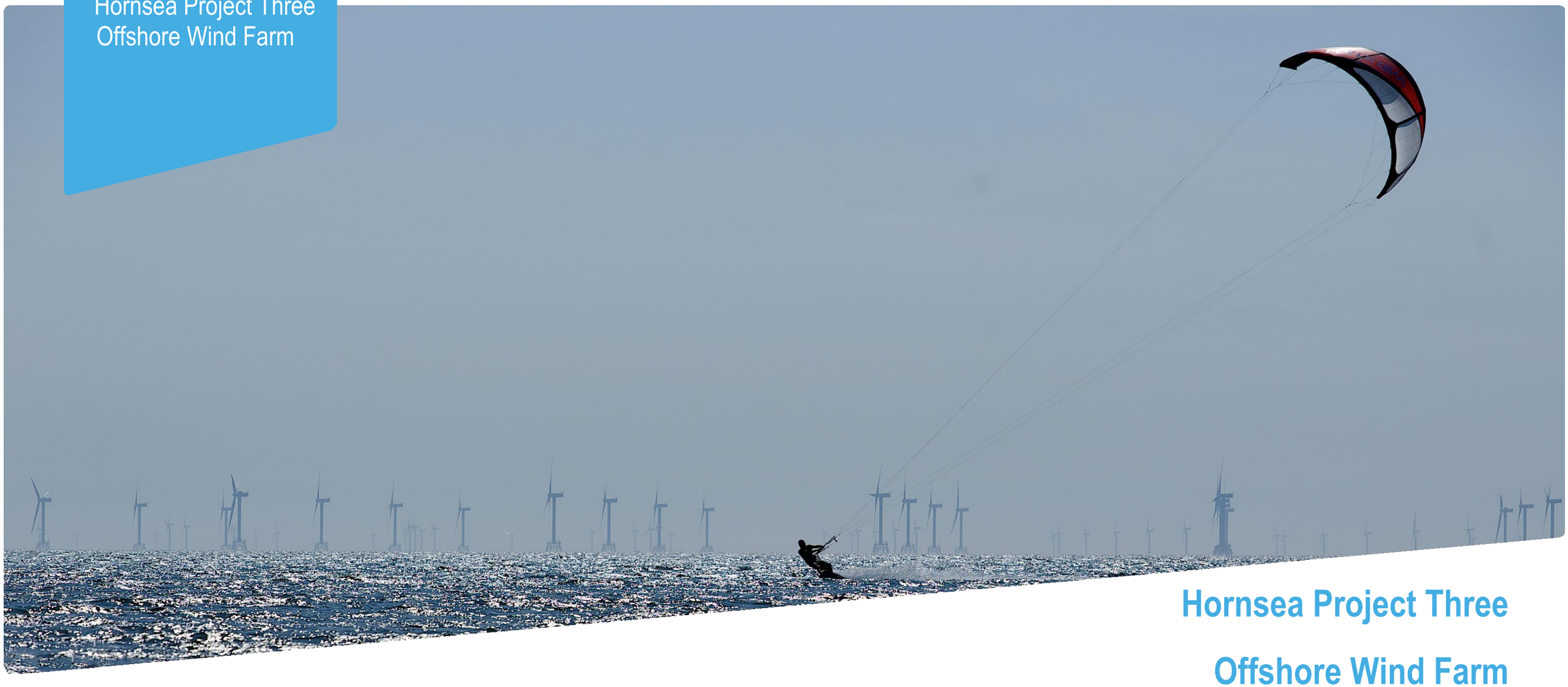
Hornsea Project Three
Offshore Wind Farm



Hornsea Project Three

Offshore Wind Farm

Environmental Statement:
Volume 5, Annex 9.2 - Outline Written Scheme of Investigation

PINS Document Reference: A6.5.9.2
APFP Regulation 5(2)(a)

Date: May 2018

Hornsea 3
Offshore Wind Farm

Ørsted

Environmental Impact Assessment

Environmental Statement

Volume 5

Annex 9.2 - Outline Written Scheme of Investigation

Liability
This report has been prepared by RPS, with all reasonable skill, care and diligence within the terms of their contracts with Orsted Power (UK) Ltd.

Report Number: A6.5.9.2

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Glossary

Term	Definition
Acheulian	Palaeolithic period stone tools characterised by distinctive oval and pear-shaped hand axes.
Archaeological Curator	Public sector archaeologist retained to advise the determining authority
Before Present (BP)	An archaeological dating convention– the present assumed in this report to be 1950 (i.e. based on uncalibrated radiocarbon dates).
Ensonification	Used in sidescan sonar meaning 'fill with sound' – the seabed is flooded with an acoustic source and the intensity of the returning sound waves measured
Heritage	Historic or cultural associations.
Heritage asset	Those elements of the historic environment that hold value to this and future generations because of their historic, archaeological, architectural or artistic interest are called "heritage assets". A heritage asset may be any building, monument, site, place, area or landscape, or any combination of these (DECC, 2011).
Historic England	The Historic Buildings and Monuments Commission for England.
Maritime archaeology	The physical remains of boats and ships that have been wrecked, sunk or have foundered, and may also be those artefacts which rest upon the seabed as the result of being jettisoned or lost overboard (for example, anchors, cannon or fishing gear).
Prehistoric archaeology	In the British Isles the period from the earliest hominin occupation more than 780,000 years Before Present (BP) to the time of the Roman invasion of Britain in 43 AD.
Vibrocore	A technique used in offshore geotechnical surveys to recover cores generally up to 6 m deep when sampling soft seafloor sediments.

Acronyms

Acronym	Description
AEZ	Archaeological Exclusion Zone
AP	Aerial Photography
BP	Before Present
CoCP	Code of Construction Practice
COWRIE	Collaborative Offshore Wind Research into the Environment
CPT	Cone Penetration Tests
DCO	Development Consent Order
GIS	Geographical Information System
HVAC	High Voltage Alternating Current
HVDC	High Voltage Direct Current
ClfA	Chartered Institute for Archaeologists
IS	Implementation Service
MHWS	Mean High Water Springs
MMO	Marine Management Organisation
NRHE	National Record of the Historic Environment
OASIS	Online Access to the Index of Archaeological Investigations
OSL	Optically Stimulated Luminescence dating
PAD	Protocol for Archaeological Discoveries
PEIR	Preliminary Environmental Information Report
PINS	Planning Inspectorate
REC	Regional Environmental Characterisation
ROV	Remotely Operated Vessel
SPVA	Service Personnel and Veterans Agency
TAEZ	Temporary Archaeological Exclusion Zone
WSI	Written Scheme of Investigation

Units

Unit	Description
m	Metre
NM	Nautical Mile
nT	Nanotesla
km	Kilometre

1. Introduction

1.1 Background

1.1.1.1 Orsted Hornsea Project Three (UK) Ltd., on behalf of Orsted Power (UK) Ltd., is promoting the development of the Hornsea Project Three Offshore Wind Farm (hereafter referred to as Hornsea Three). Hornsea Three is a proposed offshore wind farm project within the former Hornsea Zone, and includes the associated offshore cable corridor and onshore infrastructure. Hornsea Three is located in the central region of the southern North Sea, approximately 121 km from the UK coast (at Tringham, Norfolk) and approximately 10.1 km west of the median line between UK and Netherlands waters (Figure 1.1).

1.1.1.2 RPS was commissioned to prepare an Outline Written Scheme of Investigation (hereafter referred to as the Outline WSI) for the offshore elements of Hornsea Three (seaward of Mean High Water Springs (MHWS)), detailing the principles to be taken forward prior to construction of Hornsea Three to ensure the protection of the archaeological resource and then to be implemented through the construction, operation and maintenance, and decommissioning phases.

1.1.1.3 This document has been updated following completion of pre-application consultation and is appended as an annex to the Environmental Statement which accompanies the application to the Secretary of State for Development Consent.

1.1.1.4 The Outline WSI encompasses the wide range of development options under consideration for Hornsea Three for inclusion in the Development Consent Order (DCO) to allow post-consent flexibility in the final project design. This document will be monitored and updated throughout the post-consent process to ensure that the scheme of investigation is appropriate to the final project design. Prior to construction commencing, this Outline WSI will be finalised and incorporated into the Code of Construction Practice (CoCP) and submitted to the Marine Management Organisation (MMO) for approval.

1.2 Aims and objectives

1.2.1.1 The aim of this Outline WSI is to summarise the archaeological mitigation measures set out in volume 2, chapter 9: Marine Archaeology, to which this document is an annex. The Outline WSI is informed by pre-application consultation for Hornsea Project One and Hornsea Project Two, as well as consultation undertaken specifically for Hornsea Three (see volume 2, chapter 9: Marine Archaeology for a summary of consultation undertaken to date). The Environmental Statement draws upon the baseline review of the known and potential archaeology within Hornsea Three, which is described in volume 5, annex 9.1: Marine Archaeology Technical Report.

1.2.1.2 The objectives of the Outline WSI are as follows:

- To fulfil the requirements of the Archaeological Curator in respect of archaeological monitoring and mitigation of works associated with Hornsea Three;
- To establish the exact position and extent of any Archaeological Exclusion Zones (AEZs) and Temporary Archaeological Exclusion Zones (TAEZs);
- To ensure consultation with archaeologists on the elements of scheme design that have the potential to impact archaeological sites and materials;
- To ensure that any further geophysical and geotechnical investigations associated with Hornsea Three are subject to archaeological input, review, recording and sampling where required;
- To ensure archaeological involvement in any diver and/or remotely operated vessel (ROV) obstruction surveys conducted within the Hornsea Three offshore cable corridor and along the Hornsea Three offshore cable corridor where that involvement would be of benefit, typically on any sites subject to AEZs for which the avoidance of direct impact is not possible;
- To propose measures for the mitigation of archaeological remains encountered during further geotechnical sampling or investigations, or during the construction work associated with Hornsea Three; and
- To establish the reporting and archiving requirements for the archaeological works undertaken during construction and post-construction monitoring, including during operation and maintenance, and decommissioning.

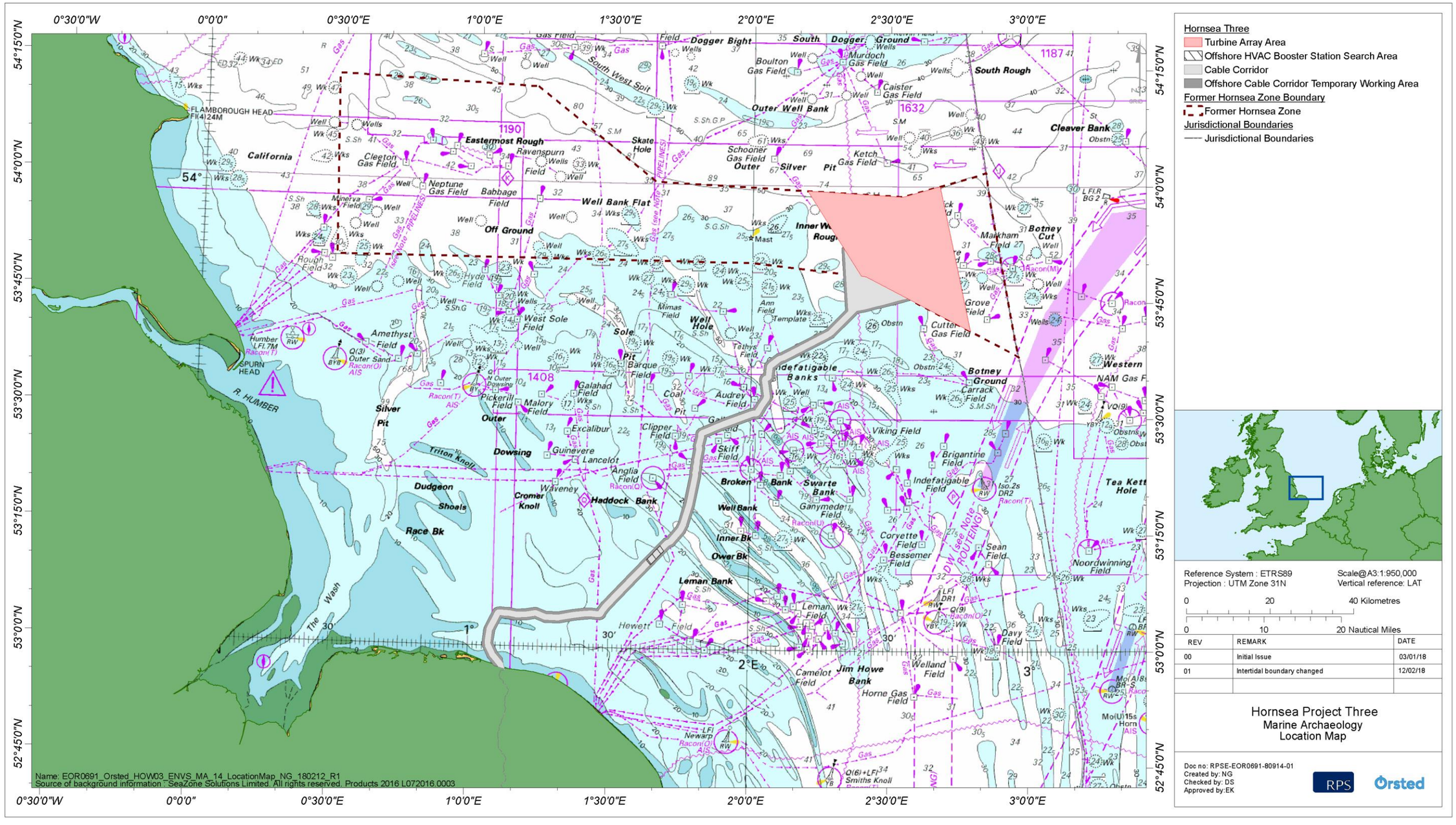

Figure 1.1: Location of Hornsea Three and the former Hornsea Zone.

2. Hornsea Three

2.1.1.1 Hornsea Three will have a total capacity of up to 2,400 MW and will include all associated offshore and onshore infrastructure. As noted in paragraph 1.1.1.2, this Outline WSI focuses on the offshore elements of Hornsea Three seaward of MHWS. As such, the offshore elements of relevance to this Outline WSI relate to:

- The turbines, offshore transformer substation(s), offshore HVDC converter station(s) (if the High Voltage Direct Current (HVDC) transmission option is used) and accommodation platform(s), as well as array, interconnector and export cables, within the Hornsea Three array area; and
- The export cables and the offshore HVAC booster station(s) (if the High Voltage Alternating Current (HVAC) transmission option is used), within the Hornsea Three offshore cable corridor and intertidal area.

2.1.1.2 The Hornsea Three array area is approximately 696 km^2, and is located approximately 121 km northeast off the Norfolk coast (Figure 1.1). The Hornsea Three array area lies to the east of Hornsea Project One and Hornsea Project Two array areas, within the former Hornsea Zone.

2.1.1.3 The Hornsea Three offshore cable corridor extends from the Norfolk coast, offshore in a north-easterly direction to the western and southern boundary of the Hornsea Three array area (Figure 1.1). The Hornsea Three offshore cable corridor is approximately 163 km in length.

2.1.1.4 The maximum design scenario with regard to the maximum possible disturbance of the seabed is defined in Table 9.9 of volume 2, chapter 9: Marine Archaeology. In assessing the effects of Hornsea Three on marine archaeology, the assessment has been undertaken on the basis of two scenarios i) the greatest area of near-surface sediments disturbed and ii) the greatest penetration depth of foundations. These two assessments are undertaken as the Hornsea Three project description (volume 1, chapter 3) currently has a range of turbine foundation options which, if taken forward, will result in different effects on the marine historic environment. The assessment therefore considers both the maximum design scenario on seabed features (i.e. maximum area of seabed disturbed), and the maximum design scenario in terms of buried remains (i.e. maximum volume of material disturbed).

2.1.1.5 The maximum design scenario for marine archaeology can be summarised as follows:

- Seabed disturbance (area) during the construction phase as a result of:
  - Turbine foundation installation: Sandwave clearance prior to foundation installation, followed by installation of up to 300 turbines with gravity base foundations with scour protection.
  - Substation and platform foundation installation:
    - Installation of up to 12 offshore transformer substations with box gravity base foundations and scour protection;
    - Installation of up to four offshore HVDC substations with pontoon gravity base foundations and scour protection; and
    - Installation of up to three offshore accommodation platforms with suction caisson jacket foundations and scour protection.
  - Jack-up barges: Deployments for foundations for up to 319 structures (up to 342 turbines, up to 12 offshore transformer substations, up to four offshore HVDC substations and up to three offshore accommodation platforms).
  - Subtidal cable laying activities:
    - Sandwave clearance and boulder clearance, followed by the burial of up to 830 km of array cables, by trenching, jetting, mass flow excavator, ploughing or vertical injection and similar tools currently under development, augmented by cable protection installation;
    - Sandwave clearance and boulder clearance, followed by the burial of up to 225 km of interconnector cables, by trenching, jetting, mass flow excavator, ploughing or vertical injection and similar tools currently under development augmented by cable protection installation;
    - Sandwave clearance and boulder clearance, followed by the burial of up to 1,146 km of export cables, by trenching, jetting, mass flow excavator, ploughing or vertical injection and similar tools currently under development augmented by cable protection installation;
    - Cable barge anchor placement associated with cable laying; and
    - Grounding of a cable laying barge in the near shore region of the Hornsea Three offshore cable corridor.
  - Intertidal cable laying activities:
    - Up to 3 km of export cable in the Hornsea Three intertidal area by trenching and associated construction activities.

- Seabed disturbance (volume) during the construction phase as a result of:
  - Turbine foundation installation: Installation of up to 300 turbines with jacket (driven pile) foundations with a seabed penetration depth of up to 55 m.
  - Substation and platform foundation installation:
    - Installation of up to 12 offshore transformer substations with jacket (driven pile) foundations with a seabed penetration depth of 70 m;
    - Installation of up to four offshore HVDC converter substations with jacket (driven pile) foundations with a seabed penetration depth of 70 m; and
    - Installation of up to three accommodation platforms with offshore substation piled jacket foundations with a seabed penetration depth of up to 70 m.
- Seabed disturbance (area) during the operation and maintenance phase as a result of:
  - Jack-up barge deployments for turbine component replacement and access ladder replacement up to 300 turbines,
  - Jack-up barge deployments for component replacement and J-tube repair/replacement for up to 12 offshore transformer substations, up to four offshore HVDC converter stations and up to three accommodation platforms; and
  - Remedial burial and repair of array, interconnector and export cables.
- Seabed disturbance (area) during the decommissioning phase as a result of:
  - Turbine foundation decommissioning: Decommissioning of up to 300 turbines with gravity base foundations
  - Substation and platform foundation decommissioning:
    - Decommissioning of up to 12 offshore transformer substations with box gravity base foundations;
    - Decommissioning of up to four offshore HVDC substations with pontoon gravity base foundations; and
    - Decommissioning of up to three offshore accommodation platforms with suction caisson jacket foundations.
  - Jack-up barges: Deployments for foundations for up to 319 structures (up to 300 turbines, up to 12 offshore transformer substations, up to four offshore HVDC substations and up to three offshore accommodation platforms).
  - Subtidal cable removal activities:
    - Removal of up to 830 km of array cables;
    - Removal of up to 225 km of interconnector cables;
    - Removal of up to 938 km of export cables;
    - Cable barge anchor placement associated with cable removal; and
    - Grounding of the cable decommissioning barge in the near shore region of the Hornsea Three offshore cable corridor.
  - Intertidal cable removal activities:
    - Removal of up to 3 km of export cable in the Hornsea Three intertidal area and associated construction activities.

2.1.1.6 An indicative construction programme for Hornsea Three is provided in volume 1, chapter 3: Project Description. Offshore construction is proposed to commence in 2022 and could be built in up to two phases over a maximum period of eight years.

2.1.1.7 The terrestrial elements of the scheme (landward of MHWS) are considered in volume 3, chapter 5: Historic Environment and a separate WSI will be developed prior to onshore construction activities commencing.

3. Baseline Environment

3.1 Overview

3.1.1.1 A baseline review of the known and potential archaeology within Hornsea Three has been undertaken (see annex 9.1: Marine Archaeology Technical Report). The baseline review identified known and potential archaeological assets within Hornsea Three that comprised:

- The presence of drowned land surfaces and drowned terrestrial sites;
- Known wrecks and seabed obstructions;
- Documented shipping losses;
- Possible unknown and undocumented wrecks from various periods;
- Possible stray finds of ship-borne debris from various periods; and
- Geophysical anomalies that appear to be wreck sites or wreck debris.

3.1.1.2 A summary of the baseline review presented in volume 5, annex 9.1: Marine Archaeology Technical Report is outlined below.

3.2 Submerged prehistoric archaeology

3.2.1.1 Analysis of geotechnical and geophysical survey data collected within Hornsea Three, and in particular close to and within the Hornsea Three array area, has revealed the presence of Pleistocene fluvial and estuarine sediments with the potential to contain hominin remains beneath the Devensian glacial till (generally at depths of 15 m or more below the seafloor).

3.2.1.2 Closer to the seabed surface, Early Holocene 'Upper Botney Cut' channels have been identified, which are generally up to 15 m deep and 80 m wide cut into larger late Glacial channels of considerably greater size containing reworked glacial till. The likelihood of survival of the remains of Mesolithic activity and settlement in and particularly on the side of these later channels is high, although there are no known prehistoric terrestrial sites within Hornsea Three. Sampling by the Humber Regional Environmental Characterisation (REC) palaeoenvironmental programme (Tappin *et al.*, 2011) showed that these deposits generally lie close to the surface of the seabed.

3.3 Archaeological assessment

3.3.1.1 A total of 254 contacts of archaeological potential have been recognised within or immediately adjacent to the Hornsea Three array area and offshore cable corridor (not including the temporary working areas or the two offshore cable corridor reroutes which were applied to the Hornsea Three offshore cable corridor after publication of the Preliminary Environmental Information Report (PEIR) as a result of the consultation process). Of these, 123 contacts were identified within the Hornsea Three array area and 131 contacts were identified within the Hornsea Three offshore cable corridor. There are 30 contacts which have been provisionally identified as areas of archaeological potential. Of these 11 are located within the Hornsea Three array area (one of high archaeological potential and ten of unconfirmed medium archaeological potential) and 19 within the Hornsea Three offshore cable corridor (two of high archaeological potential and 17 of unconfirmed medium archaeological potential). The positions of these archaeological contacts are shown in Figure 3.1 below and listed in annex 9.1: Marine Archaeology Technical Report (see appendices B, C and D).

3.3.1.2 In addition, a total of 123 magnetic anomalies with an intensity >100 nT with no strong correlating seabed contact were identified within the Hornsea Three array area and offshore cable corridor (not including the temporary working areas). Of these, 31 lie within or immediately adjacent to the Hornsea Three array area and 92 lie within the Hornsea Three offshore cable corridor. There are 12 magnetic anomalies of greater than 500 nT which have been provisionally identified as areas of archaeological potential. Of these four are located within the Hornsea Three array area and eight within the Hornsea Three offshore cable corridor. The positions of all these magnetic anomalies are shown in Figure 3.1 below and listed in volume 2, annex 9.1: Marine Archaeology Technical Report (see appendix E).

3.3.1.3 The marine archaeology Environmental Impact Assessment (EIA) (see volume 2, chapter 9: Marine Archaeology) considered the Hornsea Three geophysical survey data collected and the assessment of archaeological potential, and proposed a total of 30 AEZs around the high and unconfirmed medium archaeological potential contacts. In addition, seven TAEZs were proposed around those records for wrecks and obstructions outside of the survey data coverage but within the Hornsea Three boundary. Two hundred and twenty-eight (228) anomalies of low archaeological potential were identified, although no AEZs are proposed at this stage around these contacts. Should detailed design indicate potential disturbance of these low archaeological potential anomalies, provision of AEZs around them will be considered prior to construction to ensure their preservation in situ, and included in the final WSI. It is intended that these AEZs and TAEZs will remain in place for the life of Hornsea Three unless amended or removed through further survey. Magnetic anomalies >500 nT have been identified to characterise the Hornsea Three array area and offshore cable corridor, and identify areas of archaeological potential. No formal AEZs are recommended at this stage but the submission of positions of significant magnetic anomalies identifies the potential for archaeological contacts and that the areas will be monitored during future assessments.

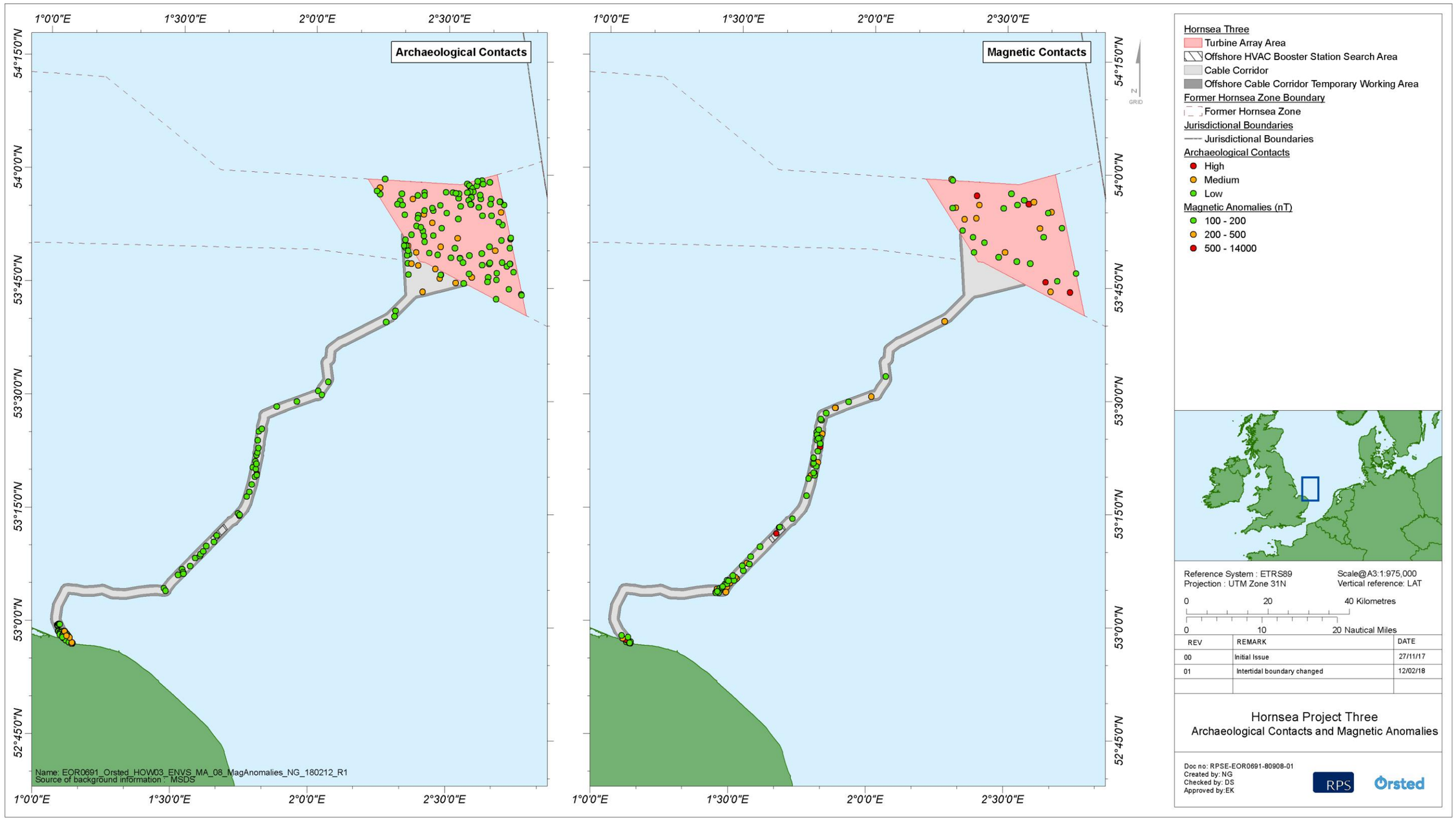

Figure 3.1: The positions of archaeological contacts within Hornsea Three.

4. Potential Impacts from Hornsea Three

4.1.1.1 The Hornsea Three array area and offshore cable corridor is considered to contain sites and areas of high archaeological potential. These sites and deposits include potential prehistoric sites and land surfaces dating from the Upper Palaeolithic/Early Mesolithic period. Unknown maritime remains (wrecks and debris) from the Mesolithic to the present, and aircraft remains, may also be present within Hornsea Three. Any construction activities and subsequent works that disturb the seabed therefore have the potential to negatively affect archaeological sites and deposits.

4.1.1.2 The most obvious way in which these archaeological remains can be negatively affected during the construction of Hornsea Three is by direct impact damage, for example from the dropping of anchors, the use of grapnels, cable laying, use of jack-up barges or via foundation installation. There are also a number of other impacts through which these archaeological remains could be negatively affected, which may be summarised as follows:

- Displacement, which disturbs the context of the archaeological deposit (the relationship between the structures or artefacts that make up the deposit and their surroundings) and thereby reduces the amount of archaeological information that can be gained from it;
- Erosion of the deposit or surrounding/covering seabed due to scour, resulting in damage and possibly prompting further erosion or instability; and/or
- Destabilisation, resulting in accelerated deterioration of the deposit through corrosion, erosion, etc.

4.1.1.3 The findings of the EIA of the potential impacts of Hornsea Three on archaeological remains undertaken to date is presented in volume 2, chapter 9: Marine Archaeology.

5. Overview of Measures Adopted as Part of Hornsea Three

5.1.1.1 The measures adopted as part of Hornsea Three (see Table 5.1) relate to the Hornsea Three array area, the offshore cable corridor (including the temporary working area) and the intertidal area. The mitigation measures are intended to:

- Identify archaeologically sensitive remains encountered during the development;
- Avoid archaeologically sensitive remains wherever possible; and
- Enable recording of any remains that are directly affected.

5.1.1.2 The following sections of this Outline WSI provide further detail on the measures adopted as part of Hornsea Three outlined in Table 5.1, as follows:

- Section 6: Outlines the roles and responsibilities for the different parties involved in Hornsea Three in undertaking the measures adopted as part of Hornsea Three;
- Section 7: The approach to be followed for undertaking pre-construction geophysical and geotechnical surveys;
- Section 8: The approach to be followed for undertaking ROV and/or diver surveys;
- Section 9: The process by which SeaZone and UKHO records that are classified as ‘dead’ should be investigated;
- Section 10: The identification and implementation of AEZs;
- Section 11: The identification of low archaeological potential contacts;
- Section 12: The identification and implementation of TAEZs;
- Section 13: The measures to be undertaken during pre-construction cable route clearance;
- Section 14: The measures to be adopted if unavoidable direct impacts on known sites occurs;
- Section 15: A summary of the Protocol for Archaeological Discoveries (PAD);
- Section 16: The reports to be prepared for any field work undertaken; and
- Section 17: The arrangements for updating and reviewing this Outline WSI including revising the archaeological mitigation measures.

Table 5.1: Designed-in measures adopted as part of Hornsea Three.

Measures adopted as part of Hornsea Three	Justification
Provision of archaeological input by the Retained Archaeologist into specifications for further geophysical surveys and ensure archaeological analysis of any further pre-construction geophysical surveys.	To avoid impacts on sites of archaeological importance.
Provision of archaeological input by the Retained Archaeologist to future geotechnical surveys where deposits of known archaeological potential are likely to be affected. This may include the presence of a geoarchaeologist on board the survey vessel and a provision for sampling, analysis and reporting of recovered cores. Analysis and dating of samples recovered during pre-construction geotechnical surveys in areas where impacts on deposits of geoarchaeological and/or palaeoenvironmental significance seem likely.	To offset the impacts of development on sediments of geoarchaeological/ palaeoenvironmental importance and enhance knowledge of the offshore marine archaeological resource.
Retained Archaeologist to be consulted in the preparation of any pre-construction ROV/diver surveys and, if appropriate, in monitoring/checking of data.	To avoid impacts on unrecognised archaeological sites and/or to improve understanding of identified sites of potential archaeological significance.
Further investigation of those SeaZone/UKHO records classified as 'dead' (where there has been no evidence of the wreck or obstruction over successive surveys) will be undertaken during the future assessment of higher resolution geophysical survey data, with action taken as appropriate on the basis of the measures outlined in the remainder of this table	To avoid impacts on sites of archaeological importance.
The identification and implementation of AEZs around those sites identified as having high and medium archaeological potential. Final turbine locations to avoid any known archaeological constraints identified in pre-construction surveys through micro-siting.	To avoid direct impacts on sites of identified archaeological significance.
Where no archaeological significance has been interpreted from the archaeological analysis of the results of the geophysical survey, those sites have been identified as having low archaeological potential. There will be maintenance of an operational awareness of the location of those contacts. Reporting through the agreed protocol will be undertaken should material of potential archaeological interest be encountered.	To avoid/record impacts on sites of identified archaeological significance.
The identification and implementation of TAEZs based on all available information including the stated positional accuracy, the recorded size of the target and the potential archaeological significance around those records for wrecks and obstructions outside of the survey data coverage but within the Hornsea Three boundary.	To avoid impacts on sites of archaeological importance.
Retained Archaeologist to be consulted in the preparation of pre-construction cable route clearance or other pre-construction clearance operations and, if appropriate, to carry out watching briefs of such work.	To record archaeological remains that may be affected by pre-construction clearance operations.
Mitigation of unavoidable direct impacts on known sites of archaeological significance: Options include i) preservation by record; ii) stabilisation; iii) detailed analysis and safeguarding of otherwise comparable sites elsewhere.	To offset the effects of disturbance/destruction of irreplaceable archaeological remains.
Implementation of the Offshore Renewables Protocol for Archaeological Discoveries (Crown Estate, 2010b) for unexpected archaeological discoveries made during the course of development.	The protection and, if necessary recording of sites/objects of archaeological significance affected by the development.

6. Responsibilities and Communications

6.1 Introduction

6.1.1.1 This section sets out the responsibilities of Hornsea Three and the lines of communication during all phases of Hornsea Three, with the aim of ensuring that the archaeological mitigation measures described are fully implemented in a timely manner that does not interfere with the smooth running of the project programme.

6.2 Overview

6.2.1.1 An organogram identifying the different parties, as well as the communication channels between them, who are identified within this Outline WSI is illustrated in Figure 6.1 below.

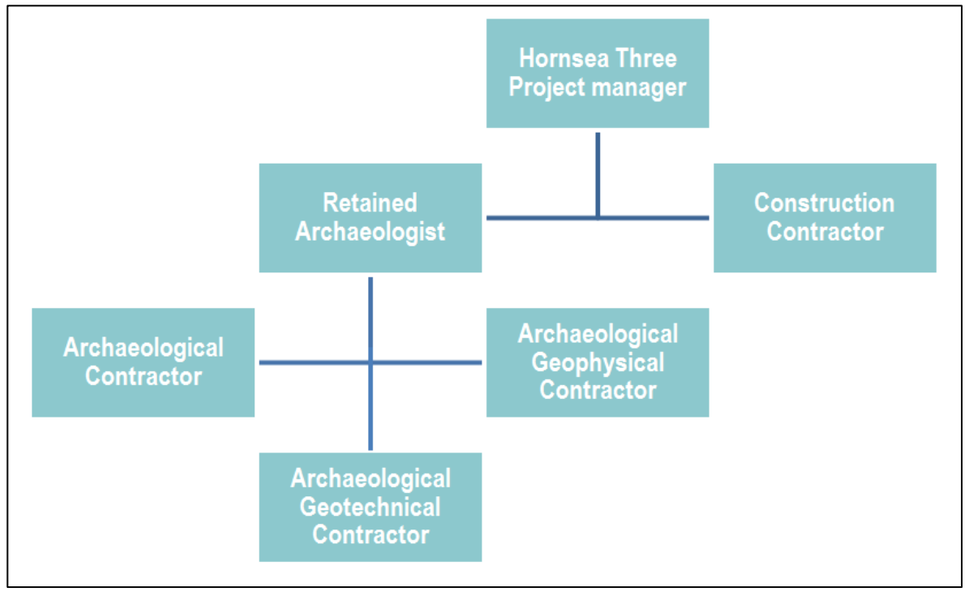

Figure 6.1: Organogram illustrating the Hornsea Three marine archaeology team.

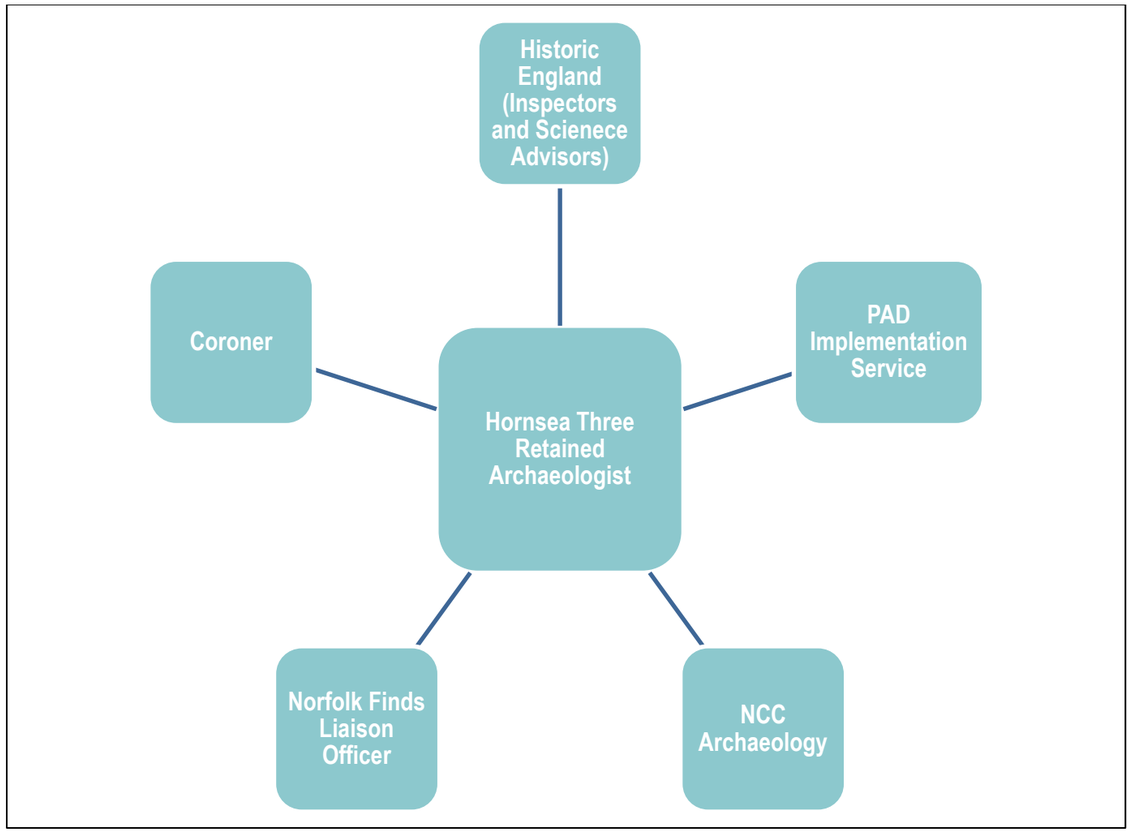

Figure 6.2: Organogram illustrating the Hornsea Three marine archaeology key consultees.

6.3 Contacts

6.3.1.1 The current relevant contacts at Historic England are:

- Dr Christopher Pater, Marine Planning Unit, English Heritage, Eastgate Court, 195 – 205 High Street, Guildford, GU1 3EH; and
- Dr Zoe Outram, Historic England Science Advisor, East of England, 24 Brooklands Avenue, Cambridge, CB2 8BU.

6.3.1.2 The current relevant contacts at Norfolk County Council Archaeological Services (NCC Archaeology) are:

- James Albone MA MCIfA Planning Archaeologist Historic Environment Service Environment and Planning Community and Environmental Services Norfolk County Council Union House Gressenhall, Dereham Norfolk NR20 4DR; and
- Julie Shoemark, Norfolk's Finds Liaison Officer (FLO) Historic Environment Record Service Unison House, Gressenhall, Dereham, Norfolk NR20 4DR, 01362 869 289, Julie.shoemark@norfolk.gov.uk.

6.3.1.3 The current relevant contacts for the coroner is:

- The Coroners Office 69-75 Thorpe Road, Norwich, Norfolk NR1 1UA.

6.3.1.4 The current relevant contacts for the Protocol for Archaeological Discoveries (PAD) Implementation Service is:

- Wessex Archaeology Portway House, Old Sarum Park, Salisbury, Wilts SP4 6EB.

