

XLINKS' MOROCCO-UK POWER PROJECT

Environmental Statement

Volume 3, Appendix 7.5: Outline Offshore Archaeology Written Scheme of Investigation

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XLINKS' MOROCCO – UK POWER PROJECT

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Glossary

Term	Meaning
Applicant	Xlinks 1 Limited.
Environmental Impact Assessment	The process of identifying and assessing the significant effects likely to arise from a project. This requires consideration of the likely changes to the environment, where these arise as a consequence of a project, through comparison with the existing and projected future baseline conditions.
Environmental Statement	The document presenting the results of the Environmental Impact Assessment process.
Intertidal area	The area between Mean High Water Springs and Mean Low Water Springs.
Listed Buildings	High and medium significance buildings designated for their historical, architectural or artistic importance under the <i>Planning (Listed Buildings and Conservation Areas) Act 1990</i> .
Mean High Water Springs	The height of mean high water during spring tides in a year.
Mean Low Water Springs	The height of mean low water during spring tides in a year.
National Policy Statement(s)	The current national policy statements published by the Department for Energy Security and Net Zero in 2023.
Offshore Cable Corridor	The proposed corridor within which the offshore cables are proposed to be located, which is situated within the United Kingdom Exclusive Economic Zone.
Palaeoenvironmental remains	Minerogenic deposits such as alluvial silts and clays that have potential for ecofact preservation (such as diatoms, ostracods molluscs), the assessment of which can provide information on depositional environments (e.g. the salt or freshwater nature of deposits) that can enhance interpretation of the palaeolandscape. Peat deposits can preserve floral remains such as pollen, seeds and plant fragments and other organic remains. Organic material can also be dated by radiocarbon techniques, important for establishing the chronology for the depositional sequence.
Palaeolandscape	Palaeolandscape refers to an ancient/relict landscape that has been preserved in the geological record, in this case submerged by rising sea levels and seabed sediments. These landscapes provide insights into past environments, including the physical and ecological conditions that existed at different times. The study of the remnant palaeogeographic features provides insight into how ancient environments were exploited by early humans and how the landscape changed through time as a result of natural processes and human activities.
Policy	A set of decisions by governments and other political actors to influence, change, or frame a problem or issue that has been recognized as in the political realm by policy makers and/or the wider public.
Proposed Development	The element of the Xlinks Morocco-UK Power Project within the UK, which includes the offshore cables (from the UK Exclusive Economic Zone to landfall), landfall, onshore Direct Current and Alternating Current cables, converter stations, and highways improvements.
Protected Wrecks	High significance shipwrecks designated for their historical, archaeological or artistic importance under the Protection of Wrecks Act 1974.
Receptor	The element of the receiving environment that is affected.
Scheduled Monument	Areas containing high significance archaeological remains designated for their historical or archaeological importance under the <i>Ancient Monuments and Archaeological Areas Act 1979</i> .
Xlinks' Morocco UK Power Project	The overall scheme from Morocco to the national grid, including all onshore and offshore elements of the transmission network and the generation site in Morocco (referred to as the 'Project').

Acronyms

Acronym	Meaning
ADS	Archaeological Data Service
AEZ	Archaeological Exclusion Zone
BGS	British Geological Survey
CEA	Cumulative Effects Assessment
CifA	Chartered Institute for Archaeologists
CITIZAN	Coastal and Intertidal Zone Archaeological Network
DCO	Development Consent Order
DESNZ	Department for Energy Security and Net Zero
DHER	Devon Historic Environment Record
EEZ	Exclusive Economic Zone
EIA	Environmental Impact Assessment
ES	Environmental Statement
HDD	Horizontal Directional Drilling
HE	Historic England
HER	Historic Environment Record
LAT	Lowest Astronomical Tide
MBES	Multibeam Echosounder
MHWS	Mean High Water Springs
MLWS	Mean Low Water Springs
MPS	Marine Policy Statement
NDB	North Devon Biosphere
NHLE	National Heritage List for England
NPPF	National Planning Policy Framework
NPS	National Policy Statements
OCC	Offshore Cable Corridor
OCEMP	Offshore Construction Environmental Management Plan
OOWSI	Outline Offshore Archaeological Written Scheme of Investigation
PAD	Protocol for Archaeological Discoveries
PEIR	Preliminary Environmental Impact Report
SBP	Sub-bottom Profiler
SoS	Secretary of State
SSS	Sidescan Sonar
TEZ	Temporary Exclusion Zone
TW	Territorial Waters
UCH	Underwater Cultural Heritage
UK	United Kingdom
UKHO	United Kingdom Hydrographic Office
WSI	Written Scheme of Investigation

