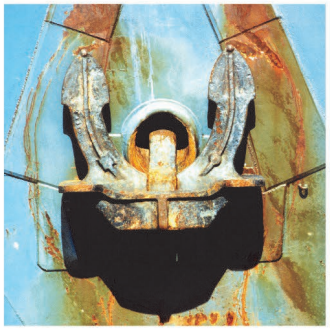
Associated British Ports

Immingham Eastern Ro-Ro Terminal

Preliminary Environmental Information
Chapter 10: Commercial and Recreational Navigation

January 2022

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10.1 Introduction

10.1.1 This chapter provides a preliminary assessment of the potential effects of the proposed Immingham Eastern Ro-Ro Terminal (IERRT) on commercial and recreational navigation. This chapter has been prepared by ABPmer.

10.1.2 A number of figures support the description of the existing environment (baseline) and are provided in Volume 2 of this Preliminary Environment Information Report (PEIR). Figure 10.1 shows the study area and the relevant elements of the IERRT. Figure 10.2 shows a density grid of AIS vessel transits covering the 168 day dataset for 2019. This chapter has also been informed by what is currently a draft Navigational Risk Assessment (NRA) which is included in this PEIR as Appendix 10.1.

10.1.3 The exact construction methodology for the Project has yet to be determined, however, it is likely that the jetty and pier structures will be manufactured off site and floated into position. This means that the effects of marine craft that are likely to be associated with transporting construction materials to the location by sea will have to be considered in this preliminary assessment.

10.2 Definition of the Study Area

10.2.1 The study area for this assessment is the area over which potential direct and indirect effects of the IERRT project are predicted to occur during the construction and operational periods.

10.2.2 The study area comprises a section of the Humber Estuary which includes Immingham Oil Terminal (IOT), Immingham Outer Harbour (IOH), Immingham Dock, Humber International Terminal and Humber Sea Terminal. This area covers the principal marine traffic patterns and activities associated with the wider area that have the potential to impact on the operation of the planned construction works and future operations of the jetty. The study area encompasses Holme Ridge, Foul Holme Channel and Immingham Roads. The study area for this Environmental Impact Assessment (EIA) topic is shown in Figure 10.1.

10.3 Assessment methodology

Data and information sources

10.3.1 Current baseline conditions have been determined by a desk-based review of available information. The main desk-based sources of information that have been reviewed to inform the current baseline description within the vicinity of the proposed development include:

- Automatic Identification System (AIS) data;
- Marine accident/incident data; and
- Information from nautical charts.

10.3.2 The following sections detail each of the data sources and the time period in which they cover.

Automatic Identification System data

10.3.3 The most recent national dataset of AIS data has been used to characterise marine traffic in the study area. The data is published by the Marine Management Organisation (MMO) for the year 2019. Data was collected by the Maritime and Coastguard Agency (MCA) using their network of AIS receivers and have been decoded to create a geodatabase of anonymised vessel transits.

10.3.4 The full data set is comprised of the first 14 days for each month of 2019 to make a 168-day dataset.

10.3.5 AIS signals are broadly classified as 'Class A' and 'Class B', where AIS-A is carried by international voyaging ships with a gross tonnage of 300 tonnes or more, and all passenger ships regardless of size. AIS-B is carried by smaller vessels and is aimed at smaller commercial craft, the fishing sector and recreational vessel users. However, the use of AIS-B by these vessels is not compulsory. Both AIS-A and AIS-B data are in the AIS dataset that has been used.

10.3.6 The AIS data have been analysed and divided into the following vessel categories, which are taken directly from the AIS data transmissions:

- Non-Port service craft;
- Port service craft;
- Vessels engaged in dredging or underwater operations;
- High Speed Craft;
- Military or law enforcement vessels;
- Passenger vessels;
- Cargo vessels;
- Tankers;
- Fishing;
- Recreational; and
- Unknown.

Maritime accidents/incidents

10.3.7 To characterise maritime incidents occurring within the study area, available data have been pooled from two sources. These include records held by the Royal National Lifeboat Institution (RNLI) call out data and data from the Marine Accident Investigation Branch (MAIB) reported incidents database. Data from the RNLI callout database and the MAIB database have been obtained for the following timescales:

- MarNIS: information includes all marine accidents/incidents reported to the harbour authority and Humber Estuary Services. This data set covers the period of 2011 to 2020 inclusive; and
- RNLI: complete dataset of all callouts from 2011 to 2020 inclusive.

Nautical charts

10.3.8 Navigational features have been considered in this assessment and have been identified using information from UK Hydrographic Office (UKHO) Admiralty Charts 3497 and 1188. These charts are used by mariners as part of the passage planning process and to plot progress during a passage and so contain all relevant navigational information.

Determining significance of effects

10.3.9 This chapter has been informed by a preliminary NRA which considers all navigational issues and mitigation measures which may be required to reduce the potential impacts of the development to a level considered to be As Low As Reasonably Practicable (ALARP). The preliminary NRA, which is included in Appendix 10.1, was drafted using guidance from the Port Marine Safety Code (PMSC) and its associated Guide to Good Practice on Port Marine Operations which together detail certain requirements and provide guidance for Harbour Authorities when conducting risk assessments.

10.3.10 The preliminary NRA reviews baseline navigational data, namely accident/incident information, vessel transits, available traffic management procedures and aids to navigation. The impact assessment presented in this PEIR chapter uses that baseline information together with the results of consultations with the Harbour Authority and port stakeholders with a view to identifying any potential hazards associated with the IERRT.

10.3.11 Each identified hazard is assessed to determine the worst credible and most likely scenarios which provide context to the hazard and its association with the scheme. The potential consequences in terms of injuries, asset damage, environmental pollution and business/reputational damage are then graded alongside the likelihood of occurrence to provide a risk scoring.

10.3.12 Causes, control measures currently in place at the port and possible further control measures are then identified to reduce the risk to a level that is deemed to be ALARP.

10.3.13 The determination of impact magnitude, sensitivity, importance and significance of effect at this preliminary stage has been assessed using the impact assessment methodology as described below.

Stage 1 – Identify receptors and changes

10.3.14 The first stage identifies the potential environmental changes resulting from the proposed activity and the features of interest (receptors) that are likely to be affected (which are together referred to as the impact pathway). The

potential impact pathways which are considered relevant are set out within Section 10.8.

