KEEPING BRITAIN TRADING

IMMINGHAM EASTERN RO-RO TERMINAL

Construction Environmental Management Plan - (CEMP)
Document Reference 9.2

APFP Regulations 2009 – Regulation 5(2)(q)
PINS Reference – TR030007

~~September~~ February 2023

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Associated British Ports

Immingham Eastern Ro-Ro Terminal

Construction Environmental Management Plan (CEMP)

September 2023

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PINS Reference	TR030007
Application Document Reference	9.2
Author	Immingham Eastern Ro-Ro Terminal Project Team

Version	**Date**	**Status of Version**
Rev 01	07/02/2023	Application Version
Rev 02	05/09/2023	DCO Examination – Deadline 2 Submission

Immingham Eastern Ro-Ro Terminal

Construction Environmental Management Plan (CEMP)

September 2023

Delivering a better world

Quality information

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Executive summary

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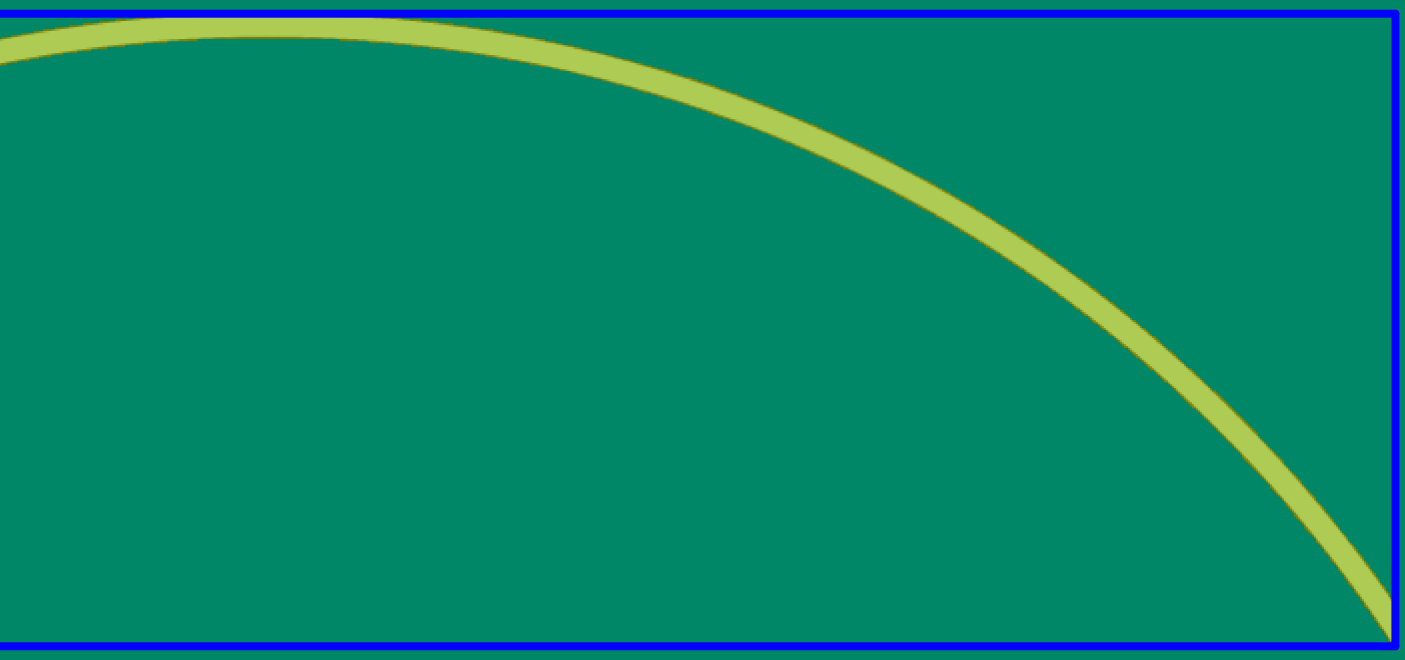

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1. Introduction

1.1 Overview

1.1.1 This CEMP (DCO Application Document Reference number 9.2) has been prepared by AECOM Ltd on behalf of Associated British Ports (ABP) (the 'Applicant'). It forms part of the application (the 'Application') for a Development Consent Order (a 'DCO'), that has been submitted to the Secretary of State (the 'SoS') for Transport, under section 37 of 'The Planning Act 2008' (the '2008 Act'). Once appointed, the Principal Contractor will develop their own CEMP ~~based on~~in accordance with the principles ~~outlined~~ within this CEMP. The 'Principal Contractors CEMP' would be updated regularly throughout construction, acting as a 'live' document to capture all construction and environmental issues.

1.1.2 The Applicant is seeking development consent for the construction, operation and maintenance of a new roll-on roll-off (Ro-Ro) facility (the 'IERRT project') within the existing Port of Immingham, Lincolnshire ('the site'). The Port of Immingham is one of the UK's busiest ports, operating 24 hours a day, 365 days a year.

1.1.3 The IERRT project comprises marine and landside infrastructure.

1.1.4 The IERRT project falls within the definition of a 'Nationally Significant Infrastructure Project' (NSIP) under Section 14(1)(j) of the 2008 Act, as it comprises an alteration of harbour facilities, and under Section 24(2) is wholly located within England; and under Section 24(3)(b) comprises ro-ro ships, 250,000 units. As such, a DCO application is required to authorise the IERRT project in accordance with Section 31 of the 2008 Act. The legislative details are discussed further in Chapter 5 (Volume 1 of the ES) (DCO Application Documents Reference number 8.2.5).

1.2 The applicant

1.2.1 The Applicant, ABP, is the owner and operator of the Port of Immingham.

1.3 The proposed development

1.3.1 The IERRT project comprises a ro-ro facility within the Port of Immingham. The facility will be designed for the embarkation and disembarkation of principally commercial cargo carried either by accompanied trailer or by lorry or on unaccompanied trailers which will be collected at the port of disembarkation. Further details are provided below and fully described in Chapter 2: Proposed Development (Volume 1 of the ES) (DCO Application Document Reference number 8.2.2).

Marine works

1.3.2 The proposed marine works are summarised below. Further details can be found in ES Volume 1, Chapter 2: Proposed Development (DCO Application Document Reference number 8.2.2).

- An open piled approach jetty, a maximum of 290 m in length;
- A single linkspan bridge to link the approach jetty to the floating pontoons, a maximum of 90 m in length and 10 m wide;
- Two floating pontoons, a maximum of 40 m x 90 m x 9.35 m, linked by a linking bridge up to 20 m in length, and secured by two piled restraint dolphins (maximum dimensions of 12 m x 8 m);
- Two open piled finger piers with concrete decks, up to 270 m in length;
- Vessel impact protection measures if required, to project the adjacent Immingham Oil Terminal (IOT) jetty; and
- A berthing area with side slopes.

Capital dredge

1.3.3 The new berth area will require a capital dredge. The maximum spatial extend of the dredge is estimated to be approximately 70,000 m^2. The berth area will be dredged with the appropriate side slopes to a depth of 9 m below Chart Datum (CD), including an allowance for over dredge.

1.3.4 It is estimated that a maximum of 190,000 m^3 of material will be removed, which is likely to constitute approximately 40,000 m^3 of boulder clay, and 150,000 m^3 of sand/ silt (alluvium) *in situ*.

1.3.5 The final capital dredge methodology will be determined in collaboration with the dredging contractor. It is currently anticipated, however, that the majority or all of the material will be removed with a tug assisted backhoe dredger, the size of which will be determined by the specialist dredging contractor. Some material may also be removed by trailer suction hopper dredger (TSHD) depending on the sediment conditions and the availability of TSHD dredgers.

Disposal of dredge material

1.3.6 It is not considered that the dredge material (being predominantly silt and clay) is of a quality suitable for alternative beneficial use, such as for the purpose of construction/ reclamation infill, by reason of its low potential bearing capacity either on land or within the marine environment. In addition, no infill material will be required for the project nor, as far as ABP are aware, for any other project in the locality.

1.3.7 In light of the above, it is considered that disposal within the estuary is the best available option (subject to the view of the Marine Management Organisation (MMO) and the Centre for Environment, Fisheries and Aquaculture Science (Cefas)).

1.3.8 A sediment contamination survey was undertaken in October 2021 to characterise the dredge material and to support the application to dispose of the dredge material at an existing licensed disposal site. This was undertaken in accordance with the MMO sample plan (SAM/2021/00053) which confirmed the suite of contaminants, number of samples, sample locations, replicates and sampling depth required, taking account of available guidelines for the management of dredge material to be disposed at sea (OSPAR Commission, 2014).

1.3.9 Contaminant concentrations in sediment samples have been compared to Cefas Guideline Action Levels (ALs) to determine their suitability for disposal at sea. The majority of contaminants in the sediments of the proposed dredge area are at relatively low concentrations, mostly below, or marginally exceeding, Cefas AL1. There were no exceedances of AL2 in any sediment samples analysed and it is considered that the dredge material is suitable for disposal at sea.

1.3.10 The sediment contamination analysis results are presented in the MMO results template at Application Document Reference number 9.5. This will allow the MMO, in consultation with Cefas, to consider the suitability of the material for disposal at sea. Further, more detailed information, can also be found in the Water and Sediment Quality (Chapter 8) of the ES (application Document Reference number 8.2.8).

1.3.11 The disposal site HU056 (Holme Channel) will be used to dispose of inerodible clay material, and HU060 (Clay Huts) will be used to dispose of sand/ silt (alluvium) material. This is based on the proximity, suitability and capacity of those disposal sites.

Landside works

1.3.12 Landside works are primarily required to improve the site's surface so as to provide suitable areas to accommodate wheeled cargo, containers and heavy goods vehicles (HGVs) either awaiting embarkation or collection, together with essential storage. These will be known as the Northern Storage Area, Central Storage Area, Southern Storage Area and Western Storage Area as shown on ES Figure 1.3 in Volume 2 of the ES (DCO Application Document Reference number 8.3.1(c)).

1.3.13 The proposed landside works are summarised below. Further details can be found in ES Volume 1, Chapter 2: Proposed Development DCO Application Documents Reference number 8.2.2).

- Simple upgrade of the vast majority of landside areas through provision of new pavements and associated infrastructure (some peripheral parts of the areas which will be used for waiting vehicles/ cargo trailers are likely to require additional ground works);
- A new substation in the Northern Storage Area to provide shore power to the berths and power for closed-circuit television (CCTV) and lighting for the yard;
- A small workshop with fuel station in the Central Storage Area;

- A new level crossing will be created across an ABP controlled railway between the Southern Storage Area and the Central Storage Area;
- A terminal building, together with ancillary buildings (in and out gates, a welfare building for HGV drivers and passengers awaited embarkation, and administrative and inspection buildings and infrastructure for the UK Border Force);
- In and out gates in the Western Storage Area;
- A two lane bridge to ensure contiguous terminal operations between the currently separate Northern and Central Storage Areas, with a maximum length of 120 m and a maximum width of 12 m, spanning Robinson Road (an existing dock road) and an ABP controlled railway line;
- Demolition of four existing buildings to the south of the Northern Storage Area;
- Improvements to the East Gate entrance to the Port including demolition of the existing gatehouse, widening of the existing entrance road, construction of a new gatehouse, new warning signals and line markings at the junction of Robinson Road and the IOT access road, repositioning of a bus stop, removal of an existing layby, and provision of a new footway between East Gate and the bus stop;
- Highway improvements and new footways within the Port;
- Remotely operated barriers for access into the IERRT;
- Fencing around the IERRT to comply with International Ship and Port Facility Security (ISPS) Code criteria;
- Lighting and security provision; and
- Appropriate drainage and services infrastructure.

Environmental enhancements

1.3.14 Environmental enhancements will be undertaken as part of the IERRT project in order to maintain and enhance biodiversity. This will involve enhancements to an existing 1.17 hectares (ha) area of woodland south of Laporte Road named Long Wood (see Appendix 6.2: Preliminary Ecological Appraisal Report (ES Volume 2 DCO Application Document Reference number 8.4.6(b)) for further details).

1.4 The purpose and structure of this document

1.4.1 This CEMP sets out a series of measures that will be applied by the contractor to provide effective planning, management and control of potential impacts upon people, businesses and the natural and historic environment during construction.

1.4.2 This CEMP has been produced in conjunction with the Environmental Statement for the IERRT (DCO Application Document Reference numbers~~8.1~~ 8.1 - 8.4) with the aim of ensuring that design and impact avoidance measures reported in the ES are implemented and are effective,

together with any additional mitigation measures proposed to reduce significant adverse effects.

1.4.3 It is expected that the contractor will comply, as a minimum, with applicable environmental legislation and environmental mitigation measures at the time of construction, together with any additional environmental controls imposed by the DCO. Any additional construction licences, permits or approvals that are required as listed within this CEMP, including any environmental information submitted in respect of them will be adhered to.

1.4.4 The structure of this CEMP is as follows:

- Section 1 provides an introduction to the IERRT project and the purpose, use and implementation of the CEMP;
- Section 2 provides information on the construction arrangements;
- Section 3 presents additional topic specific information, which includes –
  - Environmental impacts (assessed through the EIA),
  - Impact avoidance or reduction of measures to be applied, where the ES has assumed they would be applied during the detailed design or construction phase,
  - Any other additional mitigation measures,
  - Additional surveys or monitoring considered necessary pre-construction or during construction in order to confirm the status of receptors, and the effectiveness of impact avoidance/ mitigation measures,
  - Corrective action procedure to be applied, where necessary, and
  - Links to other complementary plans and procedures;
- Appendix A comprises a construction materials and waste management assessment; and
- Appendix B comprises a Site Waste Management Plan (SWMP).

1.4.5 In summary, this CEMP identifies how commitments made during the EIA (and reported in the ES) will be translated into actions on-site.

1.4.6 The contractor will be responsible for working in accordance with the environmental controls documented in this CEMP, which will allocate responsibilities for environmental performance. The overall responsibility for implementation of the CEMP will lie with the Applicant.

1.5 Implementation

1.5.1 This CEMP sets out all roles, responsibilities and actions required in respect of implementation of the measures, including:

- Training requirements for relevant personnel on environmental topics;

- Information on site briefings and toolbox talks that will be used to equip relevant staff with the necessary level of knowledge to follow environmental control procedures;
- Measures to advise employees of changing circumstances as work progresses;
- Communication methods (e.g. updates via the Applicant's website);
- Document control; and
- Environmental emergency procedures.

1.5.2 All construction works associated with the IERRT project must be carried out in accordance with the approved CEMP unless otherwise agreed with the relevant authorities.

2. Construction phase arrangements

2.1 Indicative programme

2.1.1 Subject to all necessary consents and licences being granted, construction work is expected to start in early 2024, however, there are currently two construction programme scenarios, these are:

- Construction of all elements at the same time: this scenario comprises the construction of all three berths at once followed by their operation and will be largely completed by mid-2025,
- Sequenced construction: this scenario comprises the construction of the northern pier and the Northern, Central and Southern Storage Area first, with the first two berths becoming operational around mid-2025, followed immediately by the construction and operation of the southern pier and the construction of the Western Storage Area. This scenario would be complete in late 2026 at the earliest.

2.2 Working hours

2.2.1 For landside construction, working hours will be 07:00 to 19:00 Monday to Friday and 07:00 to 13:00 on Saturdays, with no works taking place on Sundays, unless otherwise agreed with the local planning authority. Marine works may be undertaken 24 hours a day, Monday to Sunday (subject to other environmental restrictions in certain months which prevent this – see the Nature Conservation and Marine Ecology chapter (Chapter 9) of the ES Volume 1 (Application Document Reference number 8.2.9).