Units

Units	Meaning
km	Kilometre
mbsl	Metres below sea level
m/s	Metres per second
ms ⁻¹	Metres per second
nm	Nautical Mile
nT	nanoTesla

1 APPENDIX 7.5: OUTLINE OFFSHORE ARCHAEOLOGY WRITTEN SCHEME OF INVESTIGATION

1.1 Introduction

Project Description

- 1.1.1 This document forms Volume 3, Appendix 7.5: Outline Offshore Written Scheme of Investigation of the Environmental Statement (ES) prepared for the United Kingdom (UK) elements of Xlinks' Morocco-UK Power Project (the 'Project'). For ease of reference, the UK elements of the Project are referred to as the Proposed Development, which is the focus of the ES.
- 1.1.2 This document provides the 'Outline Offshore Archaeology Written Scheme of Investigation' or the 'Outline Offshore Written Scheme of Investigation' (OOWSI). The OOWSI sets out the proposed approach to archaeological mitigation and investigations to be undertaken in association with the UK offshore elements of the Proposed Development i.e. below Mean Low Water Springs (MLWS). This document will be used as a supporting document for any detailed Method Statements (MSs) produced.
- 1.1.3 The Proposed Development comprises approximately 370 km of subsea HVDC cable, which would be installed from the landfall location at Bideford Bay to the UK Exclusive Economic Zone (EEZ) boundary. The offshore cable infrastructure would continue beyond the UK EEZ; however, this does not form part of the application for Development Consent and is not subject to this OOWSI. Volume 1, Chapter 3: Project Description of the ES describes the Proposed Development and the associated construction activities.

Aims of the OOWSI

- 1.1.4 The aim of this OOWSI is to set out the broad strategy and general scope and methodology for archaeological work to mitigate impact to potential archaeological remains. The OOWSI includes a summary of the published research priorities.
- 1.1.5 The OOWSI is informed by pre-application consultation with Historic England and the baseline review of known and potential archaeology within the Offshore Cable Corridor (OCC) area (see Volume 3, Figures 7.1 and 7.2 of the ES: Marine Cultural Heritage and Archaeology).
- 1.1.6 Once further consultation has been carried out with Historic England to agree the strategy presented here, the OOWSI will be updated, and site-specific method statements will be produced either as an appendix or stand-alone addendums.

1.2 Guidance and Best Practice

- 1.2.1 In demonstrating adherence to industry best practice, this OOWSI has been prepared in line with available archaeological guidance for offshore development including:

- Protocol for Archaeological Discoveries: Offshore Renewables Projects (The Crown Estate, 2014);
- Chartered Institute for Archaeologists (CIfA) Code of Conduct (CIfA, 2022)
- CIfA Standards and Guidance (CIfA, 2023, 2020a, 2020b, 2020c, 2020d, 2020e);
- Marine Geophysical Data Acquisition, Processing and Interpretation – guidance notes (Plets R. et al., 2013);
- Offshore Geotechnical Investigations and Historic Environment Analysis: Guidance for the Renewable Energy Sector (Gribble and Leather, 2011)
- Archaeological Written Schemes of Investigation for Offshore Wind Farm Projects (The Crown Estate, 2021);
- Historic Environment Guidance for the Offshore Renewable Energy Sector (Wessex Archaeology, 2007); and
- Code for Practice for Seabed Development (Joint Nautical Archaeology Policy Committee (JNAPC), 2006).

