

MORGAN AND MORECAMBE OFFSHORE WIND FARMS: TRANSMISSION ASSETS

Outline Offshore Written Scheme of Investigation and Protocol for Archaeological Discoveries



7 July 2025
Rev: F02

MOR001-FLO-CON-ENV-PRO-0002
MRCNS-J3303-RPS-10082

PINS Reference: EN020028
APFP Regulations: 5(2)(a)
Document reference: J17

Document status					
Version	Purpose of document	Approved by	Date	Approved by	Date
F01	For issue	AS	September 2024	IM	September 2024
F02	Deadline 3	HK	July 2025	IM	July 2025

The report has been prepared for the exclusive use and benefit of the Applicants and solely for the purpose for which it is provided. Unless otherwise agreed in writing by RPS Group Plc, any of its subsidiaries, or a related entity (collectively 'RPS') no part of this report should be reproduced, distributed or communicated to any third party. RPS does not accept any liability if this report is used for an alternative purpose from which it is intended, nor to any third party in respect of this report. The report does not account for any changes relating to the subject matter of the report, or any legislative or regulatory changes that have occurred since the report was produced and that may affect the report.

The report has been prepared using the information provided to RPS by its client, or others on behalf of its client. To the fullest extent permitted by law, RPS shall not be liable for any loss or damage suffered by the client arising from fraud, misrepresentation, withholding of information material relevant to the report or required by RPS, or other default relating to such information, whether on the client's part or that of the other information sources, unless such fraud, misrepresentation, withholding or such other default is evident to RPS without further enquiry. It is expressly stated that no independent verification of any documents or information supplied by the client or others on behalf of the client has been made. The report shall be used for general information only.

Prepared by:

RPS

Prepared for:

**Morgan Offshore Wind Limited
Morecambe Offshore Windfarm Ltd**

Contents

1	OUTLINE OFFSHORE WRITTEN SCHEME OF INVESTIGATION AND PROTOCOL FOR ARCHAEOLOGICAL DISCOVERIES	1
1.1	Background	1
1.1.1	Introduction	1
1.1.2	Project overview.....	1
1.1.3	Purpose of the outline offshore WSI and PAD	2
1.1.4	Structure of this document.....	4
1.2	Implementation.....	4
1.3	Aims and objectives	6
1.4	Roles and responsibilities	7
1.4.1	The applicants.....	7
1.4.2	Retained Archaeologist (RA)	7
1.4.3	Archaeological contractors	8
1.4.4	Construction contractors.....	8
1.4.5	Archaeological Curator (AC).....	9
1.4.6	Contacts.....	10
1.4.7	Reviewing the final offshore WSIs for archaeology	11
1.4.8	Compliance with the final offshore WSI for archaeology	11
1.4.9	Health and safety	12
1.5	Baseline.....	13
1.5.1	Overview	13
1.5.2	Submerged prehistoric archaeology	13
1.5.3	Maritime and aviation archaeology	15
1.5.4	Research frameworks.....	25
1.5.5	Potential impacts	25
1.6	Mitigation	26
1.6.1	Overview	26
1.6.2	Archaeological Exclusion Zones.....	26
1.6.3	Monitoring and watching briefs	32
1.6.4	Preservation by record.....	32
1.6.5	Protocol for archaeological discoveries	33
1.7	Methodologies for archaeological work.....	34
1.7.1	Method Statements (MS).....	34
1.7.2	Survey overview.....	34
1.7.3	Planning	35
1.7.4	Geophysical survey	35
1.7.5	Diver/ROV survey	37
1.7.6	Geotechnical survey	38
1.8	Finds and conservation	39
1.8.2	Wreck.....	40
1.8.3	Aviation material	40
1.8.4	Human remains.....	41
1.9	Reporting and archiving	41
1.9.2	OASIS	41
1.9.3	Reporting	42
1.9.4	Publication	44
1.9.5	Archiving	44
1.10	References	46

Tables

Table 1.1:	Key summary parameters for the Transmission Assets	4
Table 1.2:	Key contacts for the final offshore WSI for archaeology	11
Table 1.3:	Geological periods	13
Table 1.4:	High and medium potential anomalies within the survey area.....	18
Table 1.5:	Potential impacts for the Transmission Assets	26
Table 1.6:	Proposed AEZs within the Offshore Order Limits	30
Table 1.7:	Proposed TAEZs within the Offshore Order Limits	31
Table 1.8:	Criteria for the assessment of archaeological potential	36

Figures

Figure 1.1:	Transmission Assets marine archaeology study area	3
Figure 1.2:	Distribution of low, medium, and high potential anomalies within the Transmission Assets survey area.....	24
Figure 1.3:	Proposed AEZs and TAEZs within the Offshore Order Limits	29
Figure 1.4:	OASIS procedure	42

Appendices

APPENDIX A : GAZETTEER OF ARCHAEOLOGICAL ANOMALIES WITHIN THE SURVEY AREA	49
APPENDIX B : PROTOCOL FOR ARCHAEOLOGICAL DISCOVERIES	60

Glossary

Term	Meaning
Applicants	Morgan Offshore Wind Limited (Morgan OWL) and Morecambe Offshore Windfarm Ltd (Morecambe OWL).
Developer	The Applicants responsible for the construction of the Morgan and Morecambe Offshore Wind Farms: Transmission Assets.
Gazetteer	A geographical index or dictionary.
Palaeoenvironmental	An environment of a past geological age.
Preliminary Record	The initial information regarding the occurrence of archaeological material on the seabed.
Site	A group of features or objects that make up a relatively discrete collection of associated archaeological objects.
Survey area	The area within which each survey has been undertaken. This may differ from the Study Area as a Survey Area will be based on survey-specific guidance on the extent of survey required.
Wreck	All craft, parts thereof, cargo or equipment for the purposes of the Merchant Shipping Act 1995.
Offshore Order Limits	See Transmission Assets Order Limits: Offshore (below).
TA Order Limits	The area within which all components of the Transmission Assets seaward of Mean Low Water Springs will be located, including areas required on a temporary basis during construction and/or decommissioning. Also referred to in this report as the Offshore Order Limits, for ease of reading.

Acronyms

Acronym	Meaning
AC	Archaeological Curator
ADS	Archaeology Data Service
AEZ	Archaeological Exclusion Zone
BP	Before Present
CIfA	Chartered Institute for Archaeologists
COWRIE	Collaborative Offshore Wind Research into the Environment
EnBW	Energie Baden-Württemberg AG
ES	Environmental Statement
HE	Historic England
HNDR	Holistic Network Design Review
ICON	Institute for Conservation
JNAPC	Joint Nautical Archaeology Policy Committee
MBES	Multibeam Echosounder
MHWS	Mean High Water Springs
MLWS	Mean Low Water Springs
MMO	Marine Management Organisation
MS	Method Statement
NWRRF	North West Regional Research Framework
OASIS	Online Access to the Index of Investigations
OTNR	Offshore Transmission Network Review
PAD	Protocol for Archaeological Discoveries
PDF	Portable Document Format
RA	Retained Archaeologist
ROV	Remotely Operated Vehicle
SCAUM	Standing Conference of Archaeological Unit Managers
SI	Site Investigation
SPVA	Service Personnel and Veterans Agency
SSS	Side Scan Sonar
TAEZ	Temporary Archaeological Exclusion Zones
WCPS	West Coast Palaeolandscape Study
WSI	Written Scheme of Investigation

Units

Unit	Description
km ²	Square kilometres
m	Metre
nm	Nautical mile

1 Outline offshore written scheme of investigation and protocol for archaeological discoveries

1.1 Background

1.1.1 Introduction

1.1.1.1 This document forms the Outline Offshore Written Scheme of Investigation (WSI) and Protocol for Archaeological Discoveries (PAD) (hereafter referred to as the Outline Offshore WSI and PAD) for the Morgan and Morecambe Offshore Wind Farms: Transmission Assets (hereafter referred to as the Transmission Assets).

1.1.1.2 This version of the Outline Offshore WSI and PAD has been submitted at Deadline 3 of the Transmission Assets Examination to address comments made by Historic England in their Written Representation (REP1-082).

1.1.2 Project overview

1.1.2.1 Morgan Offshore Wind Limited (Morgan OWL), a joint venture between bp Alternative Energy Investments Ltd. (bp) and Energie Baden-Württemberg AG (EnBW), is developing the Morgan Offshore Wind Project. The Morgan Offshore Wind Project is a proposed wind farm in the east Irish Sea.

1.1.2.2 Morecambe Offshore Windfarm Ltd (Morecambe OWL), a joint venture between Zero-E Offshore Wind S.L.U. (Spain) (a Cobra group company) and Flotation Energy Ltd., is developing the Morecambe Offshore Windfarm, also located in the east Irish Sea.

1.1.2.3 Morgan OWL and Morecambe OWL (the Applicants) are jointly seeking a single consent for their electrically separate transmission assets comprising aligned offshore export cable corridors to landfall and aligned onshore export cable corridors to separate onshore substation(s), and onward connection to the National Grid at Penwortham, Lancashire.

1.1.2.4 The purpose of the Transmission Assets is to connect the Morgan Offshore Wind Project: Generation Assets and Morecambe Offshore Windfarm: Generation Assets (referred to collectively as the 'Generation Assets') to the National Grid. The key components of the Transmission Assets include offshore element, landfall and onshore elements. Details of the activities and infrastructure associated with the Transmission Assets are set out in Volume 1, Chapter 3: Project Description of the Environmental Statement (ES) (document reference F1.3).

1.1.2.5 This Outline Offshore WSI and PAD has been developed for the offshore elements of the Transmission Assets, seawards of Mean Low Water Springs (MLWS). In summary, the offshore elements of Transmission Assets will comprise up to six offshore export cables: four

for the Morgan Offshore Wind Project: Transmission Assets and two for the Morecambe Offshore Windfarm: Transmission Assets.

1.1.3 Purpose of the outline offshore WSI and PAD

- 1.1.3.1 The purpose of the Outline Offshore WSI and PAD is to set out of the marine archaeology mitigation proposed for the Transmission Assets as detailed in **section 1.6**, and how this mitigation will be secured and delivered.
- 1.1.3.2 This Outline WSI has been produced in line with best practice guidance, namely Archaeological Written Schemes of Investigation for Offshore Wind Farm Projects by The Crown Estate (2021).
- 1.1.3.3 Although the Generation Assets are within the Offshore Order Limits and there is alignment between agreed mitigation, this Outline Offshore WSI and PAD are prepared in relation to the works for the Transmission Assets only (i.e. the offshore export cables). This Outline Offshore WSI and PAD details the principles to be implemented to ensure the protection of marine archaeological receptors through all three phases of the Transmission Assets (construction, operation and maintenance, and decommissioning).

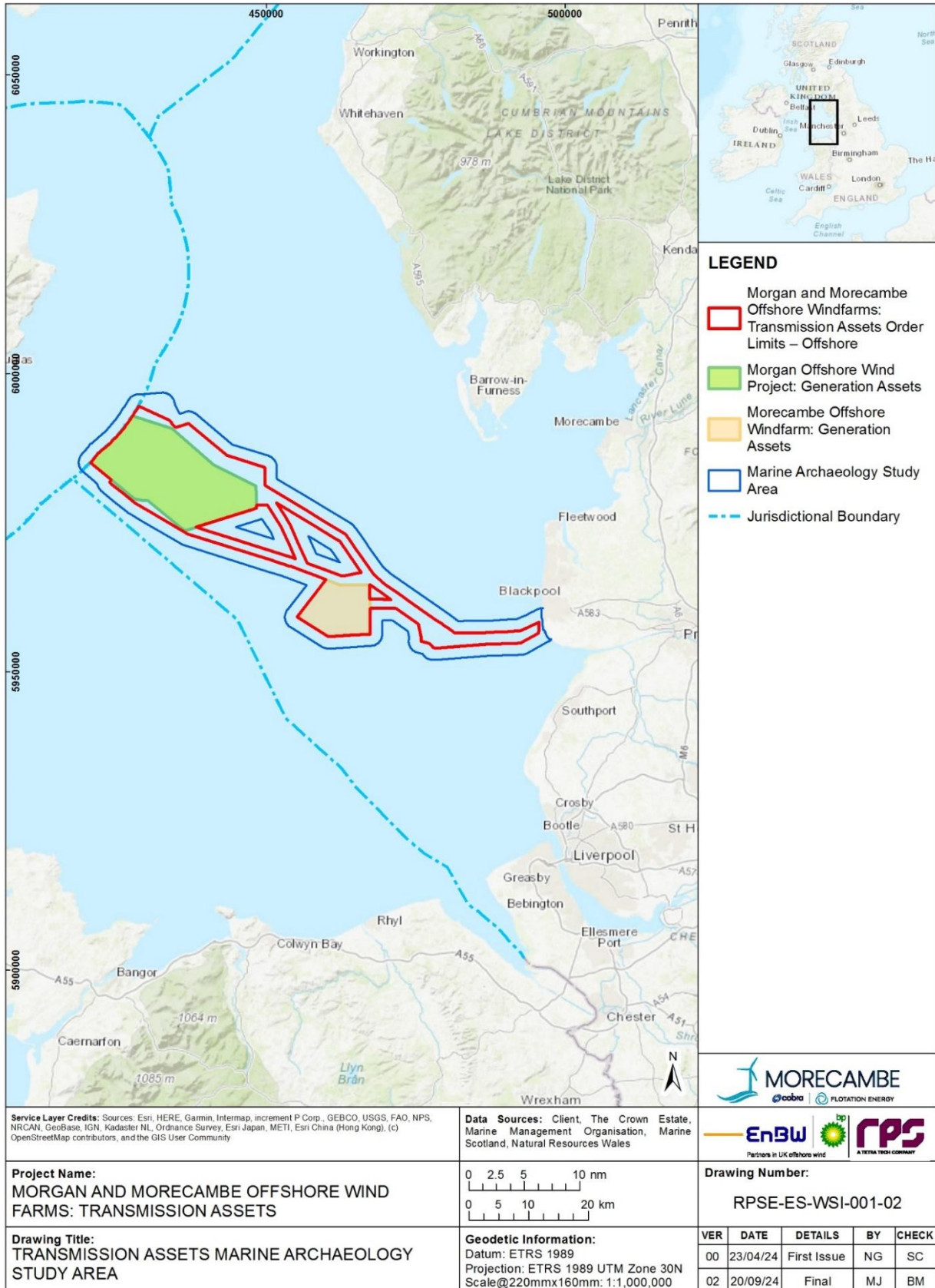


Figure 1.1: Transmission Assets marine archaeology study area

Table 1.1: Key summary parameters for the Transmission Assets

Parameter	Morgan Offshore Wind Project	Morecambe Offshore Windfarm	Total
Offshore Order Limits boundary (km ²)	N/A (included in Offshore Order Limits)	N/A (included in Offshore Order Limits)	617.01
Maximum number of offshore export cables	4	2	6
Maximum length of offshore export cables (km) – per cable	100	42	N/A
Maximum length of offshore export cables (km) – all cables	400	84	484

1.1.4 Structure of this document

1.1.4.1 This document is set out as follows.

- **Section 1.1** presents an introduction and background to the Transmission Assets project and the purpose of the Outline Offshore WSI and PAD.

1.2 Implementation

1.2.1.1 Following the granting of consent for the Transmission Assets, detailed Offshore WSI and PADs will be prepared on behalf of Morgan OWL and Morecambe OWL, prior to commencement of the relevant stage of works. The detailed Offshore WSI and PADs will require approval by the Marine Management Organisation (MMO) following consultation with relevant stakeholders.

1.2.1.2 The Applicants have committed to implementation of the Offshore WSI and PAD via the following commitment, CoT63 (see Volume 1, Annex 5.3: Commitments Register, document reference F1.5.3), which is secured by inclusion of condition 18(1)(g) of the draft Development Consent Order (DCO) Schedules 14 and 15 (document reference C1). Below sets out the condition wording for condition 18(1)(g):

18.—(1) The licensed activities or any stage of those activities must not commence until the following (insofar as relevant to that activity or stage of activity) have been submitted to and approved in writing by the MMO, in consultation with Trinity House, the MCA and UKHO as appropriate—

(g) an offshore written scheme of investigation for archaeology in relation to the Order limits, which must accord with the outline offshore written scheme of investigation for archaeology and industry good practice, in consultation with Lancashire County Council (in relation to those part of the offshore Order limits landwards of MLWS) and the statutory historic body to include—

- (i) details of responsibilities of the undertaker, archaeological consultant and contractor;
- (ii) a methodology for further site investigation including any specification for geophysical, geotechnical and diver or remotely operated vehicle investigations;
- (iii) archaeological analysis of survey data, and timetable for reporting, which is to be submitted to the MMO within four months of any survey being completed;
- (iv) delivery of any mitigation including, where necessary, identification and modification of archaeological exclusion zones;
- (v) monitoring of archaeological exclusion zones during and post construction where required;
- (vi) a requirement for the undertaker to ensure that a copy of any agreed archaeological report is deposited with the National Record of the Historic Environment, by submitting an OASIS (Online Access to the Index of archaeological investigations) form with a digital copy of the report within six months of completion of construction of the authorised scheme, and to notify the MMO that the OASIS form has been submitted to the National Record of the Historic Environment within two weeks of submission;
- (vii) a reporting and recording protocol, including reporting of any wreck or wreck material during construction, operation and decommissioning of the authorised scheme;
- (viii) a timetable for all further site investigations, which must allow sufficient opportunity to establish a full understanding of the historic environment within the offshore Order limits and the approval of any necessary mitigation required as a result of the further site investigations prior to commencement of licensed activities;

1.2.1.3 The Transmission Assets may adopt a staged approach to the approval of DCO requirements. This will enable requirements to be approved in part or in whole, prior to the commencement of the relevant stage of works in accordance with whether staged approach is to be taken to the delivery of the each of the offshore wind farms.

