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IMMINGHAM EASTERN RO-RO TERMINAL

Outline Offshore Construction Environmental Management Plan (CEMP) with Appendices
Document Reference 9.2.2

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Associated British Ports

Immingham Eastern Ro-Ro Terminal

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Immingham Eastern Ro-Ro Terminal

Outline Offshore Construction Environmental Management Plan (CEMP)

January 2024

Delivering a better world

Quality information

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Executive summary

1 This document has been prepared on behalf of Associated British Ports (the 'Applicant') and forms the Outline Offshore Construction Environmental Management Plan (CEMP) for the Immingham Eastern Ro-Ro Terminal (IERRT) project. By implementing the measures set out in the following sections, the Detailed Offshore CEMP will help to manage environmental issues appropriately during construction.

2 **Section 1** provides an overview of the offshore elements of the IERRT project, the Applicant and the implementation of the Offshore CEMP.

3 **Section 2** details the indicative construction programme, including construction facilities.

4 **Section 3** sets out the measures to be implemented during construction for specific topics relevant to the offshore elements of the IERRT project. The tables include a summary of the potential impacts and associated mitigation, monitoring measures identified for the applicable Environmental Impact Assessment (EIA) topic that specified construction-related mitigation measures (Physical Processes; Water and Sediment Quality; Nature Conservation and Marine Ecology; Commercial and Recreational Navigation; Coastal Protection, Flood Defence and Drainage; Air Quality; Noise and Vibration; Cultural Heritage and Marine Archaeology; Traffic and Transport; Land Use Planning; Climate Change; and Protected Species) reported in the Environmental Statement (ES) chapters and appendices (DCO Application Documents Reference number 8.2 and 8.4).

5 **Appendices A – D** set out the outline management plans to which the Principal Contractor will base their detailed management plans on as construction methods and approaches are refined during detailed design.

1. Introduction

1.1 Overview

1.1.1 This Outline Offshore CEMP (DCO Application Document Reference number 9.2.2) 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 Offshore CEMP in accordance with the principles within this Outline Offshore CEMP. The 'Principal Contractor's Offshore 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. The rest of this document solely discusses the marine (offshore) elements.

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 (PoI).

1.3 The proposed development

1.3.1 As this Outline Offshore CEMP relates only to the offshore construction activities, the following is a summary of the offshore (Marine works) elements of the proposed development.

1.3.2 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

1.3.3 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 250 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 four reinforced concrete restraint dolphins (maximum dimensions of 12 m x 8 m). Three dolphins will consist of four piles plus a guiding pile, and the fourth will consist of six piles plus a guiding pile;
- Two open piled finger piers with concrete decks, each up to 270 m in length;
- Possible impact protection measures if required, supported by enhanced operational marine controls; and
- A berthing area with side slopes.

Capital dredge

1.3.4 The new berth area will require a capital dredge. The maximum spatial extent 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.

1.3.5 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*.

1.3.6 The final capital dredge methodology will be determined in collaboration with the dredging contractor. It is currently anticipated, however, that the majority or all 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

1.3.7 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.

1.3.8 In light of the above, it is considered that disposal within the estuary, at suitable licensed disposal site/s, 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)).

1.3.9 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).

1.3.10 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.

1.3.11 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).

1.3.12 The disposal site HU056 (Holme Channel) will be used to dispose of unerodable 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.

1.4 The purpose of the Outline Offshore CEMP

1.4.1 The purpose of this Outline Offshore CEMP is to:

- manage the environmental effects of the Offshore Scheme as identified in the ES;
- provide the equivalent of a Code of Construction Practice (CoCP); and
- provide the ‘blueprint’ for the detailed Offshore CEMP that will follow, enabling the Examining Authority and the Secretary of State to identify those mitigation measures proposed within the Scheme which are secured within this Offshore CEMP.

1.4.2 Producing a detailed Offshore CEMP is considered a multi-staged process, developing in step with the Proposed Development’s design evolution from the consenting to build-out phases. As the Proposed Development’s final and technical details are refined, the Offshore CEMP will similarly be refined to include more detailed information; thus, developing from an outline to a final (detailed) document.

1.4.3 As such, this document constitutes the “Outline Offshore CEMP” for the Project, which will be fully refined into the “Detailed Offshore CEMP” for implementation during construction.

1.4.4 This Outline Offshore CEMP is a document which sets out the management measures that the Applicant and the Principal Contractor will adhere to during construction. It is structured by technical environmental discipline,

following the topics of the Environmental Statement (ES). It contains a series of outline environmental management plans and related documents for the Offshore Scheme, which are, subject to the DCO being granted, to be produced by the Principal Contractor ("PC") during the detailed design stage of the Project. This Outline Offshore CEMP is based on the preliminary design of the Scheme, as submitted by the Applicant within the DCO application, and contains the measures and steps required for the production of the Detailed Offshore CEMP.

1.4.5 Following the PC led process described above, the "Detailed Offshore CEMP" will be produced. This document will contain a series of detailed environmental management measures and topic-specific management plans and related documents for the Offshore Scheme, which is produced in advance of Offshore Scheme construction by the PC and refined during the construction stage as necessary. All of the detailed environmental management plans and related documents prepared must be in full accordance with this Outline Offshore CEMP, including the approval requirements set out below.

Development of the Outline Offshore CEMP

1.4.6 This Outline Offshore CEMP has been prepared iteratively and in parallel with the development of the project design, proposed construction methodologies and the EIA. Measures within the Outline Offshore CEMP include construction mitigation which, in part, arise from the technical assessments reported in the ES. These assessments have taken account of the effectiveness of mitigation measures embedded into the design of the Offshore Scheme prior to identifying the likely environmental effects of the Offshore Scheme.

1.4.7 Construction of the Offshore Scheme will be subject to measures and procedures defined within the Detailed Offshore CEMP. The Detailed Offshore CEMP will be based on, and will fully incorporate, the requirements of this Outline Offshore CEMP that are relevant to that construction element and the PC's contractual scope. It will also include the implementation of appropriate industry standard practices and control measures for environmental impacts arising during the works.

1.4.8 Subject to the potential for alternative measures being identified, the measures defined in the Detailed Offshore CEMP will be applied by the PC (as stipulated in the relevant parts of the Outline Offshore CEMP) throughout the duration of their contract to provide planning, management and control during the construction phases of the Offshore Scheme with the aim of controlling potential impacts upon the natural environment, people and businesses.

1.4.9 All contractors will be required to comply with applicable environmental legislation, together with any additional environmental controls imposed within the DCO. The induction, training and briefing procedures for staff are outlined in Section 1.5. The measures implemented are set out in relation to each environmental discipline of the ES with Table 3.1 to Table 3.9 within Section 3 of this document. These form the basis of the management plans to be produced.

1.4.10 As noted, this Outline Offshore CEMP contains a number of management measures, which have been developed to the highest possible level of detail prior to a PC being appointed. As described above, these are to be developed into a final Detailed Offshore CEMP by the PC (and where applicable other organisations, such as subcontractors) prior to construction commencing.

1.4.11 Table 1.1 outlines specific management plans that the Applicant will produce within the Detailed Offshore CEMP. These will be updated by the PC and incorporated into the Detailed Offshore CEMP, in consultation with the relevant bodies listed for each discipline.

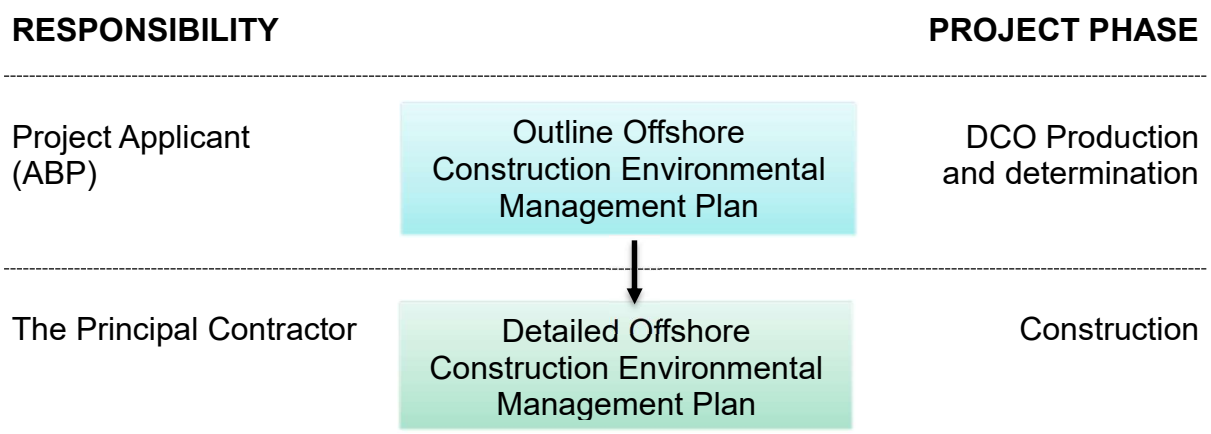
Table 1.1 Detailed Offshore CEMP documents and relevant body to be consulted

Document to be developed in Detail by PC	Consultees
Shipboard Oil Pollution Emergency Plan	MMO
Oil Spill Contingency Plan	MMO
Stakeholder Management Plan	MMO
Archaeological Written Scheme of Investigation (WSI)	MMO

1.4.12 Following any necessary amendments arising from the consultation process, overall approval of the Detailed Offshore CEMP will fall to the Marine Management Organisation ("MMO"), as per Requirement 8 of the DCO and Condition 11 of Part 2 of the Deemed Marine Licence.

1.4.13 The Detailed Offshore CEMP (and any other document that forms part of it) will be a live document maintained by the PC throughout the construction phase of the Scheme. As a minimum, the Detailed Offshore CEMP will be reviewed by the PC every six months to ensure that its content remains up to date and relevant. **Error! Reference source not found.**.1 presents how the Offshore CEMP develops and advances through each phase of the Project and the parties responsible.

Figure 1.1 Development of the Offshore Construction Environmental Management Plan



1.4.14 Should any amendments to documents which have been consulted upon and subsequently approved be necessary, a further consultation and approval process, as set out in paragraphs 1.4.11 to 1.4.13 and Table 1.1 above, shall be undertaken.

1.4.15 The Applicant will assist the PC in the preparation of the Detailed Offshore CEMP and other detailed documents and management plans defined as being required within the Outline Offshore CEMP and implementation of other matters stated within the Outline Offshore CEMP, such as training or working relations with the Port and Harbour Master of Immingham.

1.4.16 It is expected that the Principal 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.

1.4.17 Any additional construction licences, permits or approvals that are required as listed within this Outline Offshore CEMP, including any environmental information submitted in respect of them, will also be adhered to.

The Structure of the Offshore CEMP

1.4.18 The structure of this Outline Offshore CEMP is as follows:

- Section 0 provides an introduction to the IERRT project and the purpose, use and implementation of the Offshore CEMP;
- Section 2 provides information on the offshore 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: Outline Stakeholder Management Plan;
- Appendix B: Outline Shipboard Oil Pollution Emergency Plan (SOPEP);
- Appendix C: Outline Oil Spill Contingency Plan; and
- Appendix D: Draft Marine Archaeological Written Scheme of Investigation

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

1.4.20 The Principal Contractor will be responsible for working in accordance with the environmental controls documented in this Outline Offshore CEMP, which will allocate responsibilities for environmental performance. The overall responsibility for implementation of the Outline Offshore CEMP will lie with the Applicant.

1.5 Implementation

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

- Training requirements and roles and responsibilities 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 works progress;
- 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 Offshore 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 2024, however, there are currently two alternate construction programme scenarios:

- 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-2026; and
- 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 2028.

2.2 Working hours

2.2.1 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 Site lighting

2.3.1 Additional temporary construction site lighting will be installed 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.

2.4 Recycling and disposing of waste

2.4.1 As detailed in Section 1.3, the Project works will require a capital dredge for the new berth area. Therefore, dredge disposal will also be required.

2.4.2 It is not considered that the dredge material (being predominantly silt and clay) is of a quality suitable for alternative beneficial use. Thus, it is considered that disposal within the estuary is the best available.

2.4.3 Based on the proximity, suitability and capacity of those disposal sites, the disposal site HU056 (Holme Channel) will be used to dispose of unerodable clay material, and HU060 (Clay Huts) will be used to dispose of sand/silt (alluvium) material.

2.5 Best practice measures

2.5.1 The selected Principal Contractor will be encouraged to be a member of the ‘Considerate Constructors Scheme’ which is an initiative open to all contractors undertaking building work.

2.5.2 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.

2.6 Training and communications

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

2.6.2 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.

2.6.3 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.

2.7 Stakeholder communications

2.7.1 Stakeholder communications will be managed via the Stakeholder Management Plan (Appendix A) that will be put in place prior to the works commencing. 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 will be developed by the Principal Contractor in conjunction with ABP and approved by the MMO to ensure transparency of reporting and appropriate lines of communication into and out of the Project are established.

2.7.2 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.

2.7.3 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.

2.7.4 Measures relating to stakeholder communications regarding noise are detailed in Table 3.6, 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 offshore 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 requirements. The majority of these will, however, be assigned to the appointed Principal Contractor.

3.1.3 The topics covered in this Offshore 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 (
- 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 throughout the construction of the works are listed in Table 3.4.

3.1.4 The Protective Provisions for the Statutory Conservation and Navigation Authority (SCNA), at paragraph 3, include a Tidal Works Approval, which the Contractor will apply for once the detailed plans are available for the works. The SCNA and the Port of Immingham Dock Master will, in practice, review and consider the detailed plans (including method statements and programmes) working collaboratively as the responsibility for navigational safety requires close coordination between both statutory authorities.

3.1.5 The specific controls and procedures will be determined by the SCNA and the Port of Immingham Dock Master at the time when the detailed information has been reviewed, and the outline offshore CEMP will be updated to incorporate those specific requirements.