6.4 Responsibilities

6.4.1 Hornsea Three Project Manager

6.4.1.1 The Hornsea Three Project Manager will advise the Retained Archaeologist of their requirements or responsibilities under any Code of Construction Practice (CoCP) produced for Hornsea Three. The CoCP to be prepared for Hornsea Three will fully reference this WSI (and PAD) to inform all phases of Hornsea Three.

6.4.2 Retained Archaeologist

6.4.2.1 Hornsea Three shall employ the services of a suitably qualified and experienced archaeological contractor (the Retained Archaeologist) to ensure the effective implementation of the WSI and other relevant commitments in relation to archaeology.

6.4.2.2 In relation to the implementation of the WSI, the Retained Archaeologist will report to the Hornsea Three's appointed project contact (e.g. Project Manager). Interaction with the Hornsea Three construction team will be administered by the project contact, advised by the Retained Archaeologist.

6.4.2.3 The responsibilities of the Retained Archaeologist will include:

- Maintaining, reviewing and updating the WSI, as required, for example see section 10, below in particular subsections 10.3 and section 10.4;

- Advising the Hornsea Three construction team with regard to which scheme elements warrant archaeological involvement;
- Advising the Hornsea Three construction team (through the project contact) during the evaluation of scope of work specifications on their capacity to meet archaeological requirements;
- Advising Hornsea Three on the necessary interaction with third party stakeholders, including the Archaeological Curator;
- Advising Hornsea Three on the implementation of generic archaeological requirements applicable to all construction, operation and maintenance, and decommissioning activities;
- Advising Hornsea Three on the siting of infrastructure, particularly turbines, substations and platforms, based upon archaeological results from research undertaken in connection with the EIA and pre-construction surveys;
- Advising, preparing and issuing Method Statements to the Archaeological Curator for approval;
- Implementing and monitoring the Protocol for Reporting Finds of Archaeological Interest;
- Monitoring the work of and liaising with the Archaeological Contractor(s) where this is not the Retained Archaeologist;
- Monitoring the preparation and submission of Archaeological Reports as appropriate and making them available to the Archaeological Curator;
- Preparing provisions for the management of the project archives in consultation with an appropriate Museum; and
- Advising Hornsea Three on final arrangements for analysis, archive deposition, publication and popular dissemination of the results of Hornsea Three.

6.4.3 Archaeological Contractors

6.4.3.1 Archaeological Contractors may be employed, on an *ad hoc* basis, by either Hornsea Three, or the Retained Archaeologist if this task is delegated to them by Hornsea Three. Suitably qualified Archaeological Contractors may be called to provide a range of services relating to specialist archaeological provision (e.g. fieldwork, geotechnical, analysis etc.).

6.4.4 Construction Contractors

6.4.4.1 All Construction Contractors engaged in the construction of Hornsea Three shall (secured through contractual documents as appropriate) shall:

- Familiarise themselves with the generic requirements of the WSI, and make them available to their staff;
- Obey legal obligations in respect of 'wrecks' and 'treasure' under the Merchant Shipping Act 1995 and the Treasure Act 1996 respectively (see paragraph 15.1.1.4);
- Respect constraint maps and AEZs (see section 10);
- Assist and afford access to archaeologists employed by Hornsea Three;
- 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; and
- Implement the Protocol for Reporting Finds of Archaeological Interest (see section 15).

6.4.5 Archaeological Curator

6.4.5.1 The Historic England Marine Planning Unit is the Archaeological Curator responsible for heritage matters offshore. Historic England's Science Advisor for the East of England region (see paragraph 6.3.1.1), where relevant, will also be consulted with regard to activities undertaken as part of the WSI. Contact with the Archaeological Curator will be administered by Hornsea Three under advice from the Retained Archaeologist.

6.4.5.2 Where Method Statements, reports or other deliverables are submitted by Hornsea Three to the Archaeological Curator, their agreement/acceptance will be assumed if no contrary response is received within 30 working days of submission.

6.5 Health and Safety

6.5.1.1 Health and Safety considerations are of paramount importance in conducting all fieldwork in relation to the archaeological mitigation outlined in this Outline WSI. Safe working practices will override archaeological considerations at all times. All work must be carried out in accordance with the Health and Safety at Work etc. Act 1974, the Management of Health and Safety at Work Regulations 1999, the Federation of Archaeological Managers and Employers (FAME) health and safety manual Health and Safety in Field Archaeology (FAME, 2010) and all other relevant Health and Safety legislation, regulations and codes of practice in force at the time.

6.5.1.2 The Retained Archaeologist will ensure that any Method Statements prepared to meet the requirements of the WSI are compliant with the requirements of the Hornsea Three Health and Safety Plans.

7. Pre-construction Geophysical and Geotechnical Surveys

7.1 Introduction

7.1.1.1 A number of geophysical and geotechnical surveys have been undertaken for Hornsea Three. Table 7.1 provides a brief description of these and further information can be found in volume 5, annex 9.1: Marine Archaeology Technical Report. Table 7.1 provides a brief description of these and further information can be found in volume 5, annex 9.1: Marine Archaeology Technical Report. Table 7.1 provides a brief description of these and further information can be found in volume 5, annex 9.1: Marine Archaeology Technical Report. Table 7.1 provides a brief description of these and further information can be found in volume 5, annex 9.1: Marine Archaeology Technical Report.

7.1.1.2 Further geophysical and geotechnical (including boreholes and Cone Penetration Tests (CPTs)) surveys are planned in connection with Hornsea Three prior to the commencement of construction. Archaeological involvement is intended to allow input into the design process to seek to avoid relevant heritage assets where possible. The anticipated timeframes for planned survey works are outlined in Figure 7.1 below and a brief description of the surveys is provided in Table 7.1 below.

7.2 Planning of future surveys

7.2.1.1 When planning future geophysical and geotechnical surveys, Hornsea Three will advise the Retained Archaeologist (currently RPS, supported by MSDS Marine and COARS), well in advance that further surveys are being planned and to seek their input into the scope of work.

7.2.1.2 Archaeological input will take the form of advice from the Retained Archaeologist on measures to optimise archaeological results from the planned geotechnical, geophysical and other surveys or work (such as benthic grabbing, for example). Areas to be considered will include:

- The available details on previously identified sites and/or anomalies and areas of heightened archaeological potential;
- The archaeological potential of areas where no existing sites and/or anomalies are yet known;
- The equipment, equipment settings, survey methodology(s) and data collection points that will optimise the recovery of archaeological information; and
- The requirements for data analysis, interpretation and archiving.

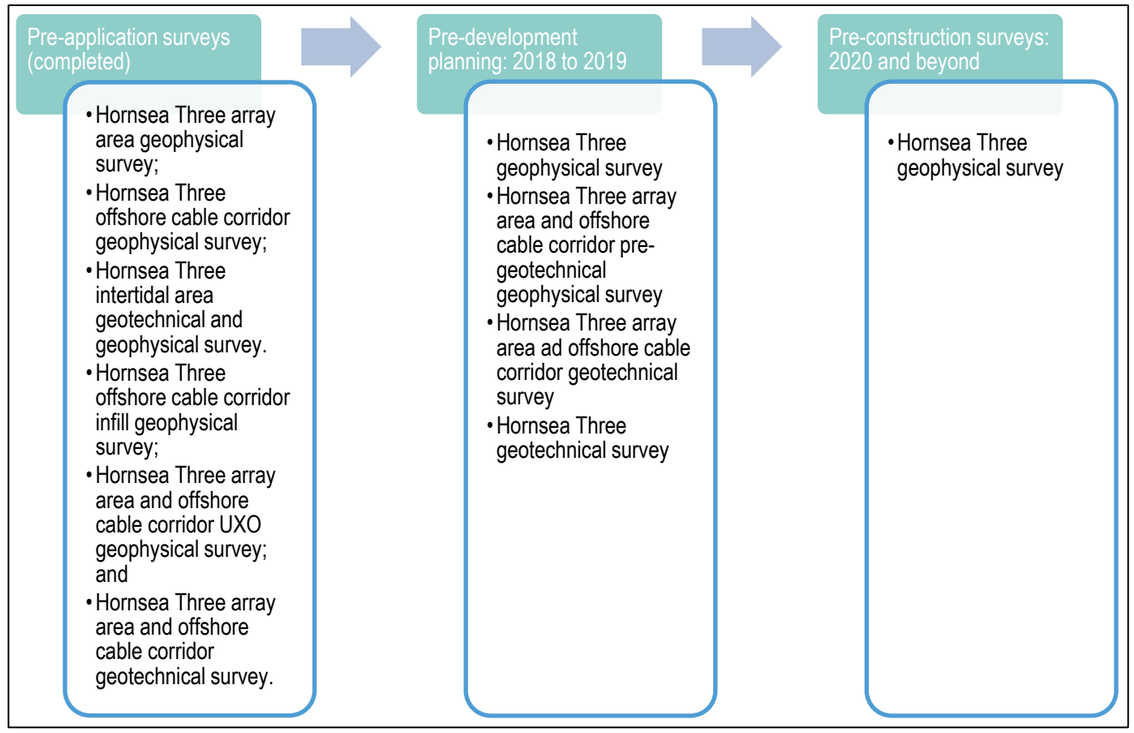

Figure 7.1: Anticipated timeframes for planned offshore geophysical and geotechnical survey works for Hornsea Three.

7.2.1.3 The advice from the Retained Archaeologist to elements of archaeological input *may* include:

- Altering vibrocore/borehole positions to maximise the potential for the collection of archaeological data (this has been undertaken by COARS on proposed geotechnical surveys to be undertaken in 2017);
- If appropriate in terms of the research aims of any future geotechnical surveys, and in consultation with specialists as appropriate, Optically Stimulated Luminescence (OSL) dating of vibrocore and borehole samples will be undertaken. OSL would be in addition to or as an alternative to radiocarbon dating;
- 'Boxing' wreck sites in order to provide the best possible images and positional data; and/or
- Altering grab sample positions in order to maximise the potential for the collection of archaeological data (this has been undertaken by COARS on geophysical surveys undertaken to date and for those surveys to be undertaken in 2017).

Table 7.1: Overview of pre-application and pre-development offshore geophysical and geotechnical survey for Hornsea Three.

Title	Extent of survey	Overview of survey	Survey contractor	Year
Hornsea Three pre-application surveys - completed				
Hornsea Three array area geophysical survey	Hornsea Three array area, including a 500 m buffer.	• Multibeam bathymetry: Multibeam echo sounder (MBES) with line spacing in the north-west of 500 by 1,000 m and in the south-east of 1,000 by 1,000 m; • Sidescan sonar: Line spacing in the north-west of 500 by 1,000 m and the south-east of 1,000 by 1,000 m; • Magnetometer: Line spacing in the north-west of 500 by 1,000 m and in the south-east of 1,000 by 1,000 m; and • Sub-bottom profiler: Line spacing in the north-west of 500 by 1,000 m and in the south-east of 1,000 by 1,000 m.	EGS	2016
Hornsea Three offshore cable corridor geophysical survey	Hornsea Three offshore cable corridor north eastern 'funnel' area.	• Multibeam bathymetry: MBES at 100% coverage; • Sidescan sonar: 100% coverage; and • Sub bottom profiler: 100 m line spacing.	Clinton Marine Survey	2016
Hornsea Three offshore cable corridor geophysical survey	Hornsea Three offshore cable corridor (excludes temporary working areas).	• Multibeam bathymetry: MBES with line spacing of 55 by 67 m; • Sidescan sonar: Line spacing of 55 by 67 m; • Magnetometer: Line spacing of 55 by 67 m; and • Sub-bottom profiler: Line spacing of 55 by 67 m.	Bibby Hydromap	2016
Hornsea Three landfall area geotechnical and geophysical survey	Landfall area both above and below MHWS.	• Three boreholes in the Hornsea Three landfall area; and • Five boreholes landward of MHWS in the Hornsea Three onshore cable corridor search area, see volume 3, chapter 5: Historic Environment for further information on these.	Oxford Archaeology	2017
Hornsea Three offshore cable corridor infill geophysical survey	Hornsea Three offshore cable corridor landward of 10 m contour.	• MBES, sidescan sonar, magnetometer, sub bottom profiler with line spacing of 40 to 50 m and a number of ground truthing grab samples.	Fugro	2017
Hornsea Three array area and offshore cable corridor UXO geophysical survey	Hornsea Three array area and offshore cable corridor seaward of 10 m contour.	• Survey of 20 by 20 m boxes to include MBES, sidescan sonar, magnetometer, sub bottom profiler with line spacing of 55 to 67 m at 100% coverage and a number of ground truthing grabs.	Fugro	2017
Hornsea Three array area and offshore cable corridor geotechnical survey	Hornsea Three array area and offshore cable corridor.	• Hornsea Three array area: 55 CPT locations, 10 boreholes; 7 shallow CPTs//ibrond • Hornsea Three offshore cable corridor: 25 shallow CPTs/vibrocores.	Fugro	2017
Known future pre-development Hornsea Three surveys – to be completed				
Hornsea Three geophysical survey	Full coverage around potential development areas – 80 m by 500 m line spacing	• Multibeam bathymetry and backscatter: 100% coverage, >40 pings per metre, >0.5 m contacts; • Sidescan sonar: 100% (ensured nadir coverage), 600 kHz, sufficient for three by three pings on >0.4 m contacts, 300 kHZ also available; • Magnetometer: based on UXO risk assessment, 10 Hz firing rate, 1 to 4 m towing altitude, <2 nT noise, • Sub-bottom profiler: On run-line, approximately 5 m penetration, 20 cm vertical, approximately 20 cm horizontal; and • UHRS: On run-line, >70 m penetration, 15 to 30 cm vertical, 1 m horizontal.	To be confirmed	2018 (anticipated)
Hornsea Three array area and offshore cable corridor pre- geotechnical geophysical survey	Hornsea Three array area and offshore cable corridor UXO geophysical survey Full coverage 20 to 60 m boxes (depending on size and expected positional accuracy of geotechnical equipment)	• Multibeam bathymetry and backscatter: 100% coverage, >60 pings per metre, >0.4 m contacts; • Sidescan sonar: 100% (ensured nadir coverage), 600 kHz, sufficient for three by three pings on >0.4 m contacts, 300 kHZ also available; • Magnetometer: >100% based on UXO risk assessment (<5 m between mag tracks), 10 Hz firing rate, 1 to 4m towing altitude, <2 nT noise, and • Sub-bottom profiler: On run-line, approximately 5 m penetration, 20 cm vertical, approximately 20 cm horizontal.	To be confirmed	2018 (anticipated)

Title	Extent of survey	Overview of survey	Survey contractor	Year

Hornsea Three array area and offshore cable corridor geotechnical survey	Hornsea Three array area and offshore cable corridor.	• Hornsea Three array area: at two to four locations approximately 14 to 28 CPTs and two to four boreholes, and
		• Hornsea Three offshore cable corridor: 20 shallow CPT/vibrocore locations, as well as:
		  • In nearshore section for HDD: three borehole locations and six CPT locations; and
		  • In section for offshore HVAC booster station(s): at two locations approximately 14 CPTs and two boreholes.
			To be confirmed	2018 (anticipated)

Hornsea Three geophysical survey	Full coverage in corridors around planned development areas – expected to consist of approximately 15 m line spacing by approximately 1 km cross lines.	• Multibeam bathymetry and backscatter: 100% coverage, >40 pings per metre, >0.5 m contacts; • Sidescan sonar: 100% (ensured nadir coverage), 600 kHz or 900 kHz, sufficient for three by three pings on >0.5 m contacts (likely >0.3 m contacts), 300 kHZ also available; • Magnetometer: >100% based on UXO risk assessment (<5 m between mag tracks), 10 Hz firing rate, 1 to 4 m towing altitude, <2 nT noise, and • Sub-bottom profiler: On run-line, approximately 5 m penetration, 20 cm vertical, approximately 20 cm horizontal.	To be confirmed	Planned ahead of construction/seabed preparation

7.2.1.4 The results of the surveys will be used to inform the final positioning of turbines and other infrastructure. Where a direct impact on a heritage asset is likely to occur, any anomalies identified will be subject to further investigation in order to determine whether or not they represent archaeology. In situations where such investigation suggests an archaeological origin, the anomalies in question will be subject to formal AEZs. Hornsea Three will consult the Retained Archaeologist ahead of finalisation of turbine and infrastructure positions to ensure that known archaeological constraints identified by these surveys are avoided.

7.2.1.5 A detailed Method Statement will be produced by the Retained Archaeologist in advance of each future geophysical and geotechnical survey. Approval by the Archaeological Curator will be assumed if no response is received within 30 working days of submission of individual Method Statements. The Hornsea Three Development Consent Order (document reference number A3.1) sets out a process for dispute resolution if there are any issues with the approval of the Method Statement.

7.2.1.6 The Crown Estate has produced a document containing Model Clauses for Written Schemes of Investigation (The Crown Estate, 2010a) for use in Method Statements for offshore renewable energy schemes. The clauses in 'Model Clauses for Archaeological Written Schemes of Investigation: Round 3 Offshore Renewables Projects' (The Crown Estate, 2010a) amplify the method statements outlined in this document and would be incorporated as appropriate into detailed Method Statements for future geophysical and geotechnical surveys.

7.3 Fieldwork

7.3.1.1 Where further survey work has, as one of its objectives, the further assessment of previously identified sites and/or anomalies in order to alter or remove an AEZ (see section 10.4), Hornsea Three will make provision for a suitably qualified Archaeological Geophysical Contractor to be on the survey vessel during data collection. The archaeologist will ensure that the best possible data is collected for those anomalies subject to review.

7.3.2 Data processing/interpretation

7.3.2.1 Once the programme of future pre-construction geophysical and geotechnical surveys is known, the methodology for the assessment and analysis of the geophysical and geotechnical data will be outlined in Appendix B of the WSI. In summary, the assessment and analysis of new geophysical and geotechnical data will comprise of:

- Geotechnical data (i.e. vibrocores and borehole cores) will be subject to a staged programme of assessment and analysis by a suitably qualified Archaeological Geotechnical Contractor (see section 7.5). Early planning and liaison with the Archaeological Geotechnical Contractor to enable the archaeological recording of intact cores will be a key requirement for this dataset;
- New geophysical data that covers areas of the Hornsea Three development where direct impacts are anticipated and areas subject to AEZs will undergo analysis by a suitably qualified Archaeological Geophysical Contractor; and
- Seabed photography will be subject to archaeological assessment and analysis by the Retained Archaeologist (or a suitably qualified Archaeological Contractor).

7.3.3 Further surveys that will require archaeological work

7.3.3.1 The scope of all underwater obstruction surveys/clearance work and ordnance surveys prior to the construction of Hornsea Three is not currently available, however an appropriate archaeological response to such surveys may be as follows:

- Diver/ROV obstruction surveys of the array, interconnector and export cable corridors will require an archaeological assessment of the survey dataset (video and positional data), where that involvement would be of benefit, typically on any sites subject to AEZs for which the avoidance of direct impact is not possible;
- If seabed clearance (by trenching or grappling) prior to cable laying is to be employed then an archaeological watching brief will be required during these works. As these techniques have the potential to bring archaeological material to the surface, Hornsea Three will make provision for the Retained Archaeologist (or a suitably qualified Archaeological Contractor) to be on the survey vessel during these works;
- Should archaeological material be encountered, sufficient time and resources will be made available to ensure the archaeological assessment of such material. This assessment will take place as soon as possible after seabed clearance works, but not necessarily prior to cable laying, unless the site(s) concerned will be impacted by the cable laying. Such an assessment would serve as compensatory work to mitigate the damage to the site(s) caused by seabed clearance. The scope of the assessment will be agreed with the Archaeological Curator and, where necessary, further suitable mitigation measures will be instigated in agreement with the Archaeological Curator; and/or
- If an unexploded ordinance (UXO) survey is conducted the magnetometer dataset will be subject to archaeological analysis in order to clarify the nature and extent of the known sites and anomalies and to identify as yet unknown buried sites.

7.3.3.2 All the above works will be subject to the planning, fieldwork and data analysis regime detailed in section 7, and will be overseen by the Retained Archaeologist.

7.4 Geophysical surveys

7.4.1 Survey specifications

7.4.1.1 Where future geophysical surveys are to be carried out then the specifications outlined in this section of the Outline WSI are proposed. The following specifications are based on the Collaborative Offshore Wind Research into the Environment (COWRIE) Guidance (Wessex Archaeology, 2007) and Marine Geophysics Data Acquisition, Processing and Interpretation Guidance Notes (Historic England, 2013). It is noted that specifications for an archaeological survey can be more stringent than the International Hydrographic Organisation Order 1a and 1b survey classification requirements, however it is recognised that surveys may be required for a number of purposes and may be to a lower specification for a variety of sound operational reasons, including survey purpose. If this is the case, provision for seeking advice from the Retained Archaeologist, as mentioned above, is very important and scope should be made if appropriate for additional survey lines to be run to box in those anomalies which have the potential to be impacted by the works to understand their nature and extent.

7.4.1.2 Surveys will be carried out to a single datum and co-ordinate system. All survey data, including navigation (position, heading and velocity) will be acquired digitally in industry-standard formats. Care will be taken to maintain the orientation and attitude of sensors on line. Trackplots will be corrected for layback (including catenary effects) and made available in digital (geographical information system (GIS)) form.

7.4.1.3 A sidescan sonar survey will be carried out at frequency, range and gain settings capable of resolving all objects that are 0.5 m and above throughout the survey area. Preferably, line spacing will be equal to or less than the effective range and no more than 1.75 times the effective range. Anomalies of apparent archaeological potential will be 'boxed' by at least two and preferably four lines along and across the principal axis of the anomaly. These lines will be offset so that the anomaly does not lie immediately beneath the survey fish, and run at optimal frequency and range settings for imaging the anomaly. For archaeological purposes, true sidescan sonar is preferable to multi-beam pseudo-sidescan. Sidescan sonar data will be made available to the interpreting archaeologist in the form of raw, un-mosaic files in a suitable proprietary format.

7.4.1.4 A sub-bottom survey will be carried out using a source capable of resolving internal structures to the full depth of anticipated Hornsea Three impacts within Quaternary deposits. Line and cross-line spacing and orientations will be sufficient to resolve the extents and characteristics of the principal Quaternary deposits. A single beam echosounder will be run in conjunction with the sub-bottom survey; the first reflector (seabed) will be levelled with reference to a tide gauge. Sub-bottom data will be made available in a suitable proprietary format.

7.4.1.5 A magnetometer survey will be carried out using a caesium gas or equivalent system capable of resolving anomalies of 5 nT and above. Lines can be run in conjunction with other sensors (i.e. on the same line spacing and orientation) but provision will be made to run additional lines and cross-lines in areas of apparent archaeological potential, as indicated by the desk-based information or any of the other sensors. Magnetometer data will be made available as cleaned, de-spiked text (x, y and z) files for each line, including layback.

7.4.1.6 Where a multi-beam survey is to be carried out solely for archaeological purposes then a system capable of achieving an effective cell/bin size better than 1 m is preferred. Use of a beam-forming system is preferred. The entire survey area will be ensonified. Where an anomaly of apparent archaeological potential is identified, an additional single slow pass will be carried out at the highest possible ping rate. Single beam and multi-beam data will be made available as de-spiked and tidally-corrected text (x, y and z) files for each line, in addition to any gridded/rendered surfaces.

7.4.2 Interpretation

7.4.2.1 Once the surveys have been processed to meet their primary objectives, the survey data, together with factual reports, will be made available in digital formats to the Retained Archaeologist, or a suitably qualified Archaeological Contractor for archaeological analysis and interpretation.

7.4.2.2 Archaeological interpretation will include:

- Examination of sidescan sonar, magnetometer, multi-beam and seismic data for areas within the vicinity of known wreck sites and previously identified geophysical anomalies;
- Examination of sidescan sonar, magnetometer, multi-beam and seismic data within areas that will be subject to direct Hornsea Three impacts in order to identify any as yet unknown wreck remains;
- The assessment of seismic data in order to plot the general trend of the sub-surface sediments with archaeological potential; and
- Further detailed interpretation of seismic data should be undertaken following the initial assessment within those areas that will be subject to scheme impacts.

7.4.2.3 The archaeological results of any future geophysical survey will be compiled as a report by the Archaeological Contractor and will include likely requirements (if any) for further archaeological work. The report will be submitted to Hornsea Three by the Retained Archaeologist and hence to the Archaeological Curator. The scope of any further work will be agreed by Hornsea Three and the Archaeological Curator. The work may be used to inform the final design and/or by way of mitigation, providing further details of archaeological assets on or in the seabed.

7.5 Geotechnical surveys

7.5.1.1 The archaeological review of geotechnical logs and assessment of samples will adopt the staged approach set out below. A recommendation as to the need for further archaeological work will be made at the end of each stage.

7.5.1.2 Each stage of this phased assessment of the cores is dependent on the results of the preceding stage. Stage 5 is a reporting phase, which will take place at whatever stage in the process further archaeological assessment or analysis is not required.

7.5.2 Stage 1 - archaeological assessment of geotechnical logs

7.5.2.1 This will involve a review by a competent Archaeological Contractor of the borehole/vibrocore and CPT logs upon completion of the geotechnical investigations carried out by the geotechnical contractor. This will provide an overview of the sedimentary sequence within the area, including whether there is any organic material present, and whether there are homogenous sedimentary layers throughout the area.

7.5.2.2 Based on this review, recommendations will be made regarding the need for further (Stage 2) analysis. The scope of any further work will be agreed by Hornsea Three and the Archaeological Curator. If no further work is recommended a final (Stage 5) report will be produced by the Archaeological Contractor.

7.5.3 Stage 2 - archaeological recording of geotechnical cores

7.5.3.1 If the Stage 1 assessment identifies horizons with archaeological potential, a Stage 2 recording of the cores will be undertaken. This will entail the detailed recording of the sediments within selected cores for a range of palaeoenvironmental indicators and dating material.

7.5.3.2 The geotechnical cores will need to be retained until the selection for archaeological recording has been made. Ideally, one undisturbed half of each core is required for archaeological recording. The assessment programme will comprise:

- The longitudinal splitting of each core section and the cleaning of half of each section; and
- The detailed archaeological recording of each section, noting sediment colour, sediment type, sedimentary architecture and inclusions.

7.5.3.3 A Stage 2 outline report will present the results of the archaeological recording and will indicate whether a Stage 3 laboratory assessment of the cores is warranted. The scope of further work will be agreed by Hornsea Three and the Archaeological Curator. If no further work is recommended a final (Stage 5) report will be produced by the Archaeological Contractor.

7.5.4 Stage 3 – laboratory analysis of samples

7.5.4.1 If the Stage 2 recording identifies horizons with the potential for the preservation of palaeo-environmental evidence, a Stage 3 assessment will be undertaken. A Stage 3 assessment will comprise of the sampling and laboratory analysis of selected core, or cores, to a level sufficient to enable an assessment of the value of the palaeo-environmental material (pollen, diatoms, ostracods and foraminifera) surviving within the cores. The sampling and assessment programme will comprise:

- The collection of small circa 10 cm^2 samples from selected points within the sedimentary sequence in the selected core(s);
- Laboratory assessment of the samples in order to identify the presence and relative quantity of any pollen, diatoms, ostracods and foraminifera; and
- Sampling for C14 (Radiocarbon) and/or OSL dating purposes (Note: the analysis of these samples is generally undertaken as part of Stage 4).

7.5.4.2 A Stage 3 outline report will present the results of the laboratory assessment and will indicate whether further (Stage 4) analysis of samples is required. If no further work is recommended, the Archaeological Contractor will produce a final (Stage 5) report.

7.5.5 Stage 4 – full laboratory analysis of samples

7.5.5.1 If the Stage 3 recording identifies significant palaeo-environmental evidence, Stage 4 analysis will be undertaken. Stage 4 involves the full counts and analysis of the pollen, diatom, ostracod and foraminifera samples. Typically, Stage 4 will be supported by radiocarbon dating of suitable sub-samples.

7.5.5.2 This phase will result in an account of the successive environments within the coring area, a model of environmental change over time, and an outline of the archaeological implications of the analysis. It will include the incorporation of the results into a model of the seabed sediments and palaeo-topography based on the analysis of the seismic data. If full seismic analysis has not been undertaken prior to this point it will be required.

7.5.6 Stage 5 – final reporting

7.5.6.1 The Archaeological Contractor will produce a final Stage 5 report at the end of the last stage of assessment, recording and analysis. This will include a synthesis of all aspects of the palaeo-topography, geoarchaeology and prehistory of the area affected by the development. This will be based on the results of all archaeological work carried out in support of Hornsea Three, including EIA and pre-construction surveys. It may include relevant data generated by the desk-based assessment, foreshore coring and geophysical surveys, and particularly seismic data. The report will incorporate appropriate 2D and 3D illustration of the sediment sequences identified in different parts of the development zone. This will include a geoarchaeological deposit model but will also include plans and sections of areas where more detailed analysis has been possible.

7.5.6.2 The report will be forwarded to the Retained Archaeologist, who will submit it to Hornsea Three and the Archaeological Curator.

8. Pre-construction ROV and/or Diver Surveys

8.1.1.1 An archaeological diver and/or ROV survey by the Retained Archaeologist (or a suitably qualified Archaeological Contractor) will be conducted on any sites subject to AEZs or features assigned a low archaeological potential where further remote sensing, or other survey techniques indicates that they are likely to be of archaeological significance, and for which the avoidance of direct impact is not possible.

8.1.1.2 A staged approach to the survey work will be employed, as follows:

- Level 1: Undertaken in order to determine the existence and position of any archaeology (a full description of the recording levels is provided in Appendix D);
- Level 2: Evaluation of the importance and potential of any archaeological material discovered during the Level 1 survey(s); and
- Level 3: The need for and level of recording will be determined on the basis of the importance and potential of the sites identified in level 2 following consultation with the Archaeological Curator.

8.1.1.3 In order to maximise the potential benefits of any proposed diver and/or ROV surveys, Hornsea Three will seek archaeological input at the planning stage of any such works. Archaeological input will take the form of advice from the Retained Archaeologist on measures to optimise archaeological results from the planned survey. Advice will include:

- The available details of sites and/or anomalies identified in the desk-based assessment;
- The archaeological potential of areas where no existing sites and/or anomalies are yet known;
- The type and level of diver/ROV positioning, voice recording and video/still recording to be utilised; and
- The provision of clear guidance on the types of sites and finds that are to be reported and recorded.

8.1.1.4 Consideration will be given to having an Archaeological Contractor (or archaeological team) present during any diver or ROV surveys, either as an observer(s) or participating diver(s) to optimise archaeological results and thereby reduce the need for repeat survey. However, operational constraints will have to be taken into account when trying to accommodate archaeologists aboard.

8.1.1.5 Following the completion of the diver and/or ROV survey all data, including video footage, will be reviewed by the Archaeological Contractor. This review will identify any sites that are potentially of archaeological interest. Typically, this will involve the identification of vessel remains, rather than just stray artefacts. A report will identify those sites and/or geophysical anomalies that are of sufficient archaeological interest to warrant further investigation. It will also identify those sites that are no longer of archaeological interest, and hence may be removed from the list of AEZs.

8.1.1.6 The archaeological results of any diver/ROV survey will be compiled in a report by the Archaeological Contractor (see section 16). The report will include a statement of the likely requirements (if any) for further archaeological work.

8.1.1.7 The report will be forwarded to the Retained Archaeologist, who will submit it to Hornsea Three and the Archaeological Curator.

9. SeaZone and UKHO Records Classified as 'Dead'

9.1.1.1 SeaZone and UKHO Records classed as 'dead' are those where no evidence of the wreck or obstruction has been identified over successive surveys.

9.1.1.2 Further investigation of those SeaZone/UKHO records classified as 'dead' will be undertaken during the future assessment of higher resolution geophysical survey data. Action will be taken as appropriate on the basis of the measures outlined in Table 5.1.

10. Archaeological Exclusion Zones

10.1 Basis for proposed Archaeological Exclusion Zones

10.1.1.1 AEZs will be the principal means used to preserve *in situ* any features or deposits of potential or known archaeological interest. The AEZs listed in this document are based on a detailed archaeological review of marine geophysical data (see volume 2, chapter 9: Marine Archaeology and volume 5, annex 9.1: Marine Archaeology Technical Report for further details). They may be subject to change if further information becomes available, as detailed below. AEZs were suggested for those sites identified as having high and medium archaeological potential.

10.1.1.2 Although the analysis of further geophysical data or ROV/diver surveys may allow the extent of AEZs to be refined, it is unlikely that they will be removed altogether (see paragraph 8.1.1.5 above), unless anomalies can conclusively be shown to be non-anthropogenic in nature.

10.1.1.3 AEZs will apply to construction activities, vessel mooring and any other activities that may disturb the seabed during the construction of the wind farm (see section 4 above). AEZs would be continued into operation and maintenance, and decommissioning activities unless further surveys indicated that they could be amended or removed.

10.1.1.4 Hornsea Three will ensure that the AEZs are marked on the Hornsea Three master plans, including contract documents. The extent and selection of anomalies for protection by AEZs will be subject to review and revision during the life of the project as new data becomes available, as detailed below. Where possible, there will be no activities which affect the seabed within an AEZ and, should the seabed within an AEZ be affected, there will be no such activity undertaken without prior consultation with the MMO and their advisors' as appropriate.

10.2 Archaeological Exclusion Zones in the Hornsea Three array area and offshore cable corridor

10.2.1.1 On the basis of the archaeological and geophysical assessments conducted to date (see volume 2, chapter 9: Marine Archaeology and volume 5, annex 9.1: Marine Archaeology Technical Report), 31 geophysical anomalies of high and medium archaeological potential are considered to be of sufficient interest to warrant the establishment of AEZs. They are illustrated in Figure 10.1, and full details are included in Table 10.1, and in Appendix E, Appendix F and Appendix G below. Appendix E and below.

10.3 Establishing new Archaeological Exclusion Zones

10.3.1.1 If new finds of archaeological importance are made during the course of construction they may be subject to the implementation of additional AEZs. All finds of archaeological material will be reported to the Retained Archaeologist by the Construction Contractor(s), in accordance with the PAD (see section 15 below). The Retained Archaeologist will inform the Archaeological Curator and Hornsea Three of all reports.

10.3.1.2 All activities that may affect the seabed in the vicinity of any find will cease until archaeological advice has been sought and received and, if necessary, an archaeological inspection of the material and site has taken place.

10.3.1.3 The Archaeological Curator will be consulted by the Retained Archaeologist on the need for, and the design (position, extent) and implementation of any new AEZs.

10.4 Altering Archaeological Exclusion Zones

10.4.1.1 AEZs may be altered (enlarged, reduced, moved or removed) as a result of the results of future geophysical surveys and/or archaeological field evaluation. Archaeological field evaluation may include suitable high-resolution marine geophysical survey, and/or survey by diver or ROV.

10.4.1.2 The alteration of AEZs will only be undertaken following consultation and agreement with the Archaeological Curator. Following alteration, a new plan giving details of the revised AEZs will be drawn up for Hornsea Three by the Retained Archaeologist and issued by Hornsea Three to its Construction Contractor(s) and onboard vessel representatives (see paragraph 10.1.1.4).

10.5 Monitoring Archaeological Exclusion Zones

10.5.1.1 The effectiveness of the 30 anomalies protected by the 28 AEZs (for details see Table 10.1, Figure 10.1, Appendix E, Appendix F and Appendix G) will be monitored by regular review by the Retained Archaeologist of vessel track plots and anchor spots supplied by Hornsea Three. The frequency and timing of these reviews will be agreed with the Archaeological Curator once the construction programme is known.

10.5.1.2 Should a breach of an AEZ be suspected this will be resolved by further investigation, which may include carrying out a geophysical or diver/ROV survey of the area thought to be affected.

10.5.1.3 On completion of the construction phase, the Retained Archaeologist will compile a report (see section 16) on the effectiveness of the AEZs, any alterations to them, and the results of monitoring.

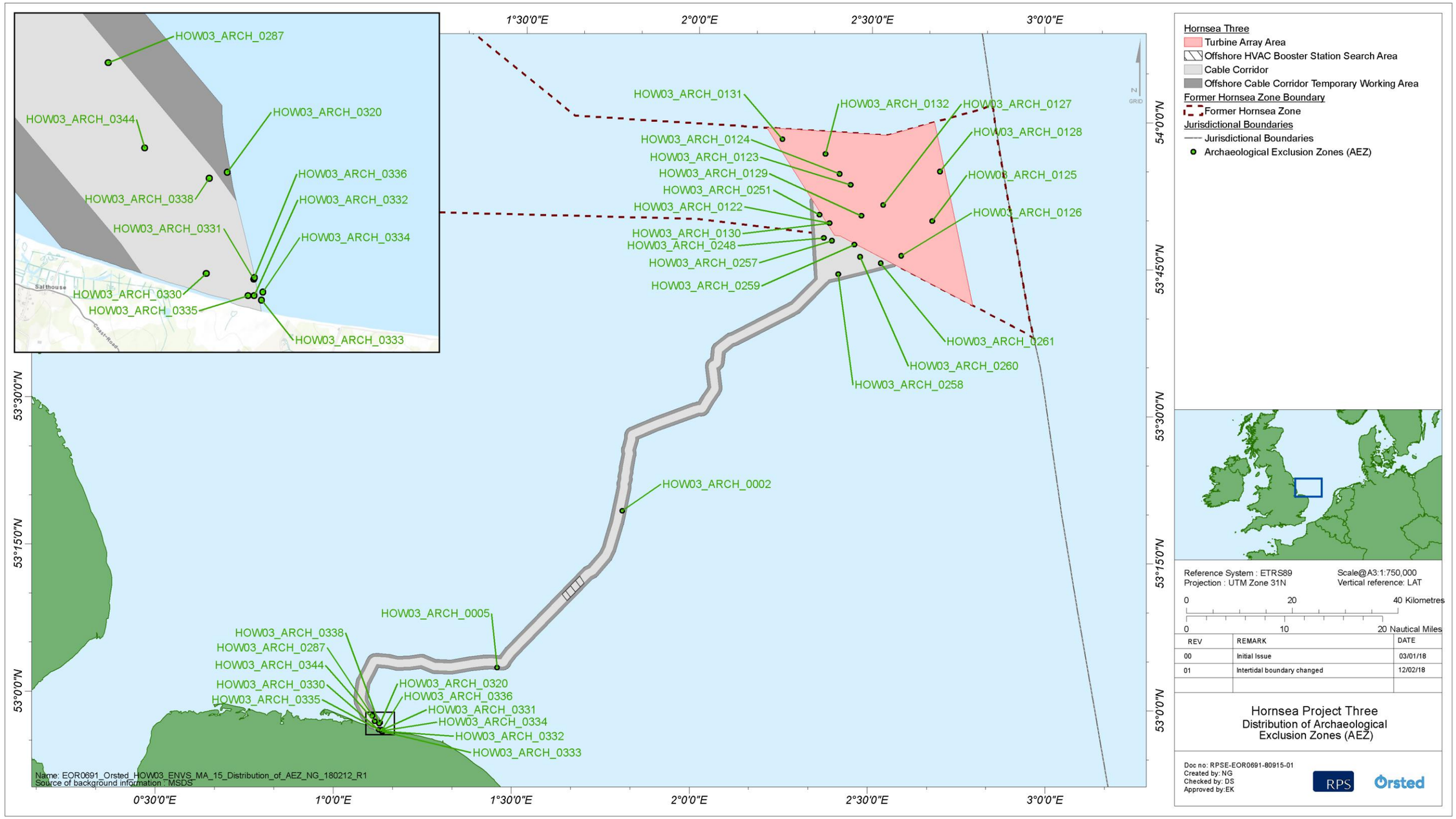

Figure 10.1: Distribution of Archaeological Exclusion Zones.

Table 10.1: Distribution of Archaeological Anomalies Protected by Archaeological Exclusion Zones.