1.2.1.4 For works within the Transmission Assets Order Limits seaward of Mean High Water Springs, this approach will be governed by the inclusion of condition 12 of Schedules 14 and 15 of the draft DCO, which requires a written scheme detailing the stages of construction for Project A or Project B to be submitted for approval by the MMO prior to the commencement of the licensed activities.

1.2.1.5 Pre-construction and/or site preparation activities may be undertaken prior to the commencement of construction. These activities would comprise the following, in accordance with the definition of offshore site preparation works' as defined by the draft DCO and deemed marine

licenses (document reference C1) and Volume 1, Chapter 3: Project Description of the ES (document reference F1.3):

- Pre-construction surveys; and
- Site preparation activities:
 - Unexploded Ordnance (UXO) clearance;
 - Boulder removal/placement and out of service cable removal;
 - Sandwave clearance and removal;
 - Dredging and pre-clearance activities;
 - Seabed excavation; and
 - Pre-lay grapnel run (PLGR).

1.3 Aims and objectives

1.3.1.1 The aim of this Outline Offshore WSI and PAD is to present the archaeological mitigation measures to be undertaken by the Applicants prior to and throughout the construction, operation and maintenance, and decommissioning phases of the Transmission Assets. The Outline Offshore WSI and PAD is informed by pre-application consultation with Historic England (HE) and the baseline review of known and potential archaeology within the study area (**Figure 1.1**) outlined in the Marine Archaeology Technical Report (Volume 2, Annex 8.1).

1.3.1.2 The objectives of the Outline Offshore WSI and PAD are as follows:

- Set out the roles and respective responsibilities of the Applicant, contractors, Retained Archaeologist (RA), and Archaeological Contractor(s) and formal lines of communication between these parties and the AC (**section 1.4**)
- Outline the known and potential archaeological receptors that could be impacted by Transmission Assets (**section 1.5**)
- Outline the agreed measures adopted as part of Transmission Assets and requirements for archaeological work to be undertaken in various circumstances (**section 1.8**)
- Set out the importance of consulting archaeological research frameworks for setting objectives that are met through the archaeological work undertaken by the Transmission Assets (**section 1.5.4**)
- Provide methodologies for the required archaeological work, to be employed in the post-consent period (**section 1.7**).

Guidance

1.3.1.3 This Outline Offshore WSI and PAD has been produced in line with best practice guidance, including:

- Archaeological Written Schemes of Investigation for Offshore Wind Farm Projects (The Crown Estate, 2021);

- HE's Conservation Principles, Policies and Guidance for the Sustainable Management of the Historic Environment (English Heritage (now Historic England), 2008);
- Code of Conduct (Chartered Institute for Archaeologists, 2014 (updated 2022));
- Collaborative Offshore Wind Research into the Environment (COWRIE) Historic Environment Guidance for the Offshore Renewable Energy Sector (Wessex Archaeology, 2007);
- Offshore Renewables Protocol for Archaeological Discoveries (The Crown Estate, 2014);
- Offshore Geotechnical Investigations and Historic Environment Analysis: Guidance for the Renewable Energy Sector (Gribble and Leather, 2011);
- Marine Geophysics Data Acquisition, Processing and Interpretation, Guidance Notes (English Heritage (now Historic England), 2013);
- Identifying and Protecting Palaeolithic Remains (English Heritage, 1998);
- Military Aircraft Crash Sites (English Heritage (now Historic England), 2002);
- Aircraft Crash Sites at Sea (Wessex Archaeology, 2008); and
- Code of Practice for Seabed Development (Joint Nautical Archaeology Policy Committee (JNAPC), 2006).

1.4 Roles and responsibilities

1.4.1 The applicants

1.4.1.1 The Applicants will directly engage with the appointed construction contractor and the RA, as necessary. The responsibility for implementing the final offshore WSI rests with the Applicants and their appointed representatives. Following the grant of development consent, the Applicants will provide the RA with the programme of construction.

1.4.1.2 The Applicants or their representatives will submit the archaeological MSs or reports to the MMO in the first instance who will then forward to the AC for advice.

1.4.2 Retained Archaeologist (RA)

1.4.2.1 The Applicants shall employ the services of a suitably qualified and experienced marine archaeologist (the RA) to ensure the effective implementation of the outline offshore WSI and PAD and other relevant commitments in relation to archaeology.

1.4.2.2 Prior to Application submission, RPS (supported by MSDS Marine) are acting in the role of the RA.

1.4.2.3 In relation to the implementation of the outline offshore WSI and PAD the RA will report to the Applicants or their named representatives. Interaction with the Applicants' construction team will be administered by the Applicants or their appointed representatives and advised by the RA.

1.4.2.4 The responsibilities of the RA will include:

- maintaining, reviewing and updating the relevant offshore WSI and PAD as required, post-consent;
- advising the Applicant's construction team on Transmission Assets elements that require archaeological involvement;
- ensuring the Transmission Assets scope of work specifications meet archaeological requirements;
- liaising with the Applicants' construction team or other construction contractors regarding site investigations (SI) completion timescales to ensure sufficient time is available to complete all archaeological work in accordance with the final offshore WSI for and PAD;
- advising the Project Manager for Transmission Assets on the micro-siting of infrastructure;
- advising, preparing and issuing MS to the AC for consultation and to the MMO for approval;
- implementing and monitoring of the PAD (**Appendix B**);
- providing advice to vessel staff/Unexploded Ordnance specialists in the event of a discovery of high archaeological interest;
- monitoring the work of and liaising with the Archaeological Contractor(s) where this is not the RA;
- monitoring the preparation and submission of Archaeological Reports as appropriate and making them available to the AC;
- preparing provisions for the management of Transmission Assets archives in consultation with an appropriate museum; and
- advising the Applicants and the AC on final arrangements for the analysis, archive deposition, publication and popular dissemination of the results of the archaeological works.

1.4.3 **Archaeological contractors**

1.4.3.1 Archaeological Contractors may be employed by the Applicants or the RA. Suitably qualified Archaeological Contractors may be contracted to provide a range of services relating to specialised archaeological provisions (e.g. divers, the piloting of ROVs, geotechnical analysis etc).

1.4.4 **Construction contractors**

1.4.4.1 All Construction Contractors engaged in the construction, operation and maintenance and decommissioning of the Transmission Assets shall:

- familiarise themselves with the requirements of the relevant offshore WSI and PAD and make them available to their staff;
- obey legal obligations in respect of 'wreck' under the Merchant Shipping Act 1995;
- obey legal obligations in respect of 'treasure' under the Treasure Act 1996;
- respect constraint maps, AEZs and TAEZs;
- notify the RA prior to any diving/ROV investigation;
- notify the RA in advance of any construction works that warrant archaeological mitigation;
- assist and afford access to archaeologists employed by the Applicants;
- inform the RA of any environmental constraint or matter relating to health, safety and welfare of which they are aware that is relevant to the archaeologist's activities;
- implement the PAD; and
- suspend work in areas where objects have been identified as being of potential archaeological interest and contact the RA in the event of an archaeological discovery.

1.4.5 Archaeological Curator (AC)

- 1.4.5.1 Historic England (HE) is the AC for heritage matters offshore up to MLWS. HE is the public body responsible for the care and protection of England's historic environment, which includes marine archaeology within English territorial waters. Contact from the Applicants with the AC will be through the MMO as the Regulator.
- 1.4.5.2 MSs, assessment reports or other deliverables will be submitted by the Applicants to the MMO who will forward on to the AC for advice. Their agreement/acceptance of the documents will be assumed if no contrary response is received within 30 working days of submission.
- 1.4.5.3 To encourage timely decisions relating to archaeological mitigation and avoid disruptions to the Transmission Assets programme, the MMO and HE will be consulted as soon as practicable on discoveries made during the programme of works and regarding the management and removal of AEZs or TAEZs.
- 1.4.5.4 This Outline Offshore WSI and PAD applies to the offshore elements of the Transmission Assets, seawards of MLWS. For clarity, the relevant Local Authority historic environment team is the primary AC for heritage matters within the intertidal area, between MLWS and Mean High Water Springs (MHWS). Further details regarding heritage matters within the intertidal and onshore areas are provided in the Outline Onshore and Intertidal Written Scheme of Investigation (APP-214).

1.4.6 Contacts

- 1.4.6.1 The relevant contacts for the purposes of this offshore WSI for Archaeology are given in **Table 1.2** below.

Table 1.2: Key contacts for the final offshore WSI for archaeology

Contact	Address	Email	Phone
Historic England	4th Floor, Cannon Bridge House, 25 Dowgate Hill, London EC4R 2YA	customers@HistoricEngland.org.uk	0370 333 0607
Receiver of Wreck (RoW)	The Maritime and Coastguard Agency Spring Place 105 Commercial Road Southampton SO15 1EG	row@mcga.gov.uk	0131 247 4120
Historic Environment Team at Lancashire County Council	Planning and Environment Service PO Box 100 County Hall Pitt Street Preston PR1 0LD	archaeology@lancashire.gov.uk	

1.4.7 Reviewing the final offshore WSIs for archaeology

1.4.7.1 Provision will be made for the Final Offshore WSIs to be revised and MSs appended as appropriate should elements of the Transmission Assets change or particular archaeological issues be encountered. The Final Offshore WSIs will encompass a wide range of development options, and therefore the WSIs will be reviewed and updated throughout the development process to ensure the Final Offshore WSIs for Archaeology accord with the details set out in the Outline Offshore WSI and PAD as part of the deemed Marine Licence, as well as being appropriate for the final design. At each stage of the Transmission Assets, the RA will advise as to the potential requirements of the specific archaeological investigations as outlined in this document. Appropriate MSs will be prepared as required for each element, in line with the requirements of the final offshore WSIs for archaeology, and these will be submitted to the MMO for approval. Revisions will be prepared by the RA and submitted to the Applicants who will ensure submission to and approval by the MMO, in addition to other relevant licensing and consenting bodies in consultation with the AC.

1.4.8 Compliance with the final offshore WSI for archaeology

1.4.8.1 Compliance with the Final Offshore WSIs for archaeology will be ensured by regular meetings between the RA and the relevant Applicant. The regularity of meetings may alter during different phases of the Transmission Assets; however, regular contact will be maintained to ensure compliance with the Final Offshore WSIs for Archaeology. These meetings ensure compliance through agendas which include discussions of the construction programme and any upcoming work which may require archaeological input, as per the stipulations of this

Outline Offshore WSI for Archaeology. The RA also advises the relevant Applicant of the scope of any necessary works and plans these works at the meetings and subsequent meetings as required.

- 1.4.8.2 Following this advice, appropriate MSs will be prepared as required for each element of the Transmission Assets which requires archaeological involvement, in line with the requirements of the Final Offshore WSI for Archaeology. The AC will be consulted prior to submission of the MSs to the MMO for formal approval. The RA will ensure compliance with these MSs during the subsequent works, thereby also ensuring compliance with the final offshore WSI for archaeology.
- 1.4.8.3 The performance of the Final Offshore WSIs for Archaeology will be monitored through the provision 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 PAD for reporting finds of archaeological interest during all works associated with the Transmission Assets. These reports will be submitted to the relevant Applicant who will ensure their dissemination to the AC.
- 1.4.8.4 The responsibility for ensuring the implementation of the PAD for reporting finds of archaeological interest rests with the Applicants, who will ensure that its agents and contractors are contractually bound to implement the PAD.
- 1.4.8.5 During any site evaluation/investigation or construction work that has the potential to affect any archaeological receptors, the RA will advise the relevant Applicant who will liaise directly with the AC with regard to site monitoring and reporting. The relevant Applicant will be kept informed of any contact between the RA and the AC. A programme of monitoring visits (if deemed appropriate) by the AC and the relevant Applicant will be agreed in advance of the commencement of work on site.

1.4.9 Health and safety

- 1.4.9.1 The RA will ensure that any MSs prepared to meet the requirements of the Final Offshore WSI are compliant with the requirements of the Applicants' Health and Safety Plans for the Transmission Assets.
- 1.4.9.2 Health and Safety considerations will be of paramount importance in conducting all archaeological work. Safe working practices will override archaeological considerations at all times.
- 1.4.9.3 All work will 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 Standing Conference of Archaeological Unit Managers (SCAUM) health and safety manual Health and Safety in Field Archaeology (SCAUM, 2007) and all other relevant Health and Safety legislation, regulations and codes of practice in force at the time.

1.5 Baseline

1.5.1 Overview

1.5.1.1 A baseline assessment including desktop study and archaeological assessment of geophysical survey data has been undertaken in support of the ES. The methodology and results of this assessment are set out in detail within Volume 2, Annex 8.1: Marine archaeology technical report of the ES. This section presents a summary of this assessment.

1.5.2 Submerged prehistoric archaeology

1.5.2.1 The prehistoric period of the UK covers from the earliest hominin occupation (potentially as early as c. 970,000 Before Present (BP)) to the end of the Iron Age and the Roman invasion of Britain in 43 AD. The coastline of the UK underwent dramatic changes during this time, and areas of the seabed that are now fully submerged would have been exposed allowing the opportunity for hominins to exploit and inhabit the landscape. Glacial events including the Anglian (480,000 to 430,000 BP), the Wolstonian (350,000 to 132,000 BP) and the Devensian (122,000 to 10,000 BP) and intervening periods of marine transgression have affected the coastline of the UK and therefore the archaeological potential of these areas.

1.5.2.2 Geological periods referred to in this section are defined by the date ranges presented in **Table 1.3**.

Table 1.3: Geological periods

Period	Date Range	Notes
Holocene	10,000 BP to Present Day	Mesolithic, Neolithic, Bronze Age, Iron Age, Roman, Medieval, Post Medieval and Modern periods. The Holocene is the current time period within the larger geological time scale known as the Quaternary Period.
Devensian from Post Late Glacial Maximum to Late Glacial Interstadial	18,000 BP to 10,000 BP	Coincides with the Late Upper Palaeolithic and the early Mesolithic.
Devensian up to Late Glacial Maximum	c. 73,000 to 18,000 BP	Arrival in the UK of Late Middle Palaeolithic Neanderthals, who were followed approximately 31,000 BP by Early Upper Palaeolithic, anatomically modern humans (<i>Homo sapiens</i>).
Ipswichian (interglacial)	c. 130,000 to c. 115,000 BP	Last interglacial in the UK. Overlaps with the Late Middle Palaeolithic.
Wolstonian	c. 374,000 to c. 130,000 BP	Predominantly Pleistocene glaciation. Incorporates the earliest period of the Late Middle Palaeolithic.

Late Middle Palaeolithic (186,000 to 45,000 BP/184,000 to 43,000 BC)

- 1.5.2.3 Evidence in the form of the presence of deposits representing the final glacial stage of the Wolstonian glaciation indicate that the marine archaeology study area would have been subglacial during the Late Middle Palaeolithic and therefore uninhabitable by humans.
- 1.5.2.4 The analysis of seismic data from within the study area and evidence from the wider area suggests that deposits representing environments favourable for human occupation dating to the Late Middle Palaeolithic are not likely to be present within the Offshore Order Limits (COARS, 2023; Jackson *et al.*, 1995; Mellett *et al.*, 2015; Wood, 2022; and Wood & Deeks, 2022).

Upper Palaeolithic (45,000 to 10,000 BP/43,000 to 12,000 BC)

- 1.5.2.5 Sea level and landscape changes within the study area and its surrounding environment during the Upper Palaeolithic are not conclusively understood. Some studies suggest that the Liverpool Bay area would have been an entirely marine environment during this time, whilst other evidence indicates that it would have been a partially terrestrial environment dominated by fluvial systems and related floodplains (Brooks *et al.*, 2011, Jackson *et al.*, 1995, Mellett *et al.*, 2015 and Fitch *et al.*, 2011).
- 1.5.2.6 The West Coast Palaeolandscape Study (WCPS) and the results of the geophysical and geotechnical archaeological assessments (Wood, 2022 and Wood & Deeks, 2022| COARS, 2023) support the latter in suggesting that areas of Liverpool Bay would have been terrestrial following the Last Glacial Maximum.
- 1.5.2.7 However, even if the theory that the study area was a partially terrestrial environment during the Upper Palaeolithic is accepted, it would likely not have been a favourable environment for human exploitation. Permafrost would have been present in the area, limiting the growth of vegetation and therefore the availability of resources for human exploitation. Therefore, the potential for archaeological material dating to the Upper Palaeolithic to be encountered within the Offshore Order Limits remains low.

Mesolithic

- 1.5.2.8 The debated chronology for the submergence of the study area is important for this period as if the earlier date of 13,000 BP is accepted then the area would have been fully submerged by the advent of the Mesolithic and therefore incapable of sustaining human occupation. However, if the later date of 7000 to 6000 BP is accepted then the partially terrestrial environment may well have been inhabited by humans and represent the potential for the survival of archaeological material.
- 1.5.2.9 The WCPS has interpreted channels within its datasets as Mesolithic fluvial features, these channels have also been identified through the

site-specific survey data within the Offshore Order Limits and may represent a terrestrial or intertidal landscape during the Mesolithic. Full details of the submerged palaeolandscapes potential during the Mesolithic is presented in Volume 2, Annex 8.1: Marine Archaeology Technical Report of the ES.

- 1.5.2.10 The potential for the survival of Mesolithic archaeological material within the study area, however, remains low, due to the fluctuating marine environment and the sensitive nature of Mesolithic evidence.

Stage 1 geoarchaeological assessment

- 1.5.2.11 The boreholes recovered from the Generation Assets portions of the Offshore Order Limits held no evidence to suggest human occupation of the area and therefore any potential for the survival of prehistoric archaeological material (COARS, 2023). However, a series of sub-glacial and pro-glacial landscape features and deposits were identified. These have the potential to better understand the late Devensian dynamics of the Irish Sea Ice Stream, including the timing of ice retreat within the east Irish Sea region. Full details of the Stage 1 geoarchaeological assessment are presented in Volume 2, Annex 8.1: Marine Archaeology Technical Report of the ES.

