

IMMINGHAM EASTERN RO-RO TERMINAL



Schedule of Mitigation
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Table of Contents

| | | |
|----|-------------------|----|
| 1. | Introduction..... | 1 |
| 2. | Glossary..... | 25 |

Tables

| | |
|---|----|
| Table 1 - Chapters of the ES to which this Schedule of Mitigation relates | 1 |
| Table 2 - Mitigation Measures | 2 |
| Table 3 - List of abbreviations | 27 |

1 Introduction

- 1.1 This report provides a summary of the measures proposed to mitigate environmental effects identified in the Environmental Statement (ES) (Application Document Reference numbers 8.2-8.4) and the Environmental Statement Addendum (ESA) (Application Document Reference 10.3.8) that are likely to result from the implementation of the Immingham Eastern Ro-Ro Terminal (IERRT).
- 1.2 A description of the updated proposed development is provided in Chapter 2 (Proposed Development) and Chapter 3 (Details of Project Construction and Operation) of the ES Volume 1 (Application Document Reference numbers 8.2.02 and 8.2.03 respectively). This schedule of environmental commitments draws on the ES chapters and the applicable ES addendum chapters as shown in Table 1 below.

Table 1 - Chapters of the ES to which this Schedule of Mitigation relates

| Application Document Reference number | ES Chapter Number | ES Chapter Title |
|---------------------------------------|-------------------|--|
| 8.2.7 | Chapter 7 | Physical Processes |
| 8.2.8 | Chapter 8 | Water and Sediment Quality |
| 8.2.9 | Chapter 9 | Nature Conservation and Marine Ecology |
| 8.2.10 | Chapter 10 | Commercial and Recreational Navigation |
| 8.2.11 | Chapter 11 | Coastal Defence, Flood Risk and Drainage |
| 8.2.12 | Chapter 12 | Ground Conditions |
| 8.2.13 | Chapter 13 | Air Quality |
| 8.2.14 | Chapter 14 | Noise and Vibration |
| 8.2.16 | Chapter 16 | Socio-economic Receptors |

- 1.3 The Environmental Impact Assessment (EIA) as set out in the ES and the subsequent Environmental Statement Addendum has demonstrated that, wherever possible, environmental effects associated with the construction and operation of the proposed development have been avoided or minimised, as described in ES Chapter 21 (Impact Assessment Summary) of the ES (Application Document Reference number 8.2.21).
- 1.4 Table 2 below summarises the mitigation proposed for the IERRT and where it is secured.

Table 2 - Mitigation Measures

| Receptor | Source and type of effect | Mitigation | Where mitigation is secured |
|--|---|---|--|
| ES Chapter 7 – Physical Processes | | | |
| Construction Phase | | | |
| Physical processes | Increased suspended sediment concentration and potential sedimentation as a result of the deposit of capital dredge material at a licensed offshore disposal site | The targeting of disposal loads in the central/deeper areas of the disposal sites (HU056 and HU060) will be undertaken to reduce depth reductions. This will minimise the initial reduction in water depth and any environmental changes at these disposal sites. | Requirement of the Construction Environmental Management Plan (CEMP) (Application Document Reference number 9.2) |
| ES Chapter 8 – Water and Sediment Quality | | | |
| Construction Phase | | | |
| Water and sediment quality | Changes to chemical water quality | Spillages/ leaks during construction will be avoided or minimised by ensuring that the construction methods, proposed design, and the contractual arrangements follow environmental management best practice | Requirement of the CEMP (Application Document Reference number 9.2) |
| ES Chapter 9 – Nature Conservation and Marine Ecology | | | |
| Construction Phase | | | |
| Benthic habitats and species | Changes to habitats and species as a result of sediment deposition during dredging and dredge disposal | Target disposal loads in the central/deeper area of the disposal sites to reduce depth reductions | Requirement of the CEMP (Application Document Reference number 9.2) |

| Receptor | Source and type of effect | Mitigation | Where mitigation is secured |
|----------|--|---|---|
| | Introduction and spread of non-native species | Biosecurity control measures during construction and ABP's existing biosecurity management procedures will be followed during operation | Requirement of the CEMP (Application Document Reference number 9.2) |
| Fish | Underwater noise disturbance and vibration during piling, capital dredging and dredge disposal | <p>Apply soft start procedures during piling</p> <p>Use vibro piling where possible</p> <p>Seasonal piling restrictions (no percussive piling to take place within the waterbody between 1 April and 31 May inclusive in any calendar year, duration of percussive piling restricted within the waterbody from 1 June to 30 June and 1 August to 31 October inclusive in any year)</p> <p>Night-time piling restriction between sunset and sunrise between 1 March to 31 March, 1 June to 30 June and 1 August to 31 October inclusive (percussive piling operations that have already been initiated will, however, be completed where an immediate cessation of the activity would form an unsafe working practice)</p> | <p>Secured in the Deemed Marine Licence (DML) in Schedule 3 of the draft Development Consent Order (DCO) (Application Document Reference number 3.1)</p> <p>Requirement of the CEMP (Application Document Reference number 9.2)</p> |

