

**The Great Grid Upgrade**

Eastern Green Link 5 (EGL 5)

# Preliminary Environmental Information Report

Volume 1

Part 3

Chapter 22 Shipping and Navigation

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nationalgrid

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# 22 Shipping and Navigation

## 22.1 Introduction

- 22.1.1 This chapter presents the preliminary findings of the Environmental Impact Assessment (EIA) undertaken to date for the Eastern Green Link (EGL) 5 English Offshore Scheme, with respect to shipping and navigation, including commercial and recreational vessel activity and navigational features. The preliminary assessment is based on information obtained to date. It should be read in conjunction with the description of the Project provided in **Volume 1, Part 1, Chapter 4: Description of the Project**.
- 22.1.2 This chapter describes the methodology used, the datasets that have informed the preliminary assessment, baseline conditions, environmental measures, and the preliminary shipping and navigation effects that could result from the English Offshore Scheme during the construction, operation (and maintenance), and decommissioning phases. Specifically, it relates to the English Offshore elements of the Scheme seaward of Mean High Water Springs (MHWS) where the English Offshore Scheme makes landfall at Anderby Creek on the Lincolnshire coastline to the border between English and Scottish adjacent waters.
- 22.1.3 This chapter should be notably read in conjunction and considered alongside the following technical aspect chapters found in:
- **Volume 1, Part 3, Chapter 23: Commercial Fisheries** which further identifies and assesses the potential impacts to commercial fishing vessels;
  - **Volume 1, Part 3, Chapter 24: Other Marine Users** which further identifies and assesses the potential impacts to other marine users;
  - **Volume 1, Part 3, Chapter 25: Marine Archaeology** which further identifies and assesses the potential impacts to marine archaeology, including palaeolandscape and submerged prehistory, maritime and coastal remains, and aviation remains; and
  - **Volume 1, Part 4, Chapter 27: Assessment of Cumulative Effects** which considers the Cumulative Effects that may arise from the Project in conjunction with other existing and / or approved developments.
- 22.1.4 This chapter is supported by the following figures from **Volume 2, Part 3, Appendix 22.A: Navigation Risk Assessment** in **Volume 3, Part 3**:
- **Figure 22.A-01: Shipping and Navigation Study Area;**
  - **Figure 22.A-02: Ports and Navigation;**
  - **Figure 22.A-03: Military Practice Areas;**
  - **Figure 22.A-04: Recreation;**
  - **Figure 22.A-05: Other Navigational Features;**
  - **Figure 22.A-06: RNLI Search and Rescue;**
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- **Figure 22.A-09: Seasonal Vessel Track Density;**
- **Figure 22.A-10: Busiest Day;**
- **Figure 22.A-11: Vessel Tracks by Vessel Type;**
- **Figure 22.A-12: Vessel Length;**
- **Figure 22.A-13: Vessel DWT;**
- **Figure 22.A-14: Vessel Draught;**
- **Figure 22.A-15: Bivariate Analysis of Vessel Density and Mean DWT;**
- **Figure 22.A-16: Time Spent at Anchor;**
- **Figure 22.A-17: Fishing Vessels by Vessel Length and Subtype;**
- **Figure 22.A-18: AIS Data Points with Status Set to Actively Fishing by Season;**
- **Figure 22.A-19: VMS Density and Sightings; and**
- **Figure 22.A-20: VMS by ICES Sub-Rectangle – Fishing Time by Gear Type.**

22.1.5 This chapter is supported by the following appendices in:

- **Volume 2, Part 1, Appendix 5.B: Outline Code of Construction Practice (CoCP);**
- **Volume 2, Part 1, Appendix 5.C: Outline Construction Environmental Management Plan;**
- **Volume 2, Part 3, Appendix 22.A: Navigational Risk Assessment.**
- **Volume 2, Part 1, Appendix 2.A: Regulatory and Planning Context;**
- **Volume 2, Part 1, Appendix 4.A: Electromagnetic Field (EMF) Study;**
- **Volume 2, Part 1, Appendix 5.B: Outline Code of Construction Practice; and**
- **Volume 2, Part 1, Appendix 5.C: Outline Construction Environmental Management Plan.**

22.1.6 As set out in **Volume 1, Part 1, Chapter 1: Introduction**, cable installation and some associated activities beyond 12 Nautical Miles (NM), and emergency repair of the installed cable within the draft Order Limits are exempt under the Marine and Coastal Access Act 2009 (MCAA 2009). This chapter presents a preliminary assessment of the cable route from MHWS at the Anderby Creek Landfall to the maritime boundary between England and Scotland adjacent waters. This is to ensure all likely significant effects of the English Offshore Scheme have been assessed. However, consent is not being sought for the exempt cable and only external cable protection and dredging for sandwave clearance will be included in the Deemed Marine Licence (DML) beyond 12 NM.

## Limitations

22.1.7 The information provided in this Preliminary Environmental Information Report (PEIR) is preliminary, the final assessment of potential significant effects will be reported in the Environmental Statement (ES). The PEIR has been produced to fulfil the Applicant's consultation duties, in accordance with Section 42 of the PA2008 and enable consultees to develop an informed view of the preliminary potential significant effects of the English Offshore Scheme.

- 22.1.8 This chapter has been produced using both purchased data and publicly available data, of which the assumption has been made that the data is accurate. The data has also been supplemented with additional information obtained through stakeholder engagement. Data used as part of this assessment will be reviewed and updated as necessary ahead of the ES submission. In the absence of data, a precautionary approach has been taken and professional judgement, based on experience of similar linear projects, have been used where required to inform the scope of the assessment.
- 22.1.9 Various technical assessments were undertaken to inform the EGL 3 and EGL 4 EIA. Where relevant (i.e., where construction methodologies are essentially identical, or where an impact pathway would occur over a similar spatial / temporal scope) the conclusions of those assessments have been used to scope 'in' or 'out' various impact pathways. These are not necessarily proposed to be repeated to inform the PEIR for this Project.
- 22.1.10 The Automatic Identification System (AIS) data is likely to be under representative of smaller vessels due to legal requirements exempting vessels under 15 m in length. This is most likely to impact fishing vessels and recreational craft. To mitigate this limitation, Vessel Monitoring System (VMS) data was incorporated into the assessment fishing vessels over 12 m and the Royal Yachting Association (RYA) Coastal Atlas has been used to identify vessel density of recreational craft.
- 22.1.11 Variations and trends in vessel activity are an important aspect of the baseline assessment. Although statistics and consultation can identify past long-term trends, it is harder to predict future trends which may result from changes in market conditions, changes following the withdrawal of the UK from the European Union or global events such as conflict. In the absence of data, a precautionary approach has been taken and professional judgement, based on experience of similar linear projects, have been used where required to inform the scope of the assessment.

## Preliminary significance conclusions

- 22.1.12 For ease of reference, a summary of the significant and potential significant effects from the preliminary shipping and navigation assessment is provided in **Table 22-1**. All other effects in relation to shipping and navigation have been assessed as not significant. Further details of the methodology behind the assessment, and a detailed narrative of the assessment itself (including for those assessed as not significant) are provided within the sections below.

Table 22-1 Preliminary summary of residual significance of effects

| Receptor and summary of predicted effects                                      | Frequency <sup>1</sup> of occurrence | Severity <sup>2</sup> of consequence | Significance <sup>3</sup>                             | Summary rationale  |
|--|--------------------------------------|--------------------------------------|---|--|
| Vessels Disruption to established vessel routes and areas (construction phase) | – Likely                             | Medium                               | Unacceptable  | <p>Some disruption to routine vessel routing and scheduled activities is anticipated during the construction phases, particularly for traffic entering or leaving the Humber Estuary, due to the English Offshore Scheme crossing multiple shipping lanes on the approaches to the Humber Estuary, crossing fishing grounds within English waters, and being in the vicinity of a deep water anchorage. These impacts may result in minor delays to trade and industry, with associated minor commercial effects.</p> <p>The likelihood of this hazard is assessed as Likely. However, due to the installation footprint and the temporary and transient but notable impact at specific locations, the consequence severity is rated as Medium, leading to an overall Unacceptable risk level. As a result, additional risk-reduction measures are required.</p> |
| Vessels Reduced under-keel clearance   | – Occasional                         | Medium                               | Tolerable if ALARP (As Low As Reasonably Practicable) | <p>Based on the current assessment, the impact is considered “Tolerable if ALARP”. This conclusion will be reviewed and updated following completion of several studies, including the Cable Burial Risk Assessment (CBRA), which will inform the Cable Specification and Installation Plan (CSIP), providing</p>  |

<sup>1</sup> The frequency of occurrence of a risk is defined using the criteria set out in Section 22.9 and is defined as Remote, Unlikely, Occasional, and Likely.

<sup>2</sup> The severity of consequence of a risk resulting from activities relating to the development is defined using the criteria set out in Section 22.9 and is defined as Negligible, Low, Medium, and High.

<sup>3</sup> The significance of the environmental effects is based on the combination of the frequency of occurrence and the severity of consequence of a risk and is expressed as Broadly Acceptable, Tolerable If ALARP, And Unacceptable, subject to the evaluation methodology outlined in Section 22.9.

| Receptor and summary of predicted effects | Frequency <sup>1</sup> of occurrence | Severity <sup>2</sup> of consequence | Significance <sup>3</sup> | Summary rationale  |
|---|--------------------------------------|--------------------------------------|---------------------------|--|
|   |                                      |                                      |                           | <p>further information on the anticipated cable crossing locations. Even if the impact is considered “Tolerable if ALARP”, a reduction in water depth of more than 5 per cent in areas where nearshore infrastructure is crossed remains unavoidable. This level of change would necessitate further discussion with the Maritime and Coastguard Agency (MCA).</p> |

## 22.2 Relevant Technical Guidance

### Technical guidance

22.2.1 The legislation and planning policy which has informed the assessment of effects with respect to Shipping and Navigation is provided within **Volume 2, Part 1, Appendix 2.A: Regulatory and Planning Context**. Further information on policies relevant to the English Offshore Scheme is provided in **Volume 1, Part 1, Chapter 2: Regulatory and Policy Overview**. Further information on policies relevant to the English Offshore Scheme is provided in **Volume 2, Part 1, Appendix 2.B: Marine Plan Policy Assessment**. Relevant technical guidance, specific to Shipping and Navigation, that has informed this PEIR and will inform the assessment within the ES, is summarised in **Table 22-2**.