3.1.6 For the purposes of the outline offshore CEMP, Table 3.4 provides further clarification on the responsibilities for the works:

- Prior to Commencement
- During Construction;
- Upon Completion of Construction; and
- During Phased Construction alongside the Operation of IERRT.

3.1.7 Mitigation measures that are applicable prior to construction, during construction and upon completion of construction will be followed for all construction activities irrespective of whether the construction is completed in one phase.

3.1.8 In the event that construction is phased and occurs alongside the commencement of operations at IERRT, additional measures will be implemented as described in Table 3.4.

- Table 3.4);
- Air Quality (Table 3.5);
- Noise and Vibration (Table 3.6);
- Cultural Heritage and Marine Archaeology (Table 3.7);
- Climate Change (Table 3.8); and
- Protected Species (Table 3.9).

3.1.9 Sections 443.2 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: Physical processes

Potential Impact	Mitigation/Enhancement Measure	Responsibility
Changes in water depth and environmental conditions due to increased deposition.	Targeted 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

Table 3.2: Water and sediment quality

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 offshore 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:	Contractor

Potential Impact	Mitigation/Enhancement Measure	Responsibility
	• 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). • The Oil Care Code; • CIRIA's Environmental Good Practice on Site (CIRIA, 2015); • Regulations relating to the International Convention for the Prevention of Pollution from Ships (MARPOL) and therefore all vessels will be equipped with waste disposal facilities onboard (IMO, 2021); • Control measures and shipboard oil pollution emergency plans (Appendix B) will be in place and adhered to under MARPOL Annex I requirements for all vessels; and Management of the mobilisation of any contaminants associated with dredging and dredge disposal. Best practice measures will include: • Removal of waste from site in a timely manner. • Materials and containers which could possibly spill or contaminate the surrounding environment 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	

Potential Impact	Mitigation/Enhancement Measure	Responsibility
	be pursued, with construction spill response procedures to contain any accidental spills. • The existing oil spill contingency plan (Appendix C) for Immingham Port will be followed in the event of a spillage, to minimise impacts of a spill entering the port waters. • Regular maintenance of plant. • Spill kits present and 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, namely the Environment Agency (EA), the MMO and the Statutory Harbour Authority. • The workforce will be trained in preventing and dealing with pollution incidents.	

Table 3.3: Nature conservation and marine ecology

Potential Impact	Mitigation/Enhancement Measure	Responsibility
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 a soft start will be 20 minutes, in line with the JNCC piling protocol (JNCC, 2010). • **Vibro piling:** Vibro piling will be utilised where possible (which produces lower peak source noise levels than percussive piling). • **Seasonal piling restrictions**: During percussive piling the following further restrictions will be adopted:	Contractor

Potential Impact	Mitigation/Enhancement Measure	Responsibility
	- 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 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. • **Piling reporting protocol**: Reports detailing the total duration of piling each day are to be submitted to the MMO on a weekly basis and fortnightly meetings will be held with the MMO. In abnormal or exceptional circumstances which require piling works to pause (e.g., mechanical breakdown, poor weather conditions), an 80-minute contingency period is to be allowed on top of the 180 minutes per day maximum percussive pile driving scenario – this reflects 20 minutes of additional soft start procedures required for up to four piles and rigs. In the event of an abnormal situation arising which triggers the contingency period, an environmental	

Potential Impact	Mitigation/Enhancement Measure	Responsibility
	representative for the works will be notified who will agree a plan with the contractor to limit the duration of additional percussive piling to the contingency period, as well as measures to prevent a future recurrence. Works that trigger the contingency period will be recorded and explained in the weekly reporting to the MMO. The Applicant proposes to use the fortnightly meeting to discuss and agree further corrective action with the MMO should it be required. • **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 will 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 to be adopted 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 (referred to as the Marine Mammal Observer) using marine mammal identification resources; - 30 minutes prior to the commencement of percussive piling, a search should be	

Potential Impact	Mitigation/Enhancement Measure	Responsibility
	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, 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 will be 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 large heavy plant.	Contractor

Potential Impact	Mitigation/Enhancement Measure	Responsibility
	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**: A noise suppression system (consisting of a piling sleeve with noise insulating properties) will be 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, an acoustic barrier/screening will be 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, a temporary cessation of all construction activity will be implemented following seven consecutive days of freezing (zero or sub-zero temperature) weather conditions. The restriction will not be lifted until after 24 hours	

Potential Impact	Mitigation/Enhancement Measure	Responsibility
	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.	Contractor
Preventing a breach in biosecurity	ABP's existing biosecurity management procedures will be followed during construction. The following guidelines will be adhered to: • All vessels shall adhere to the International Convention for the Control and Management of Ships' Ballast Water and Sediments with the aim of preventing the spread of marine INNS (IMO, 2021); and • All vessels shall adhere to the International Maritime Organisation (IMO) Guidelines for the control and management of ships' biofouling to minimize the transfer of invasive aquatic species (Biofouling Guidelines) (IMO, 2011). 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	Contractor

Potential Impact	Mitigation/Enhancement Measure	Responsibility
	completed and before equipment is removed from the site. • **Hull Cleaning:** The hulls of any vessels used during construction will be maintained to minimise the number of fouling organisms present. Hull cleaning may take place on land or in-water, but will not take place in the POI. In both cases, care will be taken to prevent the organisms and coating particles from being released into the water. • **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

3.1.10 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 throughout the construction of the works are listed in Table 3.4.

3.1.11 The Protective Provisions for the Statutory Conservation and Navigation Authority (SCNA), at paragraph 3, include a Tidal Works Approval, which the Contractor will apply for once the detailed plans are available for the works. The SCNA and the Port of Immingham Dock Master will, in practice, review and consider the detailed plans (including method statements and programmes) working collaboratively as the responsibility for navigational safety requires close coordination between both statutory authorities.

3.1.12 The specific controls and procedures will be determined by the SCNA and the Port of Immingham Dock Master at the time when the detailed information has been reviewed, and the outline offshore CEMP will be updated to incorporate those specific requirements.

3.1.13 For the purposes of the outline offshore CEMP, Table 3.4 provides further clarification on the responsibilities for the works:

- Prior to Commencement
- During Construction;
- Upon Completion of Construction; and
- During Phased Construction alongside the Operation of IERRT.

3.1.14 Mitigation measures that are applicable prior to construction, during construction and upon completion of construction will be followed for all construction activities irrespective of whether the construction is completed in one phase.

3.1.15 In the event that construction is phased and occurs alongside the commencement of operations at IERRT, additional measures will be implemented as described in Table 3.4.

Table 3.4: Commercial and recreational navigation

Potential Impact	Mitigation/ Enhancement Measure	Responsibility
	Prior to Commencement	
Risks associated with commercial and recreational navigation as a result of construction	**Tidal Works Approval** Tidal Works Approval is required to be issued by the Harbour Master Humber as required by the Protective Provisions in Schedule 1, Part 1, paragraph 3 of the DCO. Prior to the commencement of the works, the Contractor will submit the detailed plans (including sections, drawings, specifications, calculations and method statements) to the Statutory Conservation and Navigation Authority (SCNA) for the approval required under paragraph 3. Plans are required to be submitted at least 28 days prior to the planned commencement of the first marine activity. The SCNA will review the plans to ensure that the works constitute safe working practice and will issue approval or refusal in line with paragraph 3 of the protective provisions. The Contractor and the SCNA will discuss the procedures and controls required for the marine	Contractor SCNA

activities associated with the marine works, which will include the following requirements. - Notification and liaison with VTS and the Dock Master for Immingham - Pilotage / PEC - Vessel exclusion zones - Notices to Mariners - Towage The SCNA may introduce further requirements and the detailed marine CEMP will be updated to incorporate those as required.	
During Construction	
Vessel Exclusion Zone Following the Tidal Works Approval, a vessel exclusion zone is to be put in place whilst construction is taking place. The SCNA and Port of Immingham SHA will promulgate the information of the exclusion zone to other marine users. The Contractor will adhere to the Vessel Exclusion Zone throughout the works and will follow any further requirements that may be introduced by the Tidal Works Approval. The Detailed Marine CEMP will be updated to incorporate such measures as required by the Tidal Works Approval.	SCNA and Port of Immingham SHA SCNA and Port of Immingham SHA Contractor
Notices to Mariners Notices to mariner will be published detailing impacts and directions for each stage of the marine works.	SCNA and Port of Immingham SHA
Pilotage / PEC As part of the Tidal Works Approval, the Contractor will provide details of vessels to be used during the works and the requirements for pilotage or PECs will be agreed with the CHA. The CHA will manage any PEC applications in accordance with the routine practice for PEC applications on the Humber.	Contractor and CHA CHA CHA

The CHA will identify and manage any additional training or familiarisation with existing Pilots or PECs during the works if it requires. The Contractor is to comply with the requirements of the CHA and PECs if authorised.	Contractor
Liaison As part of the Tidal Works Approval, the Contractor, the SCNA and the Port of Immingham SHA will agree the necessary protocols for liaison during the marine works. All communication channels, procedural requirements for communication and contact details for individual parties will be incorporated into the appropriate documents including: - Risk Assessments - Method Statements The detailed Marine CEMP will be updated to incorporate such measures as required by the Tidal Works Approval. The Contractor will be responsible for complying with the liaison requirements set by the SCNA and the Port of Immingham SHA.	Contractor, SCNA and Port of Immingham SHA Contractor
Supporting / Safety Vessels As part of the Tidal Works Approval, the Contractor will provide details of the construction vessels and method statements to be used during the works. The requirements for supporting / safety vessels will be agreed with the SCNA and Port of Immingham SHA. The Contactor will be responsible for making available throughout the works the necessary safety and support craft, as agreed in the Tidal Works Approval. This may include: - Designated safety craft which is specifically designated for safety of personnel and in particular to respond to a 'Man Over-Board' recovery situation. - Guard or supporting vessels if flat-top barges are proposed as part of the construction craft. All procedural requirements for the use of such supporting / safety vessels as required by the Tidal Works Approval will be incorporated into the appropriate documents including: - Risk Assessments	Contractor, SCNA and Port of Immingham SHA Contractor Contractor

- Method Statements The detailed Marine CEMP will be updated to incorporate such measures as required by the Tidal Works Approval.	Contractor
Dropped object incident reporting: As part of the Tidal Works Approval, the Contractor and the SCNA and Port of Immingham SHA will agree a procedure for actions to be taken if an item is dropped during the construction phase that has the potential to cause a risk to navigation. This will align with the dropped objects procedure outlined in the Deemed Marine Licence and may include surveys, if required by the MMO or SCNA or the Port of Immingham SHA. The Contractor will be responsible for removing any specific obstructions from the seabed in accordance with any requirements. The detailed Marine CEMP will be updated to incorporate this procedure as required by the Tidal Works Approval. The Contractor will be responsible for any dropped object notifications and the implementation of the agreed procedure throughout the duration of the Construction Works.	Contractor, SCNA and Port of Immingham SHA Contractor
Loading / Unloading Plan for Barge Deliveries: As part of the Tidal Works Approval, the plans and method statements provided by the Contractor will include details of any equipment and materials being delivered by barge. The SCNA and Port of Immingham SHA will consider the appropriate requirements which may include: - Non-routine towage assessment - Detailed review of order and method of loading and unloading at the marine works site. The Contractor will be responsible for complying with the specific requirements of the SCNA and the SHA for any barge deliveries.	Contractor, SCNA and Port of Immingham SHA SCNA and Port of Immingham SHA (if required) Contractor
Tanker Berthing Protocols: As part of the Tidal Works Approval, the SCNA and Port of Immingham SHA will discuss and agree the appropriate measures to ensure that appropriate	Contractor, SCNA and Port of Immingham SHA

procedures and protocols are in place for construction personnel during tanker berthing operations. This may include: - Priority berthing for tanker vessels berthing at the IOT - Specific communication channels and liaison requirements (e.g. with VTS) - Vessel exclusion zones - Training and awareness	
All requirements will be incorporated into the appropriate documents including: - Risk Assessments - Method Statements The Contractor will be responsible for complying with the requirements set by the SCNA and the SHA throughout construction.	Contractor
Upon Completion of Construction	
Bathymetric Survey The Contractor will undertake a bathymetric multibeam survey as soon as possible after construction has completed, but prior to the demobilisation of marine plant from site and will provide this to the SCNA and the Port of Immingham SHA (and in the event dropped objects are found, also to the MMO). The purpose of the bathymetric survey is to identify the existence of any dropped components and to confirm the dredged depths reached during the construction works.	Contractor
If the bathymetric surveys identify the presence of dropped objects, the MMO, the SCNA and Port of Immingham SHA will provide further instruction on the measures to be taken. The Contractor will be responsible for following the instructions of the SCNA and Port of Immingham SHA in the event of dropped objects being identified in this bathymetric survey.	MMO, SCNA and Port of Immingham SHA Contractor
Construction alongside the Operation of IERRT (if required)	
Segregation of Marine and Operational Activities As part of the Tidal Works Approval, the SCNA and Port of Immingham SHA will discuss and agree the	Contractor, SCNA and Port

	appropriate measures to ensure that appropriate procedures and protocols are in place for construction works occurring alongside operations. This may include: - Additional measures (e.g. exclusion zones) to ensure separation of marine works from Ro-Ro vessels proceeding to or departing IERRT; - VTS directing marine craft away from pier being berthed on prior to Ro-Ro arriving in the berth pocket; - Special Instructions issued to Ro-Ro not to berth unless the area is clear of marine works craft; - Limitations for barges not to moor in the vicinity of a berthed Ro-Ro vessel. All requirements will be incorporated into the appropriate operational and construction documents including: - Risk Assessments - Method Statements The Contractor will be responsible for complying with the requirements set by the SCNA and the SHA throughout construction.	of Immingham SHA Contractor
	Berthing criteria specific to operation-construction: As part of the Tidal Works Approval, the SCNA and Port of Immingham SHA will discuss and agree the appropriate measures to allow for the safe operation of the berth alongside construction activities. The requirements will be determined by the SCNA and Port of Immingham in line with the respective Statutory duties and may include tidal limits, tug requirements, priority berthing arrangements (e.g. for operational vessels), weather limits (e.g. high winds), that are specific to operation and construction occurring simultaneously. The SCNA and the Port of Immingham SHA will be responsible for the promulgation of this information to the Contractor, the berth operator and other marine users and will manage this in accordance with the management systems and procedures in place. All requirements will be incorporated into the appropriate operational and construction documents including: - Risk Assessments - Method Statements	

	The Contractor will be responsible for complying with the SCNA and the Port of Immingham SHA requirements during construction.	
	Pilotage / PEC As part of the Tidal Works Approval, the CHA will identify and manage any additional training required to be provided to PECs and Pilots manoeuvring during the operation-construction phase of the works.	