| Receptor | Source and type of effect | Mitigation | Where mitigation is secured |
|--------------------|--|--|---|
| Marine mammals | Underwater noise disturbance and vibration during piling, capital dredging and dredge disposal | <p>Apply soft start procedures during piling</p> <p>Use vibro piling where possible</p> <p>Marine Mammal Observer to follow Joint Nature Conservation Committee protocol during percussive piling</p> | <p>Condition to the DML in Schedule 3 of the draft DCO (Application Document Reference number 3.1)</p> <p>Requirement of the CEMP (Application Document Reference number 9.2)</p> |
| Coastal waterbirds | Noise and visual disturbance | <p>Apply soft start procedures during piling</p> <p>Cold weather construction restriction whereby a temporary cessation of all construction activity is implemented following seven consecutive days of freezing (zero or sub-zero temperature) weather conditions (all construction activity)</p> <p>Winter marine construction restriction from 1 October to 31 March associated with the approach jetty, linkspan, innermost pontoon and the inner finger pier. This restriction applies until an acoustic barrier/visual screen has been installed on both sides of the semi-completed structure and construction activity is then</p> | <p>Condition to the DML in Schedule 3 of the draft DCO (Application Document Reference number 3.1)</p> <p>Requirement of the CEMP (Application Document Reference number 9.2)</p> |

| Receptor | Source and type of effect | Mitigation | Where mitigation is secured |
|---|--|--|---|
| | | <p>undertaken on the approach jetty itself, behind the screens. Construction activity associated with the seaward section of the approach jetty, linkspan, innermost pontoon and inner finger pier which can also occur two hours before and after high water, when works are approximately 200 m from the exposed mudflat</p> <p>Noise suppression system for percussive piling on the outer finger pier</p> <p>Acoustic barrier/screening on all marine construction barges</p> | |
| Operational Phase | | | |
| Coastal waterbirds | Disturbance of waterbirds during operation | Screening installed either side of the linkspan and approach jetty | <p>Condition to the DML in Schedule 3 of the draft DCO (Application Document Reference number 3.1)</p> <p>Requirement of the CEMP (Application Document Reference number 9.2)</p> |
| ES Chapter 10 – Commercial and Recreational Navigation | | | |
| Construction Phase | | | |

| Receptor | Source and type of effect | Mitigation | Where mitigation is secured |
|--|--|---|---|
| Commercial and recreational navigation | Person overboard during dredge and construction works | Designated safety craft Constructor Risk Assessment Method Statement (RAMS) | Requirement of the CEMP (Application Document Reference number 9.2) |
| | Allision of dredger/construction vessel with IOT infrastructure | Tidal restrictions Marking construction area (exclusion zone) Site specific dredge plan | Requirement of the CEMP (Application Document Reference number 9.2) |
| | Allision of commercial vessel with marine works | Guard (support) vessel Project specific adaptive procedures Marking construction area (exclusion zone) | Requirement of the CEMP (Application Document Reference number 9.2) |
| | Collision of two craft associated with marine works | Contractor RAMS Marking construction area (exclusion zone) | Requirement of the CEMP (Application Document Reference number 9.2) |
| | Collision/allision of commercial vessel entering construction area | Marking construction area (exclusion zone) Project specific adaptive procedures Personnel management during tanker berthing Guard (support) vessel | Requirement of the CEMP (Application Document Reference number 9.2) |
| | Collision of dredger or barge with vessel at 'F' anchorage when disposing of dredge material | Project specific adaptive procedures Closure of 'F' anchorage | Requirement of the CEMP (Application Document Reference number 9.2) |
| | Dredger grounding whilst engaged in operations | Project specific adaptive procedures | Requirement of the CEMP (Application Document Reference number 9.2) |

| Receptor | Source and type of effect | Mitigation | Where mitigation is secured |
|---|---|---|---|
| | Hazardous chemical spill from construction vessels | Contractor RAMS Control of contractors through management | Requirement of the CEMP (Application Document Reference number 9.2) |
| | Construction vessel mooring failure | Guard (support) vessel | Requirement of the CEMP (Application Document Reference number 9.2) |
| | Component (equipment, material) dropped during construction | Incident Reporting - Dropped component Post Construction Hydrographic Survey | Requirement of the CEMP (Application Document Reference number 9.2) |
| | Construction vessel takes on water from excessive wash | Marking construction area (exclusion zone) Contractor RAMS Notices to mariners | Requirement of the CEMP (Application Document Reference number 9.2) |
| | Payload related incidents | Loading/Unloading Plan Contractor RAMS Harbour Master's consent of works | Requirement of the CEMP (Application Document Reference number 9.2) |
| Construction and Operational Phase | | | |
| Commercial and recreational navigation | Collision of construction vessel with Ro-Ro vessel | Contractor RAMS Port Liaison Officer Special Instructions issued to Ro-Ro not to berth unless area is clear of marine works craft | Requirement of the CEMP (Application Document Reference number 9.2) |
| | Ro-Ro vessel mooring failure in vicinity of marine construction works | Berth specific weather parameters | Requirement of the CEMP (Application Document Reference number 9.2) |