Identification number	Archaeological potential	Basic Description	Position coordinates (ETR89 31N)		Area	Length (m)	Width (m)	Height (m)	Magnetometer (nT)	AEZ Radius (m)
			Latitude	Longitude						
HOW03_ARCH_0005	Medium	Mound	53 03.8337 N	01 27.2051 E	Hornsea Three array area	18.3	10.5	0.4	99.8	25
HOW03_ARCH_0122	High	Wreck	53 49.6822 N	02 22.8551 E	Hornsea Three array area	22.9	13.5	0.9	0	75
HOW03_ARCH_0123	Medium	Debris	53 53.5975 N	02 26.4288 E	Hornsea Three array area	13.9	6.5	0.6	0	20
HOW03_ARCH_0124	Medium	Debris	53 54.7215 N	02 24.5295 E	Hornsea Three array area	7.9	7.4	1.7	0	15
HOW03_ARCH_0125	Medium	Mound	53 49.9768 N	02 40.5400 E	Hornsea Three array area	4.2	7.2	0.5	0	15
HOW03_ARCH_0126	Medium	Debris	53 46.4305 N	02 35.2794 E	Hornsea Three array area	11.9	3.7	0.7	0	15
HOW03_ARCH_0127	Medium	Mound	53 51.5920 N	02 32.0686 E	Hornsea Three array area	3.9	4.7	0.7	0	10
HOW03_ARCH_0128	Medium	Debris	53 55.0498 N	02 41.8624 E	Hornsea Three array area	7.3	4	0.9	0	15
HOW03_ARCH_0129	Medium	Mound	53 50.4623 N	02 28.3049 E	Hornsea Three array area	13.8	7.9	1	0	20
HOW03_ARCH_0130	Medium	Debris	53 49.6963 N	02 22.8310 E	Hornsea Three array area	8.3	2.1	0.2	0	None [a]
HOW03_ARCH_0131	Medium	Debris	53 58.2142 N	02 14.5932 E	Hornsea Three array area	12.2	7.8	0.7	0	20
HOW03_ARCH_0132	Medium	Debris	53 56.7517 N	02 22.0206 E	Hornsea Three array area	9.3	7.1	0.5	0	15
HOW03_ARCH_0002	High	Wreck	53 20.0913 N	01 47.9507 E	Hornsea Three offshore cable corridor	29.6	5.6	1	0	40
HOW03_ARCH_0248	Medium	Debris	53 48.1882 N	02 21.8558 E	Hornsea Three offshore cable corridor	17.1	8.3	1.32	N/A	20
HOW03_ARCH_0251	Medium	Debris	53 50.5393 N	02 21.0649 E	Hornsea Three offshore cable corridor	2.7	12.4	0.56	N/A	15
HOW03_ARCH_0257	Medium	Debris	53 47.9251 N	02 23.2928 E	Hornsea Three offshore cable corridor	17.8	9.4	0.4	N/A	20
HOW03_ARCH_0258	Medium	Debris	53 44.4978 N	02 24.3892 E	Hornsea Three offshore cable corridor	11.8	7.9	0.43	N/A	15
HOW03_ARCH_0259	Medium	Debris	53 47.5327 N	02 27.1537 E	Hornsea Three offshore cable corridor	14.5	3.5	0.38	N/A	20
HOW03_ARCH_0260	Medium	Debris	53 46.2763 N	02 28.1355 E	Hornsea Three offshore cable corridor	22.1	14.6	0.24	N/A	20
HOW03_ARCH_0261	Medium	Debris	53 45.6666 N	02 31.7193 E	Hornsea Three offshore cable corridor	13.1	2.9	0.3	N/A	20
HOW03_ARCH_0287	Medium	Debris	52 58.656 N	01 06.273 E	Hornsea Three offshore cable corridor	9.93	8.37	0.64	0	15
HOW03_ARCH_0320	Medium	Debris	52 57.933 N	01 07.649 E	Hornsea Three offshore cable corridor	2.57	0.63	0.23	913.69	10
HOW03_ARCH_0330	Medium	Debris	52 57.239 N	01 07.439 E	Hornsea Three offshore cable corridor	12.11	5.61	0.52	1,225.51	25
HOW03_ARCH_0331	Medium	Debris	52 57.209 N	01 07.978 E	Hornsea Three offshore cable corridor	0.64	0.35	0.15	1,123.59	10
HOW03_ARCH_0332	High	Wreck	52 57.069 N	01 08.072 E	Hornsea Three offshore cable corridor	113.54	40.18	1.26	0	100
HOW03_ARCH_0333	Medium	Debris	52 57.069 N	01 08.072 E	Hornsea Three offshore cable corridor	2.42	2.56	NA	0	10[b]
HOW03_ARCH_0335	Medium	Debris	52 57.096 N	01 07.920 E	Hornsea Three offshore cable corridor	3	1.9	NA	0	None [c]

Identification number	Archaeological	Basic Description	Position coordinates (ETR89 31N)		Area	Length (m)	Width (m)	Height (m)	Magnetometer (nT)	AEZ Radius (m)
HOW03_ARCH_0336	Medium	Debris	52 57.221 N	01 7.984 E	Hornsea Three offshore cable corridor	0.63	0.23	0.09	518.72	10
HOW03_ARCH_0338	Medium	Debris	52 57.887 N	01 7.446 E	Hornsea Three offshore cable corridor	1.26	0.93	0.32	744.7	10
HOW03_ARCH_0344	Medium	Debris	52 58.081 N	01 6.713 E	Hornsea Three offshore cable corridor	0.59	0.27	0.04	566.35.	10

a ID number HOW03_ARCH_0130 has not been ascribed an AEZ because it lies within the recommended AEZ of HOW03_ARCH_0122.

b ID number HOW03_ARCH_0333 lies outside the boundary of Hornsea Three but is included and ascribed an AEZ because it intersects with the recommended AEZ of HOW03_ARCH_0332.

c ID number HOW03_ARCH_0335 has not been ascribed an AEZ because it lies within the recommended AEZ of HOW03_ARCH_0332.

11. Low Archaeological Potential Contacts

11.1.1.1 There are 259 anomalies within the Hornsea Three array area and offshore cable corridor where no archaeological significance has been interpreted from the archaeological analysis of the results of the geophysical survey, those sites have been identified as having low archaeological potential. These geophysical anomalies are listed in full in volume 5, annex 5.9.1: Marine Archaeology Technical Report (Appendix B) and shown on Figure 11.1. These anomalies will require further investigation through some or all of the techniques outlined in sections 7 and 8 if they are likely to be affected by Hornsea Three, which will be known once the final design of the project is determined.

11.1.1.2 There will be maintenance of an operational awareness of the location of low archaeological potential contacts. Reporting through the agreed protocol (see section 15) will be undertaken should material of potential archaeological interest be encountered.

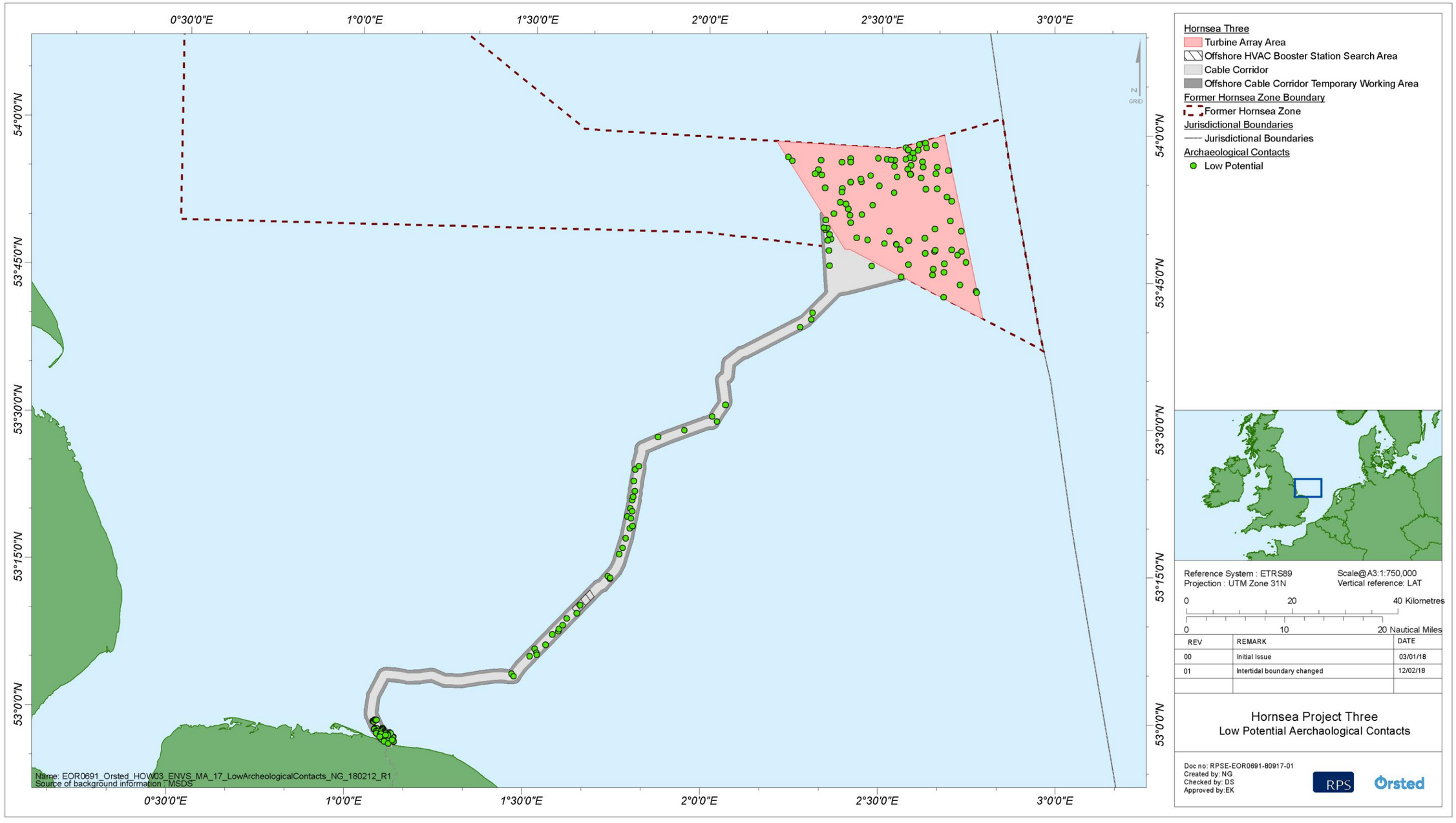

Figure 11.1: Distribution of low archaeological potential contacts.

12. Temporary Archaeological Exclusion Zones

12.1.1.1 In order to ensure the adequate protection of wrecks and obstructions identified in UKHO records outside of the survey data coverage but within the Hornsea Three array area and offshore cable corridor, the implementation of TAEZs around them have been proposed.

12.1.1.2 The TAEZs are based on all available information including the stated positional accuracy, the recorded size of the target and the potential archaeological significance around those records are proposed.

12.1.1.3 A precautionary approach has been taken with the size of the TAEZs. When further higher resolution and full coverage data becomes available, primarily through further surveys, the TAEZs will be adjusted to a size providing appropriate and robust mitigation for the contact. The TAEZs will remain in place until alterations have been formally agreed between Hornsea Three and the Archaeological Curator.

12.1.1.4 The distribution of TAEZs is shown on Figure 12.1 and Table 12.1 below.

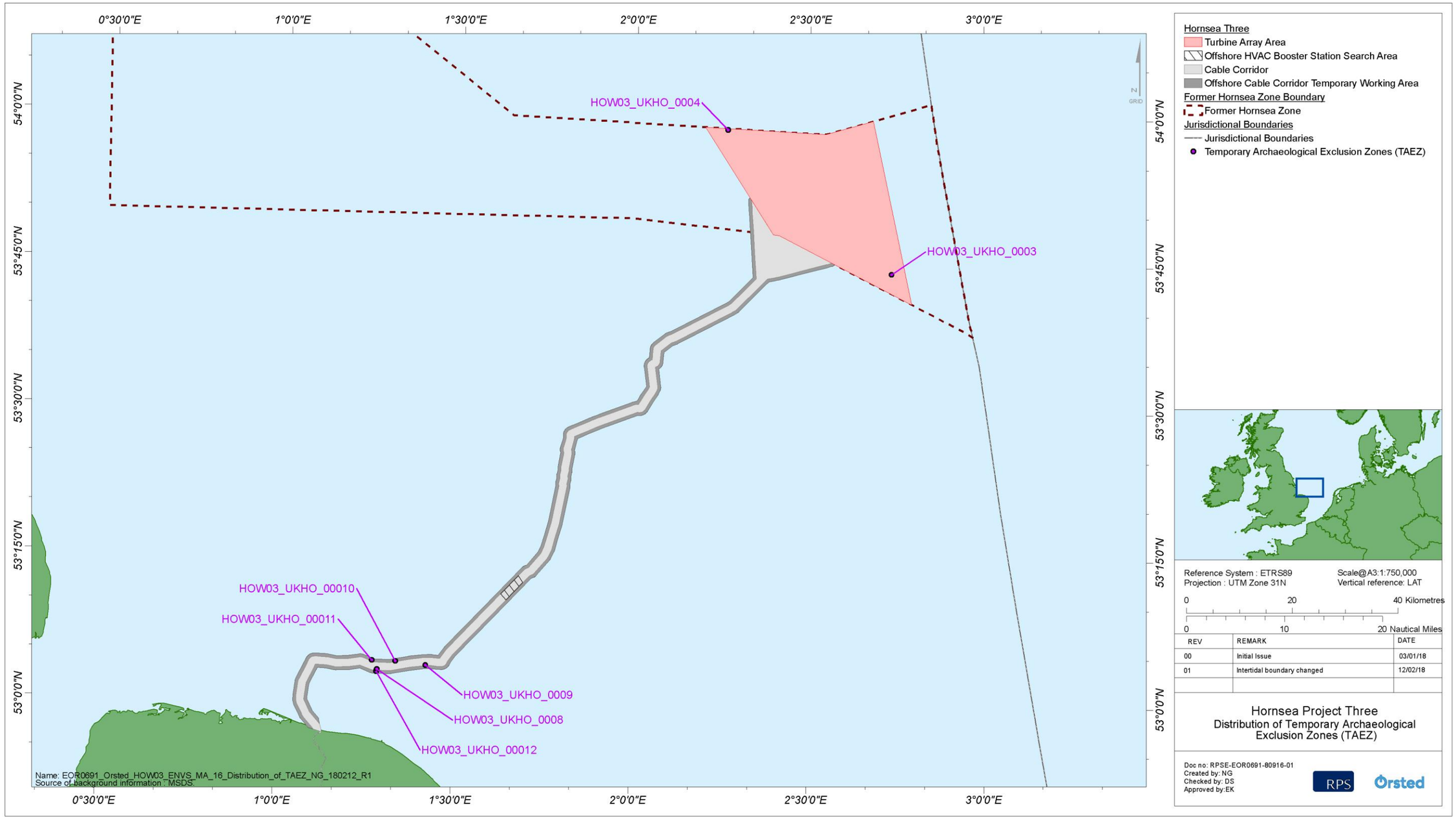

Figure 12.1: Distribution of Temporary Archaeological Exclusion Zones.

Table 12.1: Distribution of Temporary Archaeological Exclusion Zones.

Identification number	Archaeological potential	Basic Description	Position coordinates (ETR89 31N)		Area	Length (m)	Width (m)	Height (m)	Magnetometer (nT)	AEZ Radius (m)
			Latitude	Longitude						
HOW03_UKHO_0003 (UKHO 9594)	Unknown	Obstruction	53 44.4372 N	02 44.1450 E	Hornsea Three array area	N/A	N/A	N/A	9,594	None [a]
HOW03_UKHO_0004 (UKHO 9624)	Unknown	Wreck	53 59.1006 N	02 15.7284 E	Hornsea Three array area	N/A	N/A	N/A	9,624	40
HOW03_UKHO_0008 (UKHO 9214)	Unknown	Wreck	53 3.511 N	01 17.183 E	Hornsea Three offshore cable corridor	65	40	3	N/A	100
HOW03_UKHO_0009 (UKHO 9218)	Unknown	Wreck	53 4.057 N	01 25.390 E	Hornsea Three offshore cable corridor	60	25	0.6	N/A	100
HOW03_UKHO_00010 (UKHO 9220)	Unknown	Wreck	53 4.364 N	01 20.282 E	Hornsea Three offshore cable corridor	130	25	7.9	N/A	170
HOW03_UKHO_00011 (UKHO 9222)	Unknown	Wreck	53 4.414 N	01 16.274 E	Hornsea Three offshore cable corridor	35	20	2.2	N/A	70
HOW03_UKHO_00012 (UKHO 67285)	Unknown	Wreck	53 3.323 N	01 17.058 E	Hornsea Three offshore cable corridor temporary working area east	N/A	N/A	N/A	N/A	40

a ID number HOW03_UKHO_0003 (UKHO 9594) is likely modern debris/cargo lost from a vessel in 1977 therefore no TAEZ has been recommended.

13. Pre-construction Cable Route Clearance

13.1.1.1 Due to the nature of the proposed construction works, no archaeological watching briefs are proposed for the offshore works. The exception to this would be if any clearance operations were undertaken relating to cable installation (including array, interconnector and export cables) in order to remove obstructions. This is because techniques for clearing the cable route (e.g. pre-lay grapnel runs or trenching) have the potential to bring archaeological material to the surface. In this instance the Retained Archaeologist (or an Archaeological Contractor) will be required to be in attendance on the work vessel during clearance.

13.1.1.2 A watching brief of any offshore obstruction clearance activities will involve attendance by an Archaeological Contractor. All watching brief activities will be conducted in compliance with the standards outlined in the Chartered Institute for Archaeologist's 'Standard and Guidance for an Archaeological Watching Brief' (CifA, 20014b), as amplified by statements made in paragraphs 13.1.1.3 to 13.1.1.4 below.

13.1.1.3 Archaeological features and deposits uncovered during the course of the watching brief will be recorded to a single datum and co-ordinate system. Suitable time will be allowed and resources made available within the construction programme for each such intervention.

13.1.1.4 Where construction work exposes sites of potential archaeological importance these sites will be reported to Hornsea Three by the Retained Archaeologist. Hornsea Three will liaise with the Archaeological Curator and a suitable level of recording will be determined. Following this, the Archaeological Curator may require that Hornsea Three includes contingencies within the construction programme for such archaeological excavation and recording as is advised by the Archaeological Curator.

13.1.1.5 Details of the watching brief will be compiled as a report (see section 16).

14. Mitigation of Unavoidable Direct Impacts on Known Sites

14.1.1.1 The mitigation strategy described in this document is predicated on the identification and avoidance of archaeological remains. It is recognised that this may not always in practice be possible, for example should an archaeological asset be identified at a late stage.

14.1.1.2 Options for the mitigation of unavoidable direct impacts on known sites of archaeological significance would include the following:

- Preservation by record. This may involve geophysical, and/ or diver and/ or ROV surveys of known sites; and
- Stabilisation. This may involve the reburial of remains.

14.1.1.3 Detailed analysis and safeguarding of otherwise comparable sites elsewhere may involve the examination of accessible remains, particularly in situations where those affected by Hornsea Three are difficult to access.

15. Protocol for Archaeological Discoveries

15.1 Introduction

15.1.1.1 A PAD will be implemented during all subtidal pre-construction and construction activities. It will address the reporting of unexpected finds of archaeological material, recovered from the sea during pre-construction and construction activities.

15.1.1.2 The PAD will follow the format laid down in the 'Protocol for Archaeological Discoveries: Round 3 Offshore Renewables Projects' (The Crown Estate, 2010b). An Implementation Service (IS) will operate to administer the PAD and provide initial advice to Hornsea Three and will liaise with the Retained Archaeologist and Archaeological Curators as necessary.

15.1.1.3 Once agreed by Hornsea Three and the Archaeological Curator, the PAD will be distributed in a form suitable for use on board construction vessels. Hornsea Three will ensure that the relevant staff on all construction vessels are informed of and have access to the PAD, including supporting material to be produced by the IS, detailing the find types that may be of archaeological interest, and the potential importance of any archaeological material encountered.

15.1.1.4 All finds of archaeological material will be reported by the Construction Contractor(s), in accordance with the communication plan, to the Nominated Contact within their organisation, who will inform the IS who will in turn inform Hornsea Three and then the Archaeological Curator. If the find is a 'wreck' within the meaning of the Merchant Shipping Act 1995, then the IS will also make a report to the Receiver of Wreck. Full contact details for all relevant parties will be included in the PAD.

15.1.1.5 The response to reported finds will be implemented through the measures set out in the PAD, including further surveys or establishment of new AEZs if appropriate.

15.1.1.6 The PAD will be implemented by means of an initial visit by the IS to the relevant vessels to ensure that all staff are made aware of what constitutes an appropriate find, and through periodic reports by the Nominated Contact. The frequency and timing of these visits will be determined once the construction programme is known. The PAD will be supported by a package of awareness training for Hornsea Three and its Construction contractors' and Construction sub-contractors' staff.

15.1.1.7 At the end of the construction phase, the IS will prepare a report on the results of the PAD. The results will be included in the final Archaeological Report in the section covering maritime sites and finds within the area affected by Hornsea Three (see Section 16).

15.2 Finds

15.2.1.1 Any finds and environmental samples will be processed according to professional standards for finds analysis, environmental sampling and archive preparation, and in accordance with the Chartered Institute for Archaeologists' 'Standard and Guidance for the collection, documentation, conservation and research of archaeological materials' (CifA, 2015).

15.2.1.2 Finds and other items of archaeological interest recovered offshore in the course of investigation are the property of The Crown Estate as the landowner, with the exception of all human remains, items that are 'treasure' for the purposes of the Treasure Act 1996 and 'wreck' for the purposes of the Merchant Shipping Act 1995.

15.2.2 Discovery of artefacts

15.2.2.1 Objects relating to human exploitation of the area that are exposed in the course of Hornsea Three activities will be recovered by the Archaeological Contractor or, where recovery is impracticable, recorded. All finds will be recorded by context and significant objects ('special finds') in three dimensions using a sequence of unique numbers.

15.2.2.2 Subject to the agreement reached with the Museum regarding selection, retention and disposal of material, the Archaeological Contractor will retain all recovered objects unless they are undoubtedly of modern or recent origin. The presence of modern objects will, however be noted on context records. In these circumstances sufficient material will be retained to elucidate the date and function of the deposit from which it was recovered.

15.2.2.3 In the event of discovery of artefacts covered or potentially covered by the Treasure Act 1996, their excavation and removal will be undertaken following notification of Norfolk's Finds Liaison Officer (FLO), the Coroner (unless otherwise advised by the FLO) and NCC Archaeology.

15.2.2.4 Finds will be treated in accordance with the relevant guidance given in the Chartered Institute for Archaeologist's 'Standard and Guidance for Archaeological Field Evaluations' (CIfA, 20014a), as amplified by statements made in paragraphs 15.2.2.5 to 15.2.2.8 below.

15.2.2.5 All finds and seabed archaeological deposits will be recorded using a pro forma recording system, and a running matrix of assigned contexts will be maintained. A full photographic record will be maintained using video and digital stills photography. The photographic record will illustrate both the detail and the general context of the principal features, finds excavated, and the site as a whole. Finds will then be conserved, bagged and boxed in accordance with guidelines set out in the United Kingdom's Institute for Conservation's Conservation Guidelines No 2 (ICON, 1984). All retained finds will then be processed in accordance with the Chartered Institute for Archaeolog'sts' 'Standard and guidance for the collection, documentation, conservation and research of archaeological material' (CIfA, 2014c).

15.2.2.6 Specialist work approved by Hornsea Three and the Archaeological Curator on metalwork, bone (including worked bone, human remains and other organic remains), industrial waste, ceramic material, glass and lithic material will be carried out by suitable Archaeological Contractors, monitored by the Retained Archaeologist.

15.2.2.7 In consultation with Hornsea Three and the Archaeological Curator, the Retained Archaeologist will advise on the implementation of passive conservation for smaller objects pending more detailed conservation strategies. Hornsea Three will make provision for a professional conservator to undertake a conservation assessment of assemblages, normally through the Archaeological Contractor.

15.2.2.8 In the event of the discovery of unexpected, unusual or extremely fragile and delicate objects and deposits, such as waterlogged wood, the Retained Archaeologist, Hornsea Three and the Archaeological Curator will be notified immediately. Additional work required to recover, record, analyse, conserve and archive such objects and deposits will be agreed with the Archaeological Curator.

15.2.3 Discovery of human remains

15.2.3.1 Should human remains be encountered, all excavation and post-excavation will be in accordance with the standards set out in IfA Technical Paper 13 'Excavation and post excavation treatment of Cremated and Inhumed Remains' (McKinley and Roberts, 1993), 'Human Bones from Archaeological Sites, Guidelines for Producing Assessment Documents and Analytical Reports' (English Heritage, 2004) and 'Guidance for Best Practice for Treatment of Human Remains Excavated from Christian Burial Grounds in England' (Historic England *et al*., 2017).

15.2.3.2 In the event of the discovery of any human remains, the Construction Contractor or Archaeological Contractor will immediately inform the Retained Archaeologist. The Retained Archaeologist will inform Hornsea Three, the Archaeological Curator, the Coroner, and the Police.

15.2.3.3 Following discussions with the Coroner/Ministry of Justice and the County Archaeologist, the need for and appropriateness of their excavation/removal will be determined. An exhumation licence application will be made by the Archaeological Contractor as appropriate. Where deemed appropriate, human remains will be fully recorded, excavated and removed from the site. The final placing of human remains following analysis will be subject to the requirements of the Ministry

15.2.4 Discovery of aircraft wrecks

15.2.4.1 The majority of aircraft wrecks are military and so fall under the legal protection of the Protection of Military Remains Act 1986. Archaeological Contractors should refer to guidance outlined in:

- 'Collaborative Offshore Wind Research into the Environment (COWRIE) Historic Environment Guidance' (Wessex Archaeology, 2007),
- 'Draft Interim Guidance on the use of the Protocol for Reporting Finds of Archaeological Interest in relation to Aircraft Crash Sites at Sea' (Wessex Archaeology, 2008); and
- 'Military Aircraft Crash Sites: Archaeological guidance on their significance and future management' (English Heritage, 2002).

15.2.4.2 Any finds that are suspected of being military aircraft will be reported immediately to the Retained Archaeologist. Hornsea Three will be informed as well as the Service Personnel and Veterans Agency (SPVA: Joint Casualty and Compassionate Centre – SO3 Historic Casualty Casework). Any subsequent actions will be guided by 'Crashed Military Aircraft of Historical Interest: Licensing of Excavations in the UK – Guidance Notes for Recovery Groups' (MOD and SPVA, 2011) and by advice received from SPVA. In the case of a military aircraft being investigated under licence, any human remains will be reported immediately in accordance with paragraph 15 of Guidance Notes for Recovery Groups to the Ministry of Defence (Telephone: 01452 712612 extensions 6303 or 7330 during office hours (or 01452 519951 during weekends/evenings) and the local police, and, through them, the local Coroner.

15.3 Archives

15.3.1.1 The Archaeological Curator will be notified of any archaeological investigation in advance of fieldwork and any specific requirements relating to the preparation and deposition of project archives will be accommodated as appropriate.

15.3.1.2 Where there is the likelihood of any archaeological fieldwork, the Retained Archaeologist will contact an appropriate receiving institution to discuss the intended fieldwork and seek its agreement to accept the site archive for long-term storage and curation. The Retained Archaeologist will consult the receiving institution with regard to its policy on the selection, retention and disposal of excavated material, and to confirm the requirements in respect of the format, presentation and packaging of archive records and materials.

15.3.1.3 The Retained Archaeologist will notify the receiving institution in advance of any fieldwork, and a museum Accession Number will also be sought on each occasion. The timetable for depositing archives with the receiving institution after completion of the post-fieldwork programme will be set out in the relevant Method Statement (see paragraph 7.2.1.5).

15.3.1.4 Written, drawn and photographic archives will be compiled to a standard that allows for the publication of a summary report. Written archives will be on clean, stable materials, and will be suitable for photocopying. The materials used will be of the standard recommended in Guidelines for the Preparation of Excavation Archives for Long-term Storage (Walker, 1990).

15.3.1.5 For the offshore components of Hornsea Three, the final Archaeological Report should be archived with the National Record of the Historic Environment (NRHE). An Online Access to the Index of Archaeological Investigations (OASIS) form will be produced for each of the Deemed Marine Licences (one for the generation assets and one for the transmission assets), and all copies of any reports generated (e.g. geophysical, and geotechnical data analysis) and agreed with the relevant curatorial body are to be attached as data files in compliance with the appropriate standards.

15.3.1.6 Hornsea Three will seek permission from the landowner (i.e. The Crown Estate) to donate finds to an appropriate Museums Service prior to depositing the archive.

16. Reporting

16.1.1.1 All archaeological reports will also be prepared in accordance with the guidance given in the relevant Chartered Institute for Archaeologist's Standards and Guidance. Reports will typically include:

- 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; and
- Illustrations and Appendices to support the report.

16.1.1.2 Subject to the assessment report the Archaeological Contractor will publish the results of fieldwork, at least to summary level, within one year of completion of the work. Publication will be in an appropriate local or national journal. Other forms of publication (e.g. 'popular publication', electronic media/Internet) may be employed where appropriate.

16.1.1.3 An overarching final report on the archaeology of the scheme area will be produced by the Retained Archaeologist after the completion of the archaeological works relating to the scheme. Publication media and all publication matters will be discussed and agreed in advance with the Archaeological Curator.

16.1.1.4 All archaeological reports (inclusive of geophysical and geotechnical investigations) produced during the course of the development and construction process will be submitted to Online Access to the Index of Archaeological Investigations (OASIS).

16.2 Finds

16.2.1.1 In the event that little of significance is found during the course of the scheme construction, a final report on the investigative work will be prepared by the Archaeological Contractor within six weeks of completion of all scheme works. If significant archaeological sites and finds are recorded then this final report will be preceded by the submission to the Retained Archaeologist by the Archaeological Contractor(s) of investigation reports following the completion of fieldwork.

16.2.1.2 The Archaeological Contractor will also be required to produce an assessment report which will establish the value of the recorded archaeology and provide a costing for the post-excavation analysis, publication and archiving (including deposition of archive).

16.2.1.3 Each draft report will be sent to the Retained Archaeologist for submission to Hornsea Three and will satisfy the Method Statement for the investigation (see paragraph 7.2.1.5). Hornsea Three will forward a hard and digital (pdf) copy of each report to the Archaeological Curator.

16.2.1.4 Each report will present information in sufficient detail to allow interpretation without recourse to the Hornsea Three archive.

16.2.1.5 Decisions regarding the level of post-excavation work required will be taken following submission of investigation reports and consultation by Hornsea Three and the Retained Archaeologist with the Archaeological Curator.

16.3 Publication

16.3.1.1 In consultation with Hornsea Three and the Archaeological Curator, the Retained Archaeologist will ensure that the results of important archaeological investigations undertaken in connection with Hornsea Three will be published in an integrated manner.

16.3.1.2 Following construction, a final Post-Investigation Assessment will be compiled by the Retained Archaeologist that will establish final arrangements for publication.

17. Arrangements for Monitoring and Reviewing the Written Scheme of Investigation

17.1.1.1 At each stage of the project including construction, operation and maintenance, and decommissioning and sub stages therein, the Retained Archaeologist will advise Hornsea Three as to the potential requirements of the specific archaeological investigations as outlined in this document. Appropriate Method Statements will be prepared as required in line with the requirements of the WSI and these will be submitted to the Archaeological Curator for approval. Approval by the Archaeological Curator will be assumed if no response is received within 30 working days of submission.

17.1.1.2 These Method Statements will include provision for the Archaeological Curator to monitor the progress of the archaeological investigations, as appropriate to that element; be that through site visits or meetings with Hornsea Three, the Contractor(s) and/or the Retained Archaeologist.

17.1.1.3 Provision will be made for the WSI to be revised as appropriate should elements of the project change (within the maximum design scenario) or particular archaeological issues come to light. Any revisions will be prepared by the Retained Archaeologist and submitted to Hornsea Three who will ensure they are submitted to, and approved by, the Archaeological Curator. Approval by the Archaeological Curator will be assumed if no response is received within 30 working days of submission.

17.1.1.4 The performance of the WSI will be monitored through the provision of a series of Archaeological Reports, prepared to inform on the results of various activities undertaken under its auspices. These include a review of new geophysical, geotechnical and environmental data and the implementation of the Protocol for Reporting Finds of Archaeological Interest (appendix A) during subtidal cable installation. These reports will be submitted to Hornsea Three, who will ensure their dissemination to the Archaeological Curators.

17.1.1.5 The responsibility for ensuring the implementation of the Protocol for Reporting Finds of Archaeological Interest (appendix A) rests with Hornsea Three, who will ensure that its agents and Construction contractors are contractually bound to implement the protocol.

17.1.1.6 Hornsea Three and the Retained Archaeologist will agree the system for Archaeological Reporting.

17.1.1.7 The Archaeological Curator will be notified in advance by Hornsea Three of work timetables and the commencement of any work on site that may affect the site's archaeology, and will be informed at this time of the Retained Archaeologist's key staff.

17.1.1.8 A programme of monitoring visits (if deemed appropriate) by the Archaeological Curator and Hornsea Three will be agreed in advance of the commencement of construction activities and again as appropriate for operation and maintenance, and decommissioning activities.

17.1.1.9 During any site evaluation/investigation or construction activities that have the potential to affect archaeological deposits, the Retained Archaeologist will advise Hornsea Three who will liaise directly with the Archaeological Curator with regard to site monitoring and reporting. Hornsea Three will be kept informed of any contact between the Retained Archaeologist and the Archaeological Curator.

18. References

BMAPA and English Heritage (2005) *Protocol for reporting finds of archaeological interest.* British Marine Aggregate Producers Association and English Heritage, London

Chartered Institute for Archaeologists (2014a) Standard and Guidance for Archaeological Field Evaluations

Chartered Institute for Archaeologists (2014 b) Standard and Guidance for an archaeological watching brief

Chartered Institute for Archaeologists (2014c) Standard and guidance for the collection, documentation, conservation and research of archaeological materials

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Appendix A Protocol For Archaeological Discoveries

A.1 Background

A.1.1.1 This document is a protocol that is intended to satisfy conditions relating to the reporting of archaeological discoveries that might be made in association with works undertaken for Hornsea Three. It is adapted from The Crown Estate's 'Protocol for Archaeological Discoveries: Offshore Renewables Projects' (2010).

A.1.1.2 The PAD is a system of monitoring for unexpected or incidental finds relating to the historic environment that may be encountered within the marine and inter-tidal zones. This PAD can be used at all stages of the development process where archaeological information may be obtained, including all pre-development surveys such as benthic sampling, obstruction surveys and other such operations.

A.1.1.3 This Protocol is intended to satisfy any conditions that relate to reporting protocols included on consents administered by marine licensing authorities, including the Secretary of State and Marine Management Organisation (MMO). Where implementation of this Protocol is a condition of consent, failure to follow the Protocol may give rise to a breach of condition.

A.1.1.4 COWRIE's Historic Environment Guidance for the Offshore Renewable Energy Sector (2007) document states: *"The aim of protocols for unexpected discoveries is to reduce any adverse effects of the development upon the marine historic environment by enabling people working on the project to report their discoveries or recovered material rapidly in a manner that is convenient and effective. The protocol will set out the respective responsibilities of the developer, main contractors, and archaeological contractors/consultants. The protocol therefore provides a mechanism to aid compliance with the Merchant Shipping Act 1995 in respect to recovery of 'wreck', as defined by the Act and reporting of military vessel and aircraft wrecks to the Ministry of Defence."*

A.1.1.5 This Protocol applies to things that are or may have been made, used or affected by people. This will include, for example, fossilised remains from periods of human inhabitation, but not fossils that are exclusively pre-human in origin. It will not include finds of geological, ecological, or other non-archaeological origin, unless a link to human activity can be assumed.

A.1.1.6 This Protocol takes into account, and is consistent with, existing statutory and non-statutory regimes for reporting discoveries, ownership of finds and other legal regimes, on land, within territorial waters and outside territorial waters.

A.1.1.7 For some classes of find there are specific legal requirements (e.g. treasure, wreck, human remains); see Appendix 1. These legal requirements will be met by following this Protocol. In such instances, failure to follow the Protocol may also give rise to a criminal offence.

A.1.1.8 Where ordinance is concerned, specific rules have been put in place by the Developer or their contractors. These rules are required for the safe conduct of construction and installation operations, and must take precedence over this Protocol. Historic ordinance may, however, also be of archaeological interest and can be reported under this Protocol once local rules for ordnance have been satisfied.

A.2 Outline

A.2.1.1 Archaeological finds made in the course of construction and installation activities 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 society and human endeavour in the past, and better protect significant aspects of our history on behalf of future generations.

A.2.1.2 The Protocol is applicable to activities associated with the development where an archaeologist is not present on site and therefore not immediately available. In cases where the Developer has made provision for an archaeologist to be on site, as part of a site investigation, watching brief or specific archaeological works, then the archaeological method statement relating to this provision will take precedence. Where no specific archaeological provision has been made, then this Protocol will apply.

A.2.1.3 This Protocol addresses finds of archaeological interest made on the seabed, onboard vessels, in the inter-tidal zone or on land. They may be identified as a result of geophysical survey, Remotely Operated Vehicle (ROV) or diver visual identification or through coming into contact with anchors, grapnels, jack-up legs or other seabed equipment. Alternatively, they may be uncovered during groundworks on land or in the inter-tidal zone. These finds or anomalies may indicate that an object or structure of archaeological interest has been encountered on the seabed, the inter-tidal zone or on land.

A.2.1.4 The definition of an archaeological "find" in this context is of an object or site with archaeological potential or significance. It does not refer just to items brought to the surface. An archaeological "site" is a group of features or objects that make up a relatively discrete collection of associated archaeological objects. This could be a shipwreck, structure, or other archaeological assemblage (see Appendix 2).

A.2.1.5 An "anomaly" is distinct from a find or site, and is a signature that could be visual or digital (e.g. geophysical) that indicates a possible find or site. Further investigation may reveal that it is not of human origin, or is too modern to be of archaeological interest. However, until such investigation takes place it must be considered as a source of possible archaeological interest.

A.2.1.6 The Protocol anticipates discoveries being made by Project Staff, who report to a Site Champion on their vessel or site (usually the senior person on site), who then reports to a person (the Nominated Contact) who has been nominated by the Developer to co-ordinate implementation of the Protocol. The Nominated Contact will in turn inform the Developer's Project Manager(s) (if this is not the Nominated Contact) who in turn will contact the Retained Archaeologist.

A.2.1.7 The response to reported finds will be implemented through the measures set out in the Protocol, and may include further survey or the establishment of TAEZs, which may be converted into new AEZs, if warranted. Any action to implement new, or to amend agreed AEZs or TEZs will only be done in agreement with the appropriate Archaeological Curators and the Regulator responsible for consenting the development.

A.3 Roles and responsibilities

A.3.1.1 The Site Champion is the person formally appointed by the Developer to be directly responsible for implementation of the Protocol and producing reports arising from a particular activity location. The Site Champion could be a Vessel Master, a Construction Foreman or any other person in a position to control the immediate works.

A.3.1.2 The Developer's Nominated Contact is the formal point of contact for all matters relating to the PAD between the Developer, its subcontractors, the Site Champions, Retained Archaeologist, the Archaeological Curators and ultimately the Regulator. The Nominated Contact could be the scheme's Environmental Manager, Project Manager or any other coordinator that the Developer feels is appropriate and effective in acting in this role. It is critical that all parties hold the Nominated Contact's full contact details and that any changes to the Nominated Contact's details are circulated as soon as possible.

A.4 Actions by project staff

A.4.1 In all cases

A.4.1.1 If a find of archaeological interest is made, Project Staff will immediately inform the Site Champion (via their supervisor if appropriate).

A.4.1.2 If the discovery is ordnance, then Project Staff will abide by their operational procedures which are to take precedence; and then report via the Protocol once safe to do so.

A.4.1.3 Where items of archaeological interest are recovered, Project Staff (under direction of the Site Champion) will:

- Handle all material with care;
- Any rust, sediment, concretion or marine growth should not be removed and 'groups' of items or sediments should not be separated;
- If possible photograph the item in the condition in which it was recovered;
- Record the position at which the artefact/sediments were recovered; and
- Provide a unique reference number for each artefact, which is to be included on all recording and storage mediums.

A.4.1.4 If the find is from a waterlogged or underwater environment, then Project Staff (under direction of the Site Champion) will arrange for the find to be immersed in seawater in a suitable clean container, which should be covered.

A.4.2 Discoveries onboard

A.4.2.1 If a find of archaeological interest is made on board a construction vessel (for instance, caught in a grapnel/anchor or trapped in a plough), Project Staff will immediately inform the Officer on Watch. The Officer on Watch will inform the Site Champion.

A.4.2.2 Where it is possible to identify the seabed position from which the find originated, the Officer on Watch will temporarily cease construction activities in the vicinity of the seabed location, or move to an alternate location, until advice has been obtained.

A.4.3 Anomalies on the seabed

A.4.3.1 If an anomaly is identified in advance of impact, such as on the forward-looking sonar of a cable plough, the route should – where possible – be deviated around the obstruction, in line with normal ploughing practice. The position of the anomaly will be reported to the Officer on Watch and thence to the Site Champion.

A.4.3.2 If an anomaly is identified after an impact has occurred, for example, as indicated by a change in the towing cable tensiometer, avoidance by deviation will be precluded. However, the change in tension should be immediately brought to the attention of the Officer on Watch and the Site Champion so that the anomaly can be reported, advice can be sought and any requirements for further investigation determined.