Stage 2 – Understand change and sensitivity

10.3.15 The second stage involves understanding the nature of the environmental changes to provide a benchmark against which the changes and levels of exposure can be compared. The scale of the impacts via the impact pathways depends upon a range of factors, including the following:

- Magnitude (local/strategic):
  - Spatial extent (small/large scale);
  - Duration (temporary/short/intermediate/long-term);
  - Frequency (routine/intermittent/occasional/rare);
  - Reversibility;
- Probability of occurrence;
- The margins by which set values are exceeded (e.g. water quality standards);
- The baseline conditions of the system;
- Existing long-term trends and natural variability;
- The sensitivity of the receptor (resistance/adaptability/recoverability);
- The importance of the receptor (e.g. designated habitats and protected species); and
- Confidence, or certainty, in the impact prediction.

Stage 3 – Impact assessment

10.3.16 To assess the significance of effects, the magnitude of the impact pathway and the probability of it occurring is evaluated to understand the exposure to change, and this is assessed against the sensitivity of a receptor/feature to understand its vulnerability. Finally, this is compared against the importance of a receptor/feature to generate a level of significance for effects resulting from each impact pathway. This is summarised in the following sections.

10.3.17 The key significance levels for either beneficial or adverse impacts are described as follows:

1. Insignificant: Change not having a discernible effect;
2. Minor: Change is discernible but tolerable and not significant;
3. Moderate: Change is significant and if adverse, is likely to require mitigation; and
4. Major: Change is highest in magnitude, and the receptor has a high vulnerability and importance. Change is significant and if adverse, will require mitigation.

10.3.18 To ensure transparency in the impact assessment, it is important to make clear the evidence-based or value-based judgments used at each stage of the assessment, and how they have been attributed to a level of significance. This has been presented in the impact assessment for each impact pathway.

Impact assessment guidance tables

10.3.19 The matrices in Table 10.1 to Table 10.3 have been used to help assess significance (see below).

10.3.20 Table 10.1 has been used as a means of generating an estimate of exposure to change for each impact pathway. Magnitude of change needs to be considered in spatial and temporal terms (including duration, frequency, and seasonality), and against the background environmental conditions in a study area. Once a magnitude has been assessed, this should be combined with the probability of occurrence to arrive at an exposure score which can then be used for the next step of the assessment, which is detailed in Table 10.2. For example, an impact pathway with a medium magnitude of change and a high probability of occurrence would result in a medium exposure to change.

Table 10.1. Exposure to change, combining magnitude and probability of change

Probability of occurrence	Magnitude of change			
	Large	Medium	Small	Negligible
High	High	Medium	Low	Negligible
Medium	Medium	Medium/Low	Low /Negligible	Negligible
Low	Low	Low /Negligible	Negligible	Negligible
Negligible	Negligible	Negligible	Negligible	Negligible

10.3.21 Table 10.2 has then been used to score the vulnerability of the features/receptors of interest based on the sensitivity of those features and their exposure to a given change. Where the exposure and sensitivity characteristics overlap then vulnerability exists, and an adverse effect may occur. For example, if the impact pathway previously assessed with a medium exposure to change acted on a receptor which had a high sensitivity, this would result in an assessment of high vulnerability. Sensitivity can be described as the intolerance of a receptor to an environmental change and essentially considers the response characteristic of the receptor. Thus, if a single or combination of environmental changes is likely to elicit a response then the receptor under assessment can be considered to be sensitive. Where an exposure or change occurs for which the receptor is not sensitive, then no vulnerability can occur. Similarly, vulnerability is always 'none' no matter how sensitive the feature is if the exposure to change had been assessed as 'negligible'.

Table 10.2. Estimation of vulnerability based on sensitivity and exposure to change

Sensitivity of feature	Exposure to change			
	High	Medium	Low	Negligible
High	High	High	Moderate	None
Moderate	High	Moderate	Low	None
Low	Moderate	Low	Low	None
None	None	None	None	None

10.3.22 The vulnerability has then been combined with the importance of the feature of interest using Table 10.3 to generate an initial level of significance. The importance of a feature is based on its value and rarity (e.g. to either ecosystem or economy), such as the levels of protection, whilst recognising that importance should be determined having regard to geographic context (i.e. international/European, national, regional, and local). For an example of estimating significance, if a high vulnerability was previously given to a feature of low importance, an initial level of significance of minor would be given.

Table 10.3. Estimation of significance based on vulnerability and importance

Importance of feature	Vulnerability of feature to impact			
	High	Moderate	Low	None
High	Major	Moderate	Minor	Insignificant
Moderate	Moderate	Moderate/Minor	Minor/ Insignificant	Insignificant
Low	Minor	Minor/ Insignificant	Insignificant	Insignificant
None	Insignificant	Insignificant	Insignificant	Insignificant

Stage 4 – Impact management (mitigation)

10.3.23 The final stage is to identify any impacts that are found to be significant (i.e. moderate and/or major adverse) and require mitigation measures to reduce residual impacts, as far as possible, to environmentally acceptable levels. Within the assessment procedure the use of mitigation measures will alter the risk of exposure and, hence, will require significance to be re-assessed and thus the residual impact (i.e. with mitigation) identified.

10.3.24 Mitigation measures considered throughout the EIA process can take three forms (IEMA, 2016):

- Primary (inherent) – modifications to the location or design of the development made during the pre-application phase that are an inherent (or embedded) part of the project. These are captured and taken account of in the initial impact assessment;
- Secondary (foreseeable) – actions that will require further activity in order to achieve the anticipated outcome (identified as necessary through the assessment process). Within the impact assessment process, the use of secondary mitigation measures will alter the risk of exposure and, hence, will require significance to be re-assessed and thus the residual impact (i.e. with mitigation) identified; and
- Tertiary (inexorable) – actions that would occur with or without input from an EIA process, including actions that will be undertaken to meet other existing legislative requirements, or actions considered to be standard practices to manage commonly occurring environmental effects. These are captured and taken account of in the initial impact assessment.

10.3.25 In addition, it is appropriate to adopt a mitigation hierarchy which, from the CIEEM (2018) guidance on ecological impact assessment specifically, can be summarised as follows:

- Seek to adopt options that avoid harm in the first instance;
- Identify ways to minimise adverse effects that cannot be completely avoided;
- Undertake compensation where there are significant residual adverse effects despite the mitigation proposed; and
- Provide net benefits (for biodiversity) above requirements for avoidance, mitigation, or compensation.

10.3.26 In instances, a decision may need to be taken despite residual uncertainty about the effects. In such cases, adaptive management, linked to a bespoke monitoring programme, is a well-established and recommended way of ensuring that any negative impacts or effects are addressed in the course of the construction of the development and during the subsequent operational phase.

