types and numbers of vessels expected to be used for decommissioning are expected to be similar (worst case) to those used in the construction phase.

5.10.26 The severity of consequence is therefore considered to be **minor**.

Frequency of Occurrence

5.10.27 The frequency of occurrence is therefore considered to be **reasonably probable**.

Significance of Effect

5.10.28 Overall, the severity of consequence is deemed to be minor, and the frequency of occurrence is considered to be reasonably probable. Therefore, the effect is of **tolerable** adverse significance, which is **not significant** in EIA terms.

Further Mitigation

5.10.29 The effect is assessed to be not significant and ALARP with embedded mitigations in place. Therefore, no further mitigation is proposed.

Future Monitoring

5.10.30 No future monitoring requirements have been identified.

Cable Decommissioning Causing Disruption to Third-Party Marine Activities

5.10.31 As per the construction phase, there is potential for decommissioning works to cause disruption to third-party marine activities such as military exercises or dredging.

Severity of Consequence

5.10.32 In the scenario where the cable is removed following its operational lifetime rather than left *in-situ*, the types and numbers of vessels expected to be used for

decommissioning are expected to be similar to those used in the construction phase.

5.10.33 The severity of consequence is therefore considered to be **minor**.

Frequency of Occurrence

5.10.34 The frequency of occurrence is therefore considered to be **remote**.

Significance of Effect

5.10.35 Overall, the severity of consequence is deemed to be minor, and the frequency of occurrence is considered to be remote. Therefore, the effect is of **broadly acceptable** adverse significance, which is **not significant** in EIA terms.

Further Mitigation

5.10.36 The effect is assessed to be not significant and ALARP with embedded mitigations in place. Therefore, no further mitigation is proposed.

Future Monitoring

5.10.37 No future monitoring requirements have been identified.

Reduced Access to Local Ports/Harbours

5.10.38 Similar to the construction phase, the presence of project vessels carrying out decommissioning works may cause a reduction in access to local ports and harbours. This will be particularly prevalent during works in nearshore areas at the landfall in Bideford Bay.

Severity of Consequence

5.10.39 In the scenario where the cable is removed following its operational lifetime rather than left *in-situ*, the types and numbers of vessels expected to be used for decommissioning are expected to be similar (worst case) to those used in the construction phase, leading a similar reduction in access.

5.10.40 The severity of consequence is therefore considered to be **minor**.

Frequency of Occurrence

5.10.41 The frequency of occurrence is therefore considered to be **reasonably probable**.

Significance of Effect

5.10.42 Overall, the severity of consequence is deemed to be minor, and the frequency of occurrence is considered to be reasonably probable. Therefore, the effect is of **tolerable** adverse significance, which is **not significant** in EIA terms.

Further Mitigation

5.10.43 The effect is assessed to be not significant and ALARP with embedded mitigations in place. Therefore, no further mitigation is proposed.

Future Monitoring

5.10.44 No future monitoring requirements have been identified.

Anchor Interaction with the Cable

5.10.45 Should the cable be left *in situ* following decommissioning, there is a risk to the cable from anchor interaction. This impact is expected to be as per the operational phase, although it is noted that the cable may no longer be subject to monitoring. Decommissioning works are expected to be subject to a separate assessment and consenting based on the information available at the time, towards the end of the operational phase in advance of decommissioning (50+ years from the current time).

5.10.46 Should the cable be removed during the decommissioning phase, there would be a period where the cable is no longer operational, but remains entirely or partially laid, with the risk of anchor interaction remaining during this time. Cable protection may initially be in place during the decommissioning phase and would reduce the risk of anchor interaction, however may be removed in advance of the cable being removed, depending on the technique selected. As noted, decommissioning works are expected to be subject to a separate assessment carried out towards the end of the cable's operational lifetime.

Severity of Consequence

5.10.47 The most likely consequences are limited damage to property (anchoring vessel or subsea cable), with greater damage possible depending on the anchor size and the nature of the interaction.