A.4.3.3 The Officer on Watch will arrange for the grapnel or plough to be recovered to the surface and examined as soon as possible, once recovered to surface, to see if any archaeological material is trapped within it, and will inform the Site Champion accordingly.

A.4.3.4 If an anomaly comes to light in the course of geophysical survey or drop-down video survey the Officer on Watch will ensure that the position of the anomaly is noted on navigational software and that the Site Champion is informed.

A.4.4 Discoveries on land or in intertidal areas

A.4.4.1 Discoveries may be made in the course of groundworks, trenching or site investigations. They should be reported to the Site Champion and the finds handled in accordance with the general guidance above. Where archaeological investigations are already taking place, as part of a watching brief, evaluation trenching, strip map and sample or open area investigation, then the method statement for those investigations will take precedence and discoveries need not be reported under this protocol.

A.4.5 Discoveries subsequent to work on site

A.4.5.1 There are a number of circumstances in which the presence of material of archaeological interest may be identified after work on site has occurred, such as Project Staff involved in processing samples in the laboratory may make archaeological discoveries in their samples.

A.4.5.2 Staff examining sample material (e.g. core material; benthic samples) should consider the potential for archaeological and/or paleoenvironmental material being recovered within their samples. Where such discoveries are made Project Staff should inform the Site Champion and pass on details of the sample number and its position.

A.4.5.3 If an anomaly comes to light in the course of processing or interpreting geophysical survey data, video or other photographic data, Project Staff should inform the Site Champion and pass on details of the data files and navigational information relating to the positions where the data were obtained.

A.5 Actions by Site Champion

A.5.1.1 Where it is possible to identify the position from which the discovery originated, the Site Champion will arrange for a TAEZ in which construction activities will cease temporarily (in the vicinity of the location), or move to an alternate location, until the advice of the Retained Archaeologist has been obtained.

A.5.1.2 The Site Champion will note the occurrence as soon as possible in the site daybook or vessel log together with the time and exact position. The entry should include a close approximation of the original position of the find/anomaly. Additionally, the area should be marked on site drawings or surveys.

A.5.1.3 The Site Champion will compile a Preliminary Record of the occurrence (see Appendix 3) and, where possible, accompany this with any supporting information such as photographs, drawings or other records that have been made. The Site Champion will inform the Developer's Nominated Contact of the occurrence as soon as possible and pass on all available information.

A.5.1.4 The Site Champion will arrange for any finds (of archaeological material) to be carefully contained and protected:

- If waterlogged: immersed, bagged and placed in a protective container, or placed in seawater in a suitable clean container, which should be covered and stored in a cool, dark place;
- If dry: placed in a suitable container and stored in a cool, dark place; and
- Any dirt, rust, concretion or marine growth should not be removed.

A.6 Actions by the nominated contact

A.6.1.1 The Nominated Contact will confirm with the Site Champion that all the details set out in the Preliminary Record are comprehensive and correct.

A.6.1.2 Contact will be made with the Retained Archaeologist at the earliest opportunity, providing 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. The Retained Archaeologist will provide advice on the appropriate immediate actions in addition to the recording, handling and storage of any items recovered.

A.6.1.3 The Nominated Contact should inform other teams engaged in potentially damaging activities in the same area, to ensure that they are aware of the position of the discovery so that further possible damage to the historic environment can be avoided.

A.6.1.4 Should it be required the Retained Archaeologist will travel to the site to inspect any finds or data made available.

A.7 Actions by the Retained Archaeologist

A.7.1.1 The Retained Archaeologist will review the information about the discovery in conjunction with the available geophysical and/or desk-based information. Additional communication may take the form of email correspondence and/or telephone conversations (where internet access is restricted). The Retained Archaeologist will send an Initial Response to the Nominated Contact to acknowledge the report.

A.7.2 Assessment of archaeological potential

A.7.2.1 The assessment of archaeological potential will be based on the following criteria:

- Low potential discoveries: reports of single, apparently isolated, finds that are not datable or are of modern (post-1800) or later date, or small pieces of peat (<10cm diameter) where there are clear signs it has been mobile (rolled); and
- High potential discoveries: reports of single finds that are of post-medieval or earlier date; reports of single finds that relate to military aircraft; reports of multiple finds from the same area; reports indicating the presence of a wreck or other structural remains; reports of peat or other fine-grained [organic] material where there is no evidence of mobility (e.g. angular blocks of sediment with no / limited rounding of the edges).

A.7.2.2 In the case of a discovery of high potential, construction will not recommence in the TAEZ without the approval of the Archaeological Curators. The Retained Archaeologist will confirm the extent of the area of the TAEZ. The Retained Archaeologist will notify the Archaeological Curators that a discovery of high potential has been reported, and will provide details of the further actions that have been advised.

A.7.2.3 In the case of discoveries of low potential, the Retained Archaeologist will advise the Nominated Contact that the TAEZ may be lifted and that construction activities in the vicinity of the discovery may recommence.

A.7.3 Summary record

A.7.3.1 The Retained Archaeologist will send a Summary Record of the report to the Nominated Contact and to other relevant parties. The Summary Record will include:

- advice on the identification of finds and the character of their seabed locations;
- an assessment of the archaeological potential of the report, including the rationale for the conclusion reached;
- advice on actions to be taken in respect of the discovery, including any recovered finds;
- a list of the parties to which the summary record and associated archaeological data are being sent

A.7.4 Subsequent actions

A.7.4.1 The Retained Archaeologist will advise the Nominated Contact of the implications of the discovery and of further actions that might be required. Further actions may include call-out investigations, the conversion of a TAEZ to an AEZ, and/or the institution of a watching brief. The rationale for conclusions reached will be provided to the Nominated Contact.

A.7.5 Further requirements

A.7.5.1 If the discovery is something to which specific legal provisions apply (treasure, human remains, wreck etc.), it will remain the responsibility of the Developer to undertake such statutory reporting as is required. The Ministry of Justice (MoJ) states:

"It should be noted that an application to the Ministry of Justice for a licence to remove or disturb human remains will only be required where the remains are buried under ground on land and within the territorial waters of England and Wales. Moreover, licences cannot be granted once remains have been removed from the ground".

A.7.6 Finds

A.7.6.1 The handling, retention or disposal of finds will be subject to applicable law and to arrangements between the Developer and the institution receiving the archaeological archive arising from the scheme.

A.7.7 Revised Summary Record

A.7.7.1 The Summary Record will be revised to take account of further information or actions that have taken place or are planned. The Retained Archaeologist will pass on a copy of the revised Summary Record to:

- The Nominated Contact for circulation to the Site Champion and relevant Project Staff;
- The relevant Regulator and Archaeological Curator (Historic England) and (where relevant) Local Government Archaeological Curator;
- The relevant authority, where specific legal provisions apply (e.g. Receiver of Wreck, Coroner, MOD etc.);
- The Crown Estate; and
- Deposition of the revised summary record with the Online Access to the Index of archaeological investigations (OASIS).

A.8 Appendix 1: Legal terms and responsibilities

A.8.1.1 Protection of Wrecks Act 1973. Under the 1973 Act, shipwrecks and wreckage of historical, archaeological or artistic importance within UK territorial waters can be protected by way of designation. Once a wreck has been designated it is an offence to carry out certain activities on or around the site without a licence. Administration of the Act and associated licences is the responsibility of Historic England.

A.8.1.2 Merchant Shipping Act 1995. This Act is not a form of designation, but will affect offshore renewable energy schemes if, in the course of site investigations or construction, any material is recovered which falls within the definition of 'wreck'. All wreck has an owner, and the Merchant Shipping Act sets out the procedure for returning recovered wreck to the owner or their successor. The Receiver of Wreck has to be notified of all recovered wreck landed in the UK, and will seek to identify the original owner so that it can be claimed. Ownership of unclaimed wreck from within territorial waters vests in the Crown or in a person to whom rights of wreck have been granted. Unclaimed wreck from beyond territorial waters is returned to the finder. The Receiver of Wreck has a duty to ensure that finders who report wreck receive an appropriate salvage payment. In the case of material considered to be of historic or archaeological importance, a suitable museum will be asked to purchase the material at the current market valuation. The finder will receive the net proceeds of the sale as a salvage payment. If the right to, or the amount of, salvage cannot be agreed, either between the owner and finder or between competing salvors, the Receiver of Wreck will hold the wreck until the matter is settled, either through amicable agreement or by court judgement.

A.8.1.3 Protection of Military Remains Act 1986. The primary purpose of The Protection of Military Remains Act is to protect the resting places of military personnel from unauthorised disturbance. It allows the Ministry of Defence (MOD) to protect vessels and aircraft that were in military service when they were lost or wrecked. The MOD can designate any such named vessel lost after 4 August 1914 as a 'protected place' even if the position of the wreck is not known. In addition, the MOD can designate a 'controlled site' any such wreck whose position is known. Access is not prohibited at a 'protected place', but it is an offence to tamper with, damage, move or remove items from such a wreck without a licence. However, access, salvage and excavation are all prohibited on 'controlled sites', except where a licence for restricted activities has been obtained from the MOD. The remains of all aircraft that have been lost in military service are automatically classified as 'protected places' by the Act.

A.8.1.4 Human Remains. In 2008, the Ministry of Justice issued a statement on burial law and archaeology in relation to the Burial Act 1857. The main principle of the statement is:

Exhumation licence applications under the Burial Act 1857 will be considered wherever human remains are buried in sites to which the Disused Burial Grounds (Amendment) Act 1981 or other burial ground legislation does not apply. This is expected to apply to the majority of archaeological excavations. When licences are issued, a time limit, normally of up to two years, will be set for re-interment of human remains; it will be possible to apply for an extension when circumstances justify this. It will be rare for the Burial Act 1857, or other burial legislation, to apply to human remains found in the marine environment.

A.8.1.5 The Treasure Act 1996. The Act is supplemented by the Treasure (Designation) Order 2002. Finders of gold and silver objects (over 300 years old) and some base metal assemblages (prehistoric) as defined in the Act are required to report such finds by contacting the Coroner and delivering the items for hand over as per the coroners' instructions. The Act and the Order apply to objects found in or on land, in buildings (whether currently occupied or ruined), in rivers and lakes and on the foreshore (area between mean high water and mean low water on beaches and tidal river banks), provided that the object does not come from a wreck.

A.8.1.6 Ancient Monuments and Archaeological Areas Act 1979. Monuments that are of national importance within UK territorial waters can be protected by being added to the schedule of monuments protected under this Act. It is an offence to damage, or carry out a range of specified activities on such a 'scheduled monument', unless a licence for these activities has been obtained from the relevant authority, in the form of 'scheduled monument consent'. Monument can mean, among other things, the site of any vehicle, vessel, aircraft or other structure. It also refers many types of archaeological site in the traditional sense.

A.9 Appendix 2: Guidelines for identifying finds of archaeological interest and handling artefacts

A.9.1 Materials guidelines

A.9.1.1 Rubber, Plastic etc. In most cases, rubber, plastic, bakelite and similar modern materials are not of archaeological interest and can be disregarded. One exception is where such materials are found in the same area as aluminium objects and structures, which may indicate aircraft wreckage from World War Two. Such material should be reported.

A.9.1.2 Iron and Steel. The potential range and date of iron and steel objects is so wide that it is difficult to provide general guidance. In broad terms, iron and steel objects which are covered by a thick amorphous concrete-like coating ('concretion') are likely to be of archaeological interest and should be reported. Pieces of metal sheet and structure may indicate a wreck and should be reported. Specific operational measures are likely to apply in respect of ordnance (cannonballs, bullets, shells) which should take precedence over archaeological requirements. However, discoveries of ordnance may be of archaeological interest, and they should be reported.

A.9.1.3 Other Metals. Items made of thin, tinned or painted metal sheet are unlikely to be of archaeological interest. Aluminium objects may indicate aircraft wreckage from World War Two, especially if two or more pieces of aluminium are fixed together by rivets. All occurrences should be reported. Copper and copper alloy (bronze, brass) objects might indicate a wreck, or they may be very old. All occurrences should be reported. Precious metal objects and coins are definitely of archaeological interest because they are relatively easy to date. All occurrences should be reported.

A.9.1.4 Bone. Discoveries 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. Large quantities of animal bone may indicate a wreck (the remains of cargo or provisions) and should be reported. Human bone is definitely of archaeological interest, and may, if buried and found within the territorial waters, be subject to the provisions of the Burial Act 1857. Any suspected human bone should be reported, and treated with discretion and respect. 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.

A.9.1.5 Wood. 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, although it may provide palaeoenvironmental evidence. However, roundwood that has clearly been shaped or made into a point should 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.

A.9.1.6 Stone. Small to medium size stones that are shaped, polished and/or pierced may be prehistoric axes. All occurrences should be reported. Objects such as axe heads or knife blades made from flint are of prehistoric date and should be reported. 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. The recovery of numerous stones may indicate the ballast mound of a wreck, or a navigational cairn. All occurrences should be reported.

A.9.1.7 Pottery. Any fragment of pottery is potentially of interest, especially if it is a large fragment. Items which look like modern crockery can be discarded, but if the item has an unusual shape, glaze or fabric it should be reported.

A.9.1.8 Brick. Bricks with modern proportions and v- shaped hollows ('frogs') are of no archaeological interest. Unfrogged, 'small', 'thin' or otherwise unusual bricks may date back to Medieval or even Roman times and should be reported.

A.9.1.9 Peat and Clay. Peat is black or brown fibrous organic material that was deposited when sea level was so low that the modern seabed formed marshy land, for example on the banks of a river or estuary. 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. Prehistoric structures (such as wooden trackways) and artefacts are often associated with wetland areas where peat may have formed. In some rare instances archaeological material has been found within peat samples (moorlog) recovered from the North Sea seabed. Fine-grained sediments such as silts and clays are often found at the same places as peat. Any discoveries of such material could be of archaeological interest, and their occurrence should be reported.

A.9.2 Artefact storage advice

A.9.2.1 It should be noted that 'time is of the essence' in terms of the recovery of waterlogged archaeological material. If waterlogged organic items are allowed to dry out this can cause irreparable damage. Care in handling items is paramount.

A.9.2.2 In the event of artefact recovery, the finds should be stored in the following manner:

- If dry, finds should be placed in zip-lock bags and/or stored in a suitable protective container in a cool, dark area if possible;
- If waterlogged, any artefacts should be kept damp, or preferably totally submerged (in sea water), in zip-lock bags which are then stored in ridged plastic boxes to prevent damage. Items should be kept wet, covered, and stored in a cool, dark area if possible, and protected from any damage to potentially delicate waterlogged material;
- Any sediments of interest will be collected and double bagged into zip-lock bags; and
- If particularly delicate or significant items are recovered the Retained Archaeologist should be contacted for further advice.

A.9.2.3 The Developer will supply suitable storage materials to its construction operations. The Retained Archaeologist can advise on suitable materials for this purpose. All retained finds will then be processed in accordance with the Chartered Institute for Archaeologists' Standard and guidance for the collection, documentation, conservation and research of archaeological material (CIfA, 2014c).

Appendix B Vessel and installation Equipment Specifications and Project Organisation Chart

B.1 Vessel and installation equipment specifications

B.1.1.1 To be completed for future surveys once known.

B.2 Project organisation chart

B.2.1.1 To be completed for future surveys once known.

Appendix C Discoveries: Preliminary Record Form

Preliminary Record Form: Discoveries on the Seabed / on board / inter-tidal zone / on land

Vessel / Team Name:
Site / Sea Area Name
Date:
Time of compiling information:
Name of compiler (Site Champion):
Name of finder (if different to above):

Time at which discovery was encountered:
Vessel position at time when anomaly was encountered (e.g. recovery position)
Latitude
Longitude
Datum (if different to WGS84)
Original position of the anomaly on the seabed, if known:
Comment on accuracy of the original position state above:
How accurate is the position?
Is the position the original position or has the material been moved by operations (e.g trawling – if so provide start and end positions of trawl)
Details of circumstances and activity that lead to the discovery
Description of the find / anomaly:
Apparent size / extent of the anomaly:
Details of any find(s) recovered:
Details of photographs, drawings or other records made of the finds(s):
Details of treatment or storage of find(s):

General notes:	
If discovered on the seabed:	
Method of identification (sonar, cable tensiometer, etc)	
Apparent size / extent of anomaly (length, width, height above seabed)	
Extent of deviation / route development	
Signed:	Date:

Appendix D Archaeological Wreck Recording Levels

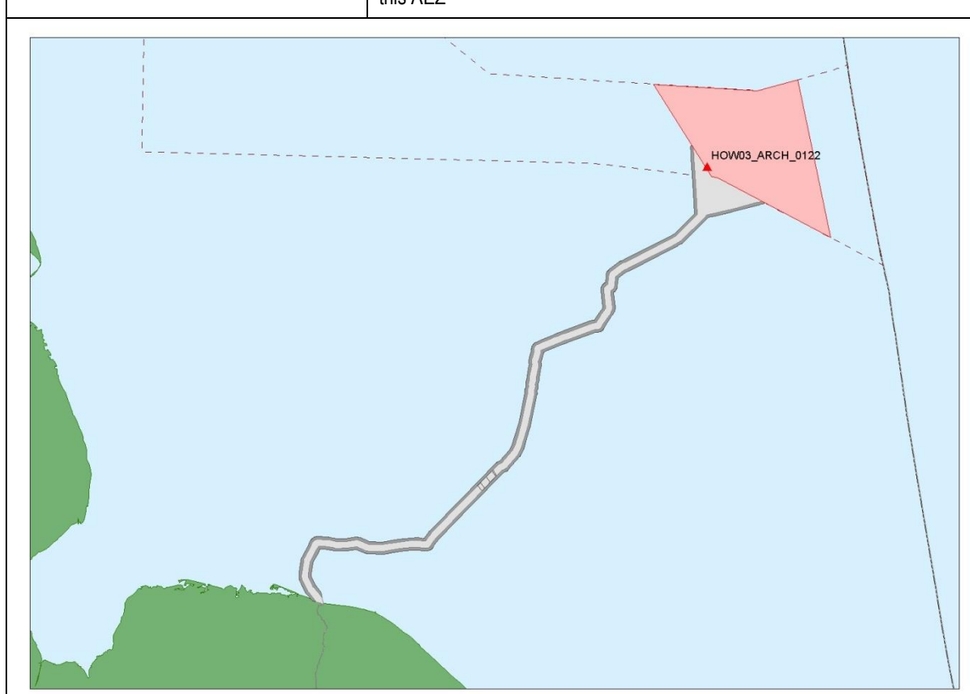
Table D.1: Archaeological wreck recording levels.

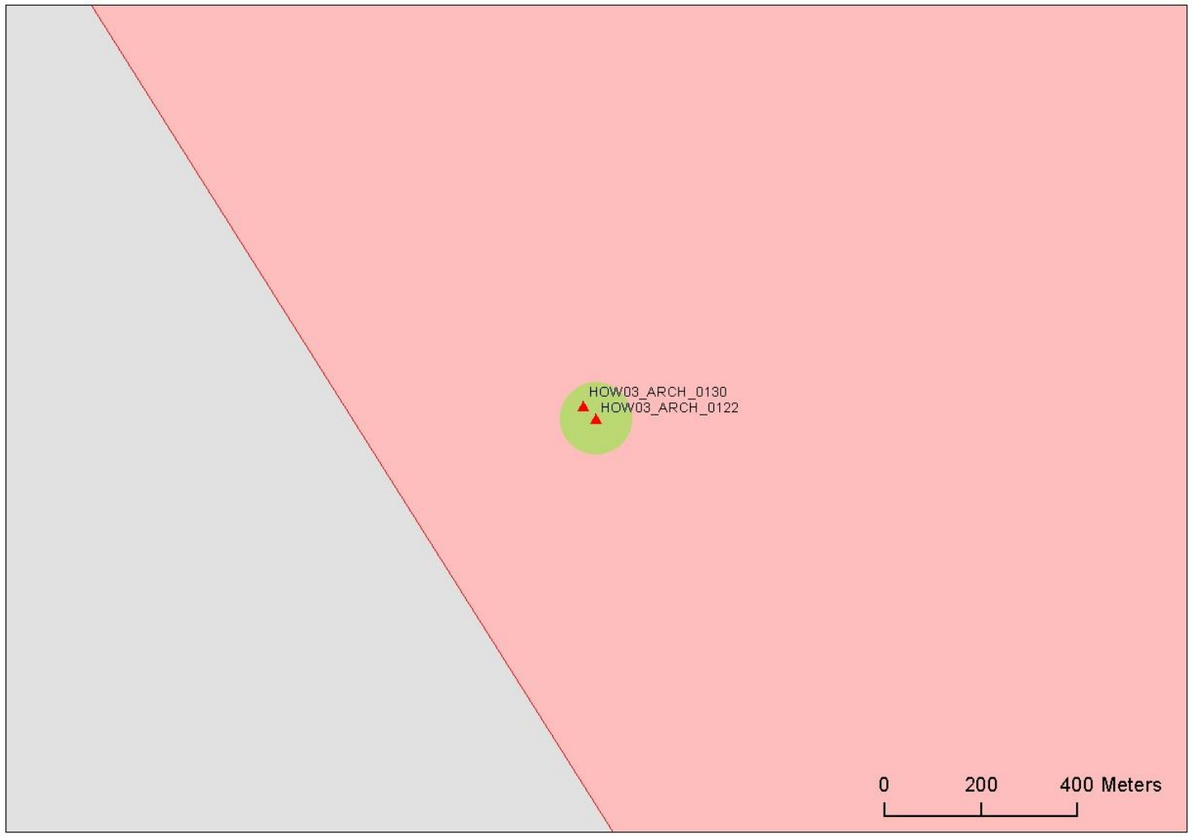
Level	Type	Objective	Sub-level	Character	Scope	Description
1	Assessment	A record sufficient to establish the presence, position and type of site.	1a	Indirect (desk-based)	A basic record based on documentary, cartographic or graphic sources, including photographic (including Aerial Photographs (AP)), geotechnical and geophysical surveys commissioned for purposes other than archaeology.	Documentary assessment / inventory of a site, compiled at the start of work on a site, and updated as work progresses.
			1b	Direct (field)	A basic record based on field observation, walkover survey, diving inspection etc., including surveys commissioned specifically for archaeological purposes.	Typically a 1-2 dive visit to the site (to assess a geophysical anomaly, etc.).
2	Evaluation	A record that provides sufficient data to establish the extent, character, date and importance of the site.	2a	Non-intrusive	A limited record based on investigations that might include light cleaning, probing and spot sampling, but without bulk removal of plant growth, soil, debris etc.	Typically a 2-4 dive visit to assess the site's archaeological potential, backed up by a sketch plan of the site with some key measurements included.
			2b	Intrusive	A limited record based on investigations including vigorous cleaning, test pits and/or trenches. May also include recovery (following recording) of elements at immediate risk, or disturbed by investigation.	Either an assessment of the buried remains present on a site; the recovery of surface artefacts; or cleaning to inform for example a 2a investigation.
3	In situ	A record that enables an Archaeologist who has not seen the site to comprehend its components, layout and Sequences.	3a	Diagnostic	A detailed record of selected elements of the site.	The first stage of a full record of the site. This would include a full measured sketch of the site and a database (or equivalent) entry for all surface artefacts.
			3b	Unexcavated	A detailed record of all elements of the site visible without excavation.	Full site plan (i.e. planning frame or equivalent accuracy) with individual object drawings, and full photo record (possibly including a mosaic).
4	Removal	A record sufficient to enable analytical reconstruction and/or reinterpretation of the site, its components and its matrix.	-	-	A complete record of all elements of the site in the course of dismantling and/or excavation.	-
5	Intra-site	A record that places the site in the context of its landscape and other comparable sites.	-	-	A complete record of all elements of the site, combined with selective recording of comparable sites and investigation of the surrounding area.	-

Note: These levels represent guidance formulated by Wessex Archaeology for use on offshore renewables projects (The Crown Estate, 2010a) for use during the archaeological investigation of wreck sites. They are currently used by English Heritage, but have not been formally accepted as a standard means of grading archaeological work.

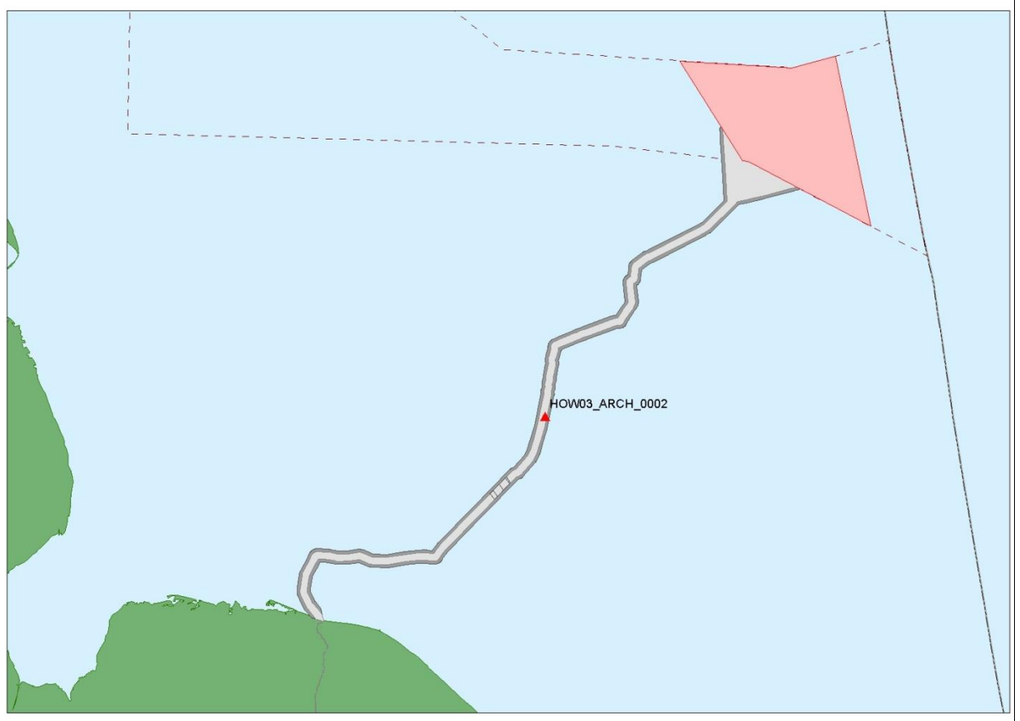
Appendix E AEZ Sheets: High Potential Archaeological Anomalies

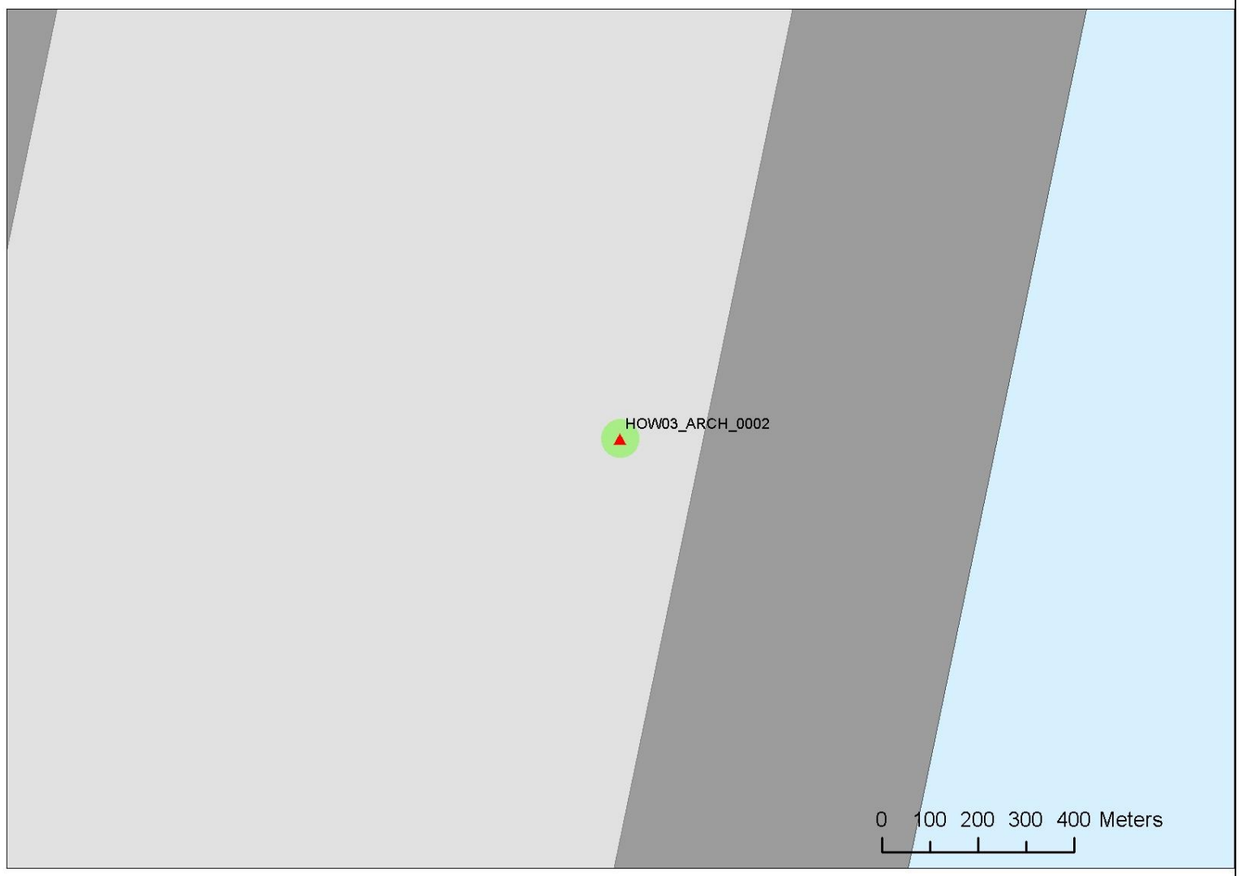
High potential contact HOW03_ARCH_0122			
Position coordinates (ETR89 31N)	53 49.6822 N, 02 22.8551 E	***Area***	Hornsea Three array area
Archaeological potential	High		
Geophysical survey dimensions and notes	Dimensions – 22.9 m by 13.5 m by 0. 9 m. No associated magnetic anomaly. Contact was identified in the sidescan dataset but is outside the multibeam coverage.		
AEZ dimensions	75 m Note the location of HOW03_Arch_0130 (an anomaly of medium potential probably representing debris from the wreck is also shown and protected within this AEZ		



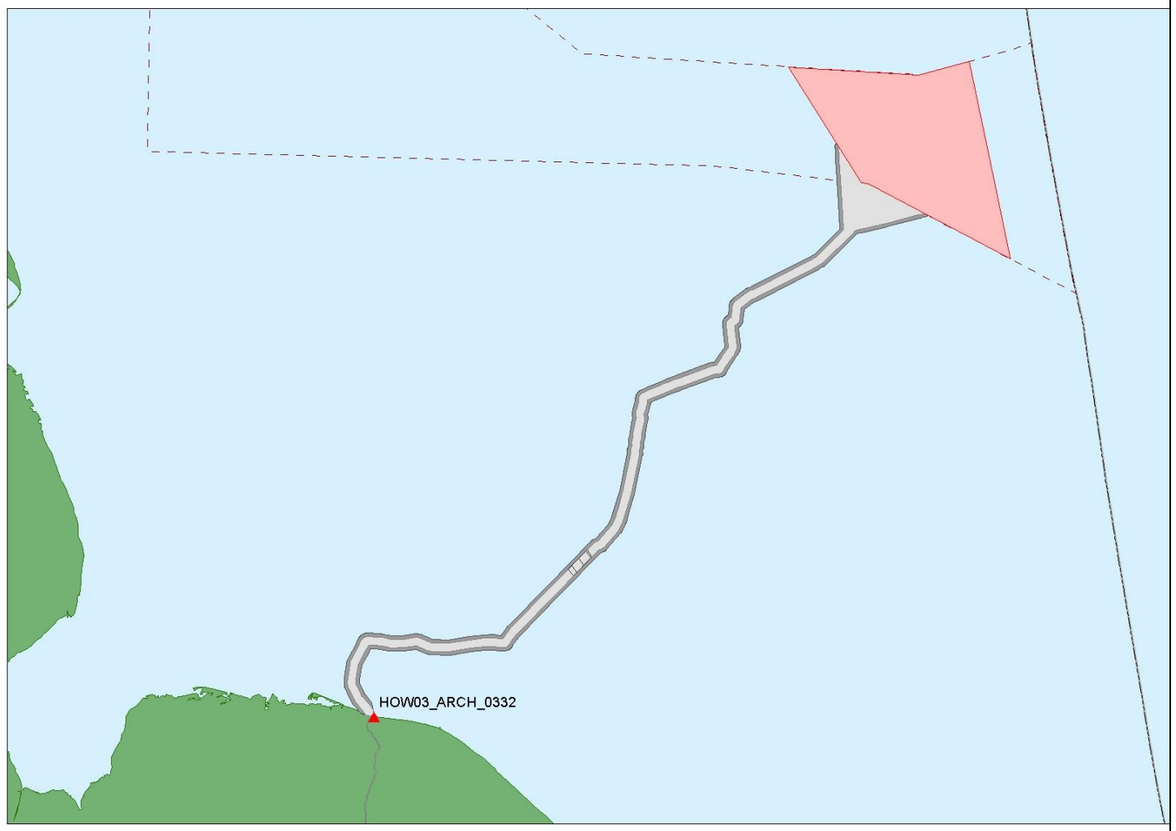


High potential contact HOW03_ARCH_0002			
Position coordinates (ETR89 31N)	53 20.0913 N, 01 47.9507 E	***Area***	Hornsea Three offshore cable corridor
Archaeological potential	High		
Geophysical survey dimensions and notes	Dimensions – 25.6 m by 5.6 m by 1 m Associated magnetic anomaly -99.8 nT.		
AEZ dimensions	40 m		



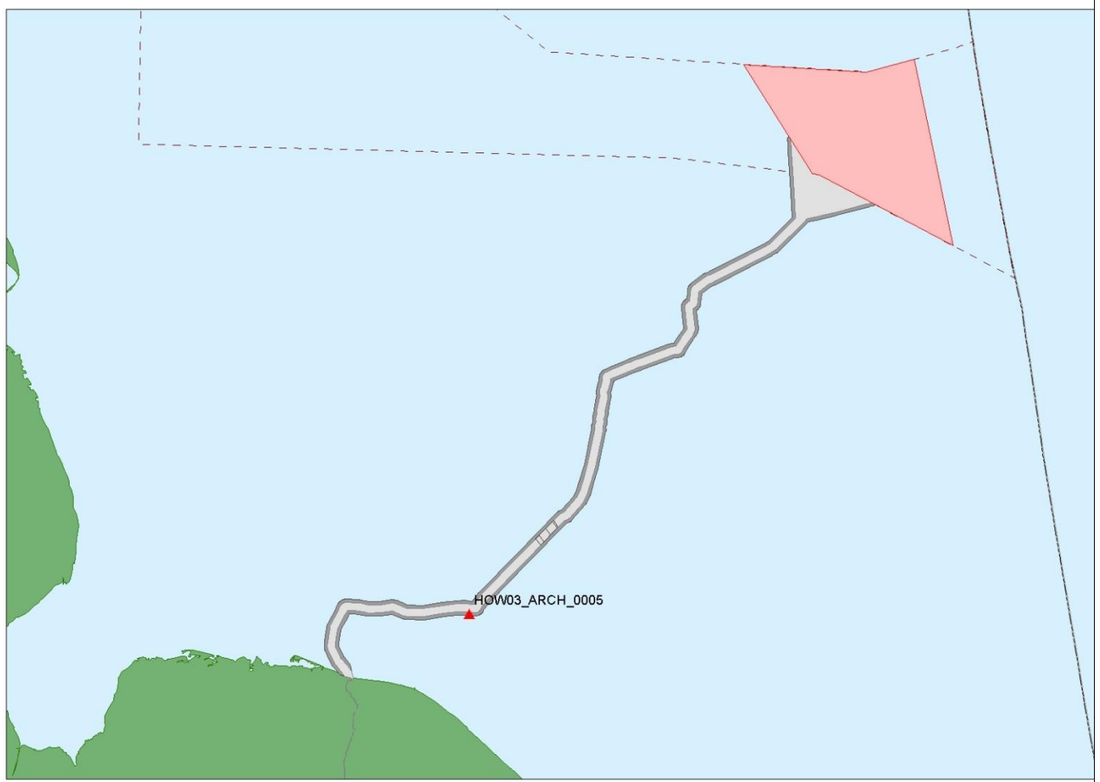


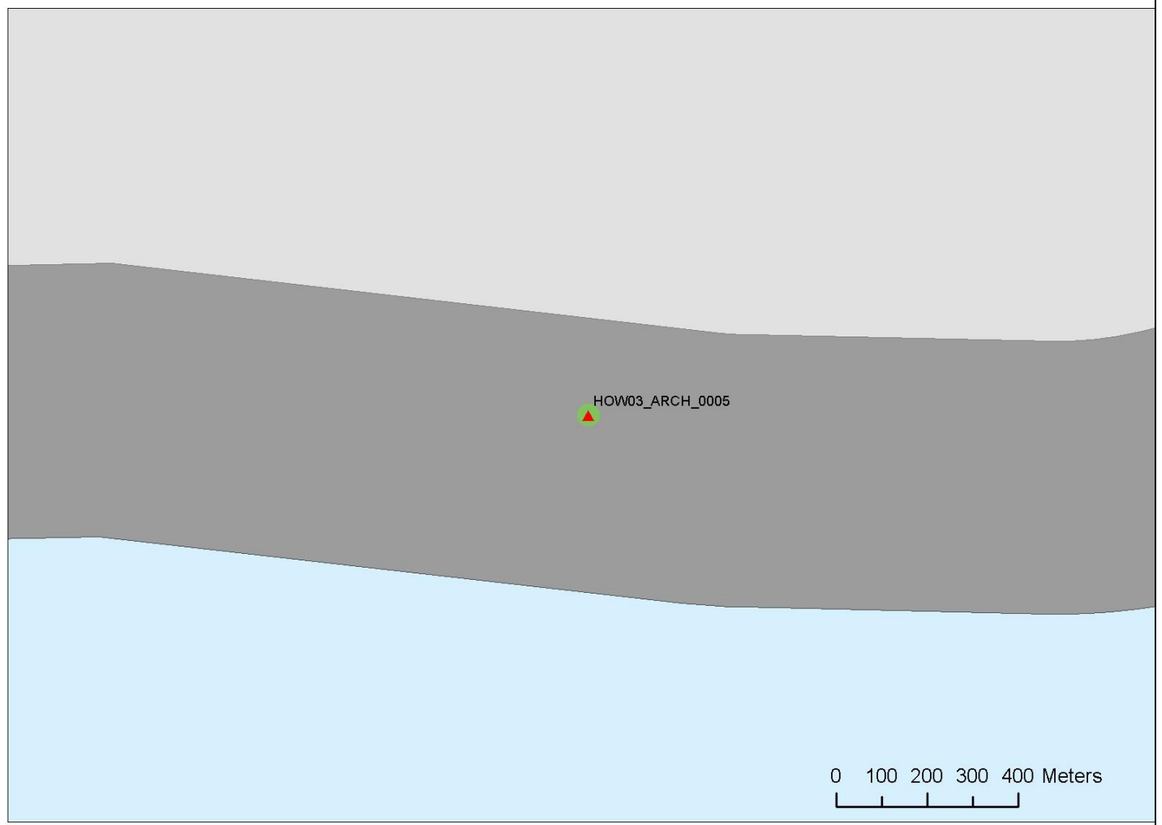
High potential contact HOW03_ARCH_0332			
Position coordinates (ETR89 31N)	52 57 069 N, 01 8.083 E	***Area***	Hornsea Three offshore cable corridor
Archaeological potential	High		
Geophysical survey dimensions and notes	Dimensions – 113.54 m by 40.18 m by 1.26 m. No associated magnetic anomaly.		
AEZ dimensions	100 m		