1.2.2 The fundamental objectives of a WSI for offshore development (i.e. of relevance to the Proposed Development) are set out in the Archaeological Written Schemes of Investigation for Offshore Wind Farm Projects (The Crown Estate, 2021) as follows:

- set out the roles and respective responsibilities of the Project Team; Contractors, and Retained Archaeologist and Archaeological Contractor(s) and formal lines of communication between the parties and with Archaeological Curator(s);
- outline the known and potential archaeological receptors that could be impacted by the scheme;
- outline the agreed mitigation and archaeological actions that are to take place in various circumstances;
- set out the importance of research frameworks in setting objectives that are delivered through realisation of the work; and
- provide summarised details on methodologies for these archaeological actions, which will be clarified in more detail in subsequent activity-specific Method Statements.

1.2.3 The Archaeological Written Schemes of Investigation for Offshore Wind Farm Projects (The Crown Estate, 2021) were prepared by Wessex Archaeology for The Crown Estate to set out agreed archaeological methodologies so that they do not have to form part of the drafting and agreement of each WSI prepared for the offshore renewables industry. As such, these methodologies will not be duplicated here. Rather, this OOWSI draws upon these standard, agreed methodologies and, for each section, sets out how these are relevant to the delivery of the Proposed Development and explains any necessary adaptations and amendments for agreement with Historic England.

1.2.4 This OOWSI has been prepared based upon the results of the baseline desk-based assessment and site specific surveys prepared for the Proposed Development, specifically the following ES documents:

- Volume 3, Appendix 7.1: Marine Archaeology Desk-based Assessment;
- Volume 3, Appendix 7.2: Archaeological assessment of geophysical data;

- Volume 3, Appendix 7.3: Stage 1 and 2 Marine Geoarchaeological Assessment; and
- Volume 3, Appendix 7.4: Palaeolandscapes assessment of sub-bottom profiler data.

1.2.5 Cross-referencing across the ES is included within this OOWSI where appropriate.

1.3 Archaeological and Historical Background

1.3.1 **Table 1-1** sets out the supplementary documents relevant to the DCO application in respect of offshore cultural heritage and archaeology.

Table 1-1: Relevant Supplementary Documents

Archaeological Document	Summary	Submitted
Xlinks' MUPP Scoping Report: Chapter	Identified the marine archaeological and cultural heritage receptors of relevance to the Offshore Cable Corridor (OCC). Described the likely potential effects from the construction, operation, and maintenance, and decommissioning of the offshore components of the Proposed Development on marine archaeological and cultural heritage receptors and set out the proposed scope and methods for the Environmental Impact Assessment (EIA).	January 2024
Xlinks' MUPP PEIR Marine Archaeology and Cultural Heritage Chapter	Identified and considered the likely significant effects of the scheme on marine archaeology and cultural heritage. The Chapter provides an overview of the existing environment for the proposed Offshore Cable Corridor, followed by an assessment of the likely significant effects and associated mitigation for the construction, operation, maintenance and decommissioning phases of the scheme.	May 2024
Xlinks' MUPP PEIR Appendix	The desk-based geoarchaeological review of geotechnical information formed the first stage of investigation and aimed to establish the likely presence of and broadly characterise horizons of geoarchaeological interest and evaluated their potential. The document provided the geoarchaeological review of geotechnical logs acquired in 2023-2024, specifically Cone Penetration Tests (CPT) and Vibrocore (VC) geotechnical logs collected along the Offshore Cable Corridor.	May 2024
Xlinks' MUPP PEIR Appendix	The OOWSI was produced to set out the proposed approach to archaeological mitigation and investigations to be undertaken in association with the offshore project areas (below Mean High Water Springs (MHWS) of the scheme).	May 2024
Xlinks' MUPP Marine Archaeology and Cultural Heritage ES Chapter	The chapter considers the likely impacts and effects of the Proposed Development on marine archaeology and cultural heritage during the construction, operation and maintenance and decommissioning phases. In particular, the ES chapter:	Submitted alongside this document (Volume 3, Chapter 7 of the ES).