5.10.48 The severity of consequence is considered to be **minor**.

Frequency of Occurrence

5.10.49 The frequency of occurrence is considered to be **extremely unlikely**.

Significance of Effect

5.10.50 Overall, the severity of consequence is deemed to be minor, and the frequency of occurrence is considered to be extremely unlikely. Therefore, the effect is of **broadly acceptable** adverse significance, which is **not significant** in EIA terms.

Further Mitigation

5.10.51 The effect is assessed to be not significant and ALARP with embedded mitigations in place. Therefore, no further mitigation is proposed.

Future Monitoring

5.10.52 Any future monitoring requirements will be identified as part of a separate decommissioning programme.

Vessel Engaged in Fishing Snags its Gear on the Cable

5.10.53 Should the cable be left *in situ* following decommissioning, there is a risk to the cable from fishing gear snagging. This impact is expected to be as per the operational phase, although it is noted that the cable may no longer be subject to monitoring. Decommissioning works are expected to be subject to a separate assessment and consenting based on the information available at the time, towards the end of the operational phase in advance of decommissioning (50+ years from the current time).

5.10.54 Should the cable be removed during the decommissioning phase, there would be a period where the cable is no longer operational, but remains entirely or partially laid, with the risk of fishing gear interaction remaining during this time. Cable protection may initially be in place during the decommissioning phase and would reduce the risk of fishing gear snagging, however may be removed in advance of the cable being removed, depending on the technique selected. As noted, decommissioning works are expected to be subject to a separate assessment carried out towards the end of the cable's operational lifetime.

Severity of Consequence

5.10.55 The severity of consequence is considered to be **minor**.

Frequency of Occurrence

5.10.56 The frequency of occurrence is considered to be **extremely unlikely**.

Significance of Effect

5.10.57 Overall, the severity of consequence is deemed to be minor, and the frequency of occurrence is considered to be extremely unlikely. Therefore, the effect is of **broadly acceptable** adverse significance, which is **not significant** in EIA terms.

Further Mitigation

5.10.58 The effect is assessed to be not significant and ALARP with embedded mitigations in place. Therefore, no further mitigation is proposed.

Future Monitoring

5.10.59 Any future monitoring requirements will be identified as part of a separate decommissioning programme.

Reduction in Under Keel Clearance from Laid Cable and Associated Protection

5.10.60 Should the cable be left *in situ* following decommissioning, there is a risk that external cable protection measures reduce under keel clearance leading to potential vessel grounding incidents. This impact is expected to be as per the operational phase. Decommissioning works are expected to be subject to a separate assessment and consenting based on the information available at the time, towards the end of the operational phase in advance of decommissioning (50+ years from the current time).

5.10.61 Should the cable be removed during the decommissioning phase, there would be a period where the cable is no longer operational, but remains entirely or partially laid with cable protection also in place. Therefore under keel clearance may remain reduced in some areas of the Offshore Cable Corridor for part of the decommissioning phase. It is noted that by this time, the cable and associated protection would have been in place for 50 years meaning that mariners would be expected to be aware of the reduced under keel clearance.

5.10.62 It is planned to bury the cable to a target depth of 1.5 m. External protection up to an approx. maximum height of 1.4 m will be required at 21 cable crossings. Where seabed characteristics do not allow full burial protection, rock protection may extend above seabed level, up to 1 m in height. The minimum water depth at the cable crossing locations is 42.5 m. The maximum height of external protection is1.4 m therefore corresponding to a 3% reduction in water depth at cable crossings.

5.10.63 The provisional Burial Assessment Study has indicated a low risk to full target depth burial across Bideford Bay, where the seabed is dominated by sandy sediments. Thus the potential requirement for any rock placement in this area, where water depths are shallow, is considered to be very low probability.