1.5.3 Maritime and aviation archaeology

Maritime Archaeology

- 1.5.3.1 The maritime archaeology of the UK is the product of a complex interplay of constantly evolving coastal and marine activities, international links and patterns of shipping and sea use since the earliest human occupation of the UK during the late Palaeolithic to modern periods. This section summarises the potential presence of maritime and aviation archaeology within the study area, such as ship and aviation wrecks and associated material. Full details are given in Volume 2, Annex 8.1: Marine Archaeology, of this ES.

Early prehistory (Palaeolithic to Mesolithic, 900,000 to 4000 BC)

- 1.5.3.2 There is no evidence in the UK for maritime archaeological remains that pre-date the start of the Holocene.
- 1.5.3.3 Watercraft may have been used in the rivers and estuaries during the Mesolithic for coastal journeys, fishing expeditions, and possibly longer journeys in favourable weather. The potential to encounter early prehistoric maritime archaeology is low.

Neolithic and Bronze Age (4000 to 800 BC)

- 1.5.3.4 Evidence of Bronze Age maritime activity has been recorded throughout England in the discovery of a number of inland watercraft and sea faring vessels. No such examples have been recorded in the vicinity of the study area, however, it is possible that similar crafts would have been

utilised to traverse the area. The potential to encounter Neolithic and Bronze Age maritime archaeology is low.

Iron Age and Romano-British (800 BC to 410 AD)

- 1.5.3.5 Evidence of Iron Age maritime activity has been discovered in the form of Romano-Celtic boats which are examples of a new form of ship construction that was emerging in north west Europe at the time. No evidence of Iron Age maritime activity has been recorded within the study area.
- 1.5.3.6 The Roman occupation of Britain was by necessity a maritime endeavour, which would have required continuous transportation of resources and people to the military and civilian sites established by the Romans. Sites such as these can be found along Liverpool Bay and therefore it stands to reason that there would have been substantial Roman maritime traffic in this area. No evidence of Romano-British maritime activity has been recorded within the study area. The potential to encounter Iron Age and Romano-British maritime archaeology is low.

Early Medieval and Medieval (410 to 1500 AD)

- 1.5.3.7 With the medieval period came a boom in maritime trade across Europe and further afield with the establishment of several trading confederations such as the Hanseatic league in the North Sea at this time. Trade expanded across the Irish Sea at this time also, with Dublin becoming an increasingly important commercial port, contributing to the maritime transportation of goods through the Irish Sea. The rapid technological advances in ship construction during the medieval period can also be attributed to increased military campaigns.
- 1.5.3.8 There is one recorded loss of a medieval vessel in the study area (NRHE 1447861). The record pertains to an unnamed wooden cargo vessel which stranded at Lytham St. Annes on passage from Ireland with '*goods and victuals for the munition of the castles in North Wales*' in 1296. The potential to encounter Early Medieval and Medieval maritime archaeology is moderate.

Post-Medieval and Modern (1500 AD to the present day)

- 1.5.3.9 The post-medieval and modern periods present the greatest potential for unrecorded archaeology to be discovered. International trade with ports around the Irish Sea became increasingly important in the post medieval period.
- 1.5.3.10 Trade between England and Ireland increased during the 16th century as England produced larger quantities of coal, a resource which was scarce in Ireland. This growth in trade led to the establishment and expansion of ports such as Maryport on the Solway Firth to the north of the study area.
- 1.5.3.11 From the 18th century onwards, records were kept of ship losses, with records becoming more detailed from the 19th century. Rapid industrialisation in the 18th and 19th centuries revolutionised

shipbuilding, introducing technological innovation that precipitated fundamental changes in maritime technology.

- 1.5.3.12 Further advances in technology occurred during both World Wars and the east Irish Sea saw extensive activity associated with these periods. One record of a World War I German submarine, the U3 (NRHE 1597596), having been lost has been identified within the desktop data for the study area. Two shipping losses, *Ben Rein* (UKHO 5462) and *Limesfield* (UKHO 5463) were both lost to enemy action, sunk by the submarine UB57. The potential to encounter Post-Medieval to Modern maritime archaeology is high.

Aviation archaeology

- 1.5.3.13 Thousands of military and civilian aircraft casualties have occurred in UK waters since the advent of powered flight in the early 20th century. The bulk of these are casualties of World War Two and most are concentrated off the south and south east coasts of England. However, there is evidence for substantial numbers of aircraft casualties in the east Irish Sea (Wessex Archaeology, 2008).
- 1.5.3.14 One record relating to a potential aircraft crash site was returned from the UKHO (5418) and NRHE (909495) data within the Offshore Order Limits and considered 'live' by the UKHO. Five records of World War Two aircraft lost in the vicinity of the study area have been identified within the NRHE data. These were all lost in 1942 and 1943 at the height of the war. Of particular note is a record of a British Blackburn Botha, Botha MK I L6141 (NRHE 1327855), these aircraft are now considered to be extinct and any positively identified remains would be considered of at least national significance. Full details of these are given in Volume 2, Annex 8.1: Marine Archaeology Technical Report of this ES.

Historic Seascape Character (HSC)

- 1.5.3.15 The historical cultural processes which have shaped the character of the Transmission Assets study area are predominantly related to fishing and navigation activity. See Volume 2, Chapter 8: Marine Archaeology of this ES for full details and assessment of ES.

Site-specific surveys

Survey area

- 1.5.3.16 One hundred and forty-seven anomalies of potential archaeological interest were identified within the Transmission Assets study area. Of these, eight have been classified as high potential anomalies, 14 as medium potential and 125 as low potential anomalies. There is an additional medium potential anomaly (MC22_0021), which is located in the Transmission Assets survey area but not in the Transmission Assets study area. The distribution of these can be seen in **Figure 1.2**. Full details of the anomalies of archaeological interest identified during the geophysical survey are presented in Volume 2, Annex 8.1: Marine

Archaeology Technical Report of the ES and their positional data is provided in **Appendix A**. A summary of the medium and high potential anomalies is presented in **Table 1.4**.

- 1.5.3.17 Additionally, magnetic-only anomaly MC22_MAG_0254 presented as a complex anomaly of 739.4 nT. The anomaly is isolated with no corresponding seabed anomaly identified within the other datasets, the most likely explanation is that the anomaly is buried, or potentially very low lying as to not be visible within the surface datasets. The anomaly is not visible on the adjacent lines of magnetometer data, which are approximately 75.0 m each side. Due to the size of the anomaly, and the visibility on adjacent lines, it is likely to be largely contained at the location. As there was no seabed expression the anomaly was not given an assessment of archaeological potential, but provided with an AEZ as a precaution (**Table 1.6**).

Table 1.4: High and medium potential anomalies within the survey area

Anomaly	Potential	Description
MG23_0014	High	The anomaly has been classified as high potential based on its form, the association with a large item of potential debris, and the uniqueness in the surrounding environment which could all indicate the presence of a potential wreck. The anomaly is visible in the both the Side Scan Sonar (SSS) and Multibeam Echosounder (MBES) data.
MG23_0053	High	Visible in the both the SSS and MBES data and has an associated magnetic anomaly of 70 nT and corresponds with UKHO 5462 and NRHE 909472, records for the <i>Ben Rein</i> . The <i>Ben Rein</i> was a British carrier sunk by gunfire from submarine UB57 on 7th February 1918 whilst en route from Liverpool to Belfast with a general cargo. The vessel was identified following recovery of the ship's bell.
MG23_0059	High	Visible in the both the SSS and MBES data and has an associated magnetic anomaly of 7,925 nT. The anomaly corresponds with UKHO 8292 and NRHE 1027211. UKHO 8292 is an unidentified wreck. Diver reports from 2004 record a steam ship lying upright with the bow to the north, some damage along the port side, and appearing to be a fishing vessel. Whilst the description of the vessel is minimal, based on the MBES data it would appear that the vessel has deteriorated significantly since the diver reports in 2004. The nearby NRHE record is that of an unidentified seabed obstruction reported by fishermen.

Anomaly	Potential	Description
Morgan_008	Wreck	Morgan_008 lies in the west of the study area, approximately 2.3 km south of the north east edge of the Offshore Order Limits. The anomaly is visible in both the SSS and MBES data and is recorded by the UKHO and NRHE as the <i>Limesfield</i> (UKHO 5463, NRHE 909403). A British steamship sunk by submarine UB57 on 7 February 1918 whilst on passage from Belfast to Preston with a cargo of cotton waste. There were no reported casualties. The wreck was originally recorded as a fastener by the Dutch Hydrographic Office in 1971 and confirmed as a wreck in 1991. Subsequent investigations by divers, including the recovery of the bell in 1995, confirmed the wreck as that of the <i>Limesfield</i>. The anomaly is visible in the data as a prominent feature measuring 48.8 m x 9.0 m with a measurable height of 4.8 m. The form of the feature is characteristic of a wrecked vessel. The wreck appears to be lying upright and is largely intact with the bow facing towards the north east. Slight scour is visible around the wreck to the north east, with accumulation along the west side. The coherent form of the wreck suggests either steel construction or a wreck of wooden construction of more recent origin.
Morgan_0017	Wreck	Morgan_0017 lies in the west of the study area, approximately 4.8 km south of the north east boundary of the Offshore Order Limits. The anomaly is visible in the SSS and MBES data and is recorded by the UKHO and NRHE as the <i>Flying Meteor</i> (UKHO 8250, NRHE 909493). A British paddle steamer tug built in 1864 and sank on 13 March 1874 whilst towing the barque <i>Ravenbourne</i> from Liverpool to Troon. The crew of the <i>Flying Meteor</i> boarded the <i>Ravenbourne</i> which returned to Liverpool. The wreck was first recorded in 1991 as a fastener, and then amended to an isolated rock. In the same year divers noted the remains of a wreck. In 2000 divers identified the wreck as a paddle steamer tug, with the recovery of a wheel boss identifying it as the <i>Flying Meteor</i>. In 2001 divers reported the wreck to be well covered in shingle with the highest point being the paddle wheel boxes. The anomaly is visible in the MBES data as an incoherent mound in amongst a number of sand waves, within the SSS data the anomaly is still largely incoherent, but more wreck like in form. The anomaly consists of a number of parallel linear features in a broad wreck like shape over an area 28.9 m x 9.9 m with a measurable height of 1.7 m. The wreck appears in poor condition, with very little evidence of scour or accumulation.

Anomaly	Potential	Description
Morgan_0096	High	Morgan_0096 lies in the west of the study area, approximately 900 m south of the north easter boundary of the Offshore Order Limits. The anomaly is visible in the SSS and MBES data and is recorded by the UKHO and NRHE as the <i>Ben Rein</i> (UKHO 5462, NRHE 909472). A British carrier built in 1905 and sunk by submarine UB57 on 7 February 1918. The crew were allowed to leave the vessel on a small boat and no casualties were reported. The vessel was on passage to Belfast from Liverpool with a general cargo. The wreck was originally recorded as a fastener by the Dutch Hydrographic Office in 1971 and confirmed as a wreck in 1996. The wreck was dived on multiple occasions in 1997 where soap was observed packed into the hull, and a bell recovered bearing the inscription Starling. A further dive in 1998 reported crates containing waxed paper. The anomaly is visible in the data as a coherent wreck in amongst sandwaves and measuring 34.5 m x 7.6 m and with a measurable height of 2.8 m. The wreck appears largely intact and likely lying upright. Scour, or a disturbance in the sand waves, is visible to the north east which is likely the stern. This wreck lies outside the Offshore Order Limits but within the marine archaeology study area.
Morgan_0097	High	Morgan_0097 lies towards the west of the study area, approximately 3.3 km north east of the south west boundary of the Offshore Order Limits. The anomaly is visible in the SSS and MBES data and is recorded by the UKHO (7458), NRHE (909402) and NMRW (506875) as the wreck of the <i>Hibernian</i>, a British steam ship built in 1875 and lost on 12 August 1894 following a collision with the British paddle steamer <i>Prince of Wales</i> whilst on passage from Garston to Glasgow. Of the ten crew, two were lost. The wreck was first identified in 1991 with divers recovering the ships wheel bearing the name of the builders of the <i>Hibernian</i> in 1993. The most recent diver accounts from 1996 report the wreck as very broken up and partially buried with the boilers at the highest point. The anomaly is visible in the MBES data as an incoherent mound with low lying debris to the south east, within the SSS data the anomaly is still largely incoherent, but more wreck like in form with significant height amidships. The anomaly consists of a number of parallel linear features in a broad wreck like shape over an area 48.9 m x 19.7 m with a measurable height of 3.7 m. The wreck appears in poor condition, with evidence of scour extending to the north east.

Anomaly	Potential	Description
Morgan_0098	High	Morgan_0098 lies towards the west of the study area, approximately 3.6 km north east of the south west boundary of the Offshore Order Limits. The anomaly is visible in the SSS and MBES data and is recorded by the UKHO (7559) and NMRW (506874). Identified as the wreck of the <i>Lucy</i>, a small British steam ship built in 1899 and sunk on 21 July 1910 whilst on passage from Weston Point to Douglas with a cargo of moulding. All four crew were recovered. The wreck was first identified in 1991, the bell was recovered in 2006 confirming the identity as the <i>Lucy</i>. The divers reported the wreck as very low lying with the engine and boiling protruding above the seabed by 4 m. The anomaly is visible in the MBES data as a prominent and irregular mound, increasing in prominence to the west. Within the SSS data the anomaly is characterised by incoherent features and a large mound to the west, the anomaly covers an area 24.7 m x 8.9 m with a measurable height of 5.8 m. The form of the anomaly is clearly of anthropogenic origin, and the size likely indicates the remains of a wrecked vessel. Scour is visible extending to the north east.
MG23_0045	Medium	Possible anthropogenic material that is visible in both the SSS and MBES data and does not directly correspond with any UKHO or NRHE records. The origination of the anomaly is not clear, and whilst the overall form could represent anthropogenic material, such as the remains of a wrecked vessel, it is not dissimilar in form to geological features in the wider area. However, there are notable differences in form.
MG23_0051	Medium	Possible anthropogenic material that is visible in both the SSS and MBES data and does not directly correspond with any UKHO or NRHE records. The origination of the anomaly is not clear, and whilst the overall form could represent anthropogenic material, such as the low-lying remains of a small, wrecked vessel, it could potential be related to the Morecambe CPP1 to DP3 electricity cable, or the additional cables and pipelines which run to the east.
MG23_0052	Medium	Material of anthropogenic origin that is visible in both the SSS and MBES data and does not directly correspond with any UKHO record. The anomaly lies c. 26 m south west of NRHE 1027663, an unidentified seabed obstruction reported by fishermen. The overall form of the feature indicates material of anthropogenic origin.
MG23_0060	Medium	MG23_0060 is visible in both the SSS and MBES data, with an associated magnetic anomaly of 82 nT on the closest track c. 21 m to the south west. The position does not directly correspond with any UKHO or NRHE records. The association of the feature with a magnetic anomaly of 82 nT indicates the presence of ferrous, and thus anthropogenic, debris over an area of 10.5 m x 3.7 m. However, the low-lying nature of the feature may indicate that further material lies buried, but close to the surface in the vicinity. With the origination of the debris unknown a precautionary medium potential has been assigned.

Anomaly	Potential	Description
Morgan_0005	Medium	The anomaly has been interpreted as an area of seabed disturbance measuring 33.7 m x 16.2 m with a measurable height of 0.2 m. Whilst likely a geological feature, a number of small features within the constraints may indicate anthropogenic material.
Morgan_0015	Medium	The anomaly measures 12.6 m x 7.3 m with a measurable height of 0.4 m and is made up of at least three smaller features. The anomaly is largely incoherent, but potentially represents material of anthropogenic origin.
Morgan_0025	Medium	The anomaly is characterised by a number of incoherent features covering an area 23.2 m x 8.7 m, with a measurable height of 1.2 m. The form of the anomaly is not consistent with other geological features in the vicinity and may represent anthropogenic debris.
Morgan_0030	Medium	The anomaly is in an area of poor data and is only visible in the MBES data as a small depression. However, the SSS shows the anomaly as a number of linear striations in a depression measuring 13.9 m x 3.2 m, with a measurable height of 0.4 m. Although potentially geological in origin, the linear form of the anomaly combined with the poor data means a precautionary medium potential rating is appropriate.
Morgan_0116	Medium	The anomaly measures 16.4 m, with a measurable height of 2.3 m, at the widest point it measures 6.4 m and is a prominent irregular mound. The form of the anomaly is unusual within the surrounding geology and potentially represents material of anthropogenic origin.
MC22_0013	Medium	MC22_0013 is only visible within the SSS data and has no associated magnetic anomaly and its position does not correspond with any records within the UKHO or NRHE datasets. The anomaly is visible as a curvilinear feature in association with a small area of seabed disturbance, and two further distinct features, covering an area 12.4 m x 7.3 m with a maximum height above seabed of 0.2 m. The anomaly is largely incoherent, but the form of the features may indicate anthropogenic origin.
MC22_0014	Medium	MC22_0014 is visible in both the SSS and MBES data, has no associated magnetic anomaly, and does not directly correspond with any UKHO or NRHE records. The anomaly is visible in the SSS data as two prominent, and joined, curvilinear features over an area 6.6 m x 1.9 m with a measurable height of 0.3 m. Within the MBES data the anomaly lies within a slight depression, likely caused by scour, with a number of irregular features. The overall form of the anomaly indicates anthropogenic debris, although the origin cannot be determined.