Confidence assessment

10.3.27 Following the preliminary significance assessment, a confidence assessment has been undertaken which recognises the degree of interpretation and expert judgement applied. This is presented in the summary table contained within the conclusions section of each impact assessment section. Confidence will be assessed on a scale incorporating three values: Low, Medium, and High.

10.4 Consultation

10.4.1 Consultation on whether there are any likely commercial and recreational navigation effects of the IERRT project has been undertaken as appropriate, with the Harbour Authority in the form of a Hazard Identification workshop which was used to inform the preliminary NRA. The outcomes of the formal scoping process have also been taken into account to inform the preliminary assessment.

10.4.2 The outcome of the consultation and formal scoping process that has been undertaken, along with how it has influenced the commercial and recreational navigation assessment, is presented in Table 10.4.

Table 10.4 Summary of consultation to date

Consultee	Reference, Date	Summary of Response	How comments have been addressed in this chapter
ABP	Hazard Identification Workshop,	Representatives from the Port of Immingham, Humber Estuary Services (HES) and pilots provided	The NRA which has been prepared and is included in Appendix 10.1 takes

Consultee	Reference, Date	Summary of Response	How comments have been addressed in this chapter
	29 October 2021	input into the potential hazards, consequences and mitigation measures for marine operations during the construction and operational phases of the project.	into account the comments from the hazard Identification workshop
Planning Inspectorate (PINS)	Scoping Opinion, October 2021 Table ID 4.5.2	The Scoping Report states that effects will be assessed using a combination of analytical methods and expert judgement. The Environmental Statement (ES) must clearly justify the choice of methods and explain why they provided a robust assessment of effects. Where expert judgement is being relied on, the ES should explain the reasoning and evidence used to support that judgement.	The NRA has been completed using guidance and methodology provided in the Port Marine Safety Code, its accompanying Guide to Good Practice on Port Marine operations and other relevant industry recognised documents. These documents have been listed in Section 10.5 of this report.
PINS	Scoping Opinion, October 2021 Table ID 4.5.3	The ES should describe how the Port Marine Safety Code and its Guide to Good Practice have been taken into account in the development of the mitigation measures. MCGA comments	The Port of Immingham as the SHA for the area has committed to the standards laid down in the Port Marine Safety Code. The risk assessment process used follows the guidance given in the Guide to Good Practice on Port Marine Operations which leads to a set of mitigation measures that have been identified following the requirements of the Port Marine Safety Code.

Consultee	Reference, Date	Summary of Response	How comments have been addressed in this chapter
MCA	Scoping Opinion, October 2021 Appendix 2 MCA response	The MCA will expect the project to carry out a Navigation Risk Assessment (NRA) on the impact of the works on shipping and navigation. This must be considered and agreed by ABP in its role as the SHA) and in accordance with the Port Marine Safety Code and its Guide to Good Practice.	An NRA has been completed and is presented in Appendix 10.1 of this document. The NRA included a Hazard Identification Workshop attended by representatives of the Port of Immingham as Statutory Harbour Authority (SHA), HES as the adjacent SHA and Humber Pilots.
MCA	Scoping Opinion, October 2021 Appendix 2 MCA response	To address the ongoing safe operation of the marine interface for this project, we would like to point the developers in the direction of the Port Marine Safety Code (PMSC) and its Guide to Good Practice. They will need to liaise and consult with the SHA and develop a robust Safety Management System (SMS) for the project under this code.	The Port of Immingham as the SHA for the area has been involved in the NRA and contributed towards the identification of hazards associated with the IERRT and the relevant mitigation measures. These mitigation measures include updating of the relevant parts of the Port's SMS and its associated documents.

10.5 Implications of policy legislation and guidance

10.5.1 This section of the chapter sets out key aspects and implications of policy and guidance that are relevant to the assessment of likely impacts on commercial and recreational navigation. It builds upon the overarching chapter covering Legislative and Consenting Framework (Chapter 5). This will be kept under review as the assessment progresses.

UK legislation

10.5.2 The majority of port operations are administered by the SHA). Every SHA is self-governed with specific legislation (normally Acts of Parliament) creating the SHA as an entity, with further powers and amendments (Special Acts) made over time in response to the changing scope and remit of the SHA. Underpinning the powers of a SHA is a range of national legislation providing the Harbour Master with powers to issue directions to ensure navigation and safety within the harbour limits. Under such legislation, the Harbour Master may issue specific directions to control movements of vessels within their SHA area in order to ensure safety. Harbour Authorities who have the power to issue Work Orders under provisions in their Special Act(s) may choose to apply conditions including the completion of a NRA for developments within their SHA areas. This is the case for ABP in its capacity as SHA who evaluate marine developments that have the potential to affect marine safety in the SHA area.

National policy

National Policy Statement for Ports (NPSfP)

10.5.3 The National Policy Statement for Ports (NPSfP) (DfT, 2012) provides, amongst other things) policy guidance in relation to nationally significant infrastructure projects for new port developments which meet the Planning Act 2008 thresholds. Whilst the NPSfP does not enter into great detail with matters such as an NRA, it does refer to the need for determining the impact of works on traffic and transport including marine transport and provides the overarching policy against which this project will be determined.

UK Marine Policy Statement (MPS)

10.5.4 Sea ports and harbours provide the interface between the land, near shore and open sea. The UK Marine Policy Statement (MPS) (HM Government, 2011) identifies in relation to port developments and marine safety that: "*Marine plan authorities and decision* makers *should take into account and seek to minimise any negative impacts on shipping activity, freedom of navigation and navigational safety; and ensure that their decisions are in compliance with international maritime law*".

East Inshore and East Offshore Marine Plans

10.5.5 The IERRT lies within the area covered by the East Inshore Marine Plan, published in April 2014 by the Department for Environment, Food and Rural Affairs (Defra, 2014). The marine elements of the project are located within the East Inshore Marine Plan Area. The East Inshore Marine Plan sets out the approach to managing the East Inshore area, its resources and the activities and interactions that occur within the area. A marine plan conformance assessment will be produced to support the deemed marine licence application for this Project which will be informed by the information provided in the ES.

Guidance

10.5.6 The following secondary guidance documents have been used in preparation of the NRA. These documents provide information regarding the issues that should be taken into consideration when assessing the effect on navigational safety:

- IMO Revised Guidelines for Formal Safety Assessment (FSA) for use in the IMO rule making process (IMO, 2015);
- MCA, Marine Guidance Note 543 (MGN 543 Merchant + Fishing) Safety of Navigation: Offshore Renewable Energy Installations (OREIs) – Guidance on UK Navigational Practice, Safety and Emergency Response (MCA, 2016); and
- Department for Transport (DfT) Port Marine Safety Code (DfT, 2016)[1].