Table 22-2 Technical guidance relevant to the shipping and navigation assessment

| Technical guidance document   | Context  |
|---|--|
| International Maritime Organisation (IMO) Revised Guidelines for Formal Safety Assessment (FSA) for Use in the Rule-Making Process (MSC-MEPC.2/Circ. 12/Rev.2) (Ref 22.1)     | International guidelines detailing the recommended methodology for safety assessments considering life, health, the marine environment and property.                                       |
| MCA Marine Guidance Note (MGN) 654 (M+F) Offshore Renewable Energy Installations (OREI) safety response (Ref 22.2)  | Guidance that highlights issues that need to be considered during assessments to impacts on navigational safety caused by OREIs.   |
| Methodology for Assessing Marine Navigational Safety & Emergency Response Risks of Offshore Renewable Energy Installations (OREI) (Ref 22.3)                                  | Guidance for developers in preparing their navigation risk and emergency response assessments centred around risk controls and the feedback from risk controls into risk assessment.       |
| The International Association of Marine Aids to Navigation and Lighthouse Authorities (IALA) Recommendation R1039, Edition 3.0, The Marking of Man-Made Structures (Ref 22.4) | Sets out high-level requirements for how man-made structures at sea should be marked to ensure they are visible and identifiable to mariners.  |
| IALA Guideline G1162, Edition 1.1, The Marking of Offshore Man-Made Structures, Dec 2021 (Ref 22.5)   | It covers specific marking schemes, lighting configurations, and operational considerations for offshore structures such as wind turbines, platforms, and subsea installations.            |
| MCA MGN 661 (M+F) Navigation - safe and responsible anchoring and fishing practices (Ref 22.6)  | Offers best-practice guidance for mariners on anchoring and fishing responsibly to avoid damaging subsea infrastructure, protect the marine environment, and maintain navigational safety. |

## 22.3 Consultation and Engagement

### Overview

22.3.1 The assessment has been informed by consultation responses and ongoing stakeholder engagement, the outcomes of which are presented in the technical engagement section provided in paragraphs 22.3.3 to 22.3.5. An overview of the approach to consultation is provided in **Section 5.9 of Volume 1, Part 1, Chapter 5: PEIR Approach and Methodology**.

### Scoping Opinion

22.3.2 A Scoping Opinion (Ref 22.7) was adopted by the Secretary of State, administered by the Planning Inspectorate, on 13 October 2025. A summary of the relevant responses received in the Scoping Opinion in relation to shipping and navigation and confirmation of how these have been addressed within the assessment to date is presented in **Table 22-3**. The information in the PEIR is preliminary and not all Scoping Opinion comments have been addressed at this stage, however all comments will be addressed within the ES.

Table 22-3 Summary of EIA scoping opinion responses for shipping and navigation

| Consultee | Consideration  | How addressed in this PEIR  |
|-----------|--|---|
| MCA       | Under keel clearance (UKC) assessment expected in areas below 20 m water depth, where any external cable protection/crossings are expected. The assessment should be based on maximum and average vessel draught of vessels operating in the vicinity.   | In accordance with MCA guidance, no reduction in existing navigable depth greater than 5 per cent is planned, except at a limited number of near-shore locations and shallow-water cable crossings. The CBRA and related studies will further refine cable crossing positions and identify any locations that do not meet the MCA's 5 per cent threshold, prompting additional engagement with the MCA. This is discussed in Section 22.14. |
| MCA       | Attention should be paid to cabling routes and 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.  | This is discussed in Section 22.12 and will be captured by the CBRA when produced.  |
| MCA       | A formal review is required when navigable depth decreases by 5 per cent relative to chart datum; however, any depth reduction within deep-draught vessel routes or regions of highly mobile seabed must be assessed. Where reductions result from cable | Further assessment has been undertaken (results pending) to evaluate the adequacy of subsea cable protection against shipping and fishing interactions. This includes consideration of rock-placement design measures intended to minimise the potential for fishing gear to snag or become entrained, with these aspects to be captured and  |

| Consultee                                 | Consideration  | How addressed in this PEIR   |
|---|--|--|
|   | installation or associated protection measures, they must be evaluated and agreed with the relevant port authorities and the MCA, with outcomes secured through consent conditions.  | validated through the CBRA once completed.   |
| MCA                                       | The project would potentially require a cable crossing of the Hornsea Project 4 wind farm export cables within an area of relatively shallow water.  | Cable crossings are addressed in <b>Volume 2, Part 3, Appendix 22.A: Navigational Risk Assessment</b> , Section 22.A.7 and <b>Volume 1, Part 3, Chapter 24: Other Marine Users</b> .   |
| MCA                                       | The MCA indicates that, for the operational phase, electromagnetic effects are acceptable where 95 per cent of the cable route results in no more than a three-degree compass deviation, with the remaining 5 per cent limited to a maximum deviation of five degrees. This matter is proposed to be scoped out for the construction and decommissioning stages. | The Electromagnetic Field (EMF) assessment for EGL 5 indicates that 100 per cent of the bundled section of the cable route is predicted to induce compass deviations below three degrees, demonstrating minimal magnetic influence across the English Offshore Scheme. One point greater than three degrees was identified at KP 0.4, although it remains below five degrees and is not included in the EMF assessment, as the nearshore region from KP 0.4 onwards has not yet been finalised in the design. Further details are provided in <b>Volume 2 Part 1, Appendix 4.A: Electromagnetic Field (EMF) Study</b> . This matter has been scoped out of study for the construction and decommissioning phases. Further details are provided in Section 22.15. |
| The Planning Inspectorate (ID Ref: 4.6.1) | There is no risk of electromagnetic forces from the cables that are likely to cause interference with marine navigation equipment during the construction and decommissioning.   | Scoped out of study for the construction and decommissioning phases.   |

## Technical engagement

- 22.3.3 Technical engagement on shipping and navigation was undertaken on 8 and 15 December 2025 through dedicated Microsoft Teams sessions covering the Navigational Risk Assessment (NRA) process, the EGL 5 project overview, the navigational baseline, and preliminary hazard assessment workshop supported by a hazard log. Ongoing consultation with stakeholders from the EGL 3 and EGL 4 projects has also informed the current NRA.
- 22.3.4 Ongoing consultation is being undertaken with all consultees identified in **Table 22-4** to provide regular project-progress updates for the English Offshore Scheme and to obtain feedback on potential implications for the assessment.

22.3.5 A summary of the technical engagement undertaken up to the end of March 2026 is outlined in **Table 22-4**. The full detail regarding the comments raised during the sessions can be found in **Volume 2, Part 3, Appendix 22.A: Navigational Risk Assessment** and the hazard log can be found in **Annex 22.A.1: Hazard Log**.

Table 22-4 Technical engagement on the environmental aspect assessment

| Consultee   | Consideration   | How addressed in this PEIR   |
|---|---|--|
| UK Chamber of Shipping (CoS)  | Expressed concerns about dredge spoil site overlapping draft Order Limits (potential heavy metal disturbance).  | Environmental surveys will assess seabed disturbance; no burial concerns have been flagged to date.  |
| MCA   | Requested vessel size categories be split further (10 – 12 m, 12 – 15 m) for more precise assessment.   | This has been captured in <b>Volume 3, Part 3, Figure 22.A-14</b> .  |
|   | Raised the issue of simultaneous operations (SIMOPS) as a potential hazard category and suggested to include SIMOPS as a mitigation measure to reduce vessel-to-vessel collision risk.  | SIMOPS had been included as an embedded mitigation measure (see <b>Volume 2, Part 3, Appendix 22.A: Navigational Risk Assessment</b> ).  |
|   | Recommendation to suspend restricted in their ability to manoeuvre (RAM) operations when visibility <2 miles depending on traffic density.  | This had been included as a mitigation measure (see <b>Volume 2, Part 3, Appendix 22.A: Navigational Risk Assessment</b> ).  |
|   | UKC concerns near Humber Estuary; need to minimise depth reductions and analyse vessel draught vs depth.  | The CBRA and related studies will further refine cable crossing positions and identify any locations that do not meet the MCA's 5 per cent threshold, prompting additional engagement with the MCA. This is also noted in Section 22.14. |
| For the EMF, MCA requires $\leq 3^\circ$ deviation for 95 per cent of the cable route and $\leq 5^\circ$ for the remaining 5 per cent. This must be confirmed through a desk-based study. If not achievable, a compass deviation assessment will be needed. | The EMF assessment for EGL 5 indicates that 100 per cent of the bundled section of the cable route is predicted to induce compass deviations below three degrees, demonstrating minimal magnetic influence across the English Offshore Scheme. One point greater than three degrees was identified at KP 0.4, although it remains below five degrees and is not included in the EMF assessment, as the nearshore region from KP 0.4 onwards has not yet been finalised in |  |

| Consultee  | Consideration   | How addressed in this PEIR  |
|--|---|---|
|  |   | the design. Further details are provided in <b>Volume 2, Part 1, Appendix 4.A: Electromagnetic Field (EMF) Study.</b>   |
| MCA and Federation Fishermen's Organisations (NFFO)  | National Carbon capture projects in the of area should also be considered.  | This is captured in <b>Volume 1, Part 4, Chapter 27: Cumulative Effects.</b>  |
| CoS and Associated British Ports Humber (Humber ABP) | Anchoring outside charted areas in the region must be considered.   | This is addressed in <b>Volume 2, Part 3, Appendix 22.A: Navigational Risk Assessment,</b> Section 22.A.6.55.   |
| NFFO   | Fisheries data may soon be outdated due to Marine Plan Area (MPA) changes; potential displacement of mobile-gear fleets.  | The <b>Volume 2, Part 3, Appendix 22.A: Navigational Risk Assessment</b> will be updated following consultation outcomes.   |
|  | Worst-case consequence of gear snagging should be "loss of vessel and life"; Kingfisher should apply to operation (and maintenance) as well as construction.  | Updated in <b>Annex 22.A.1: Hazard Log.</b>   |
| Humber ABP   | Noted that although the EGL 5 works fall slightly outside the Humber area, coordination would still be fully supported. As the project passes the Humber Vessel Traffic Service (VTS) limits, Notices to Mariners would be issued in agreement with the project team, and vessels could communicate with Humber VTS team based at Grimsby even when outside the immediate area. | This is incorporated into the risk assessment, with advance notification to regular users identified as the primary mitigation (see <b>Volume 2, Part 3, Appendix 22.A: Navigational Risk Assessment</b> ). |
|  | Desire for routeing alignment with EGL 3 and EGL 4 to benefit from lessons learned; early engagement essential.   | The NRA is taking into consideration the consultation outcomes from EGL 3 and EGL 4.  |
| Trinity House (TH) and Humber ABP                    | Enquired about the positions of EGL 3 and EGL 4 in relation to EGL 5, and their respective locations with respect to the Humber VTS limit.  | This is captured in <b>Volume 1, Part 4, Chapter 27: Cumulative Effects.</b>  |

