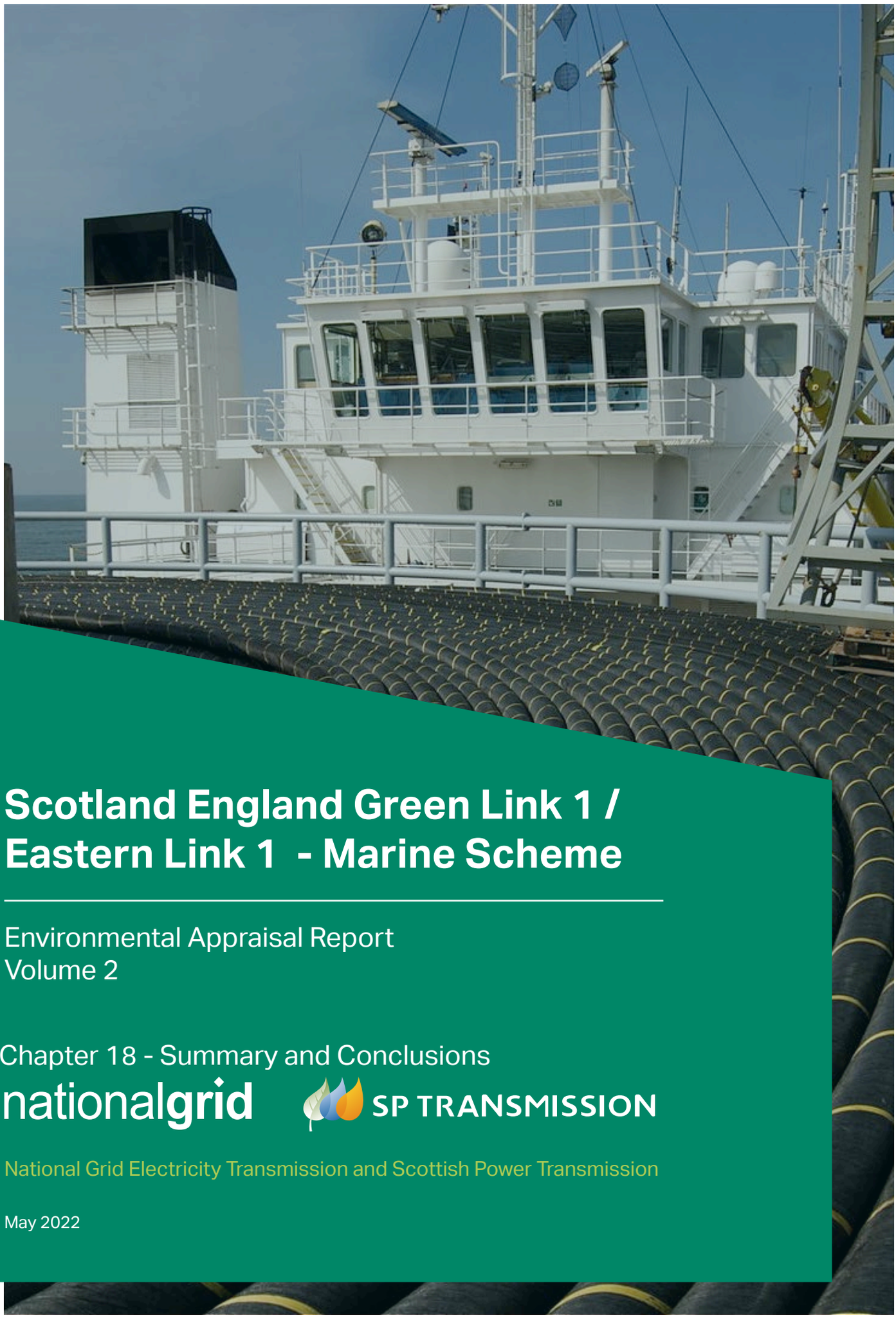

Scotland England Green Link 1 / Eastern Link 1 - Marine Scheme

Environmental Appraisal Report
Volume 2

Chapter 18 - Summary and Conclusions

nationalgrid SP TRANSMISSION

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18. Summary and Conclusion

18.1 Introduction

This chapter of the Environmental Appraisal Report (EAR) presents a summary of the environmental appraisal undertaken for the Marine Scheme of the Scotland England Green Link 1 (SEGL1) / Eastern Link 1 (EL1).

The Marine Scheme comprises the marine component of the Scotland England Green Link 1 (SEGL1) / Eastern Link 1 (EL1) and extends from Mean High Water Springs (MHWS) at the Scottish landfall on Thorntonloch beach, to MHWS at the English landfall near Seaham. It is located within both English and Scottish territorial waters, within the 12 nautical mile (NM) limit from the coast.

The Marine Scheme comprises a corridor of approximately 176 km length and 500 m maximum width within which the cables will be installed (hereinafter referred to as the 'marine installation corridor').

The marine installation corridor is measured through a series of kilometre points (KPs) which extend from kilometre point (KP) 0, at in the Scottish Scotland, to KP 176, at the English landfall. The Marine Scheme activities cover the following phases: installation, operation (including maintenance and repair) and decommissioning. Detailed descriptions of each of the Marine Scheme phases can be found in Chapter 2: Project Description.