10.6 Preliminary description of the existing environment

10.6.1 The proposed IERRT is located to the south-west of the IOT and east of the East Jetty. The IOT finger pier is located directly east of the proposed development which is regularly used by tankers.

10.6.2 Subject to no appropriate alternative use being identified for the dredge material, it is anticipated that any requirement for disposal of dredged material at sea associated with the proposed development would be fulfilled at licensed disposal sites HU056 and HU060. . These are both to the north of the proposed IERRT and would be approached by crossing the main navigational route through the area. Foul Holme Channel are exposed to the moving sand banks which affect the channels depth and operations of deep droughted vessels. Along Holme Ridge and Clay Huts, there are two identified disposal sites. Figure 10.1presents the location of the jetties, terminals the secondary vessel channels and the Clay Huts, Holme Ridge sand/mud banks.

Statutory responsibilities and management procedures

10.6.3 IERRT is located fully within the Port of Immingham SHA area where ABP is the SHA. In this capacity, ABP is charged with a set of powers and duties which include the management and regulation of the safety of navigation and marine operations in its SHA area.

10.6.4 ABP HES is the Competent Harbour Authority (CHA) with respect to pilotage for the Humber Estuary and the ABP docks within. As the CHA, HES has the power to issue Pilotage Directions that prescribe which vessels require a Pilot or Pilot Exemption Certificate (PEC) holder when navigating within the CHA area.

[1] The Port Marine Safety Code sets out a national standard for every aspect of port marine safety. Its aim is to enhance safety for everyone who uses or works in the UK port marine environment.

10.6.5 A Vessel Traffic Service (VTS) is provided for the Humber Estuary which is established under the requirements of MGN 401[2]. The VTS maintains a vessel traffic picture through the AIS and Radar providing information on weather, vessel movements and marine safety to vessels navigating in the VTS area. All sea-going vessels are required to report to Humber VTS when entering the VTS area and at designated reporting points identified on navigational charts.

10.6.6 ABP is also the Local Lighthouse Authority (LLA) for the Port of Immingham's SHA area by virtue of the Merchant Shipping Act 1995. As LLA, ABP is responsible for the provision and maintenance of Aids to Navigation (AtoN). ABP is required to report any defects to AtoN and consult on any proposed changes, additions or removal of AtoN with Trinity House Lighthouse Authority as the General Lighthouse Authority for England and Wales.

10.6.7 Both the Port of Immingham and HES have committed to meeting the requirements of the PMSC. The PMSC requires that ports operate a Marine Safety Management System (MSMS) which is based on comprehensive and continuously updated set of risk assessments. The MSMS details how the ports fulfil their duties as SHAs and meet the marine safety requirements prescribed by the PMSC.

Commercial navigation

10.6.8 Figure 10.2 provides a density grid of vessel movements derived from AIS data covering the first two weeks of each month for the year 2019. In the vicinity of the proposed development, there is regular use by port service craft (tugs, pilot boats, survey, line handling vessels etc.) and tankers. AIS data also shows a smaller number of high-speed craft and vessels engaged in dredging or underwater operations using the area.

10.6.9 A significant proportion of the traffic density immediately to the north east of the proposed development shown on Figure 10.2 is due to tankers on passage to/from the IOH finger pier. This route passes the proposed development, however, the tankers are restricted to only approaching the pier on a flood tide so that they can maintain manoeuvrability whilst transiting at slow speed.

10.6.10 The East Jetty to the west of the proposed development location is regularly used as a berth for tugs which are used to assist vessels manoeuvring into the lock and with berthing. The East jetty also has infrastructure for product tankers to load/discharge cargo.

10.6.11 The wider study area has high quantities of vessel movements transiting through Immingham Roads and Foul Holme Channel – as referenced in chapter 7of this PEIR. This is the main route between the terminal and

[2] MGN 401 Amendment 2 Navigation: Vessel Traffic Services (VTS) and Local Port Services (LPS) in the United Kingdom (MCA, 2018)

those ports located to the west of Immingham and the entrance to the Humber Estuary.

10.6.12 Table 10.5 shows a count of the AIS transits by vessel type through the study area. The count is for the dataset of 168 days comprising the first two weeks of each month for the year 2019. The count has also been uplifted to present an estimate for the annual vessel transits in 2019 by dividing the transit count by 168 and multiplying by 365 to provide an estimate of the total transits per year based on the available data. Table 10.6 presents the vessel transits crossing a transect between the western extent of the IOT infrastructure and the eastern extent of the East Jetty. The transect line is displayed on Figure 10.2.

Table 10.5 Transits in the Study area

Vessel Type	Transit Count	Yearly Uplift	Percentage
Non Port Service Craft	758	1,647	0.7%
Port Service Craft	41,929	91,096	36.8%
Dredging or Underwater Operations	7,027	15,267	6.2%
High Speed Craft	11,775	25,583	10.4%
Military or Law Enforcement	319	693	0.3%
Passenger	7,920	17,207	7.0%
Cargo	19,379	42,103	17.1%
Tanker	5,334	11,589	4.7%
Fishing	1,003	2,179	0.9%
Recreational	1,589	3,452	1.4%
Unknown	16,451	35,742	14.5%
Total	113,484	246,558	100%

Table 10.6 Transits between IOT and East Jetty

Vessel Type	Transit Count	Yearly Uplift	Percentage
Non-Port Service Craft	3	7	0.4%
Port Service Craft	194	421	24.7%
Dredging or Underwater Operations	4	9	0.5%
High Speed Craft	13	28	1.7%
Military or Law Enforcement	2	4	0.3%
Cargo	3	7	0.4%
Tanker	548	1,191	69.8%
Unknown	17	37	2.2%
Total	784	1,703	100.0%

10.6.13 For the area in close proximity to the proposed development, Table 10.6 shows that the majority of transits are from tankers with 548 movements in the 168 day dataset. Given the location of the transect, it is likely that a significant majority of these transits are to/from the IOT Finger Pier. Other notable transits are from the port service craft which is likely to be

associated with the tug berths on the East Jetty or providing assistance to the tankers on passage to/from the IOT Finger Pier.

Recreational navigation

10.6.14 The Humber Estuary has approximately 1,000 permanent berths and 120 visitor's berths for recreational craft. The majority of recreational activity occurs during summer months and predominantly on the weekend. There are no recreational facilities based at the Port of Immingham.