## 22.4 Data Gathering Methodology

### Study Area

22.4.1 The study area for Shipping and Navigation includes the draft Order Limits plus an additional 5 NM buffer either side of the draft Order Limits (10 NM in total) as shown in **Volume 3, Part 3, Figure 22.A-01**. This is considered a precautionary maximum zone of influence that considers all shipping patterns and navigational features that may interact with any phase of the life cycle of the English Offshore Scheme. This buffer has been selected through previous project experience (and is therefore considered industry standard) and has been discussed with and accepted by relevant stakeholders as appropriate for the assessment.

### Desk study

22.4.2 A summary of the organisations that have supplied data, together with the nature of that data is outlined in **Table 22-5**. Further details on sources can be found in **Volume 2, Part 3, Appendix 22.A: Navigational Risk Assessment**, Table 22.A-6.

Table 22-5 Data sources used to inform the shipping and navigation assessment

| Organisation  | Data provided   |
|---|---|
| Ordnance Survey (OS)  | MHWS boundary.  |
| National Geospatial Intelligence Agency Maritime Safety Information (MSI) | World Port Index.   |
| Kpler   | One year of most recent AIS point data, covering the extent of the study area, purchased in November 2025.  |
| OceanWise   | Marine themes vector data.  |
| UK Hydrographic Office (UKHO)   | Admiralty Charts 2182A, 2182B, and 1190 acquired in December 2025. UK wrecks and obstructions data. UK Exclusive Economic Zone (EEZ) Ships' Routeing Measures as approved by the IMO, and / or the MCA. Admiralty Sailing Direction: North Sea (West) Pilot (12 <sup>th</sup> edition). |
| European Subsea Association (ESCA)  | Cables, power, telecom, anchor, cable route, cable corridor, other.   |
| The Crown Estate (TCE)  | Wind farm lease areas, cable areas, minerals (aggregates) site agreements.  |
| North Sea Authority (NSTA)  | Oil and gas surface installations and pipelines.  |
| Marine Accident Investigation Branch (MAIB)                               | Maritime incidents reported to the MAIB within the study area.  |
| Royal National Institution (RNLI)   | RNLI callouts data within the study area, lifeboat stations and Search and Rescue Helicopter (SARH) base locations.   |

| Organisation  | Data provided  |
|---|--|
| Department for Transport, MCA                                     | SARH taskings data within the study area.                |
| Centre for Environment, Fisheries and Aquaculture Science (CEFAS) | Licensed dredge spoil disposal sites.                    |
| Marine Management Organisation (MMO)                              | Anonymised VMS point data for vessels of 12 m and above. |
| RYA   | Mean intensity of recreational boating.                  |
| Various   | Port and harbour authority websites and documentation    |

## Survey work

22.4.3 No additional survey work was undertaken for Shipping and Navigation due to the level of information already collated for the study area being proportionate to the scale of the English Offshore Scheme's impacts.

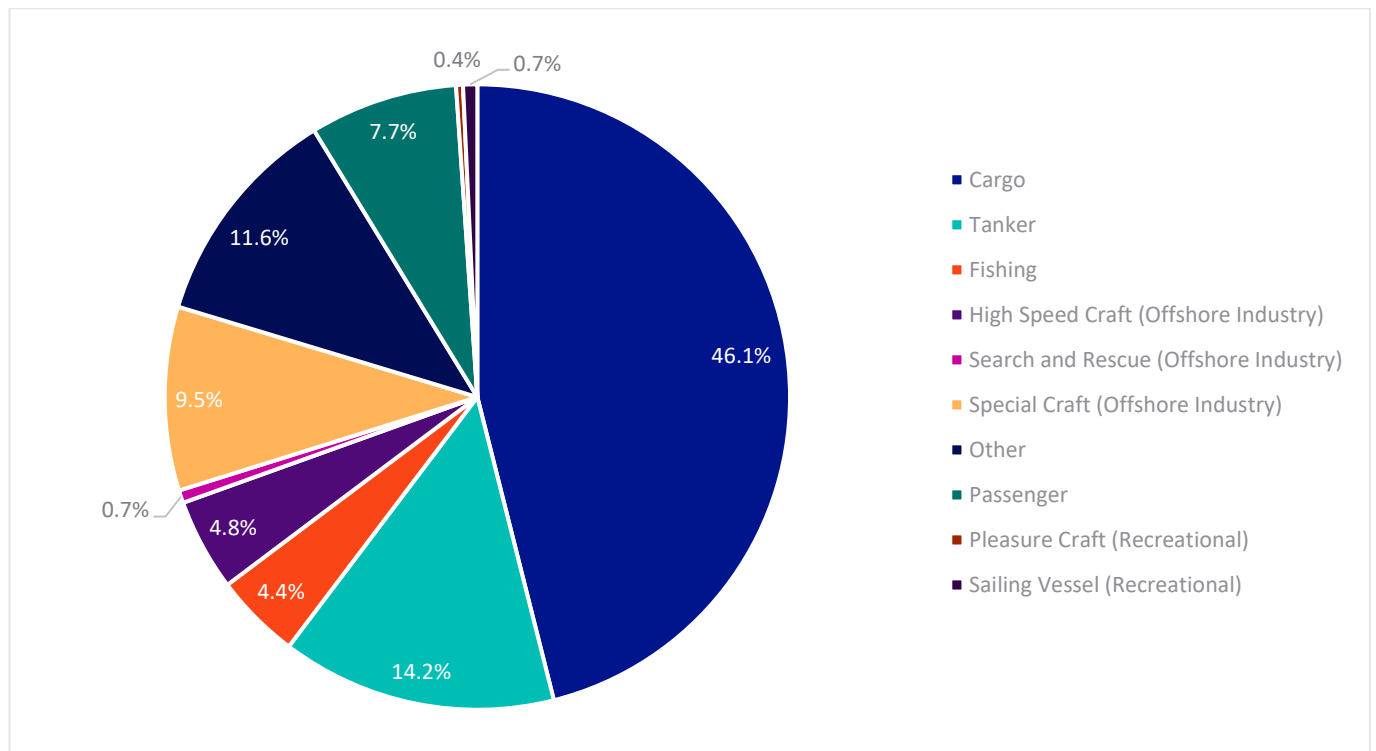
## 22.5 Overall Baseline

### Current baseline

22.5.1 The below baseline is a summary of what is also provided in the NRA (**Volume 2, Part 3, Appendix 22.A: Navigational Risk Assessment**), which utilises the same data to characterise the baseline environment from a risk assessment perspective. Further detail, including AIS data description, additional maps and images, is captured within the NRA.

## Shipping

Plate 22-1 Vessel Type Distribution in the Study Area



22.5.2 A total of 40,092 AIS vessel tracks were recorded across the four-season study period within the shipping and navigation study area, with traffic broadly consistent throughout the year and slightly higher in spring and summer. July 2025 showed the highest monthly activity (3,701 tracks), while December 2025 was the lowest (2,743). Cargo and tanker vessels dominated the study area, accounting for 60.3 per cent of all traffic and remaining steady across seasons.

22.5.3 Vessel movements followed similar spatial patterns year-round, with the highest densities concentrated at the Humber Estuary entrance. Additional high-density routes were observed between KP 60–80 and around KP 160 of the draft Order Limits toward Whitby Port. Traffic intensity peaked in spring and summer, reaching up to 1,594 and 1,527 tracks per 1.5 km<sup>2</sup> grid cell, respectively. The most frequently recorded AIS vessel tracks in the study area were “cargo / tanker” vessels with 60.3 per cent of all tracks within the year, “offshore industry” and “other” vessel tracks were the next most frequent vessel type with 14.9 per cent and 12.6 per cent of tracks respectively. “Passenger”, “fishing”, and “recreational” tracks were relatively low, at 7.7 per cent, 4.4 per cent and 1.1 per cent of all tracks, respectively.

22.5.4 Cargo and tanker vessels intersect the study area across almost its entire extent, with notably higher concentrations between KP 40 and KP 180. Additional crossings from south east to north west are visible closer to the Scottish border beyond approximately KP 320.

22.5.5 Passenger vessel traffic is relatively low across the study area but occurs throughout, with higher concentrations along several key corridors, particularly between KP 5–15, KP 30–40, KP 65–70, and KP 155–165. These patterns reflect major UK–Europe ferry routes, including services between Rotterdam–Hull, Hoek van Holland–Killingholme, and movements linked to Grimsby Port.