Archaeological Document	Summary	Submitted
	<ul style="list-style-type: none"> • identifies the key legislation, policy and guidance relevant to marine archaeology and cultural heritage; • details the EIA scoping and consultation process undertaken to date for marine archaeology and cultural heritage; • confirms the study area for the assessment, the methodology used to identify baseline environmental conditions, the impact assessment methodology, and identifies any assumptions and limitations encountered in compiling the environmental information; • sets out the existing and future environmental baseline conditions, established from desk studies, surveys and consultation; • details the mitigation and/or monitoring measures that are proposed to prevent, minimise, reduce or offset the possible environmental effects identified in the EIA process; • defines the project design parameters used to inform for the impact assessment; • presents an assessment of the likely impacts and effects in relation to the construction, operation and maintenance and decommissioning phases of the Proposed Development on marine archaeology and cultural heritage; and • identifies any cumulative, transboundary and/or inter-related effects in relation to the construction, operation and maintenance and decommissioning phases of the Proposed Development on marine archaeology and cultural heritage. 	
Xlinks' MUPP ES Appendix	The desk-based characterization of the baseline environment and historic seascape character.	Submitted alongside this document. (Volume 3, Appendix 7.1 of the ES).
Xlinks' MUPP ES Appendix	The 'Archaeological assessment of the geophysical data' report consists of an assessment of marine geophysical survey data comprising sidescan sonar, multibeam echosounder and magnetometer data, acquired by GEOxyz. The aim of the assessment was to identify any anomalies of archaeological potential within the OCC, to further inform the planning process ahead of the proposed scheme.	Submitted alongside this document. (Volume 3, Appendix 7.2 of the ES).

Archaeological Document	Summary	Submitted
Xlinks' MUPP ES Appendix	The desk-based geoarchaeological review of geotechnical information formed the first stage of investigation and aimed to establish the likely presence of and broadly characterise horizons of geoarchaeological interest and evaluated their potential. The document provided the geoarchaeological review of geotechnical logs acquired in 2023-2024, specifically Cone Penetration Tests (CPT) and Vibrocore (VC) geotechnical logs collected along the OCC.	Submitted alongside this document. (Volume 3, Appendix 7.3 of the ES).
Xlinks' MUPP ES Appendix	The 'Palaeolandscapes assessment of sub-bottom profiler data' report consists of an assessment of marine geophysical survey data comprising sub-bottom profiler and multibeam echosounder acquired by GEOxyz supplemented by geotechnical log data. The aim of the assessment was to identify any remnants of palaeolandscape features that may have archaeological or palaeoenvironmental potential within the OCC, to further inform the planning process ahead of the Proposed Development.	Submitted alongside this document.(Volume 3, Appendix 7.4 of the ES).
Xlinks' MUPP ES Appendix	The Protocol for Archaeological Discoveries (PAD) provides a system of monitoring for unexpected or incidental finds relating to the historic environment.	Submitted alongside this document. (Volume 3, Appendix 7.6 of the ES).

Designated Heritage Assets

- 1.3.2 No designated heritage assets are recorded within the offshore cable corridor (OCC). There are four scheduled monuments (Wreck at Westward Ho! (NHLE 1432418), Wreck off Northam Burrows (NHLE 1432949), HMS Montagu (ex-Montague) (NHLE 1440450), and Montagu Steps (NHLE 1461607)) located within the 5 km study area (as defined in Volume 3 Chapter 7 of the ES: Marine Archaeology and Cultural Heritage).

Archaeological Background

- 1.3.3 The desk-based assessment (Volume 3, Appendix 7.1: Marine Archaeology Desk-based Assessment of the ES) provides a detailed archaeological and historical background, which is summarised here by period. The reference numbers (A1, A2, etc.) used in the background correspond to the reference numbers given by WSP within the Marine Historic Environment Gazetteer (Annex A of Volume 3, Appendix 7.1 to the ES: Marine Archaeology Desk-based Assessment).