| Receptor | Source and type of effect | Mitigation | Where mitigation is secured |
|--|---|--|---|
| | Component (equipment, material) dropped during construction preventing Ro-Ro operations | Incident Reporting - Dropped component Post Construction Hydrographic Survey | Requirement of the CEMP (Application Document Reference number 9.2) |
| | Construction vessel takes on water from excessive wash from Ro-Ro vessel | Additional measures to ensure separation of marine works from Ro-Ro vessels proceeding to or departing IERRT Special Instructions issued to Ro-Ro not to berth unless area is clear of marine works craft | Requirement of the CEMP (Application Document Reference number 9.2) |
| | Allision of Ro-Ro vessel with IERRT infrastructure | Additional training to Pilotage Exemption Certificate (PEC) and Pilots on manoeuvring during the operation-construction phase Berthing criteria specific to operation-construction | Requirement of the CEMP (Application Document Reference number 9.2) |
| | Construction vessel mooring failure | Guard (Support) Vessel Barges cannot be moored in the vicinity of a berthing Ro-Ro | Requirement of the CEMP (Application Document Reference number 9.2) |
| | Ro-Ro vessel arriving/departing IERRT berth 2 with a tanker berthed on Eastern Jetty | Specific berthing criteria for each of the three berths A chartered exclusion zone for vessels to remain clear of berthing procedures Additional pilotage training/familiarisation | Requirement of the CEMP (Application Document Reference number 9.2) |
| Operational Phase | | | |
| Commercial and recreational navigation | Allision of Ro-Ro vessel arriving/departing IERRT with | Project specific adaptive procedures | Schedule 6 (Plans and Documents to be Certified) of |

| Receptor | Source and type of effect | Mitigation | Where mitigation is secured |
|----------|--|--|---|
| | tanker moored at IOT finger pier | A charted exclusion zone for vessels to remain clear of berthing procedures Specific berthing criteria for each of the three berths | the DCO. Environmental Statement Chapter 10 and Appendix 10.1 (Application Document Reference number 8.2.10 and 8.4.10(a)) |
| | Allision of tanker manoeuvring on/off IOT finger pier with IERRT on flood tide | Project specific adaptive procedures | Schedule 6 (Plans and Documents to be Certified) of the DCO. Environmental Statement Chapter 10 and Appendix 10.1 (Application Document Reference number 8.2.10 and 8.4.10(a)) |
| | Allision of barge manoeuvring on/off IOT finger pier with IERRT of flood tide | Project specific adaptive procedures | Schedule 6 (Plans and Documents to be Certified) of the DCO. Environmental Statement Chapter 10 and Appendix 10.1 (Application Document Reference number 8.2.10 and 8.4.10(a)) |
| | Allision of Ro-Ro vessel with IOT trunk way | Specific berthing criteria for each of the three berths Project specific adaptive procedures | Schedule 6 (Plans and Documents to be Certified) of the DCO. Environmental Statement Chapter 10 and Appendix 10.1 (Application Document Reference number 8.2.10 and 8.4.10(a)) |

| Receptor | Source and type of effect | Mitigation | Where mitigation is secured |
|----------|--|--|---|
| | Allision of Ro-Ro vessel with IERRT infrastructure | Additional Training Specific berthing criteria for each of the three berths | Schedule 6 (Plans and Documents to be Certified) of the DCO. Environmental Statement Chapter 10 and Appendix 10.1 (Application Document Reference number 8.2.10 and 8.4.10(a)) |
| | Collision of Ro-Ro vessel on passage to/from IERRT with another vessel | Risk assessed against relevant MSMS Risk considered as low as reasonably practicable (ALARP) with embedded controls | Mitigation embedded |
| | Ro-Ro vessel grounding whilst manoeuvring to IERRT berth 3 | Specific berthing criteria for each of the three berths Marking safe water with Aids to Navigation (AtoN) Additional Training | Schedule 6 (Plans and Documents to be Certified) of the DCO. Environmental Statement Chapter 10 and Appendix 10.1 (Application Document Reference number 8.2.10 and 8.4.10(a)) |
| | Ro-Ro vessel mooring failure | Berth specific weather parameters | Requirement of the CEMP (Application Document Reference number 9.2) |
| | Allision of Ro-Ro vessel arriving/departing IERRT berth 2/3 with a tanker berthed on Eastern Jetty | Specific berthing criteria for each of the three berths A charted exclusion zone for vessels to remain clear of berthing procedures | Requirement of the CEMP (Application Document Reference number 9.2) |