A summary and conclusion of Chapters 7-16 of the EAR are as follows:

18.2 Physical Environment

Chapter 7: Physical Environment of the EAR appraises the potential interaction of the Marine Scheme with the physical environment.

Baseline

The appraisal establishes a baseline of marine geology and sediments, oceanographic conditions (comprising waves, currents and tides) and water quality.

Embedded Mitigation

Embedded mitigation measures have been identified to minimise potential interactions of the Marine Scheme with the physical environment; this is discussed in further detail within Chapter 7: Physical Environment.

Potential Impacts

The potential impacts on the physical environment are seabed disturbance, increases in suspended sediment concentrations, alteration of seabed morphology, changes in water quality and changes in the hydrodynamic regime.

Project Specific Mitigation

No project specific mitigation measures or monitoring for physical environment have been recommended.

Conclusions

During all three phases (installation, operation and decommissioning), the residual effects are reported as between **negligible** and **minor**, which are **not significant**.

18.3 Benthic Ecology

Chapter 8: Benthic Ecology of the EAR appraises of the potential interaction of the Marine Scheme with intertidal and subtidal benthic ecology.

Baseline

The appraisal establishes a baseline of intertidal ecology, subtidal ecology, protected habitats and species of conservation importance, cryptogenic species, non-native species and relevant designated sites.

Embedded Mitigation

Embedded mitigation measures have been identified to avoid and / or minimise impacts to benthic ecology receptors and include micrositing of the cable to avoid sensitive areas of the seabed, and carrying out route preparation works as locally as possible to minimise disturbance to sensitive habitats.

Potential Impacts

The potential impacts of the Marine Scheme on benthic ecology are temporary physical disturbance to, or permanent loss of, subtidal benthic habitats and species, temporary increase in suspended sediment concentrations (SSC) and sediment deposition and changes to marine water quality.

Project Specific Mitigation

No project specific mitigation measures or monitoring for benthic ecology have been recommended.

Conclusions

The appraisal concluded with residual effects ranging from **negligible** to **minor,** which are considered to be **not significant**.

18.4 Fish and Shellfish Ecology

Chapter 9: Fish and Shellfish Ecology of the EAR appraises the potential interaction of the Marine Scheme with fish and shellfish ecology.

Baseline

The appraisal establishes a baseline of general fish and shellfish communities, spawning and nursey grounds, relevant designated sites and species, commercial fisheries (from an ecological perspective) and species-specific information.

Embedded Mitigation

Embedded mitigation measures identified to avoid and / or minimise impacts to fish and shellfish ecology receptors include a CEMP and route preparation works would be carried out as locally as possible to minimise disturbance on sensitive habitats.

Potential Impacts

The potential impacts of the Marine Scheme on fish and shellfish ecology are temporary physical disturbance to, or permanent loss of, habitats and species, temporary increase in suspended sediment concentrations (SSC) and sediment deposition, changes to marine water quality and underwater sound effects.

Project Specific Mitigation

No project specific mitigation measures or monitoring have been recommended for fish and shellfish ecology.

Conclusions

The appraisal concluded with residual effects ranging from **negligible** to **minor,** which are **not significant**.

18.5 Marine Mammals

Chapter 10: Marine Mammals of the EAR appraises the potential interaction between the Marine Scheme and marine mammals.

Baseline

The appraisal establishes a baseline of two groups of marine mammals occurring in UK waters, namely cetaceans (whales, dolphins, and porpoises) and pinnipeds (seals).

A total of 28 cetacean species have been observed and two species of seal are present in UK waters; however, most are occasional visitors and within the Greater North Sea Ecoregion[1]. This baseline also considers the two seal species present in the UK, the harbour seal and grey seal.

Embedded Mitigation

The embedded mitigation measures for marine mammals include the mitigation measures recommended in the JNCC guidelines (2017) for minimising the risk of injury in marine mammals which will be adopted. The mitigation measures will be included in a Marine Mammal Protection Plan (MMPP), as part of the CEMP developed for the project.

Potential Impacts

The potential impacts of the Marine Scheme on marine mammals include underwater sound, changes in water quality and vessel and marine mammal collision risk.

Project Specific Mitigation

It is not considered that any additional mitigation and monitoring measures will be required during installation, operation (including maintenance and repair) and decommissioning phases.

Conclusions

The appraisal concluded with **minor** residual effects which are **not significant**.

18.6 Ornithology

Chapter 11: Ornithology of the EAR contains an appraisal of the potential interaction of the Marine Scheme and ornithology.

Baseline

The appraisal establishes a baseline of breeding, migratory and over-wintering populations of seabirds and waterbirds using the intertidal area and offshore waters.

Embedded Mitigation

Embedded mitigation measures have been incorporated into the design of the Marine Scheme to avoid and minimise effects on marine ornithological receptors. This includes a commitment to be included with the CEMP to ensure that transiting vessels move at low speeds allowing any rafts of birds to disperse naturally well in advance of an approaching vessel, where the marine installation corridor passes through the Outer Firth of Forth & St Andrews Bay Complex Special Protection Area (SPA) as it leaves the Scottish landfall and the Northumberland Marine SPA.