Palaeolithic (800,000 BC – 10,000 BC)

- 1.3.4 The Lower (800,000–250,000 BC) and Middle (250,000–40,000 BC) Palaeolithic saw intermittent, perhaps seasonal Hominin occupation of Britain as the climate alternated between long cold (glacial) and short warm (interglacial) stages (Wenban-Smith 2002). The glacial cycles resulted in periods of lower and higher sea-level compared to modern levels. The site and study area have been shaped by three major glaciations over the past 970,000 years which each led to lower

sea levels and, periods when the general area was partially exposed as land suitable for hominin occupation.

- 1.3.5 The sea level is hypothesised at least 120 m lower than today in this area of the Celtic Sea after the Last Glacial Maximum (LGM) (around 22,000 before present); therefore, the coastline would have been located further west than its current location until inundation around the end of the Mesolithic period. This would have been limited to the north of the study area within the Celtic Sea near the Bristol Channel. The terrestrial landscape would have included the existing Isle of Lundy located to the north of the OCC. These periods of intermittent colonisation are associated with the retreat of icesheets following the last three glacial maximums:
- Anglian glacial maximum: c. 476 – 422,000 BCE;
 - Wolstonian glacial maximum: c. 298 – 128,000 BCE; and
 - Devensian glacial maximum: Upper Palaeolithic c. 21 – 17,000 BCE.
- 1.3.6 The West Coast Palaeolandscapes Survey mapped sections of the Celtic Sea and all of the Bristol Channel revealing floodplains, series of lakes, river channels and seabed features. Areas of sandwaves, megaripples and Quaternary deposits were observed in the area of the identified palaeolandscapes and would protect any underlying deposits, in combination with relatively low tidal stresses (Fitch and Gaffney 2011). The assessment of the sub-bottom profiler data found 19 palaeolandscape features including two channels and three fine grain deposit layers that have high potential for archaeological and palaeoenvironmental remains (Volume 3, Appendix 7.4 of the ES; Wessex Archaeology 2024b).
- 1.3.7 After the last glacial maximum (c. 20,000 BC), the Devensian ended with the improved climatic conditions of the Holocene (c. 10,000 BC), and the environment changed from steppe-tundra to birch and pine woodland. Evidence suggests that the Bristol Channel valley, located to the north east of the study area, was largely open tundra with lakes, rivers, grasses and shrubs that would have supported animal life and in turn early humans during the Late Upper Palaeolithic until c. 12,500 BCE. It is likely that the area of the study area that would have been terrestrial at this point would have also been comprised of a similar landscape.

Mesolithic (10,000 BC – 4,000 BC)

- 1.3.8 By the Mesolithic period the Bristol Channel changed drastically, with sea level rise causing the coastline to retreat further inland. The West Coast Palaeolandscapes Survey mapped sections of the Celtic Sea and all of the Bristol Channel revealing floodplains, series of lakes, river channels and seabed features. Along the western coast of Britain, evidence of cycles of marine regression and transgression in the form of interleaved peat and silt sequences were identified and have preserved fragments of the palaeolandscape. The northern end of the OCC was located on terrestrial land until c. 6000 BC when the land was inundated following the ending of the Devensian.
- 1.3.9 Fragmented pieces of submerged palaeolandscape have been found within Barnstaple Bay seaward of the beaches at Westward Ho! (**A105** and **A94**) 2.2 km and 2.3 km to the north east of the OCC respectively and Northam Burrows (**A75**) 3.4 km to the north east of the landfall end of the OCC. Artefactual remains of Mesolithic occupation and resource exploitation, including flints, animal bones, and middens of shell (**A90**, **A102**, **A112**, **A115**), have also been identified

associated with the submerged palaeolandscape remains 2 km north east of the OCC.

- 1.3.10 The existing maritime trade and travel is evidenced by the stone axe material trade along the coasts and the find of a paddle dating to the Mesolithic at Star Carr in North Yorkshire (Peters 2014).