5.10.64 Should external protection reduce water depth by more than 5% in any area, this will require consultation with the MCA and further detailed assessment may be required following further surveys and detailed engineering to ensure navigational safety is not compromised.

Severity of Consequence

5.10.65 Should a vessel grounding occur, the most likely consequences are minor damage to property and minor reputational effects on business but no perceptible effect on people. The maximum adverse scenario may include the vessel foundering resulting in PLL and the environmental consequence of pollution. If pollution were to occur in proximity to the Proposed Development, then the MPCP would be implemented to minimise the impact on the environment.

5.10.66 Overall, the severity of consequence is considered to be **moderate**.

Frequency of Occurrence

5.10.67 The frequency of occurrence is considered to be **remote**.

Significance of Effect

5.10.68 Overall, the severity of consequence is deemed to be moderate, and the frequency of occurrence is considered to be remote. Therefore, the effect is of **tolerable** adverse significance, which is **not significant** in EIA terms.

Further Mitigation

5.10.69 The effect is assessed to be not significant and ALARP with embedded mitigations in place. Therefore, no further mitigation is proposed.

Future Monitoring

5.10.70 Any future monitoring requirements will be identified as part of a separate decommissioning programme.

5.11 Cumulative Environmental Assessment

5.11.1 The Cumulative Effects Assessment (CEA) takes into account the impact associated with the Proposed Development together with other projects and plans. The projects and plans selected as relevant to the CEA presented within this chapter are based upon the results of a screening exercise (see Volume 1, Appendix 5.3: CEA screening matrix). Each project has been considered on a case-by-case basis for screening in or out of this chapter's assessment based upon data confidence, effect-receptor pathways and the spatial/temporal scales involved.

5.11.2 The shipping and navigation CEA methodology has followed the methodology set out in Volume 1, Chapter 5: EIA methodology of the PEIR. As part of the assessment, all projects and plans considered alongside the Proposed Development have been allocated into ‘tiers’ reflecting their current stage within the planning and development process.

- Tier 1
  - Under construction
  - Permitted application(s), whether under the Planning Act 2008 or other regimes, but not yet implemented.
  - Submitted application(s) whether under the Planning Act 2008 or other regimes but not yet determined.
  - Those currently operational that were not operational when baseline data were collected, and/or those that are operational but have an ongoing impact
- Tier 2
  - Scoping report has been submitted
- Tier 3
  - Scoping report has not been submitted
  - Identified in the relevant Development Plan
  - Identified in other plans and programmes.

5.11.3 This tiered approach is adopted to provide a clear assessment of the Proposed Development alongside other projects, plans and activities.

5.11.4 The specific projects, plans and activities scoped into the CEA, are outlined in **Table 5.15**.

Table 5.15: List of cumulative developments considered within the CEA

Project	Status	Distance from Proposed Development (nearest point, km)	Description	Dates of Construction (if available)	Dates of Operation (if available)	Overlap with the Proposed Development?
Tier 1						
White Cross Floating Offshore Windfarm	Permitted	7.8 (with the Offshore Cable Corridor overlapping / directly adjacent to the White Cross Cable Corridor)	Proposed offshore windfarm located in the Celtic Sea with a capacity of up to 100 MW. The Windfarm Site is located over 52 km off the North Cornwall and North Devon coast (west north west of Hartland Point), in a water depth of 60 m – 80 m. The Windfarm Site covers 50 km^2. The current wind turbine design envelope for the project is a WTG capacity of 12-24 MW, 6-8 three bladed horizontal axis turbines with a rotor diameter of 220-300 m.	Mid 2024	2026	No construction overlap, however there will be operational overlap with the Proposed Development