10.6.15 Established recreational vessel destinations in the Humber Estuary include: Hull Marina which has accommodation for 310 boats and 20 visitors; Goole Boathouse which offers 140 moorings and South Ferriby marina which provides accommodation for 100 boats plus 20 visiting vessels. In addition, there are various creeks around the estuary providing further capacity, namely Tetney Haven (Humber Mouth Yacht Club) where small numbers of moorings are available, Stone Creek (located on the north side of the river opposite Immingham), Hessle Haven and Barrow Haven, which both provide anchorages. The yacht havens of Brough and Winteringham (Humber Yawl Club) also provide limited mooring for small vessels and visiting yachts and motor cruisers (HES, 2021).

Maritime accidents/incidents

10.6.16 The RNLI national dataset and the MarNIS local dataset hold the details of all reported marine safety incidents and other occurrences which have potential significance to navigational safety. These datasets have been used to identify accidents/incidents for the study area between 2011 and 2020 inclusive, this data is presented in Table 10.7 and Table 10.8.

10.6.17 From Table 10.7 it can be seen that there were 2,129 incidents in the study area during the 10-year data period. This gives an annual frequency of 212.9 incidents a year. The most frequent incident type was 'Equipment failure (vessel)' with an annual frequency of 932. These events are generally reported to Humber VTS by the pilots and relate to any equipment such as propulsion or navigational equipment that are out of service. The next most common accidents/incident category is 'Impact with Structure' which is commonly reported at locations where there is significant dock infrastructure. The majority of these accidents/incidents have minor consequences.

10.6.18 From Table 10.8 it can be seen that there were 70 marine accidents/incidents in the study area during the 10-year data which were attended by the RNLI. The most frequent of these was 'Equipment failure (vessel)' and 'Grounding' which both occurred with an annual frequency of 2.2. The following most common accidents/incidents are categorised as 'Other nautical safety'.

Table 10.7 MarNIS Accident Incident for the study area 2011 to 2020

Incident Type	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Total
Collision ship - ship	2	5	3	2	4	3	4	4	6	1	**34**
Equipment failure (port)	3	7	3	10	9	3	17	9	3	5	**69**
Equipment failure (vessel)	52	72	84	84	88	77	170	130	70	105	**932**
Event management	0	0	0	0	0	0	5	6	1	0	**12**
Fire/Explosion	3	1	3	2	3	2	5	0	0	2	**21**
Grounding	3	0	1	2	5	6	4	9	0	2	**32**
Heaving lines	0	0	0	0	0	0	0	9	16	13	**38**
Impact with structure	66	66	77	47	36	30	73	49	36	34	**514**
Other nautical safety	0	0	0	24	23	31	75	56	46	35	**290**
Other nautical safety hazard	11	25	28	0	0	0	0	0	0	0	**64**
Pilot boarding arrangements	0	0	0	0	0	0	0	0	0	2	**2**
Ranging	4	3	5	20	11	14	10	7	4	0	**78**
Sinking and capsizing	0	0	0	0	0	0	0	0	1	0	**1**
Striking with floating object	2	1	0	3	1	0	1	0	3	0	**11**
Striking with ship (moored)	3	6	5	4	0	3	5	0	3	2	**31**
Total	**149**	**186**	**209**	**198**	**180**	**169**	**369**	**279**	**189**	**201**	**2,129**

Table 10.8 RNLI Accident Incident for the study area 2011 to 2020

Incident Type	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Total
Collision	0	0	0	0	0	2	0	0	0	0	**2**
Equipment failure (vessel)	5	1	4	1	2	3	1	1	4	0	**22**
Fire/Explosion	0	1	0	0	0	0	0	0	0	0	**1**
Grounding	3	0	9	4	0	3	1	2	0	0	**22**
Other nautical safety	1	2	0	1	0	1	2	3	5	2	**17**
Person in distress	1	0	0	0	1	0	0	2	0	1	**5**
Person(s) in the water	1	0	0	0	0	0	0	0	0	0	**1**
Total	**11**	**4**	**13**	**6**	**3**	**9**	**4**	**8**	**9**	**3**	**70**

10.7 Future baseline environment

10.7.1 In the absence of the IERRT project, there is unlikely to be significant changes to commercial and recreational navigation at the Port of Immingham. The current usage of the marine terminals will likely remain consistent with any changes resulting from national and international changes to demand.

10.8 Preliminary Consideration of Likely Impacts and Effects

10.8.1 This section identifies the potential likely effects on the commercial and recreational navigation receptors as a result of the construction and subsequent operation of the IERRT project which have been identified at this preliminary stage.

10.8.2 The effects that are considered in this assessment are drawn from the preliminary NRA (Appendix 10.1). The draft NRA has considered all potential hazards associated with the construction and operation of the proposed development which it is currently anticipated are likely to arise and has identified suitable mitigation measures with the aim of reducing the risk to a level considered to be ALARP.

10.8.3 Cumulative impacts on commercial and recreational navigation could arise as a result of other coastal and marine developments and activities in the Humber Estuary will be considered as necessary as part of the cumulative impacts and in-combination effects assessment, the approach to which is explained further in Chapter 20 of this PEIR. The assessment of cumulative effects will be reviewed and updated as relevant as part of the ES.

Construction phase

10.8.4 This section contains an assessment of the potential impacts to commercial and recreational navigation as a result of the construction phase of the IERRT project based on current knowledge. The following impact pathways have been assessed:

- Contact of works craft with Port infrastructure: manoeuvring of craft in close proximity to marine structures has the potential for contact with infrastructure during site development;
- Contact of commercial vessel with marine works: tanker on passage to/from the IOT Finger Piers has the potential to make contact with the marine works;
- Collision of passing vessels with works craft: as passing vessels (commercial, recreational or fishing) are manoeuvring around or in close proximity to the works there is the potential for collision with craft associated with IERRT;

- Collision during navigation: vessel collision (commercial or recreational or fishing) with works craft whilst transiting to/from the site or during activities within the disposal site (if required);
- Collision during towage operations: if materials for the proposed development are transported to site through the use of barges, there is potential for collision with commercial or recreational vessels in the area; and
- Payload related incidents: if lifting operations are required from barges/vessels associated with the Project, there is potential for incidents to arise from dropped items or affected vessel stability.

Contact of works craft with Port infrastructure

10.8.5 During the construction phase of the project, craft associated with the construction activities will be operating in close proximity to port infrastructure. This may be the East Jetty, IOT berths or potentially Immingham dock depending on where the craft will berth when not engaged in activities.

10.8.6 Given the available navigable room in the vicinity of the proposed development and the manoeuvrability of the construction craft, any contact should only be at slow speed limiting the potential consequences. Any impact that does occur will be in the vicinity of the marine works leading to a magnitude of change of small and so an exposure to change of low/negligible.

