



Eastern Green Link 2 - Marine Scheme

Environmental Appraisal Report

Volume 3

Appendix 13.1 - Assessment Summary and Hazard Log

nationalgrid



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Appendix 13.1 Assessment Summary and Hazard Log

This Appendix contains a record of the results of the shipping and navigation risk assessment, detailed in Section 13.6 of the Eastern Green Link 2 – Marine Scheme Environmental Appraisal Report (Volume 2). The results are captured in the table below, which serves to record the Hazards to Shipping and Navigation identified as part of a standard Formal Safety Assessment and to facilitate tracking of the implementation of the identified risk reduction measures associated with the identified hazards. The table also provides a summary of the assessment and captures the outcome of stakeholder consultations, undertaken as part of the assessment process.

Project Phase	Causes / Initiating Events	Hazard	Outcomes / Consequences	Existing Safeguards & Mitigation	Potential Additional Safeguards / Mitigation	Prelim Notes	Consultation Notes
Installation and Decommissioning Phases	<ul style="list-style-type: none"> Simple Human Error Vessel / Equipment Malfunction e.g., DP failure Adverse Weather / Sea states Lead to Human Error Project vessel port calls – large vessels in near shore conditions Limited manoeuvrability of cable lay vessels once in operation Obstruction of navigational marks esp. at night Large vessels (over 140m/3500T) requiring slack-water entry with priority movement 	Vessel-to-Vessel Collision (3rd party - inshore fishing, pelagic fleet, oil & gas vessels, commercial traffic, recreational traffic to project vessels – cable lay vessel, guard vessel)	<ul style="list-style-type: none"> Potential damage to vessels / sinking Man overboard Injuries to persons on board Damage to equipment 	<ul style="list-style-type: none"> Route selection (avoids so far as is practicable main navigational features) Compliance with International Regulations for Preventing Collisions at Sea 1972 (COLREGS) and the International Convention for the Safety of Life at Sea 1974 (SOLAS) Notice to Mariners (including Kingfisher) Automatic Identification Systems (AIS) Broadcast (at all times) Guard vessels using RADAR with Automatic RADAR Plotting Aid (ARPA) to monitor vessel activity and predict possible interactions, will be employed to work alongside the installation vessel(s) during installation and maintenance work Temporary 500 m (advisory) safety zone Regular stakeholder consultations (as plans develop) Notification of Regular Runners Vessel Traffic Service (VTS) Communications from ports (Peterhead) Limits to wave height / wind speed conditions for operations / activities Port bylaws and General Directions Very High Frequency (VHF) Broadcast Safety Navigational Warnings Emergency Response Plans 	<ul style="list-style-type: none"> High Traffic Density Specific procedures established Liaison with Peterhead Harbour 	<p>The Marine Scheme crosses some of the densest areas of vessel traffic in the study area. Particularly between KP0 and KP60 and between KP380 and KP436. Commercial shipping traffic crosses the Marine Installation Corridor (MIC) in multiple locations along the majority of its length and gives the greatest contribution to the overall vessel traffic however fishing vessels and offshore industry vessels comprising the majority of the remainder with significant contributions.</p> <p>The MIC passes directly through military practice grounds.</p> <p>The MIC avoids identified recreational boating areas along its entire path which, along with Vessel Management System (VMS), addresses to some large extent the presumed omission of many recreational vessels from the AIS data. However, AIS data shows that the MIC crosses recreational traffic summer patterns at both landfalls.</p>	<p>Quieter overall in winter months, pelagic fleet has a particular seasonality too. Will be a balance with the weather windowing for the activities themselves.</p> <p>Cable lay vessel moves at about walking speed once working.</p>
Installation and Decommissioning Phases	<ul style="list-style-type: none"> Lack of awareness of Installation schedule and corridor Vessel activity or scheduling clash / changes & delays Presence of exclusion zones (Typically 500m). 	Deviation from Established and identified vessel routes and areas.	<ul style="list-style-type: none"> Delays to movements of vessels Vessels in unfamiliar waters Vessel leading lines unavailable / compromised Reductions in under keel clearance on revised routings. 	<ul style="list-style-type: none"> Route selection (avoids so far as is practicable main navigational features) Notice to Mariners Regular stakeholder consultations (as plans develop) Notification of Regular Runners Negotiation with stakeholders (esp. ports) of exclusion zones to maintain required movement corridors. 	<ul style="list-style-type: none"> Scheduling of vessel pilotage compulsory during key periods Piloted routing specifically planning for large vessels versus any under-keel issues on revised routings. 	<p>The majority of vessel traffic crossing the MIC can be reasonably informed through the embedded mitigations - Notice to Mariners and Notification of Regular Runners (Covering commercial shipping, Offshore industry vessels, Fishing Vessels).</p> <p>To minimise risk further rationalization of the installation schedule with the schedules of Ferry operators, other scheduled leisure operators and any organised recreational boating events (such as regattas) via consultation with Recreational Boating organizations will be undertaken.</p>	<p>Peterhead Port discussed the need for ongoing consultation, particularly regarding the management of interactions between installation vessel and pilotage in/out of the Port. This will include consideration of slack water entry requirements and possible need to reduce the RCZ in proximity to Port.</p>