Neolithic (4,000 BC – 2,200 BC)

- 1.3.11 By the Neolithic period (4000–2200 BC), the sea-level was near modern levels and the coastline had retreated to near its historic position, leaving the Isle of Lundy isolated. Bideford Bay, in which the north end of the OCC is located, contains organic deposits with peats dated to the Neolithic, recorded within the DHER and CITiZAN datasets c. 2.6 km north east of the OCC (**A79, A83, A84, A86, A87, A97, A98, A101, A103, A106, A107, A113, A114, and A130**).
- 1.3.12 Although boat building is known within Britain during the Neolithic and Early Bronze Age periods, the known remains suggest that technology was limited to logboats and sewn-plank boats that are generally restricted to coastal or riverine environments. Sewn-plank construction techniques can be used to construct seaworthy vessels but no examples of seagoing vessels dated to the Neolithic have been identified within the British Isles to date. Evidence of occupation and activity is present on the Isle of Lundy, c. 5 km north of the OCC, which would have been isolated within the Celtic Sea following the sea level change by this period. The evidence includes a chambered tomb (**A7**) and two standing stones (**A2** and **A6**) on the southern cliffs of the island. Further to this, the Lundy Field Society notes that flints dating to the period and early Neolithic pottery sherds have been identified in the north of the island (Lundy Field Society 2024). These artefacts suggest the possibility that maritime activity was utilised during this period to facilitate or supplement the island's occupation activities.

Bronze Age (2200–800 BC)

- 1.3.13 During the Bronze Age shipbuilding technology continued to advance. Log boats were continued to be used in coastal or riverine environments and there is evidence that seaworthy vessels could be constructed using sewn-plank construction techniques. To date, no seagoing vessels have been identified from this period in the British Isles. However, evidence throughout Britain suggests that the population was trading with people in Ireland and potentially the European mainland. The routes taken are unknown but are likely to have included the study area.
- 1.3.14 There is no known maritime archaeological records within the study area from this period, though there is evidence elsewhere in the region that vessels were used as a form of transport. The Moor Sand, Salcombe B and Erme Ingot are the site names given to three groups of Bronze Age objects, possibly lost cargoes, recovered from the seabed off the coast of South Devon. The presumed wreck sites contained objects that are linked to workshops in mainland Europe, such as France and Germany (Bournemouth University, 2018). The local trade routes taken are unknown but are likely to have included the study area.
- 1.3.15 Within the vicinity of the OCC and the study area, the Isles of Scilly, located 51 km to the south east of the closest point of the OCC at the southern end, and the Isle of Lundy contain evidence of Bronze Age activities suggesting that they were accessible. Bronze Age occupation is further evidenced from the study area by

seven beaker type sherds that were found on the foreshore in Bideford Bay (A109), 2.3 km to the north east of the OCC.

Iron Age (800 BC–AD 43)

- 1.3.16 Although no evidence dated to the Iron Age has been identified within the study area, it is considered likely that activity continued within the region.
- 1.3.17 Several hillforts dating to the Iron Age have been found located on headlands overlooking the north of the OCC located within Barnstaple Bay and the Celtic Sea. The prominent views from the hillforts toward the marine environment suggest that the inhabitants were concerned and engaged with maritime activity including but not limited to local and long-distance trade which would have continued through the period.
- 1.3.18 Evidence of prehistoric mining, probably for tin, is also noted along the Cornish and west Devon coastline at Geevor Mine (NHLE 1021361) and near one of the promontory hillforts at south west end of Cornwall (NHLE 1004388). Mined material was one of the biggest exports in this area for centuries and Cornish tin dating to the Iron Age has been found across the English Channel in Brittany and on the Mediterranean coast (Peters 2014). The forts along the promontory and the mining activity suggest that mercantile activity along the coastline was common and potentially would have extended within the study area.
- 1.3.19 Resource exploitation through fishing, harvesting of marshland plants and animals, would have been undertaken within the Taw and Torridge rivers and the coastal water of the bay and Celtic Sea. Trade routes along the coasts are likely to have been preferred given the navigational challenges with open water seafaring and would have included the area of the OCC as part of routes to the estuaries of the Taw, Torridge and Severn rivers as well as the Isle of Lundy. Connections between the smaller coastal islands, Ireland, the European continent, and the British mainland were likely to have been important during the later prehistoric periods but more evidence is needed to fully elucidate to extent of the activity.