- 22.5.6 Recreational vessel activity is also widespread, dominated by sailing vessels, followed by pleasure craft and yachts. Traffic is most intense near and across the 12 NM limit, especially between KP 20–30 and KP 40–50, and shows clear seasonality, peaking in spring and summer, with July 2025 being the busiest period.
- 22.5.7 Offshore industry vessel movements are concentrated along routes between Humber ports (such as Grimsby) and offshore installations. A particularly dense area of activity occurs between KP 50 and KP 135 due to numerous oil and gas platforms, including those undergoing decommissioning. Additional offshore industry routes to the east are associated with nearby offshore wind farms (OWFs).
- 22.5.8 “Other” vessels, such as special service craft, dredgers, tugs, Search and Rescue (SAR) units, military vessels, and survey vessels, are present throughout the study area, with the highest densities near the Humber entrance between KP 5 and KP 50. Elsewhere, their presence is generally low, aside from a few east west routes and a distinctive cluster near KP 210.
- 22.5.9 Maritime incident data was also used to inform of any navigational risks in the study area. The RNLI keeps a record of call-outs to marine incidents. Those in the study area between 2020 and 2024, which were deemed not to be false alarms or hoaxes, are shown in **Volume 3, Part 3, Figure 22.A-06**. A total of 127 unique incidents were recorded between 2020 and 2024. Of those incidents, 14.2 per cent were due to machinery failure, and all the incidents were within 2 km of shore. MAIB data shows that incidents within the study area are more heavily concentrated in the vicinity of the Humber Estuary. There were 185 incidents recorded within the study area, the most frequent cause of which was loss of control (25.4 per cent) followed by collision with another vessel (17.8 per cent of all incidents).

## Key Navigational Features

### Ports and harbours

- 22.5.10 The study area does not directly overlap with any harbour authorities, though the Humber Harbour Area is located in proximity to the draft Order Limits, approximately 12.4 km north west of KP 25. The Humber Estuary, the largest coastal plain estuary on Britain’s east coast, hosts a major port complex comprising Hull, Goole, Immingham, and Grimsby. Humber ABP accounts for over 17 per cent of the nation’s trade, with approximately 40,000 annual ship movements and 79 million tonnes of cargo, whilst supporting marine renewable energy initiatives via the Able Humber Port. Grimsby operates as a medium-sized commercial and fishing port, while Immingham is a key hub for chemical and oil-refining industries, handling bulk and general cargo.
- 22.5.11 The Humber channel is dynamic, with strong tidal streams and shifting morphology, requiring frequent surveys as well as updates to navigation charts and passage plans managed by ABP Humber Estuary Services (HES).
- 22.5.12 Regionally, the Port of Boston Authority lies approximately 34.9 km south of the Anderby Creek Landfall, supporting diverse cargo operations within enclosed docks. The port handles around 1.3 million tonnes of cargo annually and accommodates vessels up to 118 m in length.
- 22.5.13 Further north, the study area passes to the east of Bridlington at approximately 25.7 km from their nearest points. This small harbour is used solely by fishing vessels and recreational craft.

22.5.14 The port at Scarborough lies further north still, approximately 35.3 km at its nearest point to the study area. It is a small fishing and recreational harbour.

### Navigational features

22.5.15 The routeing measures “In the Approach to the River Humber” lie entirely within the Humber VTS limits and intersect the shipping and navigation study area. Further detail is provided in **Volume 2, Part 3, Appendix 22.A: Navigational Risk Assessment**. This includes three Traffic Separation Schemes (TSSs):

- New Sand Hole (north east-south west) which is the main approach channel, a deep and narrow depression with depths ranging from 10 – 43 m (Ref 22.7);
- Sea Reach, which is east / west and has a minimum water depth of 8.6 m; and
- Rosse Reach, which is south east / north west and has a minimum water depth of 6.9 m.

22.5.16 Regarding anchorage, only the Humber Deep Water Anchorage, a designated anchorage recommended for large vessels bound for the Humber, intersects the study area, and is approximately 9 km to the west of the draft Order Limits at KP 50. Several charted inner anchorages are located at the entrance to the Humber Estuary (outside the study area), the closest of which, the Bull Anchorage, lies 9 km at its nearest point to the study area.

22.5.17 The study area contains 19 Aids to Navigation: four beacons and 15 buoys, none of which intersect the draft Order Limits (**Volume 3, Part 3, Figure 22.A-02**).

22.5.18 There are nine pilot boarding stations within the study area, and which relate to the Approaches to the River Humber IMO routeing measure. Humber Pilotage and VTS Operations Centre are based in Royal Dock, Grimsby. Pilotage is compulsory for vessels of 60 m and over in length, and all vessels carrying dangerous substances in bulk when proceeding to and from the inner anchorages for the purpose of anchoring (Ref 22.8).

### Future baseline

22.5.19 The NRA baseline has been informed by the best available current and existing information at the time of assessment. However, there remains inherent uncertainty associated with future shipping patterns and navigational activity. In particular, further development of the marine environment, including potential offshore infrastructure such as Carbon Capture and Storage (CCS) projects, additional cable projects, and decommissioning of oil and gas infrastructure, may alter shipping routes, traffic density, and navigational practices from those described in this baseline (**Volume 1, Part 4, Chapter 27: Cumulative Effects**).

22.5.20 Shipping activity within the vicinity of the draft Order Limits is expected to increase due to the planned development of North Sea OREIs, which would require higher levels of vessel traffic during the construction and operational phases of their life cycle. Other planned projects in the North Sea, such as CCS and other cable projects, would also result in an increase in vessel activity during their respective construction phases.

22.5.21 Additionally, there are Stage 3 Marine Protected Area consultation results which are planned for release later in 2026. These results are expected to displace significant mobile-gear activity and depending on the outcome of the MMO and Secretary of State decisions could substantially change fishing patterns on the east coast of England.

22.5.22 Consequently, the shipping and navigational baseline presented here should be considered subject to change. **Volume 1, Part 3, Chapter 24: Other Marine Users** should be referred to for further information on potential future offshore developments that may be consented and constructed within the region.

## 22.6 Environmental Measures

- 22.6.1 As set out in **Volume 1, Part 1, Chapter 5: PEIR Approach and Methodology**, the environmental measures are characterised as design measures or control and management measures. A range of environmental measures would be implemented as part of the English Offshore Scheme and will be secured in the Deemed Marine Licence (DML) and Development Consent Order (DCO) as relevant. **Table 22-6** outlines how these design and control measures would influence the shipping and navigation assessment.
- 22.6.2 Design measures that are relevant to the shipping and navigation assessment are denoted by a (D) in the ID reference column in **Table 22-6**. These are also included in **Volume 2, Part 1, Appendix 5.A: Outline Register of Design Measures**.
- 22.6.3 Several management plans will be provided as Outline Management Plans with the DCO application to support the DML. These will include an Outline Construction Environmental Management Plan (CEMP) and Outline Marine Pollution Contingency Plan (MPCP), and an Outline Fisheries Liaison and Coexistence Plan (FLCP). Final management plans will be submitted in accordance with the DML to discharge the licence conditions.
- 22.6.4 Control and management measures that are relevant to the Shipping and Navigation assessment are denoted by a (C) in the ID reference column in **Table 22-6**. These control and management measures are also included within the Outline CEMP and Outline FLCP that can be found in **Volume 2, Part 1, Appendix 5.D: Outline Construction Environmental Management Plan**, and **Volume 2, Part 3, Appendix 23.B: Outline Fisheries Liaison and Coexistence Plan**, respectively.

**Table 22-6 Summary of the environmental measures**

| Receptor | Potential changes and effects   | Environmental measures   | Phases         |                | ID Reference |
|----------|---|--|----------------|----------------|--------------|
|          |   |  | C <sup>4</sup> | O <sup>5</sup> |              |
| Vessels  | Vessel-Vessel Collision (third-party project and third-party to third-party). Risk to | All project vessels must comply with the International Regulations for Preventing Collisions at Sea (COLREGs) (1972) (Ref 22.9), as amended, particularly with respect to the display of lights, shapes and signals. The masters of other vessels are expected to be familiar with and comply with the COLREGs. Additionally, project vessels would adhere to regulations relating to International Convention for the Prevention of Pollution from Ships (the MARPOL Convention 73 / 78) with the aim of preventing and minimising pollution from ships and the International Convention for the Safety of Life at Sea (SOLAS) Chapter V (International Maritime Organisation, 1974) (Ref 22.10). | ✓              | ✓              | OMT08 (C)    |
|          |   | Project vessel compliance with MGN 661 Navigation - safe and responsible anchoring and fishing practices.  | ✓              | ✓              | SNV01 (C)    |
|          |   | The presence of an established VTS in the area, and the advance notification of planned operations to VTS managers. A communication strategy with ABP Humber will be developed for the Project including communication protocols with VTS.   | ✓              | ✓              | SNV02 (C)    |
|          |   | Guard vessel(s), using Radio Detection and Ranging (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 cable installation  | ✓              | ✓              | OMT05 (C)    |

<sup>4</sup> Construction (including Installation and Commissioning) and Decommissioning