Anomaly	Potential	Description
MC22_0020	Medium	MC22_0020 is visible in both the SSS and MBES data, has no associated magnetic anomaly, and does not directly correspond with any UKHO or NRHE records. Within the SSS data the anomaly appears as a boulder-like feature measuring approximately 2 m x 1.5 m with irregular scour extending north east, south west. Within the MBES data the anomaly appears irregular with a prominent, roughly linear, feature orientated north east, south west measuring 3.9 m x 1.7 m. Up to 1.4 m to the north east smaller features are visible. Scour is evident all around the anomaly, but most prominent to the east. The form of the anomaly is indicative of anthropogenic debris, although the origin is not clear. The prominence of the associated scour may suggest a large object, or a number of smaller solid objects.
MC22_0032	Medium	MC22_0032 is visible in both the SSS and MBES data, has no associated magnetic anomaly, and does not directly correspond with any UKHO or NRHE records. The anomaly is visible in the SSS data as a line of multiple small features, some angular, extending 13.3 m x 2.2 m with a measurable height of 0.2 m, and running north, south, parallel with a sand wave. Within the MBES the form is less clear and appears as a small mound (2.1 m x 1.2 m) with two smaller features to the south forming a triangle. The MBES data does appear to show that the anomaly has disrupted the sandwave, with possible slight scour extending to the east north east. Three small magnetic anomalies lie within 100 m of the anomaly, the closest being 20.5 m to the east, due to the line spacing of the magnetometer there is potential for the closest magnetic anomaly to be related thus suggesting some ferrous content. The two south anomalies, and another to the east, form a line potentially indicative of a cable, or pipe. The form of the anomaly appears to indicate anthropogenic debris, although the origin is not clear.
MC22_0039	Medium	MC22_0039 is visible in both the SSS and MBES data, with a correlating magnetic anomaly of 437.7 nT. The position does not correspond directly with any UKHO or NRHE records, however UKHO record 8299 lies 280 m to the north east, however, it is not believed the anomaly and the UKHO record are related. The anomaly is visible in the SSS data as a small feature within a sandwave, quite boulder like, and measuring 1.5 m x 1.4 m with a measurable height of 0.1 m. Within the MBES data the anomaly is visible as a small break in the sand, with a slight mound and a shallow depression. The anomaly has been identified primarily due to the associated large magnetic anomaly. Whilst the form of the anomaly, and the data in the surrounding area, does not suggest further buried material the magnetic anomaly indicates ferrous, and thus anthropogenic, material.

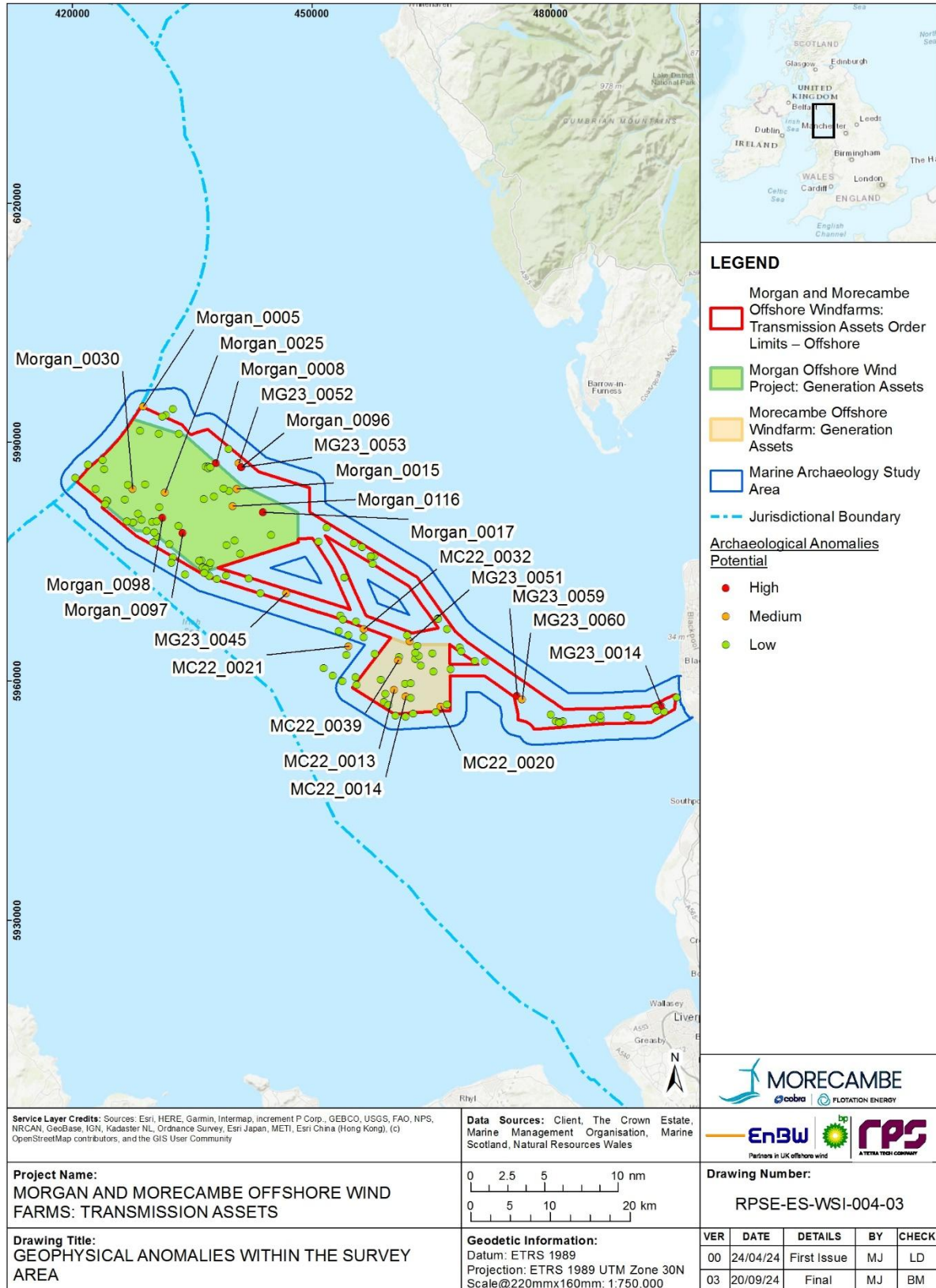


Figure 1.2: Distribution of low, medium, and high potential anomalies within the Transmission Assets survey area

1.5.4 Research frameworks

- 1.5.4.1 The best practice guidance for Archaeological Written Schemes of Investigation for Offshore Wind Farm Projects (The Crown Estate, 2021) indicates that a WSI should ‘*set out the importance of research frameworks in setting objectives that are delivered through realisation of the work*’. Other regional or practice specific frameworks may be deemed relevant, depending on specific packages of work undertaken.
- 1.5.4.2 Archaeological work and reporting under the WSI shall tie the outcomes of such work into the relevant research frameworks. This will ensure knowledge dissemination to those areas where there is a demonstrable need for further understanding. The identified objectives derived from relevant research frameworks will be used to guide the advice from the Retained Archaeologist (RA) to the Applicants.
- 1.5.4.3 Connections between the relevant research frameworks, site specific investigation aims and objectives, and specific work packages will be identified within the Method Statements supplied before the onset of any archaeological work. The MS will also explain how the work package will be tied to the identified research frameworks during Online Access to the Index of Archaeological Investigations (OASIS) reporting.
- 1.5.4.4 Several research frameworks have been identified as relevant to the marine archaeology resource of the study area. These include:
- People and the Sea: A Maritime Archaeological Research Agenda for England (Ransley, *et al.*, 2013); and
 - The North West Regional Research Framework (NWRRF) (Research Frameworks, 2023).
- 1.5.4.5 Additional research frameworks may be identified as relevant depending on the specific archaeological work to be undertaken. Any archaeological work and reporting under this final offshore WSI will tie research into the relevant research frameworks, ensuring that the Transmission Assets makes a contribution to archaeological knowledge. The objectives of the research framework will be used to guide work and recommendations made by the RA to the Applicants.
- 1.5.4.6 The connection with the specific archaeological work package to be undertaken, and the relevant research framework aims and objectives, will be identified within the MSs which will precede archaeological work. The MS will also set out how the work undertaken will be tied into the relevant research framework during OASIS reporting (see **section 1.9.2**).

1.5.5 Potential impacts

- 1.5.5.1 The impacts of the construction, operations and maintenance, and decommissioning phases of the Transmission Assets on marine archaeology have been assessed (see Volume 2, Chapter 8: Marine Archaeology, of this ES). The potential impacts arising from the

construction, operations and maintenance, and decommissioning phases of the Transmission Assets are presented in **Table 1.5**.

Table 1.5: Potential impacts for the Transmission Assets

Potential Impact	Phases Assessed	Measures adopted
Sediment disturbance and deposition leading to indirect impacts on marine archaeology receptors.	Construction, operations and maintenance, decommissioning.	Monitoring and watching briefs (section 1.6.3). Preservation by record (section 1.6.4). Commitment to the preparation, agreement and implementation of a PAD (section 1.6.5)
Direct damage to maritime archaeology receptors (e.g. wrecks, debris, submerged prehistoric receptors (palaeolandscapes and associated archaeological receptors).	Construction, operations and maintenance, decommissioning.	AEZs and TAEZs (section 1.6.2) Monitoring and watching briefs (section 1.6.3). Preservation by record (section 1.6.4). Commitment to the preparation, agreement and implementation of a PAD (section 1.6.5)
Alteration of sediment transport regimes.	Operations and maintenance.	AEZs and TAEZs (section 1.6.2) Monitoring and watching briefs (section 1.6.3). Preservation by record (section 1.6.4). Commitment to the preparation, agreement and implementation of a PAD (section 1.6.5)

1.6 Mitigation

1.6.1 Overview

1.6.1.1 A number of embedded measures (primary and tertiary) have been adopted as part of the Transmission Assets to reduce the potential for impacts on marine archaeology. As there is a secured commitment to implementing these measures for the Transmission Assets (CoT63), they have been considered in the assessment presented in Volume 2, Chapter 8: Marine Archaeology of the ES (i.e. the determination of magnitude and therefore significance assumes implementation of these measures).

1.6.2 Archaeological Exclusion Zones

1.6.2.1 Best practice favours the preservation in situ of archaeological remains, therefore the ideal preferred mitigation for archaeological remains is

avoidance (Wessex Archaeology for the Crown Estate, 2021). For the Transmission Assets, AEZs have been proposed that prohibit development-related activities within their extents, which vary depending upon the nature of the site. The final Transmission Assets design will take into account these preliminary zones, which may evolve or be removed (with the agreement of the MMO and HE) as the Transmission Assets progresses, subject to the design and additional subsequent surveys that may be required.

- 1.6.2.2 The appropriateness and effectiveness of the AEZs within the Transmission Asset Order Limits and condition of the archaeological assets within the Offshore Order Limits will be monitored, where required, through the acquisition of survey data during the lifetime of the Transmission Assets. Data relating to the marine archaeology assets will be archived with HE through OASIS at the outset of the Transmission Assets and as it is collected through its lifetime.
- 1.6.2.3 All AEZs, agreed with HE, are marked on the offshore historic environment plan of the ES (document reference: B17). If impacts cannot be avoided, measures to reduce, remedy or offset disturbance will be agreed.
- 1.6.2.4 The AEZs identified for the Transmission Assets have been reviewed against desk based and site-specific data, and in view of their potential archaeological significance. AEZs (either in the form of individual AEZs or clusters) will be placed around the eight anomalies classified as being of high archaeological potential and the thirteen anomalies classed as being of medium potential that have been identified within the Transmission Assets. These anomalies have been recommended AEZs based on the size of the anomaly, the extents of any debris, the potential significance of the anomaly, the potential impact of the Transmission Assets and the seabed dynamics within the area.
- 1.6.2.5 Dependant on the form of the anomaly, AEZs have either been recommended as a radius from the centre point of the anomaly or as a distance from the extents. Particularly in the case of shipwrecks, which tend to be longer in length than width, the use of a circle provides unequal protection around the extents. This not only impacts the protection afforded but does not present proportional mitigation.
- 1.6.2.6 The proposed AEZs for the Offshore Order Limits are listed in **Table 1.6** and shown in **Figure 1.3**. Scope is allowed for their amendment in light of further evidence and with consultation with consultees.
- 1.6.2.7 Additionally, two TAEZs have been assigned within the Offshore Order Limits (**Table 1.7**). The first is for UKHO 5418 (NRHE 909495), located in the Morgan Offshore Wind Project: Generation Assets portion of the Offshore Order Limits, due to its potential to be military aviation wreckage and thus automatic protection under the Protection of Military Remains Act 1986.; the second is for magnetic anomaly MC22_MAG_0254, located within the Morecambe Offshore Windfarm: Generation Assets portion of the Offshore Order Limits. Details of these records are presented in Volume 2, Annex 8.1: Marine Archaeology Technical Report of the ES.

- 1.6.2.8 Further TAEZs and AEZs may be assigned during the course of the Transmission Assets as anomalies that have been identified in the data do not necessarily represent all of the marine archaeological material that is on the seabed. For example, wooden wrecks can be buried under the seabed and may not appear in the data. If previously unidentified material of cultural significance is identified, it would require an AEZ.
- 1.6.2.9 Where the objectives of further survey work include the ensonification of previously identified sites and/or anomalies in order to alter or remove an AEZ, the Applicants will make provision for a suitably qualified Archaeological Geophysical Contractor (which may be the RA) to be available. The Archaeological Geophysical Contractor will provide advice and input into the survey design and ongoing data acquisition. In some cases, this may include the presence of the RA on the vessel alongside the vessel crew, or, in most cases, this advice may be provided remotely.
- 1.6.2.10 Low potential anomalies are not provided AEZs or TAEZs but will be considered in the final Transmission Assets design through micro-siting via the acquisition of high-resolution geophysical data, to be acquired post-consent.

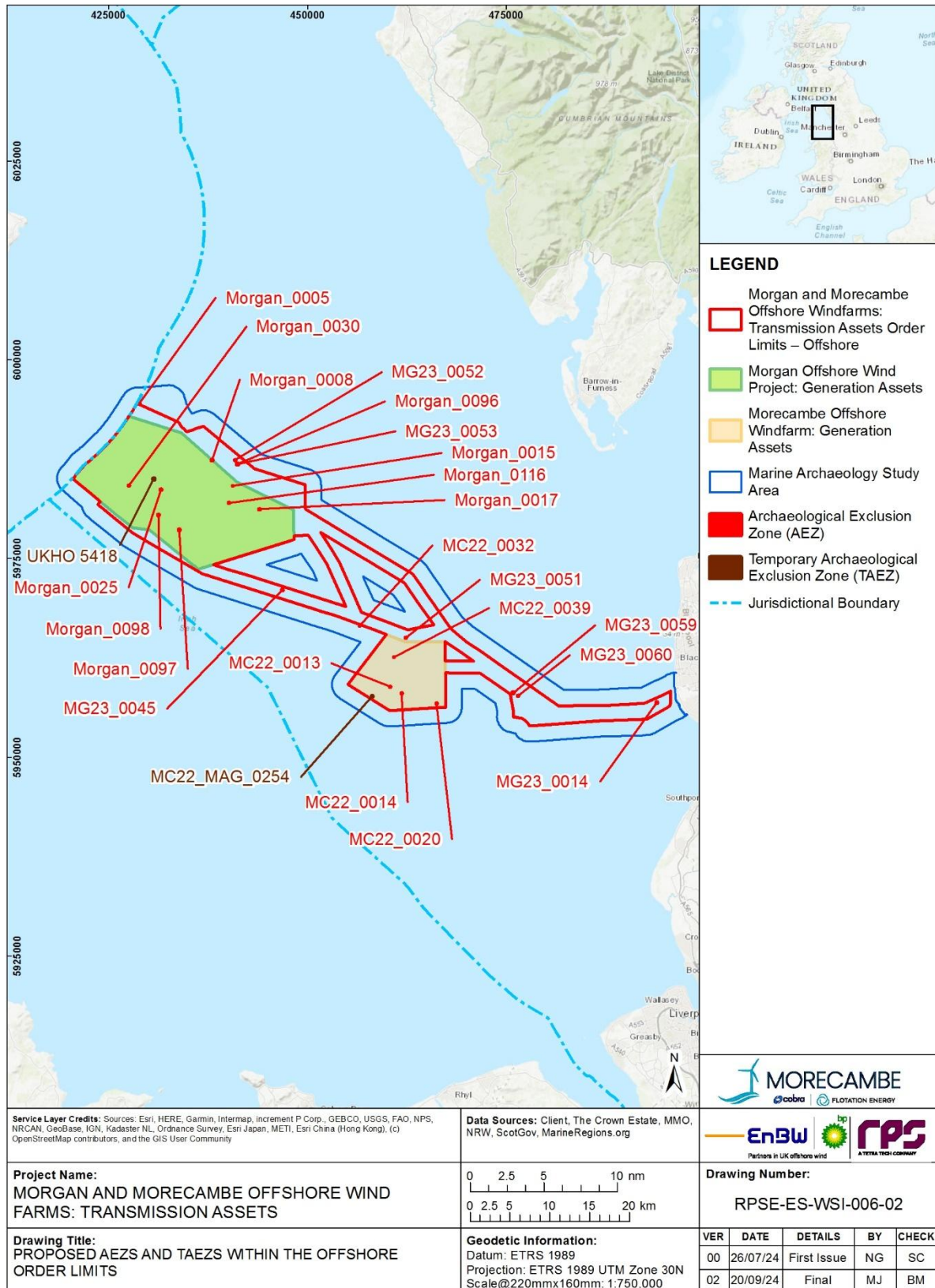


Figure 1.3: Proposed AEZs and TAEZs within the Offshore Order Limits

Table 1.6: Proposed AEZs within the Offshore Order Limits

ID	Description	Potential	Eastings	Northings	AEZ (m)
Within Offshore Order Limits					
MG23_0014	AEZ for potential wreck	High	5956919.39	493906.9465	50 m extents
MG23_0053	AEZ for wreck	High	5986903.303	441190.8211	75 m extents
MG23_0059	AEZ for wreck	High	5958140.665	475821.7833	75 m extents
Morgan_0008	AEZ for wreck	High	438011.85	5987429.65	50 m extents
Morgan_0017	AEZ for wreck	High	443931.72	5981226.52	50 m extents
Morgan_0096	AEZ for wreck	High	441193.65	5986904.68	50 m extents
Morgan_0097	AEZ for wreck	High	433834.14	5978659.42	50 m extents
Morgan_0098	AEZ for wreck	High	431230.2	5980514	50 m extents
MC22_0013	AEZ for potential debris	Medium	460388.2777	5958939.326	30 m radius
MC22_0014	AEZ for unidentified debris	Medium	461851.3453	5958082.265	15 m radius
MC22_0020	AEZ for unidentified debris	Medium	466231.124	5956833.227	15 m radius
MC22_0039	AEZ for unidentified debris	Medium	460876.753	5962642.231	15 m radius
MG23_0045	AEZ for possible anthropogenic material	Medium	5971064.58	446829.7745	50 m extents
MG23_0052	AEZ for material of anthropogenic origin	Medium	5987420.054	440882.6844	25 m extents
MG23_0051	AEZ for potential debris	Medium	462371.6	5965060.6	25 m extents
MG23_0060	AEZ for material of anthropogenic origin	Medium	5957757.061	476440.2484	25 m extents