Table 3.5: Air quality

Potential Impact	Mitigation/Enhancement Measure	Responsibility
Construction emissions (marine vessels)	The following measures will be implemented to reduce emissions associated with 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

Table 3.6: Noise and vibration

Potential Impact	Mitigation/Enhancement Measure	Responsibility
Construction noise	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)). Also see nature conservation and marine ecology mitigation described at Table 3.3, above. 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	Contractor

Potential Impact	Mitigation/Enhancement Measure	Responsibility
	environmental impacts associated with airborne and underwater noise and vibration from marine 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; • No employees, subcontractors and persons employed on the site will cause unnecessary noise from their activities; • 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; • 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; • 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; and • All contractor communication devices will be used at a minimum audible level. For nature conservation and marine ecology mitigation measures, see Table 3.3, above.	
Construction vibration	Although the initial vibration assessment indicates that significant effects on nearby structures such as the IOT due to construction vibration is unlikely, a piling specific community liaison protocol will be developed so that businesses 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.	Contractor/ABP

Potential Impact	Mitigation/Enhancement Measure	Responsibility
	For nature conservation and marine ecology mitigation measures, see Table 3.3, above. Measures to ensure vibration impacts relating to construction activities are reduced include: • 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 expected; and • If necessary, and where conditions allow, the effective energy per blow can be reduced by decreasing the drop height of the hammer.	
Impact of underwater noise and vibration	To reduce the level of impact associated with underwater noise and vibration 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. • **Vibro piling:** Vibro piling will be utilised where possible (which produces lower peak source noise levels than percussive piling). • **Seasonal piling restrictions**: During percussive piling the following further restrictions will be adopted for nature conservation and marine ecology mitigation measures (Table 3.3). • **Night time piling restrictions**: No percussive piling will take place within the waterbody after sunset and before sunrise on any day between 1 March to 31 March, 1 June to 30 June and 1 August to 31 October inclusive. for nature conservation and marine ecology mitigation measures (Table 3.3). For nature conservation and marine ecology mitigation measures, see Table 3.3, above.	Contractor

Table 3.7: Cultural heritage and marine archaeology

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) (Historic England 2016). However, exact mitigation design will not be finalised until the pre-construction phase is undertaken. The proposed mitigation measures within the draft WSI (Appendix D of this Outline Offshore CEMP) are currently enforced until that time. The WSI will detail the agreed mitigation that will be in place during the construction of the proposed development. The implementation of the activity specific measures agreed in 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). 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. In cases where avoidance is either inappropriate or impossible, the damage to 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	ABP/Contractor

Potential Impact	Mitigation/Enhancement Measure	Responsibility
	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 (see Appendix D) which will be confirmed in the updated WSI (following the pre-construction phase design finalisation). 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. 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).	ABP/Contractor

Table 3.8: Climate change

Potential Impact	Mitigation/Enhancement Measure	Responsibility
Climate change effects	To reduce the effects of climate change, the below measures will 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. • Increasing average temperatures and increasing frequency of hot days and heatwaves: - 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.	Contractor/ABP

Table 3.9: Protected Species

Potential Impact	Mitigation/Enhancement Measure	Responsibility
Impact to protected and notable species during construction	**Marine Mammals** All marine mammals are protected under Schedule 5 of the Marine and Coastal Access Act (2009) and Annex II of the Conservation of Habitats and Species Regulations (2017) ('The Habitats Directive'). Cetaceans are also protected under Annex IV of The Habitats Directive and pinnipeds are protected under	ABP/Contractor

Potential Impact	Mitigation/Enhancement Measure	Responsibility
	Annex V. Pinnipeds are also afforded protection from the Conservation of Seals Act (1970). For detail regarding mitigations measures for marine mammals, see Table 3.3 nature conservation and marine ecology and Table 3.1 physical processes mitigation, above. These include: • The preferential use of vibropiling over percussive piling; • Employment of soft start protocols (JNCC, 2010); and • The use of a Marine Mammal Observer to ensure no observations of marine mammals within 500 m of works for 30 mins prior to commencement of piling. *Reporting* Reports of each piling event should be completed. MMOs will be equipped with binoculars, a copy of the agreed monitoring protocol and the 'Marine Mammal Recording Form', which is an Excel spreadsheet containing embedded worksheets named 'Cover Page', 'Operations', 'Effort' and 'Sightings'. A Word document named 'Deck forms' is also available, and MMOs may prefer to use this when observing before transferring the details to the Excel spreadsheets. Although these forms were developed for seismic surveys, they can be used for piling operations, although many columns will not be applicable. The information that should be included in each report is: • Date and location of the piling activity; • Details of the piling activity, including: - The duration of the pre-piling search; - The soft-start and ramp-up procedures; and - any occasion where piling was delayed or halted due to the presence of marine mammals. • Details of marine mammal searches, including;	

Potential Impact	Mitigation/Enhancement Measure	Responsibility
	- Details of any sightings made by MMO, details of any detections made, and details of the piling activity during the watches; • Details of any marine mammal sightings or detections made; • Details of any problems encountered, such as any instances of non-compliance with this mitigation protocol, and any variation to this agreed mitigation protocol. **Migratory fish** Migratory fish are protected under Annex II of The Habitats Directive. For detail regarding mitigations measures for migratory fish, see Table 3.3 nature conservation and marine ecology and Table 3.1 physical processes mitigation, above. These include: • The preferential use of vibropiling over percussive piling; • Employment of soft start protocols (JNCC, 2010); and • Seasonal restrictions to ensure percussive piling is to be restricted within the waterbody from 1 June to 30 June and 1 August to 31 October inclusive, after sunset and before sunrise on any day. **Non-breeding birds** Non-breeding birds are protected under The Habitats Directive (2017). For detail regarding mitigations measures for non-breeding birds, see Table 3.3 nature conservation and marine ecology and Table 3.1 physical processes mitigation, above. These include: • The preferential use of vibropiling over percussive piling; • Seasonal restriction to ensure no construction between 1 October to 31 March inclusive; • Employment of noise suppression system for piling on the outer finger pier; and	

Potential Impact	Mitigation/Enhancement Measure	Responsibility
	• Cold weather construction restrictions. **Breeding birds** Breeding birds are protected under The Habitats Directive (2017). For detail regarding mitigations measures for breeding birds, see Table 3.3 nature conservation and marine ecology and Table 3.1 physical processes mitigation, above. These include: • The preferential use of vibropiling over percussive piling; and • Employment of noise suppression system for piling on the outer finger pier.	

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, the requirements of the Offshore CEMP specified in Table 3.1 to Table 3.9 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 and ensure the applicable monitoring as detailed in Section 3 is being implemented. The findings of any monitoring will be shared with those persons/organisations identified within the Offshore CEMP. If considered necessary corrective actions will be agreed and implemented under the supervision of the Environmental Site Officer.

3.2.3 The Environmental Site Officer will observe site activities and report any deviations from the Offshore 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 Offshore CEMP as soon as possible following identification of such issues.

3.2.4 The Environmental Site Officer will also assist the Applicant with day-to-day contact with MMO and other regulatory agencies such as the EA and the Marine Management Organisation.

3.2.5 During construction, the Environmental Site Officer will conduct regular walkover surveys to ensure all requirements of the Offshore 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.

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

Records

3.2.7 The Environmental Site Officer will retain records of environmental monitoring and implementation of the Offshore CEMP in a log book. This will allow provision of evidence that the Offshore CEMP is being implemented effectively. These records will include:

- An Environmental Action Schedule;
- Records of licences, permits and approvals;
- Results of inspections;
- Other environmental surveys and investigations; and
- Environmental equipment test records.

3.2.8 As detailed in paragraph 1.1.1, the Principal Contractors Offshore CEMP will be a live document and as such updated regularly, with a full review on at least a quarterly basis throughout construction.

3.3 Management review

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

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Appendix A Outline Stakeholder Management Plan

A.1.1 This plan will be put in place prior to the works commencing. 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 will be developed by the appointed Principal Contractor in conjunction with ABP and approved by the MMO to ensure transparency of reporting and appropriate lines of communication into and out of the Project are established.

A.1.2 For further details regarding the Stakeholder Management Plan, refer to the Outline Onshore CEMP.

Appendix B Outline Shipboard Oil Pollution Emergency Plan

B.1.1 An Outline Shipboard Oil Pollution Emergency Plan (SOPEP) is required under Annex I of the International Convention for the Prevention of Pollution from Ships (MARPOL) for all ships with 400 gross tonnage and above.

B.1.2 The SOPEP is available to assist a ship's crew in dealing with an unexpected discharge of oil. Its primary purpose is to set in motion the necessary actions to stop or minimise the discharge of oil and to mitigate its effects.

B.1.3 The primary objectives of this Plan are to:

- Prevent oil pollution; and
- Stop or minimise oil outflow when a damage to the ship or its requirements occurs.

B.1.4 The SOPEP contains general information regarding a vessel as well as steps and procedure to contain the discharge of oil into the sea using SOPEP equipment. Requirements of a SOPEP include:

- The SOPEP must be written following the provisions of regulation 37 of Annex I of MARPOL.
- The approved SOPEP is adhered to aboard the vessel during an oil pollution incident;
- SOPEP contains all the information and operational instructions related to the emergency procedure and SOPEP equipment;
- The SOPEP must contain important contact information of all the important contacts to be contacted in the event of an oil pollution; and
- A recognised authority has approved the SOPEP.

B.1.5 The SOPEP should be completed ahead of any works occurring onboard a vessel. The following sections should be comprehensively detailed.

B.2 Vessel Detail

B.2.1 Details of the vessels should be outlined within this section.

B.2.2 The general arrangement of the ship should be detailed, including the location of oil tanks and fuel lines.

B.3 Reporting Requirements

B.3.1 Reporting requirements should be outlined in this section alongside guidance to keep records of any pollution incidents.

B.4 Steps to Control Discharge

B.4.1 This section should include the steps required to control discharge, providing clear guidance on how to accomplish this for a variety of situations.

B.4.2 In no case should actions be taken that jeopardise the safety of the crew.

B.5 Priority Actions

B.5.1 Priority actions must be defined. For example, the SPOEP should contain the duty of each crew member at the time of the spill, including emergency muster and actions.

B.5.2 Here, the relevant authorities that must be notified following a pollution event should be listed to ensure a coordinated approach to any pollution event.

B.6 Mitigating Activities

B.6.1 Any mitigating activities should be defined within this section.

B.7 SOPEP Equipment Inventory

B.7.1 This section must include the location of the SOPEP locker as well as an inventory of the locker's contents.

Appendix C Outline Oil Spill Contingency Plan

C.1.1 The existing Oil Spill Contingency Plan and Humber clean for Immingham Port and the HM Humber, will be followed in the event of a spillage, to minimise impacts of a spill entering the port waters.

Appendix D Draft Marine Archaeological Written Scheme of Investigation

KEEPING BRITAIN TRADING

IMMINGHAM EASTERN RO-RO TERMINAL

Environmental Statement: Volume 3
Appendix 15.3: Draft Written Scheme of Investigation (WSI)
Document Reference: 8.4.15 (c)

APFP Regulations 2009 – Regulation 5(2)(a) and 5(2)(e)
PINS Reference – TR030007

December 2022

Immingham Eastern Ro-Ro Terminal
Port of Immingham, North East Lincolnshire

Draft Marine Archaeological Written Schemes of Investigation

Report Ref.: 252400.06
November 2022

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4	11/11/2022	Completed Draft	RM/BJS/SS	AB

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Immingham Eastern Ro-Ro Terminal, Port of Immingham, North East Lincolnshire

Draft Marine Archaeological Written Schemes of Investigation

1 INTRODUCTION

1.1 Project and planning background

1.1.1 Wessex Archaeology has been commissioned by Associated British Ports (ABP) ('the Client'), to produce a draft Written Schemes of Investigation (WSI) for the proposed marine works relating to Immingham Eastern Ro-Ro Terminal (IERRT), Port of Immingham, North East Lincolnshire. The site is centred on NGR 520892 416180 (TA 20892 16180).

1.1.2 The marine proposed works comprise the installation of a jetty, floating pontoons, finger piers and linkspans, capital dredging and the disposal of dredge material.

1.1.3 This draft WSI is prepared in support of Chapter 15: Cultural Heritage and Marine Archaeology of the Environmental Statement (ES; Doc. Ref. no.8.2.15) for the proposed IERRT project.

1.2 Development description

Marine infrastructure

2.1.1 The proposed marine works will consist of the creation of:

- An open piled approach jetty;
- The linkspan between the approach jetty and the floating pontoons;
- Two floating pontoons with an overall depth up to 9.35 m;
- Two 264 m finger piers;
- A short linkspan between the two pontoons; and
- The possible inclusion of vessel impact protection structure adjacent to the approach jetty.