Potential Impacts

The potential impacts of the Marine Scheme on ornithology include temporary physical disturbance and displacement of species associated with sound, visual effects and presence from vessel and construction activity, disturbance to the seabed and / or water quality due to increased SSC resulting in changes in prey availability, and alteration of water quality due to unplanned releases, accidental leaks and spills from vessels and plant.

Project Specific Mitigation

No project specific mitigation measures or monitoring have been recommended for ornithology as a result of the impact appraisal.

[1] The Greater North Sea ecoregion includes the North Sea, English Channel, Skagerrak, and Kattegat

Conclusions

The appraisal concluded with residual effects ranging from **negligible** to **minor** which are **not significant**.

18.7 Marine Archaeology

Chapter 12: Marine Archaeology of the EAR appraises the potential interaction of the Marine Scheme with the known and potential marine archaeology and cultural heritage resource below MHWS.

Baseline

The appraisal establishes a baseline of seabed prehistory, seabed features (maritime and aviation), marine recorded loses and intertidal heritage potential.

Embedded Mitigation

Embedded mitigation measures have been incorporated into the design of the Marine Scheme to avoid and minimise effects on marine archaeology and cultural heritage resources including a Written Scheme of Investigation (WSI) and for the protection of known archaeological assets is avoidance, achieved through the implementation and monitoring of Archaeological Exclusion Zones (AEZs).

Potential Impacts

The potential impacts of the Marine Scheme on marine archaeology include direct and indirect damage to known and unknown assets.

Project Specific Mitigation

Project specific mitigation is also proposed including Archaeological Exclusion Zones (AEZs), and for unexpected discoveries, a Protocol for Archaeological Discoveries (PAD) will be adopted.

Conclusions

The marine archaeology appraisal concluded with all residual effects appraised as **negligible**, which is **not significant**.

18.8 Shipping and Navigation

Chapter 13: Shipping and Navigation of the EAR appraises the potential interaction of the Marine Scheme with shipping and navigation. It constitutes a full Navigational Risk Assessment (NRA).

Baseline

The appraisal establishes a baseline of key navigational features, emergency response, maritime incidences, and marine traffic.

Embedded Mitigation

Embedded mitigation measures have been incorporated into the design of the Marine Scheme to ameliorating each identified impact, such as issuing a Notice to Mariners (including Kingfishers) and using AIS Broadcast at all times to mitigate against the potential for vessel-to-vessel collision.

Potential Impacts

The potential impacts of the Marine Scheme on shipping and navigation include vessel-to-vessel collision, deviation from established vessel routes and areas, interaction with vessel anchors and anchoring activity and interaction with fishing gear.

Project Specific Mitigation

Project specific mitigation is also proposed such as the duration between cable laying and associated burial and protection works will be minimised insofar as is practicable, in order to minimise the period when exposed cables are present on the seabed.

Conclusions

Following the implementation of the project specific mitigation measures, the residual risks, from all phases of the Marine Scheme, can be considered **ALARP** ('as low as reasonably possible').

18.9 Commercial Fisheries

Chapter 14: Commercial Fisheries of the EAR appraises the potential interaction of the Marine Scheme with commercial fisheries.

Baseline

The appraisal establishes a baseline of principal fishing activities, lobster and crab fishery, squid fishery and scallop dredge fishery.

Embedded Mitigation

A range of embedded mitigation measures have been proposed such as the development of a Fisheries Liaison and Co-existence Plan (FLCP) / Fisheries Management and Mitigation Strategy (FMMS) in consultation with fisheries stakeholders and the appointment of a Fisheries Liaison Officer.

Potential Impacts

During the installation phase of the Marine Scheme, the potential impacts include temporary loss or restricted access to fishing grounds, displacement of fishing activity into other areas, interference with fishing activities, snagging risk (loss or damage to fishing gear) and impacts on target species for commercial fisheries. During the operational phase of the Marine Scheme, the potential impacts are the same, but instead, the long-term impact on fishing grounds are considered.

Project Specific Mitigation

During the operational phase, project specific mitigation is required for commercial fisheries relating to where static gear may be removed or relocated. This mitigation will be implemented for affected vessels following an evidence-based approach, in line with Fishing Liaison with Offshore Wind and Wet Renewables Group (FLOWW) guidance, via the establishment of co-operation agreements.

Conclusions

The commercial fisheries appraisal concluded with residual effects appraised as **negligible** to **minor** which are **not significant**.

18.10 Other Sea Users

Chapter 15: Other Sea Users of the EAR appraises the potential interaction of the Marine Scheme with other sea users.

Baseline

The appraisal establishes a baseline of marine recreational activities (including recreational boating and fishing, scuba diving, kayaking, paddleboarding and canoeing, surfing; windsurfing and kite surfing (at Scottish landfall only) and open water swimming), offshore wind farms, cable crossings, dredging and disposal sites, aquaculture and other developments.