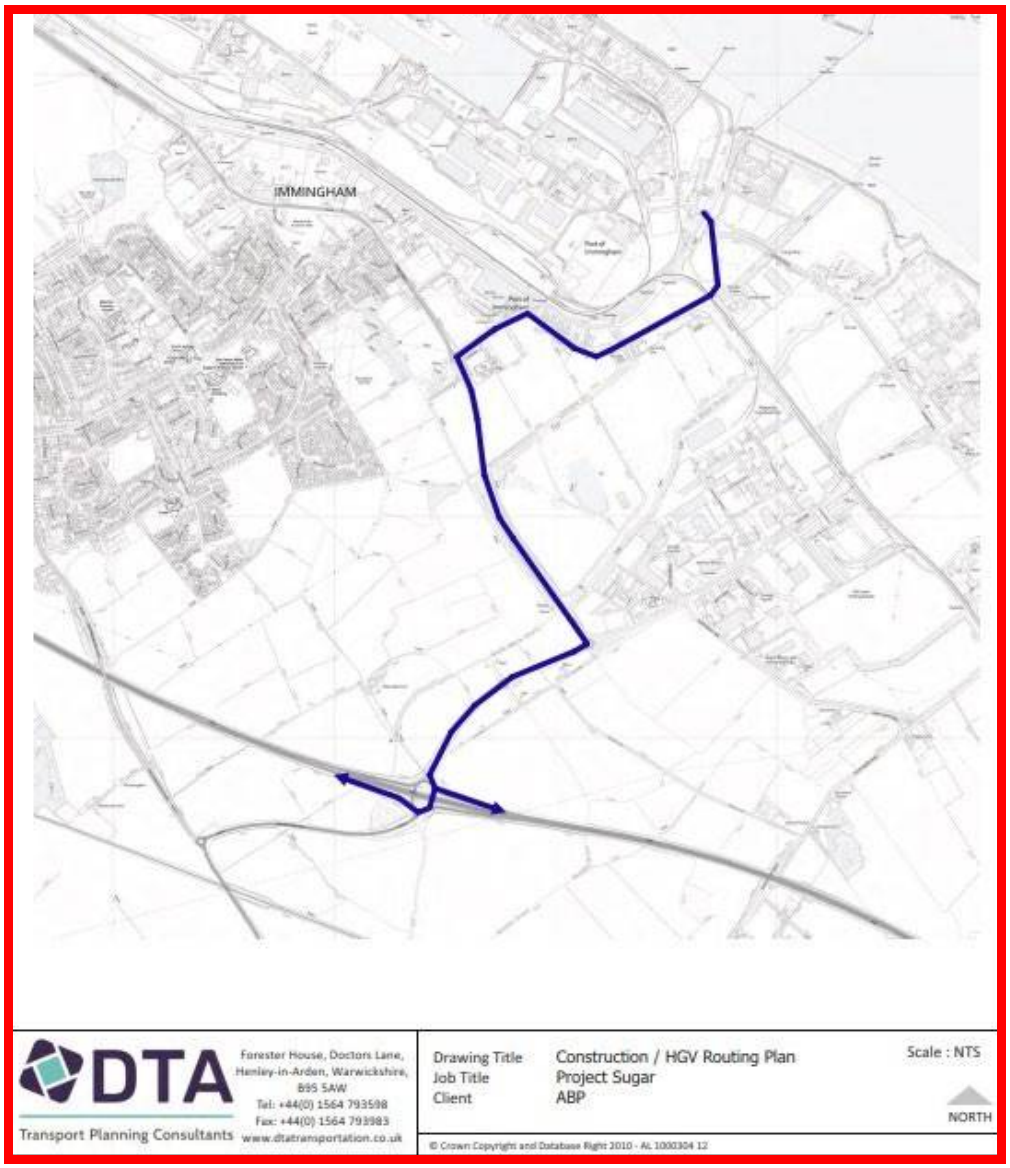
2.3 Traffic management

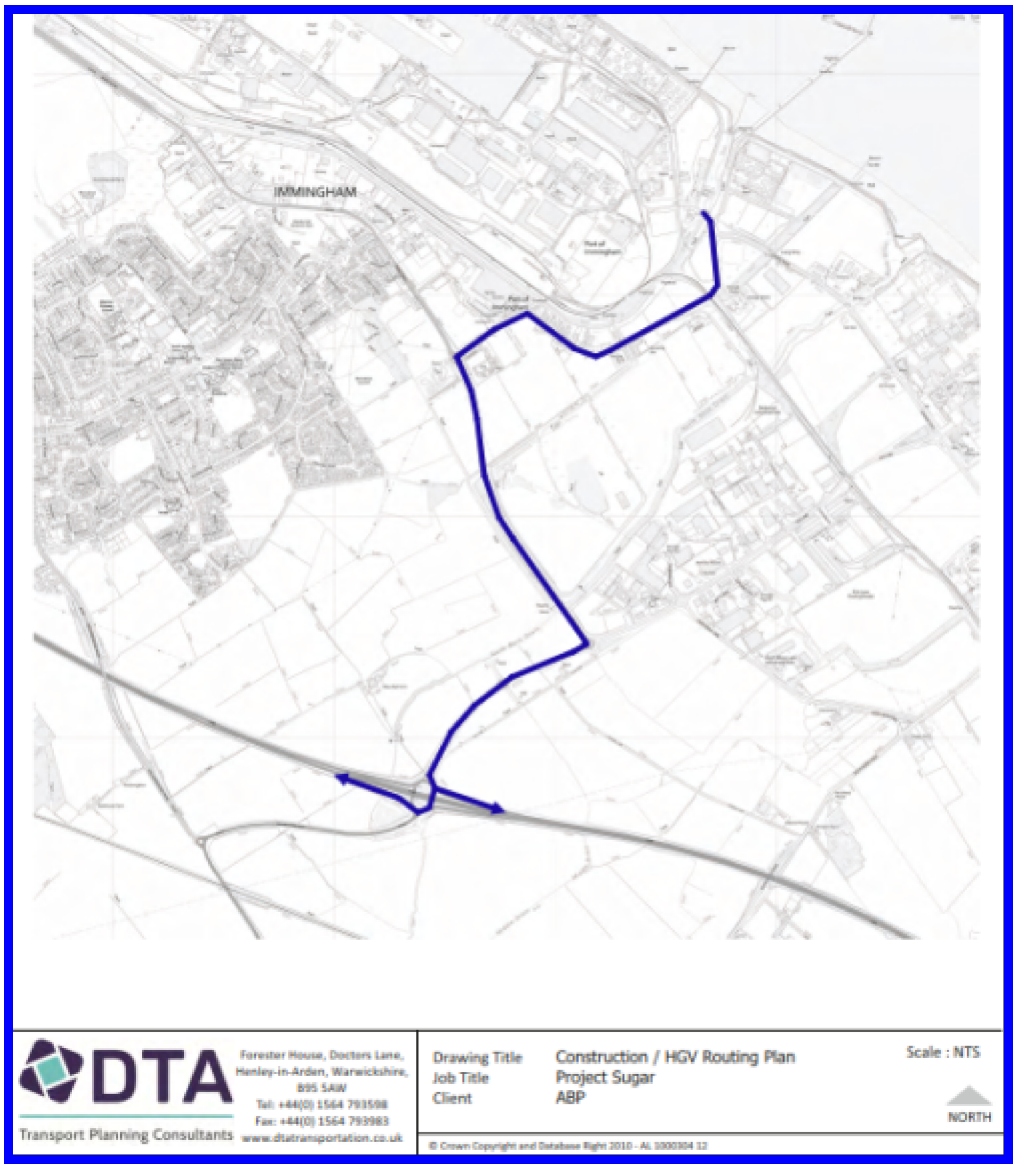
2.3.1 During construction, the appointed contractor will ensure that the impacts from construction traffic on the local community (including local residents and businesses and users of the surrounding transport network) are minimised, where reasonably practicable, by implementing the measures set out in a detailed Construction Traffic Management Plan (CTMP) and the Construction Workers' Travel Plan (CWTP) both of which will be prepared by the contractor once the final construction details are confirmed in accordance with this CEMP. Access to the site during construction for both construction workers and HGV traffic will be via the existing East Gate entrance to the Port and Robinson Road/ East Riverside (existing, purpose-built access roads that serve the port).

2.3.2 Construction staff are anticipated to travel to the site via the existing trunk road and local networks. Construction staff arriving by car will use on-site parking at designated locations within the construction site.

2.3.3 HGVs access into construction compounds will be controlled by a gatehouse and HGV waiting area where vehicle registration and deliveries will be recorded. The HGV routing plan is shown **Plate 1** below.

Plate 1: HGV designated route plan during construction





2.3.4 The volume of HGVs associated with construction of the IERRT project on the network is predicted to be an average of 180 daily two-way vehicle movements.

2.3.5 HGV arrivals, including deliveries, will be managed as far as reasonably practicable, such that they are spread evenly over the day to avoid on-site congestion. HGV deliveries will not be undertaken outside of core working hours, unless agreed with the local planning authority on a case -by -case basis. Details of peak hour movements will be refined by the Contractor and provided in the CTMP as described above.

2.3.6 Permits and consents required for the movement of Abnormal Indivisible Loads (AIL) will be sought as necessary once the number and type of AIL movements has been established following appointment of the contractor.

2.3.7 The contractor must distribute the HGV routing plan (shown in **Plate 1**) to all HGV drivers during their induction. It will be a condition of contract between the Applicant and the appointed contractor to require that all construction HGV deliveries must use the designated route to access and egress the construction site. Sanctions will be put in place to deal with non-compliance.

2.3.8 The contractor will erect temporary signage at the main junctions to appropriately direct all HGV traffic relating to the proposed development (both accessing and egressing the site) towards the construction compounds. These will be in place for the duration of the construction phase and will be checked regularly to confirm they are visible throughout.

2.3.9 The appointed contractor will be required to maintain all the HGV route signage during the construction period.

2.4 Parking provisions

2.4.1 Parking demand will vary throughout the construction phase and parking areas will be set aside within the site to accommodate parking for construction workers.

2.4.2 Line markings will be applied to demarcate trailer parking bays, stacking areas, marshalling lanes, parking areas and terminal roads.

2.5 Wheel cleaning facility

2.5.1 In the interests of highway safety, wheel cleaning facilities will be installed at the site from the start of the construction phase. All HGV will be required to use the wheel wash prior to exiting the site. The need for this measure will be periodically reviewed throughout the construction phase.

2.6 Site lighting

2.6.1 Additional temporary construction site lighting is proposed to enable safe working on the construction site in the hours of darkness. However, the site is already lit at night due to the ongoing operational usage. Therefore, any additional lighting associated with the construction of the IERRT project is unlikely to alter the lighting regime within the site, given its location within a port environment that is lit at night and operates 24 hours a day.

2.7 Recycling and disposing of waste

2.7.1 To control the waste generated during the site preparation and construction phase, the contractor will minimise the creation of waste, maximise the use of recycled materials and assist the collection, separation, sorting, recycling and recovery of waste arisings, as far as reasonably practicable.

2.7.2 A SWMP is included in **Appendix B** to minimise, as far as reasonably practicable, impacts on the environment, specify the waste streams to be estimated and monitored, and set key performance indicators with regards to the waste produced.

2.7.3 The Applicant will require that the contractor segregates the waste streams on-site, prior to them being taken to a waste facility for recycling or disposal.

All waste to be removed from the site will be undertaken by fully licensed waste carriers and taken to permitted waste facilities.

2.8 Best practice measures

2.8.1 The selected contractor will be encouraged to be a member of the 'Considerate Constructors Scheme' which is an initiative open to all contractors undertaking building work.

2.8.2 Construction industry guidance (e.g. from the Construction Industry Research and Information Association (CIRIA)) will be adopted as far as reasonably practicable to assist in reducing the potential for pollution and nuisance. This will be achieved by employing best practice measures.

2.9 Soil management

2.9.1 Impacts relating to the handling, movement and temporary storage of soils that will be disturbed during construction phase are discussed in Table 3.6 and in Appendix B of this CEMP.

2.10 Training and communications

2.10.1 All staff working on the construction of the IERRT project will be inducted on the project requirements. This CEMP and the associated risks and opportunities will be distributed to the contractor, key members of the design team and contracting teams to ensure that the environmental requirements are communicated.

2.10.2 Any change in design, programme or other changes to the IERRT project as the works progress must be communicated as appropriate to all staff working on the IERRT project. It is advised that this is done via a top-down approach, whereby managers disseminate information to their team.

2.10.3 Site briefings and training will be supplemented as necessary and appropriate through toolbox talks during delivery the IERRT project and will include key environmental risks. Toolbox talks are to be delivered by the contractor's worksite lead or environmental specialist (if required) to all members of site staff at the start of each shift.

2.11 Stakeholder communications

2.11.1 Stakeholder communications will be managed via the Stakeholder Management Plan that will be put in place prior to the works commencing. ~~It is envisaged that it~~This will include relevant project information~~,~~ and contact details for stakeholders to communicate queries to the project team and make complaints. The Stakeholder Management Plan would be developed by the appointed contractor in conjunction with ABP.

2.11.2 Based on ABP's existing knowledge and developed relationships with the surrounding stakeholders and communities, the Stakeholder Management Plan will cover the following topics:

- Roles and responsibilities;

- Communication plan during construction (e.g. frequency, means of recording communications and tracking progress, and escalation process);
- Communication methods (i.e. project website, email address, phone number, committee meetings and community liaison); and
- Complaints strategy and process.

2.11.3 Parties that ABP considers are likely to be affected by traffic management measures implemented during construction will be notified no less than 1 month in advance of any relevant road diversions and/or closures. These notifications will form part of the wider communications plan associated with the scheme, with methods of communication agreed as part of the Stakeholder Management Plan by the appointed contractor in conjunction with ABP.

2.11.4 ~~2.11.2~~A piling specific community liaison protocol will be developed by the contractor, with input from ABP and included within the Stakeholder Management Plan, so that businesses/ occupiers are kept informed of the piling activities, their duration, and their expected impact.

2.11.5 ~~2.11.3~~Measures relating to stakeholder communications regarding noise are detailed in Table 3.8, in Section 3 of this CEMP.

3. Impact avoidance and mitigation measures implementation plan

3.1 Overview

3.1.1 This section sets out the embedded impact avoidance and additional mitigation, enhancement and management measures to be implemented during construction, as specified within the ES. It identifies where additional surveys will be required, either pre-construction or during construction.

3.1.2 This section also identifies the responsible party for each mitigation, enhancement measure or monitoring requirement. The majority of these will, however, be assigned to the appointed contractor.

3.1.3 The topics covered in this CEMP include:

- Physical Processes (Table 3.1);
- Water and Sediment Quality (Table 3.2);
- Nature Conservation and Marine Ecology (Table 3.3);
- Commercial and Recreational Navigation (Table 3.4);
- Coastal Protection, Flood Defence and Drainage (Table 3.5);
- Ground Conditions including Land Quality (Table 3.6);
- Air Quality (Table 3.7);
- Noise and Vibration (Table 3.8);
- Cultural Heritage and Marine Archaeology (Table 3.9);
- Traffic and Transport (Table 3.10);
- Land Use Planning (Table 3.11);
- Climate Change (Table 3.12); and
- Protected Species (Table 3.13).

3.1.4 Sections 3.2 and 3.3, below, describe how the monitoring strategy will be implemented in order to assess the effectiveness of mitigation measures, monitor the impact of construction works and take other actions necessary to enable compliance.