<sup>5</sup> Normal Operations and Maintenance

| Receptor | Potential changes and effects | Environmental measures  | Phases         |                | ID Reference |
|----------|-------------------------------|---|----------------|----------------|--------------|
|          |                               |   | C <sup>4</sup> | O <sup>5</sup> |              |
|          |                               | works and to protect any temporary cable exposures during installation.   |                |                |              |
|          |                               | Temporary aids to navigation may be used to guide vessels around areas of installation activity if agreed with Trinity House.   | ✓              |                | SNV06 (C)    |
|          |                               | Relevant information will be communicated to other sea users via Notices to Mariners (NtM), Radio Navigation Warnings Navigational Telex (NAVTEX) and / or broadcast warnings, and notification of regular runners including ferry operators.   | ✓              | ✓              | OMT10 (C)    |
|          |                               | Notification to Regular Runners (RRs) including ferry operators.  | ✓              |                | SNV03 (C)    |
|          |                               | Establishment of Operations Weather Envelope Limits. The Project will establish a critical minimum operational envelope for relevant activities with regards to weather conditions and visibility, and will monitor weather conditions during construction phase.   | ✓              | ✓              | SNV04 (C)    |
|          |                               | Procedures would be in place to minimise disruption near high density shipping areas. e.g., avoidance of anchoring near busy areas, passage planning of installation vessels, emergency response plan.  | ✓              |                | SNV05 (C)    |
|          |                               | Where potential interaction between the English Offshore Scheme and other infrastructure, projects or marine activities are identified, owners / operators / licence holders will be consulted and standard legal agreements (such as crossing or proximity agreements) or SIMOPs procedures will be developed prior to the commencement of operations. | ✓              |                | OMT14 (C)    |
|          |                               | A Fisheries Liaison Officer (FLO), and fisheries working group(s), will be maintained throughout installation to ensure project information is effectively disseminated, dialogue is  | ✓              |                | CF01 (C)     |

| Receptor | Potential changes and effects   | Environmental measures  | Phases         |                | ID Reference |
|----------|---|---|----------------|----------------|--------------|
|          |   |   | C <sup>4</sup> | O <sup>5</sup> |              |
|          |   | maintained with the commercial fishing industry and access to home ports is maintained during the main fishing season. Details of the FLO are included in the Construction Fisheries Liaison and Coexistence Plan (FLCP). An outline FLCP has been prepared, which will be updated to the final FLCP post-consent ( <b>Volume 2, Part 3, Appendix 23.B: Outline Fisheries Liaison and Coexistence Plan</b> ). |                |                |              |
|          |   | Pollution events as the result of a collision would be managed through the Project Emergency Response Plan, Marine Pollution Contingency Plan and specifically the Shipboard Oil Pollution Emergency Plan (SOPEP).  | ✓              | ✓              | SNV07 (C)    |
|          |   | The presence of an established VTS in the area, and the advance notification of planned operations to VTS managers. A communication strategy with ABP Humber will be developed for the Project including communication protocols with VTS.  | ✓              | ✓              | SNV02 (C)    |
|          |   | Project vessel compliance with MGN 661 Navigation - safe and responsible anchoring and fishing practices.   | ✓              | ✓              | SNV01 (C)    |
| Vessels  | Disruption / reduced access to established vessel routes, areas and activities. | Procedures would be in place to minimise disruption near high density shipping areas. e.g., avoidance of anchoring near busy areas, passage planning of installation vessels, emergency response plan.  | ✓              |                | SNV05 (C)    |
|          |   | Relevant information will be communicated to other sea users Notices to Mariners (NtM), Kingfisher Bulletins, Radio Navigation Warnings, Navigational Telex (NAVTEX) and Navigational Areas (NAVAREA) warnings and / or broadcast warnings  | ✓              | ✓              | OMT10 (C)    |
|          |   | Notification to RRs including ferry operators.  | ✓              |                | SNV03 (C)    |

| Receptor | Potential changes and effects   | Environmental measures   | Phases         |                | ID Reference |
|----------|---------------------------------|--|----------------|----------------|--------------|
|          |                                 |  | C <sup>4</sup> | O <sup>5</sup> |              |
| Project  | Anchor interactions with cable. | Establishment of Operations Weather Envelope Limits. The Project will establish a critical minimum operational envelope for relevant activities with regards to weather conditions and visibility, and will monitor weather conditions during construction phase.                    | ✓              |                | SNV04 (C)    |
|          |                                 | Cable jointing operations to be planned away from high shipping activity where possible.   | ✓              |                | SNV08 (C)    |
|          |                                 | The presence of an established VTS in the area, and the advance notification of planned operations to VTS managers. A communication strategy with ABP Humber will be developed for the Project including communication protocols with VTS.   | ✓              | ✓              | SNV02 (C)    |
|          |                                 | External cable protection features would only be installed where considered necessary for the safe operation of the English Offshore Scheme. This includes the repair of cables due to accidental damage, where target burial depth is not achieved and at infrastructure crossings. | ✓              | ✓              | OMT04 (D)    |
|          |                                 | External cable protection features would only be installed where considered necessary for the safe operation of the English Offshore Scheme in line with Marine Guidance Note 654 Safety of Navigation: OREIs – Guidance on UK navigational practice, safety and emergency response. | ✓              | ✓              | SNV01 (D)    |
|          |                                 | Relevant information will be communicated to other sea users Notices to Mariners (NtM), Kingfisher Bulletins, Radio Navigation Warnings, Navigational Telex (NAVTEX) and Navigational Areas (NAVAREA) warnings and / or broadcast warnings   | ✓              | ✓              | OMT10 (C)    |
|          |                                 | Notification to RRs including ferry operators.   | ✓              |                | SNV03 (C)    |

| Receptor | Potential changes and effects    | Environmental measures   | Phases         |                | ID Reference |
|----------|----------------------------------|--|----------------|----------------|--------------|
|          |                                  |  | C <sup>4</sup> | O <sup>5</sup> |              |
| Project  | Fishing interactions with cable. | Project vessel compliance with MGN 661 Navigation - safe and responsible anchoring and fishing practices.  | ✓              |                | SNV01 (C)    |
|          |                                  | A CBRA will be undertaken to identify appropriate target depth of burial based on geology, water depths and AIS data. A risk based burial approach will be used, assessing external cable protection risk factors such as sediment type, shallow geology, sediment mobility, fishing activity, shipping movements and anchor deployment along the route. | ✓              | ✓              | OMT09 (D)    |
|          |                                  | As-built locations of cable and external protection will be supplied to the United Kingdom Hydrographic Office (UKHO) (Admiralty), The Crown Estate and Kingfisher (KIS-ORCA).   |                | ✓              | OMT02 (C)    |
|          |                                  | The presence of an established VTS in the area, and the advance notification of planned operations to VTS managers. A communication strategy with ABP Humber will be developed for the Project including communication protocols with VTS.   | ✓              | ✓              | SNV02 (C)    |
|          |                                  | External cable protection features would only be installed where considered necessary for the safe operation of the English Offshore Scheme. This includes the repair of cables due to accidental damage, where target burial depth is not achieved and at infrastructure crossings.   | ✓              | ✓              | OMT04 (D)    |
|          |                                  | External cable protection features would only be installed where considered necessary for the safe operation of the English Offshore Scheme in line with Marine Guidance Note 654 Safety of Navigation: OREIs – Guidance on UK navigational practice, safety and emergency response.   | ✓              | ✓              | SNV01 (D)    |
|          |                                  | Relevant information will be communicated to other sea users Notices to Mariners (NtM), Kingfisher Bulletins, Radio Navigation Warnings, Navigational Telex  | ✓              | ✓              | OMT10 (C)    |

| Receptor | Potential changes and effects    | Environmental measures   | Phases         |                | ID Reference |
|----------|----------------------------------|--|----------------|----------------|--------------|
|          |                                  |  | C <sup>4</sup> | O <sup>5</sup> |              |
|          |                                  | (NAVTEX) and Navigational Areas (NAVAREA) warnings and / or broadcast warnings   |                |                |              |
|          |                                  | Notification to RRs including ferry operators.   | ✓              |                | SNV03 (C)    |
|          |                                  | Project vessel compliance with MGN 661 Navigation - safe and responsible anchoring and fishing practices.  | ✓              |                | SNV01 (C)    |
|          |                                  | As-built locations of cable and external protection will be supplied to the United Kingdom Hydrographic Office (UKHO) (Admiralty), The Crown Estate and Kingfisher (KIS-ORCA).   |                | ✓              | OMT02 (C)    |
|          |                                  | A CBRA will be undertaken to identify appropriate target depth of burial based on geology, water depths and AIS data. A risk based burial approach will be used, assessing external cable protection risk factors such as sediment type, shallow geology, sediment mobility, fishing activity, shipping movements and anchor deployment along the route. | ✓              | ✓              | OMT09 (D)    |
|          |                                  | As-built locations of cable and external protection will be supplied to the United Kingdom Hydrographic Office (UKHO) (Admiralty), The Crown Estate and Kingfisher (KIS-ORCA).   |                | ✓              | OMT02 (C)    |
| Vessels  | Reduction in UKC and crossings). | External cable protection features would only be installed where considered necessary for the safe operation of the English Offshore Scheme. This includes the repair of cables due to accidental damage, where target burial depth is not achieved and at infrastructure crossings.   |                | ✓              | OMT04 (D)    |
|          |                                  | External cable protection features would only be installed where considered necessary for the safe operation of the English Offshore Scheme in line with Marine Guidance Note 654 Safety of Navigation: OREIs – Guidance on UK navigational practice, safety and emergency response.   |                | ✓              | SNV01 (D)    |

| Receptor | Potential changes and effects  | Environmental measures   | Phases         |                | ID Reference |
|----------|--|--|----------------|----------------|--------------|
|          |  |  | C <sup>4</sup> | O <sup>5</sup> |              |
|          |  | A CBRA will be undertaken to identify appropriate target depth of burial based on geology, water depths and AIS data. A risk based burial approach will be used, assessing external cable protection risk factors such as sediment type, shallow geology, sediment mobility, fishing activity, shipping movements and anchor deployment along the route.               | ✓              | ✓              | OMT09 (D)    |
|          |  | Where there is a potential for interaction between the English Offshore Scheme and other infrastructure projects, or marine activities are identified, owners / operators / licence holders will be consulted and standard legal agreements (such as crossing or proximity agreements) or SIMOPs procedures will be developed prior to the commencement of operations. | ✓              |                | OMT14 (C)    |
|          |  | The cables shall be buried in the seabed, except in areas where burial is not possible e.g., where ground conditions do not allow or at infrastructure crossings.  | ✓              |                | OMT03 (D)    |
|          |  | In line with MCA guidance (MGN 654), it is not planned to reduce the existing navigable water depth by more than 5% along any section of the cable (with respect to Chart Datum). Any locations where this may not be the case should be discussed and agreed with the MCA and relevant Statutory Harbour.   | ✓              |                |              |
| Vessels  | EMF Interference with marine navigation, communications and position-fixing equipment. | Magnetic compass deviation low (less than 3 degrees) for 100 per cent of the bundled section of the cable route.   |                | ✓              | SNV02 (D)    |
|          |  | The cables shall be buried in the seabed, except in areas where burial is not possible e.g. where ground conditions do not allow or at infrastructure crossings.   |                | ✓              | OMT03 (D)    |
|          |  | HVDC poles would be bundled to minimise the effects of Electromagnetic Fields (EMF).   |                | ✓              | OMT06 (D)    |

| Receptor | Potential changes and effects | Environmental measures   | Phases         |                | ID Reference |
|----------|-------------------------------|--|----------------|----------------|--------------|
|          |                               |  | C <sup>4</sup> | O <sup>5</sup> |              |
|          |                               | As-built locations of cable and external protection will be supplied to the United Kingdom Hydrographic Office (UKHO) (Admiralty), The Crown Estate and Kingfisher (KIS-ORCA). |                | ✓              | OMT02 (C)    |

## 22.7 Scope of the Assessment

### Spatial scope and study area

- 22.7.1 The spatial scope of the assessment of shipping and navigation is a 5 NM on each side of the draft Order Limit as described in **Section 22.4.1**. The study area for shipping and navigation is shown on **Volume 3, Part 3, Figure 22.A-01**.