Embedded Mitigation

Embedded mitigation measures have been built into the Marine Scheme to avoid and / or minimise impacts to other sea users. This includes the establishment of an advisory safety zone of 500 m. Furthermore, Proximity and Crossing Agreements will be agreed with cable and pipeline owners.

Potential Impacts

The potential impacts of the Marine Scheme on other sea users are disruption to marine recreational users, disruption to vessel routeing and access to other sea user working areas, and the risk of damage to or interference with a third-party cable or pipeline asset.

Project Specific Mitigation

No project specific mitigation measures or monitoring for other sea users have been recommended as a result of the impact appraisal.

Conclusions

Following implementation of appropriate mitigation measures set out in this chapter; the other sea users' appraisal concluded that all residual effects would be **negligible** and therefore **not significant**.

18.11 Cumulative and In-Combination Effects

Chapter 16: Cumulative and In-Combination Effects of the EAR appraises the potential interaction of the Marine Scheme with other projects / plans, and in-combination effects (where receptors could be affected by more than one environmental impact).

Long list

The appraisal has been based on the best available data from other plans, projects, marine activities, and associated information that is currently in the public domain or has been provided to the Marine Scheme. A long list of other developments within a study area of 20 km of the Marine Scheme was established, and each development screened for its potential spatial or temporal overlap with the Marine Scheme.

Short list

Where there was potential for potential spatial or temporal overlap these developments were shortlisted and taken forward for cumulative appraisal and comprise:

- Scotland England Green Link / Eastern Link 1 Onshore Components (Scotland);
- Scotland England Green Link / Eastern Link 1 Onshore Components (England);
- Berwick Bank Offshore Wind Farm (export cable only);
- Blyth Offshore Demonstrator Array 4 (Phase 2);
- Havhingsten Segment 2.1 South; and
- Dunbar East Beach Sea Defence.

It should be noted that SG1A Transmission Asset (for Seagreen 1 Offshore Windfarm), Inch Cape Offshore Wind Farm and Neart Na Gaoithe Offshore Wind were screened out. However, these developments in conjunction with the Marine Scheme may have cumulative effects in the operational phase (for fishing, associated with the increased permanent loss of fishing grounds), these 'other developments' were appraised for cumulative effects during the operational phase of the Marine Scheme within the commercial fisheries section.

Appraisal

Each shortlisted development was screened for potential impact pathway interactions for each technical chapter of this EAR and the impact pathway either included or excluded from further appraisal.

Mitigation and conclusions

No project specific mitigation measures have been recommended. The outcomes of the cumulative effects appraisal ranges between **negligible** to **minor** effects which are **not significant**.

In-combination effects

In-combination effects are where receptors could be affected by more than one environmental impact. Where a receptor has been identified as only experiencing one effect, or where only one topic has identified effects on that receptor, there is no potential for in-combination effects. The receptor groups within this EAR do not interact between chapters, therefore receptors have been wholly appraised within their respective topic chapter and therefore, in-combination effects have not been identified within this appraisal.

18.12 Summary of Significance of Residual Effects

Table 18-1 provides a summary of the significance of residual effects associated with the installation, operation and decommissioning phases of the Marine Scheme. There are no significant residual effects.

Table 18-1: Summary of Significant and Residual Effects for the Installation and Operational Phases of the Marine Scheme

Topic	Receptor	Potential Impact	Receptor Sensitivity	Magnitude of Change	Significance	Project Specific Mitigation Summary	Magnitude after Mitigation	Significance of Residual Effect
Pre-Installation								
Physical Environment	Seabed and bedforms	Temporary seabed disturbance	Low	Low	Negligible	None required	No change	**Negligible** which is **not significant**
	Water column	Increase in suspended sediment concentrations	Low	Low	Negligible	None required	No change	**Negligible** which is **not significant**
	Seabed and bedforms	Temporary seabed disturbance	Low	Low	Negligible	None required	No change	**Negligible** which is **not significant**
Installation								
Physical Environment	Seabed and bedforms	Temporary seabed disturbance: Destruction – partial disturbance of sandwaves and sandwave fields.	Low	Low	Minor	None required	No change	**Minor** which is **not significant**
	Seabed morphology	Localised permanent seabed disturbance due to Displacement and removal of debris and boulders.	Low	Low	Negligible	None required	No change	**Negligible** which is **not significant**
	Sea water	Water contamination (during route clearance)	Low	Low	Negligible	None required	No change	**Negligible** which is **not significant**
	Seabed morphology	Increase in suspended sediment concentrations and redeposition onto seabed changing seabed morphology *inside* installation corridor	Low	Low	Minor	None required	No change	**Minor** which is **not significant**
	Seabed morphology	Increase in suspended sediment concentrations and redeposition onto seabed changing seabed morphology *outside* installation corridor	Low	Low	Negligible	None required	No change	**Negligible** which is **not significant**