| Receptor | Source and type of effect | Mitigation | Where mitigation is secured |
|---|--|--|---|
| | | Additional pilotage training/familiarisation | Schedule 6 (Plans and Documents to be Certified) of the DCO. Environmental Statement Chapter 10 and Appendix 10.1 (Application Document Reference number 8.2.10 and 8.4.10(a)) |
| ES Chapter 11 – Coastal Defence, Flood Risk and Drainage | | | |
| Construction Phase | | | |
| Human Health - Public and visitors to the site | Exposure to floodwater via flooding from predominantly tidal sources e.g. overtopping or breach of defences. | Site induction, including evacuation routes, safe refuge, access, and egress. Site will be included in the current Port of Immingham flood emergency response plan and will be registered with the Environment Agency Flood Warnings Direct Service. No visitors or access during periods of inclement weather. | Requirement of the CEMP (Application Document Reference number 9.2) |
| Human Health - Construction workers and operatives | Exposure to floodwater via flooding from predominantly tidal sources e.g. overtopping or breach of defences. | Construction works would be carried out in accordance with the CEMP, including the Flood Emergency Response Plan. Site induction will be attended, including evacuation routes, safe refuge, access, and egress. The site will be included in the current Port of Immingham flood response plan and will be registered with the Environment Agency Flood | Requirement of the CEMP (Application Document Reference number 9.2) |

| Receptor | Source and type of effect | Mitigation | Where mitigation is secured |
|---|--|---|--|
| | | Warnings Direct Service. No work onsite during a flood warning period. | |
| Flood Defences - On-site along the site frontage | Changes in tidal regime e.g. wave heights, water levels, erosion/ deposition due to dredging/ construction activities. | No mitigation measures are proposed beyond the ongoing inspection and maintenance programme undertaken by the Environment Agency. | Environment Agency inspection and maintenance programme (unrelated to the IERRT project) (embedded mitigation) |
| Flood Defences - Off-site around wider Port of Immingham frontage | Changes in tidal regime e.g. wave heights, water levels, erosion/deposition due to dredging/ construction activities. | No mitigation measures are proposed beyond the ongoing inspection and maintenance programme undertaken by the Environment Agency. | Environment Agency inspection and maintenance programme (unrelated to the IERRT project) (embedded mitigation) |
| Existing Development - On-site and wider Port of Immingham | Floodplain inundation from tidal flooding, overland flow from fluvial/surface water sources | Flood resilience and resistant measures embedded in design. Overland flow paths maintained and temporary drainage to control surface water discharge. | Requirement of the CEMP (Application Document Reference number 9.2) |
| Existing Development - Off-site (neighbouring sites) | Floodplain inundation from tidal flooding, impedance of overland flow routes, from fluvial/surface water sources | Overland flow paths maintained and temporary drainage to control surface water discharge. | Requirement of the CEMP (Application Document Reference number 9.2) |
| Surface Waterbodies - Habrough Marsh Drain | Changes in flow regime/water level due to surface water discharge | Temporary drainage facilities (swales etc) provided during the construction phase to control discharge of surface water run-off. | Requirement of the CEMP (Application Document Reference number 9.2) |
| Drainage Infrastructure | Increased rate and volume of surface water runoff due to impermeable surfacing/ compaction | Temporary drainage facilities (swales etc) provided during the construction phase to control discharge of surface water run-off. | Requirement of the CEMP (Application Document Reference number 9.2) |
| Operational Phase | | | |

| Receptor | Source and type of effect | Mitigation | Where mitigation is secured |
|---|---|---|--|
| Human Health - Public and visitors to the site | Exposure to floodwater via flooding from predominantly tidal sources e.g. overtopping or breach of defences. | Site induction, including evacuation routes, safe refuge, access, and egress. Site registered with the Environment Agency Flood Warnings Direct Service. | Environmental Statement Chapter 11 and Appendix 11.1 (Application Document Reference number 8.2.11 and 8.4.11) |
| Human Health - Site operatives and future workforce | Exposure to floodwater via flooding from predominantly tidal sources e.g. overtopping or breach of defences. | Flood Emergency Response Plan. Site induction, including evacuation routes, safe refuge, access, and egress. Site registered with the Environment Agency Flood Warnings Direct Service. No work onsite during a flood warning period. | Environmental Statement Chapter 11 and Appendix 11.1 (Application Document Reference number 8.2.11 and 8.4.11) |
| Flood Defences - On-site around the site frontage | Changes in tidal regime e.g. wave heights, water levels, erosion/deposition due to dredging/ construction activities. | No mitigation measures are required beyond the continuation of the current inspection and maintenance regime undertaken by the Environment Agency. | Environment Agency inspection and maintenance programme (unrelated to the IERRT project) (embedded mitigation) |
| Flood Defences - Off-site around wider Port of Immingham frontage | Changes in tidal regime e.g. wave heights, water levels, erosion/deposition due to dredging and offshore development. | No mitigation measures are required beyond the continuation of the current inspection and maintenance regime undertaken by the Environment Agency. | Environment Agency inspection and maintenance programme (unrelated to the IERRT project) (embedded mitigation) |
| Existing Development - On-site and wider Port of Immingham | Floodplain inundation from tidal flooding, new overland flow routes and from fluvial/ surface water sources | No additional mitigation is required beyond the flood resilience and resistant measures embedded in design. Drainage infrastructure designed in line with the Drainage Strategy includes attenuation storage to | Environmental Statement Chapter 11 and Appendix 11.1 (Application Document Reference number 8.2.11 and 8.4.11) |