Capital dredge

1.2.1 The proposed development will require a capital dredge of the new berthing area. The maximum spatial extent of the dredge is currently estimated at being approximately 70,000 m². The berthing area will be dredged to a maximum of 9 m below Chart Datum (CD). The area beneath the floating pontoons will be dredged to 6 m below CD.

1.2.2 It is estimated that about 190,000 m³ of material in total will be removed. This is likely to constitute approximately 40,000 m³ of boulder clay, alongside 150,000 m³ of sand/silt (alluvium) *in situ*.

Disposal of dredge material

1.2.3 If ABP is unable to identify a beneficial use for the dredged material it is currently estimated that about 40,000 m³ of boulder clay, alongside 150,000 m³ of sand/silt (alluvium) *in situ* is likely to require disposal in the estuary. It is envisaged that the disposal sites HU056 (Holme Channel) and HU060 (Clay Huts) will be used to dispose of material.

1.3 Construction programme

1.3.1 Construction works are proposed to start in early 2024 and be largely complete by mid-2025, if completed in a single construction programme. If construction is undertaken in a sequenced construction programme, works would be completed in late 2026.

1.4 Scope of document

1.4.1 This WSI sets out the aims of the marine investigation, and the methodologies and standards that will be employed by the Client and Retained Archaeologist to implement the mitigation strategy set out in the Environmental Statement (ES) (Doc. Ref. no. 8). In format and content, it conforms to current best practice and to the guidance outlined in *Management of Research Projects in the Historic Environment* (MoRPHE, Historic England 2015c), the Joint Nautical Archaeology Policy Committee *Code of Practice for Development* (JNAPC 2006) and the relevant guidance from the Chartered Institute for Archaeologists (CIfA) (CIfA 2014a-h), as applicable.

1.4.2 This document will be submitted with the ES (Doc. Ref. no. 8), for approval by the Secretary of State, prior to the commencement of any investigative work.

1.4.3 The WSI will come into effect when it has been agreed with the Archaeological Curators and following consent, however, to ensure best practice any activities undertaken prior to consent should strive to be undertaken in line with the WSI.

2 THE ARCHAEOLOGICAL ASSESSMENT AREAS

2.1 Co-ordinate system

2.1.1 For all aspects of this report, positions are reported in the British National Grid (BNG) coordinate system, with heights calculated as distance above Ordnance Datum (Newlyn), as defined by OSGM15 and OSTN15.

2.2 Archaeological assessment areas

2.2.1 The marine study area for the assessment is the area over which potential direct and indirect effects of the IERRT project have been predicted to occur on marine heritage receptors during the construction and operational periods.

2.2.2 The marine study area therefore comprises the proposed development area of the IERRT project below Mean High Water Springs (MHWS). This encompasses all direct impacts from construction and dredging. A further 500 m buffer zone beyond the area of the proposed development has been included in order to capture relevant proximate heritage receptors in the assessment that could be affected indirectly. This area is known as the Archaeological Study Area (ASA).

2.2.3 The assessment of the harbour setting, including designated terrestrial heritage receptors, considered a wider area, comprising a 5 km buffer zone beyond the area of the proposed development was considered in a separate report (Wessex Archaeology 2022a).

3 AIMS AND OBJECTIVES

3.1 Aims

3.1.1 The aim of the WSI is to put in place the archaeological mitigation set out in the ES (Doc. Ref. no. 8.2.15).

3.2 Objectives

3.2.1 The objectives of this WSI are as follows:

- to fulfil the requirements of the Development Consent Order in respect of archaeological monitoring and mitigation works associated with this project, as outlined in the ES;
- to provide for the creation, position and extent of Archaeological Exclusion Zones (AEZs) that may be required should circumstances so demand, and to establish methods for their monitoring, modification and/ or removal in the future;
- to ensure that any further geotechnical investigations associated with the project are subject to archaeological input, review, recording and sampling;
- to propose measures for the mitigation of unexpected archaeological remains encountered during further survey work or construction work associated with the project;
- to set out methodologies for post-construction monitoring; and
- to establish the reporting and archiving requirements for the archaeological works undertaken during construction and post-construction monitoring.

3.3 Addressing questions from the Research Agendas

3.3.1 Themes, objectives and areas of research from the regional Research Agenda will inform survey designs and will be addressed in the results of any reports (Table 1).

Table 1 Objectives for future research from the Research Agenda

Research Agenda	Objective
East Midlands Heritage An Updated Research Agenda and Strategy for the Historic Environment of the East Midlands (Knight, Vyner and Allen 2012).	- **Palaeolithic 1H** Explore the submerged Pleistocene landscapes of Doggerland. - **Mesolithic 2I** Exploring Doggerland: target submarine landscapes and the modern coastline - **Modern 9D** Investigate use of rivers for transport & power

4 ROLES, RESPONSIBILITIES AND COMMUNICATION

4.1 Client (ABP)

4.1.1 The Client will be responsible for implementing this WSI and the mitigation measures, such as the Protocol for Archaeological Discoveries (PAD).

4.1.2 The Client and/or their representative will commission a suitably qualified and experienced archaeological contractor as Retained Archaeologist (section 4.2).

4.1.3 The Client and/or their representative will consult the Retained Archaeologist during the planning stages for any further work.

4.1.4 The Client and/or their representative will commission Archaeological Method Statements prior to works being undertaken that may impact the seabed.

4.1.5 The Client and/ or their appointed representatives, or any archaeological body they may appoint to manage the implementation of the Marine Archaeological WSI, will seek curatorial advice from the Archaeological Curator(s) (section 4.3) as appropriate.

4.1.6 Interaction with the Archaeological Curator(s) will be administered by the Client and/or their appointed representatives with advice where appropriate through the Retained Archaeologist. If a new site of archaeological importance is discovered during works, the Archaeological Curator(s) will be contacted immediately.

4.1.7 The Client and/or their appointed representatives will be responsible for administering the obligations of the *Merchant Shipping Act* 1995 with specific regard to reports of wreck and salvage and will ensure that droit reports are dealt with accordingly. The Client and/or their appointed representatives will ensure that recovered material identified as 'wreck' is reported to the Receiver of Wreck within 28 days of discovery. The Client and/or their representative will be responsible for the submission of this report, the legal obligations under the *Merchant Shipping Act* 1995 and all correspondence. If recovered material is held by the Retained Archaeologist, it is essential they are included in all correspondence with the Receiver of Wreck (section 4.3) and are aware of any updates or changes to the reports (commonly known as droits) associated with the material. The Client and/or their appointed representatives will be responsible for ensuring the legal obligations associated with the droits are undertaken.

4.1.8 The Client and/or their representative will ensure that the Retained Archaeologist is provided with all relevant project datasets, to ensure that they are in an informed position to advise the Client. This is particularly important between the planning and construction phases, and at any stage if the Retained Archaeologist changes, to ensure consistency.

4.1.9 The Client and/ or their appointed representatives will ensure that Contractors make project personnel aware of this Marine Archaeological WSI, any AEZs in force, and a bespoke Protocol for Archaeological Discoveries.

4.1.10 The Client will commit to following guidance set out in the Joint Nautical Archaeology Policy Committee (JNAPC) code of practice for seabed development (JNAPC 2006) and *The Assessment and Management of Marine Archaeology in Port and Harbour Development* (Historic England 2016), as applicable.

4.2 Retained Archaeologist

4.2.1 The Retained Archaeologist will oversee archaeological mitigation to provide consistency throughout the project, as required, and will implement the WSI.

4.2.2 The Retained Archaeologist will produce Archaeological Method Statements for works, as appropriate.

4.2.3 The Retained Archaeologist will act as the first contact for any unexpected archaeological discoveries. The Retained Archaeologist will cover the administration of the reporting of discoveries made by the Client and/or their representative and will provide immediate actions, including recording, handling and storage, and introduction of measures to prevent or reduce damage if the presence of a significant archaeological site is suspected. The Retained Archaeologist will ensure any unexpected discoveries of archaeological material are assessed, as per the protocol (see section 9.8), and reported to the relevant curators and stakeholders. Recovered material identified as 'wreck' must be reported to the Receiver of Wreck by the Retained Archaeologist within 28 days of discovery. The Client and/or their representative will be involved with the submission of this report and all following correspondence.

4.3 Other key stakeholders

Archaeological Curator: Historic England

4.3.1 Historic England is a specialist advisor to the Marine Management Organisation for the English area of the UK territorial sea. They are the Archaeological Curators for the marine section of the works.

Receiver of Wreck

4.3.2 Material identified as 'wreck' that has either been recovered within UK territorial waters or brought into UK territorial waters must be reported to the Receiver of Wreck under the *Merchant Shipping Act* 1995. The Receiver of Wreck is located within the Maritime Coastguard Agency and works with other government departments and heritage organisations.

4.3.3 Wreck material is reported to the Receiver of Wreck via their website: https://www.gov.uk/report-wreck-material

4.3.4 The Receiver of Wreck's contact details are as follows:

- Receiver of Wreck, Maritime & Coastguard Agency, Spring Place, 105 Commercial Road, Southampton, SO15 1EG. Tel: 0203 817 2575. Email: row@mcga.gov.uk

4.3.5 Further details about how to manage discoveries of wreck material can be found in Section 10.6.

Ministry of Defence

4.3.6 Under the *Protection of Military Remains Act* 1986, any aircraft that crashed while in military service are automatically protected. Therefore, based on the precautionary principal, all finds or sites of aircraft should be reported to the Joint Casualty and Compassionate Centre (JCCC) of the Ministry of Defence (MoD), unless it can be proven without a doubt that the aircraft material is non-military. In any case, all finds of aircraft material should also be reported to the Receiver of Wreck.

4.3.7 Further details about how to manage discoveries of aircraft material, including restrictions, licensing, and guidance can be found in Sections 9.8 and 10.5.

Harbour Master's jurisdiction

4.3.8 The *Harbours Act* 1964 enables a harbour authority to amend various statutory powers including the power to raise, remove, destroy and mark wreck to ensure safe navigation within, or in or near the approaches, a harbour. However, removal of wreck may still need to be reported to the Receiver of Wreck in line with the *Merchant Shipping Act* 1995.

4.3.9 Harbour authorities may have additional powers under other legislation, for instance Harbour Masters have powers under the *Harbour, Docks and Piers Clauses Act* 1847 where it has been incorporated into local harbour legislation. However, again the Receiver of Wreck should be contacted prior to any recovery or destruction of wreck.

4.3.10 ABP are the harbour authority for the Port of Immingham under *The Harbour Directions (Designation of Harbour Authorities) (No. 2) Order* 2015.

4.4 Archaeological Contractor(s)

4.4.1 Archaeological Contractor(s) may be appointed to carry out specific packages of work, for example works beyond the in-house capabilities of the Retained Archaeologist, or additional works, as required. The Archaeological Contractor(s) may be appointed by the Client or their appointed representatives (the Retained Archaeologist or other contractors/ sub-contractors). In these instances, the Archaeological Contractor will ensure that works are specified, planned, undertaken and reported in accordance with this archaeological WSI.

4.5 Client contractors

4.5.1 The responsibility for implementing the archaeological WSI rests with the Client and their appointed representatives (including their contractors).

4.5.2 All relevant contractors engaged in the construction of the project shall:

- familiarise themselves with the requirements of the outline offshore archaeological WSI and make them available to all of their staff working on the project (e.g. for Protocol briefings and archaeological input into method statements);
- communicate with the Retained Archaeologist in the planning stages of any further survey work, to ensure archaeological objectives are included, as appropriate;
- implement a PAD;
- obey legal obligations in respect of 'wreck' and 'treasure' under the *Merchant Shipping Act* 1995 and the *Treasure Act* 1996, respectively;
- obey legal obligations in respect of *Protection of Military Remains Act* 1986.
- respect constraint maps and AEZs;

- assist and afford access to archaeologists employed by the Client; and
- inform the Retained Archaeologist of any environmental constraint or matter relating to health, safety and welfare of which they are aware that is relevant to the archaeologists' activities.

5 ARCHAEOLOGICAL BASELINE SUMMARY

5.1 Introduction

5.1.1 A full assessment of the archaeological baseline is presented and fully illustrated in the marine archaeological technical report (Wessex Archaeology 2022b). A summary is provided below.

5.1.2 The themes relevant to marine archaeological baseline as assessed in the technical report were:

- Seabed prehistory (for example, palaeochannels and other features that contain prehistoric sediment, and derived Palaeolithic artefacts e.g. handaxes);
- Seabed features, including maritime sites (such as shipwrecks and associated material including cargo, obstructions and fishermen's fasteners) and aviation sites (aircraft crash sites and associated debris);
- Intertidal heritage receptors; and
- Historic seascape character.

5.2 Summary of known and potential archaeological receptors

Palaeogeographic Assessment

5.2.1 The assessment of geophysical data within the Archaeological Study Area (ASA) defined in the marine archaeological technical report resulted in the identification of a total of 25 features of palaeogeographic interest. These are summarised as follows:

- a total of 11 features, comprising channel features and deposits of organic material were assigned an P1 archaeological rating;
- a total of 14 features comprising simple cuts and fills, and other deposits were assigned an P2 archaeological rating.

5.2.2 In addition to the individual palaeogeographic features, a layer of potential peat and/or organic sediments was also identified within the study area.

5.2.3 Due to the shallow water depths and acoustic blanking experienced within the Sub Bottom Profiler (SBP) data, it was not always possible to trace individual features between survey lines which can lower the confidence of interpretation.

Known intertidal

5.2.4 Seven records of heritage receptors are located within the intertidal zone. These records relate to coastal infrastructure, such as dolphins associated with the 20th century port.

Known maritime

5.2.5 There are no designated marine heritage receptors in the ASA.

5.2.6 There are two known wreck sites within the ASA. Little is known about either of these.

5.2.7 A number of sites relate to port infrastructure and include the jetties and dolphins associated with the 20th century port.