Roman (AD 43–410)

- 1.3.20 During the Roman period, there is historic evidence for seaborne and coastal activity along the English coastline; however, there is limited known physical evidence within the archaeological record for coastal sites and maritime activity. Known trade routes in the Roman period have emphasis on cabotage or coastal tramping in which a ship calls at a series of ports along a route on the coast conducting mercantile activity along the way (Walsh et al. 2013). It is likely that the study area would have been included within the known sea routes along the western coast of Britain utilised when travelling to important settlements including Brean Down, Sea Mills, Cardiff, and Caerwent on the Severn Estuary and Chester on the Dee Estuary.
- 1.3.21 Evidence of Roman maritime military presence in the form of a series of watchtowers stretching down the south west coast from Somerset to St Gennys in Cornwall and the remains of a Roman marching camp site was found in association with an Iron Age enclosure (outside of the study area; NHLE 1004558) to the south of Woodtown, 8.5 km to the east of the northern end of the OCC. Given the proximity to the Torridge River, it is possible that the military utilised the river and Bideford Bay to provision and deploy troops when needed as

well as facilitating the export the local natural mineral resources including Cornish tin (Peters 2014).

- 1.3.22 Indirect evidence of regional trade within the archaeological record, including the proliferation of manufactured goods like Samian pottery, olive oil, and wine from mainland Europe and raw materials including copper, lead, and tin from Cornwall and Devon in use within Imperial Roman sites in mainland Europe and other regions within the British Isles, show that links were well established during this period (Walsh et al. 2013). Manufactured goods and raw materials would have been transported from the Devon and Cornish coasts to settlements within the British Isles and to the European mainland; however, the main export ports would have likely been along the southern coast of Devon and the eastern coast of Cornwall on the English Channel for ease and safety of passage.
- 1.3.23 It is likely that the study area would have been included within the known sea routes along the western coast of Britain utilised when travelling to important settlements including Brean Down, Sea Mills, Cardiff, and Caerwent on the Severn Estuary and Chester on the Dee Estuary. This is evidenced by the discovery of the Barland's Farm Romano-Celtic boat, which exhibits a mix of techniques and features from both the local Celtic shipbuilding tradition as well as the Roman tradition, near Magor, Gwent in Wales close to the Severn Estuary. The ship was found under several metres of clay, next to the remains of a stone structure, possibly a bridge or jetty. The plank boat is believed to be built around the 3rd century AD. She was classed as a seagoing/estuary vessel based on its part-rounded hull, the presence of posts and a plank-keel, which characteristics inland boats did not possess from the period (Nayling and McGrail 2004).
- 1.3.24 Bideford Bay is one of the only natural harbours within this region of the south west coast of Britain and would have acted as an important anchorage. Given the paucity of evidence for coastal Roman sites and Roman ships, the potential for Roman activity within the study area as a result of trade activity cannot be discounted.

Early Medieval (AD 410–1066)

- 1.3.25 There is currently a lack of evidence, both onshore and within the marine environment, regarding the nature and extent of foreign trade or domestic coastal activity following the Roman withdrawal (Webster et al. 2024). It is likely that maritime activity within the study area continued throughout the early medieval period in spite of the possible reduction of foreign trade during the 5th and 6th centuries. Evidence suggests that trade links with continental Europe increased in the late 6th century continuing into the 9th century.
- 1.3.26 Maritime vessels continued to increase in size and complexity through the early medieval period in response to changing technology and needs; however, smaller craft were commonly used for coastal and inshore activities. The ships of larger size would likely continue to be of the Romano-British style, noted for the flat bottom constructed of two broad keel-planks and high carvel built sides, in the early centuries of the period. The ship technology gradually moved to the clinker-style seen in the remains of Norse ships as well as Anglo-Saxon ship burials, which was more manoeuvrable in shallow water and required less material to construct. Short distance travel may still have been undertaken in smaller log boats as well as willow and hide coracles within Barnstaple Bay or in sheltered areas of the coast. No known maritime remains from this period has been identified within the study area.