| Receptor | Source and type of effect | Mitigation | Where mitigation is secured |
|---|--|---|---|
| | | manage climate change over the operation of the development. | Requirement of the DCO (Application Document Reference number 3.1) |
| Existing Development - Off-site (neighbouring sites) | Floodplain inundation from tidal flooding, new overland flow routes, flooding from fluvial/surface water sources | Drainage infrastructure designed in line with the Drainage Strategy includes attenuation storage to manage climate change over the operation of the development. | Requirement of the DCO (Application Document Reference number 3.1) |
| Surface Waterbodies - Habrough Marsh Drain | Changes in flow regime/water level due to increases in surface water discharge over the lifetime of the IERRT project. | Drainage infrastructure designed in line with the Drainage Strategy includes attenuation storage to manage climate change over the operation of the development and provides betterment over the current baseline drainage. | Requirement of the DCO (Application Document Reference number 3.1) |
| Drainage Infrastructure | Increased rate and volume of surface water runoff from impermeable surfaces over the lifetime of the IERRT project. | Drainage infrastructure designed in line with the Drainage Strategy including attenuation storage to manage climate change over the operation of the development. | Requirement of the DCO (Application Document Reference number 3.1) |
| ES Chapter 12 – Ground Conditions | | | |
| Construction Phase (including demolition) | | | |
| Human Health (Contamination) 1. Onsite workers 2. Site visitors | Direct contact with contamination (e.g. in soils). | Construction works would be carried out in accordance with the CEMP and environmental good practice on site. | Requirement of the CEMP (Application Document Reference number 9.2) |
| Human Health (Contamination) 3. Off-site workers | Inhalation of dust and/or soil derived vapours, and direct | Construction works would be carried out in accordance with the | Requirement of the CEMP (Application Document Reference number 9.2) |

| Receptor | Source and type of effect | Mitigation | Where mitigation is secured |
|--|---|---|---|
| 4. Site visitors | contact with contamination in groundwater. | CEMP and environmental good practice on site. | |
| Human Health (Ground Gas) 5. Onsite workers 6. Site visitors | Migration and accumulation of ground gas | Entry into excavations or any other enclosed space on a construction site will comply with confined space legislation and be assessed prior to entry. | Requirement of the CEMP (Application Document Reference number 9.2) |
| Geology 7. Beach and Tidal Deposits (Undifferentiated) 8. Tidal Flat Deposits 9. Burnham Chalk Formation 10. Flamborough Chalk Formation | Lateral and vertical migration (including as a result of piling) of contamination | Construction works would be carried out in accordance with the CEMP. Location specific Piling Risk Assessments and environmental good practice on site. | Requirement of the CEMP (Application Document Reference number 9.2) |
| Soils 11. Beach and Tidal Deposits (Undifferentiated) 12. Tidal Flat deposits | Direct contact with contamination. Including spoil resulting from excavations and earthworks. | A GI has been undertaken in May 2022 to confirm baseline conditions. A confirmatory GI – to inform the detailed design - is being undertaken and will be completed prior to submission of the DCO application. The findings of the confirmatory GI will be assessed and detailed in an interpretative report. In the event that any geo-environmental risks are identified following receipt of the final factual report, which will include the results of the final round of monitoring, as | Requirement of the DCO (Application Document Reference number 3.1) Requirement of the CEMP (Application Document Reference number 9.2) |

| Receptor | Source and type of effect | Mitigation | Where mitigation is secured |
|--|--|---|--|
| | | <p>well as the conclusion of the assessment then in accordance with guidance in LC:RM (EA, 2021), appropriate mitigation measures as necessary will be incorporated in the final remediation strategy for the project, the outline for which is provided as Appendix 12.4.</p> | |
| <p>Groundwater (Bedrock Contamination)</p> <p>13. Burnham Chalk Formation Principal Aquifer</p> <p>14. Flamborough Chalk Formation Principal Aquifer</p> | <p>Lateral and vertical migration (including as a result of piling) of contamination through leachate, groundwater or surface run off.</p> | <p>A GI has been undertaken in May 2022 to confirm baseline conditions and a risk assessment has been undertaken based on the GI data. A confirmatory GI – to inform the detailed design – is being undertaken and will be completed soon after submission of the DCO application. The findings of the confirmatory GI will be assessed and detailed in an interpretative report. In the event that any geo-environmental risks are identified following receipt of the final factual report, which will include the results of the final round of monitoring, as well as the conclusion of the assessment then in accordance with guidance in LC:RM (EA, 2021), appropriate mitigation measures as necessary will be</p> | <p>Requirement of the DCO (Application Document Reference number 3.1)</p> <p>Requirement of the CEMP (Application Document Reference number 9.2)</p> |