Celtic Interconnector	Permitted	Crosses offshore cable corridor	700 MW high-voltage direct current submarine power cable under construction between the southern coast of Ireland and the north-west coast of France. The UK elements of the Celtic Interconnector comprise: • A submarine cable within the UK EEZ approximately 211 km in length placed on or beneath the seabed. It passes approximately 30 km west of the Isles of Scilly and approximately 75 km west of Land's End, but does not enter UK Territorial Waters. • Secondary rock protection using rock placement (if required), where target depth of cable lowering is not fully achieved or at cable crossings, with a linear extent of between 0 km and	2024	2027	No construction overlap, however there will be operational overlap with the Proposed Development

Project	Status	Distance from Proposed Development (nearest point, km)	Description	Dates of Construction (if available)	Dates of Operation (if available)	Overlap with the Proposed Development?
			80 km or 0 to 270 tonnes. • A fibre optic link shall be laid along the cable route for operational control, communication and telemetry purposes.			
Tier 2						
N/A						
Tier 3						

Project	Status	Distance from Proposed Development (nearest point, km)	Description	Dates of Construction (if available)	Dates of Operation (if available)	Overlap with the Proposed Development?
The Crown Estate's Celtic Sea Floating Offshore Wind Leasing Round 5 - Project Development Area 3 (PDA3)	Future planned development	Overlaps with portion of the offshore cable corridor	PDA3 sits within English Governance and is one of three suitable PDAs identified within the Celtic Sea for floating offshore wind development, each of which having a potential capacity of up to 1.5 GW. Currently in the early stages of the project, the schedule for PDA3 is unknown, however, pre-consent metocean surveys are planned for early 2024 and geotechnical investigations are planned for summer 2024.	N/A (Currently in the early stages of the project, the schedule for PDA3 is unknown, however, pre-consent metocean surveys are planned for early 2024 and geotechnical investigations are planned for summer 2024.)	N/A	As the schedule for PDA3 is currently unknown, there is the potential for construction and operational phases to overlap with the Proposed Development.

Cumulative Effects Assessment

5.11.5 A description of the significance of cumulative effects upon shipping and navigation receptors arising from construction and operation is given below.

Construction

Tier 1 Projects

5.11.6 The Tier 1 Projects are expected to be in operation before construction begins on the Proposed Development with no overlap in construction periods anticipated. Any cumulative impact is therefore expected to be minimal, however should maintenance or repair works be required on the White Cross export cable or on the Celtic Interconnector, there may be cumulative impacts associated with increased collision risk or disruption to routeing/timetables, fishing, recreational or third party marine activities due to the presence of multiple project vessels.

5.11.7 There is also potential for increased collision risk, or disruption to routeing/timetables, fishing, recreational or third party marine activities if the White Cross offshore wind farm requires vessel to deviate towards areas of construction along the Offshore Cable Corridor. Given the location of the Offshore Cable Corridor relative to the proposed White Cross wind farm, and the current vessel routeing in the area, any change in vessel routeing relative to the Offshore Cable Corridor is expected to be minimal.

5.11.8 Accounting for the distance between the Proposed Development and the cumulative developments, the temporary nature of the construction works and the embedded mitigation measures that will be in place, the impacts are as per the equivalent construction phase impact for the Proposed Development in isolation.

Tier 2 Projects

5.11.9 N/A

Tier 3 Projects

5.11.10 PDA3 is in early planning stages with unknown schedule, therefore there is the potential that the construction or operational phases of this project may overlap with the construction phase of the Proposed Development. This could lead to increased collision risk or disruption to routeing/timetables, fishing, recreational or third party marine activities due to the presence of multiple project vessels. The risk can be mitigated by liaison between the developers and embedded mitigations such as promulgation of information, marine coordination, compliance with COLREGs and SOLAS and use of guard vessels.

5.11.11 There is also potential for increased collision risk, or disruption to routeing/timetables, fishing, recreational or third party marine activities if PDA3 requires vessel to deviate towards areas of construction along the Offshore Cable Corridor. Given the location of the Offshore Cable Corridor relative to the proposed White Cross wind farm, and the current vessel routeing in the area, any change in vessel routeing relative to the Offshore Cable Corridor is expected to be minimal.