Table ~~3.1~~3.1: Physical processes

Potential Impact	Mitigation/ Enhancement Measure	Responsibility
Changes in water depth and environmental conditions due to increased deposition.	Even disposal deposition – disposal loads will be targeted in the central/deeper areas of the disposal sites (HU056 and HU060). This will minimise the initial reduction in water depth and any consequential environmental changes at these disposal sites.	Contractor
~~3.2~~3.2 Potential Impact	Mitigation/ Enhancement Measure	Responsibility
Impaired water and sediment quality due to accidents and spillages/ leaks	In terms of water and sediment quality, the potential risk from accidents and 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 (ES Volume 1 Chapter 3, Section 3.3, DCO Application Document Reference number 8.2.3). In particular, the following guidance will be adopted: • Pollution prevention for businesses' Guidance in England (Defra and Environment Agency, 2019); • 'Pollution prevention for businesses' Guidance in England (Defra and Environment Agency, 2019); • Pollution Prevention Guidance (PPG), or Guidance for Pollution Prevention (GPP) in the UK (NetRegs, 2020): – Understanding Your Environmental Responsibilities – Good Environmental Practices (PPG1); – Works and maintenance in or near water (GPP5); – Working at construction and demolition sites (PPG6); and – Safe storage and disposal of used oils (GPP8).	Contractor

Potential Impact	Mitigation/ Enhancement Measure	Responsibility
	• The Oil Care Code; and • CIRIA's Environmental Good Practice on Site (CIRIA, 2015). Best practice measures include: • Removal of waste from site in a timely manner. • ~~Removal of materials~~Materials and containers which could possibly spill or contaminate the surrounding environment ~~to~~will be removed from site in a timely manner~~,~~ and taken to be processed at a licensed facility. • Storage of liquid oils/ chemicals in suitable containers/ bunded storage areas. • In the event of a pollution incident measures to report, manage, and minimise any impacts will be pursued, with construction spill response procedures to contain any accidental spills. • The existing oil spill contingency plan for Immingham Port is to be followed in the event of a spillage, to minimise impacts of a spill entering the water. • Regular maintenance of plant. • Spill kits available for use in the event of a spill onsite. • Designated refuelling areas. • Fuel will be stored in the site compound overnight, limiting the potential for fuel theft and vandalism which could cause pollution. • Any pollution incidents will be reported immediately to the relevant authorities. • The workforce will be trained in preventing and dealing with pollution incidents.	
~~3.3~~3.3	**Mitigation/ Enhancement Measure**	**Responsibility**

Potential Impact	Mitigation/ Enhancement Measure	Responsibility
Potential Impact		
Underwater noise and vibration impacts on fish and marine mammals	To reduce the level of impact associated with underwater noise and vibration on fish and marine mammals during construction (in particular piling), the following mitigation measures will be implemented: • **Soft start:** The gradual increase of piling power, incrementally, until full operational power is achieved will be used as part of the piling methodology. This will give fish and marine mammals the opportunity to move away from the area before the onset of full impact strikes. The duration of the soft start is proposed to be 20 minutes in line with the JNCC piling protocol (JNCC, 2010). • **Vibro piling:** Vibro piling is proposed to be used where possible (which produces lower peak source noise levels than percussive piling). • **Seasonal piling restrictions**: During percussive piling the following further restrictions are proposed: - No percussive piling is to take place within the waterbody between 1 April and 31 May inclusive in any calendar year. This will minimise the potential impact on the greatest number of different migratory fish in the Humber Estuary, in accordance with the periods identified in Table 9.16 within Chapter 9 of the ES, Application Document Reference number 8.2.9, and also the more vulnerable earlier life stages of a number of migratory fish species. This restriction does not apply to percussive piling that can be undertaken outside the waterbody at periods of low water; - The duration of percussive piling is to be restricted within the waterbody from 1 June to 30 June and 1 August to 31 October inclusive in any year to minimise the impacts on fish migrating through Humber Estuary during this period. The maximum amount of percussive piling permitted within any 4-week period must not exceed 140 hours where a single piling rig is in operation or a total of 196	Contractor

Potential Impact	Mitigation/ Enhancement Measure	Responsibility
	hours where two or more rigs are in operation. The measurement of time during each work-block described above must begin at the start of each timeframe, roll throughout it, then cease at the end, where measurement will begin again at the start of the next timeframe, such process to be repeated until the end of piling works. This restriction does not apply to percussive piling that can be undertaken outside the waterbody at periods of low water. This approach has been developed in consultation with the MMO and Cefas. • **Night time piling restrictions**: The upstream migration of river lamprey takes place almost exclusively at night (Environment Agency, 2013). There is also an increase in glass eel migratory activity during the night time (Harrison et al., 2014). No percussive piling is to take place within the waterbody between 1 March to 31 March, 1 June to 30 June and 1 August to 31 October inclusive after sunset and before sunrise on any day. 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. This restriction does not apply to percussive piling that can be undertaken outside the waterbody at periods of low water which will limit the potential effects of underwater piling noise on the nocturnal movements of river lamprey and glass eels. • **Marine Mammal Observer:** In addition, in order to further reduce the significance of the impact to marine mammals the JNCC "Statutory nature conservation agency protocol for minimising the risk of injury to marine mammals during piling" (JNCC, 2010) will be followed during percussive piling. The key procedures highlighted in this document include the following: - Establishment of a 'mitigation zone' of 500 m from the piling locations, prior to any percussive piling. Within this mitigation zone, observations of marine mammals will be undertaken by a trained member of the construction team using marine mammal identification resources;	

Potential Impact	Mitigation/ Enhancement Measure	Responsibility
	- 30 minutes prior to the commencement of percussive piling, a search should be undertaken by the Marine Mammal Observer to determine that no marine mammals are within the mitigation zone. Percussive piling activity should not be commenced if marine mammals are detected within the mitigation zone or until 20 minutes after the last visual detection; - During percussive piling, the Marine Mammal Observer should observe the mitigation zone to determine that no marine mammals are within this area. Construction workers will be alerted if marine mammals are identified, and piling will cease whilst any marine mammals are within the mitigation zone. Piling can recommence when the marine mammal exits the mitigation zone and there is no further detection after 20 minutes; and - If there is a pause in percussive piling operations for any reason over an agreed period of time, then another search (and soft-start procedures for piling) should be repeated before activity recommences. If, however, the mitigation zone has been observed while piling has ceased and no marine mammals have entered the zone, piling activity can recommence immediately.	
Disturbance to coastal waterbirds	To reduce the level of impact associated with noise and visual disturbance during construction, the following mitigation measures will be implemented: • **Winter marine construction restriction from 1 October to 31 March** (**approach jetty and the inner finger pier):** In order to minimise potential disturbance effects on wintering populations of coastal waterbirds on the foreshore it is proposed that marine construction activity associated with the approach jetty, linkspan, innermost pontoon and the inner finger pier (see Figure 1.2 to this ES, Application Document Reference number 8.3.1(b)) which are all located on or close (within approximately 200 m) to the intertidal mudflat is prohibited during the winter months of October to March. This restriction applies until an acoustic barrier/visual screen has been installed on both sides of the semi-completed structure. Construction activity will then be undertaken on the approach jetty itself, behind the screens, with no use of	Contractor

Potential Impact	Mitigation/ Enhancement Measure	Responsibility
	large heavy plant. With the addition of acoustic barriers, noise levels on the intertidal mudflat will be less than 65 dB(A). Construction activity associated with the seaward section of the approach jetty, linkspan, innermost pontoon and inner finger pier can also occur two hours before and two hours after high water, when works are approximately 200 m from the exposed mudflat. A noise suppression system will also be used for piling. The noise suppression system is predicted to reduce noise levels to <70 dB Lmax at distances greater than approximately 200 m from the piling; • **Noise suppression system for piling on the outer finger pier**: It is proposed that a noise suppression system (consisting of a piling sleeve with noise insulating properties) is used during all percussive piling activities for the outer finger pier to reduce noise levels on nearby foreshore areas – - **Acoustic barrier/ screening on marine construction barges:** To limit disturbance during construction, it is proposed that an acoustic barrier/screening is placed on the side of the floating barges closest to the foreshore; construction activity should only be undertaken from the side of the barge facing away from the foreshore. This will be applied to floating barges used for all construction works including the outer finger pier during the over wintering period; - **Soft starts:** Using soft starts will allow birds to become more tolerant to piling noise by allowing a more gradual increase in noise levels which will reduce the potential for birds to become startled. This will be applied to all piling activity including the outer finger pier; and - **Cold weather construction restriction:** Coastal waterbirds are considered particularly vulnerable to bird disturbance during periods of extreme winter weather. On this basis, it is proposed that a temporary cessation of all construction activity is implemented following seven consecutive days of freezing (zero or sub- zero temperature) weather conditions. The restriction should not be	

Potential Impact	Mitigation/ Enhancement Measure	Responsibility
	lifted until after 24 hours of above freezing temperatures and also that Metrological Office weather forecasts indicate that freezing conditions will not return for the next five days. Similar measures have been implemented for other nearby developments and also as part of the JNCC scheme to reduce disturbance to waterfowl due to shooting activity during severe winter weather;	
Changes in water depth and environmental conditions due to increased deposition.	**Even disposal deposition of dredged material**: Targeting disposal loads in the central/deeper area of the disposal sites to reduce depth reductions. This will minimise the initial reduction in water depth and any environmental changes at the disposal sites. And see physical processes mitigation described at Table 3.1, above.	Contractor
Preventing a breach in biosecurity	ABP's existing biosecurity management procedures will be followed during construction. Best practice guidance has been developed on how to manage marine biosecurity risks and invasive non-native species (INNS) at sites and when undertaking activities through the preparation and implementation of biosecurity plans (Cook et al., 2014). This has been used to develop measures that will be followed during the dredging process: • **'Check, Clean and Dry' method:** Following the 'Check, Clean and Dry' method, prior to use, marine construction equipment will be checked for mud, aquatic animals or plant material and anything found will be removed. Equipment will be cleaned thoroughly, and allowed to fully dry to kill off any organisms that may have attached. This process will also be undertaken once relevant marine construction activities are completed and before equipment is removed from the site. • **Hull Cleaning:** The hulls of any vessels used during construction will be maintained through regular cleaning to minimise the number of fouling organisms present. Hull cleaning can take place on land or in-water. In both cases, care will be taken to prevent the organisms and coating particles from being released into the water.	Contractor

Potential Impact	Mitigation/ Enhancement Measure	Responsibility
	• **Protective Coatings:** The use of protective coatings on any vessels used during construction will be employed to reduce the fouling of the vessel's hull and other below-water surfaces. These coatings usually contain a toxic chemical (such as copper) or an irritant (such as pepper) that discourages organisms from attaching. Other coatings, such as those that are silicone-based, provide a surface that is more difficult to adhere to firmly, making cleaning of the hull less laborious. The type and concentration of coatings that can be applied to a boat hull is regulated and can vary between countries.	
Impact on marine ecology and designated sites due to accidents and spillages/ leaks	Construction methods, proposed design and the contractual arrangements follow pollution prevention legislation and environmental management best practice as detailed in Chapter 3, Section 3.3 of the ES Volume 1 (Application Document Reference number 8.2.3). And see water and sediment quality mitigation at Table 3.2, above.	Contractor
~~3.4~~3.4 Potential Impact	**Mitigation/ Enhancement Measure**	**Responsibility**
Risks associated with commercial and recreational navigation as a result of construction	There are a number of embedded risk controls that are in place at the Port, and these are to be adhered to during construction to ensure the safety of Port users, construction staff, and the environment. These are detailed in Chapter 10, Table 10.9 of the ES Volume 1 (Application Document Reference number 8.2.10). In addition to these, there are additional controls to be applied during construction: • A vessel exclusion zone is to be put in place whilst construction is taking place. • Guard (support) vessel: Available as appropriate - able to prevent flat top barge	Contractor / ABP Contractor

Potential Impact	Mitigation/ Enhancement Measure	Responsibility
	from drifting onto the Eastern Jetty or is otherwise able to reduce the speed and impact of the resulting allision. • Designated safety craft: This control specifically considers a vessel being available and specifically designated for safety, in particular to respond to a 'Man Over-Board' recovery situation. • Incident Reporting - Dropped component: 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. • Personnel management during tanker berthing: Ensuring that personnel that are in vicinity of the Finger Pier are aware and alert whilst tankers are berthing. • Additional measures to ensure separation of marine works from Ro-Ro vessels proceeding to or departing IERRT: Consideration for VTS to move marine craft away from pier being berthed on prior to Ro-Ro arriving in the berth pocket • Berthing criteria specific to operation-construction: This control describes the potential inclusion of elements such as tidal limits, tug requirements, amidst other potential weather limits (e.g. high winds) that are specific to whilst operation and construction occur simultaneously. • Special Instructions issued to Ro-Ro not to berth unless area is clear of marine works craft: The application of a special instruction for Ro-Ro's not to berth unless marine craft are clear. • Additional pilotage training/ familiarisation.	

Potential Impact	Mitigation/ Enhancement Measure	Responsibility
	• Additional training to PEC and Pilots on manoeuvring during the operation-construction phase: Specifically for risk C.5 and C.7, for Pilots/ PECs on all 3 berths. • Berth specific weather parameters: Having defined weather parameters for each berth, acknowledging their different operational limits. • A charted exclusion zone for vessels to remain clear of berthing procedures. • Barges cannot be moored in the vicinity of a berthing Ro-Ro. • Eliminating the use of Anchorage F during dredging operations. • Contractors would require RAMS covering all of the construction activities which will require review by the Harbour Authority prior to the commencement of activities. • Control and management of contractor actions. • Harbour Master's assessment of safe working practise and then consent to conduct the works. • A Liaison Officer to coordinate between the port and contractors. • A bathymetric survey specifically after construction to identify the existence of any dropped components. • Adaptive procedures during familiarisation period as operational experience is gained (e.g., tugs, tidal restrictions, delayed start of use of berth 1 during familiarisation period, impact protection). • Dredge plan that considers operating in suitable relation of the prevalent tidal flows in the vicinity of the IOT trunk way. • Specific berthing criteria for each of the three berths.	

Potential Impact	Mitigation/ Enhancement Measure	Responsibility
	• Notices to mariners: Detailing impacts and directions for each stage of the marine works (embedded control applied additionally to specific risk C11 in Appendix 10.1 in ES Volume 3, Application Document Reference number 8.4.10(a)). • Tidal restrictions: Measure to restrict movements depending on tidal streams (can also be applied as part of project specific adaptive controls)	
~~3.5~~3.5 Potential Impact	Mitigation/ Enhancement Measure	Responsibility
Management of flood risk	During the construction phase, the Contractor will monitor weather forecasts on a monthly, weekly and daily basis, and plan works accordingly. The Contractor will sign up to the Environment Agency's flood warning alerts and produce a Flood Emergency Response Plan which details the actions to be taken on-site by the Contractor should a flood event occur during the construction phase. No work will be undertaken on-site during a flood warning period and no visitors will be allowed access to the site during periods of inclement weather. These measures are important to ensure all workers, the construction site and third-party land, property and people are adequately protected from flooding during the construction phase. If water is encountered during below ground construction, suitable de-watering methods will be used. Any significant groundwater dewatering required will be undertaken in line with the requirements of the appropriate regulatory authority. All construction workers will undergo site induction training prior to being allowed access. This will include instructions on what to do in the event of emergency incidents such as flooding, access and egress routes and the location of safe refuge, if required. In line with best practice, flood resilience measures can be incorporated into the IERRT project to minimise the amount of damage and reduce recovery time in the unlikely case of the site becoming inundated:	Contractor Contractor ABP ABP

Potential Impact	Mitigation/ Enhancement Measure	Responsibility
	• Finished floor level raising; • Use of flood resistant building materials; • Use of water-resistant coatings; • Use of galvanised and stainless-steel fixings; • Raising electrical sockets and switches; and • Provision of an appropriate safe refuge. Further details regarding the management of flood risk are available within Appendix 11.1: FRA (in Volume 3 of this ES Application Document Reference number 8.4.11).	Contractor
Management of construction site runoff	• Construction waste/ debris will be prevented from entering any surface water drainage or water body. • Surface water drains on roads or within the construction compound will be identified and, where there is a risk that fine particulates or spillages could enter them, the drains will be protected (e.g. using covers or sand bags). • Debris and other material will be prevented from entering surface water drainage, through maintenance of a clean and tidy site, provision of clearly labelled waste receptacles, grid covers and the presence of site security fencing. • Temporary drainage facilities will be provided during the construction phase, where necessary, to ensure controlled discharge of surface water run-off. Measures that will be considered for temporary drainage include installation of measures such as swales, silt fences, and appropriately sized settlement tanks/ ponds to reduce sediment load and thus prevent blockages. • Where work is required within the channel of a waterbody e.g. a new outfall requires construction, if necessary, works will be undertaken in line with the requirements of the appropriate regulatory authority	Contractor

Potential Impact	Mitigation/ Enhancement Measure	Responsibility
~~3.6~~3.6 Potential Impact	Mitigation/ Enhancement Measure	Responsibility
Excavation collapse	During the construction phase, entry into excavations or other enclosed spaces should comply with confined space legislation and be assessed prior to entry.	Contractor
Contamination risk	The Outline Remediation Strategy (ES Volume 3, Appendix 12.4, Application Document Reference number 8.4.12(d)) sets out the measures required to mitigate any significant/ unacceptable contamination risks. Where necessary, the strategy sets out requirements for disposal of materials that either do not meet the re-use criteria or are considered surplus to the scheme. The strategy also defines whether any treatment may be required, prior to reuse or disposal, as well as establishing risk-based compliance criteria for soils to be screened against. A confirmatory Ground Investigation (GI) has been undertaken which includes provision for ongoing monitoring works as is normal for a project such as the IERRT. A final Remediation Strategy will be prepared to take account of any relevant matters arising during the examination of the IERRT DCO and will incorporate appropriate mitigation measures as necessary, ~~that are~~ following receipt of the final ~~factual~~interpretative report from the confirmatory GI, which will include the results of the final round of monitoring. If, following the confirmatory GI undertaken for the purposes of detailed design, it is concluded that piling or other deep foundations or a form of ground improvement is to take place, the detailed construction methodology will be assessed to reduce the risk of the development of preferential pathways (e.g. groundwater flow) between the Made Ground present and the underlying Secondary superficial aquifers and Principal bedrock aquifers. The best practice guidance for piling (Environment Agency, 2001) and a foundation works risk assessment would be used in piling works plans and piling operations. Location specific Piling Risk Assessments should be undertaken and piling method statements should detail mitigation measures to protect the aquifer from	ABP/ Contractor