| Receptor | Source and type of effect | Mitigation | Where mitigation is secured |
|---|--|---|--|
| | | <p>incorporated in the final remediation strategy for the project, the outline for which is provided as Appendix 12.4.</p> <p>Construction works would be carried out in accordance with the CEMP.</p> <p>Piling works would be planned in accordance with best practice guidance (Environment Agency, 2001). Piling operations would be subject to foundation works risk assessment and any potential to cause pollution to the aquifer would be covered by measures to be detailed in piling method statements.</p> | |
| <p>Groundwater (Superficial Contamination) 15. Beach and Tidal Deposits (Undifferentiated) Secondary Undifferentiated Aquifer</p> | <p>Lateral and vertical migration (including as a result of piling) of contamination through leachate, groundwater or surface run off.</p> | <p>A GI has been undertaken in May 2022 to confirm baseline conditions. A confirmatory GI – to inform the detailed design – is being undertaken and will be completed soon after submission of the DCO application. The findings of the confirmatory GI will be assessed and detailed in an interpretative report.</p> | <p>Requirement of the DCO (Application Document Reference number 3.1)</p> <p>Requirement of the CEMP (Application Document Reference number 9.2)</p> |

| Receptor | Source and type of effect | Mitigation | Where mitigation is secured |
|---|--|--|--|
| | | <p>Piling works will be assessed in accordance with best practice guidance (Environment Agency, 2001). Piling operations would be subject to foundation works risk assessment and any potential to cause pollution to the aquifer would be covered by measures to be detailed in piling method statements.</p> <p>Construction works would be carried out in accordance with the CEMP.</p> | |
| <p>Surface Water (Contamination) 16. Humber Estuary</p> | <p>Lateral and vertical migration of contamination through leachate, groundwater or surface run off.</p> | <p>Specific guidance relating to the control of water pollution from construction sites is discussed within Chapter 8 Water and Sediment Quality of the ES and the CEMP (see ES Chapter 8 – Water and Sediment Quality row of this table above).</p> | <p>Requirement of the CEMP (Application Document Reference number 9.2)</p> |
| <p>Surface Water (Contamination) 17. North Beck Drain Catchment and associated Harborough Marsh Drain</p> | <p>Lateral and vertical migration (including as a result of piling) of contamination through leachate, groundwater or surface run off.</p> | <p>Specific guidance relating to the control of water pollution from construction sites is discussed within Chapter 8 Water and Sediment Quality of the ES and the CEMP.</p> | <p>Requirement of the CEMP (Application Document Reference number 9.2)</p> |

| Receptor | Source and type of effect | Mitigation | Where mitigation is secured |
|--|---|--|--|
| Property 18. Temporary buildings erected on site during construction. | Migration of ground gas (resulting in accumulation of ground gas) | Ground gas protection measures will be implemented into design and build of temporary structures. | Requirement of the CEMP (Application Document Reference number 9.2) |
| Operational Phase | | | |
| Human Health (Contamination) 19. Future on-site workers | Direct Contact with contamination and inhalation of dust and/ or soil derived vapours | Maintenance workers will be required to adopt safe working practices under relevant health and safety legislation. Therefore, the significant effects are unlikely to arise. | Health and safety at work legislation (embedded mitigation) |
| Soils (Contamination) | Lateral and vertical migration (including as a result of piling) of contamination through leachate, groundwater or surface run-off. Impacts on soil quality could potentially occur during operation caused by accidental spills resulting from handling or leakage of fuels, lubricants, stored chemicals and processed liquids. | The IERRT project will be operated in accordance with existing environmental legislation, regulations and good practice. | Environmental legislation (embedded mitigation) |
| Controlled Waters (Contamination) | Lateral and vertical migration of contamination through groundwater and surface run-off. | The IERRT project will have a managed surface drainage system (as set out in the Drainage Strategy at Annex C to Appendix 11.1, Application Document Reference | Requirement of the DCO (Application Document Reference number 3.1) and embedded mitigation |