10.8.7 SHA areas are controlled and operated within a comprehensive framework of user information, regulations and emergency response procedures. This means that the sensitivity to this pathway is low and so the vulnerability is low.

10.8.8 Any damage to works craft or marine infrastructure can lead to delays with both construction operations and port operations in general. This means that the importance of the feature is moderate and, therefore, at this preliminary stage of the assessment, the significance is assessed as **minor adverse**.

Contact of commercial vessel with marine works

10.8.9 Tankers regularly pass the proposed development location when heading to/from the IOT Finger Pier. It is recognised that there is potential for the tanker to make contact with the works.

10.8.10 That said, tankers are generally transiting this area at slow speeds on a flood tide to aid with manoeuvrability meaning that the probability of occurrence is low. Given the cargo type and that a contact could result in damage to the vessel's hull, however, there is potential for a loss of cargo resulting in a significant pollution event, so the magnitude of change is large and the exposure to change is low.

10.8.11 The area is, however, highly regulated for shipping with the tankers transiting this area requiring pilots or PEC holder to provide expert local knowledge. There is also information available from Humber VTS regarding weather conditions and other vessel movements. This results in the sensitivity of the feature being low and a vulnerability of low.

10.8.12 A pollution event has the potential to disrupt both the construction activities and port operations in the vicinity until the pollution is contained and removed. In addition, the tanker would need to have cargo removed and would remain out of service until a dry dock could be arranged. This means that the importance of the feature is moderate and, therefore, the significance is assessed as **insignificant to minor adverse** at this preliminary stage.

Collision of passing vessels with works craft

10.8.13 It is recognised that there is always a potential for tankers on passage to or from the IOT Finger Pier or vessels using the East Jetty to be involved in a collision with one of the works construction craft whilst that is ongoing. Whilst towage, lifting or piling operations are being undertaken, there will be craft operating at slow speeds and their ability to manoeuvre in a close quarters situation will be limited. Given that construction activities will be undertaken close to berths, there is potential for interaction with other vessels.

10.8.14 As presently assessed, the probability for occurrence is medium and the magnitude of change is medium given that the impact will only be present during marine operations associated with the construction activities. This leads to an exposure to change of medium.

10.8.15 The tankers would require a pilot or PEC holder, however when transiting the area close to the marine works there is limited ability for the tanker to manoeuvre to avoid a close quarters situation. This means that the sensitivity for this pathway is moderate and so the vulnerability is moderate.

10.8.16 A pollution event has potential to disrupt both the construction activities and port operations in the vicinity until the pollution is contained and removed. In addition, the tanker would need to have cargo removed and would remain out of service until a dry dock could be arranged. This means that the importance of the feature is moderate and, therefore, the significance, at this preliminary stage in the assessment process, is assessed as **moderate adverse**.

Collision during navigation

10.8.17 Whilst construction operations are taking place, construction craft will be transiting to and from the Project site. When transiting to or from the Port it is recognised that there is potential for a collision with another vessel.

10.8.18 Given that the Humber Estuary is a highly regulated waterway with pilotage required for vessels of 60 m or over and with the VTS managing traffic

movements, the probability of occurrence will be low. The magnitude will be small given that the impact is localised to the harbour area and only present during the construction activities giving an exposure to change of low/negligible.

10.8.19 There are established navigational routes through the Humber Estuary along with significant regulation and guidance given for the area. This means that the sensitivity for this pathway is low and so the vulnerability is low.

10.8.20 A collision has the potential to disrupt both construction activities and local port operations meaning that the importance is moderate and, therefore, the significance is currently assessed at this preliminary stage as **minor adverse**.

Collision during towage operations

10.8.21 There will be activities that require barges to be towed through the harbour area to/from the marine works. When transiting, the tugs and barges are likely to be restricted in their ability to manoeuvre and so may be unable to take action to avoid a collision.

10.8.22 Given that the Humber Estuary is a highly regulated waterway with pilotage required for vessels 60 m or over (including towage operations where the length of the tow is 60 m or over) with the VTS managing traffic movements, the probability of occurrence will be low. The magnitude will be small given that the impact is localised to the harbour area and only present during the construction activities giving an exposure to change of low/negligible.

10.8.23 There are established navigational routes through the Humber Estuary, as noted in chapter 7, together with significant regulation and guidance imposed for the area generally. This means that the sensitivity for this pathway is low and so the vulnerability is low.

10.8.24 A collision has the potential to disrupt both construction activities and local port operations meaning that the importance is moderate and, therefore, the significance is assessed as **minor adverse** at this preliminary stage.

Payload related incidents

10.8.25 Lifting operations from marine craft including barges can result in changes to the weight distribution that can affect the stability of the craft. This can result in the craft developing a list or entering a state of loll potentially resulting in capsize.

10.8.26 Standard mitigation measures affect the likelihood of these events occurring including the development of a Risk Assessment Method Statement for the activity and use of a loading/unloading plan when heavy loads are to be transported. This means that the sensitivity and vulnerability are low.

10.8.27 This event could result in a disruption of the construction activities meaning that the importance is moderate and, therefore the significance is assessed as **minor adverse** at this preliminary stage.

Operational phase

10.8.28 This section contains an assessment of the potential impacts to commercial and recreational navigation as a result of the operational phase of the IERRT project. The following impact pathways have been assessed:

- Collision due to increased commercial vessel movements: vessels transiting within the IERRT area in collision with other Port traffic (commercial, dredging, recreational or fishing);
- Collision due to increased maintenance dredging movements: dredging vessels on transit to/from the dredge pocket or during dispersal operations in collision with other marine traffic (commercial, recreational or fishing);
- Collision with passing traffic: vessels manoeuvring at the berth in collision with passing traffic (commercial, recreational or fishing);
- Contact with mooring infrastructure: manoeuvring vessel, dredging vessel or tug in contact with the jetty as a result of collision avoidance, adverse weather, nature of the operation or interaction with a passing vessel; and
- Mooring breakout with vessel alongside: There is potential for a vessel to break its moorings and leave the berth due to stress of weather, passing vessel or mooring equipment failure.

Collision due to increased commercial vessel movements

10.8.29 The new terminal will result in additional vessel movements through the Humber Estuary to/from the Immingham Eastern Terminal location. These additional movements will lead to increased vessel density in some circumstances which will increase the potential for a collision.

10.8.30 The Humber Estuary is a busy but highly regulated waterway with any potential changes in vessel movements resulting in a minor change to the overall number of vessel movements in this area. This risk will be present for the whole operational period of the project. The magnitude, therefore, is low giving an exposure to change of low.