Topic	Receptor	Potential Impact	Receptor Sensitivity	Magnitude of Change	Significance	Project Specific Mitigation Summary	Magnitude after Mitigation	Significance of Residual Effect
	Seabed morphology and possible reduction in integrity of cable protection	Scour about the rock placement and concrete mattressing built parallel or near parallel to the current direction	Low	Low	Minor	None required	No change	**Minor** which is **not significant**
	Nearshore Seabed morphology	Nearshore seabed disturbance	Low	Low	Minor	None required	No change	**Minor** which is **not significant**
	Seawater and seabed morphology	Increase in suspended sediment concentrations and redeposition onto seabed changing seabed morphology	Low	Low	Negligible	None required	No change	**Negligible** which is **not significant**
	Seawater	Water contamination (HDD installation/ pit excavation)	Low	Low	Negligible	None required	No change	**Negligible** which is **not significant**
	Seabed	Seabed disturbance (during cable installation: anchor deployment)	Low	Low	Negligible	None required	No change	**Negligible** which is **not significant**
Benthic Ecology	All benthic habitats and species	Temporary physical disturbance to subtidal benthic habitats and species	Low to high	Low / Negligible	Negligible to minor	None required	No change	**Negligible** to **minor** which is **not significant**
	All benthic habitats and species	Permanent loss of and/or disturbance subtidal benthic habitats and species due to placement of hard substrates on the seabed	Low to high	Low	Minor	None required	No change	**Minor** which is **not significant**
	All benthic habitats and species	Temporary increase in SSC and sediment deposition leading to contaminant mobilisation, turbidity and smothering effects	Low to high	Negligible	Negligible	None required	No change	**Negligible** which is **not significant**

Topic	Receptor	Potential Impact	Receptor Sensitivity	Magnitude of Change	Significance	Project Specific Mitigation Summary	Magnitude after Mitigation	Significance of Residual Effect
	All benthic habitats and species	Changes to marine water quality from the use of HDD drilling fluids and accidental spills from vessels, including loss of fuel oils and INNS	Low to high	Low	Minor	None required	No change	**Minor** which is **not significant**
Fish and Shellfish Ecology	Herring	Temporary physical disturbance to fish and shellfish habitats and species during cable lay	Medium	Low	Minor	None required	No change	**Minor** which is **not significant**
	Sandeel		Medium	Low	Minor	None required	No change	**Minor** which is **not significant**
	Elasmobranchs		Medium	Negligible	Negligible	None required	No change	**Negligible** which is **not significant**
	Shellfish		Medium	Low	Minor	None required	No change	**Minor** which is **not significant**
	Herring	Permanent physical disturbance to and/or loss of fish and shellfish habitats and species due to placement of hard substrates on the seabed.	Medium	Low	Minor	None required	No change	**Minor** which is **not significant**
	Sandeel		Medium	Low	Minor	None required	No change	**Minor** which is **not significant**
	Flatfish		Medium	Low	Negligible	None required	No change	**Negligible** which is **not significant**
	Shellfish		Medium	Low	Negligible	None required	No change	**Negligible** which is **not significant**
	Herring	Temporary increased suspended sediment concentrations, and subsequentsettlement of sediment causing smothering of fish habitat	Low	Negligible	Negligible	None required	No change	**Negligible** which is **not significant**
	Sandeel		Medium	Low	Minor	None required	No change	**Minor** which is **not significant**
	Diadromous species		Low	Negligible	Negligible	None required	No change	**Negligible** which is **not significant**
	Shellfish		Medium	Low	Minor	None required	No change	**Minor** which is **not significant**

Topic	Receptor	Potential Impact	Receptor Sensitivity	Magnitude of Change	Significance	Project Specific Mitigation Summary	Magnitude after Mitigation	Significance of Residual Effect
	Fish	Underwater sound effects on fish and shellfish	Low to high	Negligible	Negligible	None required	No change	**Negligible** which is **not significant**
	Shellfish		Medium	Negligible	Negligible	None required	No change	**Negligible** which is **not significant**
	Fish	Changes to marine water quality from the use of HDD drilling fluids and the release of waste from vessels	Low to high	Negligible	Negligible	None required	No change	**Negligible** which is **not significant**
	Shellfish		Low to high	Negligible	Negligible	None required	No change	**Negligible** which is **not significant**
	Fish	Changes to marine water quality from accidental leaks and spills from vessels, including loss of fuel oils	Low to high	Negligible	Negligible	None required	No change	**Negligible** which is **not significant**
	Shellfish		Low to high	Negligible	Negligible	None required	No change	**Negligible** which is **not significant**
	Fish	Vessel collision risk	Low to high	Negligible	Negligible	None required	No change	**Negligible** which is **not significant**
	Shellfish		Low to high	Negligible	Negligible	None required	No change	**Negligible** which is **not significant**
Marine Mammals	Cetaceans and Pinnipeds	Underwater sound disturbance during geophysical survey	Medium to high	Negligible	Minor	None required	No change	**Minor** which is **not significant**
	Cetaceans	Underwater sound disturbance during cable lay - cetaceans	High	Low	Minor	None required	No change	**Minor** which is **not significant**
	Pinnipeds	Underwater sound disturbance during cable lay – seals at Scottish HDD location	High	Medium	Minor	None required	No change	**Minor** which is **not significant**
	Cetaceans and Pinnipeds	Collision risk	High	Low	Negligible	None required	No change	**Negligible** which is **not significant**
	Cetaceans and Pinnipeds	Accidental spills	High	Low	Negligible	None required	No change	**Negligible** which is **not significant**