5.11.12 Due to the temporary nature of the construction works, and considering the embedded mitigations in place, the impacts are considered to be as per the equivalent construction phase for the Proposed Development in isolation.

Operation and Maintenance

Tier 1 Projects

5.11.13 An overlap in maintenance or repair works on the Proposed Development with maintenance works on the Celtic Interconnector or White Cross export cable could lead to an increased collision risk associated with multiple project vessels. Given the very temporary nature of any maintenance or repair works, and likelihood that repairs or maintenance are not required in the same spatial area, this impact is expected to be as per the equivalent operation and maintenance phase for the Proposed Development in isolation.

5.11.14 The risk of anchor interaction, fishing snagging, reduction in under keel clearance and interference with marine navigational equipment could be increased if the White Cross OWF is expected to lead to increased traffic across the cables. However, given the location of the Proposed Development relative to the OWF and the current vessel routeing in the area, any change in vessel routeing across the Proposed Development is expected to be minimal. The impacts are therefore considered to be as per the equivalent operation and maintenance phase for the Proposed Development in isolation.

Tier 2 Projects

5.11.15 N/A

Tier 3 Projects

5.11.16 PDA3 is in early planning stages with unknown schedule, therefore there is the potential that the construction or operational phases of this project may overlap with the operation and maintenance phase of the Proposed Development. This could lead to increased collision risk if maintenance or repair works on the Proposed Development overlap with construction or maintenance activities on the Tier 1 projects. Given the very temporary nature of any maintenance or repair works, and likelihood that repairs or maintenance are not required in the same spatial area, this impact is expected to be as per the equivalent operation and maintenance phase for the Proposed Development in isolation.

5.11.17 The risk of anchor interaction, fishing snagging, reduction in under keel clearance and interference with marine navigational equipment could be increased if PDA3 is expected to lead to increased traffic across the cables. However, given the location of the Proposed Development relative to PDA3 and the current vessel routeing in the area, any change in vessel routeing across the Proposed Development is expected to be minimal. The impacts are therefore considered to be as per the equivalent operation and maintenance phase for the Proposed Development in isolation.

Decommissioning

Tier 1 Projects

5.11.18 There may also be a risk of increased collision or disruption to routeing / timetables, fishing, recreational or third party marine activities, if decommissioning works were to overlap temporally with maintenance or decommissioning works associated with the Tier 1 projects. Since the numbers and types of vessels used to remove the cables are expected to be similar to those used for construction, these impacts are expected to be similar in nature to the equivalent construction phase impact.

5.11.19 As per the operational phase, if the cables are decommissioned in situ, the risk of anchor interaction, fishing snagging, reduction in under keel clearance and interference with marine navigational equipment could be increased if the White Cross OWF is expected to lead to increased traffic across the cables. However, given the location of the Proposed Development relative to the OWF and the current vessel routeing in the area, any change in vessel routeing across the Proposed Development is expected to be minimal. The impacts are therefore considered to be as per the equivalent decommissioning phase for the Proposed Development in isolation.

Tier 2 Projects

5.11.20 N/A

Tier 3 Projects

5.11.21 There may also be a risk of increased collision or disruption to routeing/timetables, fishing, recreational or third party marine activities, if decommissioning works were to overlap temporally with maintenance or decommissioning works associated with the Tier 3 projects. Since the numbers and types of vessels used to remove the cables are expected to be similar to those used for construction, these impacts are expected to be similar in nature to the equivalent construction phase impact.

5.11.22 As per the operational phase, if the cables are decommissioned in situ, the risk of anchor interaction, fishing snagging, reduction in under keel clearance and interference with marine navigational equipment could be increased if PDA3 is expected to lead to increased traffic across the cables. However, given the location of the Proposed Development relative to PDA3 and the current vessel routeing in the area, any change in vessel routeing across the Proposed Development is expected to be minimal. The impacts are therefore considered to be as per the equivalent operation and maintenance phase for the Proposed Development in isolation.