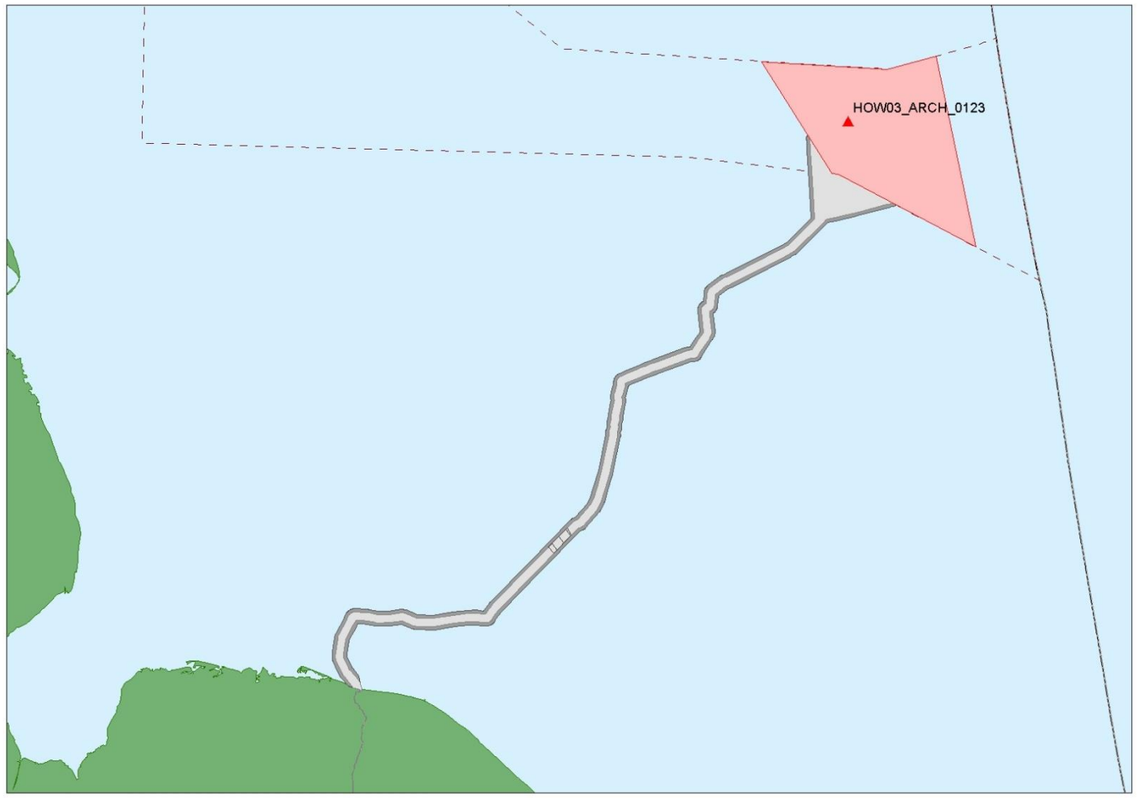
Appendix F AEZ Sheets: Medium Potential Archaeological Anomalies

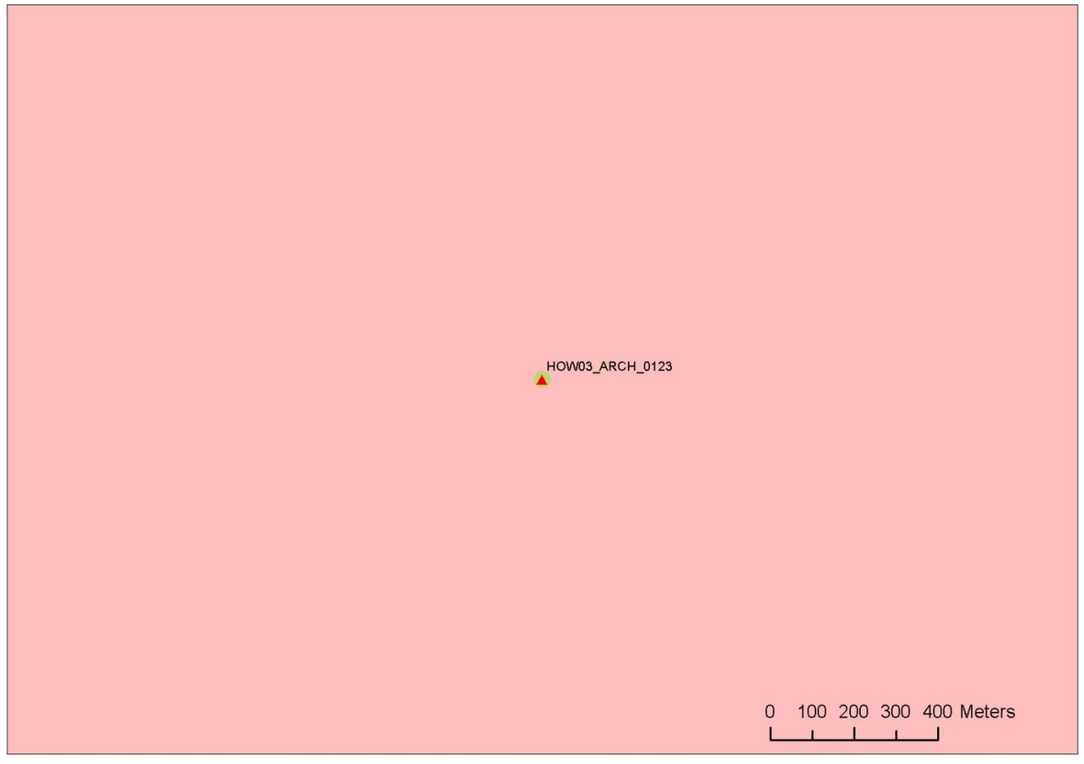
Medium potential contact HOW03_ARCH_0005			
Position coordinates (ETR89 31N)	53 03.8337 N, 01 27.2051 E	***Area***	Hornsea Three offshore cable corridor
Archaeological potential	Medium		
Geophysical survey dimensions and notes	18.3 m by 10.5 m by 0.5 m. No associated magnetic anomaly.		
AEZ dimensions	25 m		



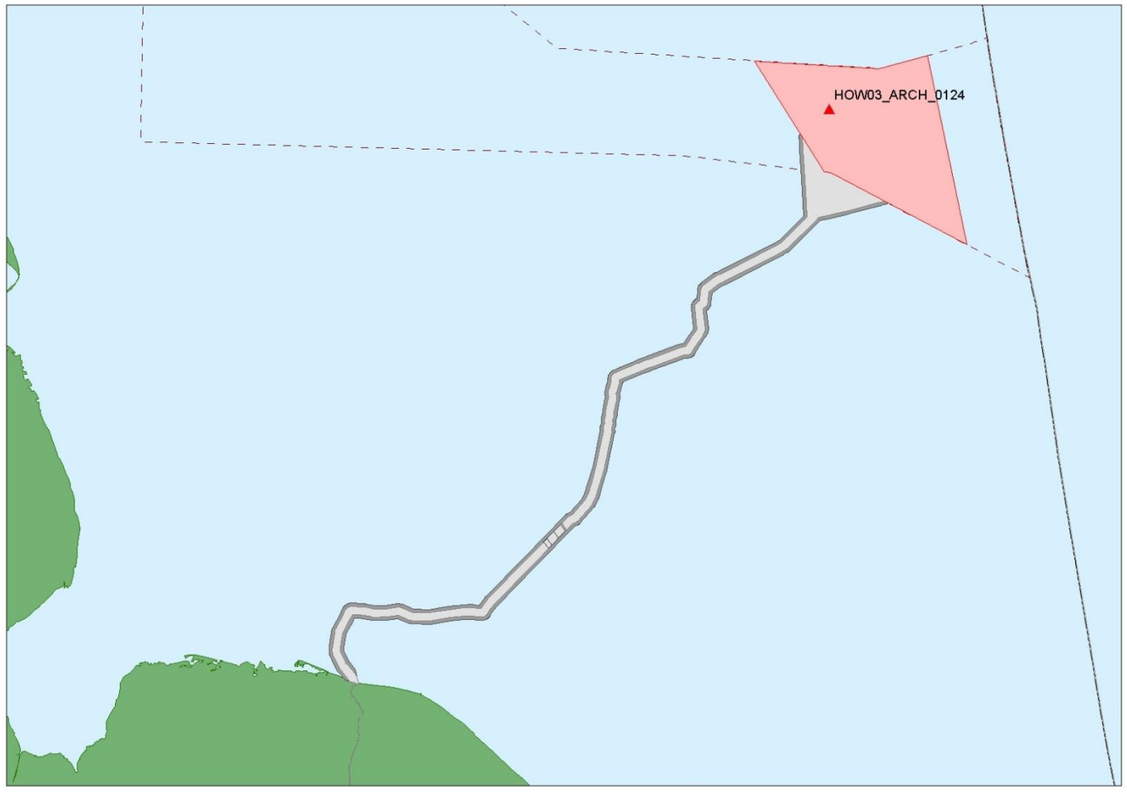


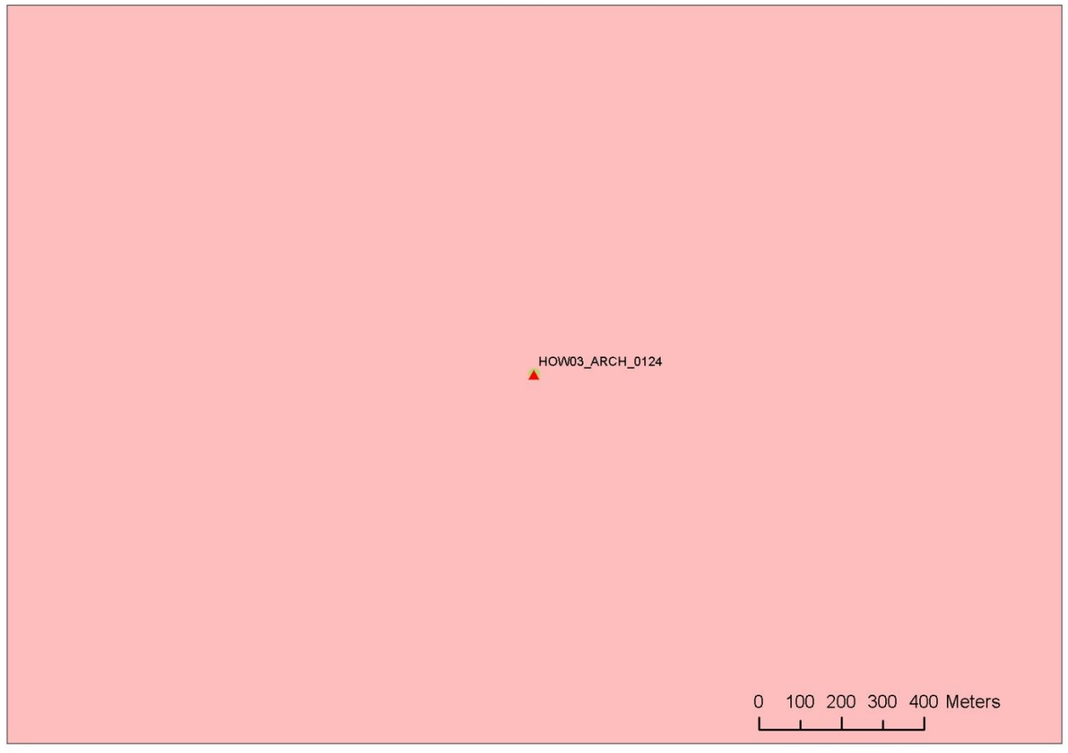
Medium potential contact HOW03_ARCH_0123			
Position coordinates (ETR89 31N)	53 53.5975 N, 02 26.4288 E	***Area***	Hornsea Three array area
Archaeological potential	Medium		
Geophysical survey dimensions and notes	13.9 m by 6.5 m by 0.6 m. No associated magnetic anomaly.		
AEZ dimensions	20 m		



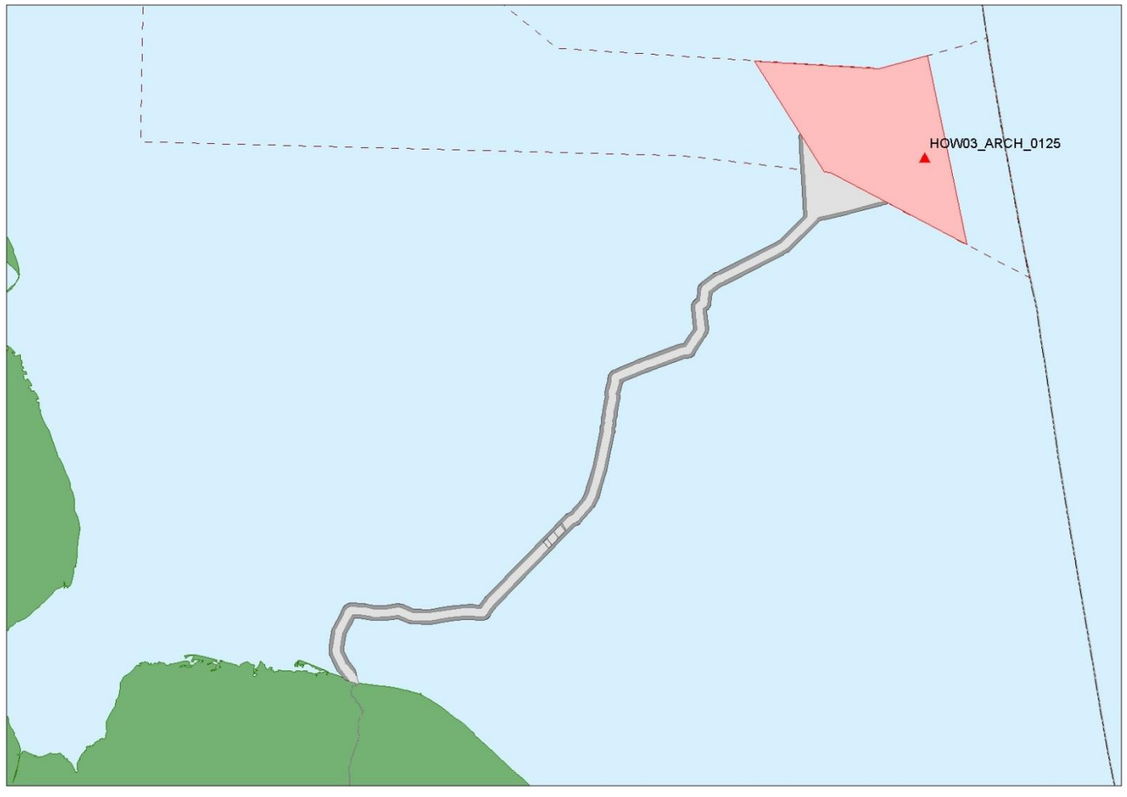


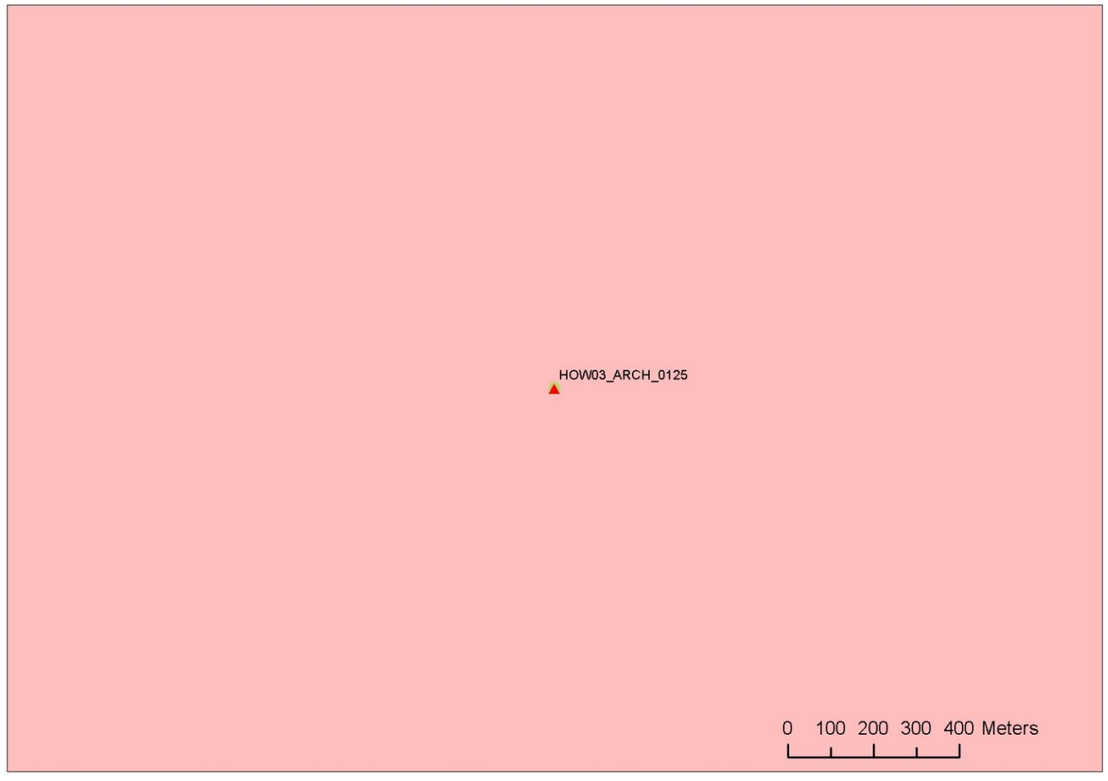
Medium potential contact HOW03_ARCH_0124			
Position coordinates (ETR89 31N)	53 54.7215 N, 02 24.5295 E	***Area***	Hornsea Three array area
Archaeological potential	Medium		
Geophysical survey dimensions and notes	7.9 m by 7.4 m by 1.7 m. No associated magnetic anomaly.		
AEZ dimensions	15 m		



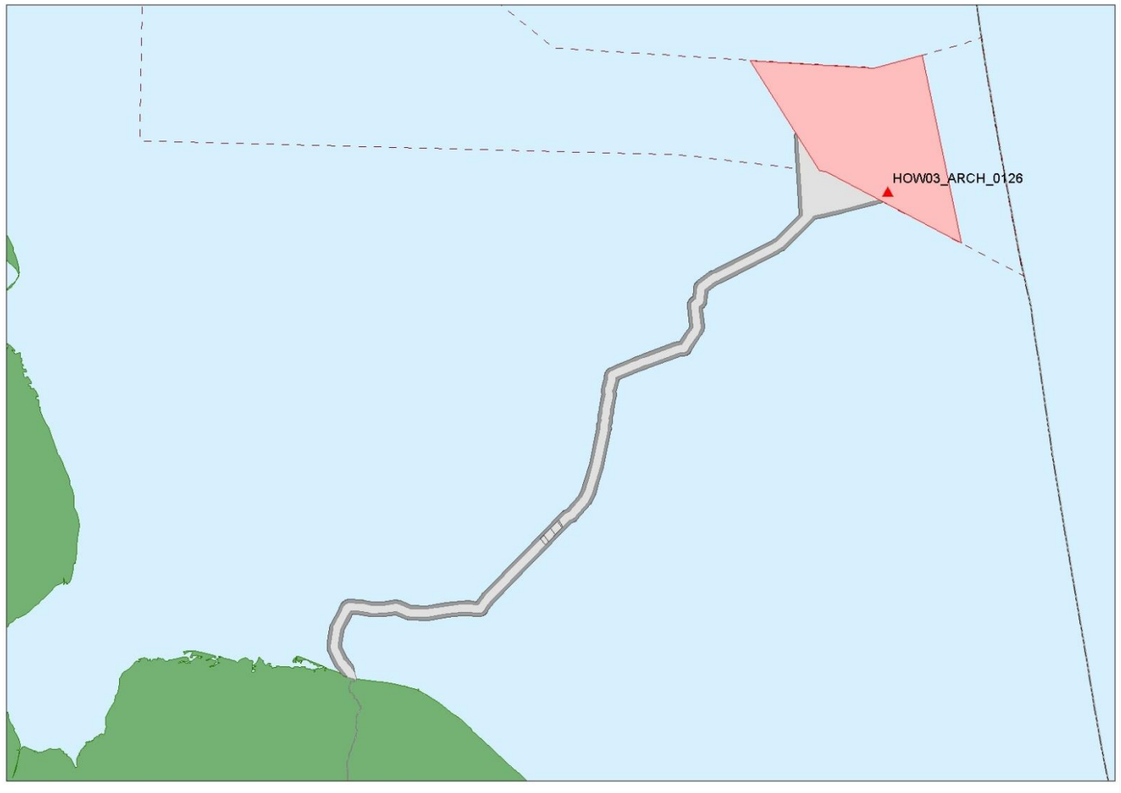


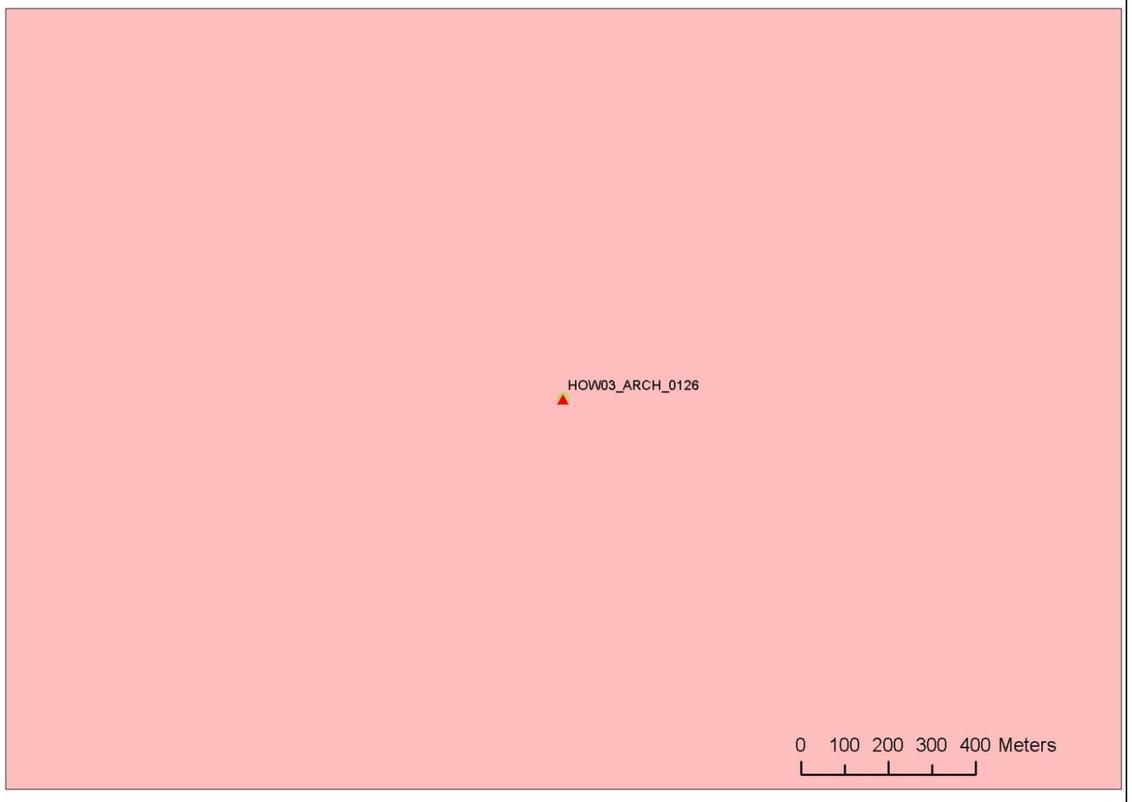
Medium potential contact HOW03_ARCH_0125			
Position coordinates (ETR89 31N)	53 49.9768 N, 02 40.5400 E	***Area***	Hornsea Three array area
Archaeological potential	Medium		
Geophysical survey dimensions and notes	4.2 m by 7.2 m by 0.5 m. No associated magnetic anomaly.		
AEZ dimensions	15 m		



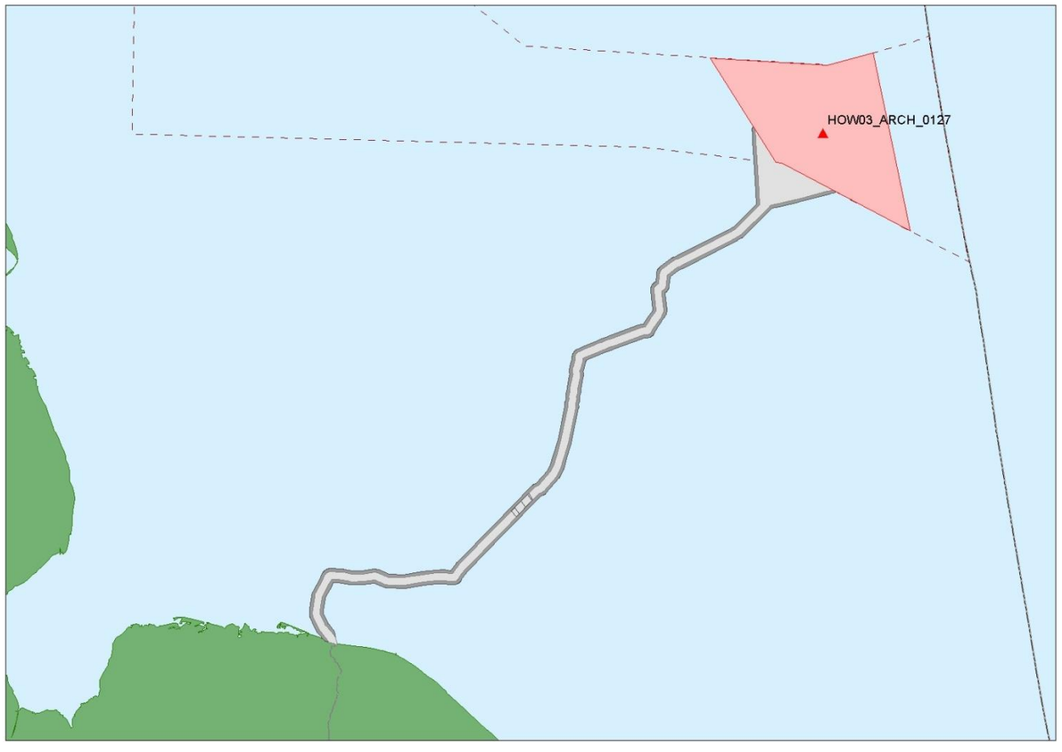


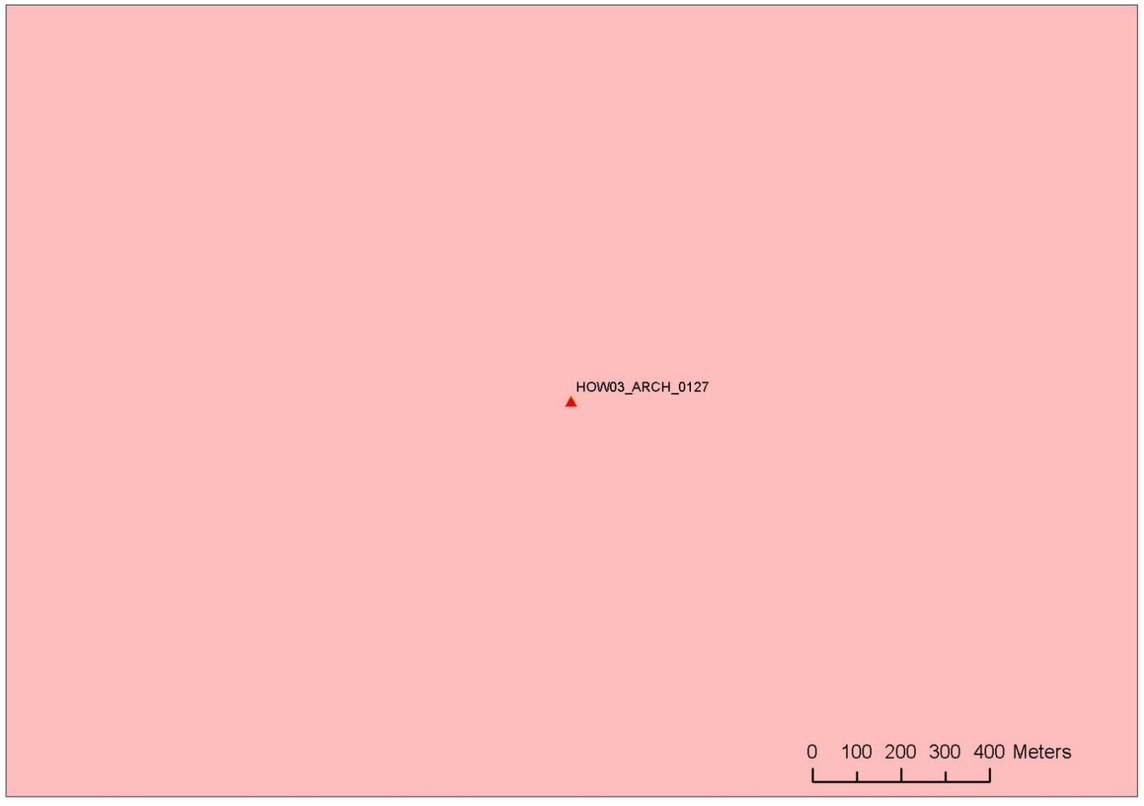
Medium potential contact HOW03_ARCH_0126			
Position coordinates (ETR89 31N)	53 46.4305 N, 02 35.2794 E	***Area***	Hornsea Three array area
Archaeological potential	Medium		
Geophysical survey dimensions and notes	11.9 m by 3.7 m by 0.7 m. No associated magnetic anomaly.		
AEZ dimensions	15 m		



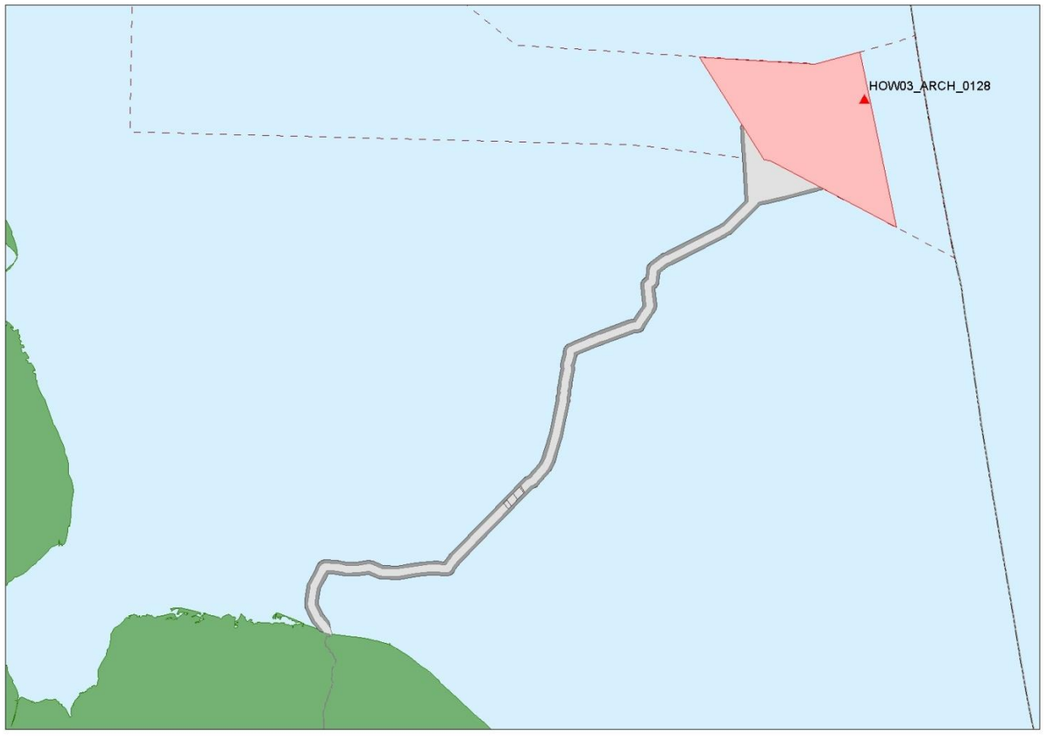


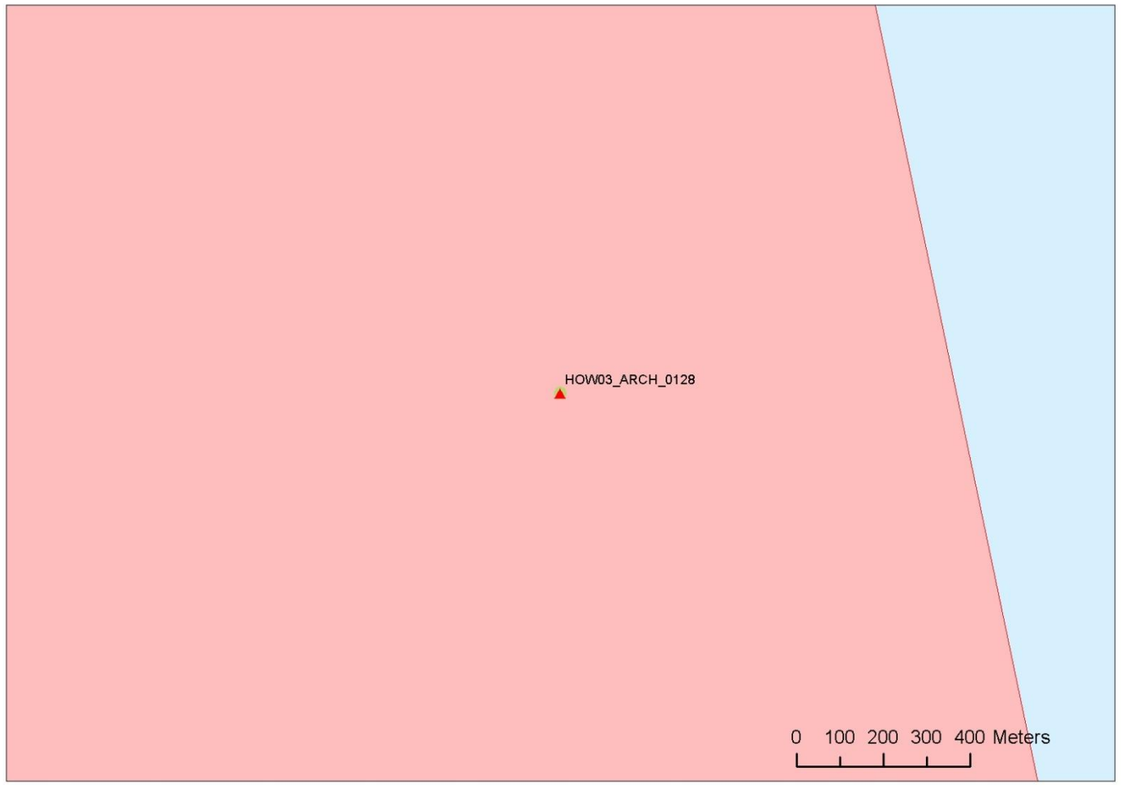
Medium potential contact HOW03_ARCH_0127			
Position coordinates (ETR89 31N)	53 51.5920 N, 02 32.0686 E	***Area***	Hornsea Three array area
Archaeological potential	Medium		
Geophysical survey dimensions and notes	3.9 m by 4.7 m by 0.7 m. No associated magnetic anomaly.		
AEZ dimensions	10 m		



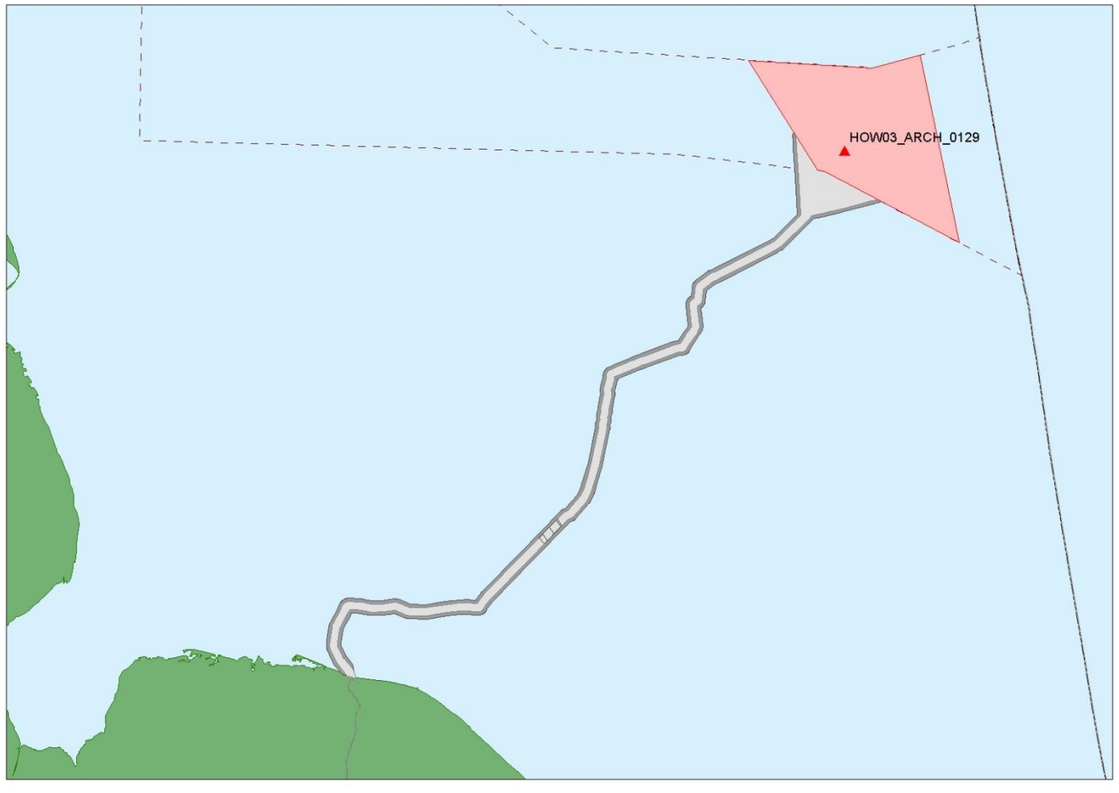


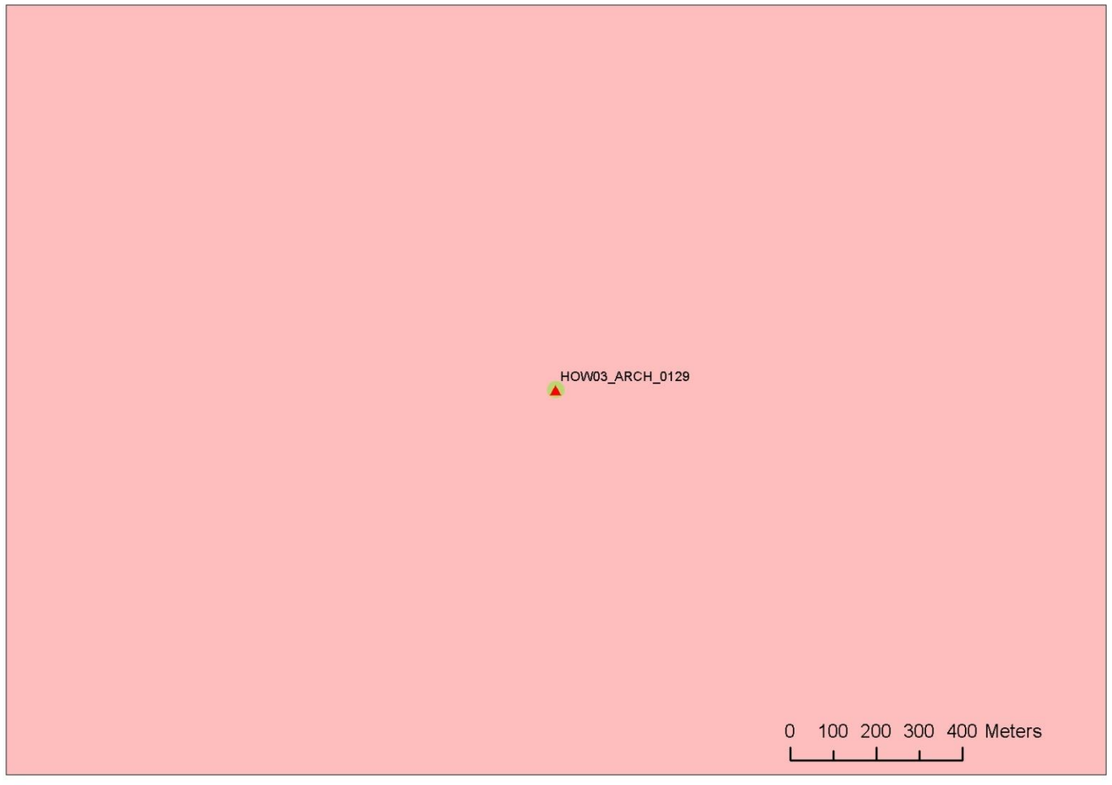
Medium potential contact HOW03_ARCH_0128			
Position coordinates (ETR89 31N)	53 55.0498 N, 02 41.8624 E	***Area***	Hornsea Three array area
Archaeological potential	Medium		
Geophysical survey dimensions and notes	7.3 m by 4 m by 0.9 m. No associated magnetic anomaly.		
AEZ dimensions	15 m		