ID	Description	Potential	Eastings	Northings	AEZ (m)
Morgan_0015	AEZ for unidentified debris	Medium	440592.83	5984185.02	25 m radius
Morgan_0025	AEZ for potential debris	Medium	431565.53	5983703.41	35 m radius
Morgan_0030	AEZ for material of potential debris	Medium	427532.81	5984191.77	25 radius
Morgan_0116	AEZ for unidentified debris	Medium	440109.5	5982030	30 m radius
Outside Offshore Order Limits, Within Transmission Assets Study Area					
MC22_0032	AEZ for unidentified debris	Medium	456543.3086	5966579.177	25 m radius
Morgan_0005	AEZ for seabed disturbance	Medium	428856.5	5994556	50 m radius

Table 1.7: Proposed TAEZs within the Offshore Order Limits

ID	Description	Potential	Eastings	Northings	AEZ (m)
MC22_MAG_0254	TAEZ for large magnetic anomaly	Medium	458129.8396	5957731.912	50 m radius
UKHO 5418	TAEZ for the record of a possible unknown aircraft	-	430634.9	5985017	100 m radius

1.6.3 Monitoring and watching briefs

1.6.3.1 In addition to ongoing monitoring of AEZs where appropriate, measures adopted as part of the Transmission Assets include:

- archaeological input into specifications for, and archaeological analysis of, any further pre-construction geophysical and geotechnical surveys;
- archaeologists to be consulted in the preparation of any pre-construction ROV/diver surveys and in monitoring/checking of data where required; and
- archaeologists to be consulted in the preparation of pre-construction cable route clearance or other pre-construction clearance operation and, if appropriate, to carry out archaeological monitoring of such work.

1.6.3.2 The proposed mitigation strategy, which is based on the current understanding of archaeological remains and construction techniques, does not require a marine watching brief. Should future work lead to the identification of further archaeological remains, or should the construction methods or locations be altered, a marine watching brief may be required.

1.6.3.3 If a marine watching brief is required it would be conducted by a suitably qualified and experienced marine archaeologist, in line with the Chartered Institute for Archaeologists (CIfA) Standards and Guidance for Archaeological Watching Briefs (CIfA, 2014a). A detailed MS would also be produced and approved by the MMO before any watching brief activities are undertaken. All watching briefs will be conducted in line with Standards and Guidance for Archaeological Watching Briefs (CIfA, 2014a).

1.6.3.4 If significant archaeological or palaeoenvironmental evidence are encountered then the Applicants, in consultation with HE, will make provision for the Archaeological Contractor to undertake a programme of investigation commensurate with the evidence discovered.

1.6.4 Preservation by record

1.6.4.1 Where preservation in situ is not practicable, disturbance of archaeological sites or material will be offset by appropriate and satisfactory measures, also known as 'preservation by record'. In these circumstances, the effects of the Transmission Assets will be offset by carrying out excavation and recording prior to the impact occurring (Wessex Archaeology for the Crown Estate, 2021).

1.6.4.2 The Offshore Renewables Protocol for Archaeological Discoveries (The Crown Estate, 2014) will be followed, which will involve the reporting of archaeological discoveries made during the lifetime of the Transmission Assets. The PAD (see Appendix B) covers reporting and investigating of unexpected archaeological discoveries encountered during construction, operation and maintenance, and decommissioning activities, informed by the guidance of a marine archaeologist

specialised in working with PADs for offshore wind farm projects. The PAD further makes provision for the implementation of TAEZs around areas of possible archaeological interest, for prompt archaeological advice and, if necessary, for archaeological inspection of important features prior to further construction, maintenance or decommissioning activities in the vicinity. It complies with the Merchant Shipping Act 1995, including notification to the Receiver of Wreck, in accordance with the Joint Nautical Archaeology Policy Committee (JNAPC) Code of Practice for Seabed Development (JNAPC, 2006).

- 1.6.4.3 In view of the potential for the presence of palaeolandscapes, associated prehistoric sites and unidentified wrecks, archaeological monitoring is deemed as appropriate where seabed material is brought to the surface. These proposals may be refined on the basis of the results of any further marine geophysical, geotechnical or diver/ROV+ surveys (see **section 1.7**).

1.6.5 Protocol for archaeological discoveries

- 1.6.5.1 During the course of seabed preparation, construction and future activities associated with the Transmission Assets, archaeological finds and deposits may be encountered, and records may need to be produced. This situation may arise under a number of different circumstances, for example during watching brief activities.
- 1.6.5.2 A protocol for reporting finds of archaeological interest will be implemented during all activities relating to construction, operation and maintenance and decommissioning. It will address the reporting of unexpected finds of archaeological material, recovered from the sea during these activities.
- 1.6.5.3 The protocol will largely follow the format laid down in the document Protocol for Archaeological Discoveries (PAD): Offshore Renewables Projects (The Crown Estate, 2014). The RA will operate to administer the PAD and provide initial advice to the Applicants and will liaise with the AC as necessary.
- 1.6.5.4 Once agreed by the Applicants and the AC, the PAD will be distributed in a form suitable for use on board construction vessels. The Applicants will ensure the relevant staff on all construction vessels are informed of and have access to the PAD, including supporting material, detailing the find types that may be of archaeological interest, and the potential importance of any archaeological material encountered (as per CoT63).
- 1.6.5.5 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.
- 1.6.5.6 The PAD will be implemented by means of toolbox talks presented to the relevant vessel crews to ensure that all staff are made aware of what constitutes an appropriate find. The frequency and timing of these toolbox talks is determined in relation to ongoing activities. The PAD will be supported by a package of awareness training for the Applicants and its contractors' and sub-contractor's staff.

1.6.5.7 At the end of the construction phase, the RA will prepare a report on the results of the PAD (see **Appendix B**). The results will be included in the final archaeological report covering maritime sites and finds within the area affected by the Transmission Assets.

1.7 Methodologies for archaeological work

1.7.1 Method Statements (MS)

1.7.1.1 Archaeological involvement in further work is a key component in the ongoing process of assessing known and potential archaeological remains within the Transmission Assets, to ensure robust and proportionate mitigation for archaeological receptors which may be impacted by the Transmission Assets.

1.7.1.2 A detailed MS will be produced by the RA, for agreement with and approval by the Applicant, and the MMO in advance of each archaeological element discussed below. Consultation regarding the content of the MS will be sought with HE prior to submission to the MMO. Approval by the MMO will be assumed if no response is received within 30 working days of submission of individual MS. An overview of the proposed survey methods is provided in sections 1.7.4, 1.7.5, 1.7.6. These methods are in line with best practice guidance, set out within The Crown Estate (2021).

1.7.2 Survey overview

1.7.2.1 Any surveys conducted as part of the Transmission Assets that may yield additional information on the marine archaeology of the area should be carried out to a single datum and coordinate system, preferably the ETRS89 UTM 30N (EPSG 25830).

1.7.2.2 Surveys requiring archaeological involvement include:

- geophysical survey will require an archaeological assessment of the survey data;
- diver/ROV obstruction surveys will require an archaeological assessment of the survey data (video and positional data); and
- geotechnical investigations will require geoarchaeological assessment and, where necessary, analysis following the staged approach set out below.

1.7.2.3 Should archaeological material be encountered during any of these surveys, sufficient time and resources will be made available to enable an archaeological assessment of such material to take place. In areas of ongoing construction, operation and maintenance or decommissioning activity, works will be put on hold until the assessment has been conducted and mitigation actions agreed and implemented. The scope of any further assessment will be agreed with the AC and, where necessary, further suitable mitigation measures will be instigated in agreement with the AC.

1.7.3 Planning

1.7.3.1 When planning geophysical and geotechnical surveys, the Applicants will advise the RA well in advance and seek their input into the scope of work. Archaeological input will take the form of advice from the RA on measures to optimise archaeological results from the planned geotechnical, geophysical and other surveys or work (such as benthic grabs, for example). Archaeological input may be required in relation to:

- 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;
- the requirements for data analysis, interpretation and archiving; and
- the required response to elements of archaeological input including:
 - altering vibrocore/CPT positions in order to maximise the potential for the collection of archaeological data;
 - ‘Boxing’ wreck sites in order to provide the best possible images and positional data; and
 - altering grab sample positions in order to maximise the potential for the collection of archaeological data.

1.7.4 Geophysical survey

1.7.4.1 Any future geophysical survey data acquired for the Transmission Assets will be archaeologically assessed and recommendations for mitigation, including any necessary AEZs, will be made.

1.7.4.2 Additionally, new marine geophysical data and AEZs will be subject to analysis by a suitably qualified Archaeological Geophysical Contractor (the RA, if suitable). Any such assessment will be preceded by an MS which will set out in detail the methods to be used, along with the aims and objectives of the work. The MS will be submitted to the MMO prior to the work being conducted. Approval by the MMO will be assumed if no response is received within 30 working days of submission of individual MSs.

1.7.4.3 In order to maximise the potential benefits of any geophysical survey, the Applicants will seek archaeological advice at the planning stage of any such works.

1.7.4.4 Surveys will be carried out to a single datum and co-ordinate system preferably the ETRS89 UTM 30N (EPSG 25830). 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 altitude of sensors online. Track plots will be corrected

for layback (including catenary effects) and made available in digital (geographical information system) form.

1.7.4.5 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 Applicants' RA, or a suitably qualified Archaeological Contractor for archaeological analysis and interpretation.

1.7.4.6 Archaeological interpretation may include:

- examination of side scan sonar (SSS), magnetometer, multibeam echosounder (MBES) and seismic data, where acquired, for areas within the vicinity of known wreck sites and previously identified geophysical anomalies;
- examination of SSS, magnetometer, MBES and seismic data, where acquired, within areas that will be subject to development to identify any as yet unknown wreck remains; and
- the assessment of seismic data and the Ground Investigation Report in order to plot the general trend of the subsurface sediments with archaeological potential.

1.7.4.7 An example of the criteria that has been used for the assessment of archaeological potential of contacts identified to date within the study area is presented in **Table 1.8**.

Table 1.8: Criteria for the assessment of archaeological potential

ID	Characterisation
Low	An anomaly potentially of anthropogenic origin but that is unlikely to be of archaeological significance. Examples may include discarded modern debris such as rope, cable, chain or fishing gear, small isolated anomalies with no wider context or small boulder-like features with associated magnetometer readings.
Medium	An anomaly believed to be of anthropogenic origin but that would require further investigation to establish its archaeological significance. Examples may include larger unidentifiable debris or clusters of debris, unidentifiable structures or significant magnetic anomalies
High	An anomaly almost certainly of anthropogenic origin and with a high potential of being of archaeological significance. High potential anomalies tend to be the remains of wrecks, the suspected remains of wrecks or known structures of archaeological significance

1.7.4.8 The archaeological interpretation or results of any further geophysical surveys will be compiled as a report by the Archaeological Contractor and will include likely requirements (if any) for further work or any required changes to mitigation including the addition, removal or alteration of AEZs. The report will be submitted to the Applicants by the RA and to the AC. The scope of any further work will be agreed by the Applicants and the AC.

1.7.5 Diver/ROV survey

- 1.7.5.1 Seabed photography and video footage will be subject to archaeological assessment and analysis by a suitably qualified Archaeological Contractor. Any such assessment will be preceded by an MS which will set out in detail the methods to be used, along with the aims and objectives of the work. The MS will be submitted to the MMO prior to the work being conducted. Approval by the MMO will be assumed if no response is received within 30 working days of submission of individual MSs.
- 1.7.5.2 In order to maximise the potential benefits of any proposed diver/ROV surveys, the Applicants will seek archaeological input at the planning stage of any such works.
- 1.7.5.3 Archaeological input will take the form of advice from the RA 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;
 - the provision of clear guidance on the types of sites and finds that are to be reported and recorded;
 - wherever possible input into the scope of works to include potential archaeological sites/AEZs where more detailed mitigation planning is required; and
 - other specific advice will be given depending on the nature and purpose of the investigations. All such areas would be outlined within the MS for the work.
- 1.7.5.4 Consideration will be given to having an Archaeological Contractor 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, as well as the relevance and scope of the operation, will have to be taken into account when trying to accommodate archaeologists aboard.
- 1.7.5.5 Following the completion of the diver/ROV survey all data, including video footage, will be reviewed by the Archaeological Contractor. This review will identify any anomalies or sites that are potentially of archaeological interest. A report will identify those sites and/or geophysical anomalies that are of sufficient archaeological interest to warrant further investigation and/or mitigation. It will also identify those sites that are no longer of archaeological interest, and hence may be removed from the list of AEZs.
- 1.7.5.6 The archaeological results of any diver/ROV survey will be compiled in a report by the Archaeological Contractor. The report will include a

statement of the likely requirements (if any) for further archaeological work and mitigation.

- 1.7.5.7 The report will be forwarded to the RA, who will submit it to the Applicants and the AC for a decision on the scope of any further work where required.

1.7.6 Geotechnical survey

- 1.7.6.1 The results of geotechnical works undertaken for the Transmission Assets to date are summarised in **section 1.5.3**. Work undertaken to date has been, and all future geotechnical work will be, undertaken in accordance with the Collaborative Offshore Wind Research into the Environment (COWRIE) Offshore Geotechnical Investigations and Historic Environment Analysis: Guidance for the Renewable Energy Sector (Gribble and Leather, 2011).
- *‘Investigate the deposition sequence of sediments within the area represented by the cores to identify, as far as possible, the environments within which this deposition took place.*
 - *Evaluate the potential for past human exploitation and occupation of these past environments.*
 - *Produce an overview of the geological stratigraphy to provide an indication of the prehistoric archaeological potential for the area.*
 - *Comment on the archaeological importance of the identified deposits, within the context of the wider palaeoenvironmental history of the region and the UK’.*
- 1.7.6.2 In accordance with this guidance, future geotechnical surveys will be subject to archaeological input. Following best practice guidance, this input should begin prior to data acquisition and should proceed to a staged process of assessment and analysis (Wessex Archaeology for the Crown Estate, 2021).
- 1.7.6.3 Early input should seek to determine methods and specifications for geotechnical sampling (e.g. vibrocores, cone penetration tests) and engagement with the Applicants and their geotechnical team should aim to find ways to ensure archaeological aims and sampling can be conducted alongside any other requirements. Following these discussions, an MS for Core Collection, Transport, Retention and Storage should be produced, ensuring that cores are stored in a way which facilitates later assessment or analysis, if required. This MS may also include methods for the Stage 1 and 2 geoarchaeological assessment (see below).
- 1.7.6.4 Early input should also include recommendations on sample locations from a geoarchaeologist. Typically, this process involves close collaboration with the Site Investigation (SI) team. Archaeological input into geotechnical sample locations can allow for the greatest insights into the palaeolandscape. Round-table discussions and the review of seismic profiles tends to be a conducive method of allowing engineering

and archaeological requirements to be taken into consideration when micro-siting geotechnical investigation.

- 1.7.6.5 This geoarchaeological assessment and analysis should aim to deliver conclusions on the prehistoric archaeological and palaeoenvironmental remains within the area. Further mitigation may be required based on the results of this assessment.
- 1.7.6.6 The geoarchaeological work should follow guidance set out within Gribble and Leather 2011.
- 1.7.6.7 The use of an appropriate PAD, such as the document prepared for the Transmission Assets (**Appendix B**), also provides mitigation for prehistoric and palaeoenvironmental remains. This PAD is based on Crown Estates Protocol for Archaeological Discoveries: Offshore Renewables Projects (The Crown Estate, 2014).

1.8 Finds and conservation

- 1.8.1.1 Material of anthropogenic origin that may be identified during the course of works associated with the Transmission Assets will be recovered by the Archaeological Contractor or, where recovery is impracticable, recorded. All finds and significant objects ('special finds') will be recorded in three dimensions using a sequence of unique numbers.
- 1.8.1.2 Finds and other items of archaeological interest recovered offshore during the course of investigation are the property of the Crown Estate as the landowner, with the exception of all human remains and items that are 'wreck' for the purposes of the Merchant Shipping Act 1995. The Applicants will seek permission from the landowner to donate finds to an appropriate Museums Service prior to depositing the archive.
- 1.8.1.3 In the event of the discovery of items that fall under the Treasure Act 1996 (as amended), the Archaeological Contractor will immediately notify the RA, who will notify the District Coroner within 14 days. The Developer, (i.e. the entity responsible for construction of the Transmission Assets) and the AC will be notified as soon as possible. Items falling under the Treasure Act (as amended) will be removed from the site by the Archaeological Contractor and stored in a secure location, pending a decision by the Coroner.
- 1.8.1.4 Subject to these legal requirements and 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.
- 1.8.1.5 Finds and environmental samples will be processed according to professional standards for finds analysis, environmental sampling and archive preparation, and in accordance with the ClfA's Standard and Guidance for the collection, documentation, conservation and research of archaeological materials (ClfA, 2014b).
- 1.8.1.6 Finds will be primarily conserved, bagged and boxed in accordance with guidelines set out in the United Kingdom's Institute for Conservation's (ICON) Conservation Guidelines No 2 (ICON, 1984). In consultation

with the Applicants and the AC, the RA will advise on the implementation of passive conservation for smaller objects pending more detailed conservation strategies. The Applicants will also make provision for a professional conservator to undertake a conservation assessment of assemblages, including recommendations and timescales for the conservation of the object.