### Temporal scope

- 22.7.2 The temporal scope of the assessment of shipping and navigation is consistent with the period over which the English Offshore Scheme would be carried out. It assumes construction of the English Offshore Scheme will commence in 2030 and cover a period of 5 years. Operation would commence in 2035, with periodic maintenance required during the Operation and Maintenance phase of the English Offshore Scheme. It is assumed that maintenance and repair activities could take place at any time during the life span of the English Offshore Scheme.
- 22.7.3 The English Offshore Scheme is expected to have a life span of more than 40 years. If decommissioning requires full or partial removal of the English Offshore Scheme at this point in time, then activities and effects associated with the decommissioning phase are expected to be of a similar level to those during the construction phase, albeit with a lesser duration. The Project could also remain operational for a period after the 40 years or be taken out of service and left within the draft Order Limits after 40 years. Acknowledging the complexities of completing a detailed assessment for decommissioning works up to 40 years in the future, based on the information available, the Project has concluded that impacts from decommissioning would be no greater than those during the construction phase. Furthermore, should decommissioning take place it is expected that an assessment in accordance with the legislation and guidance at the time of decommissioning would be undertaken. In addition, it is expected that the DCO will include a requirement for a written scheme of decommissioning for approval by the relevant consenting authority.

### Potential effects considered within this assessment

- 22.7.4 The effects on shipping and navigation receptors which have the potential to be significant and have been taken forward for detailed assessment are summarised in **Table 22-8**. These potential significant effects have been identified through a Hazard Identification (HAZID) workshop held with stakeholders to ensure all potential hazards (defined for this assessment as a potential source of marine incidences and collisions to the existing baseline of other marine users) have been encompassed in the assessment. The HAZID workshops were held on 8 December 2025 with statutory bodies and on the 15 December 2025 with port and harbour authorities.

### Identification of receptors

- 22.7.5 The principal shipping and navigation receptors that have been identified as being potentially subject to significant effects are summarised in **Table 22-7**.

Table 22-7 Shipping and navigation receptors subject to potential effects

| <b>Receptor</b>                 | <b>Reason for consideration</b>   |
|---------------------------------|---|
| Commercial vessels              | Any commercial vessel operating within the study area has the potential to be impacted by the English Offshore Scheme and the vessels associated with it. These include cargo, dredging or underwater operations, fishing, military and law enforcement, passenger, service, tanker and tug or towing vessels.  |
| Recreational vessels            | Any recreational vessel operating within the study area has the potential to be impacted by the English Offshore Scheme and the vessels associated with it. These include pleasure craft and sailing vessels.   |
| Ports and navigational features | Any navigational feature within the study area that may be affected by the English Offshore Scheme. These include ports and port areas, anchorage areas, extraction areas, military practice or firing areas, no anchorage areas, offshore wind farms, spoil grounds, cables, pipelines, TSS, anchorages, aids to navigation, pilot boarding stations, oil and gas infrastructure and charted wrecks or obstructions. |

Table 22-8 Shipping and navigation receptors scoped in for further assessment

| <b>Receptor</b>                            | <b>Likely significant effects</b>  |
|--|--|
| Vessels (both recreational and commercial) | <ul style="list-style-type: none"> <li>● Increased risk of vessel collisions;</li> <li>● Disruption to established vessel routes and areas;</li> <li>● Accidental anchor strike or drag onto exposed submarine cable;</li> <li>● Accidental fishing gear snagging onto exposed submarine cable or external cable protection measure;</li> <li>● Reduction in under-keel clearance;</li> <li>● Interference with marine navigational equipment during the operational phase.</li> </ul> |
| Ports and navigational features            | <ul style="list-style-type: none"> <li>● Reduction in under-keel clearance.</li> </ul>   |

22.7.6 The receptors/effects detailed in **Table 22-9** have been scoped out from being subject to further assessment because the potential effects are not considered likely to be significant.

Table 22-9 Summary of effects scoped out of the shipping and navigation assessment

| Receptors/ potential effects | Justification  |
|------------------------------|--|
| EMF Compass Deviation Effect | There is no risk of electromagnetic forces from the cables that are likely to cause interference with marine navigation equipment during the construction and decommissioning. |

## 22.8 Key Parameters for Assessment

- 22.8.1 The assessment has followed the Rochdale Envelope approach as outlined in **Volume 1, Part 1, Chapter 4: Description of the Project** and **Volume 1, Part 1, Chapter 5: PEIR Approach and Methodology of the PEIR**. The assessment of effects has been based on the description of the Project and parameters outlined in **Volume 1, Part 1, Chapter 4: Description of the Project**.
- 22.8.2 However, where there is uncertainty regarding a particular design parameter, the realistic worst-case design parameters are provided in **Table 22-10** with regards to shipping and navigation. The preliminary assessment for shipping and navigation has been undertaken on this basis. Effects of greater adverse significance are not likely to arise should any other development scenario, based on details within the Rochdale Envelope (e.g., different infrastructure layout within the draft Order Limits), to that assessed here be taken forward in the final design plan.

Table 22-10 Realistic worst-case design scenario

| Impact  | Phase | Maximum Design Scenario (MDS)   | Justification  |
|---|-------|---|--|
|   | C O D |   |  |
| Vessel-vessel collision risk (third-party to project and third-party to third-party). | ✓ ✓ ✓ | Duration of pre-installation survey: 10 months<br>Duration of cable route / seabed preparation: 14 months<br>Duration of cable lay and burial: 20 months<br>Duration of remedial external cable protection: 8 months<br><br>Duration of post lay survey: 2 months<br>No. cable lay and burial campaigns: up to 8<br>Duration of cable repair operation: 6 weeks | Works vessels present for longer periods of time are more likely to be involved in a collision.  |
| Disruption / reduced access to established vessel routes, areas and activities.       | ✓ ✓ ✓ | Duration of pre-survey: 10 months<br>Duration of cable route / seabed preparation: 14 months<br>Duration of cable lay installation: 20 months<br>Duration of remedial external cable protection: 8 months<br>Duration of post lay survey: 2 months<br>No. cable lay and burial campaigns: up to 8<br>Duration of cable repair operation: 6 weeks                | Vessels present for longer periods of time are more likely to cause disruption.  |
| Anchor interactions with cable.   | ✓ ✓ ✓ | Maximum width of external cable protection on seabed: 16 m<br>Maximum height of external cable protection: 2 m<br>Infrastructure crossings - maximum width of crossing: 16 m<br>Minimum burial depth: 1 m<br>Duration of cable repair operation: 6 weeks  | Shallow buried cables are more likely to present as a snagging hazard.<br>Cable will be exposed for a longer period during longer cable repair operations. |
| Fishing gear interactions with cable.   | ✓ ✓ ✓ | Maximum width of external cable protection on seabed: 16 m<br>Maximum height of external cable protection: 2 m<br>Infrastructure crossings - maximum width of crossing: 16 m<br>Minimum burial depth: 1 m   | Shallow buried cables are more likely to present as a snagging hazard.   |

| Impact   | Phase | Maximum Design Scenario (MDS)   | Justification  |
|--|-------|---|--|
|  | C O D |   |  |
|  |       | Duration of cable repair operation: 6 weeks   | Cable will be exposed for a longer period during longer cable repair operations.   |
| Reduction in UKC (cable and crossings)   | ✓ ✓ ✓ | Maximum width of external cable protection on seabed: 16 m<br>Maximum height of external cable protection: 2 m<br>Infrastructure crossings - maximum width of crossing: 16 m<br>Infrastructure crossings - maximum height of rock berm: 2.5 m<br>Maximum length of rock protection required for cable crossings: 29,000 m | The presence of external cable protection and rock berm will reduce UKC.<br>Boulder clearance and nearshore remedial rock dump could cause changes to UKC.   |
| EMF interference with marine navigation, communications and position-fixing equipment. | ✓     | Minimum burial depth: 1 m<br>No. cables: 2 (bundled)<br>Length of cable: 423 km<br>Voltage: 525 kV  | Maximum EMF values emitted from cable and extent of the EMFs will vary in relation to a number of aspects including the maximum cable voltage, distance from the seabed, burial depth and length of the cable. |