10.8.31 The embedded mitigation, especially the requirement for pilotage or PEC holders and the VTS managing vessel traffic organisation and motoring of movements in the harbour area gives a sensitivity of low and a vulnerability of low.

10.8.32 Any collision would likely require vessel survey and possibly repair meaning it will occupy a berth for longer causing disruption to operational activities. This means that the importance is medium and, therefore, the significance, at this preliminary stage, is assessed as **minor adverse.**

Collision due to increased maintenance dredging movements

10.8.33 Whilst dredging operations are being undertaken, the dredger will be moving at very slow speed with limited ability to manoeuvre to avoid a collision. There is potential for interaction with other vessels during dredging operations and when the dredger is transiting to/from the disposal site.

10.8.34 When the dredger is transiting to/from the disposal site it will be crossing the main navigational route through this area. During this transit, there is potential for interactions with other vessels using the area. The Clay Huts disposal site is close to an anchorage so it is possible that there would be interactions with vessels at anchor in this location whilst the dredger is disposing of material.

10.8.35 Given the frequency of transits by the dredger when undertaking maintenance dredging operations, it is unlikely that there will be regular interactions with other vessels, so the probability of occurrence is low. This impact will be present throughout the operation of the IERRT and will affect the dredge areas and the route between the dredge area and the disposal site. The magnitude is medium resulting in an exposure to change of low.

10.8.36 The embedded mitigation, especially the requirement for pilotage or PEC holders and the VTS managing vessel traffic organisation and motoring of movements in the harbour area gives a sensitivity of low and a vulnerability of low.

10.8.37 A collision has the potential to severely disrupt local port operations meaning that the importance is moderate and, therefore, the significance, at this preliminary stage, has been assessed as **minor adverse.**

Collision with passing traffic

10.8.38 To access the berths at the IERRT, vessels will need to manoeuvre so that they can proceed astern towards the pontoons so that cargo can be loaded/unloaded via the stern ramp. Whilst manoeuvring, there is potential for a collision with another vessel transiting the area.

10.8.39 The Humber Estuary is a busy but highly regulated waterway with vessel movements planned so that they do not interact with other vessels during berthing/unberthing and all vessel movements in the area monitored by Humber VTS. This risk will be present for the whole operational period of the project. The magnitude, therefore, is low giving an exposure to change of low.

10.8.40 The embedded mitigation, especially the requirement for pilotage or PEC holders and the VTS managing vessel traffic organisation and motoring of movements in the harbour area gives a sensitivity of low and a vulnerability of low.

10.8.41 Any collision would likely require vessel survey and possibly repair meaning it will occupy a berth for longer causing disruption to operational activities. This means that the importance is medium and, therefore, at this preliminary stage, the significance is assessed as **minor adverse.**

Contact with mooring infrastructure

10.8.42 Vessels manoeuvring near the mooring infrastructure have the potential to make contact with it. These vessels will be manoeuvring at slow speed so there is unlikely to be significant consequences as a result of the contact. The likelihood for a vessel to make contact with the infrastructure is increased during periods of adverse weather conditions and restricted visibility. The likelihood of this potential impact will be further assessed by a vessel simulation study which will be completed for use as part of the ES.

10.8.43 This type of impact regularly occurs at ports due to the nature of vessel operations, noting that a significant majority result in superficial damage to the vessels or the mooring infrastructure. This means the probability of occurrence is high and the magnitude is large giving an exposure to change of high.

10.8.44 The resulting consequences for a vessel contact with the quay given the available mitigation measures such as the pilotage service/PEC requirements at the port and berth fendering means that the sensitivity is low. This gives a vulnerability of moderate.

10.8.45 The effects of the contact are most likely to result in a section of the quay requiring repair or a vessel requiring survey for damage. These are unlikely significantly to affect operations and, therefore, the importance is low, and the significance is assessed at this preliminary stage as **minor adverse**.

Mooring breakout with vessel alongside

10.8.46 There is potential for a vessel to break mooring lines leading to a mooring breakout which would result in the vessel drifting from the berth until the crew is able to start the engines. This may occur due to adverse weather conditions, passing vessels or wash.

10.8.47 Following a mooring breakout, the vessel drifting may lead to a collision, grounding or contact with port infrastructure. However, given the slow speed at which this is likely to occur, the consequences are likely to be minor.

10.8.48 The probability for a mooring breakout is affected by the windage of vessels, the prevailing weather conditions and the mooring restraint. Ro-Ro vessels tend to have a relatively high windage, however, the location is relatively sheltered due to surrounding landside infrastructure and the IOT berths. Therefore, the probability of occurrence is low. The impact is present throughout the operational period of the project at the quay, so the magnitude is medium leading to an exposure to change of low/negligible.

10.8.49 If a mooring breakout were to occur, the vessel's engines would need to be started to bring it safely back alongside. There would be information available for the forecast weather conditions and a manned bridge monitoring the status of the moorings, so the sensitivity is low, and the vulnerability is low.

10.8.50 The consequences for the mooring breakout are likely to be short term and be resolved once the vessel can be returned alongside so would be unlikely to result in more widespread impacts on the port operations. This means that the importance is low and, therefore, the effect is assessed as **insignificant** at this preliminary stage.

10.9 Mitigation measures

10.9.1 A number of mitigation measures were identified during the preliminary NRA process to reduce the risks associated with the construction and operation of the IERRT to ALARP. These mitigation measures include items that should be implemented by a construction contractor and documents that will require updating for the operational phase. The mitigation measures are as follows:

- **Update arrival/sailing parameters**: The new berth will require updated local instructions on the requirements for arrival/sailing planning for the vessels visiting the area;
- **Communications between project team and port**: Discussion of upcoming activities with the personnel at Immingham, HES and where relevant, the Pilots;
- **Contractor risk assessment method statement (RAMS)**: Contractors would require RAMS covering all of the construction activities which will require review by the Harbour Authority prior to the commencement of activities;
- **Weather limits**: The maximum weather limits for operations should be assessed and set for all activities. These can then be monitored against real time and forecasted weather conditions throughout the construction process. In addition, operational weather limits should also be considered for vessels using the terminal during the operational phase;
- **Monitoring of wind/wave conditions**: Monitoring of weather forecasts obtained and compared with the weather limit allows for reliable planning and assessment of risk regarding the weather operating limits for activities;
- **AIS equipment**: All construction craft including barges to have AIS transmitters;
- **Designated point of contact**: For the construction activities to provide appropriate information and respond to emergency situations. This role would be the main line of communication between the works and the SHA;
- **Safety boat**: Ready and on standby during construction activities. The availability of a safety boat in the area of marine works provides for rapid response to emergency situations and an overview of the activity being conducted;