- 1.8.1.7 Specialist work approved by the Applicants and the AC 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 RA.
- 1.8.1.8 In the event of the discovery of unexpected, unusual or extremely fragile and delicate objects and deposits, such as waterlogged wood, the RA, the Applicants and the AC will be notified immediately. Additional work required to recover, record, analyse, conserve and archive such objects and deposits will be agreed with the AC.

1.8.2 Wreck

- 1.8.2.1 For the purposes of the Merchant Shipping Act 1995, wreck is defined as all craft, or parts thereof, and/or any cargo or equipment. In the event of the discovery of any wreck, the Construction Contractor or Archaeological Contractor will immediately inform the RA. The RA will inform the Applicants and the AC. Appropriate finds will be reported to the RoW within the required 28 days by the RA.
- 1.8.2.2 The Merchant Shipping Act 1995 details the procedures for determining the ownership of maritime finds that are deemed to be wreck offshore or onshore, including the intertidal zone of UK territorial waters. If any maritime finds are brought onshore the Receiver of Wreck (RoW) must be notified, and the finds must be kept until the RoW determines ownership or requests that they be given to the RoW. The Act is administered by the Maritime and Coastguard Agency.
- 1.8.2.3 Beyond the 12 nm limit the Merchant Shipping Act 1995 covers wreck found or taken into possession outside UK waters and stipulates that, if brought into UK waters, finds must be reported to the RoW.

1.8.3 Aviation material

- 1.8.3.1 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:
- 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).

- 1.8.3.2 Any finds that are suspected of being military aircraft will be reported immediately to the RA. The Applicants will be informed as well as the Service Personnel and Veterans Agency (SPVA): Joint Casualty and Compassionate Centre (SO3 Historic Casualty Casework). The RA should seek specialist advice for the identification of aircraft remains where necessary.
- 1.8.3.3 Any subsequent actions will be guided by Ministry of Defence guidance, namely Crashed Military Aircraft of Historical Interest: Licensing of Excavations in the UK – Guidance Notes for Recovery Groups (Ministry of Defence, 2018) 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 14 of Guidance Notes for Recovery Groups.

1.8.4 Human remains

- 1.8.4.1 In the event of the discovery of any confirmed human remains, the Construction Contractor or Archaeological Contractor will immediately inform the RA. The RA will inform the Applicants, the AC, and where appropriate the Coroner and the Police.
- 1.8.4.2 It is proposed that any such remains will be left in situ until the Applicants, the Coroner and the AC have been informed. Where development works will unavoidably disturb them they will be fully recorded, excavated and removed from the site subject to compliance with the relevant Ministry of Justice Licence for such activities which will be obtained by the RA.
- 1.8.4.3 The final placing of human remains following analysis will be subject to the requirements of the Ministry of Justice Licence.

1.9 Reporting and archiving

- 1.9.1.1 The Marine Policy Statement (MPS) states that ‘*opportunities should be taken to contribute to our knowledge and understanding of our past by capturing evidence from the historic environment and making this publicly available, particularly if a heritage asset is to be lost*’ (paragraph 2.6.6.3 of MPS) (UK Government, 2020). Transmission Assets recognises that any future geophysical and geotechnical surveys undertaken will produce new archaeological data and understandings of the historic marine environment of the area. The results of these investigations will ultimately be made publicly available. This commitment (set out within Volume 2, Chapter 8: Marine archaeology of this ES) will be satisfied by reporting, deposition of reports through the OASIS system and archiving of Transmission Assets. In addition, should the results warrant it, publication will be undertaken.

1.9.2 OASIS

- 1.9.2.1 In 2020 the OASIS version V was launched by the Archaeological Data Service (ADS). OASIS is an online form which allows for archaeological investigations to be reported to regional Historic Environment Records

and national heritage bodies. The system also allows for reports to be shared for public release through the ADS library. Reporting through OASIS has been incorporated within this outline offshore WSI and PAD, in line with best practice.

1.9.2.2 OASIS V is a, flexible system that is kept live throughout the course of a project. An overview of the system is set out in **Figure 1.4**. The system recommends that an overarching OASIS record be established at project inception (for example on receipt of marine licenses and production of a final offshore WSI and PAD).

1.9.2.3 An OASIS record will therefore be set up following consent, to notify the relevant authorities of future work that is taking place. The Applicants must then ensure that an archaeological report is submitted to the MMO and HE and following completion of any survey and subsequent investigation. The contents of this report must be agreed and accepted by the AC and the MMO. The Applicants must then ensure that a copy of the agreed archaeological report is submitted through the OASIS form within two weeks of acceptance by the relevant AC and HE. Sign off on the OASIS record will be by the AC who is responsible for administering the OASIS reporting system. The Applicants should notify HE that the OASIS report has been submitted within two weeks of the submission.

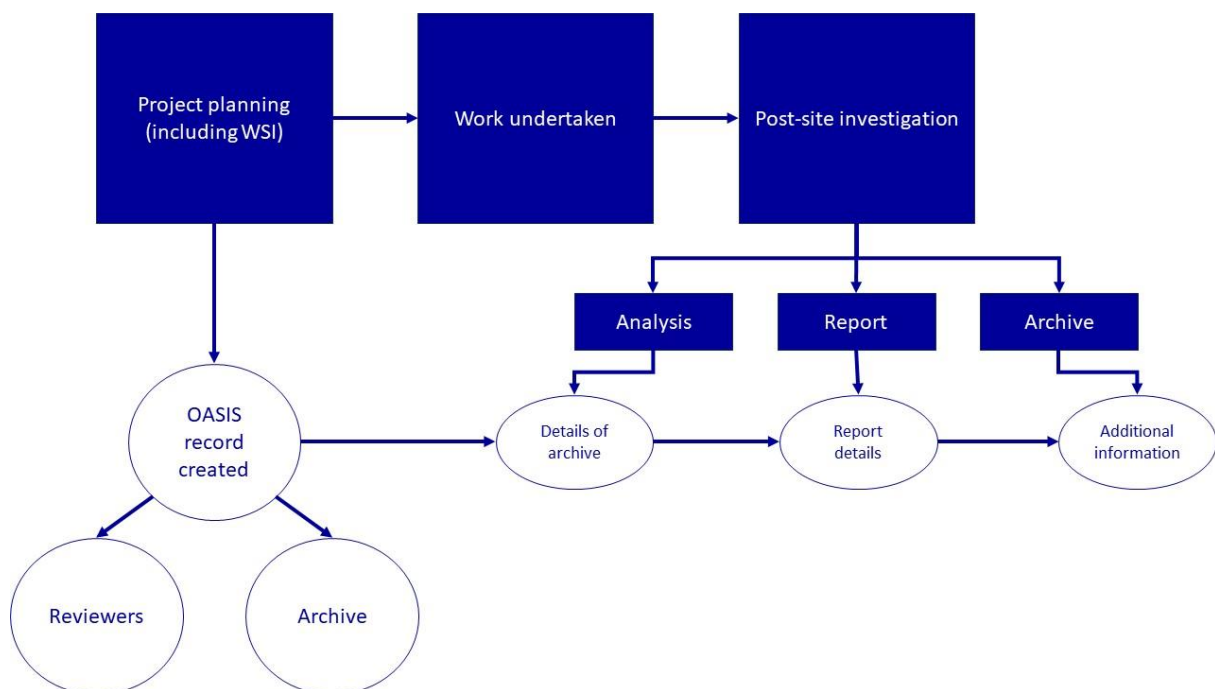


Figure 1.4: OASIS procedure

1.9.3 Reporting

1.9.3.1 Reports will be prepared in accordance with the guidance provided in the relevant ClfA Standard and Guidance available on the ClfA website (ClfA, 2024) and with reference to any other activity or analysis specific guidance. Reports will also satisfy all requirements set out within the relevant MS covering the work package.

- 1.9.3.2 The timetable for depositing archives with the receiving institution after completion of any post-consent Site Investigation (SI) will be set out in the relevant MS.
- 1.9.3.3 In the event that little of archaeological significance is found during the course of the development works, a final report on the investigative work will be prepared by the Archaeological Contractor within six weeks of completion of all construction.
- 1.9.3.4 If significant archaeological sites and finds are found, then the investigation reports will be submitted to the RA by the Archaeological Contractor following the completion of marine fieldwork and prior to the submission of a comprehensive final report.
- 1.9.3.5 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).
- 1.9.3.6 Reports are expected to detail the work undertaken and the archaeological evidence encountered. They should discuss the importance of the results including their potential contribution to archaeological knowledge and understanding, including relevant research frameworks.
- 1.9.3.7 In accordance with guidance issued by the The Crown Estate (2021), a report 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;
 - an explanation of how this work is relevant to the objectives and research agendas from applicable local and national archaeological research frameworks;
 - proposals for further analysis and publication; and
 - illustrations and appendices to support the report.
- 1.9.3.8 Where appropriate, the report should provide recommendations for further assessment and/or analysis requirements.
- 1.9.3.9 The Applicants will provide a digital (pdf) copy of each report to the AC and the MMO (as appropriate) following survey completion.
- 1.9.3.10 Decisions regarding the level of post-excavation work, if required, will be taken following submission of investigation reports and consultation by the Developer and the RA with the AC.
- 1.9.3.11 Following the production and acceptance of archaeological reports they will be deposited with the relevant repositories, including the NRHE, by submitting an OASIS form with a digital copy of the report.

1.9.4 Publication

- 1.9.4.1 In consultation with the Applicants and the AC, the RA will ensure that the archive of material relating to important archaeological investigations undertaken in connection with the Transmission Assets will be published in an integrated manner, where relevant. Publication media and all publication matters will be discussed and agreed in advance with the Applicants and AC.

1.9.5 Archiving

- 1.9.5.1 Archive planning will be included within detailed MSs for each activity undertaken. Archiving will follow best practice as laid out within:
- Brown, D. 2011. Archaeological Archives: A guide to best practice in creation, compilation, transfer and curation. Archaeological Archives Forum (Brown, 2011);
 - ClfA. 2020. Standard and Guidance for the Creation, Compilation, Transfer and Deposition of Archaeological Archives (ClfA, 2020); and
 - The Crown Estate. 2021. Archaeological Written Schemes of Investigation for Offshore Wind Farm Projects (section 13.5: Archiving) (The Crown Estate, 2021).
- 1.9.5.2 The AC will be notified of any archaeological investigation in advance of any post-consent SI and any specific requirements relating to the preparation and deposition of the Transmission Assets archives will be accommodated as appropriate.
- 1.9.5.3 Where there is the likelihood of any SI, for example should previously unknown archaeological material be encountered in the course of the development, the RA will contact an appropriate receiving institution to discuss the intended marine fieldwork and seek its agreement to accept the site archive for long-term storage and curation. The RA 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. A museum accession number will also be sought on each occasion. For offshore digital data, it may be appropriate to archive this with a Marine Environment Data and Information Network Data Archive Centre (such as the European Marine Observation and Data Network).
- 1.9.5.4 Project archives, including written, drawn, photographic and material elements (together with a summary of the contents of the archive) will be prepared and deposited by the RA in accordance with the requirements of the receiving museum, repository or digital archive.
- 1.9.5.5 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).

- 1.9.5.6 Born-digital records, including digital photographs, will be stored and deposited in accordance with guidelines issued by the receiving repositories, such as: ClfA (2023), HE (2015), and the ADS (2023).
- 1.9.5.7 The timetable for depositing archives with the receiving repository after completion of the post-marine fieldwork programme will be agreed with the Applicants and AC.
- 1.9.5.8 On completion of the development works, an OASIS form will be produced, and copies of all archaeological reports will be attached as data files. Notification of the completion of the OASIS form will be sent to the AC and the MMO.
- 1.9.5.9 The costs of archiving (whether digital, paper or object) will be met by the Applicants. Tenders or costings by contractors for work packages should include provision for the preparation and deposition of the expected archive.

1.10 References

Brooks, A. J., Bradley, S. L., Edwards, R. J. and Goodwyn, N. (2011). The palaeogeography of Northwest Europe during the last 20,000 years. *Journal of Maps*, pp.573-587.

Brown, D. (2011). *Archaeological Archives: A guide to best practice in creation, compilation, transfer and curation*. Archaeological Archives Forum.

ClfA. (2014a). *Standard and guidance for an archaeological watching brief*. Chartered Institute for Archaeologists (ClfA).

ClfA. (2014b). *Standard and Guidance for the collection, documentation, conservation and research of archaeological materials* [Online]. ClfA. Available at: [REDACTED] f. Accessed July 2024.

ClfA. (2020). *Standard and guidance for the creation, compilation, transfer, and deposition of archaeological archives*. Available:

[REDACTED]_4.pdf.
Accessed July 2024.

ClfA. (2024). *ClfA Code, regulations and standards & guidance* [Online]. Available: [REDACTED]. Accessed May 2024.

Coastal and Offshore Archaeological Research Services (COARS) (2023) *Mona and Morgan Offshore Wind Farm Stage 1 Geoarchaeological Assessment*. Report for EnBW and bp.

COWRIE. (2010). *Understanding the Environmental Impacts of Offshore Windfarms*. London, COWRIE.

English Heritage. (2002). *Military aircraft crash sites: Archaeological guidance on their significance and future management* [Online]. Available:

[REDACTED].

Fitch, S., Gaffney, V., Ramsey, E. and Kitchen, E. (2011). *West Coast Palaeolandscape Survey* [Online]. Available:

[REDACTED].

Gribble, J. and Leather, S., for EMU Ltd. (2011). *Offshore Geotechnical Investigations and Historic Environment Analysis: Guidance for the Renewable Energy Sector*. Commissioned by COWRIE Ltd (project reference GEOARCH-09).

Hunter, P. and Waddington, C. (2018). *Archaeological Excavation of a 'Kettle Hole' (KB5) at Killeby Quarry, North Yorkshire*. Archaeological Research Services Ltd.

ICON. (1984). *Environmental guidelines for the permanent storage of excavated material from archaeological sites*. ICON.

Jackson, D., Jackson, A., Evans, D., Wingfield, R., Barnes, R. and Arthur, M. (1995). *United Kingdom Offshore Regional Report: The geology of the Irish Sea* [Online]. British Geological Survey. Available:

[REDACTED].

JNAPC. (2006). Joint Nautical Archaeology Policy Committee Code of Practice for Seabed Development [Online]. Available:

[REDACTED]
[REDACTED]

Mellet, C., Long, D., Carter, G., Chiverrell, R. and Van Landegham, K. (2015). Geology of the seabed and shallow subsurface: The Irish Sea [Online]. British Geological Survey. Available:

[REDACTED]
[REDACTED].

Ministry of Defence. (2018). Crashed military aircraft of historical interest: Licensing of excavations in the UK. Notes for guidance of recovery groups [Online]. Available at:
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/916555/20180514_Licence_NotesforGuidance_2018-3.pdf. Accessed April 2024.

Noe-Nygaard, N., Milàn, J., Ulfeldt, M. and Holm, J. (2007). A reindeer track from a drill core, and alake basin development of the Late Glacial Lille Slotseng kettle-hole basin, South-East Jylland, Denmark. Bulletin of the Geological Society of Denmark, 55, pp.85-95.

Ransley, J., Sturt, F., Dix, J., Adams, J., and Blue, L. (2013). People and The Sea: A Maritime Archaeological Research Agenda for England. York: Council for British Archaeology.

Research Frameworks (2023). The North West Regional Research Framework. [REDACTED]. Accessed April 2024.

SCAUM. (2007). Health and Safety in Field Archaeology: Manual. SCAUM/FAME.

The Crown Estate. (2014). Protocol for Archaeological Discoveries: Offshore Renewable Projects [Online]. Available:

[\[REDACTED\]](#)
[REDACTED]. Accessed April 2024.

The Crown Estate. (2021). Archaeological Written Schemes of Investigation for Offshore Wind Farm Projects [Online]. Wessex Archaeology. Available:

[REDACTED]
[REDACTED]. Accessed April 2024.

UK Government (2020). UK Marine Policy Statement. Available:
<https://www.gov.uk/government/publications/uk-marine-policy-statement>. Accessed July 2024.

Walker, K. (1990). Guidelines for the preparation of excavation archives for long-term storage. ICON.

Wessex Archaeology. (2007). Historic Environment Guidance for the Offshore Renewable Energy Sector. Commissioned by COWRIE Ltd (project reference ARCH-11-05). [Online]. Wessex Archaeology. Available:

<https://www.historicenvironment.scot/media/2376/2011-01-offshore-geotechnical-investigations-and-historic-environment-analysis-guidance-for-the-renewable-energy-sector.pdf>. Accessed April 2024.

Wessex Archaeology. (2008). Aircraft Crash Sites at Sea. A Scoping Study. Archaeological Desk-based Assessment. Ref: 66641.02.

Wessex Archaeology for the Crown Estate. (2021). Archaeological Written Schemes of Investigation for Offshore Wind Farm Projects.

Wood, G. (2022). Technical File Note: Preliminary ground model Morgan & Mona Windfarm Development Irish Sea. EnBW and bp.

Wood, G. and Deeks, A. (2022) Geological Ground Model. Mona Windfarm Development, Irish Sea. Unpublished Report.