5.2.8 There are also a number of anomalies in the area that are as yet unidentified.

Known aviation

5.2.9 There are no designated aviation heritage receptors in the ASA. There are no known aviation sites within the ASA.

Maritime and aviation archaeological potential

Geophysical anomalies

5.2.10 The assessment of geophysical data within the study area resulted in a total of 102 anomalies identified as being of possible archaeological interest. These are summarised as follows:

- a total of 26 were assigned an A2_h archaeological rating; and
- a total of 76 were assigned an A2_l archaeological rating.

5.2.11 Due to these anomalies being located close to shore within a known currently busy and active area all the A2 anomalies have the potential to be modern debris, but without visual inspection this could not be confirmed, and so all were retained as a precaution.

Maritime potential

5.2.12 As an island nation, the UK has a long maritime history with potential for the archaeological evidence of maritime sites from the late Mesolithic through to the present day. The Humber is one of the largest estuaries in Britain with a rich and nationally important archaeological, geological and palaeoenvironmental record. It has been, and still is, a significant transport, trade and communication route. Maritime sites are defined for the purposes of this assessment as either wrecks (seagoing vessels or aircraft) and/or material that has been accidentally or deliberately lost overboard from a vessel or aircraft. The proposed development lies close to some of the historic shipping routes for British vessels travelling along the east coast, with vessels stopping at intermediate ports, including the Ports of Hull, Grimsby, New Holland and North Killingholme Haven. The main drivers for these routes were the trade in coal, ship building, the steel industry, and the fishing industry. There is the potential for the presence of maritime archaeological material from all periods within the study area.

Aviation potential

5.2.13 There is potential for the presence of aviation material dating from the early 20th century until more recent times, with a concentration dating to the World Wars and in particular to the Second World War. Discoveries may occur anywhere within the study area, but potential may increase nearer the coastlines in the vicinity of coastal defence networks protecting the strategically important military and civil infrastructure on England's east coast.

6 POTENTIAL IMPACTS

6.1.1 Impacts on the marine heritage receptors from the development could take place from construction and subsequent operational activities of the IERRT project. These could include direct and indirect impacts.

6.2 Direct

6.2.1 Any direct impacts to marine archaeological receptors are likely to occur during the construction stage of the proposed IERRT project. Impacts resulting in adverse effects upon archaeological receptors from construction works are those involving contact with the seabed. Marine archaeological receptors with height, such as shipwrecks, may also be impacted by activities that occur within the water column.

6.2.2 Construction activities that could have direct impacts will primarily consist of piling which could lead to physical damage of the archaeological resource and deformation of the surrounding deposits. The use of floating/jack up barge will be used to undertake piling on the finger piers.

6.2.3 Direct impacts to marine archaeological receptors are also likely to occur during dredging activities. The dredging will be conducted using a tug assisted backhoe dredger and possibly a trailer suction hopper dredger (TSHD). If dredged material is to be dispersed at sea then it will be transported to the identified disposal sites by bottom dumping split barges.

6.3 Indirect

6.3.1 The indirect effects upon the known and potential marine archaeological receptors are those which occur as a result of changes to hydrodynamic and sediment transport regimes, where these changes have occurred as a consequence of activities and structures associated with the construction and dredging activities. These impacts may occur through sediment dispersal / deposition from dredging activities or scour associated with the disturbance from construction activities and structures.

7 MITIGATION

7.1 Introduction

7.1.1 The following proposed measures are designed to mitigate against the impact the proposed work has on any sites with known or unknown archaeological potential:

- An archaeological assessment (see section 7.2) of geophysical data collected prior to the start of works;

- The implementation of a bespoke finds report Protocol for Archaeological Discoveries (PAD) (see section 7.4) during dredging operations to ensure that any archaeological finds are reported via the Retained Archaeologist to Historic England and North East Lincolnshire HER; and
- An archaeological assessment (see section 7.5) of geoarchaeological data collected as part of the ground investigation works.

7.2 A1s

7.2.1 A1 objects (receptors) are items of anthropogenic origin and archaeological interest identified through the geophysical survey. Currently no A1 anomalies have been identified. If any A1 anomalies are identified, consultation will take place with the Retained Archaeologist.

7.3 A2 geophysical anomalies

7.3.1 A2 anomalies (receptors) are items of uncertain origin of possible archaeological interest identified during the geophysical survey process. There were 102 A2 anomalies identified in the ASA. As part of the mitigation process the contractors will receive an awareness presentation and material, including guidance on archaeological material, temporary exclusion zones if required and the reporting protocol process.

7.4 Unexpected discoveries

7.4.1 To mitigate against any possible unexpected discoveries during the dredging phase a PAD is outlined below (section 9.8) for implementation by the contractors with the support of the Retained Archaeologist.

7.5 Palaeogeographic assessment

7.5.1 A Stage 1 geoarchaeological assessment of the core logs will be carried out to further refine the palaeolandscape interpretation.

7.5.2 As there is the potential for peat to be present at the surface within the dredge area, any deposits of archaeological or palaeoenvironmental interest recovered during the proposed works should be reported to a suitably qualified archaeological contractor via a pre-agreed reporting protocol.

7.5.3 Finally marine boreholes are planned to be taken in the P1 cut and fill (**75022**) and the P1 possible peat overlying the channel in the north-east edge of the features (**75023**). These will also be subject to geoarchaeological assessment. Further information on these features is provided in the technical report (Wessex Archaeology 2022b).

Table 2 Borehole targets.

ID	Classification	Depth range (mbSB) from	Depth range (mbSB) to	Description	Interpreted unit
75022	Cut and fill	1.1	4.1	Possible cut into interpreted till with a distinct basal reflector with internal parallel reflectors at the base, suggesting possible laminated deposits and overlain with more chaotic reflectors. Full extents may not be visible due to blanking. Overlain by very high amplitude reflectors at the seabed. No vibrocores were acquired within the extents of this feature.	4
75023	High amplitude reflector	1.3	4.4	Shallow high amplitude reflector indicating the possible presence of organic material. May form the basal reflector of a shallow feature which possibly cuts into or overlays the chaotic reflectors interpreted as sands (**75018**), and is overlain by the high amplitude reflectors at the seabed. May be associated with **75014** but cannot be sure as not definitively seen on intervening lines. No vibrocores were acquired within the extents of this feature.	4 (possibly)

8 METHOD STATEMENTS

8.1.1 This Marine Archaeological WSI provides a framework for further archaeological investigations for the IERRT project. This will be finalised as part of the DCO examination process. All works will be undertaken in accordance with the methodology set out within this WSI and in compliance with the standards outlined by the CIfA (CIfA 2014a-h), excepting where they are superseded by statements made below.

8.1.2 Detailed method statements will be produced, as required, for further archaeological works, primarily the geoarchaeological assessment of marine boreholes; such as those identified in the 'Scheme of Investigations' section, below, for example Watching Briefs if required.

8.1.3 Each archaeological method statement will correspond to a defined package of works, for example, archaeological assessment of marine geophysical data, archaeological assessment of ROV data from the UXO survey, and archaeological investigation using divers and/or ROVs.

8.1.4 Method statements will provide details about:

- Form of commission and contractual relationship with the Client;
- Relation between the method statement, the WSI and any relevant conditions in the DCO;
- Context in terms of relevant construction works;
- Specific objectives of archaeological works;
- Extent of investigation;
- Investigation methodology;

- Anticipated post-investigation actions, including processing, assessment and analysis of finds and samples;
- Reporting;
- Timetable;
- Monitoring arrangements; and
- Health, safety and welfare.

8.1.5 Method statements will be prepared in consultation with Historic England and then provided to ABP for comment. Method statements will be submitted to the Marine Management Organisation for approval four weeks prior to any works commencing. Such method statements will include provision for Historic England where appropriate to monitor the progress of the archaeological works, as appropriate to that element, be that through site visits or meetings with ABP, the Contractor(s), and the Retained Archaeologist.

8.1.6 All contractors and sub-contractors will be sent the approved archaeological method statements including the results of any relevant archaeological surveys prior to work commencing.

9 SCHEME OF INVESTIGATIONS

9.1 Introduction

9.1.1 The following schemes of investigations provide a framework for the implementation of any additional mitigation that may be required in response to any unexpected discoveries during the different phases of the project, based on the referenced guidance indicated below.

9.1.2 The Mitigation section (section 7) provided a brief overview of the types of further archaeological investigations recommended for identified High, Medium, and Low archaeological receptors, unknown, and riverbed prehistory and other archaeological receptors (Wessex Archaeology 2008 a, b, c; 2012; 2013). The Scheme of Investigations section sets out how these investigations will be undertaken.

9.1.3 The Retained Archaeologist will provide input on the contractors' proposed survey method statements to ensure data collection is optimised so that it can be used to identify features of archaeological importance and inform mitigation proposals such as avoidance of wrecks and wreck debris.

9.2 Standards and guidance

9.2.1 The method statements and specifications in this document are based on archaeological best practice and guidance for marine and port and harbour development. The principal sources in chronological order of issue are:

- *Identifying and Protecting Palaeolithic Remains: Archaeological Guidance for Planning Authorities and Developers* (English Heritage, 1998);
- *Managing Lithic Scatters: Archaeological Guidance for planning authorities and developers* (English Heritage (now Historic England), 2000);

- *Military Aircraft Crash Sites: Guidance on their Significance and Future Management* (English Heritage, 2002);
- *Code for Practice for Seabed Development (Joint Nautical Archaeology Policy Committee* (JNAPC) 2006);
- *Conservation Principles, Policies and Guidance for the Sustainable Management of the Historic Environment* (English Heritage (now Historic England), 2008);
- *Our Seas – A Shared Resource: High Level Marine Objectives (Department for Environment, Food and Rural Affairs* (DEFRA, 2009);
- *Environmental Archaeology: A Guide to the Theory and Practice of Methods, from Sampling and Recovery to Post-excavation* (second edition) (English Heritage (now Historic England), 2011);
- *Ships and Boats: Prehistory to Present – Designation Selection Guide* (Historic England, 2012);
- *Marine Geophysics Data Acquisition, Processing and Interpretation Guidance Notes* (Bates et al 2013);
- *Standard and guidance for archaeological field evaluation* (CIfA 2014a);
- *Standard and Guidance for historic environment desk-based assessment* (CIfA 2014h);
- *Standard and guidance for nautical archaeological recording and reconstruction* (CIfA 2014g);
- *Dredging and Port Construction: Interaction with Features of Archaeological or Heritage Interest, Guidance Document No 124-2014* (PIANC 2014);
- *Geoarchaeology: Using Earth Sciences to Understand the Archaeological Record* (English Heritage (now Historic England), 2015a);
- *Managing Significance in Decision-Taking in the Historic Environment: Good Practice Advice in Planning Note 2* (Historic England 2015b);
- *Preserving Archaeological Remains: Decision-taking for Sites under Development* (Historic England, 2016a);
- *The Assessment and Management of Marine Archaeology in Port and Harbour Development* (Historic England 2016b);
- *Deposit Modelling and Archaeology. Guidance for Mapping Buried Deposits* (Historic England 2020).

9.3 Archaeological reporting, data management and archiving

9.3.1 Each package of archaeological works will be accompanied by written reports pursuant to the requirements of those works and demonstrating appropriate planning, recording and data management and commitment to archiving and public dissemination of results.

9.3.2 For all aspects of recording, reporting, data management and archiving ABP will adhere to standards and guidance as set out in CIfA 2014b.

9.3.3 Key points relevant to recording, reporting, data management and archiving are included below and in sections 11.3 and 12.4.

Reports

9.3.4 Each package of work will give rise to one or more Archaeological Reports, as set out in the Method Statement relating to the work.

9.3.5 Each Archaeological Report will satisfy the method statement for the investigation and will present the project information in sufficient detail to allow interpretation without recourse to the project archive.

9.3.6 Archaeological reports will be prepared in accordance with the guidance given in the relevant CIfA Standards and Guidance document (CIfA 2014b).

9.3.7 Survey data and reports will be reviewed from an archaeological perspective to ensure suitable mitigation is put in place for the proposed works. The reviews will consider:

- relationship between the survey work, the WSI and the licence condition(s);
- context in terms of relevant construction works;
- specific objectives data review;
- extent of investigations undertaken;
- methodology for data review or analysis;
- mitigation requirements;
- monitoring arrangements;
- recommendations.

9.3.8 Illustrations will include a plan of the area subject to investigation in relation to the development scheme.

9.3.9 Each Archaeological Report will be submitted in draft to ABP by the Retained Archaeologist. Upon approval by ABP, Archaeological Reports will be submitted to the Archaeological Curator (Historic England) for approval within four weeks of completion of the works associated with each Method Statement and their agreement/acceptance will be assumed if no contrary response is received within 15 working days of submission.

9.3.10 On completion of all archaeological works relating to the project an overarching report on the archaeology of the scheme will be prepared within a timetable agreed with ABP and Historic England.

Post-fieldwork Assessment

9.3.11 Following the completion of all relevant work, ABP will secure the implementation of all the post-construction archaeological work applicable to that relevant work.

9.3.12 Decisions regarding the scope of post-fieldwork assessment will be made by agreement between ABP and Historic England following submission of investigation reports, based on the possible importance of the results in terms of

their contribution to archaeological knowledge, understanding or methodological development.

9.3.13 The assessment phase may include (but is not limited to) the following elements:

- the conservation of appropriate materials, including the X-raying of metalwork;
- the spot-dating of all pottery from any investigation. This will be corroborated by the scanning of other categories of material and may include scientific dating methods;
- the preparation of Site matrices with supporting lists of contexts by type, by spot-dated phase and by structural grouping supported by appropriate scaled plans;
- an assessment statement will be prepared for each category of material, including reference to quantity, provenance, range and variety, condition, and existence of other primary sources; and
- a statement of potential for each material category and for the data set will be prepared, including specific questions that can be answered and the potential value of the data to local, regional and national investigation priorities.