Potential Impact	Mitigation/ Enhancement Measure	Responsibility
	potential pollution associated with piling operations. The confirmatory GI will define the site-specific position on aggressive ground conditions and derive concrete design sulphate (DS) and aggressive chemical environment for concrete classifications (ACEC). The DS and ACEC classifications will be used to specify the appropriate class of any concrete foundation and/ or service pipes that will be used in the construction of the IERRT project infrastructure. This will mitigate the potential risk caused by aggressive ground conditions.	
Disposal of waste materials ~~track, store, dispose of and potentially re-use all excavated materials that are expected to be encountered during the development works.~~	A Materials Management Plan (MMP), under CL:AIRE (2011) Definition of Waste: Development Industry Code of Practice, will be prepared and implemented to provide suitable controls to facilitate the re-use of materials such as soils and clean crushed concrete. The MMP will detail the procedures and measures to be taken to classify, track, store, dispose of and potentially re-use all excavated materials that are expected to be encountered during the development works.	ABP/ Contractor
Construction dust	Dust generation will be kept to a minimum in accordance with general best practice, as outlined in, for example, “Environmental Good Practice on Site”, 3rd Edition, CIRIA Publication C692. The CEMP includes measures for the management of dust generation (see Table 3.7 below).	Contractor
Re-use of excavated materials	All earthworks operations will be undertaken in accordance with BS1997:2004 Eurocode 7, BS16907-1 to 7:2018 Earthworks (BSI, 2018); BS6031:2009 Code of Practice for earthworks (BSI, 2009) and National Highways (NH) guidelines including DMRB Series 600 ‘Earthworks’ (Highways England, 2016). The IERRT project design will actively work towards achieving an earthworks balance. Best practice will be adopted during construction to prevent or minimise spillage risk and spillage impacts adhering to this CEMP.	Contractor
Disposal of soil	Where soil materials are deemed to be surplus to the requirements of the project, such	Contractor

Potential Impact	Mitigation/ Enhancement Measure	Responsibility
	materials, will be classified as waste under the Waste Framework Directive (WFD) (2009/98/EC) as either hazardous (17-05-03) or non-hazardous (17-05-04) soils. Classification will be undertaken using a proprietary assessment tool such as "~~HazWasteOnline™~~HazWasteOnline™". Waste deemed to be hazardous, will require testing using the Waste Acceptance Criteria (WAC) prior to disposal to landfill. The 'Waste Duty of Care Code of Practice' (Department for Environment, Food and Rural Affairs, 2018) notes that there is a duty of care for the safe management of waste, particularly for the protection of the environment and human health. The duty of care is applicable if waste is imported, produced, carried, kept, treated, disposed of, or have control (as a dealer or broker) of waste. Please refer to the Site Waste Management Plan in Appendix B of this CEMP.	
Contamination to the surrounding area from stockpiled excavated materials	Excavated material will be stockpiled in a designated area or areas of the site located away from watercourses to prevent run-off from the stockpile from entering surface water bodies. All areas of stockpiled soil may be reseeded or otherwise covered temporarily if they are not to be used within three months. All areas of unused and exposed soil following reinstatement of the proposed development will be reseeded or otherwise covered as soon as possible. Erosion protection matting may also be used to minimise sediment being entrained by water flow or becoming entrained by the wind if allowed to dry out.	Contractor
Runoff from vehicle/ equipment washing areas.	Washing out of vehicles or equipment will only take place in controlled areas.	Contractor
Ground gas leak	The design and build of temporary structures will incorporate ground gas protection measures as necessary.	ABP
Contamination due to concrete use	Concrete batching, concrete usage and accidental spillage relating to foundation and building construction will be managed. Measures include:	Contractor

Potential Impact	Mitigation/ Enhancement Measure	Responsibility
	• Wash water from any batching plants would not be discharged to the water environment without the approval of the relevant authority. • Where possible, concrete will not be batched on Site and will instead be delivered on an 'as and when' basis in ready mixed lorries. If on-site batching is required these facilities would be located on flat impermeable hardstanding at least 50 m from any water body and with a temporary surface water drainage system that is isolated from general surface water runoff so that no runoff potentially containing cementitious products may enter any natural water body or drain. • The delivery and use of concrete and cement will be done with particular care as it is highly corrosive and alkaline. No washing out of delivery vehicles to take place on Site without suitable provision for the washing out water. A suitable location that is lined with a geotextile to prevent infiltration to ground will be used.	
Damage to below ground services during excavating	Utilities and services will be identified, removed and rerouted where necessary in locations of proposed structures. Haul routes will be created to remove and minimise the potential impact on utilities and services above or below ground.	Contractor
Encounter of unidentified contamination	If, during development, any previously unidentified contamination is encountered, an appropriate investigation to allow sampling and testing of materials and risk assessment will be undertaken. Any actions resulting from the risk assessment will be agreed with the local planning authority along with any remedial measures in consultation with the Environment Agency, where risks to controlled waters are identified. Measures detailed within the Outline Remediation Strategy (ES Volume 3, Appendix 12.4, Application Document Reference number 8.4.12(d)) should be followed if unidentified contamination is encountered.	Contractor
Discovering of unexploded ordnance (UXO)	The following risk mitigation measures are recommended by SafeLane to support the proposed works with regard to a medium UXO: Shallow intrusive works (e.g. excavations):	Contractor

Potential Impact	Mitigation/ Enhancement Measure	Responsibility
	- UXO Safety and Awareness Briefing (Toolbox Brief (TBB)); - Site Specific Safety Instruction Training Courses; - Non-Intrusive Magnetometer Survey (in greenfield areas only) followed on by a target investigation; - Search and Clear; and - Explosive Ordnance Disposal (EOD) Engineer Watching Brief for brownfield areas which are unsuitable for non-intrusive magnetometer survey. <u>Deep intrusive works (e.g. piling)</u> - UXO Safety and Awareness Briefing (TBB); - Site Specific Safety Instruction Training Courses; and - Intrusive magnetometer survey of pile/ borehole positions. • The following risk mitigation measures are recommended by Zetica UXO to support the proposed works with regard to a low UXO risk: - For dredging activities, it is recommended that UXO awareness briefings are provided to dredging operations workers that includes a background to potential UXO hazards, awareness of the UXO risk and knowledge of the actions to be taken if a suspect item is found. It is also recommended that a site-specific Emergency Response Plan is produced detailing procedures for a UXO find in agreement with the local port authority and other stakeholders. Zetica recommend that the information in the Emergency Response Plan should follow CIRIA C754 '*Assessment and Management of (UXO) Risk in the Marine Environment*' (CIRIA, 2016) and the Crown Estate Guidance document *'Dealing with Munitions in Marine Sediments*' (Crown Estate, 2010). The Zetica report also notes that an ECO Engineer can be present during dredging operations if additional clearance is required.	

Potential Impact	Mitigation/ Enhancement Measure	Responsibility
	- For excavation activities, Zetica recommend that works can proceed and a formal UXO awareness can be provided if additional comfort is required. - For boreholes and piling activities, it is recommended to proceed with the works.	
~~3.7~~3.7 Potential Impact	Mitigation/ Enhancement Measure	Responsibility
Construction dust mitigation	• A Medium risk of dust impacts was identified due to the potential dust emission magnitude identified from the scale of demolition and construction works, and the sensitivity of the area. The list below is based on those recommended by the Institute of Air Quality Management for medium risk sites that are practical for implementation in the context of the IERRT construction site. • Display the name and contact details of person(s) accountable for air quality and dust issues on the site boundary; • Display the head or regional office contact information; • ~~Inclusion of a~~A comprehensive list of dust control measures will be included within the Principal Contractors CEMP; • Record all dust and air quality complaints, identify cause(s), take appropriate measures to reduce emissions in a timely manner, and record the measures taken; • Make the complaints log available to the local authority when asked; • Record any exceptional incidents that cause dust and/or air emissions, either on- or offsite, and the action taken to resolve the situation in the logbook; • Undertake daily onsite and off-site inspection, where receptors (including roads) are nearby, to monitor dust, record inspection results, and make the log available to the local authority when asked;	Contractor

Potential Impact	Mitigation/ Enhancement Measure	Responsibility
	• Carry out regular site inspections to monitor compliance with the DMP, record inspection results; • Increase the frequency of site inspections by the person accountable for air quality and dust issues onsite when activities with a high potential to produce dust are being carried out and during prolonged dry or windy conditions; • Plan site layout so that machinery and dust causing activities are located away from receptors, as far as is possible; • Erect solid screens/ barriers or enclose site or specific operations where there is a very high potential for dust production and the site is active for an extensive period; • Avoid site runoff of water or mud; • Keep site fencing, barriers and scaffolding clean using wet methods; • Remove materials that have a potential to produce dust from site as soon as possible, unless being re-used on site. If they are being re-used on-site cover as described below; • Cover, seed or fence long-term stockpiles to prevent wind whipping; • Ensure all vehicles switch off engines when stationary - no idling vehicles; • Avoid the use of diesel-powered or petrol-powered generators and use mains electricity or battery powered equipment where practicable; • Impose and signpost maximum-speed-limits on surfaced and unsurfaced haul roads and work areas; • Only use cutting, grinding or sawing equipment fitted or in conjunction with suitable dust suppression technique; • Ensure an adequate water supply on the site for effective dust/ particulate matter suppression/ mitigation;	

Potential Impact	Mitigation/ Enhancement Measure	Responsibility
	• Use enclosed chutes and conveyors and covered skips; • Minimise drop heights from conveyors, loading shovels, hoppers and other loading or handling equipment and use fine water sprays on such equipment if it is fitted; • Ensure equipment is readily available onsite to clean any dry spillages, and clean up spillages as soon as reasonably practicable after the event using wet cleaning methods; • Avoid bonfires and burning of waste materials; • Soft strip inside buildings before demolition (retaining walls and windows in the rest of the building where possible, to provide a screen against dust); • Ensure effective water suppression is used during demolition operations; • Avoid explosive blasting, using appropriate manual or mechanical alternatives; • Bag and remove any biological debris or damp down such material before demolition; • Avoid scabbling (roughening of concrete surfaces) if possible; • Ensure sand and other aggregates are stored in bunded areas and are not allowed to dry out; • Use water-assisted dust sweeper(s) on the access and local roads, to remove, as necessary, any material tracked out of the site; • Avoid dry sweeping of large areas; • Ensure vehicles entering and leaving sites are covered to prevent escape of materials during transport; • Record all inspections of haul routes and any subsequent action in a site logbook; • Implement a wheel washing system (with rumble grids to dislodge accumulated	

Potential Impact	Mitigation/ Enhancement Measure	Responsibility
	dust and mud prior to leaving the site where reasonably practicable). Ensuring that there is an adequate area of hard surfaced road between the wheel wash facility and the site exit, wherever site size and layout permits; • Ensure there is an adequate area of hard surfaced road between the wheel wash facility and the site exit, wherever site size and layout permits; and • Access gates to be located at least 10 m from receptors where possible.	
Construction emissions (site plant, Non-Road Mobile Machinery (NRMM) and marine vessels)	• The following measures will be implemented to reduce emissions associated with site plant, NRMM and marine vessels: • They will conform to relevant emissions standards; • Operate on an only when required basis, with no engine idling; • Be well maintained and operate in accordance with manufacturer's instructions; and • Be operated by fully trained and qualified individuals.	Contractor
Construction road traffic emissions	The following measures will be implemented to reduce emissions associated with road traffic: • The emissions standards of the construction vehicle fleet should be a consideration when appointing construction contractors; • Construction vehicle trips should be minimised as much as possible; • Construction traffic routes should be planned to avoid areas where air quality is already constrained; and • Single car occupancy trips should be discouraged.	
~~3.8~~3.8 Potential Impact	Mitigation/ Enhancement Measure	Responsibility

Potential Impact	Mitigation/ Enhancement Measure	Responsibility
Construction noise at specific Noise Sensitive Receptors (NSRs)	In addition to the measures below, the crusher and screening plant required during construction will be located a minimum of 250 m away from the on-port NSRs and temporary acoustic screening will be erected around construction plant operating near the PAM building or around the PAM building when construction works is taking place near the PAM building.	Contractor
Construction noise	For landside construction, working hours will be 07:00 to 19:00 Monday to Friday and Saturday (07:00 to 13:00) with no works taking place on Sundays. Marine works may be undertaken 24 hours a day Monday to Sunday (subject to other environmental restrictions in certain months which prevent this – see the Nature Conservation and Marine Ecology chapter (Chapter 9) of the ES Volume 1 (Application Document Reference number 8.2.9). It is assumed that some landside works may need to take place outside of the core working hours and would be undertaken providing that they comply with any restrictions agreed with the local authority via a Section 61 application under CoPA. If a Section 61 application is required, the principal contractor will liaise with Local Authority regarding the application process and timescales. The Contractor will follow the advice contained within BS 5228:2009+A1:2014 'Code of practice for noise and vibration control on construction and open site' (BSI, 2014). The following measures will also be implemented on site to reduce as far as practicable the potential environmental impacts associated with noise and vibration from construction activities: • Where reasonably practicable, the contractor will use quieter working methods, the most suitable plant and reasonable standard construction hours of working for noisy operations; • Where possible, the items of plant will be located the furthest distance from the nearby NSRs and ecological receptors. Plant known to emit noise strongly in one direction will, when possible, be orientated so that the noise is directed away from noise-sensitive areas;	Contractor

Potential Impact	Mitigation/ Enhancement Measure	Responsibility
	• Acoustic covers to engines will be kept closed when the engines are in use and idling; • Machines such as cranes that may be in intermittent use will be shut down between work periods or should be throttled down to a minimum. Machines will not be left running unnecessarily; • Materials will be lowered whenever practicable and should not be dropped. Any chutes and skips will be lined with sound attenuating material to reduce impact noise; • No employees, subcontractors and persons employed on the site will cause unnecessary noise from their activities e.g. excessive 'revving' of vehicle engines, shouting and general behaviour etc. No radios or other audio equipment will be allowed on site; • When operating plant, the use of noise-control equipment such as jackets on pneumatic drills, acoustic covers on compressors, shrouds on piling rigs arid cranes will be implemented; • All plant machinery permitted to site and used on-site will be maintained to the appropriate standards. Checks for adequate lubrication to reduce squeaks and the tightening of loose nuts and bolts to minimise rattles will form part of a routine maintenance cycle; • Any tannoy system on-site to be used for emergency purposes only; • Where required and achievable, temporary screening between the source and the receiver of noise emissions will be installed; • All plant machinery will conform with relevant standards and directives on permitted noise emissions levels; • The hoods and doors on compressors and cranes will be closed but also be tightly fitting and well-sealed - these doors will be checked on a regular basis;	

Potential Impact	Mitigation/ Enhancement Measure	Responsibility
	• Electrically powered plant will be used over diesel power generators where possible and feasible; • All pneumatic percussive tools will be provided with effective silencers / acoustic covers; • Audible warning systems (including reversing alarms) will be switched to the minimum setting required for health and safety; and • All contractor communication devices will be used at a minimum audible level. Regular communication with the local community throughout the construction period will also serve to publicise the works schedule, giving notification to residents regarding periods when higher levels of noise may occur during specific operations, and provide lines of communication through which questions and complaints can be addressed. It will be advised that all external windows and doors of the PK Construction Office and Nippon Gas Office that face the construction works are kept closed.	
Construction traffic noise	Refer to Section 2.3: Traffic Management of this CEMP, which details procedures to be used to manage traffic movements within the works and on the local road network in the vicinity of the closest NSRs. Designated construction traffic routes will be used, which will avoid the use of the busiest roads and residential streets near the site.	Contractor / ABP
Construction vibration	• Although the initial vibration assessment indicates that significant effects on nearby buildings or structures due to construction vibration is unlikely, a piling specific community liaison protocol will be developed so that businesses/ occupiers are kept informed of the piling activities, their duration, and their expected impact. Although the vibration may be perceptible, based upon the initial vibration assessment the levels predicted structural and/or cosmetic damage to properties is not expected to occur. • Measures to ensure vibration impacts relating to construction activities are reduced include:	Contractor / ABP