Appendix A: Gazetteer of archaeological anomalies within the Survey Area

Apx Table 1: Gazetteer of archaeological anomalies within the Offshore Order Limits

MSDS ID	Potential	X	Y	UKHO	NRHE	Description	L	W	H
Morgan_0008	High	438011.823 2	5987430.67 8	5463	909403	Wreck	48.75	9.04	4.76
Morgan_0017	High	443932.930 4	5981221.74 9	8250	909493	Wreck	28.85	9.87	1.69
Morgan_0096	High	441193.256 7	5986904.46 8	5462	909472	Wreck	34.53	7.61	2.77
Morgan_0097	High	433829.132	5978664.69 3	7458	909402	Wreck	48.9	19.7	3.67
Morgan_0098	High	431230.160 9	5980514.48 3	7459	0	Wreck	24.73	8.92	5.81
MG23_0014	High	493906.655 7	5956920.13 3	-	-	Potential wreck	16.6	9.5	1.4
MG23_0053	High	441193.199 3	5986904.39	5462	-	Wreck (Ben Rein)	33.2	8.2	3.3
MG23_0059	High	475825.141 1	5958139.24 2	8292	1027211	Wreck	31.2	6.9	0.7
MC22_0013	Medium	460388.277 7	5958939.32 6	-	-	Unidentified debris	7.3	12.4	0.2
MC22_0014	Medium	461851.345 3	5958082.26 5	-	-	Unidentified debris	6.6	1.9	0.3
MC22_0020	Medium	466231.124	5956833.22 7	-	-	Potential debris	4.6	2	0.9

MSDS ID	Potential	X	Y	UKHO	NRHE	Description	L	W	H
MC22_0039	Medium	460876.753	5962642.23 1	-	-	Unidentified debris	1.5	1.4	0.1
Morgan_0015	Medium	440592.831 1	5984185.01 9	-	-	Unidentified debris	12.55	7.34	0.39
Morgan_0025	Medium	431565.528 7	5983703.41	-	-	Potential debris	23.2	8.71	1.17
Morgan_0030	Medium	427532.806 6	5984191.77 5	-	-	Unidentified debris	13.86	3.22	0.41
Morgan_0116	Medium	440109.491 6	5982030.42 3	-	-	Unidentified debris	16.4	6.35	2.3
MG23_0045	Medium	446822.998 1	5971069.72 6	-	-	Potential debris	39.6	11.8	0.9
MG23_0051	Medium	462371.631 4	5965060.59	-	-	Potential debris	12.6	2.6	0.2
MG23_0052	Medium	440882.539 6	5987418.60 3	-	1027663	Potential debris	6.09	2.73	0.83
MG23_0060	Medium	476440.332 4	5957756.15 6	-	-	Unidentified debris	10.5	3.7	0
MG23_0002	Low	480737.971 6	5954987.08 9	-	-	Fishing gear	49.08	1.18	0.08
MG23_0003	Low	481071.014 6	5954927.95 2	-	-	Potential debris	1.45	0.81	0.18
MG23_0004	Low	481621.283 8	5954992.98 2	-	-	Potential debris	2.58	0.92	0.1
MG23_0005	Low	494288.897 6	5956206.43 1	-	-	Chain, cable or rope	48.88	0.2	0
MG23_0006	Low	490192.255 8	5955446.16	-	-	Potential debris	2.45	0.53	0.22

MSDS ID	Potential	X	Y	UKHO	NRHE	Description	L	W	H
MG23_0007	Low	495897.591 2	5957968.72 7	-	-	Chain, cable or rope	26.62	0.29	0
MG23_0008	Low	486351.962 2	5955214.28	-	-	Unidentified debris	4.99	0.52	0.11
MG23_0009	Low	486297.046	5955680.46 6	8291	-	Rockdump	15.96	13.2	0.7
MG23_0010	Low	481125.187 2	5954805.94 8	-	-	Linear feature	3.51	0.22	0.08
MG23_0011	Low	485336.406 7	5955323.03 9	-	-	Potential debris	1.8	1.54	0.24
MG23_0012	Low	485333.003 6	5955324.04 6	-	-	Potential debris	1.9	0.14	0.06
MG23_0013	Low	489657.803 1	5955675.74 4	-	-	Potential debris	1.18	0.6	0.3
MG23_0015	Low	453975.042 5	5967781.65 7	-	-	Potential debris	2.59	1.59	0.18
MG23_0016	Low	443610.939 3	5971058.10 8	-	-	Fishing gear	19.81	7.32	0.03
MG23_0017	Low	438120.630 1	5972852.92 2	-	-	Likely geological	2.36	0.78	1
MG23_0018	Low	437190.514 8	5973245.62 6	-	-	Potential debris	2.26	0.47	0.85
MG23_0019	Low	439568.526 5	5989174.22 9	-	-	Unidentified debris	4.06	1.9	0.33
MG23_0020	Low	450891.084 2	5977582.08 6	-	-	Chain, cable or rope	4.22	0.29	0.02
MG23_0021	Low	480046.521 2	5955800.15 9	-	-	Fishing gear	104.03	0.25	0

MSDS ID	Potential	X	Y	UKHO	NRHE	Description	L	W	H
MG23_0022	Low	454153.987 7	5973021.04 4	-	-	Linear feature	5.37	0.15	0.09
MG23_0023	Low	454148.317 9	5973059.28 4	-	-	Linear feature	4.28	0.13	0.05
MG23_0025	Low	424248.242 2	5982645.31 2	-	-	Likely geological	2.86	0.44	1.06
MG23_0026	Low	424303.008 5	5982653.18 7	-	-	Potential debris	17.61	22.43	0.4
MG23_0027	Low	424280.685 6	5982688.14 8	-	-	Potential debris	52.56	3.5	0.2
MG23_0029	Low	429261.577 6	5978914.13 3	-	-	Potential debris	2.71	0.8	0.15
MG23_0030	Low	430653.541 1	5978146.91 4	-	-	Likely geological	9.44	4.24	0.32
MG23_0031	Low	457905.949 7	5975724.56 8	-	-	Likely geological	14.85	1.98	0.24
MG23_0032	Low	437130.319 6	5974473.48	-	-	Potential debris	4.33	1.5	0.3
MG23_0033	Low	436164.790 3	5975185.70 4	-	-	Likely geological	3.02	0.8	0.37
MG23_0034	Low	435908.466 7	5975161.59 4	-	-	Likely geological	2.99	0.55	0.35
MG23_0035	Low	471797.323 6	5962500.41 5	-	-	Fishing gear	145.34	0.25	0
MG23_0036	Low	457420.118	5975715.08 4	8100	-	Modern debris	22.29	8.42	2.22
MG23_0037	Low	424093.127 1	5982263.10 5	-	-	Potential debris	8.19	4.06	0.97

MSDS ID	Potential	X	Y	UKHO	NRHE	Description	L	W	H
MG23_0038	Low	436398.813 3	5974336.28 2	-	-	Potential debris	4.24	0.68	0.48
MG23_0039	Low	436371.387 4	5974301.44 6	-	-	Likely geological	0.79	0.86	0.43
MG23_0040	Low	470511.024	5962571.76 2	-	-	Fishing gear	4.93	4.71	0
MG23_0041	Low	442135.996 5	5972900.15	-	-	Seabed disturbance	14.5	7.04	0.13
MG23_0042	Low	453628.061 1	5968293.24 4	-	-	Linear feature	11.49	0.09	0
MG23_0043	Low	439250.715 8	5973273.39	-	-	Likely geological	4.32	1.32	0.52
MG23_0046	Low	455622.837 5	5967528.41 1	-	-	Potential debris	5.87	1.59	0.37
MG23_0047	Low	457724.731 8	5974764.93 8	-	-	Likely geological	1.77	1.14	0.57
MG23_0048	Low	467056.65	5966548.98	-	-	Potential debris	1.49	1	0.31
MG23_0049	Low	465886.424 1	5967862.98 6	-	-	Seabed disturbance	2.73	0	0
MG23_0050	Low	465886.758	5967848.92 4	-	-	Seabed disturbance	4.17	4.57	0
MG23_0054	Low	455377.846	5977339.51 6	-	-	Potential debris	3.9	1.53	0.22
MG23_0055	Low	451935.132 9	5979355.32 4	-	-	Potential debris	3.86	2.2	0.76
MG23_0058	Low	468637.179 6	5964299.81 8	-	-	Unidentified debris	2.46	1.19	0.4

MSDS ID	Potential	X	Y	UKHO	NRHE	Description	L	W	H
MG23_0061	Low	493199.6116	5956775.803	-	-	Unidentified debris	2.7	2.3	0
MG23_0062	Low	461995.367	5965782.831	-	-	Unidentified debris	0.6	0.7	0
MG23_0063	Low	468842.8044	5963748.528	-	-	Unidentified debris	2.4	1.2	0
MG23_0064	Low	493438.8415	5956351.292	-	-	Unidentified debris	1.2	0.6	0
MG23_0065	Low	456346.5691	5976843.46	-	-	Unidentified debris	1.7	1.4	0
MG23_0066	Low	427555.376	5979982.666	-	-	Unidentified debris	1.1	0.7	0
MG23_0067	Low	427595.4516	5979983.077	-	-	Unidentified debris	0.8	0.8	0
Morgan_0004	Low	431264.3558	5993280.476	-	-	Chain, cable or rope	16.85	15.46	0.19
Morgan_0006	Low	433383.688	5991078.569	-	-	Likely geological	59.47	14.55	0
Morgan_0010	Low	436720.7814	5986969.859	-	-	Potential debris	8.79	6.04	1.17
Morgan_0012	Low	437057.8157	5986980.328	-	-	Potential debris	9.85	6.34	1.21
Morgan_0013	Low	437021.4461	5986787.83	-	-	Potential debris	7.63	6.3	0.86
Morgan_0014	Low	437270.5967	5986867.572	-	-	Linear feature	14.63	0.4	0
Morgan_0016	Low	430815.1795	5991083.527	-	-	Linear feature	13	0.39	0.22

MSDS ID	Potential	X	Y	UKHO	NRHE	Description	L	W	H
Morgan_0018	Low	439679.679 2	5983879.40 7	-	-	Debris	3.24	2.75	0.51
Morgan_0019	Low	438957.086 8	5984251.46 7	-	-	Likely geological	3.14	0.53	1.16
Morgan_0020	Low	428434.883 9	5991488.63 4	-	-	Likely geological	4.42	1.57	0.23
Morgan_0021	Low	437751.623 9	5983211.46 6	-	-	Potential debris	3.74	0.75	0.29
Morgan_0022	Low	444923.097 1	5978390.05 3	-	-	Chain, cable or rope	23.39	0.88	0
Morgan_0023	Low	436488.171 9	5982903.09 3	-	-	Potential debris	7.24	2.22	0
Morgan_0024	Low	440377.759 7	5977691.40 7	-	-	Likely geological	35.99	0.56	0.26
Morgan_0026	Low	429097.618 4	5984724.89 5	-	-	Debris	4.48	0.87	0.38
Morgan_0027	Low	441016.478 6	5976029.99	-	-	Potential debris	3.53	1.59	0.45
Morgan_0028	Low	423776.550 4	5987799.68 5	-	-	Debris	5.24	1.57	1.84
Morgan_0029	Low	439342.385	5977091.07 4	-	-	Linear feature	7.41	0.56	0.17
Morgan_0031	Low	426909.293 6	5984696.13 1	-	-	Potential debris	31.27	4.55	0.92
Morgan_0032	Low	430908.009 9	5981868.71 6	-	-	Chain, cable or rope	40.12	0.47	0.2
Morgan_0033	Low	423940.568 9	5986632.99 2	-	-	Potential debris	2.64	1.22	0.81

MSDS ID	Potential	X	Y	UKHO	NRHE	Description	L	W	H
Morgan_0034	Low	433270.506	5979527.523	-	-	Fishing gear	190.82	0.39	0
Morgan_0035	Low	437304.5798	5974903.921	-	-	Likely geological	12.63	2.75	0.57
Morgan_0036	Low	428192.5059	5981033.885	-	-	Potential debris	4.67	0.74	0.44
Morgan_0037	Low	428660.4834	5980301.567	-	-	Potential debris	4.5	0.56	0.51
Morgan_0038	Low	422857.1564	5984137.36	-	-	Chain, cable or rope	11.42	0.06	0.16
Morgan_0039	Low	430254.2267	5978690.913	-	-	Potential debris	3.7	3	0
Morgan_0040	Low	436645.4909	5974091.077	-	-	Chain, cable or rope	107.64	0.23	0.2
Morgan_0041	Low	432153.4418	5977220.743	-	-	Debris	3.18	2.48	1.38
Morgan_0043	Low	436516.5405	5973643.322	-	-	Debris	5.03	1.57	0.4
Morgan_0045	Low	426841.8033	5980081.564	-	-	Seabed disturbance	11.43	6.77	0
Morgan_0046	Low	430106.6743	5977432.18	-	-	Potential debris	5.71	3.16	0.57
Morgan_0095	Low	430011.1294	5980005.001	-	-	Potential debris	2.13	0.26	0.3
Morgan_0104	Low	430580.0201	5980091.758	-	-	Likely geological	1.19	0.6	0.43
Morgan_0107	Low	426564.8818	5982805.793	-	-	Unidentified debris	2.2	0.12	0.2

MSDS ID	Potential	X	Y	UKHO	NRHE	Description	L	W	H
MC22_0007	Low	459110.955 1	5957402.50 1	-	-	Chain, cable, or rope	4.5	0.4	0
MC22_0008	Low	455668.204 3	5959598.22 6	-	-	Likely geological	2.3	1.5	0.2
MC22_0009	Low	459700.887 9	5957048.80 1	-	-	Potential debris	1.5	0.3	0.3
MC22_0011	Low	459271.606 2	5958437.76	-	-	Potential debris	4.4	0.4	0.3
MC22_0015	Low	458699.515	5960213.93 1	-	-	Likely geological	4.1	1.5	0.8
MC22_0016	Low	462497.348 6	5957889.85 5	-	-	Potential debris	2.4	1	0.2
MC22_0019	Low	461746.504 1	5959673.34 7	-	-	Unidentified debris	4.3	0.3	0.3
MC22_0022	Low	462448.634 7	5959733.17 9	-	-	Likely geological	7.4	3.8	0.5
MC22_0023	Low	467069.208 4	5957065.72 9	-	-	Likely geological	4.8	0.7	0
MC22_0029	Low	460989.266 9	5963039.54 1	-	-	Unidentified debris	6.6	0.3	0.3
MC22_0030	Low	453974.286 6	5967781.48 4	-	-	Potential debris	5.5	0.3	0.0
MC22_0031	Low	463737.607 2	5961959.48 5	-	-	Chain, cable, or rope	8.1	0.1	0.1
MC22_0033	Low	465312.234 9	5961242.34 2	-	-	Chain, cable, or rope	9.3	1.2	0.3
MC22_0034	Low	463035.855 1	5962777.85 8	-	-	Chain, cable, or rope	53.5	0.2	0

MSDS ID	Potential	X	Y	UKHO	NRHE	Description	L	W	H
MC22_0035	Low	463463.722	5963189.824	-	-	Chain, cable, or rope	23.8	11	0
MC22_0036	Low	463016.4611	5963581.473	-	-	Unidentified debris	5.1	4.1	0.4
MC22_0037	Low	467458.2124	5961507.208	-	-	Unidentified debris	10.8	0.4	0.0
MC22_0038	Low	463294.6158	5964457.487	-	-	Unidentified debris	2.4	2.3	0.2
MC22_0041	Low	465206.1058	5963514.953	-	-	Likely geological	4.7	2.1	0

Apx Table 2: Gazetteer of archaeological anomalies outside Offshore Order Limits, within Transmission Assets Study Area

MSDS ID	Potential	X	Y	UKHO	NRHE	Description	L	W	H
Morgan_0005	Medium	428856.5	5994556	-	-	Seabed disturbance	33.72	16.2	0.22
MC22_0032	Medium	456543.3	5966579	-	-	Unidentified debris	13.3	2.2	0.2
Morgan_0001	Low	432568.7	5994192	-	-	Potential debris	3.43	1.18	0.44
Morgan_0002	Low	431726.2	5993474	-	-	Potential debris	6.32	1.62	0.39
Morgan_0042	Low	420313.3	5985573	-	-	Unidentified debris	4.64	0.39	0.67
Morgan_0047	Low	432566.7	5975583	-	-	Linear feature	18.08	3.87	1.24
Morgan_0048	Low	432388.9	5974904	-	-	Chain, cable or rope	30.58	0.15	0.16
Morgan_0049	Low	434092.2	5973434	-	-	Potential debris	2.01	0	0.51
Morgan_0099	Low	421916.5	5987244	-	-	Chain, cable or rope	23.27	0.34	0.08
MC22_0002	Low	460532.5	5955683	-	-	Potential debris	2.1	0.2	0.2

MSDS ID	Potential	X	Y	UKHO	NRHE	Description	L	W	H
MC22_0004	Low	453890	5959985	-	-	Likely geological	5.5	2.0	0.4
MC22_0006	Low	461857.3	5955533	-	-	Potential debris	1.2	0.2	0.9
MC22_0010	Low	455516.1	5960505	-	-	Chain, cable, or rope	8.1	0.6	0.2
MC22_0017	Low	465638.9	5956111	-	-	Likely geological	5.1	2.8	0.3
MC22_0024	Low	453426.5	5966325	-	-	Chain, cable, or rope	15.1	0.2	0.0
MC22_0025	Low	457966.1	5963436	-	-	Potential debris	3.7	0.8	0.0
MC22_0027	Low	454668.2	5965766	-	-	Chain, cable, or rope	6.9	0.1	0.0
MC22_0028	Low	456540.9	5965518	-	-	Likely geological	4.1	2.1	0.1
MC22_0040	Low	462809.2	5955931	-	-	Likely geological	1.9	0.9	0.3

Appendix B: Protocol for Archaeological Discoveries

B.1 Introduction

This Protocol for Archaeological Discoveries (PAD) sets out the procedure for reporting discoveries of potential archaeological interest made during the course of construction, operation and maintenance, and decommissioning activities associated with the Transmission Assets.