9.3.14 Once the final overarching assessment report has been approved by the Archaeological Curator (Historic England) and any subsequent analysis of the finds is completed, important results will be published in a recognised peer-reviewed journal or as a monograph.

9.4 Archaeological exclusion zones

9.4.1 No archaeological exclusions zones (AEZ) have been implemented at this time.

9.4.2 In the case of high importance finds or finds thought to be of high importance, an AEZ dependant on the operation in action will be implemented until consultation with the Retained Archaeologist and Historic England have occurred. The AEZ will comprise a 50 m radius until consultation with the Retained Archaeologist and Historic England has occurred.

9.5 Marine geoarchaeological investigations

9.5.1 Further marine geotechnical work is planned. The scope and methodology of these further geoarchaeological works will be set out in a separate method statement, prepared by the Retained Archaeologist and agreed with the Archaeological Curator, including the Historic England Science Advisor.

9.5.2 The method statement will include clear provisions for the development of a collection, retention and storage strategy for cores, to allow for analysis to take place. It will be recommended for cores to be collected using light-proof sleeves, and that cores must be stored and split under light-safe (dark) laboratory conditions, in order to promote the preservation of the integrity of deposits of a certain age.

9.6 Archaeological watching briefs

9.6.1 A Watching Brief is recommended to monitor the dredging work. This work will depend on the dredging methods utilised, and its exact extent will be laid out in a Method Statement agreed with Historic England in advance. It is anticipated that the dredging will be conducted using a tug assisted backhoe dredger and possibly a trailer suction hopper dredger (TSHD). Dredged material will be transported to disposal sites by bottom dumping split barges.

9.6.2 Should any archaeological material be recovered during dredging, it will be analysed and recorded according to the principles set out in Section 9.2.

9.6.3 Recovery of any archaeological material within the Watching Brief will be completed under the supervision of the Retained Archaeologist with any artefacts or structural fragments returned to the quayside for appropriate archaeological storage (see Section 10).

9.6.4 For all aspects of archaeological watching briefs on board a dredging vessel, ABP and the Retained Archaeologist will adhere to standards and guidance as set out in CIfA 2014a, *Dredging and Port Construction: Interactions with Features of Archaeological or Heritage Interest* (PIANC 2014) and *The Assessment and Management of Marine Archaeology in Ports and Harbours* (Historic England 2016b).

9.6.5 Recording will include written, drawn, and photographic elements as conditions allow.

9.6.6 The findings of any watching briefs will be compiled as an Archaeological Report consistent with industry standards set out in Section 11.3.

9.7 Awareness training

9.7.1 The Retained Archaeologist will provide awareness training to all relevant contractors working on the dredging works. The detailed training on the identification of finds of archaeological potential will ensure that staff are aware of what constitutes an appropriate find and the procedure for reporting such discoveries. Where the origin or nature of an item is in question the precautionary principle will be employed and the item fully reported through the Protocol outlined below.

9.7.2 Training will focus on the types of material likely to be discovered during the dredging, for example:

- aircraft material, what constitutes it, what types of material could be present and how to recognise it;
- shipwreck material, including identifying wood that has been worked (for example, includes the presence of treenails and/or has been shaped, for example for a logboat or a clinker-built boat), fixtures and fittings, pottery, and other material that could be present on a shipwreck; and
- prehistoric material, such as handaxes and palaeoenvironmental material that could be encountered.

9.7.3 Training will include an overview of levels of importance, and what constitutes an archaeological find. More information regarding the types of materials that could be discovered can be found in Annex 3.

9.7.4 Training will also include information on handling and storing archaeological discoveries.

9.7.5 Training given to the dredging staff will have a substantially greater level of detail than that provided for general staff under the terms of the PAD and will include advice on their responsibilities regarding the implementation of the WSI and PAD.

9.7.6 In addition, training will ensure that all staff understand their role and the method for reporting finds of archaeological potential through the PAD (see Annex 1).

9.7.7 Awareness visits will take place prior to the commencement of dredging work, and they will include: the works manager, superintendents, dredging staff, general vessel crew and office staff.

9.7.8 The timing of these visits will be based upon the dredging scheduled and staff/vessel changeovers, including pre-dredge clearance operations.

9.7.9 An awareness visit will be provided for each vessel before the dredging work commences. The captain and other crew members will be responsible for the training handover with their colleagues; however, additional awareness visits could be provided if requested to smooth the transition.

9.7.10 ABP will keep the Retained Archaeologist informed of the exact arrival dates for each vessel during the project.

9.7.11 Provision will be made for Historic England to attend a training session to monitor the approach and provide additional information if required. The Retained Archaeologist will contact Historic England regarding the most suitable awareness training. This is likely to be a virtual training session.

9.7.12 Periodic visits to the dredging site by the Retained Archaeologist will be planned to ensure proper adherence to the PAD (see Section 9.6). The frequency and timing of these visits will be determined in accordance with the dredging programme.

9.7.13 Although unlikely to be an issue, should the need arise, Historic England will be informed if the methods of reporting are falling short of necessary standards. This is to ensure that Historic England can be confident that every effort is made to protect and record archaeological material from unwarranted impacts.

9.8 Protocol for archaeological discoveries

9.8.1 A Protocol for Archaeological Discoveries (the Protocol) will be implemented as best practice to ensure that the project is prepared for any unexpected discoveries of archaeological material – including shipwreck material, aircraft remains, submerged prehistoric material or other archaeological material.

9.8.2 The Protocol will be utilised alongside the archaeological watching brief.

9.8.3 The Protocol will be implemented to ensure that unexpected discoveries of archaeological material made outside of the above mitigation methods– including submerged prehistoric material, shipwreck material aircraft remains, and any other archaeological material – are addressed in a timely and appropriate manner.

9.8.4 The aim of the Protocol is to reduce any adverse effects of the proposed development on the historic environment by enabling people working on the proposed development to report archaeological finds in a manner that is both convenient to their everyday work and effective regarding curatorial requirements.

9.8.5 The Protocol has been specifically designed to deal with any discoveries made during the dredging phase of the project. Flow charts of actions/communications and recording sheets associated with the Protocol can be found in Annexes 1-2.

9.8.6 This Protocol is designed to be used in conjunction with the proposed backhoe and TSHD dredging methodology for capital dredging. Should other dredging methodologies be proposed, a review and re-issuing may be necessary.

9.8.7 Archaeological finds made during dredging and construction activities are important because they can shed light on past human use of the landscape, sea, and seabed. The information that such discoveries bring to light can help archaeologists better understand the human past and should, therefore be conserved to better protect these aspects of our history on behalf of future generations.

9.8.8 The Protocol will be implemented to ensure that these discoveries are reported and analysed. Whilst there are no industry standard PADs for harbour and port development, the following methodology has been adapted from already approved protocols for other industries, specifically the British Marine Aggregates Producers Association (BMAPA) and English Heritage (EH) P*rotocol for Reporting Finds of Archaeological Interest* (BMAPA & EH 2005) and the *Protocol for Archaeological Discoveries: Offshore Renewables Projects* (Wessex Archaeology 2010).

Methodology

9.8.9 The implementation of the Protocol will be initiated by a visit by the Retained Archaeologist to the relevant vessels to ensure that all staff are aware of what constitutes an appropriate find. Contact details, including those of the Nominated Contacts and the Archaeological Contractor, will be circulated once they have been confirmed. Contact details will be circulated as soon as possible in advance of dredging commencing.

9.8.10 When discoveries are made by Staff, either on the seabed or onboard a vessel, they can then be reported to a Site Representative on their vessel. The Site Representative will generally be the Master, or a person nominated by the Master to be the Site Representative. The Site Representative then reports to the Nominated Contact – a person who has been appointed by the dredging contractor to co-ordinate implementation of the Protocol. The Nominated Contact will then report any discoveries to the Retained Archaeologist.

9.8.11 The Retained Archaeologist will in turn inform the Archaeological Curator. If the find is a ‘wreck’ within the meaning of the *Merchant Shipping Act* (1995) then the

Client, with advice from the Retained Archaeologist, will also make a report to the Receiver of Wreck. The Retained Archaeologist will inform ABP of the discovery and will produce an archaeological report of the finds at the end of the marine works.

Actions on the vessel: anomalies on the seabed or finds recovered from the seabed

9.8.12 If an anomaly such as resistance on the drag head or interruption in the flow of dredged material indicates that an object or structure has been encountered on the seabed, the Officer on Watch will inform the Master / Site Representative.

9.8.13 Where it is possible to identify the position of the anomaly or find, the Officer on Watch will temporarily cease works in the vicinity of the seabed location until the advice of the Retained archaeologist has been obtained. The Officer on Watch will arrange for any dredging gear to be examined as soon as possible to see if any archaeological material is trapped within it and will inform the Master / Site Representative accordingly.

9.8.14 The Master / Site Representative will note the occurrence as soon as possible in the vessel's log together with the time and exact vessel position. Where possible, the log entry should include a close approximation of the original position of the anomaly on the seabed. Additionally, the area should be marked on navigational software.

9.8.15 The Master / Site Representative will also compile a Preliminary Record of the occurrence, using the form in Annex 2.

9.8.16 The Master / Site Representative will inform the Nominated Contact of the occurrence as soon as possible, and pass on all available information, including a copy of the Preliminary Record and copies of any photographs, drawings or other records that have been made.

9.8.17 If, after encountering an anomaly, no archaeological material has been recovered, then no additional actions are required of staff on the vessel.

9.8.18 If finds have been recovered, the Master will arrange for the find(s) to be immersed in seawater in a suitable clean container, which should be covered. Any rust, concretion or marine growth should not be removed.

Actions by the Nominated Contact

9.8.19 Once informed of a find by a Master / Site Representative, the Nominated Contact shall inform the Archaeological Contractor as soon as possible so that advice can be sought.

9.8.20 The Nominated Contact will confirm with the Master / Site Representative that all the details set out in the Preliminary Record are comprehensive and correct. The Nominated Contact shall pass on to the Archaeological Contractor all available information relating to the circumstances of the occurrence, including a copy of the Preliminary Record and copies of any other records that have been made.

9.8.21 The Nominated Contact informs other vessels dredging in the area where the discovery has been made and advises them to keep particular watch.

9.8.22 The Nominated Contact makes any recovered finds available for inspection by the Archaeological Contractor.

Actions by the Retained Archaeologist

9.8.23 When contacted by the Nominated Contact and once information has been passed on, the Archaeological Contractor will enter the information in the project database / GIS.

9.8.24 The Retained Archaeologist will review all information relating to the occurrence in conjunction with geophysical and/or desk-based information.

9.8.25 The Retained Archaeologist will advise the Nominated Contact of any further actions that may be required, including:

- advice on immediate actions to be taken in respect of the discovery, including any recovered finds;
- advice on the identification of finds and the character of their seabed locations.

9.8.26 When the available information has been reviewed, this may include relevant geophysical, geoarchaeological, desk-based data, and preliminary research, the Retained Archaeologist will assess the archaeological potential and importance of the discovery.

9.8.27 If a find is discovered on-board either the dredger or the associated spoil barges in the case of backhoe dredging, the find will be assessed for their level of archaeological interest by the on-board operatives, based on awareness training and the criteria outlined in Annex 3. If the find is of potential archaeological interest, they will follow the strategy outlined in the Major Archaeological Find, Intermediate Archaeological Find and Minor Archaeological Find sections below.

Reporting

9.8.28 The Client will report any discovery of ‘wreck’ to the Receiver of Wreck, using the Receiver of Wreck website.

9.8.29 The Retained Archaeologist will produce an archaeological report of the analysis of any finds or anomalies at the end of the project and, if required will produce periodic reports following maintenance dredging. The results will be presented in a stand-alone format and will refer to the previous archaeological work.

9.9 Archaeological assessment of post dredging survey data

9.9.1 Following completion of the dredging works and the post-dredging survey by the contractor the data will be made available to the Retained Archaeologist for archaeological assessment.

9.9.2 Any new survey data will be reviewed, where relevant, by the Retained Archaeologist and will be interpreted by an archaeologist with an appropriate level of expertise. If any further items of interest are identified, Historic England will be consulted prior to any changes to the mitigation strategy.

9.9.3 The results of further interpretation will be compiled as an Archaeological Report by the Retained Archaeologist, consistent with the provisions on reporting within this WSI and with the updated Scope of Works.

9.9.4 Where an additional survey is carried out primarily for archaeological purposes, the specification should be prepared by a suitably qualified marine archaeologist from the Retained Archaeologist. In addition, the survey should be carried out by a survey company with appropriate archaeological expertise on-board if required.

10 FINDS AND ENVIRONMENTAL

10.1 Finds

General

10.1.1 All archaeological finds from excavated contexts will be retained, although those from features of modern date (19th century or later) may be recorded on site and not retained, depending on the research objectives of the project. Where appropriate, soil samples may be taken and sieved to aid in finds recovery. Any finds requiring conservation or specific storage conditions will be dealt with immediately in line with *First Aid for Finds* (Watkinson and Neal 1998) and *First Aid for Underwater Finds* (Robinson 1998). A full record will be made of any treatment given.

10.1.2 Finds and other items of archaeological interest recovered offshore in the course of investigation are the property of ABP as the leaseholder for the river bed, with the exception of any human remains, and 'wreck' for the purposes of the *Merchant Shipping Act 1995,* or material covered by the *Protection of Military Remains Act* 1986. The powers of the statutory harbour authority may also affect the issue of ownership, and the reporting requirements of any finds made.

10.2 Ordnance

10.2.1 If items of ordnance are discovered, they will be treated with extreme care. Company Health & Safety policies and established operational procedures should always take priority over archaeological reporting of munitions and ordnance.

10.3 Human remains

10.3.1 In the event of discovery of any human remains (articulated or disarticulated, cremated or unburnt), all excavation of the deposit(s) will cease pending the Retained Archaeologist obtaining a Ministry of Justice Licence (this includes cases where remains are to be left *in situ*).