| Receptor | Source and type of effect | Mitigation | Where mitigation is secured |
|--|---|--|---|
| | Impacts on groundwater and watercourses could potentially occur during operation caused by accidental spills resulting from handling or leakage of fuels, lubricants, stored chemicals and processed liquids. | number 8.4.11) and operated in accordance with existing environmental legislation, regulations and good practice. | |
| Property - Building and Services | Direct contact with contamination in soil, leachate and groundwater | Buildings and services risks will be mitigated by using pipe material appropriate for any aggressive ground conditions. | Requirement of the CEMP (Application Document Reference number 9.2) |
| Property - Building and Services | Migration of ground gas | Ground gas protection measures appropriate to the site conditions will be implemented into design and build of structures. | Requirement of the CEMP (Application Document Reference number 9.2) |
| ES Chapter 13 – Air Quality | | | |
| Construction Phase | | | |
| Human health and amenity sensitive receptors | Onsite emissions sources (marine vessels, site plant and construction dust) | Dust mitigation based on those recommended by the Institute of Air Quality Management (IAQM) | Requirement of the CEMP (Application Document Reference number 9.2) |
| | Offsite emissions sources (road traffic movement emissions on local roads and SRN) | Standard trip and emissions reduction measures typically set out within a Construction Travel Plan and/or Construction Environmental Management Plan | Requirement of the CEMP (Application Document Reference number 9.2) |

| Receptor | Source and type of effect | Mitigation | Where mitigation is secured |
|--|--|---|---|
| Nature conservation receptors | Onsite emissions sources (marine vessels, site plant and construction dust) | Dust mitigation based on those recommended by the IAQM | Requirement of the CEMP (Application Document Reference number 9.2) |
| | Offsite emissions sources (road traffic movement emissions on local roads and SRN) | Standard trip and emissions reduction measures typically set out within a Construction Travel Plan and/or CEMP | Requirement of the CEMP (Application Document Reference number 9.2) |
| ES Chapter 14 and ESA Chapter 14 – Noise and Vibration | | | |
| Construction Phase | | | |
| Residential Noise Sensitive Receptors (NSRs) on Queens Road and Kings Road | Construction Noise | Standard construction mitigation as set out in the CEMP. Section 61 application for construction works outside the standard construction hours. | Requirement of the CEMP (Application Document Reference number 9.2) |
| | Construction Traffic | Construction traffic management plan included in the CEMP. | Requirement of the CEMP (Application Document Reference number 9.2) |
| PAM building, (adjacent to IERRT site) | Construction Noise | <p>Embedded mitigation includes the screening and crusher plant being located a minimum of 250 m away from NSRs and temporary acoustic screening around construction plant or PAM building during construction works in the vicinity of the PAM building.</p> <p>In addition, measures will include standard construction noise mitigation included in the CEMP as well as keeping all PAM external</p> | Requirement of the CEMP (Application Document Reference number 9.2) |

| Receptor | Source and type of effect | Mitigation | Where mitigation is secured |
|---|---------------------------|---|---|
| PK Construction Office and Nippon Gas Office buildings (on-site NSRs) | Construction Noise | <p>windows and doors facing construction works closed.</p> <p>Embedded mitigation includes the screening and crusher plant being located a minimum of 250m away from NSRs.</p> <p>In addition, measures will include standard construction noise mitigation included in the CEMP as well as keeping all PK Construction Office and Nippon Gas Office external windows and doors facing construction works closed.</p> | Requirement of the CEMP (Application Document Reference number 9.2) |
| Additional NSR in ESA The relocated Malcolm West Office Building | Construction Noise | <p>Embedded mitigation includes the screening and crusher plant being located a minimum of 250m away from NSRs.</p> <p>In addition, measures will include standard construction noise mitigation included in the CEMP as well as keeping all external windows and doors facing construction works closed.</p> | Requirement of the CEMP (Application Document Reference number 9.2) |
| IOT Jetty and PAM Building | Construction Vibration | Pre-construction condition surveys on nearby buildings and structures to be undertaken. Liaison protocol with local businesses/occupiers to be established. Verification of the construction vibration predictions | Requirement of the CEMP (Application Document Reference number 9.2) |

| Receptor | Source and type of effect | Mitigation | Where mitigation is secured |
|---------------------------------|---------------------------|--|---|
| | | <p>once the piling methods and piling rig are known to confirm that there are no significant effects expected. Monitoring to verify the thresholds are not exceeded.</p> <p>For construction works in proximity to the PAM building, a maximum pile hammer energy of 63,500 Joules for percussive piling will be adhered to, and where possible, alternative (low vibration) piling techniques such as sheet hydraulic jacking will be utilised.</p> | |
| Operational Phase | | | |
| Residential NSRs on Queens Road | On-site activities | Standard best practice for operational activities (e.g. prohibiting unnecessary engine idling on-site and enforcement of mandatory speed limits on-site). | Environmental Statement Chapter 14 (Application Document Reference number 8.2.14) |
| Residential NSRs on Kings Road | On-site activities | Standard best practice for operational activities (e.g. prohibiting unnecessary engine idling on-site and enforcement of mandatory speed limits on-site). | Environmental Statement Chapter 14 (Application Document Reference number 8.2.14) |
| PAM Building | On-site activities | Standard best practice for operational activities (e.g. prohibiting unnecessary engine idling on-site and enforcement of mandatory speed limits on-site), together with keeping all PAM | Environmental Statement Chapter 14 (Application Document Reference number 8.2.14) |