## 22.9 Assessment Methodology

### Overview

- 22.9.1 **Volume 1, Part 1, Chapter 5: PEIR Approach and Methodology** sets out the overarching approach which has been used in developing the preliminary environmental information. This chapter describes the technical methods used to determine the baseline conditions, sensitivity of the receptors and magnitude of effects and sets out the significance criteria that have been used for the preliminary shipping and navigation assessment.
- 22.9.2 The methodology for the Shipping and Navigation assessment is based on the NRA methodology (**Volume 2, Part 3, Appendix 22.A: Navigational Risk Assessment**) but has been adapted to align with the PEIR approach for an assessment of significance of effect. In turn the NRA methodology is informed by IMO, MCA, and IALA guidance (**Volume 2, Part 3, Appendix 22.A: Navigational Risk Assessment**, Section 22.A.2.10) for completing risk assessments for developments in the marine environment. This includes a FSA process for analysis of shipping and navigation receptors as per the MCA MGN 654 - OREI Safety Response (Ref 22.2). This is considered the industry standard approach, and the NRA methodology was presented to stakeholders during the technical engagement (Section 22.3.3). It should be noted that the terms ‘severity of consequence’ and ‘frequency’ are used in place of ‘magnitude’ and ‘sensitivity’ due to the FSA methodology.
- 22.9.3 An FSA process provides a systematic method for evaluating and controlling risk, within a structured framework. This process is presented in full in **Volume 2, Part 3, Appendix 22.A: Navigational Risk Assessment**.
- 22.9.4 Baseline shipping patterns and navigational features along with stakeholder consultations provide the basis for establishing potential hazards to shipping and navigation. The associated consequences are then characterised in their severity and likelihood in consideration of existing or embedded risk control measures. Risk level is then determined against a risk matrix to establish acceptability. Additional control or mitigation measures are subsequently identified to provide a reduction in risk. The residual effects are then assessed to determine risk acceptability in accordance with the principles of ALARP. Where necessary or appropriate, the identified additional mitigation measures are assessed to determine / justify a basic ALARP position. Further detail of the assessment approach can be seen in **Volume 2, Part 3, Appendix 22.A: Navigational Risk Assessment**.

### Severity of consequence

- 22.9.5 The severity of consequence is defined in relation to impacts on human safety, ships, displacement of vessels, business/reputational impacts and environmental impacts. These have all been considered together to create the severity of consequence definition (**Table 22-11**).

Table 22-11 Severity of consequence

| <b>Severity of consequence</b> | <b>Definition</b>   |
|--------------------------------|---|
| High                           | <ul style="list-style-type: none"> <li>• Loss of a crew member, or multiple serious injuries;</li> <li>• Major / Severe damage to infrastructure or vessel;</li> <li>• Operations / activities halted indefinitely;</li> <li>• Major commercial impact; and</li> <li>• Tier 3 response – national assistance needed.</li> </ul> |
| Medium                         | <ul style="list-style-type: none"> <li>• Serious injury to person;</li> <li>• Notable damage to infrastructure or vessel;</li> <li>• Protracted operational delays;</li> <li>• Moderate commercial impact; and</li> <li>• Tier 2 response – external assistance needed.</li> </ul>  |
| Low                            | <ul style="list-style-type: none"> <li>• Minor injury(s) to person;</li> <li>• Minor / Local damage to equipment or vessel</li> <li>• Minor operational delays;</li> <li>• Minor commercial impact; and</li> <li>• Tier 1 response – local assistance needed.</li> </ul>  |
| Negligible                     | <ul style="list-style-type: none"> <li>• No significant operational impacts; and</li> <li>• Minor environmental emissions, no spill response needed.</li> </ul>   |

## Frequency

Table 22-12 Frequency of occurrence

| <b>Description</b> | <b>Definition</b>   |
|--------------------|---|
| Remote             | Never occurred during Company’s activities but has been known to occur in the wider industry                |
| Unlikely           | Has occurred in Company’s activities in the past but as an isolated incident under exceptional circumstance |
| Occasional         | Has occurred on more than one occasion during Company’s activities in the past                              |
| Likely             | Occurs regularly during Company’s activities  |

## Significance of effect

22.9.6 **Table 22-13** details the risk matrix, which is used to determine the significance of the impact in the assessment of the English Offshore Scheme across the construction and operational stages. The significance criteria is then defined as major, moderate, minor or negligible.

Table 22-13 Risk matrix - significance evaluation

|                                |            |                    |                    |    |                    |                    |
|--------------------------------|------------|--------------------|--------------------|----|--------------------|--------------------|
| Likelihood / frequency         | Likely     | Broadly Acceptable | Tolerable ALARP    | if | Unacceptable       | Unacceptable       |
|                                | Occasional | Broadly Acceptable | Tolerable ALARP    | if | Tolerable ALARP    | if Unacceptable    |
|                                | Unlikely   | Broadly Acceptable | Broadly Acceptable |    | Tolerable ALARP    | if Tolerable ALARP |
|                                | Remote     | Broadly Acceptable | Broadly Acceptable |    | Broadly Acceptable | Tolerable ALARP if |
|                                |            | Negligible         | Low                |    | Medium             | High               |
| <b>Severity of consequence</b> |            |                    |                    |    |                    |                    |

## Preliminary assessment of cumulative effects

22.9.7 The assessment is based on the best available data from other plans, projects and marine activities and associated information which is currently in the public domain or has been provided to the project team. The assessment assumes that publicly available information is accurate; the assessment is also reliant on collaboration with a range of statutory consultees to the Marine Licensing process, neighbouring authorities and other developers to identify changes in information which may be pertinent to the assessment. Where there are specific limitations associated with data, they will be highlighted as the assessment progresses.

22.9.8 A list of potential cumulative projects and activities has been compiled and includes offshore industry activities off the east coast of England. Each hazard has been qualitatively reviewed against the potential direct and indirect cumulative effects from any of the projects listed as well as general increases in traffic density. This process is captured in **Volume 1, Part 4, Chapter 27: Cumulative Effects** and is not included as part of this document.

## 22.10 Preliminary Assessment of Increased Risk of Vessel Collisions – Construction and Operational Phases

22.10.1 The construction phases of the English Offshore Scheme may require the use of large and slow-moving vessels such as the cable-lay vessel, that will be constrained by their operations and hence restricted in their ability to manoeuvre. During the operational phase, a number of cable inspections are expected to take place which will likely include the use of underwater vehicles and require slow-moving vessels that will be constrained by their operations, and hence restricted in their ability to manoeuvre. These vessels will therefore present an obstacle to all passing traffic and may increase the risk of collisions in the area.

- 22.10.2 Collision risk is likely to be greater where traffic density is highest (e.g., near the Humber VTS Limits) and shallow areas where draught is a constraint (e.g., around the Anderby Creek Landfall). The use of embedded mitigations, including measures such as Merchant Shipping Notes (MSN), NtM, Notification of Regular Runners, guard vessel patrol, Sécurité broadcasts on VHF, stakeholder consultations, and communication efforts, aim to increase awareness of operations among vessels in the area. Most vessels adhere to standard navigational practices, follow collision avoidance guidelines and exercise good shipping practices, and therefore the risk of collision is unlikely to increase significantly. However, it cannot be assumed that all vessels using the locations will be aware of the presence of the installation vessels or their activity schedules.
- 22.10.3 The probability of vessel collision along the draft Order Limits is considered to be "Remote". However, it is important to note that the severity of a collision with any vessel or surface obstacle could lead to significant consequences, including potential pollution, the loss of crew and commercial impacts, among other outcomes in the worst-case scenario, so the severity of consequence is considered "High". Taking these factors into account, the initial risk ranking for this situation is categorised as "Tolerable if ALARP" meaning efforts should be made to reduce the risk further.
- 22.10.4 During the construction phase, enhanced communication plans are recommended as an additional risk reduction measure to ensure awareness of the operations and installation fleet locations between all relevant parties, including Harbour Master and VTS operators. During the operational phase, case-by-case risk assessment of inspection and maintenance activities is recommended. This reduces the residual risk to As Low As Reasonably Practicable.

## 22.11 Preliminary Assessment of Disruption to Established Routes and Areas – Construction and Operational Phases

- 22.11.1 Some disruption to routine vessel routeing and any other scheduled activity is expected during the construction phase as there is potential for the use of stationary barges and other vessels that are restricted in their ability to manoeuvre. During the operational phase, inspection and / or maintenance vessels may be present. These vessels will present as temporary obstacles which may increase the risk of disruption. In particular, stationary or slow-moving vessels in the vicinity of the Anderby Creek Landfall or the pilot stations at Spurn Point may present the need for more disruptive deviations to vessel routeing, as they will in the more heavily trafficked areas such as at the mouth of the Humber Estuary due to the restriction in sea room. This disruption may cause minor delays to trade and industry and therefore minor commercial implications.
- 22.11.2 During the construction phase, this hazard is assessed as 'Likely', however given the footprint of the installation operation and the temporary impact at any given location, a 'Medium' consequence severity is determined. This results in a 'Unacceptable' assessment and thus the obligation to implement further risk reduction measures.
- 22.11.3 It is recommended that, during the construction phase, communication of the operation details, schedule, and protocols to those who are likely to be affected is enhanced (see Environmental Measures, **Table 22-6**). It is recommended to develop communication plans that inform the local harbour authorities and Humber VTS operators, among others, about the operational developments well in advance of the operation. Additionally, protocols should be established for communication between these parties and the installation vessels to ensure that the location of operations is always identified. This will enable better planning to help mitigate disruption and facilitate effective communication

and management of the affected vessels during the construction phase. UKHO Temporary / Preliminary Notices should also be issued prior to installation. This reduces the residual risk to As Low As Reasonably Practicable.

22.11.4 During the operational phase, in the worst-case scenario, delays are considered possible and are assessed as 'Remote'. The consequence severity is assessed as minor or 'Low'. This results in a 'Broadly Acceptable' assessment and therefore no requirement to consider further risk reduction measures.

## **22.12 Preliminary Assessment of Accidental Anchor Strike or Drag**

22.12.1 During both the construction and operational phases, there is a risk that a third-party vessel will drop anchor or lose its holding ground in adverse weather and subsequently drag its anchor over a section of exposed cable. In the case of an anchor snagging incident, it is possible, in the worst case, that smaller vessels could suffer a risk of foundering and loss of crew should they not be able to free themselves. Consequences could also include commercial effects as well as potential for pollution incidents.