10.3.2 Should human remains require removal, all excavation and post-excavation will be in accordance with the Retained Archaeologist's protocols, with any directions which may be given by the Secretary of State, and current guidance documents (e.g. McKinley 2013; McKinley and Roberts 1993; CIfA 2017). Appropriate specialist guidance/site visits will be undertaken if required.

10.3.3 The final deposition of human remains subsequent to the appropriate level of osteological analysis and other specialist sampling/examinations will follow the requirements set out in the Ministry of Justice licence.

10.4 Treasure

10.4.1 The Retained Archaeologist will immediately notify ABP and the Curator(s) on discovery of any material covered, or potentially covered, by the *Treasure Act 1996* (as amended by *The Coroners and Justice Act 2009*). All information required by the *Treasure Act* (i.e., finder, location, material, date, associated items etc.) will be reported to the coroner within 14 days. Items falling under the *Treasure Act* will be removed from the site by the Retained Archaeologist and stored in a secure location, pending a decision by the coroner.

10.4.2 Material recovered below Mean High Water Springs (MHWS) to 12 nm may be regarded as Wreck under the *Merchant Shipping Act* 1996.

10.5 Aircraft

10.5.1 The majority of aircraft wrecks are military and therefore fall under the *Protection of Military Remains Act* 1986. All military aircraft crash sites in the UK, its territorial waters, or British aircraft in international waters, are controlled sites under this Act. It is an offence under this Act to tamper with, damage, move or unearth any items at such sites, unless the Ministry of Defence (MoD) has issued a licence authorising such activity. Consequently, anyone wishing to recover a military aircraft or excavate a military aircraft crash site in the UK is required to obtain a licence from the Joint Casualty and Compassionate Centre (JCCC). A licence is required irrespective as to whether the aircraft was in the service of another nation's armed forces.

10.5.2 Any finds that are suspected of being military aircraft will be reported immediately to the Retained Archaeologist. In the case of a military aircraft being investigated under licence, any human remains will be reported immediately.

10.6 Wreck

10.6.1 Archaeological artefacts that have come from a ship are 'wreck' for the purposes of the *Merchant Shipping Act* 1995. The Client should ensure that the Receiver of Wreck is notified within 28 days of recovery, for all items of wreck that have been recovered.

10.6.2 All material reported as wreck may be required to be retained and held on indemnity to the Receiver of Wreck's orders whilst the droit remains open, which could extend beyond a year. The location(s) of such storage will be confirmed following discussion between the Client and/or their appointed representatives and the Retained Archaeologist. The Receiver of Wreck must be made aware of these storage locations and any further movement of reported material.

10.6.3 If the Receiver of Wreck has not found ownership of any recovered wreck material within one year, the material becomes 'unclaimed' and as such the property of the Crown. The Receiver of Wreck can then dispose of these items on behalf of the Crown. For material that is of historical or archaeological importance, the Receiver of Wreck will try to ensure that it is offered to an appropriate museum. If an appropriate museum or institution is not found, then the Receiver of Wreck may offer the material to the finder *in lieu* of salvage. Due to the longevity of this process, it is essential that the Client/their representative are fully aware of the obligations of the *Merchant Shipping Act* 1995 and frequently liaise with the

Receiver of Wreck until a decision on ownership has been made and the droits can be formally closed.

11 POST-EXCAVATION AND REPORTING

11.1 Finds

11.1.1 All retained archaeological finds will, as a minimum, be washed, weighed, identified and given a unique identifier. They will then be recorded to a level appropriate to the aims and objectives of the investigation.

11.1.2 Metalwork, especially from stratified contexts, will be X-rayed and, along with other fragile and delicate materials, stored in a stable environment. The X-raying of objects and other conservation needs will be undertaken by the Retained Archaeologist's in-house conservation staff, or by another approved conservation centre.

11.1.3 Artefacts and other finds that do not require specific conservation measures will be suitably bagged and boxed in accordance with the guidance given by the relevant museum and generally in accordance with the standards of the CIfA (2014b).

11.2 Conservation and storage

11.2.1 All recovered materials of archaeological interest will be subject to a Conservation Assessment to gauge whether special measures are required while the material is being held. The Conservation Assessment must be approved by the Archaeological Curator(s) and, where applicable, the Receiver of Wreck. This Conservation Assessment will be carried out by the Retained Archaeologist or an Archaeological Contractor with an appropriate level of expertise, with advice from appropriate specialists. The Retained Archaeologist or an Archaeological Contractor with appropriate expertise will implement recommendations arising from the assessment. If no special measures are recommended, finds will be conserved, bagged, boxed and stored in accordance with industry guidelines (CIfA 2014b).

11.3 Reporting

General

11.3.1 Following completion of the fieldwork and/or the assessment of the data, draft report(s) will be submitted for approval to the Client and the Curator(s), for comment. Reports may be issued for individual fieldwork or assessment packages with a final close-out report, or the work summarised in a single final report. Once approved, a final version will be submitted.

11.3.2 The report will typically include the following elements:

- A non-technical summary;
- The aims and methods of the work;
- The results of the work including finds and environmental remains;
- A statement of the potential of the results;
- Proposals for further analysis and publication;

- Appendices;
- Illustrations; and
- References

11.3.3 A copy of the report(s) will be deposited with the National Marine Heritage Dataset (Mariner) and the relevant Historic Environment Record (HER), along with surveyed spatial digital data (.dxf or shapefile format) relating to the evaluation.

11.3.4 It is essential that information from this project be made publicly available, as this will lead to beneficial effects, and is a requirement of Historic England. The information can then support appreciation and enjoyment of the historic environment, on local, regional and national levels, and also enable further academic research and inform marine plans. In addition, dissemination can bring about greater awareness of the historic environment, which can in turn engender local pride.

Publication

11.3.5 If no further mitigation works are undertaken, a short report on the results of the evaluation will be prepared for publication in a suitable journal, if considered appropriate and agreed with the Client and the Curator(s).

OASIS

11.3.6 An OASIS online record (https://oasis.ac.uk/) will be created, with key fields completed, and a .pdf version of relevant reports submitted, within six months of each report being approved by the Client. Copies of the OASIS record will be integrated into the relevant local and national records and published through the Archaeology Data Service ArchSearch catalogue. However, projects subject to any contractual requirements on confidentiality, or with the discovery of vulnerable sites, will only be uploaded to OASIS following confirmation from the Client and/or Archaeological Curator.

12 ARCHIVE STORAGE AND CURATION

12.1 Museum

12.1.1 Every effort will be made to identify a suitable repository for the archive resulting from the investigation. If no suitable repository is identified, the Retained Archaeologist will continue to store the archive, but may institute a charge to the client for ongoing storage beyond a set period.

12.1.2 Deposition of any finds with will only be carried out with the full agreement of The Crown Estate or the owner (as confirmed by the Receiver of Wreck).

12.2 Transfer of title

12.2.1 On completion of the investigation (or extended fieldwork programme), every effort will be made to encourage the legal owner of any finds recovered (e.g. The Crown Estate), with the exception of human remains and any objects covered by the *Treasure Act* 1996 or aircraft material covered by the *Protection of Military Remains Act* 1986 (and therefore under the ownership of the Joint Casualty and Compassionate Centre of the Ministry of Defence), to transfer their ownership to a museum in a written agreement. Furthermore, ownership would be sought by the

Receiver of Wreck for any material reported under the *Merchant Shipping Act* 1995. Droit reports associated with such material must be formally closed prior to material being accessioned by a museum.

12.3 Preparation of archive

12.3.1 The complete project archive, which may include paper records, graphics, artefacts, ecofacts and digital data, will be prepared following the standard conditions for the acceptance of excavated archaeological material, and in general following nationally recommended guidelines (SMA 1995; CIfA 2014d; Brown 2011; ADS 2013). The archive will usually be deposited within one year of the completion of the project, with the agreement of the Client.

12.3.2 The relevant Archaeological Curator(s) and the Retained Archaeologist will agree with the receiving institution a policy for the selection, retention and disposal of recovered or excavated material, and confirm requirements in respect of the format, presentation and packaging of archive records and materials. The receiving institution will be notified in advance of any fieldwork.

12.3.3 All digital data will be considered part of the primary archive and will accord with the procedures recommended by The Crown Estate, Marine Environment Data and Information Network (MEDIN), Archaeological Data Service (ADS) and the accepting institution.

12.4 Selection strategy

12.4.1 It is widely accepted that not all the records and materials (artefacts and ecofacts) collected or created during the course of an archaeological project require preservation in perpetuity. These records and materials will be subject to selection in order to establish what will be retained for long-term curation, with the aim of ensuring that all elements selected to be retained are appropriate to establish the significance of the project and support future research, outreach, engagement, display and learning activities, i.e., the retained archive should fulfil the requirements of both future researchers and the receiving Museum.

12.4.2 The relevant Archaeological Curator(s) and the Retained Archaeologist will agree with the receiving institution a policy for the selection, retention and disposal of recovered or excavated material, and confirm requirements in respect of the format, presentation and packaging of archive records and materials. This will be underpinned by national guidelines on selection and retention (Brown 2011, section 4) and generic selection policies (SMA 1993; Wessex Archaeology's internal selection policy) and follows the CIfA's Toolkit for Selecting Archaeological Archives. It should be agreed by all stakeholders (Wessex Archaeology's internal specialists, external specialists, museum) and fully documented in the project archive.

12.4.3 Where possible, the receiving institution will be notified in advance of any fieldwork. However, due to the nature of some types of fieldwork whereby it is often unknown what finds could be recovered, these discussions may take place during or even after fieldwork has ended. However, selection, retention and disposal of recovered or excavated material should only occur if the legislative requirements of the *Merchant Shipping Act* 1995 and *Protection of Military Remains Act* 1986 are fully undertaken and the Receiver of Wreck and Ministry of

Defence are involved in any such decisions, for instance ensuring all droits are closed prior to discard or transfer to a suitable museum.

Finds

12.4.4 Consultation with all stakeholders regarding project-specific selection decisions will be undertaken throughout the project as necessary, however at a minimum of three project review points:

- Data gathering: if any unforeseen discovery on site necessitates an amendment to the proposed collection strategy, or if adjustments are made to any sampling strategy;
- End of data gathering (assessment stage); and
- Archive compilation.

12.4.5 If material is not accepted by a museum or other organisation and all legislative requirements are fully undertaken, then consideration will be given to the suitability for their use within handling or teaching collections by the museum or Wessex Archaeology, or whether they are of particular interest to the local community. Remaining de-selected material will be disposed of. All such material will be adequately recorded to the appropriate level before de-selection.

Documentary and digital records

12.4.6 It is widely accepted that not all records collected during the course of an archaeological project require preservation in perpetuity. These records will be subject to selection in order to establish what will be retained for long-term curation, with the aim of ensuring that all elements selected to be retained are appropriate to establish the significance of the project and support future research, outreach, engagement, display and learning activities, i.e. the retained archive should fulfil the requirements of both future researchers and the receiving Museum.

12.4.7 To promote long-term future reuse, deposition file formats will be of archival standard, open source and accessible in nature following national guidance (ADS 2013; CIfA 2014c) and the requirements of the digital repository.

12.4.8 Any sensitive data to be handled according to Wessex Archaeology data policy to ensure it is stored and transferred securely. The identity of individuals will be protected in line with GDPR. If required, data will be anonymised and redacted. Selection and retention of sensitive data for archival purposes will occur in consultation with the client and relevant stakeholders. Confidential data will not be selected for archiving and will be handled as per contractual obligation.

12.4.9 De-selected data will be stored on Wessex Archaeology secured servers on offsite storage locations. The Wessex Archaeology IT department has a backup strategy and policies that involves daily, weekly and monthly and annual backups of data as stated in the DMP. This strategy is non-migratory, and original files will be held at Wessex Archaeology under their unique project identifier, as long as they remain useful and usable in their final version format. This data may also be used for teaching or reference collections by the museum, or by WA unless otherwise required by contractual or copyright obligations.

Palaeoenvironmental material

12.4.10 All contexts suitable for environmental sampling will be considered for sampling. A site-specific sampling strategy (SSSS) may be recommended for this project and will be prepared to accompany this WSI. The SSSS is intended to guide the retrieval of paleoenvironmental evidence during the site investigations with the purpose of addressing their site-specific objectives. The SSSS will be prepared following Wessex Archaeology's in-house guidance, which adheres to the principles outlined in Historic England's guidance (English Heritage 2011 and Historic England 2015a). Where applicable, the Archaeological Curator should be included in any discussions.

12.4.11 De-selected material from samples will be disposed of after processing and post-excavation recording. All processed material will be adequately recorded to the appropriate level before de-selection.

12.5 Security copy

12.5.1 In line with current best practice (e.g., Brown 2011), on completion of the project a security copy of the written records will be prepared in the form of a digital PDF/A file. PDF/A is an ISO-standardised version of the Portable Document Format (PDF) designed for the digital preservation of electronic documents through omission of features ill-suited to long-term archiving.

13 COPYRIGHT

13.1 Archive and report copyright

13.1.1 The full copyright of the written/illustrative/digital archive relating to the project will be retained by the Retained Archaeologist under the *Copyright, Designs and Patents Act* 1988 with all rights reserved. The client will be licenced to use each report for the purposes that it was produced in relation to the project as described in the specification. The museum, however, will be granted an exclusive licence for the use of the archive for educational purposes, including academic research, providing that such use conforms to the *Copyright and Related Rights Regulations* 2003. In some instances, certain regional museums may require absolute transfer of copyright, rather than a licence; this should be dealt with on a case-by-case basis.

13.1.2 Information relating to the project will be deposited with the Historic Environment Record (HER) where it can be freely copied without reference to the Retained Archaeologist for the purposes of archaeological research, or development control within the planning process.