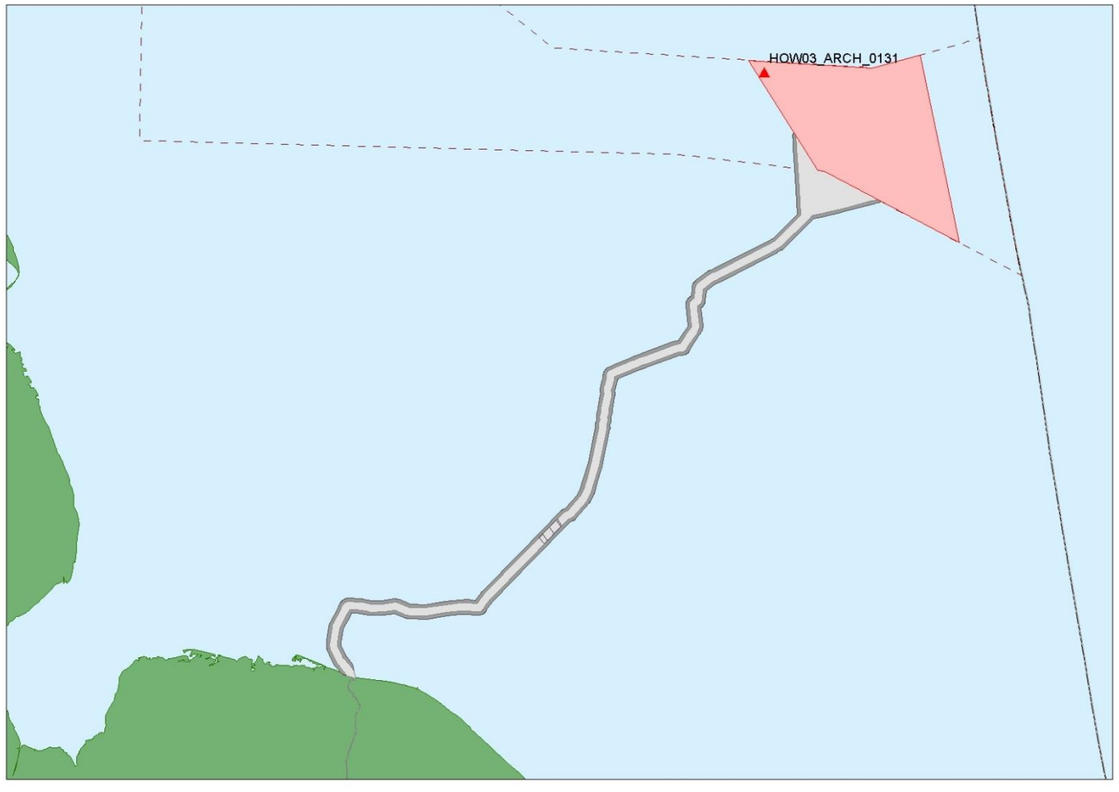


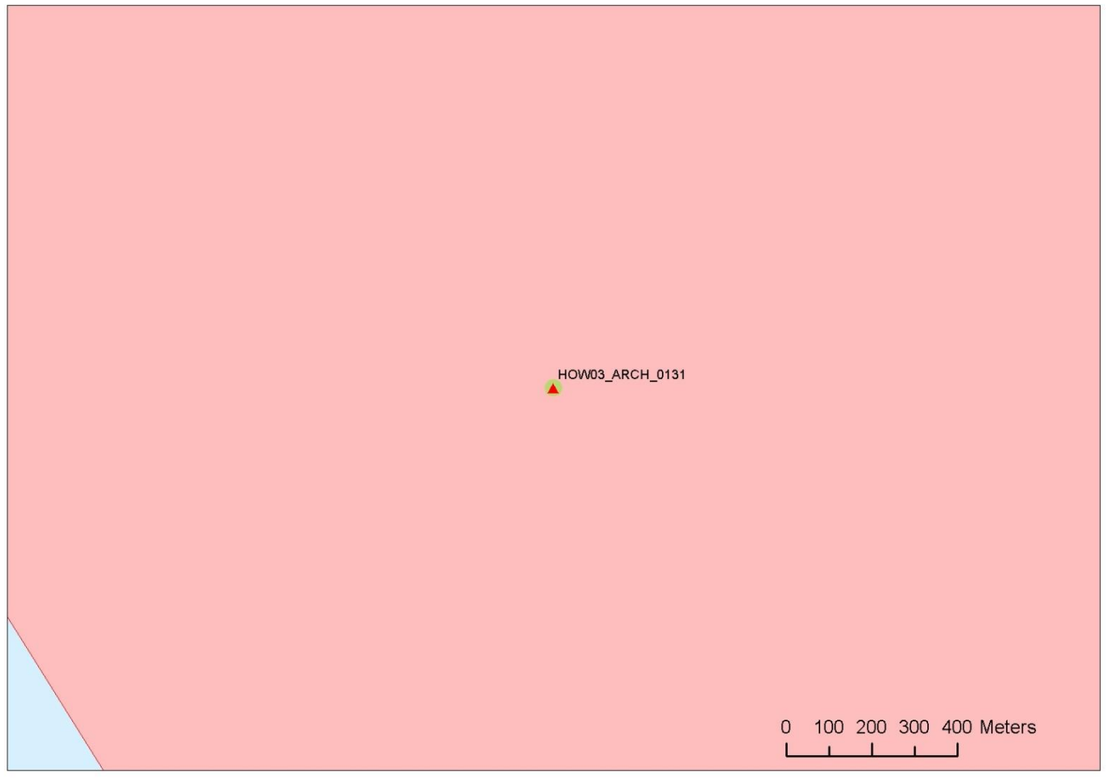
Medium potential contact HOW03_ARCH_0129			
Position coordinates (ETR89 31N)	53 50.4623 N, 02 28.3049 E	***Area***	Hornsea Three array area
Archaeological potential	Medium		
Geophysical survey dimensions and notes	13.8 m by 7.9 m by 1.0 m. No associated magnetic anomaly.		
AEZ dimensions	20 m		



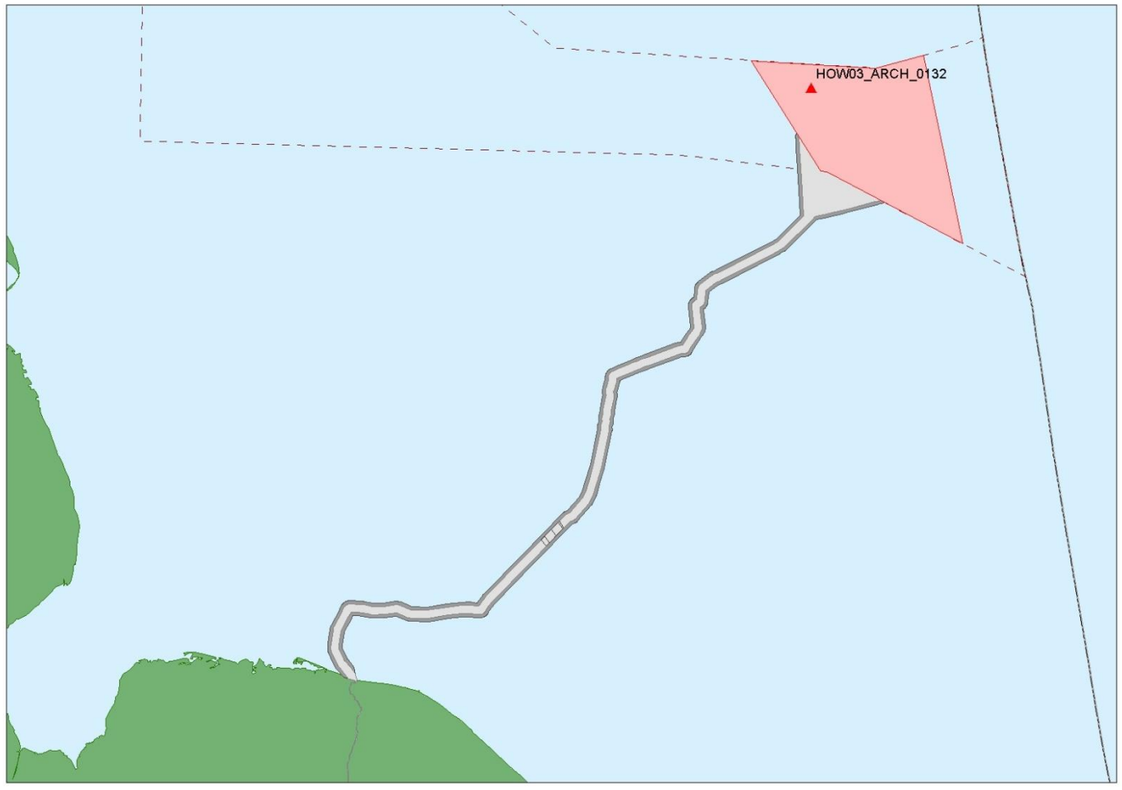


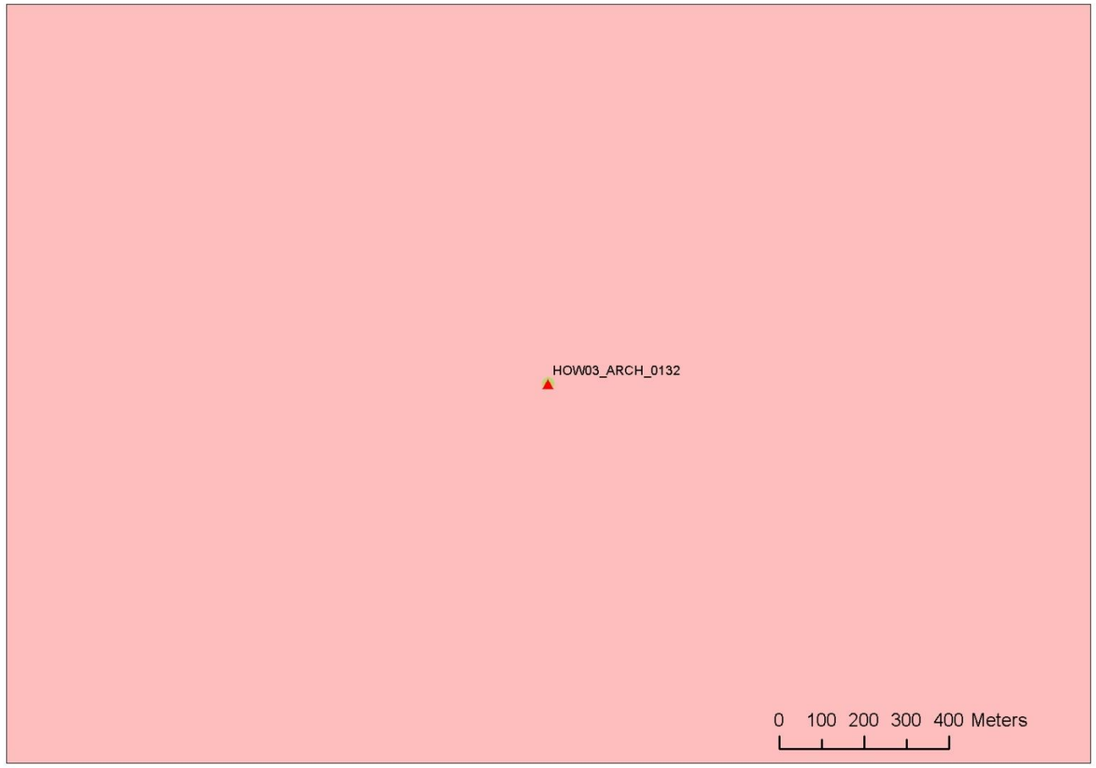
Medium potential contact HOW03_ARCH_0131			
Position coordinates (ETR89 31N)	53 58.2142 N, 02 14.5932 E	***Area***	Hornsea Three array area
Archaeological potential	Medium		
Geophysical survey dimensions and notes	12.2 m by 7.8 m by 0.7 m. No associated magnetic anomaly.		
AEZ dimensions	20 m		



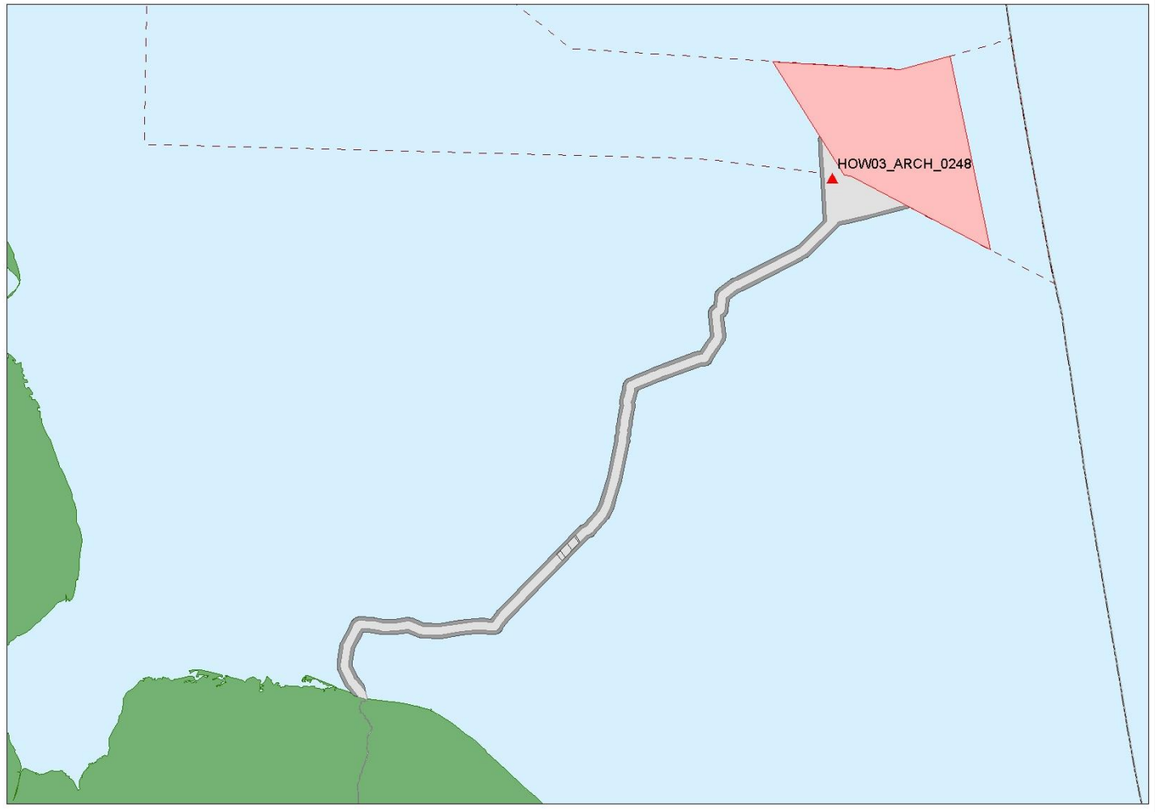


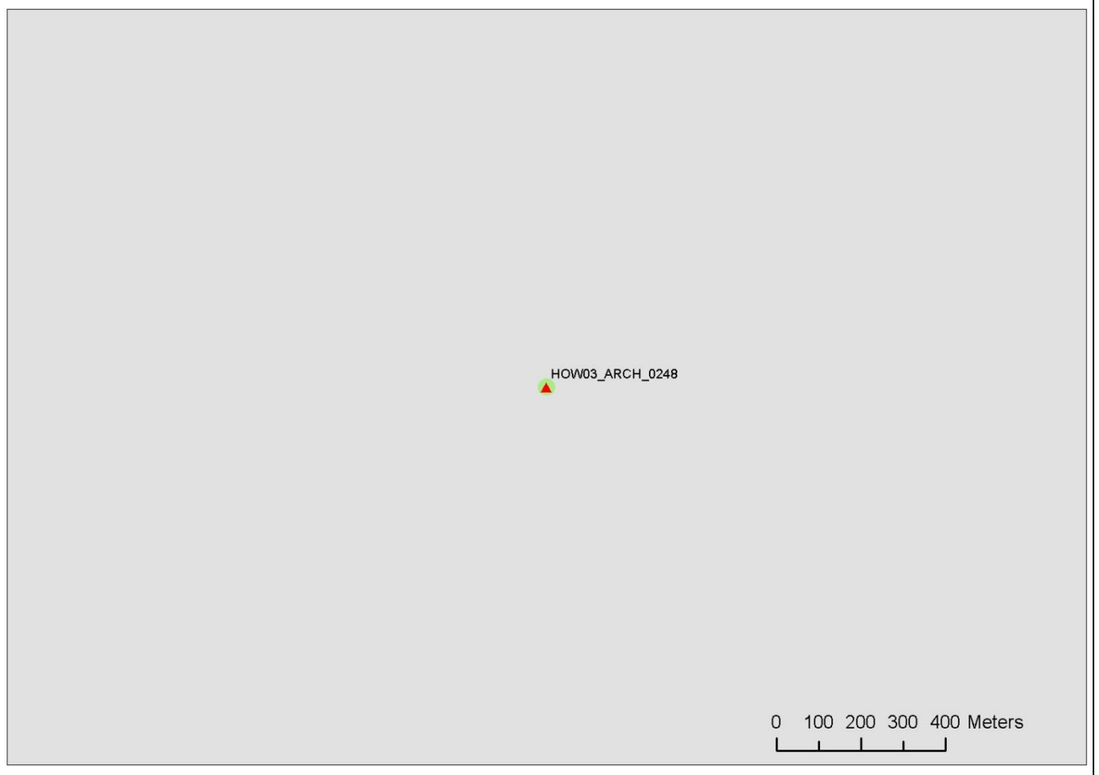
Medium potential contact HOW03_ARCH_0132			
Position coordinates (ETR89 31N)	53 56.7517 N, 02 22.0206 E	***Area***	Hornsea Three array area
Archaeological potential	Medium		
Geophysical survey dimensions and notes	9.3 m by 7.1 m by 0.5 m. No associated magnetic anomaly.		
AEZ dimensions	15 m		



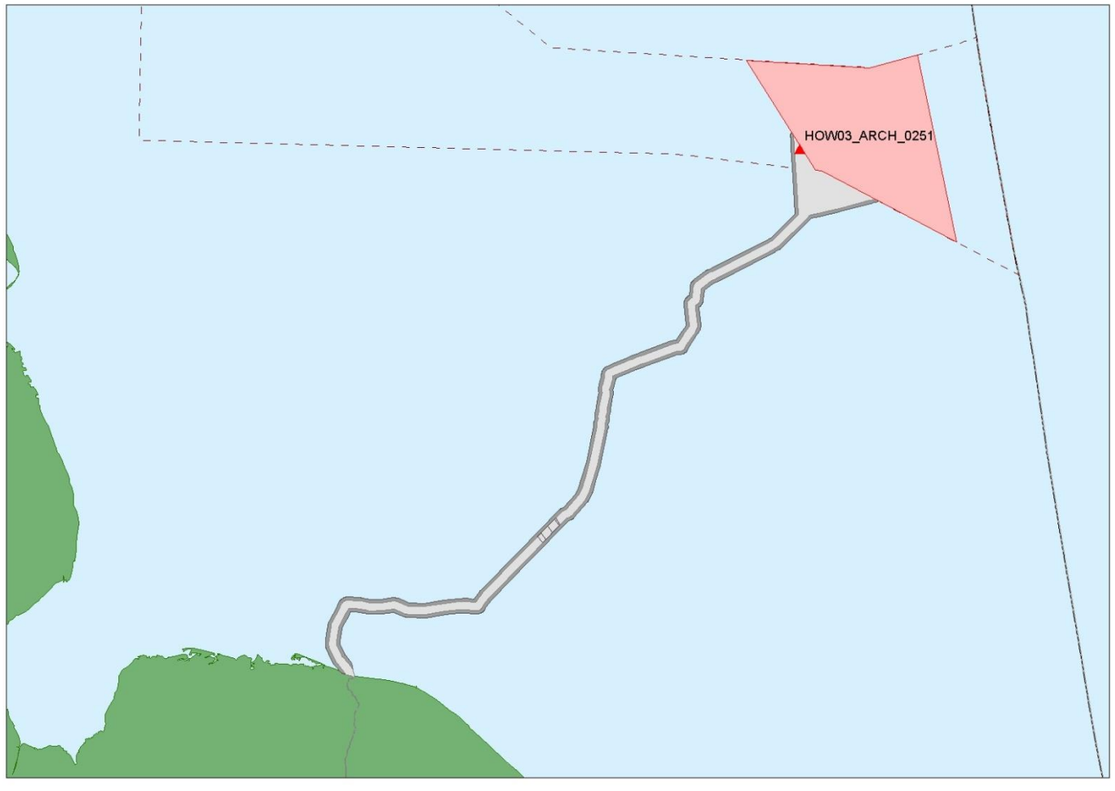


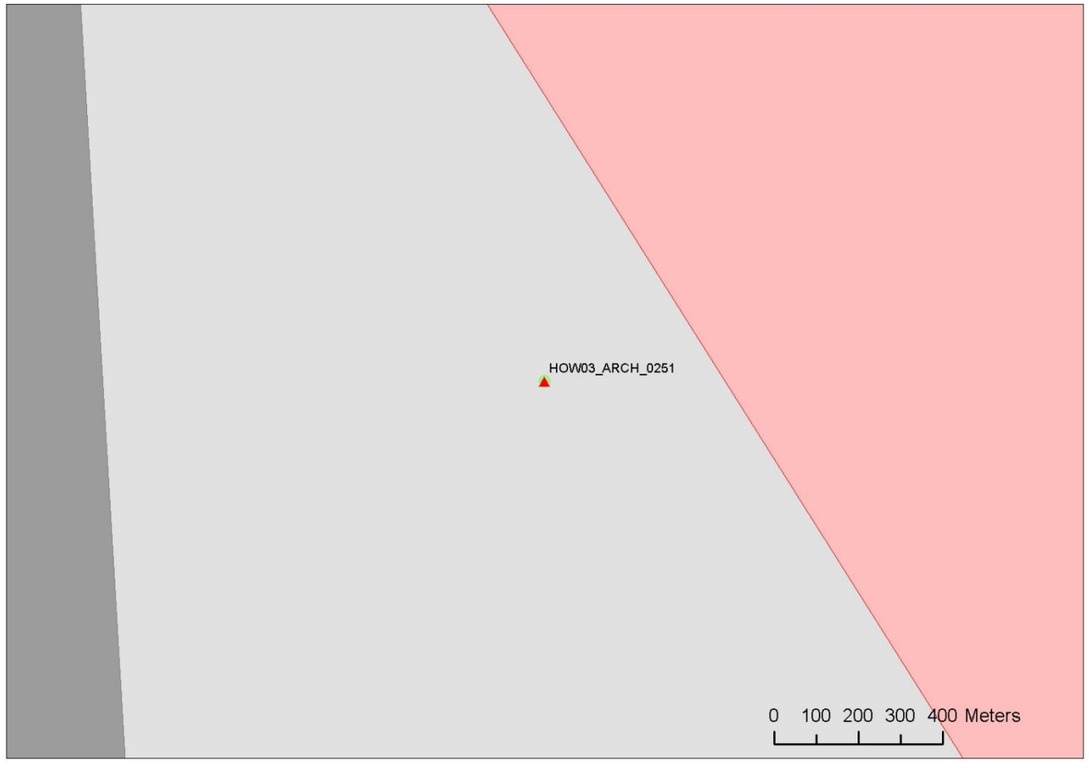
Medium potential contact HOW03_ARCH_0248			
Position coordinates (ETR89 31N)	53 48.1882 N, 02 21.8558 E	***Area***	Hornsea Three offshore cable corridor
Archaeological potential	Medium		
Geophysical survey dimensions and notes	17.1 m by 8.3 m by 1.32 m. No associated magnetic anomaly.		
AEZ dimensions	20 m		



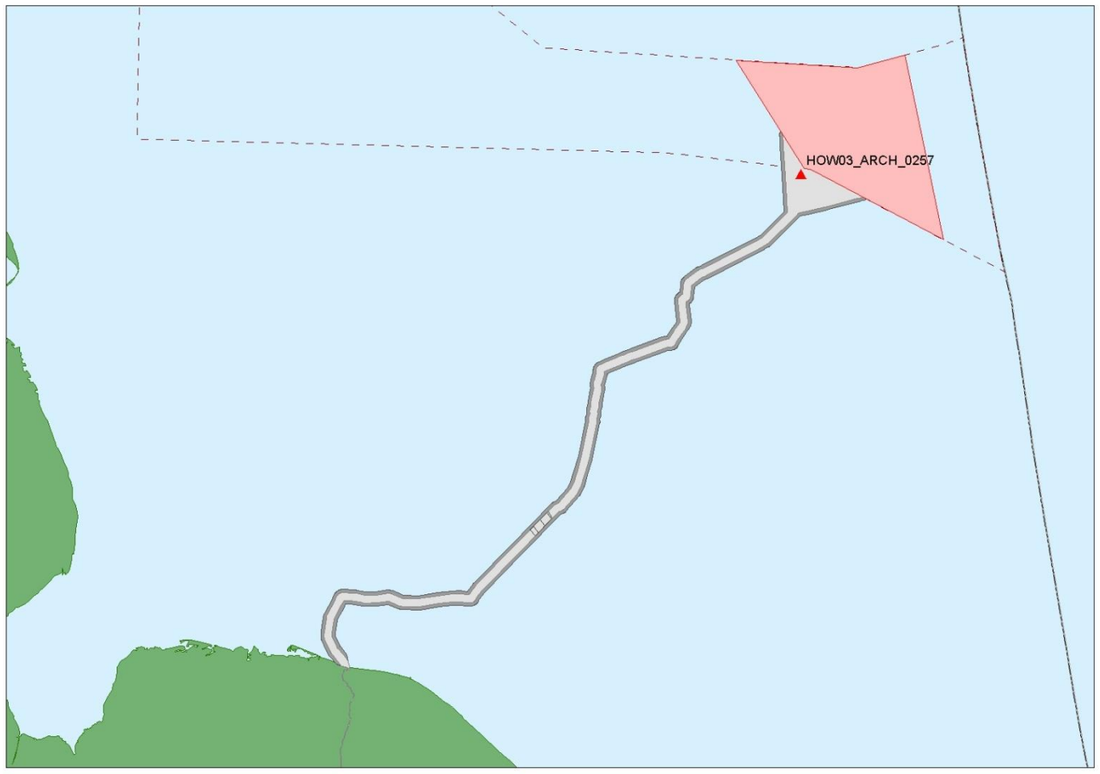


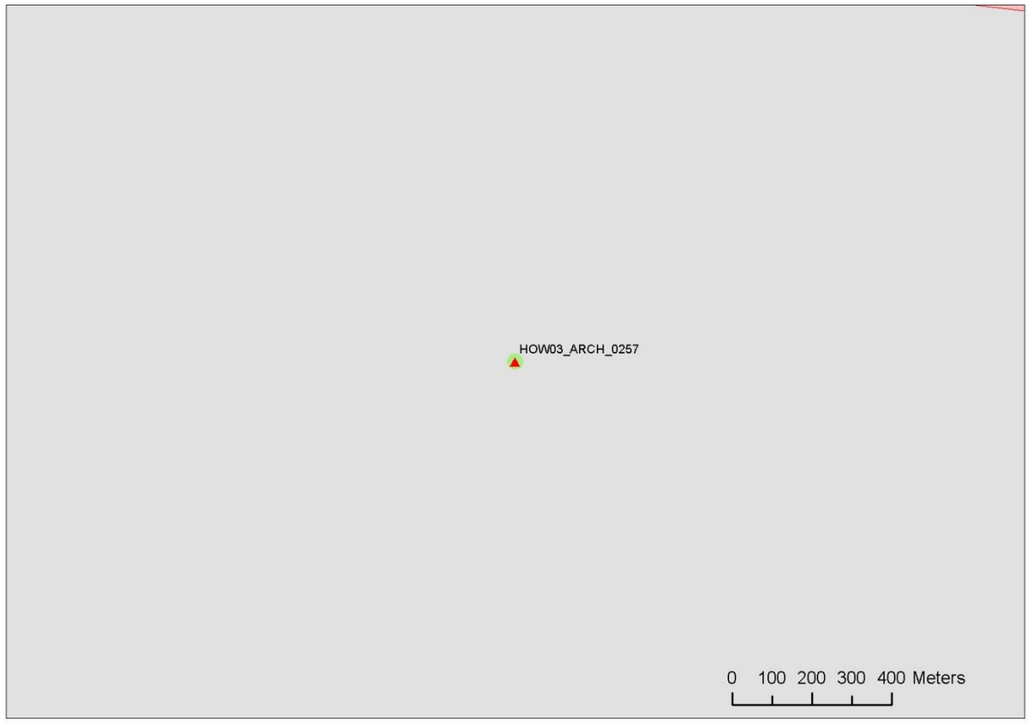
Medium potential contact HOW03_ARCH_0251			
Position coordinates (ETR89 31N)	53 50.5393 N, 02 21.0649 E	***Area***	Hornsea Three offshore cable corridor
Archaeological potential	Medium		
Geophysical survey dimensions and notes	2.7 m by 12.4 m by 0.56 m. No associated magnetic anomaly.		
AEZ dimensions	15 m		



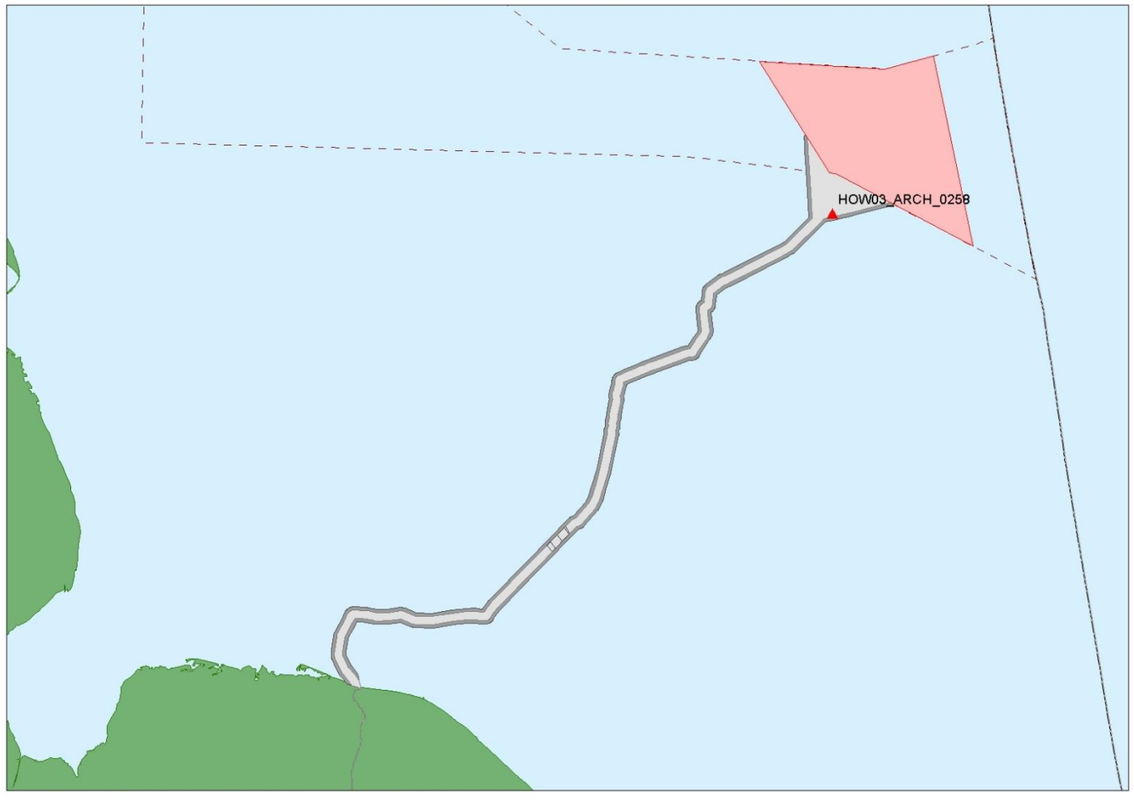


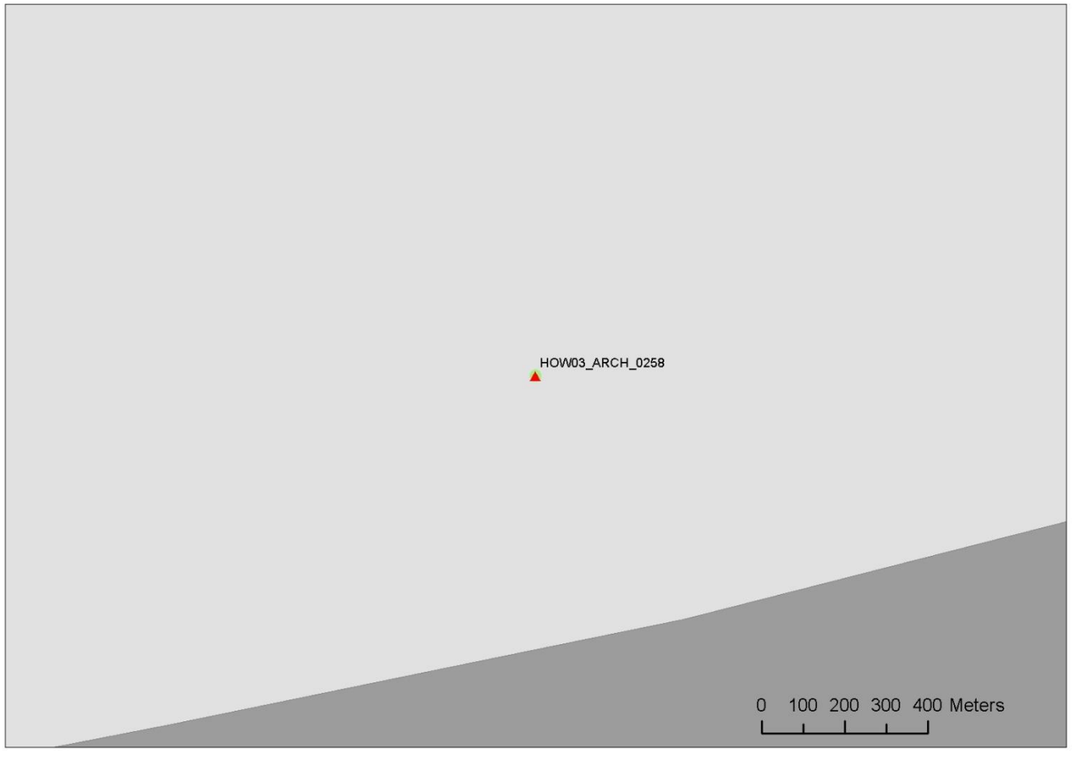
Medium potential contact HOW03_ARCH_0257			
Position coordinates (ETR89 31N)	53 47.9251 N, 02 23.2928 E	***Area***	Hornsea Three offshore cable corridor
Archaeological potential	Medium		
Geophysical survey dimensions and notes	17.8 m by 9.4 m by 0.4 m. No associated magnetic anomaly.		
AEZ dimensions	20 m		



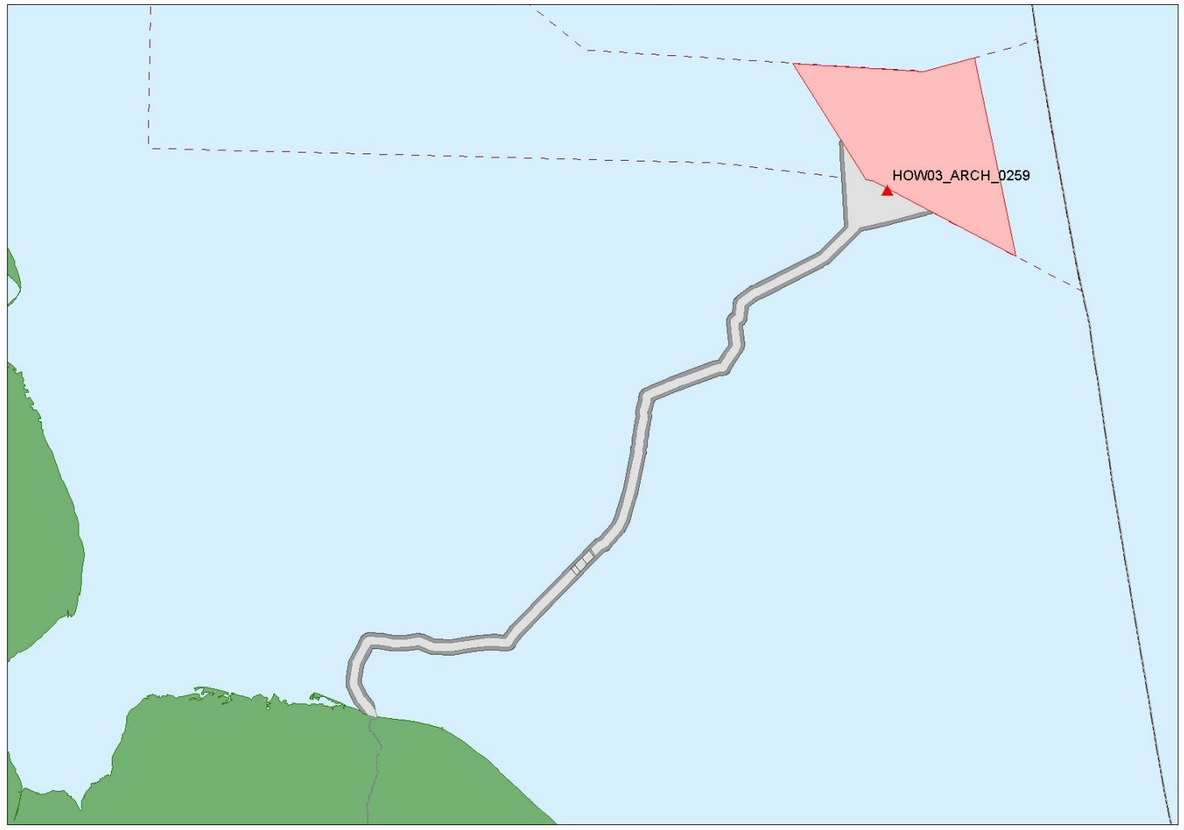


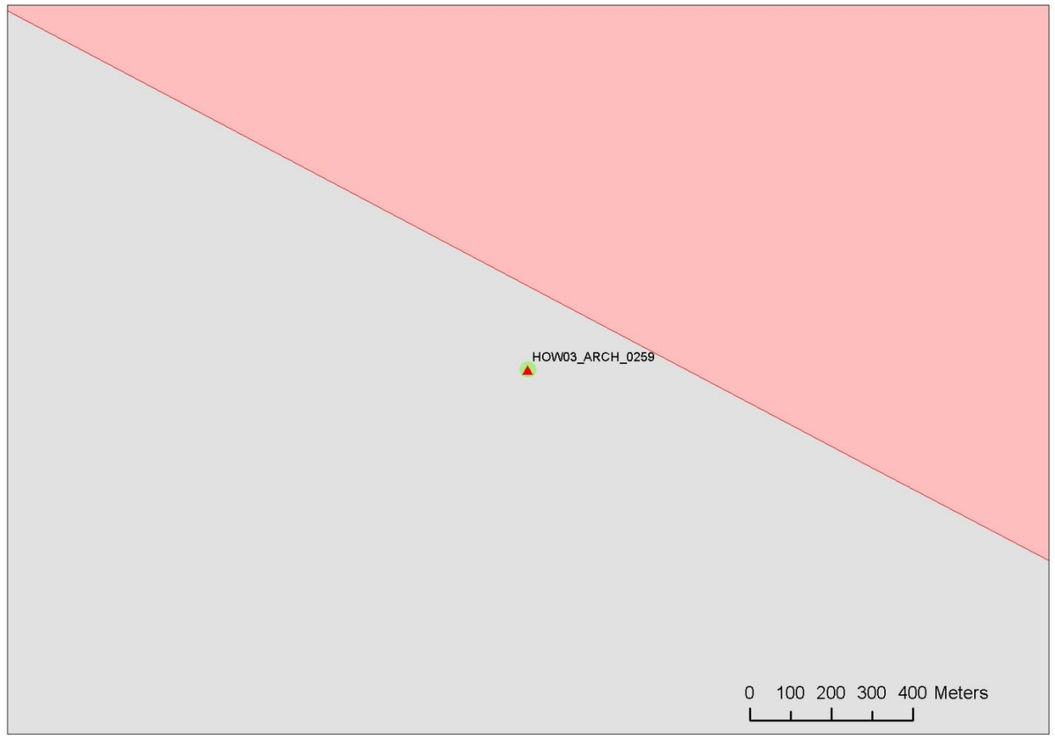
Medium potential contact HOW03_ARCH_0258			
Position coordinates (ETR89 31N)	53 44.4978 N, 02 24.3892 E	***Area***	Hornsea Three offshore cable corridor
Archaeological potential	Medium		
Geophysical survey dimensions and notes	11.8 m by 7.9 m by 0.43 m. No associated magnetic anomaly.		
AEZ dimensions	15 m		