5.12 Transboundary Effects

5.12.1 A screening of transboundary impacts has been carried out and has identified that there was no potential for significant transboundary effects with regard to Navigation from the Proposed Development upon the interests of other states, noting that international shipping has been included in the baseline assessment.

5.13 Inter-related Effects

5.13.1 Inter-relationships are the impacts and associated effects of different aspects of the Proposed Development on the same receptor. These are as follows.

- Project lifetime effects: Assessment of the scope for effects that occur throughout more than one phase of the Proposed Development (construction, operation and maintenance, and decommissioning phases), to interact to potentially create a more significant effect on a receptor than if just assessed in isolation in these three phases (e.g., construction noise effects and operational noise acting on the same receptor).
- Receptor led effects: Assessment of the scope for all effects (including inter-relationships between environmental topics) to interact, spatially and temporally, to create inter-related effects on a receptor.

5.13.2 Across the project lifetime, the effects on Shipping and Navigation receptors are not anticipated to interact in such a way as to result in combined effects of greater significance than the assessments presented for each individual phase. This includes no additional inter-related effects from the concurrent operational and operational-repair phases.

5.13.3 The displacement of commercial fishing vessels from fishing grounds may lead to an increase in collision risk between third party vessels. However, as these effects are already assessed within the Shipping and Navigation assessment, they are not anticipated to interact in such a way to result in combined effects of greater significance than the assessments presented in the individual receptor assessments.

5.13.4 Therefore, inter-related effects would not be significant in EIA terms.

Summary of Impacts, Mitigation Measures and Monitoring

5.13.5 Information on Shipping and Navigation within the study area was collected through desktop review.

5.13.6 **Table 5.16** presents a summary of the impacts, measures adopted as part of the Proposed Development and residual effects in respect to Shipping and Navigation. The impacts assessed include:

- Collision of a passing third-party vessel with a vessel associated with cable installation, maintenance, or decommissioning;
- Cable installation/decommissioning causing disruption to passing vessel routeing/timetables;
- Increase in the risk of a vessel-to-vessel collision due to construction/decommissioning vessel activity;
- Cable installation/decommissioning causing disruption to fishing and recreational activities;
- Cable installation/decommissioning causing disruption to third party marine activities (e.g., military, dredging);
- Reduced access to local ports/harbours;

- Anchor interaction with the cable;
- A vessel engaged in fishing snags its gear on the cable;
- Reduction in under keel clearance resulting from laid cable and associated protection; and
- Interference with marine navigational equipment.

5.13.7 Overall, it is concluded that there will be no significant effects arising from the Proposed Development during the construction, operation and maintenance or decommissioning phases.

5.13.8 Cumulative impacts were assessed in line with the CEA methodology. All impacts outlined above were considered and assessed to be equivalent to the impacts for the Proposed Development in isolation when accounting for the additional projects.

5.13.9 Therefore, it is concluded that there will be no significant cumulative effects from the Proposed Development alongside other projects/plans.