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Installation, Operation and Maintenance and Decommissioning Phases	<ul style="list-style-type: none"> Lack of Awareness of Installation schedule and corridor Cable Burial Depth Inadequate – anchor impact 	Interaction with vessel anchors and anchoring activity - 3rd party anchors to project operation or project anchors to 3rd party shipping	<ul style="list-style-type: none"> Anchor strike to cable Passing vessel impact to anchor / cable with damage / potential sinking 	<ul style="list-style-type: none"> Industry Guidance on avoidance of anchoring on the vicinity of subsea cables As-built locations of cable and external protection will be supplied to UK Hydrographic Office (UKHO) (Admiralty) and Kingfisher (KIS-ORCA) Route selection (avoids charted anchorage areas) Cable burial and protection measures are designed to minimise risk of snagging. Notice To Mariners (including Kingfisher) As-built Survey Use of guard vessels for exposed lengths of cable prior to trenching Routine inspection and maintenance throughout the lifecycle of the asset to identify and remediate cable exposures or other potential snagging risks Emergency Response Plans 	<ul style="list-style-type: none"> Duration of exposed / unprotected cable minimized 	<p>MTS shows a small number of vessels anchored in the MIC particularly from KP0 to KP10.</p> <p>The MIC does not pass through any identified anchorage areas however it does intersect an apparent sequence of previous AIS anchor locations.</p>	Most supply vessel anchorage is north of Peterhead, sometimes south depending on wind / weather conditions.
Installation, Operation and Maintenance and Decommissioning Phases	<ul style="list-style-type: none"> Lack of Awareness of Installation schedule and corridor Cable Trenching Depth Inadequate 	Interaction with fishing gear – pelagic, inshore (small / creel boats with static gear), scallopers with bottom dredging	<ul style="list-style-type: none"> Damage to cable Potential for entanglement, loss of stability, vessel sinking. 	<ul style="list-style-type: none"> Industry guidance on the avoidance of fishing in the vicinity of subsea cables As-built locations of cable and external protection will be supplied to UKHO (Admiralty) and Kingfisher (KIS-ORCA) Route selection (avoids so far as is practicable areas of intense fishing activity) Cable trenching and protection measures are designed to minimize risk of snagging Fisheries Liaison Officer will be in place during Installation Phase (in accordance with FLOWW guidance) Notice to Mariners (including Kingfisher) As-built Survey Use of guard vessels for exposed lengths of cable prior to burial Routine inspection and maintenance throughout the lifecycle of the asset to identify and remediate cable exposures or other potential snagging risks Emergency Response Plans 	<ul style="list-style-type: none"> Duration of exposed / unprotected cable minimized Dissemination of relevant post- lay survey information to relevant organizations and stakeholders for awareness 	<p>The large portion of vessel activity in the vicinity of the MIC is fishing vessel activity. A significant proportion of these are trawler and demersal type vessels.</p> <p>It is considered necessary to have the cable buried where possible and at such a depth that fishing gear (and anchor) interaction is eliminated or reduced as far as practicable.</p>	Illicit (creeling) activities “has to be an occasional reminder”, things have had to be towed away before.
Operational and Maintenance Phase	<ul style="list-style-type: none"> Inadequate cable burial depths and/or arrangements / routing 	Reduction in under keel clearance	<ul style="list-style-type: none"> Damage to cable Potential for grounding of vessel with damage 	<ul style="list-style-type: none"> As-built locations of cable and external protection will be supplied to UKHO (Admiralty) and Kingfisher (KIS-ORCA) Consultations (Harbour and Port Authorities) Reduction in charted water depth to LAT limited to less than 5% where possible. Route Selection (avoids so far as practicable cable routing in shallow areas) 	<ul style="list-style-type: none"> Cable Details provided to UKHO (Admiralty) and Kingfisher (KIS-ORCA) 	The MIC is generally in waters at LAT of greater than 50 m. However, water depths of 10 m at LAT extend some 0.5 km from landfall at Fraisthorpe Sands along the MIC. Some vessels with draught up to 7.5 m are seen in these depths therefore a cable burial study will identify appropriate burial depths and arrangements to maximise under-keel clearance.	Likely only an issue around Peterhead in the shallow water area of Sandford Bay.
Operational and Maintenance Phase	<ul style="list-style-type: none"> High Current / EMF Cable Separation Inadequate Shallow Depth over cable Vessel course in line with cable (EMF band of influence) 	Interference with marine navigational equipment (magnetic compasses)	<ul style="list-style-type: none"> Magnetic compass deviation as a result of EMF Potential misrouting of smaller vessels 	<ul style="list-style-type: none"> Detailed engineering to optimize the cable configuration and minimise compass deviation as far as practicable Consultations (Harbour and Port Authorities) 	<ul style="list-style-type: none"> Consultation with MCA to identify acceptable mitigation where compass deviation cannot be reduced to within acceptable limits through optimisation of the cable configuration. 	<p>It is feasible that a significant zone of EMF could persist along the MIC.</p> <p>Most vessels use a range of instruments for navigation particularly commercial vessels</p> <p>Only vessels travelling along the path of the installation corridor and who use only compass navigation will be significantly impacted.</p>	There are studies underway studying specifically the potential EMF effects Leading lines run perpendicular to the routing corridor

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Installation, Operation and Maintenance and Decommissioning Phases	<ul style="list-style-type: none"> ▪ Presence of construction / installation vessels ▪ Presence of exclusion zones 	Management of emergency situations	<ul style="list-style-type: none"> ▪ Delay to emergency response required ▪ Delay to vessels returning to port in emergencies 	<ul style="list-style-type: none"> ▪ Port management of traffic management 	Not applicable	Not applicable	Not applicable