Potential Impact	Mitigation/ Enhancement Measure	Responsibility
	• Where feasible use alternative methods to impact driven piles; • Use vibratory rig to drive piles to refusal; • Once the piling methods and piling rig is confirmed the construction vibration predictions to be verified to ensure that there are no significant effects. • If necessary, the effective energy per ~~below~~blow can be reduced by decreasing the drop height of the hammer. Prior to piling works commencing, pre-construction condition surveys will be undertaken of the IOT jetty and other nearby sensitive buildings and structures. Verification of the construction vibration predications will be undertaken once the piling methods and piling rig are known to confirm that there are no significant effects expected. Monitoring will also be required to ensure the thresholds are not exceeded.	
~~3.9~~3.9 Potential Impact	**Mitigation/ Enhancement Measure**	**Responsibility**
Damage/ disturbance of undiscovered marine archaeological remains	Mitigation measures will be secured through a Written Scheme of Investigation (WSI), however, exact mitigation design will not be finalised until the pre-construction phase is undertaken. No Archaeological Exclusion Zones (AEZs) are proposed due to the lack of A1 anomalies found within the study area surrounding the IERRT project. Should any A1 anomalies be discovered during the works (e.g. through the Protocol for Archaeological Discoveries- see *Discovery of unknown archaeological sites or materials*, below) then this mitigation may be used. The primary mitigation for the protection of known archaeological receptors is avoidance. This is commonly achieved through the implementation and monitoring of AEZs, which are proposed for identified high value seabed receptors of anthropogenic	ABP/ Contractor

Potential Impact	Mitigation/ Enhancement Measure	Responsibility
	origin (i.e. A1 classified geophysical anomalies). Further investigations would mean that anomalies can either have their archaeological value removed, if they prove to be of non-anthropogenic nature or modern, or their value as archaeological receptors confirmed. If their value is confirmed, mitigation in the form of either avoidance (which may be enacted by the implementation of an AEZ) or through remedying or offsetting measures as identified through a Protocol for Archaeological Discoveries (PAD). Historic Environment guidance for Port and Harbour development (Historic England, 2016) sets out the context for initiating AEZs, and establishing a buffer around the known extents of sites for which the available evidence suggest that there could be archaeological material present on the seabed. The mitigation will establish appropriately sized AEZs around receptors which have been considered to be of high archaeological potential, in consultation with the Archaeological Curators (HE). These areas would be out of bounds to construction activities and to anchoring or jacking-up. Monitoring of any AEZs to ensure there is no disturbance to them would be part of this mitigation For features assigned A2 archaeological discrimination rating, no AEZs are recommended. However, avoidance of these features by micro-siting is recommended if they are proposed to be directly impacted by the IERRT project. If micro-siting is not possible, then further appraisal to ascertain the nature of the features may be required. The WSI will detail the agreed mitigation that will be in place during the construction of the proposed development. The implementation of a WSI is the mitigation, rather than the document itself. The WSI has been and will continue to be developed in line with Historic Environment guidance for Port and Harbour development (Historic England 2016). The WSI is based on the measures recommended in this chapter and will be subject to approval by the Archaeological Curator (Historic England) through the application examination process. In cases where avoidance is either inappropriate or impossible, the damage to	

Potential Impact	Mitigation/ Enhancement Measure	Responsibility
	archaeological receptors would be offset, generally by more extensive study, excavation or survey of the receptor. Any mitigation strategy will be identified within the WSI and any recommended methods will be covered by a specific Method Statement, approved by the Archaeological Curator (Historic England), should they be implemented. Where suitable for archaeological assessment, further geophysical surveys undertaken in advance of the development commencing, for example for the purposes of detailed design, that require magnetometer data (e.g., unexploded ordnance (UXO) survey) will also be assessed by a suitably qualified archaeological contractor. This will allow for the identification of any additional ferrous features of archaeological potential within the proposed development, as well as to confirm the presence of ferrous material at the location of features identified during this assessment.	
Damage/ disturbance of palaeogeography features	For the purposes of the detailed design of the marine elements of the project, further ground investigation work is programmed to take place. Appropriate archaeological advice has been provided on how that investigation can provide samples of benefit to ongoing archaeological considerations in synergy with the draft WSI (Appendix 15.3 Volume 3 of the ES, Application Document Reference number 8.4.15(c)). A geoarchaeological assessment of any future marine borehole logs obtained as part of this detailed design ground investigation will be undertaken, especially in respect of any logs that contain organic deposits for dating purposes. This will aid in refining the interpretation and therefore help determine the archaeological potential of the area.	ABP/ Contractor
Discovery of unknown archaeological sites or materials	If previously unknown sites or material are encountered during the different phases of the proposed development, measures will be taken to reduce the level of impact. In order to provide for these unexpected discoveries a PAD will be adopted. The PAD is a system for reporting and investigating unexpected archaeological discoveries encountered during construction activities, with a Retained Archaeologist providing guidance and advising on the implementation of the PAD. The PAD also makes provision for the implementation of temporary exclusion zones around areas of possible archaeological interest, for prompt archaeological advice, and, if necessary, for archaeological inspection of important features prior to further activities in the vicinity	ABP/ Contractor

Potential Impact	Mitigation/ Enhancement Measure	Responsibility
	The PAD provides a mechanism to comply with the Merchant Shipping Act 1995, including notification of the Receiver of Wreck, and accords with the Code of Practice for Seabed Developers (JNAPC, 2006) and relevant Guidance (Historic England 2016).	
~~3.10~~3.10 Potential Impact	Mitigation/ Enhancement Measure	Responsibility
Impact on the local traffic network	The National Policy Statement for Ports paragraph 5.4.22 requires consideration of the following mitigation: • Control numbers of HGV movements to and from the site in a specified period during its construction and possibly on the routing of such movements; • Make sufficient provision for HGV parking, either on the port estate or at dedicated facilities elsewhere, to avoid 'overspill' parking on public roads during normal operating conditions. Developments should be designed with sufficient road capacity and parking provision (whether on- or offsite) to avoid the need for prolonged queuing on approach roads, and particularly for uncontrolled on-street HGV parking on nearby public roads in normal traffic operating conditions, and allowing reasonable estimates for peak traffic patterns and fluctuations during normal operations; and • Ensure satisfactory arrangements, taking account of the views of road network providers and of the responsible police force(s), for dealing with reasonably foreseeable abnormal disruption. Where such effects are likely to cause queuing on the strategic road network or significant queuing on local roads, the applicant should include the outcome of consultation with the relevant police force(s) as to traffic management measures that will be brought into effect, what the procedures will be for triggering them, and attribution of costs. Construction traffic management measures are set out in Section 2.3 of this CEMP.	Contractor ABP ABP

Potential Impact	Mitigation/ Enhancement Measure	Responsibility
		Contractor
~~3.11~~3.11 Potential Impact	Mitigation/ Enhancement Measure	Responsibility
Harm to works/ people within the Development Proximity Zone (DPZ)	Minimise the numbers who may be present within the DPZ ~~for~~to short periods of time.	ABP/ Contractor
~~3.12~~3.12 Potential Impact	Mitigation/ Enhancement Measure	Responsibility
Climate change effects	To reduce the ~~significant~~effects of climate change ~~effects~~, the below measures should be adopted: • Increased frequency in severe weather events (e.g. storms): - ~~-~~The Drainage Strategy (Annexed to Appendix 11.1 in Volume 3 of ES (Application Document Reference number 8.4.11)) considers the flood risk assessment's findings to ensure that surcharged levels within collector, carrier and receiving systems are appropriately designed and mitigated. The Drainage Strategy considers tide-lock scenarios at flapped outfalls. • Increased frequency of heavy precipitation events: - Using the latest industry guidance, the Drainage Strategy considers the projected increase in peak rainfall intensity allowances. • Increasing average temperatures and increasing frequency of hot days and heatwaves:	Contractor/ ABP

Potential Impact	Mitigation/ Enhancement Measure	Responsibility
	- In adherence with British Design Standards the following mitigation measures are considered: o Prevention measures and health and safety plans to be developed to prevent worker exhaustion due to heat. o Use of materials with superior properties which offer increased tolerance to high temperatures to be considered. o Regular maintenance of assets to be undertaken to detect deterioration and fix damage. o All new buildings and assets will either be designed for the climatic conditions using appropriate design guidance where available, or adaptive capacity will be built into the designs.	

Table ~~3.13~~3.13: Protected Species

Potential Impact	Mitigation/ Enhancement Measure	Responsibility
Impact to protected and notable species during construction and operation	**Badger** A precautionary check for badger setts will be undertaken during vegetation clearance works in areas of dense impenetrable scrub that could not be accessed during the Phase 1 habitat survey. This is limited to peripheral areas along the railway line, and a small central area close to the water tower. If active badger setts are uncovered, works will be suspended, and an appropriate course of action determined. This may include applying for a badger licence from Natural England to close/ disturb the sett; if required such works would only be undertaken in the licence season which is July to November inclusive. **Nesting Little Ringed Plover**	ABP/ Contractor

Potential Impact	Mitigation/ Enhancement Measure	Responsibility
	Site clearance works in the open unvegetated southern and western areas of the site will be commenced prior to the onset of the nesting bird season (March to August inclusive) where possible. If this is not possible, bird scaring measures may be deployed in these areas to discourage nesting little ringed plover (e.g. bird scaring tape or similar). Where the above cannot be accommodated, a pre-construction check for nesting little ringed plover will be undertaken by an ornithologist and an appropriate exclusion zone set up around any active nests. The exclusion zone will be determined by the ornithologist but will need to be sufficiently large to avoid disturbance, since little ringed plover is a Schedule 1 species and is protected against disturbance whilst on/ near the nest (including dependent young) under the Wildlife and Countryside Act 1981 (as amended). **Nesting Peregrine** A pre-construction check of the water tower for evidence of nesting activity by peregrine (between February and July) will be undertaken by an ornithologist prior to the commencement of site clearance works. **Breeding Birds (Non-Schedule 1)** Site clearance of vegetation that could support nesting birds (including trees, shrubs and grassland) will be undertaken outside the breeding bird season (March to August inclusive) where possible. Where vegetation removal cannot be accommodated outside the breeding bird season, it will be checked for the presence of nests prior to removal and an appropriate exclusion zone set up around any active nests. No works will be permitted within the exclusion zone until any dependent young have fledged.	

3.2 Checking and corrective action

Monitoring

3.2.1 Environmental monitoring of impacts will be undertaken throughout the construction phase. In addition to any monitoring specified in other licences and consents (e.g. under Protected Species Licensing, if required), the requirements of the CEMP specified in **Tables 3.2-3.13** will be closely monitored.

3.2.2 As part of the monitoring process, the appointed contractor will allocate a designated Environmental Site Officer(s), who will be present on-site throughout the construction, including when new activities are commencing. The Environmental Site Officer will observe site activities and report any deviations from the CEMP in a log book, along with the action taken and general conditions at the time. The Applicant will be informed of any deviations from the CEMP as soon as possible following identification of such issues. The Environmental Site Officer will also assist the Applicant with day-to-day contact with North East Lincolnshire Council, and other regulatory agencies such as the Environment Agency and the Marine Management Organisation.

3.2.3 During construction, the Environmental Site Officer will conduct regular walkover surveys to ensure all requirements of the CEMP are being met. Action from these surveys will be documented on an Environmental Action Schedule, discussed with the Site Foreman for programming requirements and issued weekly for actioning.

3.2.4 The Environmental Site Officer will arrange regular formal inspections to ensure the requirements of the CEMP are being met. After completion of the works, the Environmental Site Officer will conduct a final review.

Records

3.2.5 The Environmental Site Officer will retain records of environmental monitoring and implementation of the CEMP. This will allow provision of evidence that the CEMP is being implemented effectively. These records will include:

3.3 Management review

3.3.1 The Principal Contractors CEMP will be signed off on completion of the construction works. The environmental management of the operational development will fall under the existing management plans for the Port of Immingham.

4. References

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JNAPC (2006). JNAPC Code of Practice for Seabed Development. York, Joint Nautical Archaeology Policy Committee. Available at:

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Appendix A ~~Appendix A~~ Construction materials and waste management assessment

A.1 Introduction

A.1.1 This Appendix reports the findings of an assessment of the likely significant effects in relation materials and waste as a result of the IERRT project.

A.1.2 This Appendix follows the methodology set out in the Institute of Environmental Management and Assessment (IEMA) Guide to: Materials and Waste in Environment Assessment, Guidance for a Proportionate Approach (referred from herein as the 'IEMA Guidance', IEMA, 2020).

A.1.3 For the purpose of this assessment, materials and waste comprise:

- The consumption of materials (key construction materials only); and
- The generation and management of construction waste.

A.1.4 Materials are defined in the IEMA Guidance materials as *"physical resources that are used across the lifecycle of a development. Examples include key construction materials such as concrete, aggregate, asphalt and steel."*

A.1.5 Other material assets considered include built assets such as landfill void capacity and allocated/safeguarded mineral and waste sites.

A.1.6 Waste is defined as per the Waste Framework Directive (Waste FD, European Commission, 2008) as *"any substance or object which the holder discards or intends or is required to discard".*

A.1.7 This assessment has been undertaken taking into account relevant legislation, and national, regional and local planning policy and guidance.

A.2 Scope

A.2.1 This assessment considers construction only. The following matters are not considered in this assessment:

- Waste arising from operation. Operational waste will comprise general waste from the Terminal building, the welfare building, the operations team on the ground, the workshop and the UK Border Force building

and gatehouse. Operational waste estimates are not yet available, however, forecast effects are (using professional judgement) considered negligible in relation to the scale and nature of the IERRT project. It is unlikely that the annual quantities of waste would be >1% of the non-hazardous waste landfill capacity in the East Midlands and Yorkshire and the Humber Region (798,930 m^3). The IEMA guidance *"does not consider waste processing and recovery facilities as sensitive receptors, rather: they are part of a system that has the potential to reduce the magnitude of adverse impacts associated with waste generation and disposal. Waste processing and recovery facilities are, hence, different to landfills, in that the latter are finite resources."* Therefore assessment of the impact of operational waste arising from the IERRT project on the capacity of waste management facilities to deal with other waste arising in the area for at least five years of operation is not required.

- Waste arising from dredging, it is assumed this will be managed within the estuary and the effects associated with this activity are considered in the ES.
- Waste arising from extraction, processing and manufacture of construction components and products. This is based on the assumption that these products and materials are being developed in a manufacturing environment with their own waste management plans, facilities, and supply chain, which are potentially in different regions of the UK or the world and therefore outside of the geographical scope of this study. Such matters cannot be accurately predicted and assessed in the ES as they relate to procurement decisions that cannot be assured.
- Other environmental impacts associated with the management of waste from the IERRT project e.g., on water resources, air quality, noise or traffic resulting from the generation, handling, on-site temporary storage or off-site transport of materials and waste are addressed separately in other relevant chapters of ES.
- Impacts on allocated mineral sites.
- Impacts on allocated waste sites.
- Impacts on Mineral Safeguarding Areas (MSAs)
- Effects on the availability of materials during operation: forecast effects are (using professional judgement) considered negligible in relation to the scale and nature of the IERRT project; and,
- Effects associated with decommissioning as the IERRT project has a long design life and such it is not considered possible to reliably forecast decommissioning requirements and infrastructure far in the future.

A.3 Assessment methodology

A.3.1 This section outlines the methodology that has been employed for assessing the likely significant effects associated with materials and waste. The IEMA

Guidance offers two methods for the assessment of waste. Method W1 – void capacity has been selected as this is a more detailed methodology and is appropriate for larger and more complex projects.

The assessment of materials and waste, considers the following:

- Waste producers have a legal duty of care to manage their waste in accordance with regulations and to ensure that any waste leaving the site where it is generated is transferred to a suitably licensed facility for further treatment or disposal;
- Facilities transferring, treating or disposing of waste must be either licensed or apply for an exemption from a license, and impacts arising from the operation of waste management facilities are considered as part of the planning and permitting process for these facilities themselves;
- As part of their planning function, Waste Planning Authorities (WPAs) are required to ensure that sufficient land is available to accommodate facilities for the treatment of all waste arising in the area, either within the WPA area, or through export to suitable facilities in other areas; and
- Minerals Planning Authorities (MPAs) are similarly required to ensure an adequate supply of minerals, sufficient to meet the needs of national and regional supply policies, and local development needs.