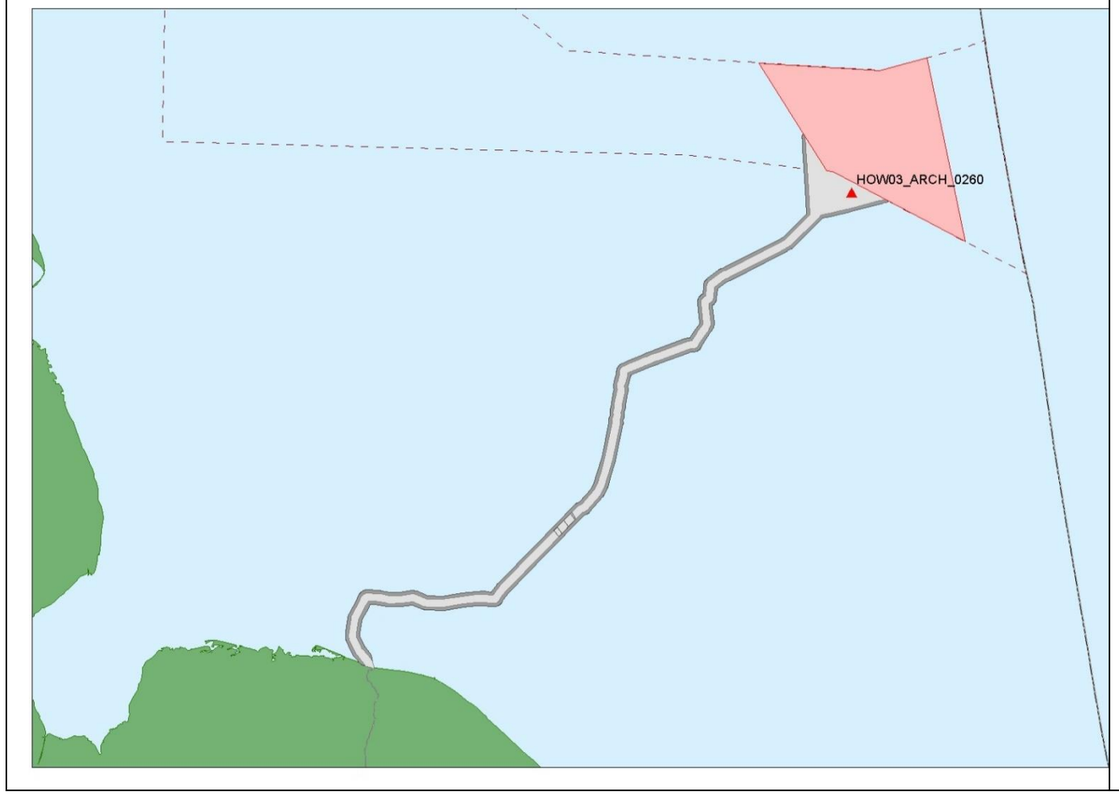


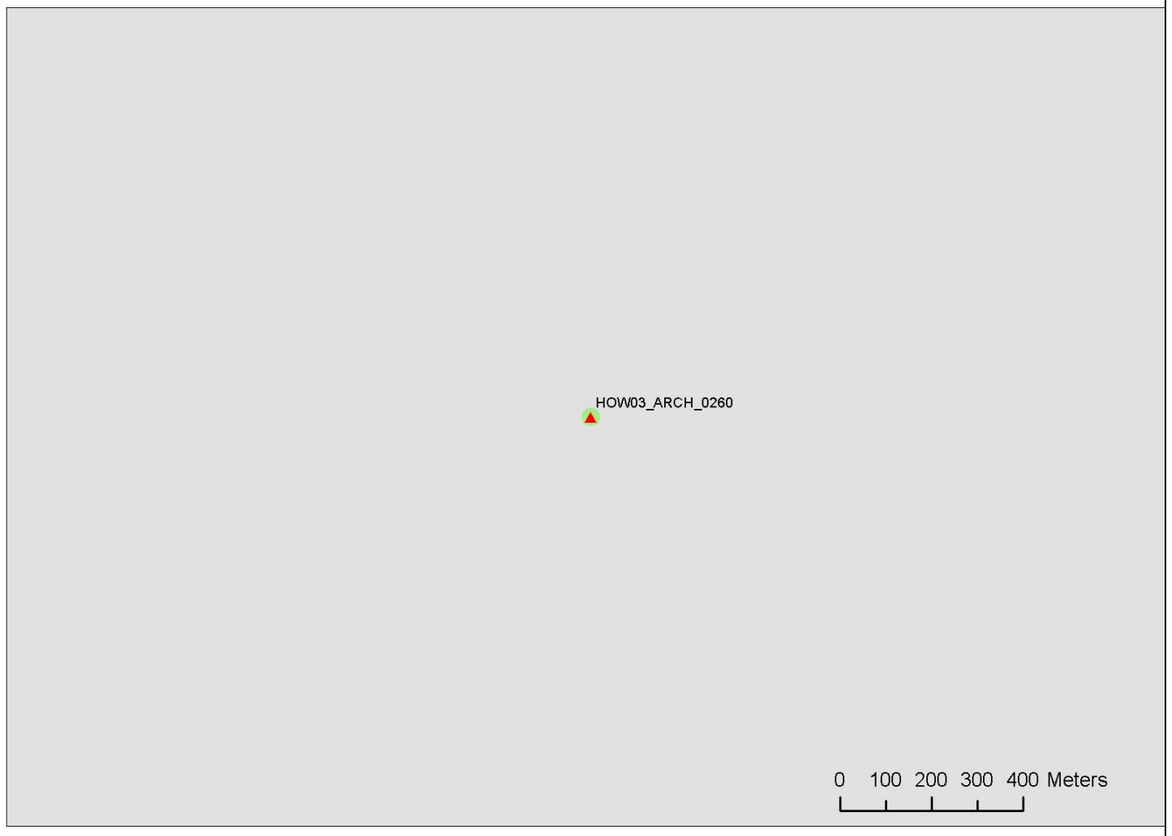
Medium potential contact HOW03_ARCH_0259			
Position coordinates (ETR89 31N)	53 47.5327 N, 02 27.1537 E	***Area***	Hornsea Three offshore cable corridor
Archaeological potential	Medium		
Geophysical survey dimensions and notes	14.5 m by 3.5 m by 0.38 m. No associated magnetic anomaly.		
AEZ dimensions	20 m		



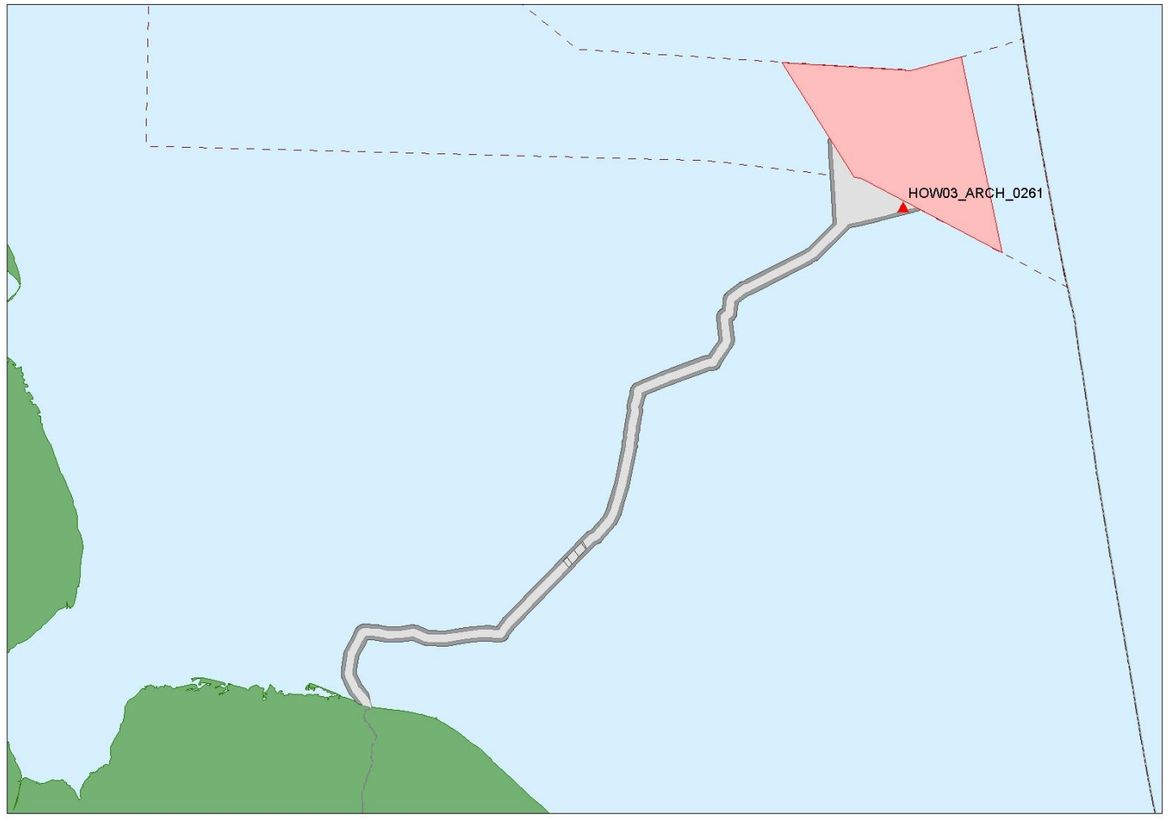


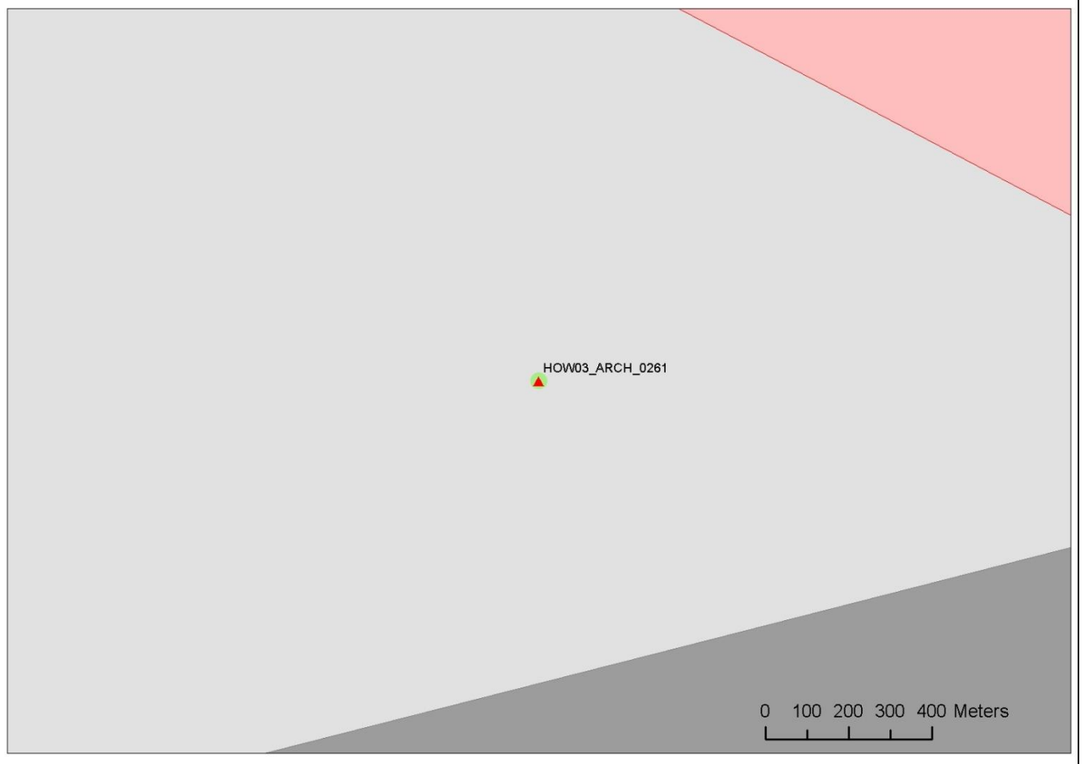
Medium potential contact HOW03_ARCH_0260			
Position coordinates (ETR89 31N)	53 46.2763 N, 02 28.1355 E	***Area***	Hornsea Three offshore cable corridor
Archaeological potential	Medium		
Geophysical survey dimensions and notes	22.1 m by 14.6 m by 0.24 m. No associated magnetic anomaly.		
AEZ dimensions	20 m		



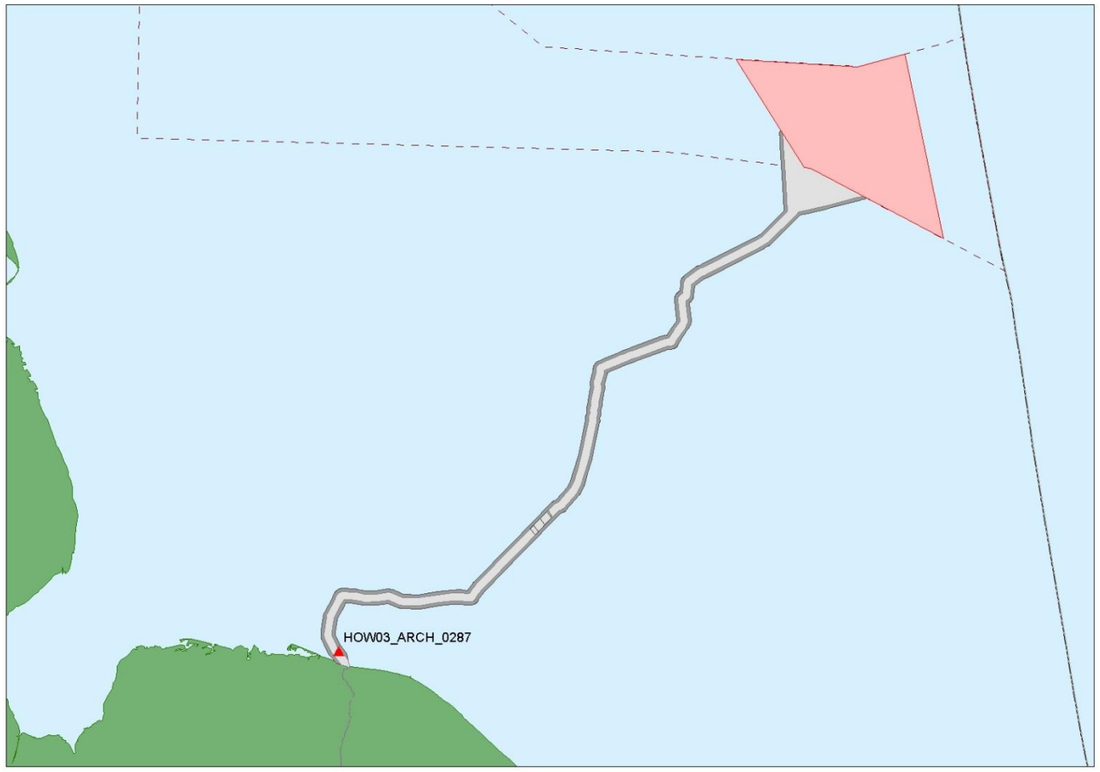


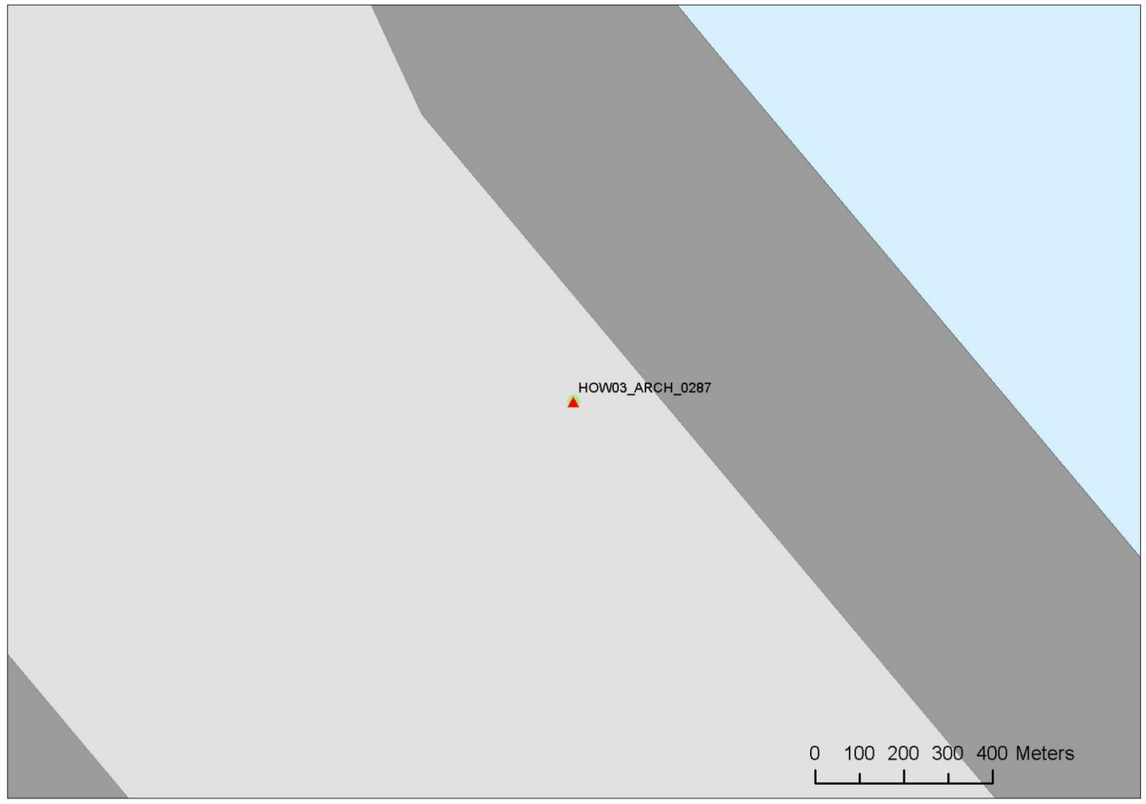
Medium potential contact HOW03_ARCH_0261			
Position coordinates (ETR89 31N)	53 45.6666 N, 02 31.7193 E	***Area***	Hornsea Three offshore cable corridor
Archaeological potential	Medium		
Geophysical survey dimensions and notes	13.1 m by 2.9 m by 0.3 m. No associated magnetic anomaly.		
AEZ dimensions	20 m		



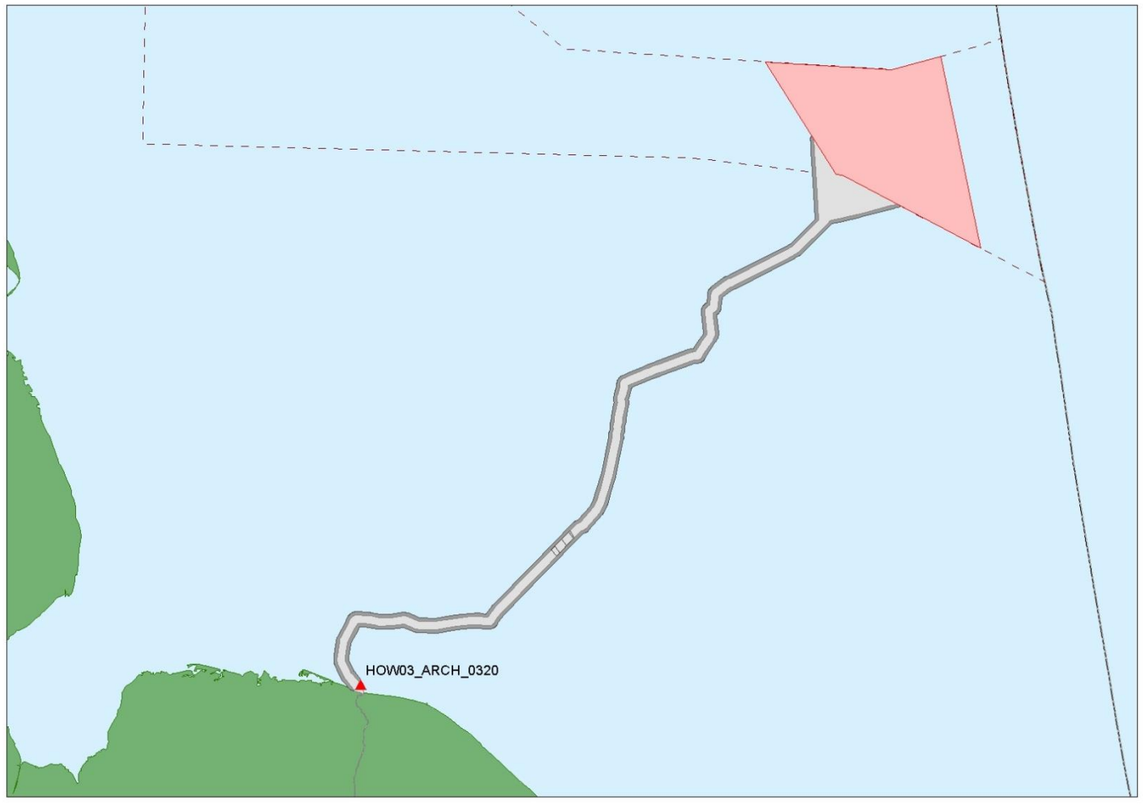


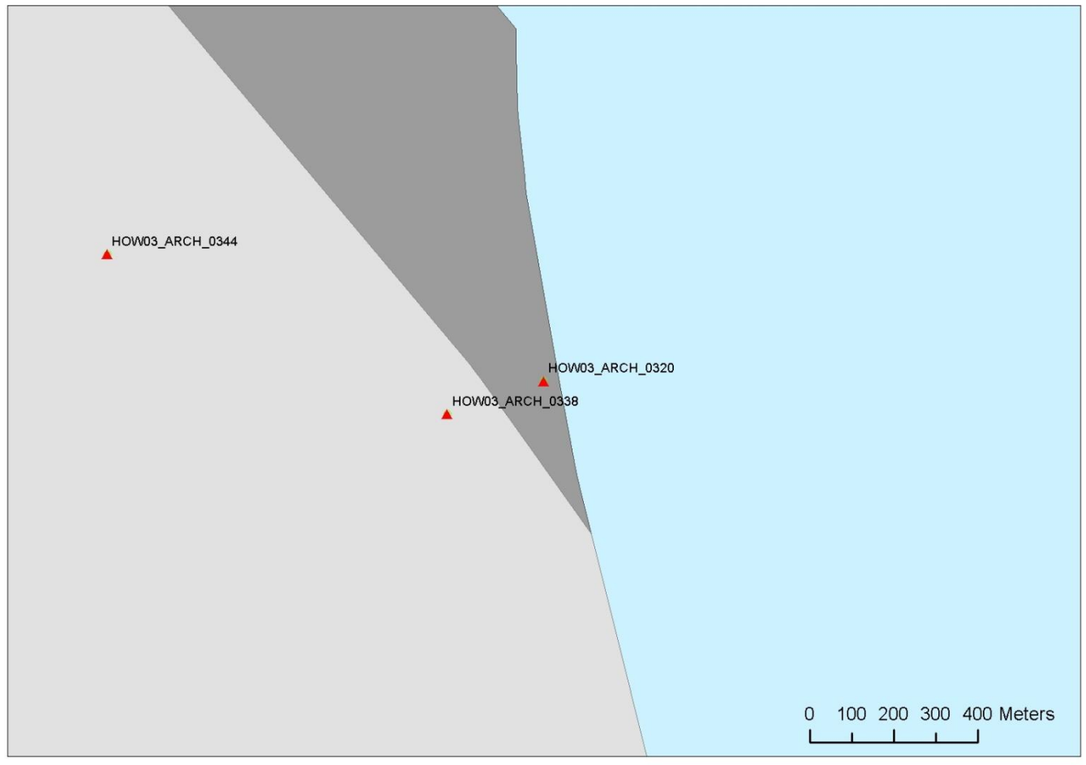
Medium potential contact HOW03_ARCH_0287			
Position coordinates (ETR89 31N)	52 58.656 N, 01 6.273 E	***Area***	Hornsea Three offshore cable corridor
Archaeological potential	Medium		
Geophysical survey dimensions and notes	9.93 m by 8.37 m by 0.64 m. No associated magnetic anomaly.		
AEZ dimensions	15 m		



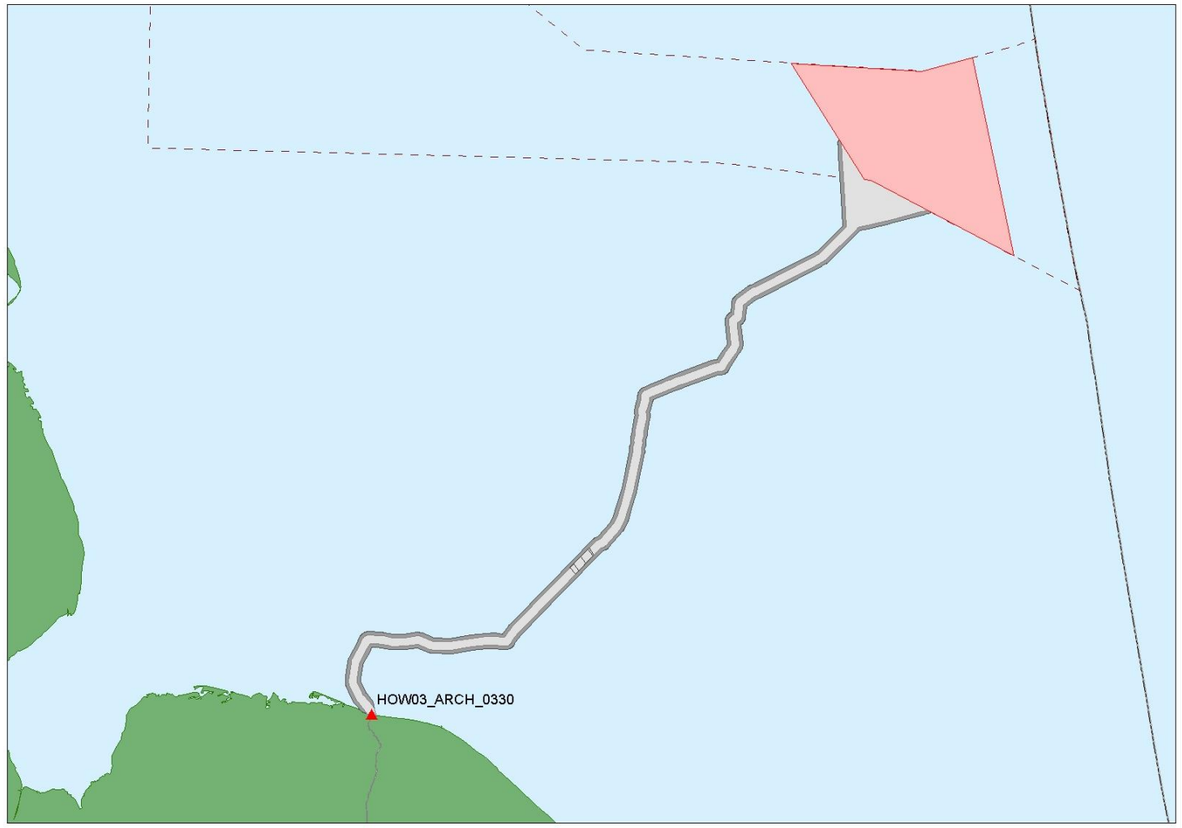


Medium potential contact HOW03_ARCH_0320			
Position coordinates (ETR89 31N)	52 57.933 N, 01 7.649 E	***Area***	Hornsea Three offshore cable corridor
Archaeological potential	Medium		
Geophysical survey dimensions and notes	2.57 m by 0.63 m by 0.23 m Associated magnetic anomaly 913.69 nT		
AEZ dimensions	10 m		

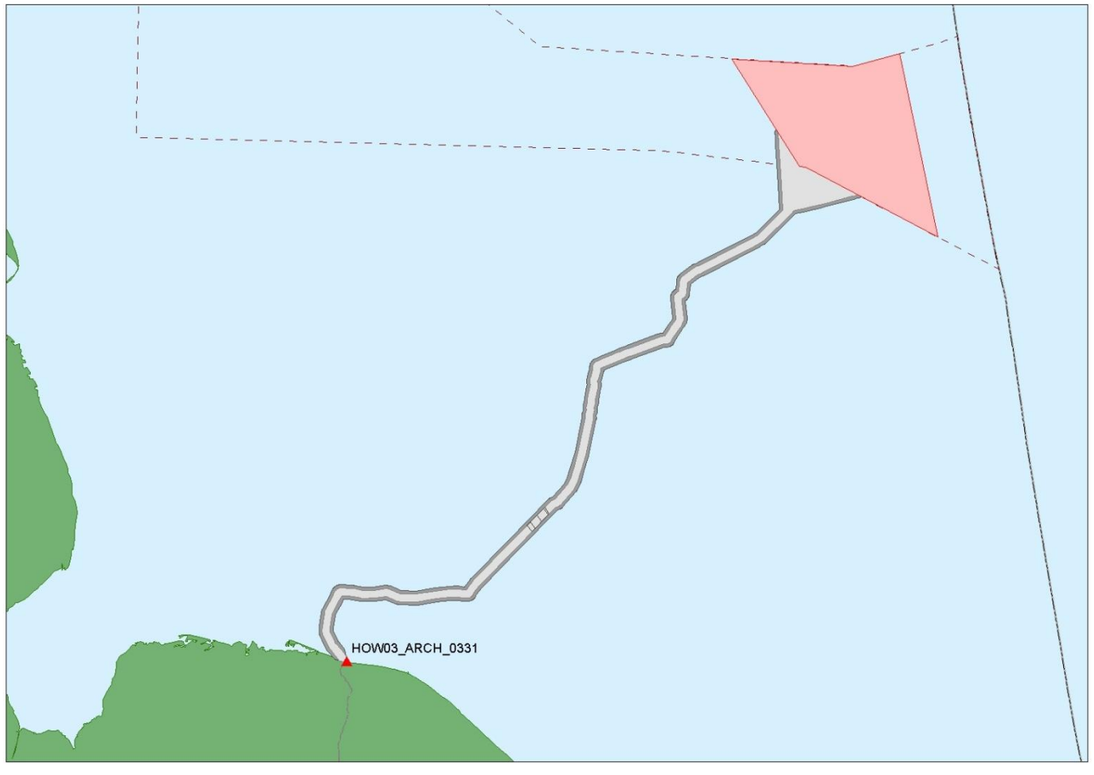




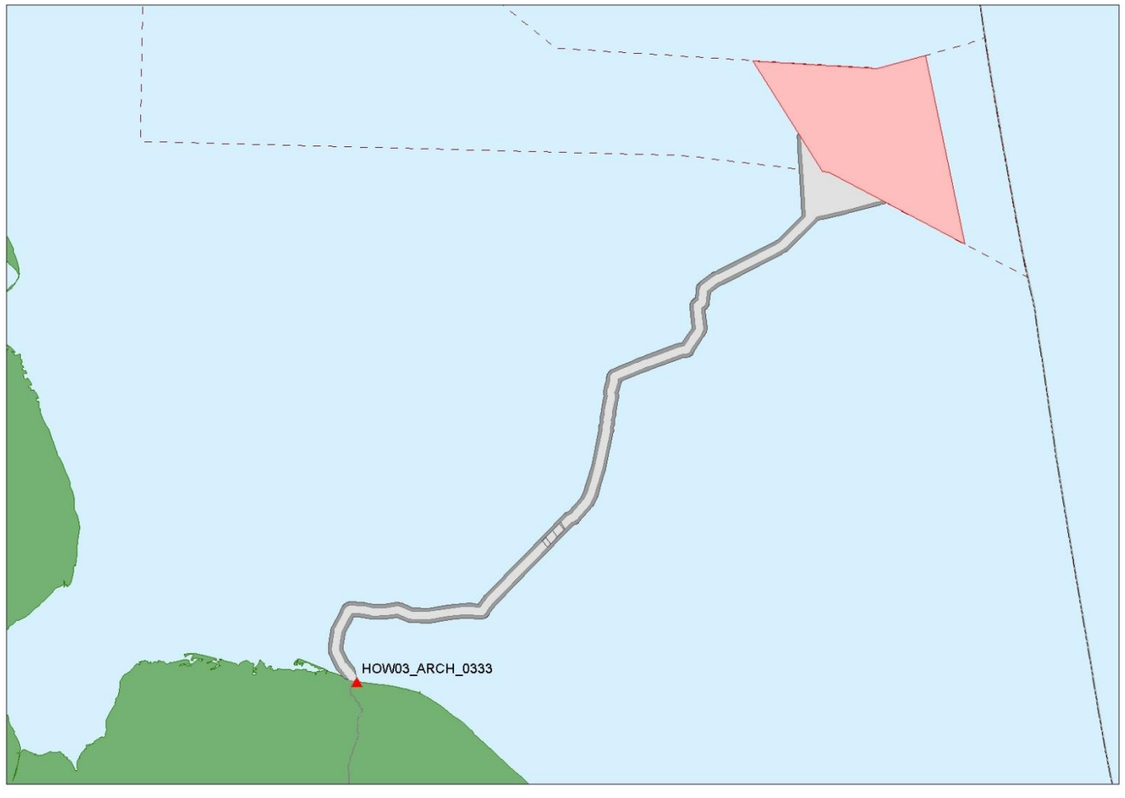
Medium potential contact HOW03_ARCH_0330			
Position coordinates (ETR89 31N)	52 57.239 N, 01 7.439 E	***Area***	Hornsea Three offshore cable corridor
Archaeological potential	Medium		
Geophysical survey dimensions and notes	12.11 m by 5.61 m by 0.52 m Associated magnetic anomaly 1,225.51 nT		
AEZ dimensions	25 m		



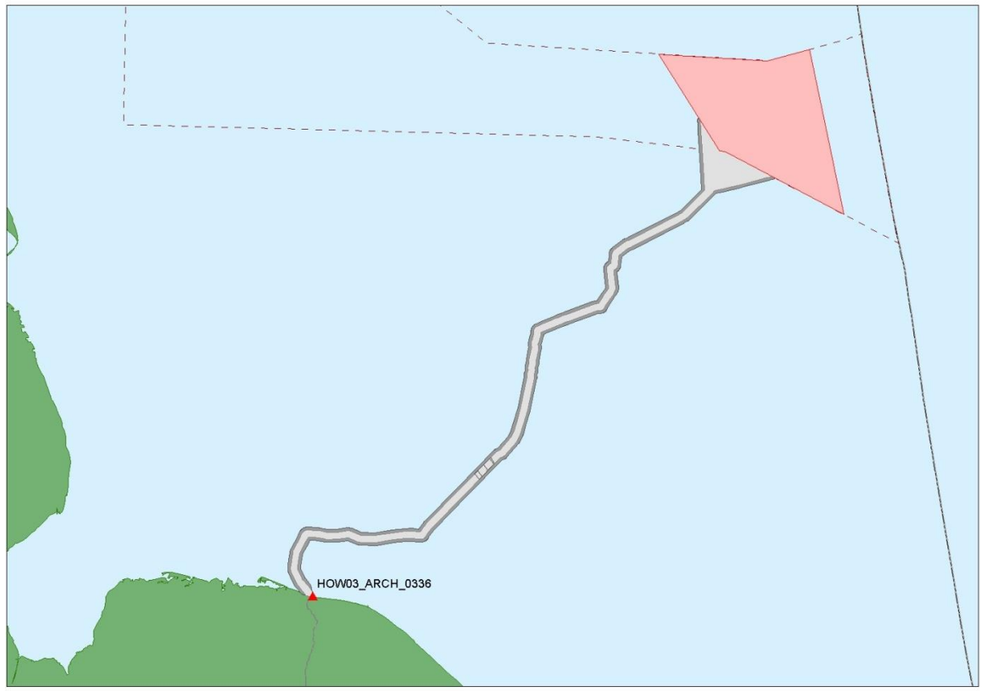
Medium potential contact HOW03_ARCH_0331			
Position coordinates (ETR89 31N)	52 57.209 N, 01 7.978 E	***Area***	Hornsea Three offshore cable corridor
Archaeological potential	Medium		
Geophysical survey dimensions and notes	0.64 m by 0.35 m by 0.15 m Associated magnetic anomaly 1,123.59 nT		
AEZ dimensions	10 m		



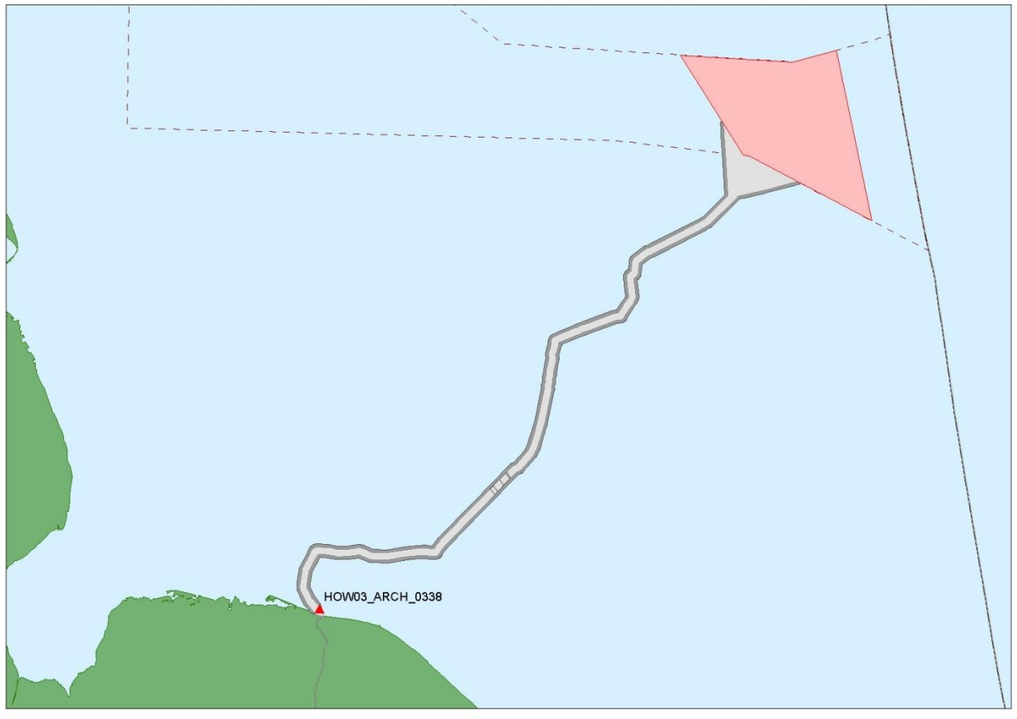
Medium potential contact HOW03_ARCH_0333			
Position coordinates (ETR89 31N)	52 57.122 N, 01 8.083 E	***Area***	Hornsea Three offshore cable corridor
Archaeological potential	Medium		
Geophysical survey dimensions and notes	2.42 m by 2.56 m by NA No associated magnetic anomaly.		
AEZ dimensions	10 m		

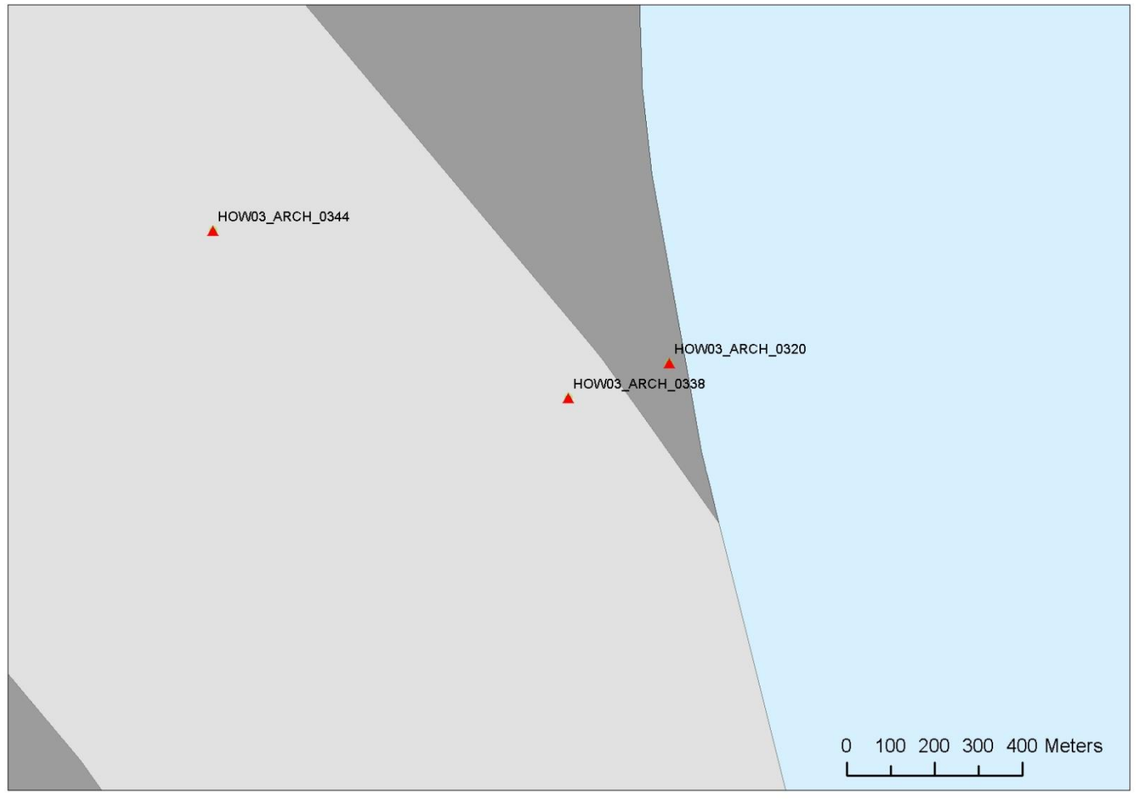


Medium potential contact HOW03_ARCH_0336			
Position coordinates (ETR89 31N)	52 57.221 N, 01 7.984 E	***Area***	Hornsea Three offshore cable corridor
Archaeological potential	Medium		
Geophysical survey dimensions and notes	0.63 m by 0.23 m by 0.09 m Associated magnetic anomaly 518.72 nT.		
AEZ dimensions	10 m		