The PAD is a system of monitoring for unexpected or incidental finds relating to the historic environment that may be encountered within the marine environment. 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.

This PAD is intended to satisfy any conditions that relate to reporting protocols included on consents administered by marine licensing authorities. Where implementation of this PAD is a condition of consent, failure to follow the PAD may give rise to a breach of condition.

The Protocol that will be used is based on the document Protocol for Archaeological Discoveries (PAD) for Offshore Renewables Projects introduced by The Crown Estate (The Crown Estate, 2014).

COWRIE's Historic Environment Guidance for the Offshore Renewable Energy Sector (Wessex Archaeology, 2007) document states: *'The aim of protocols for unexpected discoveries is to reduce any adverse effects of the Proposed Development upon the marine historic environment by enabling people working on the Proposed Development 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 Applicants, 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'* (COWRIE, 2010).

This PAD 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.

This PAD 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.

For some classes of find there are specific legal requirements (e.g. treasure, wreck, human remains; see **section B.2**). These legal requirements will be met by following this PAD. In such instances, failure to follow the PAD may also give rise to a criminal offence.

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

B.2 Legal terms and responsibilities

B.2.1 Merchant Shipping Act 1995

This Act is not a form of designation, but will affect offshore renewable energy schemes if, during SIs 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 RoW must 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 RoW 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 RoW will hold the wreck until the matter is settled, either through amicable agreement or by court judgement.

B.2.2 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 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.

B.2.3 The Treasure Act 1996

The Treated Act 1966 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 MHWS and MLWS) on beaches and tidal riverbanks), provided that the object does not come from a wreck.

B.2.4 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.

B.3 Aims

The aim of the PAD is to reduce any adverse effects of the Transmission Assets upon the historic environment by enabling people working on the Transmission Assets to report their finds in a manner that is both convenient to their every-day work and effective with regard to curatorial requirements.

The archaeological finds made during these works are important because they shed light on past human use of the landscape, sea and seabed. The information that such discoveries bring to light can help archaeologists to better understand what happened in the past, and therefore to better protect those aspects of our history and pre-history that should be conserved on behalf of future generations.

The Applicants will employ a Retained Archaeologist (RA) to provide archaeological consultancy and to liaise with and report as appropriate to the Contractors, the Applicants Developer and the Archaeological Curator (AC).

B.4 Roles and responsibilities

For a full description of roles and responsibilities in relation to the the Transmission Assets and marine archaeology, see **section 1.4** of the Outline Offshore WSI and PAD. Roles that are specific to the PAD only are described below.

B.4.1 Site champion

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

B.4.2 Nominated contact

The Applicant's Nominated Contact is the formal point of contact for all matters relating to the PAD between the Applicants, its subcontractors, the Site Champions, RA, the AC, and the Regulator. The Nominated Contact could be the Transmission Assets Environmental Manager, the Transmission Assets Manager or any other coordinator that the Applicants 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.

B.4.3 Implementation service

The Protocol for Archaeological Discoveries guidance (The Crown Estate, 2014) includes an additional step whereby the report is passed to the Implementation Service who provide additional support on identification and input into mitigation. This Service is run by an archaeological contractor. The RA, who has access to all Transmission Assets datasets and typically has a strong understanding of the archaeological potential of the area, along with specialists in maritime archaeology, is best placed to give this advice. As such there is no need for the inclusion of the additional step of corresponding with the Implementation Service.

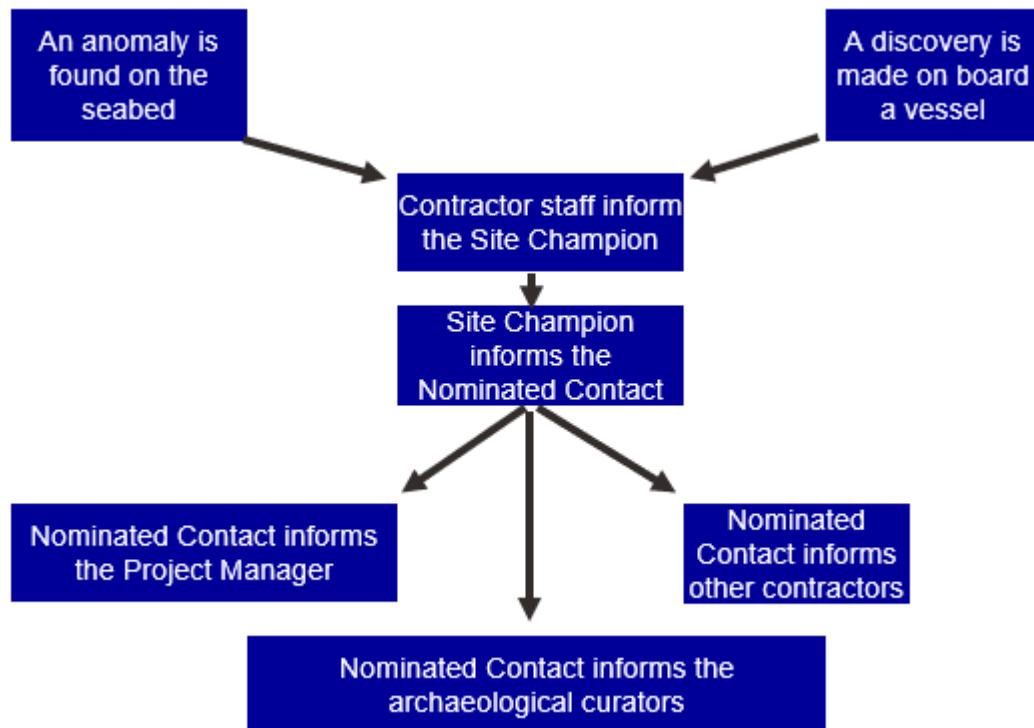
B.5 Reporting structure

The PAD has been designed to allow developers to report unexpected finds of archaeological interest made on the seabed during the course of development works.

The PAD anticipates that discoveries made by Transmission Assets staff are reported to the Site Champion (e.g. Vessel Master or Site Foreman) on their vessel or site, who then reports to the Nominated Contact (the RA is the recommended Nominated Contact).

The RA will liaise with the Developer and the AC, along with any additional relevant stakeholders depending on the nature and significance of the find, and planned activities within the area. Additional mitigation may be recommended depending on the nature of the find.

Key steps and a summary of the key roles and steps in the reporting process of the PAD are shown in **Apx Figure 1**.



Apx Figure 1: Reporting process of the PAD

On the vessel or site, the person responsible for reporting anomalies or finds will be the Site Champion. Anomalies or finds will be brought to the attention of the Site Champion by the Contractors or Transmission Assets staff. The Site Champion will inform the Nominated Contact (who can be the RA).

The Developer's RA can provide specialist advice on finds identification, assessments of significance, and technical support services relating to the mitigation of the impacts of the Transmission Assets on the historic environment.

The 2021 Crown Estate guidance on Archaeological Written Schemes of Investigation, which post-dates the 2014 PAD guidance, indicates that although the 2014 guidance sets out one PAD, others can also be used and further states that the 2014 guidance can be used to 'support the development of a PAD for any offshore wind project (The Crown Estate, 2014; Wessex Archaeology for the Crown Estate, 2021). The approach set out here is therefore in line with existing guidance.

The RA, along with the Developer and their contractors shall draw to the attention of all relevant staff the potential for archaeological material to be found in the course of survey and inform them of the possible importance of such finds.

B.5.1 Actions by Transmission Assets staff

B.5.1.1 In all cases

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

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

Where items of archaeological interest are recovered, Transmission Assets Staff (under direction of the Site Champion) will:

- handle all material with care;
- ensure 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.

If the find is from a waterlogged or in an underwater environment, then Transmission Assets 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.

B.5.2 Discoveries onboard

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), Transmission Assets Staff will immediately inform the Officer on Watch. The Officer on Watch will inform the Site Champion.

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.

B.5.3 Anomalies on the seabed

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.

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.

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.

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.

B.5.4 Discoveries subsequent to work on site

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 Transmission Assets Staff involved in processing samples in the laboratory may make archaeological discoveries in their samples.

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 Transmission Assets Staff should inform the Site Champion and pass on details of the sample number and its position.

If an anomaly comes to light in the course of processing or interpreting geophysical survey data, video or other photographic data, Transmission Assets 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.

B.5.5 Actions by Site Champion

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 RA has been obtained.

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.

The Site Champion will compile a Preliminary Record of the occurrence and, where possible, accompany this with any supporting information such as photographs, drawings or other records that have been made. An example preliminary record form is to be supplied by the RA post-consent. An example preliminary record form for illustration purposes is included in the guidance provided by The Crown Estate (2014). The Site Champion will inform the Applicant's Nominated Contact of the occurrence as soon as possible and pass on all available information.

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.

B.5.6 Actions by the Nominated Contact

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

Contact will be made with the RA 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 RA will provide advice on the appropriate immediate actions in addition to the recording, handling and storage of any items recovered.

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.

Should it be required, the RA will travel to the site to inspect any finds or data made available.

B.5.7 Actions by the Retained Archaeologist

The RA 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 RA will send an Initial Response to the Nominated Contact to acknowledge the report.

In the case of a discovery of high potential, a TAEZ may be assigned and construction will not recommence in the TAEZ without the agreement of the AC. The RA will confirm the extent of the area of the TAEZ. The RA will notify the MMO and the AC that a discovery of high potential has been reported and will provide details of the further actions that have been advised.

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

B.6 Approach to finds

B.6.1 Legislation

It should be noted that if the wreck of an aircraft is encountered it may automatically be protected under the terms of the Protection of Military Remains Act 1986 and it is an offence to tamper with, damage, or move the wreck or to remove items.

Furthermore, all items of 'wreck' are reportable to the RoW under the terms of the Merchant Shipping Act 1995. Appropriate finds will be reported to the RoW within the required timescales (28 days) by the RA, thereby satisfying this legal requirement.

B.6.2 Handling and conservation procedures

The following guidelines can be used to identify any discovered material and must be referred to when planning appropriate handling and storage. Advice on the identification of finds has been provided following the accepted advice provided by The Crown Estate (2014). Further advice on finds can be sought from the RA.

Archaeological material can come in a variety of sizes, shapes and materials. Materials can degrade in different ways so it is important that they are handled with care and that the appropriate handling and storage techniques are applied.

Finds are vulnerable to deterioration at all times, whether they are recovered or not. Fragile material, such as wood, can be damaged by the force of passing machinery. It is crucial that all finds be treated carefully and interfered with as little as possible.

Leaving finds in situ is the best way to manage them. Once a find is recovered to the surface, it requires conservation which can be difficult and expensive to administer.

Handling and conservation procedures are:

- handle all finds carefully;
- photograph all sides of a find with a scale;
- take close up photographs of any markings, glazing, or imagery;
- keep finds wet and ensure the water is changed regularly if biological growth is detected;
- keep finds cool and ideally in the dark;
- keep finds in protective containers where possible;
- label any finds;
- follow the information below on finds storage and contact the RA if further advice is required;
- do not attempt to clean the find by removing any sediment build up, concretion, or marine life;
- do not allow finds to dry out; and
- do not handle finds more than necessary.

B.6.3 Advice for specific materials

The following materials may be encountered on the seabed or onboard the vessel and as such the following sections provide advice as per The Crown Estate guidance (2014) for the handling and storage of these.

B.6.3.1 Metal

Metal is likely to survive in marine environment, though it may corrode when in water or form concretions of material (a hard mass of material which typically has a mineral matrix, commonly formed around ferrous objects in particular). Typical metal finds might include ingots, ballast, coins, ornaments, tools, weapons, aircraft or ship parts, and personal items. The Crown Estate guidance (2014) for the identification of metals is as follows.

- 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.
- 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' and remains of this nature may be subject to the Protection of Military Remains Act 1986. *'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'* (The Crown Estate, 2014).

If possible, do not recover metal. It can be difficult and expensive to conserve and some types of site, such as aircraft, are covered by specific legislation which prohibits recovery without appropriate licences.

For metals which are lifted, lifting should be carried out carefully and the find should be photographed. All metals should be stored in cool seawater. Different metals should not be stored together. The shape of the concretion can be used to identify the item and as such concretions should not be removed. If the find is too large to cover in seawater, wrap it in soaked material and keep wet. Some metal products e.g. lead, pewter and copper salts can be toxic, so handle with gloves or wash hands thoroughly after contact.

Metals can sometimes be identified from the colour of their corrosion.

Apx Table 3: Identification of metal

ID	Characterisation
Gold	No corrosion.
Silver	White, waxy layers that turn lilac in the light.
Copper/Copper alloy (e.g. Bronze)	Dark red/purple/green/blue.
Iron/Steel	Black or rusty with a crust of concretion.
Lead	Grey or white crystals.
Pewter/Tin/Lead Alloy	Grey surface, possibly crystalline, soft or friable.
Aluminium	Little corrosion.

B.6.3.2 Ceramics

Pottery can be made from china, porcelain, terracotta, earthenware and other clay-based materials. Typical finds might include crockery, ornaments, clay pipes, lamps, containers and tableware. 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 (The Crown Estate, 2014). Additionally, clay pipes should be reported.

Actions to take include photographing finds with a scale, especially if they have any glazing or markings. Store in saltwater.

B.6.3.3 Ceramic building material

Ceramic building material can be in the form of bricks, building blocks, mudbricks, and tile. Bricks and tile can appear unusually shaped. Ceramic building material can be evidence of a ship, or submerged settlement.

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 (The Crown Estate, 2014). Occurrences of tile should also be reported.

Actions to take include photographing finds with a scale, especially if they have any glazing or markings on them. Store in saltwater.

B.6.3.4 Stone

Stone has been used by humans for thousands of years and it is very durable underwater, making it a common find. There are different types of stone; quartz, limestone, marble, granite, obsidian, slate, sandstone and flint. Typical finds might include ballast, anchors, millstones building material, shot, carvings, tools, sculptures, whetstones, flint or stone tools and other personal items.

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 likely to be 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 (The Crown Estate, 2014).

Actions to take include photographing finds with a scale and then store in water or wrap in soaked towelling.

B.6.3.5 Peat and clay

Peat is black or brown fibrous soil that formed when sea level was so low that the seabed formed marshy land, for example on the banks of a river or estuary. Peat is made up of plant remains, and also contains microscopic remains that can provide information about the environment at the time it was formed. This information helps us to understand the kind of landscape that our predecessors inhabited, and about how their landscape changed. It can also provide information about rising sea-level and coastline change, which are important to understanding processes that are affecting us today. Prehistoric structures (such as wooden trackways) and artefacts are often found within or near peat, because our predecessors used the many resources that these marshy areas contained. As these areas were waterlogged and have continued to be waterlogged because the sea has risen, 'organic' artefacts made of wood, leather, textile and so on often survive together with the stone and pottery which are found on 'dry' sites.

Fine-grained sediments such as silts and clays are often found at the same places as peat. These fine-grained sediments also contain the microscopic remains that can provide information about past environments and sea level change. Any discoveries of such material would be of archaeological interest, and their occurrence should be reported (The Crown Estate, 2014).

Actions to take include the storage of all sediments collected in a sealed container with seawater and to be kept cool. The deposits should not be broken apart.

B.6.3.6 Faunal remains

Skeletal finds and faunal remains can come in the form of bone, ivory, tooth, antler, baleen, tortoiseshell, tusk, or shell. Typical finds might include human or animal remains, personal items such as combs or jewellery, carvings and tool handles.

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 territorial waters,

be subject to the provisions of the Burial Act 1857. Alternatively, it may be subject to the Protection of Military Remains Act 1986. 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 (The Crown Estate, 2014).

Actions to take are to consider that skeletal finds are vulnerable to environment change, so if any are recovered, ensure they are photographed with a scale and then immediately submerge in seawater and sealed in a suitable container. Change the water if biological growth occurs e.g. algae mould.

B.6.3.7 Wood

Wooden finds could be evidence of a wrecked vessel. Typical wooden finds might include small personal items e.g. tools and bottle corks, or larger finds e.g. ship timbers, furniture, chests, barrels, dwelling posts, and wattle panels.

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 paleo-environmental 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 (The Crown Estate 2014).

Actions to take include the following.

- Lift with care - considering that timber finds are often very fragile.
- Photograph with a scale.
- Keep the find in a cool and dark area.
- Submerge in seawater - do not allow the wood to dry out.
- If the find is too large to store in water, try to keep it damp and in a cool in a darkened area.
- Ensure that it has sufficient support to stop it falling apart.
- Change the water if biological growth is detected e.g. algae or mould.

B.6.3.8 Fibre and textiles

Fibrous finds are unlikely to survive in marine conditions, but occasionally they do. Typical fibrous finds might include ropes and rigging, weaving, sailcloth, sacks, clothing, basketry, fishing nets etc.

Due to the incredibly fragile nature, once any fibrous or textile find has been recovered it must be dealt with quickly. Take photographs with a scale, but do not use flash. Carefully place it in a sealed container. Try to keep it out of

the light. If possible, keep the find in its original burial deposit e.g. the sediment it was found in, and seawater. This will help to protect the material.

B.6.3.9 Plastic and similar materials

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 (The Crown Estate, 2014).

Actions to take include to not bend or clean any plastic or rubber finds. Photograph the find with a scale and then store in seawater in a cool and dark area.

B.6.3.10 Resinous or mineral substance

These materials include amber, jet, coal, or bitumen. Typical finds might include ornaments, jewellery, beads, sealants or caulking materials, all of which would be of archaeological interest and should be reported.

Actions to undertake include photographing a find with a scale, and then keep stored in seawater. These finds might appear stable, but if they are not stored properly, they may begin to deteriorate.