Sensitivity

The sensitive receptors for this assessment are:

- Landfill void capacity in the expansive study areas – as defined in the IEMA guidance "*landfill is a finite resource, and hence – through the ongoing disposal of waste – there is a continued need to expand existing and develop new facilities, This requires the depletion of natural and other resources which, in turn, adversely impacts the environment*"; and
- Materials, national consumption of key construction materials – as outlined in the IEMA guidance "*materials are, in their own right, sensitive receptors. Consuming materials impacts upon their immediate and (in the case of primary material) long-term availability; this results in the depletion of natural resources and adversely impacts the environment*."

The sensitivity of receptors and magnitude of impacts materials and waste for construction have been assessed through the following:

Materials

- Establishing the baseline for national consumption of key construction materials by weight;
- Assessing the sensitivity of materials as related to the availability and types of materials to be consumed by the IERRT project in construction;

- Establishing the quantities of key construction materials required for the construction of the IERRT project; and
- Comparing the total quantities of key construction materials with the most recent national demand (utilising a percentage approach).

Waste

- Establishing the baseline landfill void capacity in the expansive study area;
- Assessing the sensitivity of landfill void capacity;
- Establishing the quantities of construction, demolition and excavation waste to be generated during the construction of the IERRT project; and
- Comparing the total waste arising from the construction of the IERRT project against the landfill void capacity (utilising a percentage approach).

Material receptor sensitivity is determined as low. On balance, the key materials required for the construction of the IERRT project are forecast to be generally free from known issues regarding supply and stock. Key materials required for the construction and operation are likely to be available comprising a high proportion of sustainable features and benefits (e.g. recycled content).

Information on future ~~non-~~hazardous and non-hazardous waste landfill void capacity is not available so a worst-case scenario is taken and receptor sensitivity is determined to be very high.

The magnitude of impact describes the degree of variation from the baseline conditions as result of the IERRT project.

The methodology for assessing the magnitude of impact from materials comprises a percentage-based approach that determines the influence of construction materials use on the baseline national consumption from the construction of the IERRT project. The criteria used to assess the magnitude of impact for materials are provided in the IEMA Guidance (page 33).

The methodology for assessing the magnitude of impact for waste comprises a percentage-based approach that determines the influence of waste generation from the construction IERRT project on the baseline landfill capacity. The criteria used to assess the magnitude of impact for resources and waste are provided in the IEMA Guidance (page 35).

Effect thresholds and significance of effects are provided in the IEMA Guidance (page 39 and 40).

A.4 Study areas

A.4.1 The IERRT project study area for construction waste generation and use of construction materials (key construction materials only) comprises the IERRT project site boundary. The study area is deemed to include the footprint of the proposed works, together with any temporary land requirements during the construction. This may include temporary offices, compounds and storage areas.

A.4.2 The expansive study area for non-hazardous and hazardous waste management is defined based on professional judgement and informed by consideration of the proximity principle and value for money.

A.4.3 The expansive study area for non-hazardous and hazardous waste management comprises the East Midlands and Yorkshire and the Humber regions, within which waste management infrastructure (specifically landfill capacity) is located. Both regions are included in the baseline since the IERRT project is close to the northern extent of the East Midlands region.

A.4.4 The expansive study area for availability of key construction materials (aggregates, asphalt, concrete and steel) is the UK or Great Britain (GB) dependent on baseline information availability.

A.5 Baseline

Construction materials

A.5.1 UK and GB data has been used to establish a quantitative baseline of the consumption (and likely demand) for key constructional materials. Table A1 summarises consumption in 2018 for aggregates, asphalt, concrete and steel (the most recent years for which data is available), which are the key construction materials expected to be used during the construction of the IERRT project. There is no publicly available information on any potential changes to this consumption by the time of the construction of the IERRT project.

Table A1: National consumption for key construction materials

Material	National consumption (million tonnes, year)	Baseline data year	Data description
Steel	17	2018	UK total consumption (MPA, 2020)
Aggregates of which:	251	2018	Minerals and mineral products sales in Great Britain (MPA, 2020)
Crushed rock	117.3		

Material	National consumption (million tonnes, year)	Baseline data year	Data description
			~~Britain (MPA, 2020)~~
Sand and gravel - land won	48.9		
Sand and gravel - marine	13.7		
Recycled and secondary	71		
Asphalt	25.4		
Concrete of which:	86.2		
Ready-mixed concrete	54.2		
Concrete products	32		

Waste

A2.2.3 Remaining landfill capacity at the end of 2021 as outlined on the Environment Agency's 2021 Waste Summary Tables for England – Version 1 for the non-hazardous and inert waste expansive study area (East Midlands and Yorkshire and the Humber) and the hazardous waste study area (England) is shown in Table A2.

A2.2.4 Merchant landfills are operated for commercial purposes accepting waste from construction projects. Restricted landfills are sites that deal with their own produced waste (i.e. not operating for commercial purposes) and therefore excluded from the baseline. Some non-hazardous landfill have a Stable Non-Reactive Hazardous Waste Cell (SNHRW) e.g. for asbestos.

Table A2: Landfill Capacity (2020) in East Midlands, Yorkshire and The Humber, and England

Landfill Type	East Midlands Capacity ('000s m3)	Yorkshire and the Humber Capacity ('000s m^3)	Total in East Midlands and Yorkshire and the Humber Capacity ('000s m^3)	England Capacity ('000s m^3)
Hazardous merchant	800	700	1,500	12,107
Non-hazardous with SNRHW cell	15,884	1,243	17,127	52,006
Non-hazardous	17,570	45,196	62,766	162,369
Inert	21,574	21,574	46,857	129,078

A2.2.5 There is no publicly available information on any potential changes to this landfill capacity by the time of the construction of the IERRT project. Due the cyclic nature of landfill capacity, it is not realistic forecast future landfill capacity since this may result in an increase in landfill capacity. Therefore, landfill capacity is assumed to remain the same as the current baseline.

A.6 Assessment of effects and significance

Construction materials

A.6.1 The estimated main types and quantities of materials anticipated to be used during construction of the IERRT project have been obtained from the design team for the IERRT project, as presented in Table A3. Cement stabilised subgrade and sands are included in the overall aggregates total. For construction no individual construction material is equal or greater than 1% by weight of the baseline consumption (UK/GB) (steel 0.23%, ready mixed concrete 0.13%, precast concrete 0.06%, aggregates 0.4% and asphalt 0.32%. The sensitivity of the receptor is classified as 'low' and the magnitude of impact is considered to be 'negligible', this is assessed to result in a neutral/slight adverse (not significant) effect.

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A.7

Table A3: Estimated construction material quantities

Material	Material density	Quantity (tonnes)	Quantity (m^3)	Wastage rate (%)	C (t
Steel piles	7.85	7,700	981	2	
Concrete - ready mixed	2.4	72,000	30,000	8	
Concrete - precast	2.4	18,000	7,500	5	
Reinforcement	7.85	25,000	3,185	5	
Steel for buildings	7.85	6,000	764	2	
Aggregates	1.9	114,000	60,000	10	
Asphalt	2.4	81,000	33,750	8	
Cement stabilised subgrade and sands	2.4	360,000	150,000	8	
Total material construction waste					

Waste

Construction waste has been estimated by applying a wastage rate to the construction materials listed in Table A3. Total estimated construction waste is 23,669 m^3.

Demolition and removal of existing buildings within the IERRT project boundary will be required. It is anticipated that 7,000 m^3 of waste will be generated during demolition with 25% being recycled onsite and 75% (5,250 m^3) being recycled offsite.

Excavation will generate 94,000 m^3 of material with 50% being reused on site and 50% (47,000 m^3) being managed offsite.

Total construction waste (construction material wastage, demolition waste and excavated material) is 75,919 m^3. A worst-case scenario where all waste is disposed of to landfill has been applied. This equates to 0.06% of the 127 million m^3 of inert and non-hazardous landfill capacity within the waste management study area (East Midlands and Yorkshire and the Humber regions).

In practice a large proportion of non-hazardous and inert waste from the IERRT project is likely to be recovered rather than disposed of to landfill, further reducing the overall quantities of waste for disposal. With a recovery rate of 70% the percentage of landfill capacity required would reduce to 0.02% with a recovery rate of 90% the percentage of landfill capacity required would reduce to 0.006%.

Based on the above, construction of the IERRT project would result in less than a 1% reduction of landfill capacity within the waste management study area.

Accordingly, for non-hazardous waste the sensitivity of the receptor is classified as ‘very high’ and the magnitude of impact is considered to be ‘negligible’, this is assessed to result in a slight adverse (not significant) effect.

At this stage no estimate of hazardous waste has been undertaken. All construction waste is assumed to be inert or non-hazardous waste. The quantities of hazardous waste e.g. oils, batteries, aerosol cans etc. are anticipated to be small compared to the overall construction waste arisings and not included in the assessment. Many hazardous waste types have well defined waste management routes including recovery and are unlikely to be sent directly to landfill. Procedures for the storage and management of these wastes are set out in the SWMP (Appendix B).

A.6.11 Construction site operations will also generate waste streams from temporary offices, welfare facilities, material packaging and construction plant maintenance. The quantities are anticipated to be small compared to the main construction wastes and are not included in the assessment. Procedures for the storage and management of these wastes are set out in the SWMP.

A.8 A.7 Summary

A.7.1 In summary, no significant effects in relation to materials or waste have been identified for construction, therefore no further mitigation is proposed.

A.9 A.8 References

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Appendix B ~~Appendix B~~ Site Waste Management Plan (SWMP)

APPENDIX B

B.1 Introduction

Overview

This SWMP sets out the generic measures that will be implemented by the Principal Contractor to manage waste generated by the construction of the IERRT project.

A Principal Contractors SWMP will be produced by the Principal Contractor which will form part of the Principal Contractors CEMP. This SWMP will be adopted and updated to produce the Principal Contractors SWMP.

Key terminology in relation to this SWMP is detailed in Table B1.

Table B1: Key Terminology

Terminology	Definition
The Considerate Constructors Scheme (CCS)	The CCS – a non-profit making, independent organisation founded in 1997 by the construction industry to raise standards in the construction industry.
C&D waste	Construction and demolition waste
CD&E waste	Construction, demolition and excavation waste
CIRIA	Construction Industry Research and Information Association – a member-based research and information organisation dedicated to improvement in all aspects of the construction industry.
Controlled waste	Household, industrial and commercial waste (not

Terminology	Definition
	legitimately, including checks on: • The waste carrier's registration certificate. • The waste broker's registration certificate (if used). • The Environmental Permits for waste management facilities or proof of exemptions from permitting.
Environment Agency	The main environmental regulatory body in England.
European Waste Catalogue (EWC) code	A six-digit number used to classify a particular waste stream.
Exempt activities	Activities not requiring an Environmental Permit (an exemption will require registration).
Flood Zone 3	The area of the floodplain where there is a high risk of flooding.
Hazardous Waste Consignment Note (HWCN)	A document that accompanies the movement of any hazardous waste from production (cradle) to disposal (grave).
Hazardous waste	Waste with any hazardous properties as listed in Annex III of The Hazardous Waste (England and Wales) Regulations 2005 (as amended).
Non-hazardous waste	Waste which does not display any of the hazardous properties listed in Annex III of The Hazardous Waste (England and Wales) Regulations 2005 (as amended).
Principal Contractor	Contractor appointed to coordinate the construction phase of a project where it involves more than one contractor.
Registered Waste Carrier	A person who holds a registration certificate from the Environment Agency to transport waste.
Site Waste Management Plan	Sets out how material resources and waste will be managed and controlled at all stages during a construction project.

Purpose and benefits

SWMPs are used as a good practice measure on construction projects and to support planning and consenting applications.

This SWMP has been developed to act as a guide for site staff on how to manage material assets (construction materials) and waste, in accordance with both legal and best practice requirements. The Principal Contractor will use this SWMP throughout the duration of the IERRT project construction phase.

The Principal Contractor will take all reasonable steps to ensure that:

- All waste from the site is dealt with in accordance with the waste duty of care (defined in section 34 of the Environmental Protection Act 1990 (The Stationary Office, 1990) and The Waste (England and Wales) Regulations 2011 (as amended) (The Stationary Office, 2011); and
- Materials are handled efficiently, and waste managed appropriately.

Scope

This SWMP includes:

- An overview of applicable legislation;
- Details of the IERRT project;
- Management arrangements, including roles and responsibilities, training, key performance indicators (KPIs) and best practice measures;
- Estimates of construction material use and waste arising and how they will be managed;
- Design decisions;
- Materials and waste management on-site; and
- Opportunities for waste minimisation, reuse, recycling and recovery in line with the requirements of the waste hierarchy.

B.2 Waste management legislation

This section summarises the key legal requirements with regards to waste management and control within England.

Definition of waste

Waste is defined by Article 1(a) of the European Waste Framework Directive (EWFD) (The European Parliament and the Council of the European Union, 2008) as “any substance or object (in the categories set out in Annex I) which the holder discards or intends to discard or is required to discard”.

The legal definition of waste also covers substances or objects, which fall outside of the commercial cycle or out of the chain of utility. In particular, most items that are sold or taken off-site for recycling are wastes, as they require treatment before they can be resold or reused.

In practical terms, wastes include surplus earthworks materials and soil, scrap, unwanted surplus materials, packaging, recovered spills, office waste, and damaged, worn-out, contaminated or otherwise spoiled plant, equipment and materials.

Duty of care

The duty of care for waste management is set out under section 34 of the Environmental Protection Act 1990 (The Stationary Office, 1990) and The

Waste (England and Wales) Regulations 2011 (as amended) (The Stationary Office, 2011). It requires anyone who produces, imports, keeps, stores, transports, treats or disposes of waste to take all reasonable steps to ensure that the waste is managed properly. Anyone in possession of waste must take all reasonable steps to:

- Prevent unauthorised or harmful deposit, treatment or disposal of waste;
- Prevent a breach (failure) by any other person to meet the requirement to have an environmental permit, or a breach of a permit condition;
- Prevent the escape of waste;
- Ensure that waste is transferred to an authorised person; and
- Provide an accurate description of the waste when it is transferred to another person, by using a compulsory system of Waste Transfer Notes (WTN) that control the transfer of waste between parties.

Failure to comply with the duty of care requirements is a criminal offence and could lead to prosecution.

Apply the waste hierarchy

The Waste (England and Wales) Regulations 2011 (as amended) (The Stationary Office, 2011) transpose the requirements of the EWFD (The European Parliament and the Council of the European Union, 2008), and require:

- Those undertaking waste management activities, such as the import, production, collection, transportation, recovery and/or disposal of waste, to take all reasonable measures to apply the waste hierarchy, in priority order, as follows:
  - Prevention;
  - Preparation for reuse;
  - Recycling;
  - Other recovery, such as energy recovery; and
  - Disposal.
- Those producing waste to confirm that they have applied the waste hierarchy when transferring waste and to include a declaration on their WTN or consignment note.

Hazardous waste

The Hazardous Waste (England and Wales) Regulations 2005 (as amended) (The Stationary Office, 2005) require that a consignment note be used to document the transfer and management of all hazardous waste.

Registration of waste carriers

8.2.9 Under the Control of Pollution (Amendment) Act 1989 (The Stationary Office, 1989) it is a criminal offence for anyone not registered as a waste carrier to transport controlled waste. The Waste (England and Wales) Regulations 2011 (as amended) (The Stationary Office, 2011) updated the system for the registration of waste carriers, including brokers and dealers.

8.2.10 Anyone undertaking any of the following activities as part of their business must register as a waste carrier, broker or dealer:

- Transporting their own waste;
- Transporting waste for someone else;
- Buying or selling waste; and
- Acting as a waste broker (arranging for someone to handle waste produced by someone else).

8.2.11 Details of all appointed waste carriers, brokers and contractors must be included in the Principal Contractor's SWMP, as part of the Principal Contractors CEMP, including copies of appropriate waste carrier licences/ registrations. The register of waste carriers, brokers and dealers can be checked using the Environment Agency's Public Registers (at: environment.data.gov.uk/public-register/view/search-waste-carriers-brokers).

Environmental permits and exemptions

8.2.12 The Environmental Permitting (England and Wales) Regulations 2016 (as amended) (The Stationary Office, 2006) require sites where waste is processed, treated or disposed of to hold a valid Environmental Permit issued by the Environment Agency.

8.2.13 The Regulations also include a schedule of activities that are exempt from the requirements of permitting. However, to comply with these Regulations, an exempt activity must generally be registered with the Environment Agency before commencing.