5.13.10 No potential transboundary impacts have been identified in regard to effects of the Proposed Development.

Table 5.16: Summary of potential shipping and navigation effects

Receptor	Description of impact	Severity of Consequence	Frequency of Occurrence	Significance of effect	Significant / Not significant	Notes
Construction phase						
All Vessels	Collision of a passing third-party vessel with a vessel associated with cable installation,	Moderate	Remote	Tolerable adverse	Not significant	
Commercial Vessels	Cable installation/decommissioning causing disruption to passing vessel routeing/timetables.	Minor	Reasonably Probable	Tolerable adverse	Not significant	
All Vessels	Increase in the risk of a vessel-to-vessel collision due to construction vessel activity	Moderate	Remote	Tolerable adverse	Not significant	
Fishing Vessels Recreational Vessels	Cable installation causing disruption to fishing and recreational activities.	Minor	Reasonably Probable	Tolerable adverse	Not significant	
Commercial Vessels Military Vessels	Cable installation causing disruption to third party marine activities (e.g., military, dredging)	Minor	Remote	Broadly acceptable adverse	Not significant	
All Vessels	Reduced access to local ports/harbours	Minor	Reasonably Probable	Tolerable adverse	Not significant	
All Vessels	Anchor interaction with the cable	Moderate	Extremely Unlikely	Broadly acceptable adverse	Not significant	
Fishing Vessels	A vessel engaged in fishing snags its gear on the cable	Serious	Remote	Tolerable adverse	Not significant	
All Vessels	Reduction in under keel clearance from laid cable associated protection	Moderate	Extremely Unlikely	Broadly acceptable adverse	Not significant	
Operational phase						

Receptor	Description of impact	Severity of Consequence	Frequency of Occurrence	Significance of effect	Significant / Not significant	Notes
All Vessels	Collision of a passing third-party vessel with a vessel associated with cable maintenance	Moderate	Extremely Unlikely	Broadly acceptable adverse	Not significant	
All Vessels	Reduced Access to Local Ports/Harbours	Minor	Extremely Unlikely	Broadly acceptable adverse	Not significant	
All Vessels	Anchor interaction with the cable	Minor	Extremely Unlikely	Broadly acceptable adverse	Not significant	
Fishing Vessels	Vessel engaged in fishing snags its gear on the cable	Minor	Extremely Unlikely	Broadly acceptable adverse	Not significant	
All Vessels	Reduction in under keel clearance from laid cable associated protection	Moderate	Remote	Tolerable adverse	Not significant	
All Vessels	Interference with marine navigational equipment	Minor	Extremely Unlikely	Broadly acceptable adverse	Not significant	
Decommissioning phase						
All Vessels	Collision of a passing third-party vessel with a vessel associated with cable decommissioning	Moderate	Remote	Tolerable adverse	Not significant	
Commercial Vessels	Cable decommissioning causing disruption to passing vessel routeing/timetables.	Minor	Reasonably probable	Tolerable adverse	Not significant	
All Vessels	Increase in the risk of a vessel-to-vessel collision due to construction vessel activity	Moderate	Remote	Tolerable adverse	Not significant	
Fishing Vessels Recreational Vessels	Cable decommissioning causing disruption to fishing and recreational activities.	Minor	Reasonably probable	Tolerable adverse	Not significant	
Commercial Vessels Military Vessels	Cable decommissioning causing disruption to third party marine activities (e.g., military, dredging)	Minor	Remote	Broadly acceptable adverse	Not significant	

Receptor	Description of impact	Severity of Consequence	Frequency of Occurrence	Significance of effect	Significant / Not significant	Notes
All Vessels	Reduced access to local ports/harbours	Minor	Reasonably probable	Tolerable adverse	Not significant	
All Vessels	Anchor interaction with the cable	Minor	Extremely Unlikely	Broadly acceptable adverse	Not significant	
Fishing Vessels	Vessel engaged in fishing snags its gear on the cable	Minor	Extremely Unlikely	Broadly acceptable adverse	Not significant	
All Vessels	Reduction in under keel clearance from laid cable associated protection	Moderate	Remote	Tolerable adverse	Not significant	

5.14 Next Steps

5.14.1 Following completion of the PEIR chapter, consultation will be undertaken with stakeholders to inform the final ES chapter.

5.14.2 Stakeholders to be consulted include:

- MCA;
- Trinity House;
- Royal Yachting Association (RYA);
- UK Chamber of Shipping;
- The MoD; and
- Local ports, harbours and pilotage services.

5.14.3 Any feedback received during consultation will be reviewed and incorporated into the assessment. The RYA Coastal Atlas will also be reviewed to inform on recreational activities within the study area, and the findings incorporated into the assessment.

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