Topic	Receptor	Potential Impact	Receptor Sensitivity	Magnitude of Change	Significance	Project Specific Mitigation Summary	Magnitude after Mitigation	Significance of Residual Effect
Ornithology	Shag	Temporary disturbance and displacement from installation activities	High	Low	Negligible to minor	None required	No change	**Negligible** to **minor** which is **not significant**
	Puffin	Temporary disturbance and displacement from installation activities	Medium	Low	Negligible to minor	None required	No change	**Negligible** to **minor** which is **not significant**
	Kittiwake		Low					
	Guillemot		Medium					
	Herring gull		Low					
	Manx shearwater		Low					
	Gannet		Low					
	Razorbill		Medium					
	Shag	Disturbance to seabed resulting in changes in prey availability	Low	Low	Negligible	None required	No change	**Negligible** which is **not significant**
	Puffin							
	Kittiwake							
	Guillemot							
	Herring gull							
	Manx shearwater							
	Gannet							
	Razorbill							
	Shag	Alteration of water quality due to increased suspended sediment concentrations (SSC), unplanned, releases, accidental leaks and spills from vessels and plant	Low	Low	Negligible	None required	No change	**Negligible** which is **not significant**
	Puffin							
	Kittiwake							
	Guillemot							
	Herring gull							

Topic	Receptor	Potential Impact	Receptor Sensitivity	Magnitude of Change	Significance	Project Specific Mitigation Summary	Magnitude after Mitigation	Significance of Residual Effect
	Manx shearwater							
	Gannet							
	Razorbill							
Marine Archaeology	Known and potential seabed prehistory receptors	Direct disturbance to seabed causing damage to receptors	High	Low	Moderate	Further investigation by means of geoarchaeological assessment of geotechnical samples	Negligible	**Negligible** which is **not significant**
	Known and recorded maritime receptors and aviation receptors (A1s)		High	High	Major	Implementation of AEZs	Negligible	**Negligible** which is **not significant**
	Geophysical anomalies of possible anthropogenic origin (A2s)		High	High	Major	Micro-siting of cable route; further investigation through potential opportunities, where possible, for diver or ROV survey; archaeological watching briefs during clearance of A2s	Negligible	**Negligible** which is **not significant**
	Currently unknown archaeological sites and artefacts		High	High	Major	Implementation of AEZs; WSI (and any supporting activity Method Statements), and PAD	Negligible	**Negligible** which is **not significant**
	Direct impacts to known and potential seabed prehistory receptors; maritime and	Use of anchors by vessels (spread mooring anchoring systems or spud cans)	High	Medium	Major	Implementation of AEZs; WSI (and any supporting activity Method Statements), and PAD	Negligible	**Negligible** which is **not significant**

Topic	Receptor	Potential Impact	Receptor Sensitivity	Magnitude of Change	Significance	Project Specific Mitigation Summary	Magnitude after Mitigation	Significance of Residual Effect
	aviation receptors							
	Known and potential seabed prehistory receptors; maritime and aviation receptors (caused by changes to the hydrodynamic and sedimentary regimes due to spoil removal and sediment redistribution)	Indirect disturbance to receptors	High	Negligible	Negligible to minor	No mitigation is recommended as a result of negligible / minor adverse significance of impact.	Negligible	**Negligible** which is **not significant**

Topic	Receptor	Potential Impact	Severity / Magnitude	Likelihood / Frequency criteria	Risk	Project Specific Mitigation Summary	Residual Risk
Shipping and Navigation	Shipping and Navigation	Vessel to vessel collision	Remote	High	Tolerable	High traffic density specific procedures established	**ALARP**
		Deviation from established vessel routes and areas	Likely	Negligible	Broadly Acceptable	N/A	**ALARP**
		Interaction with vessel anchors and anchoring activity	Unlikely	High	Tolerable	Use of temporary marker buoys to identify unburied cable prior to installation . Duration of exposed / unprotected cable minimised	**ALARP**
		Interaction with fishing gear	Unlikely	High	Tolerable		**ALARP**

Topic	Receptor	Potential Impact	Receptor Sensitivity	Magnitude of Change	Significance	Project Specific Mitigation Summary	Magnitude after Mitigation	Significance of Residual Effect
Commercial Fisheries	Demersal trawlers	Temporary loss or restricted access to fishing grounds	Medium	Low	Minor	None required	No change	**Minor** which is **not significant**
	Potter/creelers		Medium	Medium	Minor	Where the removal or relocation of static gear may be required during the installation phase, appropriate mitigation will be implemented for affected vessels following an evidence-based approach, in line with FLOWW guidance, via the establishment of co-operation agreements.	No change	**Minor** which is **not significant**
	Scallop dredgers		Low	Low	Negligible	None required	No change	**Negligible** which is **not significant**
	Demersal trawlers	Displacement of fishing activity into other areas	Medium	Low	Minor	None required	No change	**Minor** which is **not significant**
	Potter/creelers		Medium	Medium	Moderate	Where the removal or relocation of static gear may be required during the installation phase, appropriate mitigation will be implemented for affected vessels following an evidence-based approach, in line with FLOWW guidance, via the establishment of co-operation agreements.	Low	**Minor** which is **not significant**
	Scallop dredgers		Low	Low	Negligible	None required	No change	**Negligible** which is **not significant**
	Static gear fisheries	Interference with fishing activities	Medium	Low	Negligible	None required	No change	**Minor** which is **not significant**
	Mobile fisheries		Low	Low	Negligible	None required	No change	**Negligible** which is **not significant**