8.2.14 A permit is not usually required where waste is temporarily stored on the site where it is produced prior to management or disposal. Depending upon the types and quantities of waste to be stored, the duration and place of storage and compliance with other defined conditions:

- A non-waste framework directive exemption may apply, which does not need to be registered.
- An exemption may need to be registered with the Environment Agency.

8.2.15 The Principal Contractor will be responsible for obtaining the necessary permits and exemptions, where required.

B.3 Details of the proposed development

The Principal Contractor will complete Table B2 prior to commencement of construction. Further details of the IERRT project can be found in Section 1.3 of this CEMP.

Table B2 Details of the scheme

Project title	Immingham Eastern Ro-Ro Terminal	
Project location	Address	Immingham Dock
	Town	Immingham, Lincolnshire
	Postcode	DN40 2RQ
Client	Name	ABP
	Address	
	Contact	
	Phone	
Principal Contractor	Name	
	Address	
	Phone	
SWMP Drafter	Name	
	Address	
	Phone	
Construction cost (estimated)		
Site area (gross area)		
Construction programme:		
Start date		
Completion date		
Waste Management Champion		
Person responsible for SWMP		
Document Controller/ Secretary		
Location of SWMP		

B.4 Management arrangements

Roles and responsibilities

The main contract personnel responsible for producing the Principal Contractor SWMP are shown in Table B3. The Principal Contractor will complete Table B3 prior to the commencement of the construction phase.

Table B3 Roles and responsibilities

Position	Name	Contact details	SWMP responsibility
Main Contract personnel			
Client Project Manager			Monitor the Principal Contractor's performance against the contract including any environmental commitments and targets agreed for the IERRT project.
Project Manager (Principal Contractor (PC PM))			Approval of the SWMP for the relevant phase of works. Ensure that all controls specified within the SWMP are implemented by employees and sub-contractors.
Environment Manager (Principal Contractor PC EM))			Undertake site inspections to monitor compliance with the environmental licences/consents for the works and the measures within the SWMP. Ensure that the IERRT project complies with all environmental legislation, consents, objectives, targets and other environmental commitments, including those arising from the ES throughout the relevant project phase.
Site Materials and Waste Manager (Principal Contractor)			Prepare the SWMP. Implement the SWMP throughout the construction of the IERRT project and ensure that waste is disposed of legally, economically and safely in line with the SWMP and all relevant legislation. Provide appropriate professional and practical advice to contractors, consultants and project team members associated with materials and waste issues.
Sub-contractor details, if applicable			
Individual Sub-contractor(s), as appointed			Read through, familiarise and understand the requirements of the SWMP. Produce waste documentation and a Management Plan. Comply with the requirements set out in the SWMP.

Instruction and training

The Principal Contractor will also incorporate any additional SWMP requirements they follow, above those already listed within the CEMP and SWMP into the site induction and training procedures and must provide on-site instruction of appropriate construction materials and waste separation, handling, recycling, reuse and return methods to be used by all parties at all appropriate stages of the IERRT project construction.

The Principal Contractor must ensure that all personnel working on the site, including sub-contractors, are inducted and appropriately trained.

Key performance indicators (KPIs)

The environmental assessment of the IERRT project is based on the IERRT project achieving certain performance standards with respect to the recovery of construction and demolition waste.

In order to achieve these performance standards, the Principal Contractor will adopt the following KPI for the IERRT project and will record the necessary data to confirm compliance with this KPI:

- Recovery of at least 70% (by weight) of non-hazardous construction and demolition waste (excluding naturally occurring materials with European Waste Catalogue Code 17 05 04), with the aim to achieve recovery of 90% (by weight).

Best practice measures

To reduce the potential impacts from materials and waste, and to achieve high levels of sustainability in the IERRT project as a whole, the Principal Contractor will apply the principles of the waste hierarchy and adopt best practice measures (BPM) which go beyond statutory compliance.

This may include BPMs set out in construction industry guidance for example, guidance from the CCS, Waste & Resources Action Programme (WRAP) and CIRIA.

- The following approaches will be implemented, where practicable, to minimise the quantity of waste arising and requiring disposal:
- Agreements with material suppliers to reduce the amount of packaging or to participate in a packaging take-back scheme.
- Implementation of a ‘just-in-time’ material delivery system where possible to avoid materials being stockpiled, which can increase the risk of damage and subsequent disposal as waste.
- Attention to material quantity requirements to avoid over-ordering and the generation of waste materials due to surplus.
- Reuse of materials on-site wherever feasible.

- Off-site prefabrication, where practical, including the use of prefabricated structural elements.
- Segregation of waste at source, where practical, to facilitate a high proportion and high-quality recycling.
- Off-site reuse, recycling and recovery of materials and waste where reuse on-site is not practical, e.g. through use of an off-site waste segregation or treatment facility or for direct reuse or reprocessing off-site.

B4.4 The Principal Contractor will implement the following waste management measures in order to minimise the likelihood of any localised impacts from pollution or nuisance from waste on the surrounding environment:

- Damping down of surfaces during spells of dry weather and brushing/ water spraying of heavily used hard surfaces/ access points across the site as required.
- Burning of waste or unwanted materials will not be permitted on-site.
- All hazardous materials including fuels, chemicals, cleaning agents, solvents and solvent containing products to be properly sealed in containers at the end of each day prior to storage in appropriately protected and bunded storage areas.
- All demolition and construction workers will be required to use appropriate personal protective equipment whilst performing activities on-site.
- Any waste effluent will be tested and, where necessary, disposed of at a correctly licensed facility by a licensed specialist contractor(s).
- Materials requiring removal from the site will be transported using licensed carriers and records will be kept detailing the types and quantities of waste moved, and the destinations of this waste, in accordance with the relevant regulations.

B.5 Estimate of construction material use and waste arisings

Introduction

B4.5 This SWMP provides estimates of:

- The types and quantities of materials required for the construction of the IERRT project.
- The types and quantities of earthworks materials arising during construction of the IERRT project and the likely cut and fill balance and material management routes.
- The types and quantities of waste arising during the IERRT project demolition and construction works and the likely management routes and resulting recovery rate.

B.5.2 Full details of the methodology for estimating types and quantities of construction materials and waste, potential recycled content and recovery rates is described in Appendix A: Construction Materials and Waste Management Assessment.

B.5.3 The Principal Contractor will review, update and monitor these estimates throughout the design and construction of the IERRT project, and incorporate these updates in the SWMP to ensure delivery of the IERRT project KPIs.

B.5.4 The Principal Contractor must ensure that the SWMP is updated to reflect current legal requirements and the waste management practices of the IERRT project as necessary, both prior to and during the construction works. The Principal Contractor must ensure all required authorisations are obtained.

Material use

B.5.5 The estimated main types and quantities of aggregate required for the construction of the IERRT project have been obtained from estimated waste quantities for the IERRT project (ES Volume 1 Chapter 3, Application Document Reference number 8.2.3) and are shown in Table B4.

B.5.6 The Principal Contractor must ensure that reused, recycled and secondary aggregates (alterative materials) imported to site comply with all relevant technical and regulatory requirements.

Immingham Eastern Ro-Ro Terminal

Table B4 Estimated main types and quantities of materials to be used during IERRT proje

Material	Material density	Quantity (tonnes)	Quantity (m_3)	Wastage rate (%)
Steel piles	7.85	7,700	981	2
Concrete - ready mixed	2.4	72,000	30,000	8
Concrete - precast	2.4	18,000	7,500	5
Reinforcement	7.85	25,000	3,185	5
Steel for buildings	7.85	6,000	764	2
Aggregates	1.9	114,000	60,000	10
Asphalt	2.4	81,000	33,750	8
Cement stabilised subgrade and sands	2.4	360,000	150,000	8
Total material construction waste				

B.5.7 The estimated wastage rates for each material have been provided in ES Volume 1 Chapter 3, Application Document Reference number 8.2.3.

Excavated materials

The IERRT project design is being progressed to optimise the requirements for cut and fill and, where possible, this will be minimised to reduce the import and export of materials and waste. The IERRT project design team aim is to achieve a cut-fill balance, however, predicted cut and fill for the IERRT project is likely to be imbalanced and export of material required. The IERRT project cost estimates list 47,000 m^3 of excavated material for disposal. It is currently assumed that this material is non-hazardous.

It is anticipated that the use of site-won excavated materials (excluding dredged material) within the IERRT project will be undertaken in accordance with a Materials Management Plan (MMP) prepared under the CL:AiRE Definition of Waste: Code of Practice (CL:AIRE, 2011) and these materials will not be classified as waste.

The Principal Contractor will be responsible for the management of any surplus excavated materials and must apply the waste hierarchy in determining the most suitable options.

Waste

The main types and quantities of construction and demolition waste (including clearance) estimated to arise during construction of the IERRT project are based on information in Chapter 3 Details of Project Construction and Operation of the ES (Volume 1), Application Document Reference number 8.2.3. Wastage rates have been applied to the main construction materials and the resulting estimated waste quantities are outlined in Table B5. The management routes and recovery rates are based on industry good practice approaches, with high levels of forecast diversion from landfill.

Construction site operations will also generate waste streams from offices, welfare facilities, material packaging and construction plant maintenance. The quantities are anticipated to be small compared to the main demolition and construction wastes summarised in Table B5. Estimated types and quantities of construction site operational wastes and procedures for the storage and management of these wastes will be set out in the Principal Contractor's SWMP, once appointed.

The Principal Contractor will be responsible for the management of waste and must apply the waste hierarchy in determining the most suitable options.

Where waste is reused, recycled or recovered for use within the IERRT project, the Principal Contractor must ensure compliance with all relevant technical and regulatory requirements.

Table B5 Estimated main types and quantities of construction and demolition waste arising during the construction of the IERRT project including potential management routes and recovery rates

Activity and waste	Management route	Good practice recovery rate (%)
Construction (wastage from construction materials)	Recycling or recovery offsite	95%
Demolition	Recycling or recovery offsite	95%
Excavated material	Offsite management, to be confirmed	n/a applicable

stage there no estimate of hazardous waste has been undertaken. All construction and demolition waste is assumed to be inert or non-hazardous waste. The quantities of hazardous waste e.g. oils, batteries, aerosol cans etc are anticipated to be small compared to the main construction and demolition wastes. Procedures for the storage and management of these wastes are set out in this SWMP and will be further detailed in the Principal Contractor's SWMP.

The quantity of waste estimated to arise from vegetation clearance is not yet known (in volume or weight), however the clearance will include trimming of existing trees and shrubs and removal of dense hedgerow, shrubs and trees. It is expected that the volume of vegetation removal will be minimal due to the existing site being run as an operational port. It is assumed that this waste would have a high waste recovery rate and is likely recovered due to some potential economic value rather than sent to landfill.

B.6 Design decisions

Decisions made at the detailed design stage of the IERRT project will impact on the quantity and types of materials used, the quantity and types of waste arising and the management of materials and waste.

The IERRT project design development will apply the WRAP principles of Designing out Waste (DoW). The DoW principles include:

- Design for reuse and recovery;
- Design for off-site construction;
- Design for materials optimisation;
- Design for waste efficient procurement; and

- Design for deconstruction and flexibility.

B.6.3 In general, the following measures will be implemented during the design and construction phases of the IERRT project, where technically, economically and environmentally practicable:

- Manage waste in accordance with the waste hierarchy;
- Design-out and prevent waste arising;
- Reuse excavated earthworks materials within the IERRT project;
- Recycle demolition materials arising from IERRT project within the construction of the IERRT project;
- Divert waste from landfill through off-site recycling and recovery; and
- Use recycled and secondary aggregates (alternative materials) in the construction of the IERRT project.

Prior to construction, the Principal Contractor must record all actions to be implemented to reduce waste or material use on the IERRT project, and the resulting benefits. Table B6 will be populated by the Principal Contractor during the detailed design of the IERRT project.

Table B6 Waste minimisation actions

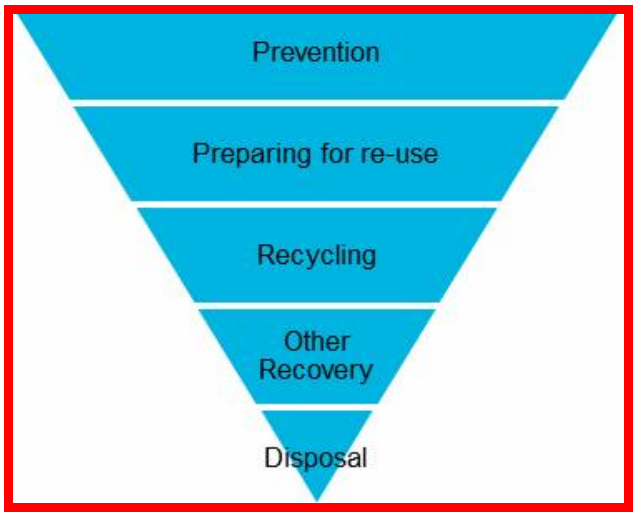
Material orMaterialor waste	Estimated reduction in waste arising (tonnes/ m^3)	Approach by which reduction achieved	Will additional planning permissions/ authorisations be required?	Estimated cost saving (£)	Persons responsible for completing action

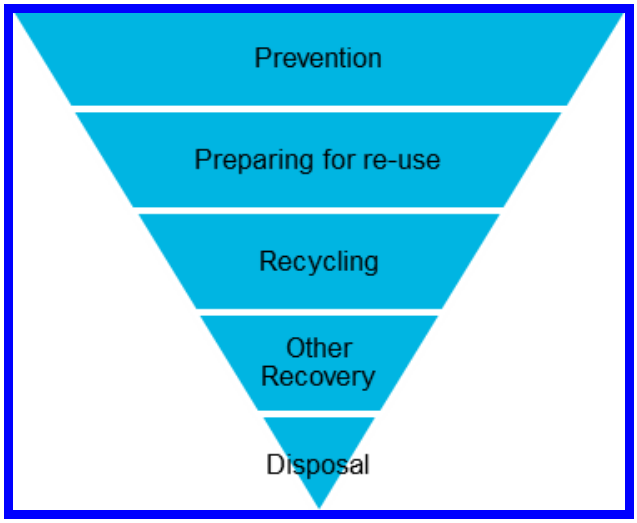
B.7 Construction and materials and waste management on-site

Waste management routes

The waste hierarchy sets out the priority order that should be considered when managing wastes. A basic representation of the waste hierarchy is provided in Plate B1. The Principal Contractor will use the hierarchy as a guide to encourage the prevention of waste and to define waste management options.

Plate B1 Waste hierarchy





~~8.7.2~~ 8.7.2 When considering waste management options for the IERRT project, the Principal Contractor will take account of the site's location, natural environment and available infrastructure. The Principal Contractor will consider the following options when determining the preferred waste management option for each waste stream.

Preparing for reuse

~~8.7.3~~ The aim is to provide design features on the IERRT project to use materials in their current state and form. Reuse can be undertaken either on-site or off- site.

~~8.7.4~~ Where possible, excavated earthworks materials and soils arising from the IERRT project will be stockpiled on-site and reused within the IERRT project.

Recycling

- The aim is to reuse materials won on-site by recycling them into an alternative form that can be used for construction purposes (for example crushing concrete, brick or other inert wastes to produce aggregate material). By recycling on-site, as far as practicable, the quantity of waste requiring off-site management is reduced and carbon emissions associated with transportation are eliminated.

- Recycling may also be achieved by utilising materials with a recycled content, such as recycled aggregates produced off-site.

Recovery

- This generally aims to recover energy from waste which cannot otherwise be reused or recycled. This may include waste materials such as hazardous liquids or solids that can be sent to energy from waste facilities.

- Recovery may also include the beneficial use of materials on land for restoration (deposit for recovery).

Disposal

B 7.9 The least preferred option in the waste hierarchy is a final disposal route such as landfill. Some waste streams will inevitably end up with such a solution.

B 7.10 When placing waste disposal contracts, the Principal Contractor will consider the implications of long-distance travel in terms of health and safety risk, commercial terms and increased emissions from vehicles.

B 7.11 The Principal Contractor will ensure the pre-treatment of all hazardous and non-hazardous wastes prior to disposal to landfill. The methods of pre-treatment will enable the waste to meet the 'three-point test':

- It must be a physical, thermal, chemical or biological process including sorting.
- It must change the characteristics of the waste.
- It must do so in order to:
  - Reduce its volume;
  - Reduce its hazardous nature;
  - Facilitate its handling; or
  - Enhance its recovery.

B 7.12 Source segregation can be a pre-treatment option and as such can be applied to waste generation on-site including general waste and arisings and will take place on the IERRT project.