22.12.2 It is expected that anchor dragging will be a possible hazard to the cable based on the proximity to the designated anchorage area and to the Spurn Point pilot station. Additionally, the Baseline identifies potential anchoring activity outside of charted anchorage areas, within the study area. The relatively close proximity of these locations to the cable route presents an increased risk of damage by accidental anchor drop, anchoring outside of the anchorage area or dragging of anchors across the cables, due to bad weather and / or poor anchor penetration.

22.12.3 The risk-based cable burial approach and route selection process serve to reduce risks to both the cables and shipping by minimising vulnerabilities which include pre-lay preparations and reducing the time between cable lay and its burial. As such, the risk of accidental anchor strike or drag over surface-laid / exposed cable is highest in the operational phase, as cable exposures may have occurred due to mobile sediment / scour. The cables will be buried, or protected where necessary, along the vast majority of its length. The target burial depth, protection measures and locations are expected to have been determined as far as practicable via the risk-based cable burial approach. As such this hazard will be appropriately minimised. Additionally, industry guidance on safe anchor and fishing practises, and provision of as-built locations of the cables and external protections to UKHO (Admiralty) and Kingfisher (KIS-ORCA), reduce snagging risks significantly. VTS is also in place at ports to inform and deter vessels from anchoring near the cables. During the operational phase, cable locations will be marked on navigational charts and will be familiar to regular users of the area.

22.12.4 During both the construction and operational phases, the probability of an anchor interaction on the laid cable has been determined to be 'Unlikely' but remains a 'High' severity in the worst-case scenario where foundering leads to loss of crew, bringing the risk assessment to 'Tolerable if ALARP' and the need to consider further risk reduction measures.

22.12.5 During the construction phase, it is recommended that UKHO temporary or preliminary notices are issued to relevant parties such that the basic location of the cables is captured prior to post-lay/as-built survey to increase awareness amongst mariners. Additionally, the use of aids to navigation should be considered where sections of the cables are expected to be exposed for significant lengths of time prior to burial. This reduces the residual risk to As Low As Reasonably Practicable.

22.12.6 No additional risk reduction measures are recommended for the operational phase as the risk-based cable burial approach (to be delivered in the forthcoming CBRA) comprises a detailed and comprehensive assessment of all factors affecting the burial and protection requirements across the operational lifetime of the cable, as well as detailed burial recommendations. The risk is assessed as As Low As Reasonably Practicable.

## **22.13 Preliminary Assessment of Accidental Fishing Gear Snagging**

22.13.1 Fishing vessels whose gear becomes snagged on the cable may sustain extensive damage or suffer foundering during the construction phases of the English Offshore Scheme, the consequences of which could include damage to or loss of vessels, potential harm to people or loss of life, commercial effects, as well as potential for pollution incidents. Snagging could occur prior to burial or protection during the construction phase, or where scour has exposed the cable during the operational phase. Pre-lay preparation such as ploughing may also result in the temporary creation of berms and rock displacement which presents additional seabed hazards to fishing gear.

22.13.2 During the construction phase, the potential for appointment of a Fisheries Liaison Officer (FLO), the issuance of Kingfisher notifications and NtMs, and the provision of other relevant marine warnings aim to effectively address the risk of fishing gear encountering potential seabed hazards prior to construction and increase fishers' awareness. Additionally, a variety of vessels involved in cable laying and burial operations significantly reduce the likelihood of such interactions.

22.13.3 Once constructed, cables will be buried along the majority of the route. Further protection measures are also expected where necessary, and all external protection measures will be designed to minimise the risk of snagging as far as possible. Inspections and maintenance (as required) should ensure the cables remains in good condition and suitably protected throughout its operational life. Industry guidance recommends avoidance of demersal fishing over cables and other safe practises relating to seabed hazards. This embedded mitigation, combined with the provision of as-built locations of the cables and external protection to UKHO and Kingfisher (KIS-ORCA) represents substantial risk reduction. In addition, the potential appointment of a FLO during the construction phase provides substantial assurance that fishers will be aware of the cables location following installation.

22.13.4 The likelihood of gear snagging during both the construction and operational phases is assessed as 'Unlikely'. The consequences of such an outcome can be severe and are assessed as 'High' due to the potential loss of crew members or vessel in the worst case. This results in an overall 'Tolerable if ALARP' assessment and the need to consider further risk reduction measures.

22.13.5 For the construction phase, additional risk reduction measures recommended include UKHO Temporary / Preliminary Notice to be issued prior to post-lay / as-built survey, and consideration of the use of temporary aids to navigation for exposed cable sections. For the operational phase, it is recommended that design details of external cable protection measures are determined with due consideration of the local fishing intensity. These reduce the residual risk to As Low As Reasonably Practicable.

## 22.14 Preliminary Assessment of Reduction in Under-Keel Clearance

- 22.14.1 Cable burial protections, cable crossings, displacement of rocks, including nearshore remedial rock dumps, and the creation of berms and other seabed disturbances during installation may present hazards due to reductions in under-keel clearance. These increase the risk of grounding with a rock berm or other protection feature of cable crossings which may result in injury and / or major vessel damage consequences and the potential for pollution incidents, as well as commercial consequences of potentially limiting the size of vessels able to access the Humber Estuary.
- 22.14.2 The full details of the cable burial will be established by a Cable Burial Risk Assessment which will be produced in due course, and once made available will be incorporated here. However, embedded mitigations include regular inspections and maintenance activity to ensure that the cables remains buried / protected and ensuring that any reduction in the existing navigable water depth is restricted to less than 5 per cent along any section of the cables (in line with MCA guidance). Additionally, the use of Horizontal Directional Drilling to bring the cables to land from under the seabed limits the potential for reductions in UKC to the exit pit locations. It is therefore expected that under-keel clearance is only reduced at a very small number of locations, anticipated to be located near the Anderby Creek Landfall and at cable crossings in shallower waters. Post-lay surveys and provision of the as-built locations of cables and external protection to the UKHO and KIS-ORCA are expected to increase awareness of the cable route and cable crossing locations for all vessels and minimise the risk substantially.
- 22.14.3 The consequence a reduction in under-keel clearance is assessed as being 'High', and the likelihood is assessed as 'Unlikely'. These combine to produce an overall assessment of 'Tolerable if ALARP' and further risk reduction measures should be considered. These conclusions will be reviewed and reassessed as required, once the relevant further studies are available, namely the CBRA and the geotechnical data. This will enable a further detailed assessment of the matter of under-keel clearance.
- 22.14.4 It is recommended that the ABP HES is kept informed of seabed hazards and changes as they develop. Communication with Humber ABP should be maintained to ensure they can respond to the proposals and any seabed changes and address associated hazards appropriately. These reduce the residual risk to As Low As Reasonably Practicable.

## 22.15 Preliminary Assessment of Interference with Marine Navigational Equipment

- 22.15.1 Given the transmission characteristics of the planned cables, it is feasible that a zone of potential magnetic compass deviation from EMF effects could persist along the English Offshore Scheme. Most commercial vessels use a range of instruments for navigation which are not affected by EMFs. However, some vessels (likely to be older recreational and leisure vessels) may rely solely on magnetic compass navigation and may experience misrouting when traveling in the direction of the cables and where the interference is most pronounced, i.e., in shallow water / inshore. This could result in damage to vessels or infrastructure, with associated commercial implications, harm to people, and the possibility of a pollution incident.
- 22.15.2 The EMF assessment for EGL 5 indicates that 100 per cent of the bundled section of the cable route is predicted to induce compass deviations below three degrees, demonstrating minimal magnetic influence across the English Offshore Scheme. One

point greater than three degrees was identified at KP 0.4, although it remains below five degrees and is not included in the EMF assessment, as the nearshore region from KP 0.4 onwards has not yet been finalised in the design. Further details are provided in **Volume 2, Part 1, Appendix 4.A: Electromagnetic Field (EMF) Study**.

22.15.3 Embedded mitigations, such as optimising cables configuration, bundling and burial, as far as practicable, will reduce the likelihood and severity of vessel misrouting. Additionally, magnetic compass deviation effects are limited to the immediate vicinity of the of the English Offshore Scheme, so effects on the limited number of vessels expected to rely solely on magnetic equipment will be short-lived, and only likely to result in minor course deviations.

22.15.4 The consequence severity is therefore assessed as 'Medium' due to the increased hazard prevalence at inshore locations along the English Offshore Scheme. The probability of disruption is assessed as 'Remote'. These combine to produce a 'Broadly Acceptable' risk rating and no requirement for further consideration.

## 22.16 Transboundary Effects

22.16.1 The English Offshore Scheme lies wholly in UK waters. Although vessels from other nations may transit the study area, the minimum distance of approximately 122 km to the UK EEZ boundary means any construction-related displacement would remain within UK waters. As a result, there is no potential for international transboundary impacts.

## 22.17 Further Work to be Undertaken

22.17.1 The information provided in this PEIR is preliminary, the final assessment of potential significant effects will be reported in the ES. This section describes the further work to be undertaken to support the Shipping and Navigation assessment presented in the ES.

### Baseline

22.17.2 A review of all data used to characterise the baseline in the PEIR will be undertaken to ensure all data is still the most recent publicly available dataset for inclusion in the ES.

### Assessment

22.17.3 The assessments undertaken for the PEIR will be reviewed following stakeholder consultation feedback and further design refinement. The following assessments will then be updated:

- Shipping and Navigation assessment (specifically regarding under-keel clearance and shallow water crossings); and
- NRA.

22.17.4 The assessments undertaken for the PEIR will be revisited to incorporate the findings of the CBRA and the geotechnical survey data once these become available. The Vessel Dynamic Draft Assessment Under-Keel Clearance Study Report currently being developed for EGL 3 and 4 may also be relevant to the EGL 5 project, given the close proximity of these projects near the Anderby Creek Landfall.

## Further environmental measures

22.17.5 Further consultation with relevant statutory consultees will be undertaken to define the scope and extents of the environmental measures set out in the assessment above. If, following stakeholder consultation feedback, further design refinement and further assessment it is identified that additional measures are required, these will be detailed as part of the ES.

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