13.2 Third party data copyright

13.2.1 This document, the evaluation report and the project archive may contain material that is non-Wessex Archaeology copyright (e.g., Ordnance Survey, British Geological Survey, Crown Copyright), or the intellectual property of third parties, which the Retained Archaeologist will be able to provide for limited reproduction under the terms of our own copyright licences, but for which copyright itself is non-transferable by Wessex Archaeology. Users remain bound by the conditions of the *Copyright, Designs and Patents Act* 1988 with regard to multiple copying and electronic dissemination of such material.

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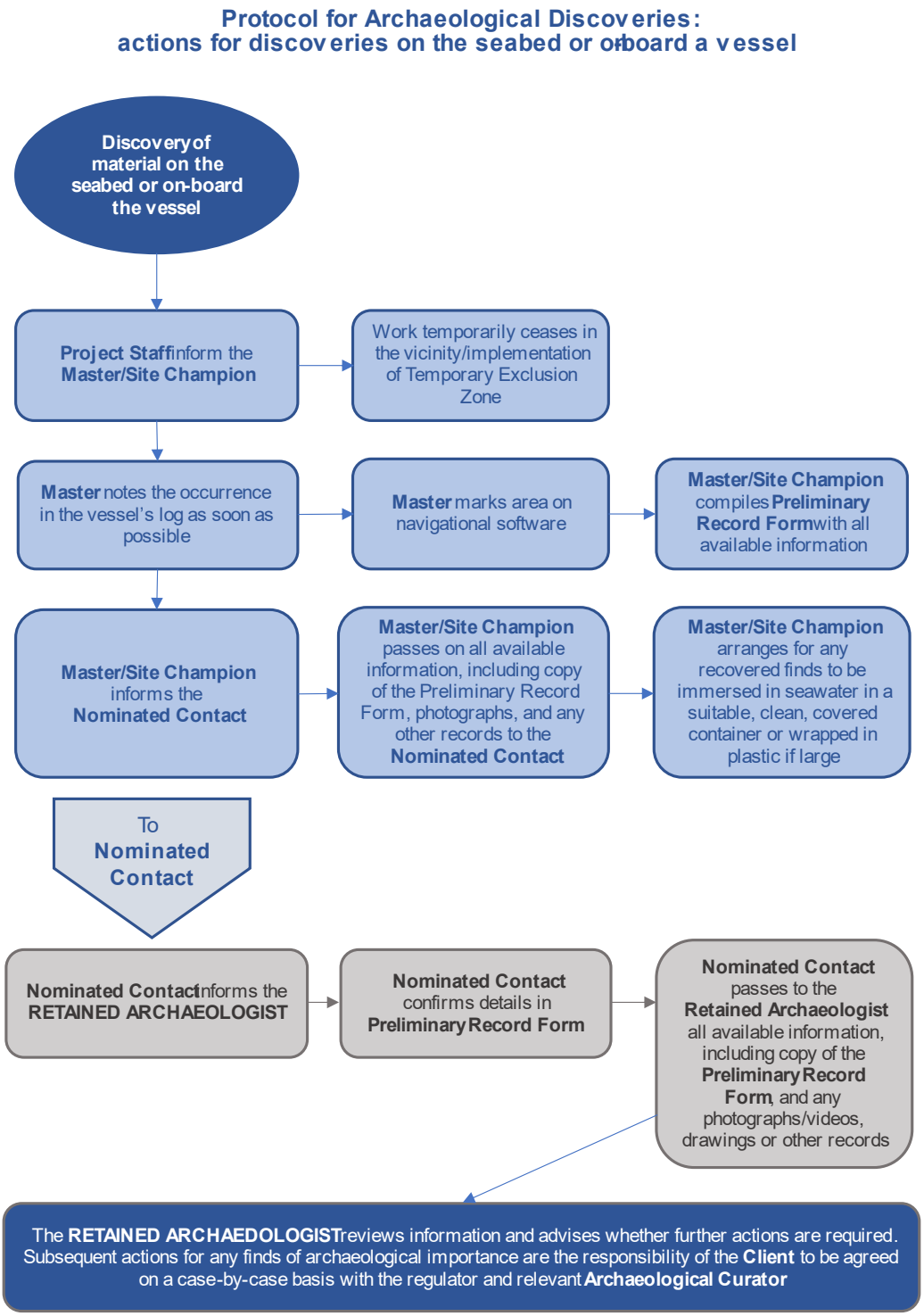
ANNEXES

Annex 1: Actions on the vessel - anomalies on the seabed or finds recovered from the seabed- (Vessel chain of command to be confirmed)



Annex 2: Preliminary Recording Form

Discoveries: Preliminary Record Form	
When and Where?	
Where Found: Wharf ☐ Vessel ☐ Seabed (e.g. anomaly) ☐	
Name of Finder:	Date Found:
Seabed Development Area: Track plot of vessel provided? Yes ☐ No ☐	
Position (if possible): Datum: Accuracy: ☐ GPS Fix ☐ Approximate ☐ Centre point ☐ Estimated from Sources	
What is it?	
Description of the find(s):	
What Next?	
Photographs taken ☐ Treatment Given: Kept Wet ☐ Kept Dry ☐ Current Location: ☐ Wharf: _ _ _ _ _ _ _ _ _ _ _ ☐ Other: _ _ _ _ _ _ _ _ _ _ _ ☐ Vessel: _ _ _ _ _ _ _ _ _ _ _ ☐ Seabed (for anomalies encountered)	
Any other notes:	
Form Complete	
Name of compiler: ☐ Site Champion ☐ Vessel Master ☐ Other _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ Signed: Date:	

Annex 3: Guidelines for Identifying Finds of Archaeological Interest

This text is based on the categories outlined in the Protocol for Reporting Finds of Archaeological Interest, published by the British Marine Aggregate Producer's Association (BMAPA) and English Heritage (now Historic England), 2005. The variety in significance across each type of find means that the day-to-day assessment of individual receptors as Major, Intermediate or Minor finds will be completed by an appropriately qualified archaeologist, either working directly on site with each receptor or remotely using images, dimensions and video stills.

Bone

Major Archaeological Finds

Human bone is definitely of archaeological interest and is also subject to special legal requirements under the Burial Act 1857. Any suspected human bone should be reported and treated with discretion and respect.

Large quantities of animal bone may indicate a wreck (the remains of cargo or provisions) and should be reported.

Objects made out of bone – such as combs, harpoon points or decorative items – can be very old and are definitely of archaeological interest. All occurrences should be reported and recovered if feasible.

Intermediate Archaeological Finds

Individual fragments or small quantity/low densities of animal bone, teeth and tusks are of archaeological interest because they may date to periods when the seabed formed dry land, and should be reported. Such bones, teeth, tusks etc. may have signs of damage, breaking or cutting that can be directly attributed to human activity. Should any such anthropomorphic damage, breaking of cutting be identified then the find will be considered a Major Archaeological Find.

Pottery

Intermediate Archaeological Finds

Any fragment of pottery is potentially of interest, especially if it is a large fragment. Individual fragments or small quantity/low densities of pottery are considered an Intermediate Archaeological Find and likely to date prior to 1750. Items with unusual shape, glaze or fabric should be reported. It is noted that there is the potential for residue analysis on ceramic sherds and vessels recovered from marine environments, and this should be considered where these are recovered (Historic England 2017).

As the area may have been used as a landing place for ships during the Roman period, there is also the potential for trade and exchange to be visible within the ceramic assemblage.

Minor Archaeological Finds

Items which look like modern crockery would be considered to be a minor archaeological find, until further assessment.

Brick

Intermediate Archaeological Finds

Bricks that do not have v-shaped hollows ('frogs') and/or are small, thin, or generally appear different than modern bricks could date back to the medieval or Roman period and should be reported.

Minor Archaeological Finds

Bricks with modern proportions and 'frogs' are of little to no archaeological interest.

Wood

Major Archaeological Finds

If the material discovered on the seabed, or recovered to the surface, appears to represent material from a wreck site, it must be reported.

Pieces of wood that have been shaped or jointed may be of archaeological interest, especially if fixed with wooden pegs, bolts or nails. All occurrences should be reported. Objects made out of dark, waterlogged wood, such as bowls, handles, shafts and so on – can be very old and are definitely of archaeological interest. All occurrences should be reported.

Intermediate Archaeological Finds

Roundwood that has clearly been shaped or made into a point should be reported.

Minor Archaeological Find

Light coloured wood, or wood that floats easily, is probably modern and is unlikely to be of archaeological interest. 'Roundwood' with bark, such as branches – is unlikely to be of archaeological interest.

Peat and Clay

Major Archaeological Find

Peat is black or brown fibrous soil that formed when sea-level was so low that the seabed formed marshy land, on the banks of a river or estuary, for example. The peat is made up of plant remains, and also contains microscopic remains that can provide information about the environment at the time it was formed. This information helps us to understand the kind of landscape that our predecessors inhabited, and about how their landscape changed. It can also provide information about rising sea-level and coastline change, which are important to understanding processes that are affecting us today. Prehistoric structures (such as wooden trackways) and artefacts such as stone tools, including hand axes, are often found within or near peat, because our predecessors used the many

resources that these marshy areas contained. As these areas were waterlogged and have continued to be waterlogged because the sea has risen, organic artefacts made of wood, leather, textile and so on often survive together with the stone and pottery which are found on 'dry' sites. Should evidence for trackways associated with peat be uncovered, this would constitute a Major Find and further investigations would be necessary.

Fine-grained sediments such as silts and clays are often found in the same places as peat. These fine-grained sediments also contain the microscopic remains that can provide information about past environments and sea-level change.

Intermediate Archaeological Finds

Isolated discoveries of peat or clay.

Stone

Major Archaeological Finds

The recovery of numerous stones may indicate the ballast mound of a wreck or a navigational cairn, and all occurrences should be reported. Additionally, if a large concentration of stone material (as described below) is encountered, it would also be considered a major archaeological find.

Intermediate Archaeological Finds

Small to medium size stones that are shaped, polished and/or pierced may be prehistoric axes. Objects such as axe heads or knife blades made from flint are also of prehistoric date. Large blocks of stone that have been pierced or shaped may have been used as anchors or weights for fishing nets. All occurrences should be reported.

Rubber, Plastic, etc.

Major Archaeological Finds

If rubber and plastic materials are discovered in the same area as aluminium objects and structures, they could indicate wreckage from a World War II aircraft, and therefore this material should be reported.

Minor Archaeological Finds

Except for the above, in most cases, rubber, plastic, Bakelite and similar modern materials are of little to no archaeological interest.

Iron and Steel

The potential range and date of iron and steel objects is so wide that it is difficult to provide general guidance. However, the following provides an outline of what might constitute a major or intermediate find.

Major Archaeological Finds

If the material discovered on the seabed or recovered to the surface appears to represent material from a wreck site.

If an area contains numerous ‘concretions’ (iron and steel objects covered by a thick amorphous concrete-like coating), it could represent a wreck site, and should be treated as a major archaeological find.

A concentration of pieces of metal sheet and structure may also represent a wreck site and should be treated as a major archaeological find.

Intermediate Archaeological Finds

The discovery of an isolated anchor would be considered to be an intermediate archaeological find, however, if it is discussed in association with timber or iron and steel material as discussed above, it could be part of a wreck site.

Isolated concretions, pieces of sheet metal and/or structure may also be of archaeological interest, and should be reported.

Minor Archaeological Finds
Isolated modern material, such as lost fishing gear, would be considered a minor archaeological find.

Other Metals

Major Archaeological Finds

Aluminium objects may indicate aircraft wreckage from World War II, especially if two or more pieces of aluminium are fixed together by rivets. All occurrences should be reported.

Concentrations of copper and copper alloy (bronze, brass) objects, precious metal objects and coins are of interest, as they could indicate a wreck site.

Minor Archaeological Finds

Items made of thin, tinned or painted metal sheet are unlikely to be of archaeological interest.

Isolated discoveries.

Ordnance

Any ordnance that is discovered should be dealt with based on the company UXO policy, as safety takes priority over archaeological objectives. However, discoveries of ordnance may be of archaeological interest (including cannonballs, bullets and shells), and they should be reported.

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Acronyms

Acronyms	Definition
ABP	Associated British Ports
AEZ	Archaeological Exclusion Zones
APFP	Applications: Prescribed Forms and Procedure
CD	Chart Datum
Cefas	Centre for Environment, Fisheries and Aquaculture Science
CEMP	Construction Environmental Management Plan
CIRIA	Construction Industry Research and Information Association
CoCP	Code of Construction Practice
dDCO	Draft Development Consent Order
DCO	Development Consent Order
DDMP	Dredge Disposal Management Plan
EA	The Environment Agency
EIA	Environmental Impact Assessment
ES	Environmental Statement
GB	Great Britain
GI	Ground Investigation
GPP	Guidance for Pollution Prevention
HES	Humber Estuary Services
IERRT	Immingham Eastern Ro-Ro Terminal
IMO	International Maritime Organisation
INNS	Invasive Non-Native Species
ISPS	International Ship and Port Facility Security
m^3	Meters cubed
MARPOL	International Convention for the Prevention of Pollution from Ships
MMMP	Marine Mammal Management Plan
MMO	Marine Management Organisation
NSIP	Nationally Significant Infrastructure Project
PAD	Protocol for Archaeological Discoveries
PAM	Passive Acoustic Monitoring
PC	Principal Contractor
PINS	Planning Inspectorate

Acronyms	Definition
PoI	Port of Immingham
PPG	Pollution Prevention Guidance
RAMS	Risk assessment method statement
SoS	Secretary of State
SOPEP	Shipboard Oil Pollution Emergency Plan
SWMP	Site Waste Management Plan
TSHD	Trailer Suction Hopper Dredge
UXO	Unexploded Ordnance
VTS	Vessel Traffic Services
WSI	Written Scheme of Investigation

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