B 7.13 The Principal Contractor will ensure that a declaration stating the pre-treatment method applied to the waste is appended to any WTN for non-hazardous waste being sent for disposal.

Materials and waste storage and segregation options

B 7.14 The Principal Contractor will store excavated soils and earthworks materials on-site in stockpiles until required for use.

B 7.15 Demolition materials that are to be recycled for use on-site must be separated at source and stored separately both before and after the treatment process.

B 7.16 Construction materials that are stored on-site must be in designated areas that are flat, accessible and secure in order to avoid damage or loss. Materials must be stored in appropriate conditions to avoid damage through, for example, water ingress or vermin. Materials must be retained in their original packaging to protect them from damage.

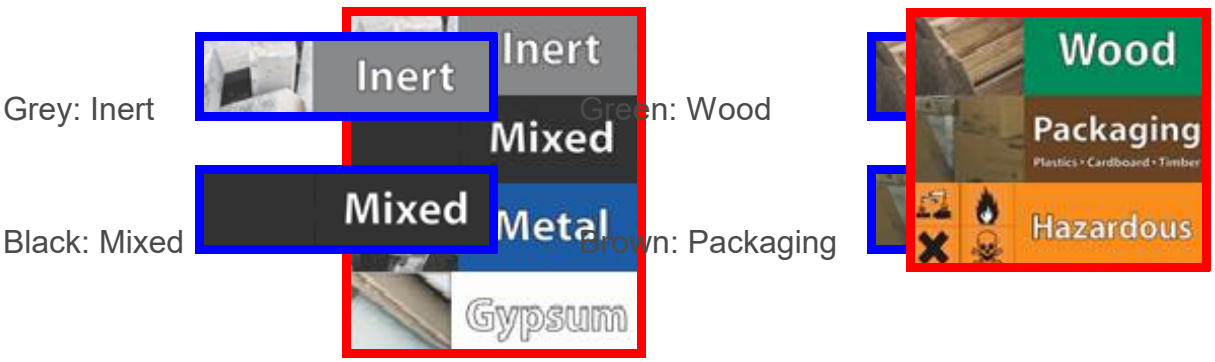
B.7.17 The Principal Contractor must ensure that the construction site compounds incorporate designated waste storage areas for skips or similar suitable waste receptacles. The Principal Contractor must ensure that these areas are surfaced with an impermeable barrier, such as hardstanding/ tarmac or using impermeable membranes and the location of any existing drainage will be noted.

B.7.18 At the waste storage areas, the Principal Contractor must segregate waste into the following types as a minimum: inert; wood; metals; packaging; general waste; hazardous solid wastes; hazardous liquid wastes.

B.7.19 The Principal Contractor will implement the following waste management procedures:

- All waste containers must be secure and ensure that no waste is allowed to escape.
- All waste containers must be clearly labelled using a colour coding system so that users know what wastes can be placed in each container. Waste containers must be appropriately colour coded using generic colour codes, an example is shown in Plate B2 below.
- Lockable storage will be provided for all hazardous waste.
- All waste containers must be sited at least 10m away from watercourses, ditches and other areas of environmental sensitivity.
- Liquid wastes must be stored in enclosed/ lidded containers and stored within a suitable bunded area, or otherwise provided with secondary containment.
- Separate containers must be provided for each type of hazardous waste.
- Each type of hazardous waste must not be mixed with any other hazardous or non-hazardous waste.
- Sewage from the site offices/ compounds will drain to septic tank and be collected by a suitable specialist waste contractor.
- Portable toilet facilities on-site (portaloos etc.) must be emptied by the facility provider as per their service agreement.

Plate B2 Waste container colour codes



Blue: Metal 

Orange: Hazardous 

White: Gypsum 

Waste carriers and facilities

B7.20 The Principal Contractor will manage all waste generated on the IERRT project in accordance with legal requirements. The Principal Contractor must record details of the proposed waste carrier for each waste stream in the registration table (see Annex 1: Waste carriers to this SWMP), with Waste Carriers Licence details appended to the SWMP.

B7.21 The Principal Contractor will ensure that the following information is recorded for all waste facilities used:

- Contractors name;
- Date(s) of waste removal;
- Type(s) of waste removed (i.e. non-hazardous waste, hazardous waste, inert (specify);
- Method of treatment, recovery or disposal (i.e. reuse, recycling, incineration, landfill etc.);
- Volume or weight of waste removed;
- Recovery rate achieved; and
- Costs associated with waste removal, transport and treatment, including Landfill Tax charges where applicable.

Waste Transfer Notes (WTN)

B7.22 The Principal Contractor must ensure that all movements of waste from site are accompanied by a WTN, which will detail specific information. The Principal Contractor's Site Materials and Waste Manager or other competent person will check that each WTN contains the following:

- The name of the person receiving the waste and what they are authorised to do with that waste as a Registered Waste Carrier can only transport waste;
- Type of waste;
- The Standard Industrial Classification (SIC) code;
- The six-digit EWC code;
- Address of the producing site and details of the waste producer;
- Waste carrier's details including registration number;
- Quantity of waste;

- How it is contained (e.g. 8 cubic yard skip);
- Address of the receiving site (e.g. Landfill) and the Environmental Permit or Exemption No. Associated with the receiving site;
- The date to which the WTN applies;
- If the material is non-hazardous waste and it is destined for disposal directly to landfill, pre-treatment must have been applied and a declaration detailing the treatment applied appended to the WTN; and
- A declaration that the waste has been treated in line with the requirements of the waste hierarchy.

B~~3.7.2~~ The site representative signing the WTN must ensure all WTNs are placed in the Site Waste Management File and kept for a minimum period of two years (for non-hazardous waste).

B~~3.7.2~~ By signing a WTN the site representative is confirming that all the details are correct and that the material is to be sent by a licensed waste carrier to a suitably licensed receiving site, permitted to receive that type of waste. The signature is binding of this fact and completes the WTN as a legal document.

The Site Materials and Waste Manager or other competent person signing the WTN must additionally ensure that the Waste Carrier is using a suitable vehicle with adequate, covered containment for the waste.

Waste consignment notes (hazardous waste)

B~~8.7.26~~ The Principal Contractor must ensure that a Hazardous Waste Consignment Note (HWCN) is completed for every movement of hazardous waste. The HWCN must be prepared before the waste is moved. Prior to signing, the Site Materials and Waste Manager or another competent person must ensure that the HWCN includes:

- Hazardous Waste Premises Code;
- Consignment note code;
- SIC Code;
- Name and address of the site from which the waste is being moved;
- Date of removal;
- Type of waste produced, including the quantity and the EWC code;
- The name of the person who is receiving the waste and what they are authorised to do with that waste e.g. registered waste carrier can only transport waste;
- The final disposal site that is authorised to accept the waste; and
- Retention period for hazardous waste.

B~~8.7.27~~ The Principal Contractor must retain a copy of the HWCN for a minimum of three years.

Waste documentation

B~~8.7.28~~ The Principal Contractor must retain all waste documentation at the main site compound and, following completion of the IERRT project, at the Principal Contractor 's head office. This includes:

- The SWMP (two years after end of construction of the IERRT project);
- Waste transfer documentation (two years for WTNs and three years for HWCNs from date of issue);
- Copies of any exemptions or permits; and
- Copies of waste carrier and treatment/ disposal site licences or permits.

Fly-tipping

B~~8.7.29~~ Fly-tipping of waste on or adjacent to ongoing construction projects can be a significant issue.

B~~8.7.31~~ A site assessment of pre-existing fly tipping hotspots must be undertaken and, where appropriate, security measures to prevent access to such areas will be implemented.

If waste is fly-tipped on the site, the Principal Contractor will have a duty of care to ensure it is dealt with safely and disposed of correctly, even if not the producer of the waste. The Principal Contractor must report any instance of fly-tipping on site to the local authority.

Fuels, oils and Control of Substances Hazardous to Health (COSHH) materials

B 7.31 The Principal Contractor must establish appropriate control and management measures for the storage, dispensing, containment and use of all fuels, oils and COSHH materials and wastes that will be required during construction of the IERRT project.

B 7.31 The storage, dispensing, containment and use of fuels, oils and COSHH materials have the potential to cause significant damage to the environment. Causes of environmental incidents linked to fuel, oil and COSHH materials on construction sites include:

- Delivery and use of materials;
- Overfilling of storage containers;
- Plant or equipment failure;
- Containment failure;
- Accidents and vandalism; and
- Mixing of inappropriate materials and wastes.

B 7.32 Environmental incidents could affect:

- Drainage systems, surface waters, groundwater and soil;
- Air quality, by producing fumes, vapours and airborne pollutants; or
- Land quality by contamination through spillages.

B 7.33 The storage, dispensing, containment and use of all fuels, oils and COSHH materials and wastes shall be undertaken in accordance with regulatory and good practice guidance, the key points of which are set out below.

B 7.34 For COSHH materials and waste, relevant control and management measures may include:

- Storage must be in a secure, bunded and sheltered area.
- Waste must be segregated.
- COSHH liquids must not be stored in areas within Flood Zone 3.
- Areas must be supervised, and records of materials and waste stored and removed from the area recorded.

- The handling, storage and disposal must be undertaken as described in the COSHH Assessment and any Material Safety Data Sheet (MSDS).

B~~8.7.37~~ Fuel and oil (including mould oil) shall be stored in accordance with The Control of Pollution (Oil Storage) (England) Regulations 2001(HMSO, 2001),

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with fuels and oil handled in such a way that risk of pollution is minimised. Specifically:

- Fuel and oil storage tanks must comply with The Control of Pollution (Oil Storage) (England) Regulations 2001 (HMSO, 2001) and must be locked outside working hours.
- Storage areas must not be located within 20 m of watercourses, ponds, site drainage or within any areas of Flood Zone 3 or on a gradient.
- Refuelling must not be permitted within 20 m of a watercourse/ pond, within 20 m of a highway drainage gully/ site drainage, or within areas of Flood Zone 3.
- Mobile bowsers must be bunded/double skinned and must comply with The Control of Pollution (Oil Storage) (England) Regulations (HMSO, 2001) and must be secured outside working hours.
- Trained operatives must carry out refuelling of plant and equipment.
- Plant nappies must be used during refuelling.
- Drums must be stored in bunded areas with a minimum capacity of 25% of the total volume contained within the bund, or 110% of the largest container, whichever is the greater. Where possible, these bunds must be fitted with roofs to prevent the collection of rainwater. Individual drums in use shall be stored on a drip tray sufficient to contain 25% of the full capacity of the drum.
- Storage tanks and drums must be maintained in a good condition, fitted with lids and labelled to indicate the contents.
- Static combustion engine plant (e.g. compressors, lighting sets) must be integrally bunded or placed on plant nappies.
- Bunds, tanks pipework and plant must be regularly checked for signs of damage or leaks and must be regularly maintained.
- Spill kits must be provided within close proximity to fuel and oil storage areas, with plant that is operating in isolated areas, and in welfare facilities. Drivers, operators and stores personnel will be trained in security and the use and safe disposal of spill kits.
- Drums must be stored in bunded areas with a minimum capacity of 25% of the total volume contained within the bund, or 110% of the largest container, whichever is the greater. Where possible, these bunds will be fitted with roofs to prevent the collection of rainwater. Individual drums in use must be stored on a drip tray sufficient to contain 25% of the full capacity of the drum.

Key responsibilities

Reporting and auditing

B~~3.7.32~~ The effectiveness of the Principal Contractors SWMP will depend upon the enforcement of its requirements on-site by the nominated Site Materials and

Waste Manager and Site Manager. Responsibility for the formal recording of waste movements lies with the Site Materials and Waste Manager or Project Manager.

The Principal Contractor must maintain a record of all materials that come on to site. The quantity of reused, recycled and secondary aggregate must be recorded, alongside details of the supplier, the producing facility and records that demonstrate that the material meets all relevant technical and regulatory requirements.

The Principal Contractor must maintain a record of all wastes that are removed from the site and their management route. Each waste management contractor must provide details of the types and quantities of waste removed from the site, the receiving waste management facility and the associated recycling, recovery and disposal rates for each waste stream (see Annex 2 Waste Management to this SWMP).

The Principal Contractor must monitor, and record details of the wastes placed in all waste receptacles to ensure that contamination has not occurred.

The Principal Contractor must continually review the types of surplus materials and waste being produced and change the site set up to minimise wastage rates and maximise reuse or recycling.

ABP or its representatives may carry out 'spot checks' in relation to the completeness of any WTNs and any HWCNs.

Review of the Site Waste Management Plan

The Principal Contractor must review the Principal Contractor SWMP at least once every six months during the lifetime of the IERRT project to ensure that targets are being achieved and that realistic solutions are provided for unplanned events or abnormal wastes. The Principal Contractor must also review the final WMP if there is any significant change in the IERRT project. These reviews will involve the completion and submission of a monitoring report to ABP (or its representative) in an agreed format.

Additional duty of care checks

The Principal Contractor must periodically, at intervals to be determined by the contractor and ABP, follow waste loads to confirm that the waste has been transferred to the place stated on the WTN, with any irregularities investigated immediately, and reported as an environmental incident. Action may involve termination of contract and/ or notification to the Environment Agency.

Site inspections

The Site Materials and Waste Manager or nominated deputy must undertake a daily inspection of the construction areas including all areas used for waste management. Any issues shall be recorded in the daily log along with any corrective action taken.

Closure reporting

B[illegible] Within three months of the completion of works under a contract, the Principal Contractor must submit a Waste Management Closure Report to ABP (or its representative) to demonstrate the effective implementation, management and monitoring of construction materials and waste during the construction lifetime of the IERRT project.

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B.8 References

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Annex 1 Waste carriers

Waste type(s)	EWC code	Waste carrier name	Contact details	Waste carriers registration number	Expiry date (dd/mm/yyy

Annex 2 Waste management

Client Name:	Recover (throu recovery) of at hazardous cor waste (excludi materials with Code 17 05 04 recovery of 90
Project:	
Contractor:	

Waste type and quantity			Management route (% or quantity)					
Waste	**EWC**	**Quantity**	**On-site**		**Off-site**			
			Reused on-site	**Recycled for use on-site**	**Reused off-site**	**Recycled off-site**	**Recovered off-site**	**Disp**

Acronyms

Acronyms	Definition
ABP	Associated British Ports
AEP	Annual Exceedance Probability
AEZ	Archaeological Exclusion Zones
AIL	Abnormal Indivisible Loads
APFP	Applications: Prescribed Forms and Procedure
BPM	Best practice measures
CCS	Considerate Constructors Scheme
CD	Chart Datum
Cefas	Centre for Environment, Fisheries and Aquaculture Science
CEMP	Construction Environmental Management Plan
CIRIA	Construction Industry Research and Information Association
COSHH	Control of Substances Hazardous to Health
CTMP	Construction Traffic Management Plan
CWTP	Construction Workers' Travel Plan
DCO	Development Consent Order
DMP	Dust Management Plan
DoW	Designing out Waste
DPZ	Development Proximity Zone
EIA	Environmental Impact Assessment
ES	Environmental Statement
EWFD	European Waste Framework Directive
FRA	Flood Risk Activity
GB	Great Britain
GI	Ground Investigation
GPP	Guidance for Pollution Prevention
ha	Hectare
HGVs	Heavy Goods Vehicle
HWCN	Hazardous Waste Consignment Note
IEMA	Institute of Environmental Management and Assessment
IERRT	Immingham Eastern Ro-Ro Terminal
ISPS	International Ship and Port Facility Security

Acronyms	Definition
KPIs	Key performance indicators
m^3	Meters cubed
MMO	Marine Management Organisation
MMP	Materials Management Plan
MPAs	Minerals Planning Authorities
MSAs	Mineral Safeguarding Areas
MSDS	Material Safety Data Sheet
NH	National Highways
NRMM	Non-Road Mobile Machinery
NSIP	Nationally Significant Infrastructure Project
NSRs	Noise Sensitive Receptors
PAD	Protocol for Archaeological Discoveries
PINS	Planning Inspectorate
PPG	Pollution Prevention Guidance
RAMS	Risk assessment method statement
SIC	Standard Industrial Classification
SNHRW	Stable Non-Reactive Hazardous Waste Cell
SoS	Secretary of State
SWMP	Site Waste Management Plan
UXO	Unexploded Ordnance
WAC	Waste Acceptance Criteria
WFD	Waste Framework Directive
WPA	Waste Planning Authorities
WRAP	Waste & Resources Action Programme
WSI	Written Scheme of Investigation
WTNs	Waste Transfer Notes

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