Topic	Receptor	Potential Impact	Receptor Sensitivity	Magnitude of Change	Significance	Project Specific Mitigation Summary	Magnitude after Mitigation	Significance of Residual Effect
	All fisheries	Snagging risk – loss or damage to fishing gears	Medium	Low	Negligible	None required	No change	**Minor** which is **not significant**
	All fisheries	Potential impacts on commercial fishing as a result of impacts on target species	Refer to Chapter 9: Fish and Shellfish Ecology					Not exceeding **minor** which is **not significant**
Other Sea Users	Recreational boaters	Disruption to marine recreational users	Low	Low	Negligible	None required	No change	**Negligible** which is **not significant**
	Sea anglers		Low	Low	Negligible	None required	No change	**Negligible** which is **not significant**
	Marine recreational users		Low	Low	Negligible	None required	No change	**Negligible** which is **not significant**
	Oil and gas blocks owners	Disruption to vessel routeing and access to other sea user working areas	Low	Low	Negligible	None required	No change	**Negligible** which is **not significant**
	Dredging and disposal site owners/ operators		Low	Low	Negligible	None required	No change	**Negligible** which is **not significant**
	Cable owners/ operators		Low	Low	Negligible	None required	No change	**Negligible** which is **not significant**
	Aquaculture operators		Low	Low	Negligible	None required	No change	**Negligible** which is **not significant**
	Cable asset owners	Risk of damage to or interference with a third-party cable or pipeline assist	Moderate	Unlikely	Minor risk	None required	No change	**Minor risk** which is **not significant**
Operation								
Physical Environment	Metocean regime	Seabed morphology raised causing impact on wider metocean regime	Low	Low	Negligible	None required	No change	**Negligible** which is **not significant**

Topic	Receptor	Potential Impact	Receptor Sensitivity	Magnitude of Change	Significance	Project Specific Mitigation Summary	Magnitude after Mitigation	Significance of Residual Effect
	Seabed and bedforms	Changes to seabed bathymetry	Low	Low	Negligible	None required	No change	**Negligible** which is **not significant**
	Seawater	Cable exposure – increased SSC due to cable movement	Low	Low	Negligible	None required	No change	**Negligible** which is **not significant**
	Seawater quality	Water contamination caused by the disturbance of the seabed can lead to the re-dissolution of contaminants	Low	Low	Negligible	None required	No change	**Negligible** which is **not significant**
Benthic Ecology	All benthic habitats and species	Effects of Electromagnetic field (EMF) emissions from buried cable	Low to high	Negligible	Negligible	None required	No change	**Negligible** which is **not significant**
	All benthic habitats and species	Effects of thermal emissions from buried cable	Low to high	Negligible	Negligible	None required	No change	**Negligible** which is **not significant**
Fish and Shellfish Ecology	Diadromous species	Diadromous species	Low	Negligible	Negligible	None required	No change	**Negligible** which is **not significant**
	Pelagic species	Pelagic species	Low	Negligible	Negligible	None required	No change	**Negligible** which is **not significant**
	Demersal species	Demersal species	Low to medium	Negligible	Negligible	None required	No change	**Negligible** which is **not significant**
	Elasmobranchs	Elasmobranchs	Medium	Low	Minor	None required	No change	**Minor** which is **not significant**
	Spawning fish, eggs, larvae and juvenile fish	Spawning fish, eggs, larvae and juvenile fish	Low to medium	Negligible	Negligible	None required	No change	**Negligible** which is **not significant**
	Shellfish	Shellfish	Medium to high	Negligible	Negligible	None required	No change	**Negligible** which is **not significant**
	Demersal species	Demersal species	Low	Negligible	Negligible	None required	No change	**Negligible** which is **not significant**