| Receptor | Source and type of effect | Mitigation | Where mitigation is secured |
|--|---------------------------|--|---|
| PK Construction Office building | On-site activities | building external windows and doors facing the IERRT closed. Standard best practice for operational activities (e.g. prohibiting unnecessary engine idling on-site and enforcement of mandatory speed limits on-site), together with keeping all PK Construction Office external windows and doors facing the IERRT closed. | Environmental Statement Chapter 14 (Application Document Reference number 8.2.14) |
| Nippon Gas Office building | On-site activities | Standard best practice for operational activities (e.g. prohibiting unnecessary engine idling on-site and enforcement of mandatory speed limits on-site), together with keeping all Nippon Gas Office external windows and doors facing the IERRT closed. | Environmental Statement Chapter 14 (Application Document Reference number 8.2.14) |
| Additional NSR in ESA Relocated Malcolm West Office Building: -On-site activities | On-site activities | Standard best practice for operational activities (e.g. prohibiting unnecessary engine idling on-site and enforcement of mandatory speed limits on-site), together with keeping all the relocated Malcolm West Office external windows and doors facing closed. | Requirement of the CEMP (Application Document Reference number 9.2) |
| Residential NSRs on Queens Road | Road traffic noise | Offer noise insulation to affected residential NSRs | Requirement of the DCO (Application Document Reference number 3.1) |

| Receptor | Source and type of effect | Mitigation | Where mitigation is secured |
|---|--|--|---|
| ES Chapter 15 – Cultural Heritage and Marine Archaeology | | | |
| Construction Phase | | | |
| Known and potential seabed prehistory receptors | Direct disturbance to the seabed (from construction activities and dredging works) causing damage to receptors | Offsetting by means of geoarchaeological assessment of geotechnical surveys | Schedule 6 (Plans and Documents to be Certified) of the DCO. Environmental Statement Chapter 15 and Appendix 15.3 (Application Document Reference number 8.2.15 and 8.4.15(c)) |
| Potential maritime and aviation receptors (i.e., A2 anomalies), Currently unknown archaeological sites and artefacts | Direct disturbance to the seabed (from construction activities and dredging works) causing damage to receptors | Written Scheme of Investigation (WSI) (and any supporting activity-specific Method Statements), implementation of Archaeological exclusion zone (AEZs) where deemed appropriate, and Protocol for Archaeological Discoveries (PAD) | Requirement of the DCO (Application Document Reference number 3.1) |
| Known and potential seabed prehistory receptors, maritime receptors, and aviation receptors | Direct impact via use of jack-up barge legs by vessels | Written Scheme of Investigation (WSI) (and any supporting activity-specific Method Statements), implementation of Archaeological exclusion zone (AEZs) where deemed appropriate, and Protocol for Archaeological Discoveries (PAD) | Requirement of the DCO (Application Document Reference number 3.1) |
| Operational Phase | | | |
| No significant adverse effects have been identified during the operation of the IERRT project, and as such no mitigation is required. | | | |
| ES Chapter 16 – Socio-economic Receptors | | | |

| Receptor | Source and type of effect | Mitigation | Where mitigation is secured |
|--|--|---|--|
| No significant adverse effects have been identified during the construction or operation of the IERRT project, only significant beneficial effects, and as such no mitigation is required. | | | |
| ES Chapter 17 – Traffic and Transport | | | |
| No significant adverse effects have been identified during the construction or operation of the IERRT project and as such no mitigation is required. | | | |
| Chapter 18 – Land Use Planning | | | |
| Operational Phase | | | |
| Human health and safety | Potential major accidents at major hazard sites, pipelines and explosives sites in the vicinity of the project | Maximum number of members of the public who may be present in the waiting area of the Terminal will not exceed 100 at any one time. | Secured in the DCO (Application Document Reference number 3.1) |
| ES Chapter 19 – Climate Change | | | |
| No significant adverse effects have been identified during the construction or operation of the IERRT project, and as such no mitigation is required. | | | |

2 Glossary

Table 3 - List of abbreviations

| Abbreviation | Outlined in full |
|---------------------|--|
| AEZ | Archaeological exclusion zone |
| ALARP | As low as reasonably practicable |
| AtoN | Aids to Navigation |
| CEMP | Construction Environment Management Plan |
| DCO | Development Consent Order |
| DML | Deemed Marine Licence |
| EIA | Environmental Impact Assessment |
| ES | Environmental Statement |
| ESA | Environmental Statement Addendum |
| GI | Ground investigation |
| IAQM | Institute of Air Quality Management |
| NSR | Noise sensitive receptor |
| PAD | Protocol for Archaeological Discoveries |
| PEC | Pilotage Exemption Certificate |
| RAMS | Risk Assessment Method Statement |
| WSI | Written Scheme of Investigation |