- **Availability of pollution response equipment**: Construction contractors should have tier 1 oil spill response equipment to ensure any pollution events can be contained;
- **Aids to navigation, Provision & maintenance of:** The marine works should be appropriately lit as soon as there are items which pose a hazard to navigation. Once operational, aids to navigation will be required so that the structure and berths can be identified;
- **Hydrographic surveying program**: The current programme of survey at the Port of Immingham will need updating to include the proposed development. The results of the survey will be provided to the UKHO for use in navigational charts and compared with previous surveys to inform potential requirements for maintenance dredging;
- **Dropped items procedure**: During the construction there is potential for items to be dropped in the water and cause a risk to navigation. The contractors should have a procedure agreed with the SHA for actions to be taken if large item is dropped during the construction phase;
- **Loading/unloading plan**: Equipment and materials being delivered by barge will require plans for the order and method of loading and unloading at the marine works site;
- **Update ALRS, Sailing Directions and UKHO Charts**: With new infrastructure put in place relevant sailing publication should be updated as they are used by vessels during passage planning;
- **Mooring studies and plans:** A mooring study should be completed for the proposed mooring arrangements at the berth to confirm that there is appropriate restraint available to restrain the vessel for the operational wind limits and the expected tidal flows; and
- **Shore side facility maintenance programme**: A regular program of maintenance for infrastructure including mooring bollards/hooks, will need to be implemented to ensure that the facility is maintained and fit for use.

10.10 Preliminary Conclusions on Residual Effects

10.10.1 A summary of the impact pathways that have been assessed at this preliminary stage, the identified residual impacts and level of confidence is presented in Table 10.9.

10.10.2 The process for conducting an NRA requires that all practical mitigation measures for any hazard are identified. This means that mitigation measures have been applied to impact pathways even if they are not considered significant.

10.10.3 Following the application of mitigation measures, at this preliminary stage, all of the potential impacts on commercial and recreational navigation that have been identified were assessed as **insignificant to minor adverse** and, therefore, not significant. These impacts will be reviewed and updated as necessary for the ES.

Table 10.9 Preliminary summary of potential impact, mitigation measures and residual impacts

Impact pathway	Impact Significance	Mitigation measures	Residual Impact	Confidence
Construction Phase				
Contact of works craft with Port infrastructure	Minor adverse	RAMS	Insignificant	High
Contact of commercial vessels with marine works	Insignificant to minor adverse	Communications between project team and port; RAMS; Availability of pollution response equipment; Provision and maintenance of Aids to navigation	Insignificant	High
Collision of passing vessels with works craft	Moderate adverse	Update arrival/sailing parameters; Communications between project team and port; RAMS; AIS equipment; Safety boat; and Availability of pollution response equipment.	Minor adverse	High
Collision during navigation	Minor adverse	Communications between project team and port; RAMS; AIS equipment;	Insignificant	High
Collision during towage operations	Minor adverse	Communications between project team and port; RAMS; and AIS equipment.	Insignificant	High
Payload related incidents	Minor adverse	Communications between project team and port; RAMS; Weather limits; Monitoring of wind/wave conditions; Safety boat;	Insignificant	High

Impact pathway	Impact Significance	Mitigation measures	Residual Impact	Confidence
		Dropped items procedure; and Loading/unloading plan.		
Operational Phase				
Collision due to increased commercial vessel movements	Minor adverse	Update arrival/sailing parameters; Update ALRS, Sailing Directions and UKHO Charts.	Insignificant	High
Collision due to increased maintenance dredging movements	Minor adverse	Update arrival/sailing parameters.	Insignificant	High
Collision with passing traffic	Minor adverse	Update arrival/sailing parameters; Update ALRS, Sailing Directions and UKHO Charts.	Insignificant	High
Contact with the quay	Minor adverse	Update arrival/sailing parameters; Weather limits; Monitoring of wind/wave conditions; Provision and maintenance of Aids to navigation; Update ALRS; Sailing Directions and UKHO Charts.	Insignificant	High
Mooring breakout with vessel alongside	Insignificant	Weather limits; Monitoring of wind/wave conditions; Mooring studies and plans; and Shore side facility maintenance programme.	Insignificant	High

10.11 References

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10.12 Abbreviations/Acronyms

Acronym	Definition
ABP	Associated British Ports
AIS	Automatic Identification System
ALARP	As Low As Reasonably Practicable
AtoN	Aids to Navigation
CHA	Competent Harbour Authority
CIEEM	Chartered Institute of Ecology and Environmental Management
Defra	Department for Environment, Food and Rural Affairs
DfT	Department for Transport
EIA	Environmental Impact Assessment
ES	Environmental Statement
EU	European Union
FSA	Formal Safety Assessment

HES	Humber Estuary Services
IEMA	Institute of Environmental Management and Assessment
IERRT	Immingham Eastern Ro-Ro Terminal
IMO	International Maritime Organization
IOT	Immingham Oil Terminal
LLA	Local Lighthouse Authority
MAIB	Marine Accident Investigation Branch
MCA	Maritime and Coastguard Agency
MMO	Marine Management Organisation
MPS	Marine Policy Statement
MSMS	Marine Safety Management System
NPSfP	National Policy Statement for Ports
NRA	Navigational Risk Assessment
OREI	Offshore Renewable Energy Installations
PEC	Pilot Exemption Certificate
PEIR	Preliminary Environmental Information Report
PINS	Planning Inspectorate
PMSC	Port Marine Safety Code
RAMS	Risk Assessment Method Statement
RNLI	Royal National Lifeboat Institution
SHA	Statutory Harbour Authority
SMS	Safety Management System
UK	United Kingdom
UKHO	UK Hydrographic Office
VTS	Vessel Traffic Service

Cardinal points/directions are used unless otherwise stated.

SI units are used unless otherwise stated.

10.13 Glossary

Term	Definition
Baseline conditions	Existing conditions and past trends associated with the environment in which a proposed activity may take place
Competent Harbour Authority	Harbour authorities that have been given statutory powers relating to the provision of pilotage in their waters
Cumulative effects	Combined effects of multiple developments or the combined effect of individual impacts (e.g. where different project elements in different locations have a cumulative impact on a particular feature)
Hazard	A substance, operation or piece of equipment which has the potential to cause harm to people or the environment
Recoverability	The ability of a receptor to recover from disturbance or stress
Resistance	Resistance characteristics indicate whether a receptor can absorb disturbance or stress without changing character
Risk	The likelihood of a specified level of harm occurring within a specified period of time
Statutory Harbour Authority	Statutory Bodies responsible for the management and running of a harbour

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