Topic	Receptor	Potential Impact	Receptor Sensitivity	Magnitude of Change	Significance	Project Specific Mitigation Summary	Magnitude after Mitigation	Significance of Residual Effect
	Shellfish	Shellfish	Medium to high	Negligible	Negligible	None required	No change	**Negligible** which is **not significant**
Marine Mammals	Cetaceans and Pinnipeds	Underwater sound disturbance	High	Low	Minor	None required	No change	**Minor** which is **not significant**
	Cetaceans and Pinnipeds	Disturbance from EMF	High	Negligible	Negligible	None required	No change	**Negligible** which is **not significant**
Ornithology	Shag	Temporary disturbance during cable repairs and maintenance	Low	Low	Negligible	None required	No change	**Negligible** which is **not significant**
	Puffin							
	Kittiwake							
	Guillemot							
	Herring gull							
	Manx shearwater							
	Gannet							
	Razorbill							
Marine Archaeology	Known and potential seabed prehistory receptors; maritime and aviation receptors	Direct disturbance to seabed causing damage to receptors	High	Negligible	Negligible	None required	No change	**Negligible** which is **not significant**
	Direct impacts to known and potential seabed prehistory receptors; maritime and	Use of anchors by vessels	High	Negligible	Negligible	None required	No change	**Negligible** which is **not significant**

Topic	Receptor	Potential Impact	Receptor Sensitivity	Magnitude of Change	Significance	Project Specific Mitigation Summary	Magnitude after Mitigation	Significance of Residual Effect
	aviation receptors							
	Known and potential seabed prehistory receptors; maritime and aviation receptors (caused by potential scour and plume effects resulting in increased protection to, or deterioration through erosion)	Indirect disturbance to receptors	High	Negligible	Negligible	None required	No change	**Negligible** which is **not significant**

Topic	Receptor	Potential Impact	Severity / Magnitude	Likelihood / Frequency criteria	Risk	Project Specific Mitigation Summary	Residual Risk
Shipping and Navigation	Shipping and Navigation	Vessel to vessel collision	High	Remote	Tolerable	High traffic density specific procedures established	**ALARP**
		Deviation from established vessel routes and areas	Low	Unlikely	Tolerable	None required	**ALARP**
		Interaction with vessel anchors and anchoring activity	High	Unlikely	Tolerable	None required	**ALARP**
		Interaction with fishing gear	High	Remote	Tolerable	Dissemination of post- lay survey to relevant organisations and stakeholders for information	**ALARP**
		Reduction in under keel clearance	Medium	Remote	Broadly acceptable	None required	**ALARP**

Topic	Receptor	Potential Impact	Receptor Sensitivity	Magnitude of Change	Significance	Project Specific Mitigation Summary	Magnitude after Mitigation	Significance of Residual Effect
Commercial Fisheries	Demersal trawlers	Temporary loss or restricted access to fishing grounds	Medium	Low	Minor	None required	No change	**Minor** which is **not significant**
	Potter/creelers		Medium	Medium	Minor	None required	No change	**Minor** which is **not significant**
	Scallop dredgers		Low	Low	Negligible	None required	No change	**Negligible** which is **not significant**
	Demersal trawlers	Displacement of fishing activity into other areas	Medium	Low	Minor	None required	No change	**Minor** which is **not significant**
	Potter/creelers		Medium	Medium	Minor	None required	No change	**Minor** which is **not significant**
	Scallop dredgers		Low	Low	Negligible	None required	No change	**Negligible** which is **not significant**
	Static gear fisheries	Interference with fishing activities	Medium	Low	Minor	None required	No change	**Minor** which is **not significant**
	Mobile fisheries		Low	Low	Negligible	None required	No change	**Negligible** which is **not significant**
	All fisheries	Snagging risk – loss or damage to fishing gears	Medium	Low	Minor	None required	No change	**Minor** which is **not significant**
	All fisheries	Potential impacts on commercial fishing as a result of impacts on target species	Refer to Fish and Shellfish Ecology					**Minor** which is **not significant**
Other Sea Users	Recreational boaters	Disruption to marine recreational users	Low	Low	Negligible	None required	No change	**Negligible** which is **not significant**
	Sea anglers		Low	Low	Negligible	None required	No change	**Negligible** which is **not significant**
	Marine recreational users		Low	Low	Negligible	None required	No change	**Negligible** which is **not significant**
	Oil and gas blocks owners	Disruption to vessel routeing and access to	Low	Low	Negligible	None required	No change	**Negligible** which is **not significant**

Topic	Receptor	Potential Impact	Receptor Sensitivity	Magnitude of Change	Significance	Project Specific Mitigation Summary	Magnitude after Mitigation	Significance of Residual Effect
	Dredging and disposal site owners/ operators	other sea user working areas	Low	Low	Negligible	None required	No change	**Negligible** which is **not significant**
	Cable owners/ operators		Low	Low	Negligible	None required	No change	**Negligible** which is **not significant**
	Aquaculture operators		Low	Low	Negligible	None required	No change	**Negligible** which is **not significant**
	Cable asset owners	Risk of damage to or interference with a third-party cable or pipeline assist	Moderate	Unlikely	Negligible	None required	No change	**Minor risk** which is **not significant**
Decommissioning								
Physical Environment	The potential effects of decommissioning the same as installation.							
Benthic Ecology								
Fish and Shellfish Ecology								
Marine Mammals								
Ornithology								
Marine Archaeology								
Shipping and Navigation								
Commercial Fisheries								

Topic	Receptor	Potential Impact	Receptor Sensitivity	Magnitude of Change	Significance	Project Specific Mitigation Summary	Magnitude after Mitigation	Significance of Residual Effect
Other Sea Users								