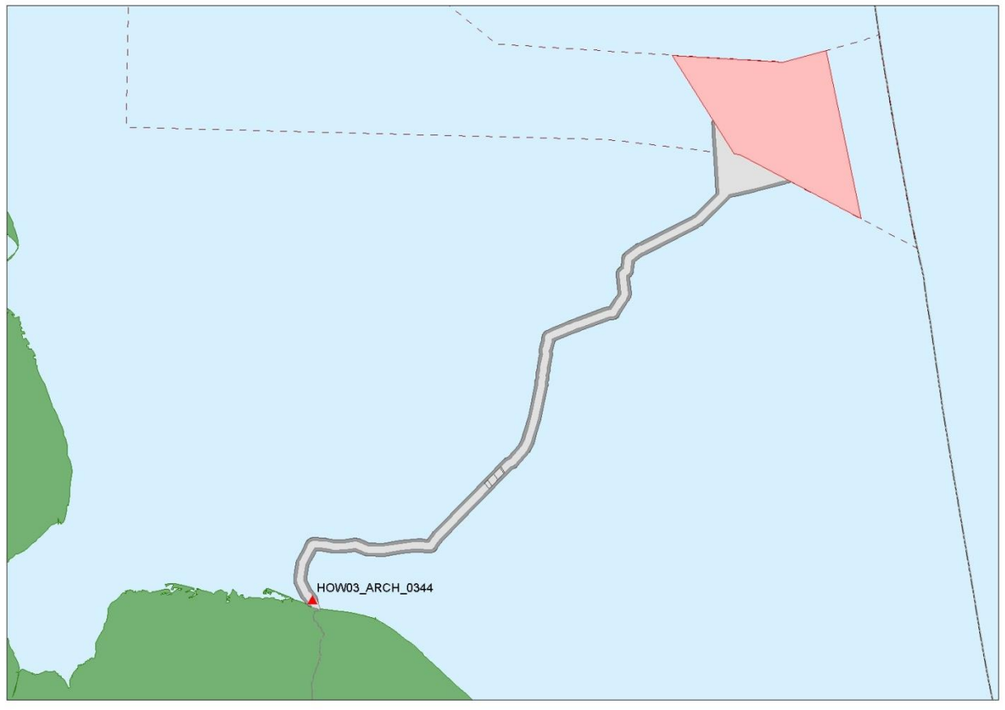


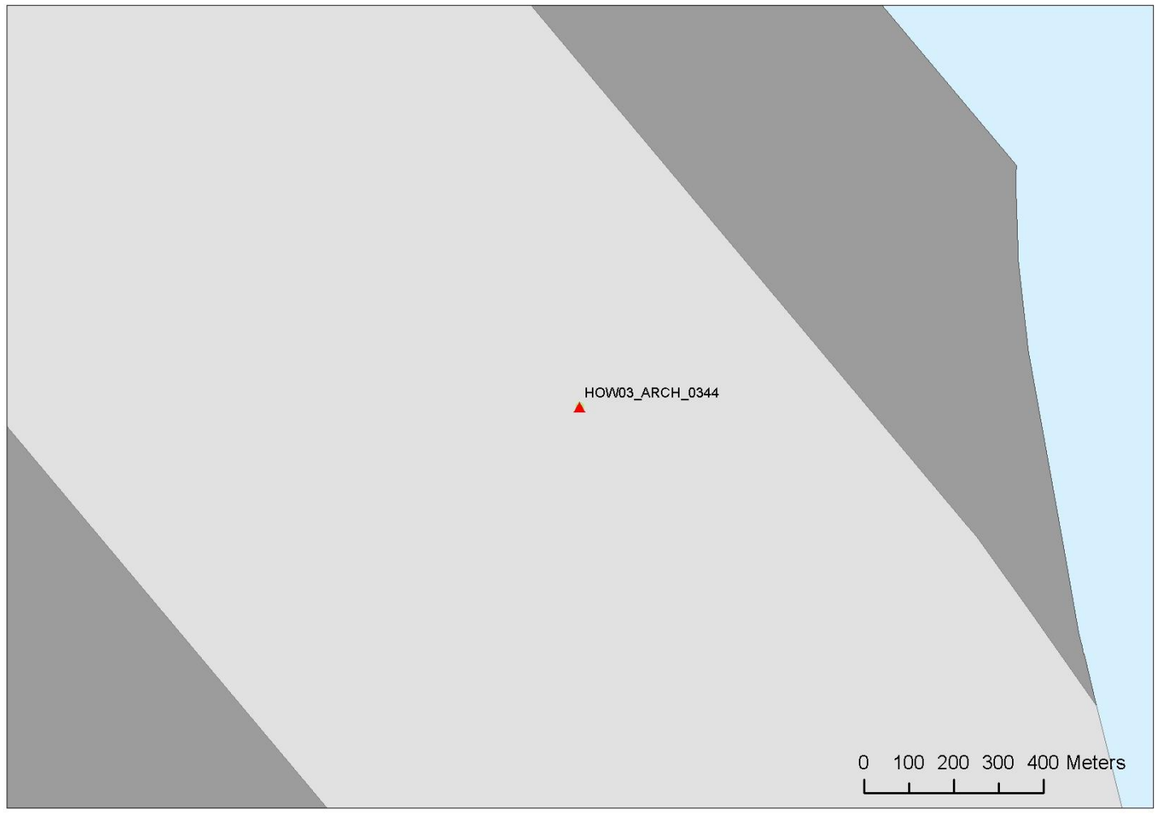
Medium potential contact HOW03_ARCH_0338			
Position coordinates (ETR89 31N)	52 57.887 N, 01 7.446 E	***Area***	Hornsea Three offshore cable corridor
Archaeological potential	Medium		
Geophysical survey dimensions and notes	1.26m by 0.93 m by 0.32 m Associated magnetic anomaly 744.7 nT.		
AEZ dimensions	10 m		





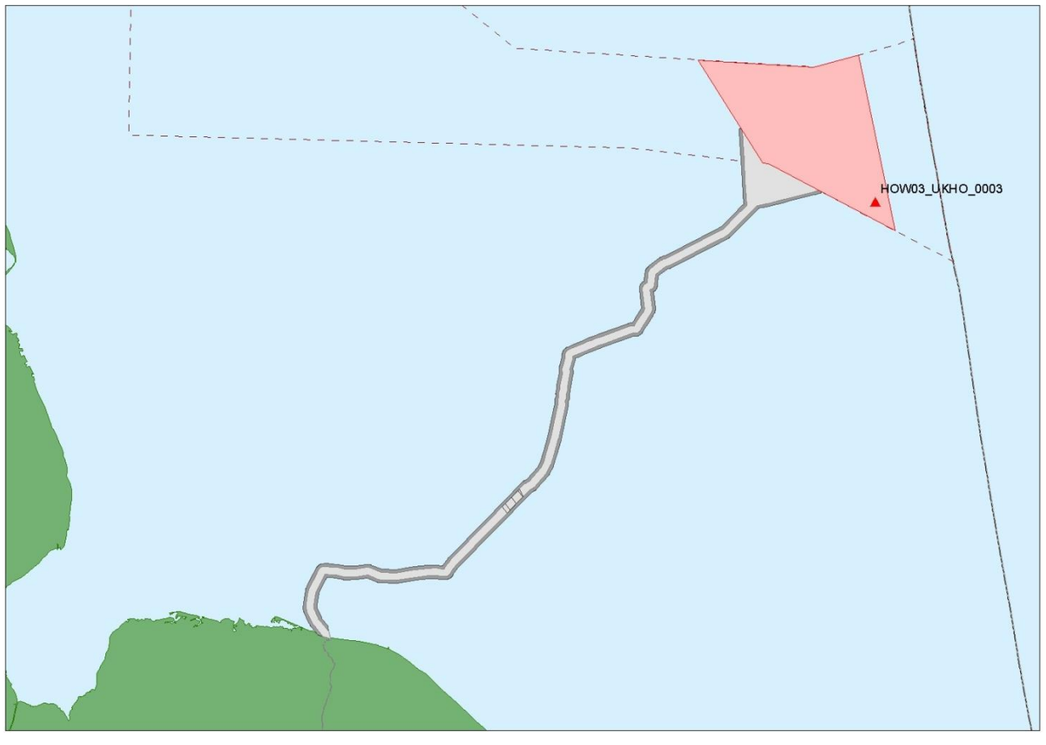
Medium potential contact HOW03_ARCH_0344			
Position coordinates (ETR89 31N)	52 58.081 N, 01 6.713 E	***Area***	Hornsea Three offshore cable corridor
Archaeological potential	Medium		
Geophysical survey dimensions and notes	0.59m by 0.27 m by 0.04m Associated magnetic anomaly 566.35 nT.		
AEZ dimensions	10 m		

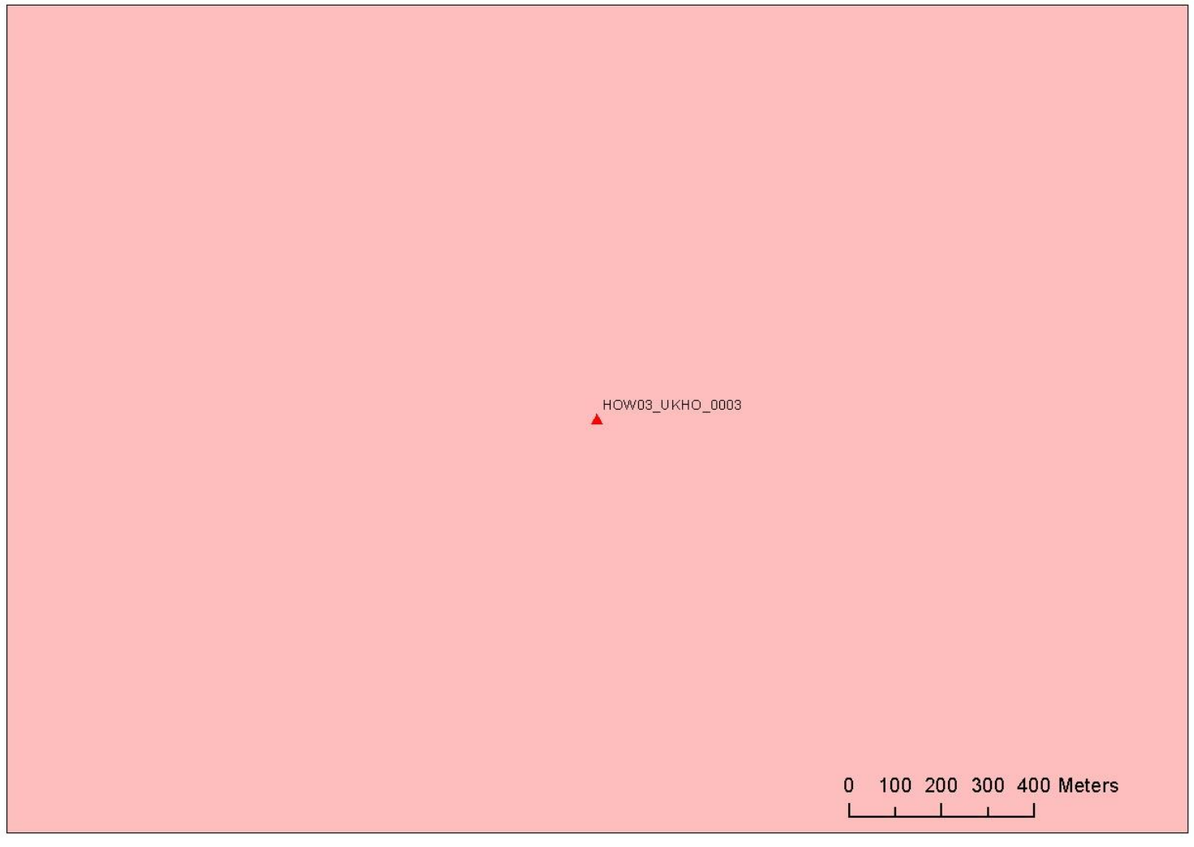




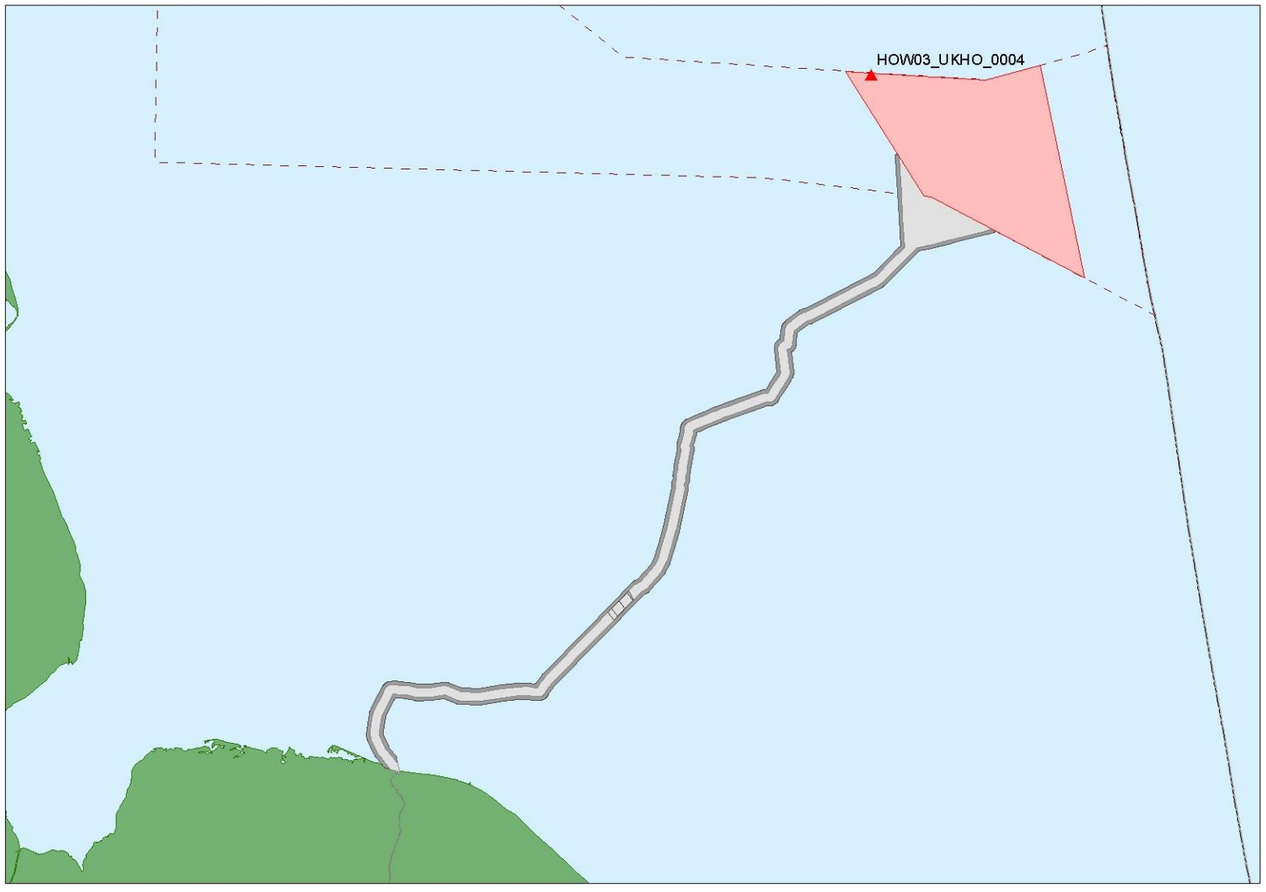
Appendix G AEZ Sheets: Recorded Wrecks with No Corresponding Geophysical Anomaly

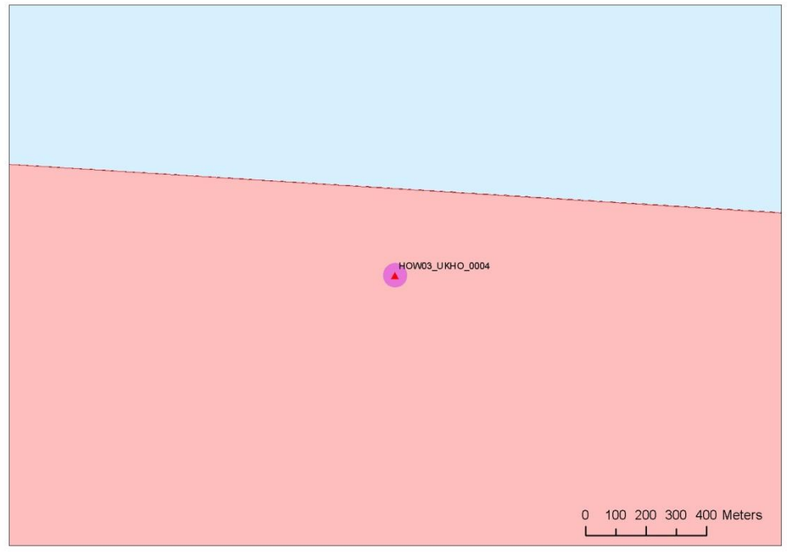
HOW03_UKHO_0003 (UKHO 9594)	
Location	Hornsea Three array area
Position coordinates (ETR89 31N)	53 44.4372 N 02 44.1450 E
Archaeological potential	Unknown
AEZ dimensions	None



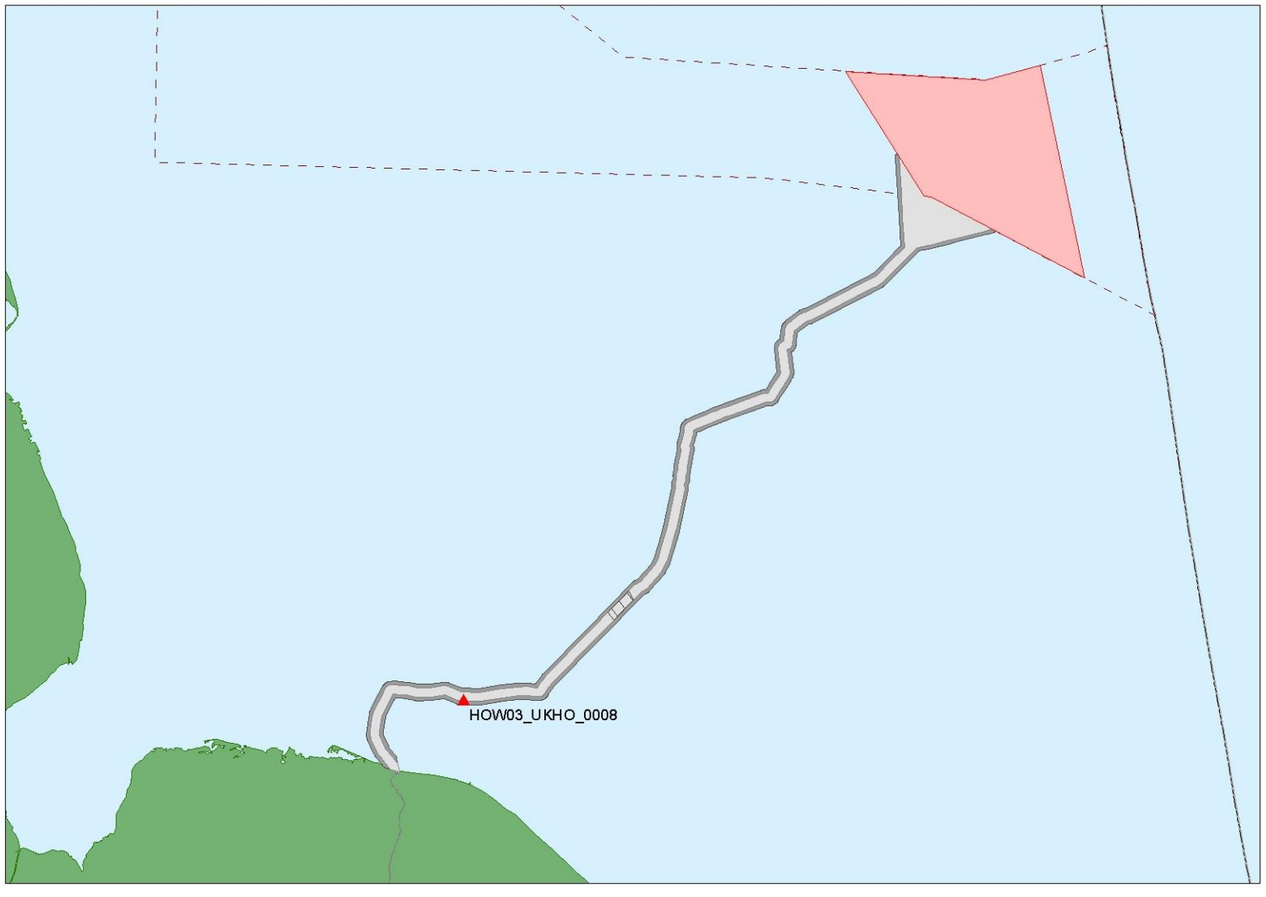


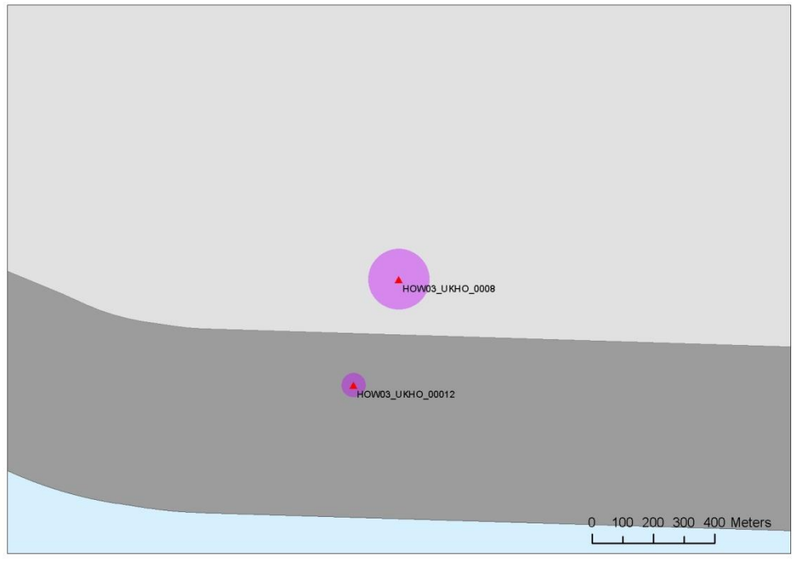
HOW03_UKHO_0004 (UKHO 9624)	
Location	Hornsea Three array area
Position coordinates (ETR89 31N)	53 59.1006 N 02 15.7284 E
Archaeological potential	Unknown
AEZ dimensions	40m



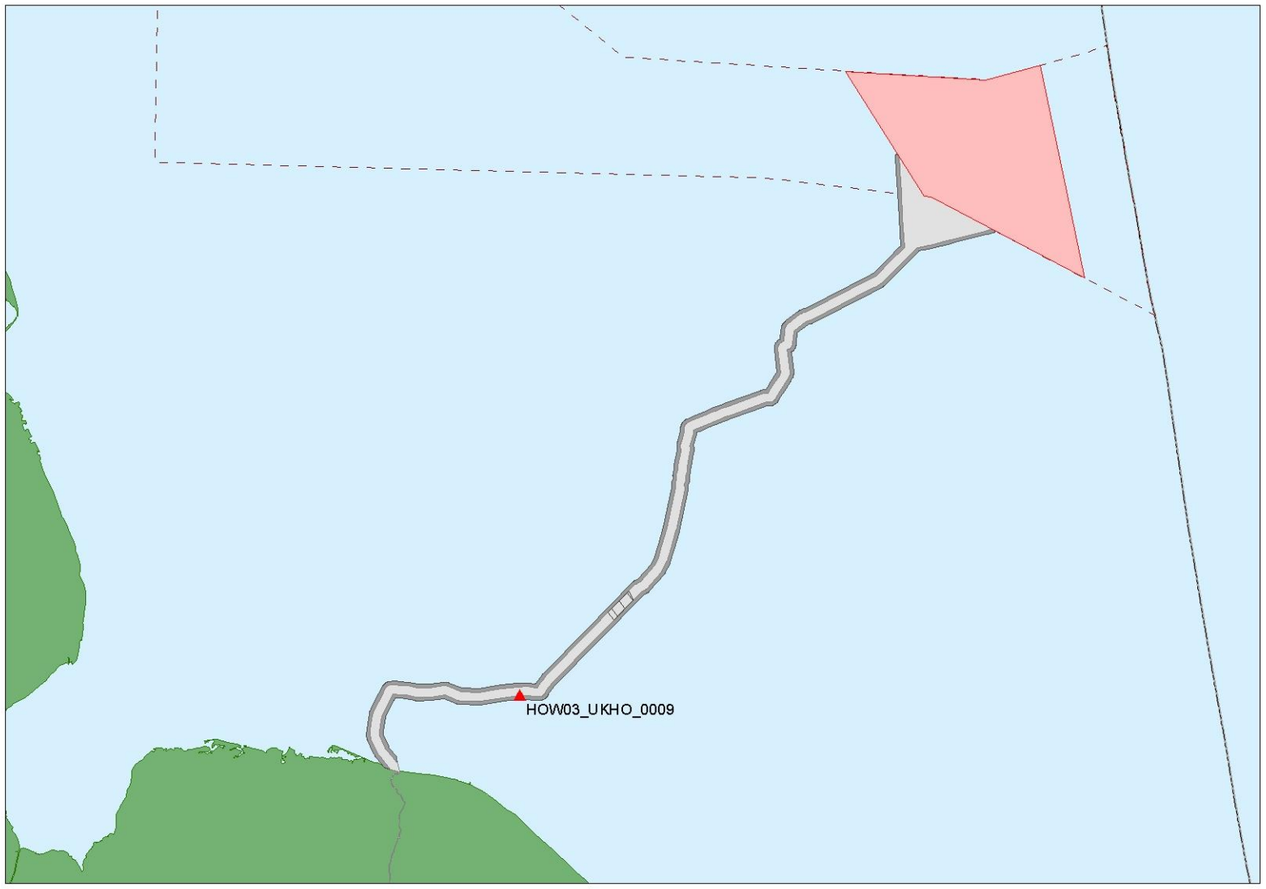


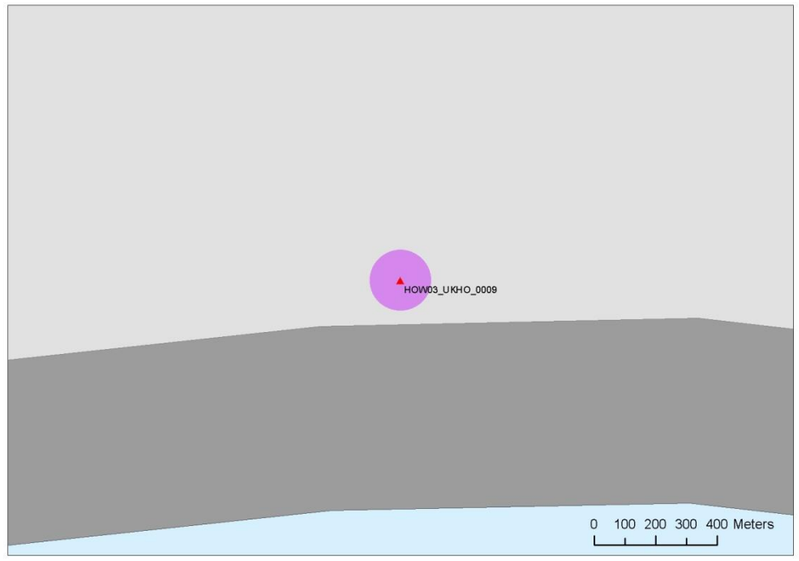
HOW03_UKHO_0008 (UKHO 9214)	
Location	Hornsea Three offshore cable corridor
Position coordinates (ETR89 31N)	53 3.511 N, 01 17.183 E
Archaeological potential	Unknown
AEZ dimensions	100 m



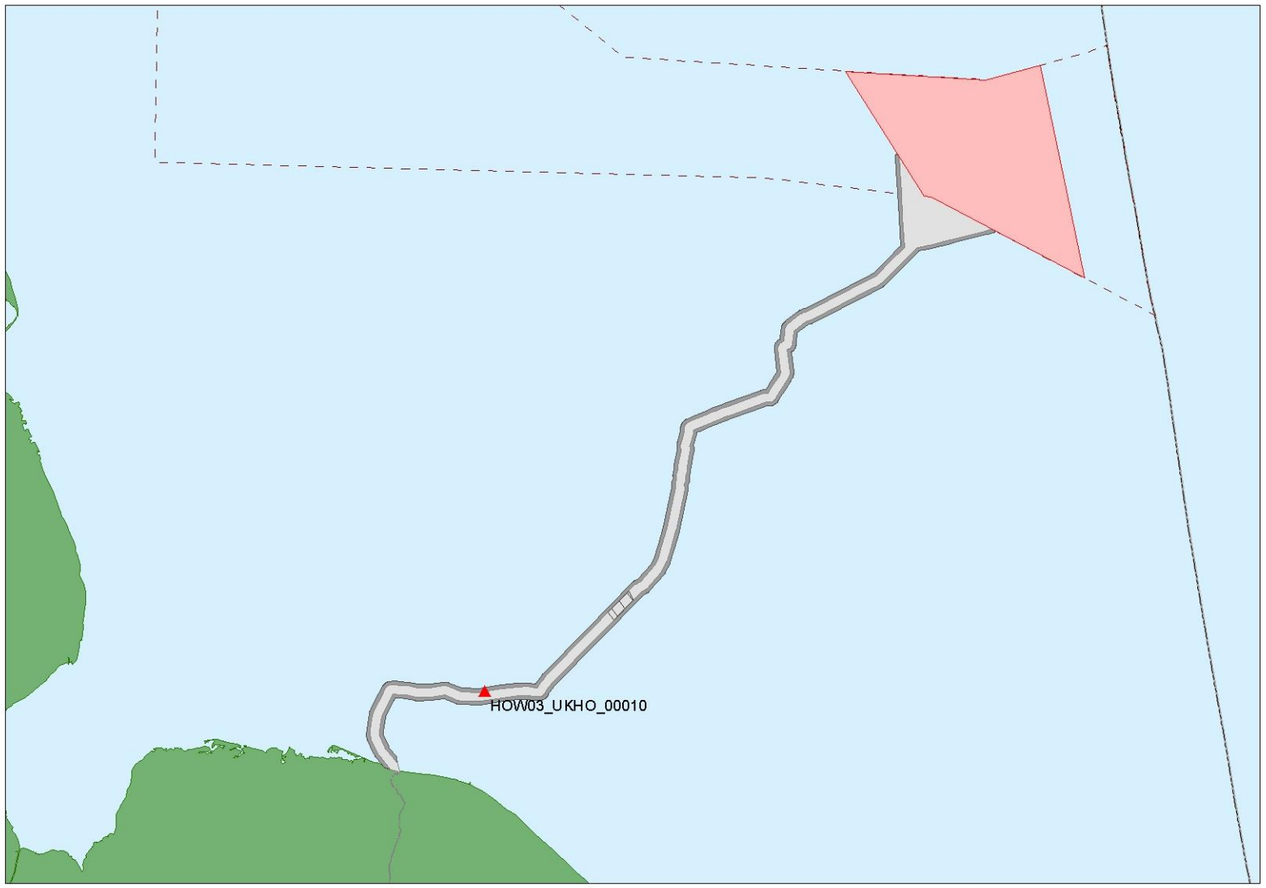


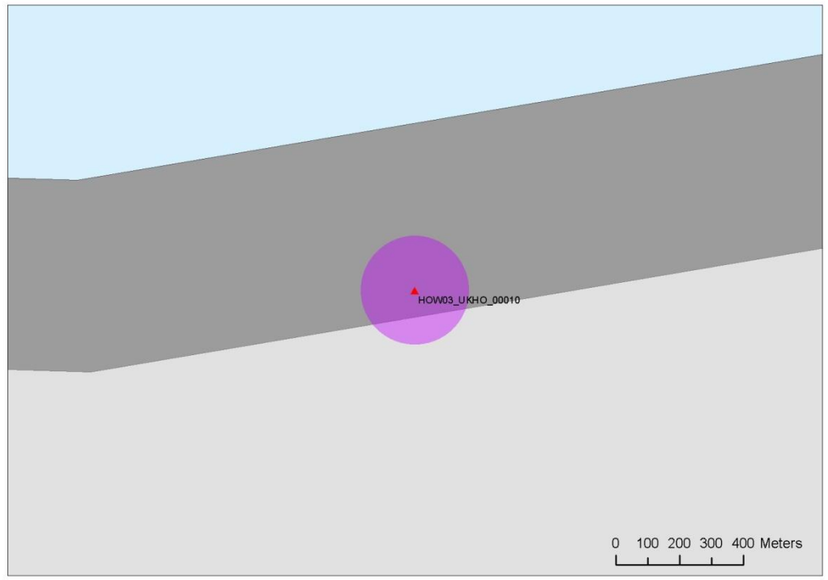
HOW03_UKHO_0009 (UKHO 9218)	
Location	Hornsea Three offshore cable corridor
Position coordinates (ETR89 31N)	53 4.057 N, 01 25.390 E
Archaeological potential	Unknown
AEZ dimensions	100 m



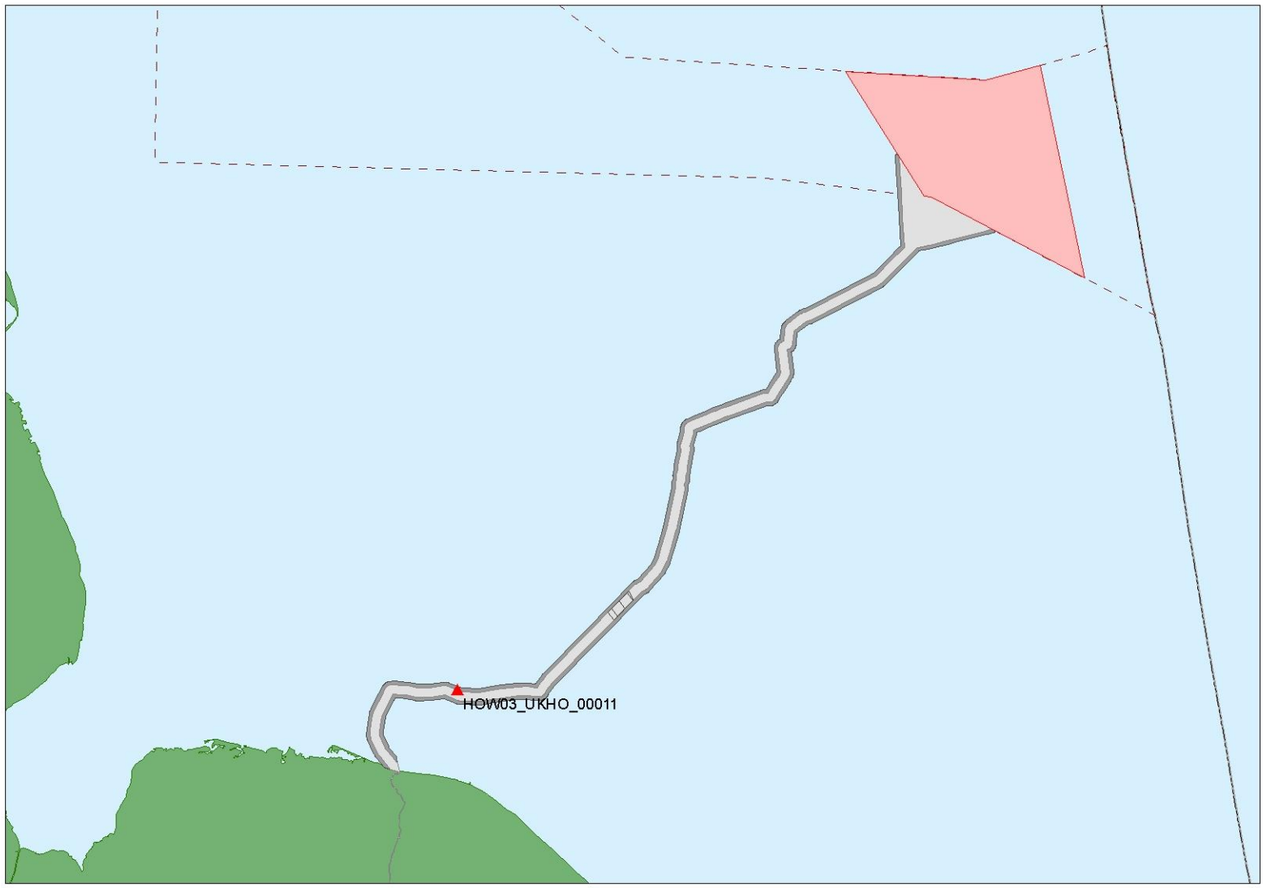


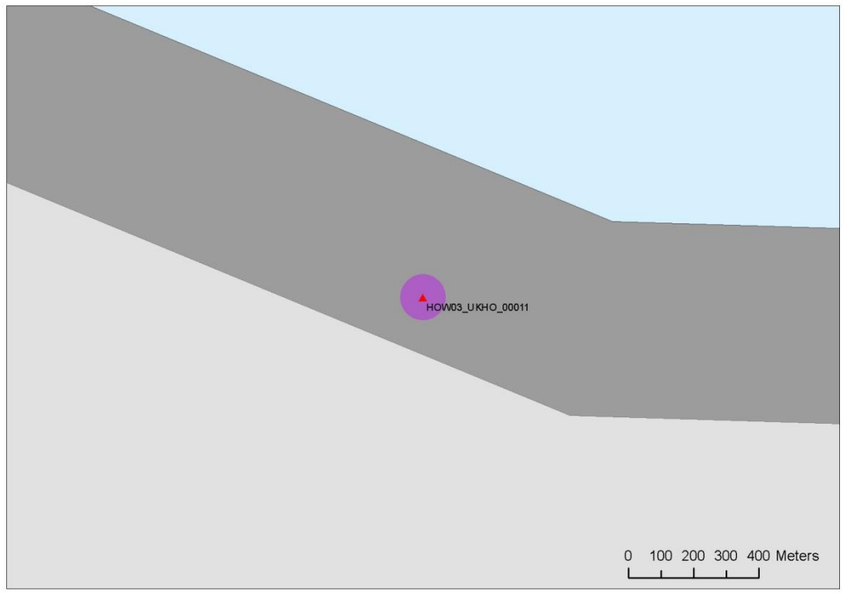
HOW03_UKHO_00010 (UKHO 9220)	
Location	Hornsea Three offshore cable corridor
Position coordinates (ETR89 31N)	53 4.364 N, 01 20.282 E
Archaeological potential	Unknown
AEZ dimensions	170 m





HOW03_UKHO_00011 (UKHO 9222	
Location	Hornsea Three offshore cable corridor
Position coordinates (ETR89 31N)	53 4.414 N, 01 16.274 E
Archaeological potential	Unknown
AEZ dimensions	70 m





HOW03_UKHO_00012 (UKHO 67285)	
Location	Hornsea Three offshore cable corridor
Position coordinates (ETR89 31N)	53 3.323 N, 01 17.058 E
Archaeological potential	Unknown
AEZ dimensions	40 m