- 1.3.27 Ships heading to port towns established during Anglo-Saxon rule including Barnstaple in the River Taw, 15 km to the north east of the north end of the OCC, and Bricgstow (modern Bristol) on the Severn estuary would likely have taken refuge in the bay during the early medieval period. The local coastal networks previously established would have continued during this period and the OCC would have been subject to regular activity within proximity to the coasts and for access to nearby islands including Lundy and the Scillies.
- 1.3.28 There is no known direct evidence of Norse activity within the study area but it is likely that the study area would have been traversed as part of the raiding and mercantile activity undertaken by the Norse.
- 1.3.29 Resource exploitation activities, including but not limited to fishing and shellfish gathering, would have continued within the bay, Celtic Sea, and Atlantic Ocean. Evidence of resource extraction includes midden remains containing deposits of limpet shells were identified in Abbotsham 1.7 km to the east of the north end of the OCC. Further evidence of medieval activity is concentrated on the coast of Bideford Bay which includes a sand and clay layer containing animal hoof prints (A69) thought to represent a medieval land surface, revealed on Northam Burrows foreshore, 4.5 km to the north east of the north end of the OCC.

Medieval (AD 1066–1540)

- 1.3.30 Maritime trade and transport continued to be an important activity within the study area following the conquest of the Anglo-Saxon kingdoms by the Normans. The ports on the west coast of Britain, including Barnstaple on the River Taw, Bideford on the River Torridge, and Bristol on the Severn continued to grow bringing in both domestic and foreign trade. The most prominent port in North Devon was Barnstaple as a stop for local trade within the area, as well as, trade with Bristol, Wales and Ireland; however, it never achieved the prominence of Bristol or the southern Devon ports of Plymouth, Exeter, or Dartmouth (Kowaleski 1992). The natural harbour of Bideford Bay would have been an important anchorage for any ships travelling along the western coast of Britain to the port of Bristol, ports in Wales, or the north west of England and would likely have seen high levels of activity throughout the period.
- 1.3.31 Piratical activity began on the Isle of Lundy in 1155, with the de Mariscos using the island as a base until William de Marisco was captured in 1242 following a failed murder plot on Henry III in the mid-13th century. Piratical and smuggling activity along the coastline continued to be prominent during the medieval times.
- 1.3.32 Like in the early medieval period, resource exploitation activities would have continued within Bideford Bay, the Celtic Sea and Atlantic Ocean. The population within the land surrounding the bay and along the coasts continued to grow and would have made the area enticing for mercantile activity. Seafaring activities also included the increased hostilities between nations, mostly between France and Britain, Spain and Britain as well as English military activity within Ireland (Kowaleski, 2014).
- 1.3.33 Wrecking activity was also common along the west Cornish and North Devon coasts on account of the volatile nature of the sea and the rocky coastline. The quantity of wrecking material suggests that the sea lanes within the study area were heavily travelled during the period and wreck remains are possible throughout. Accurate and complete record keeping for maritime trade, particularly for the ship details rather than the general number of ships entering the ports for

the purposes of duties, was not prioritised in the medieval period. It is possible that some of the unidentified wrecks within the study area are related to medieval vessel losses.

Post-medieval (AD 1540–1900)

- 1.3.34 The increasing outward focus on maritime activity during the period built up the prominence and wealth of ports like Bristol, Swansea and Liverpool on the west coast of Britain. Local maritime trade continued with coastal routes servicing both large ports like Bristol as well as smaller ones like Barnstaple and Bideford. The OCC crosses portions of the Bristol Channel, Celtic Sea, and Atlantic Ocean which were exceptionally busy sea lanes as the British Empire grew.
- 1.3.35 The western British ports in particular were heavily involved in the 'triangle trade' in the 18th and early 19th centuries which comprised the trade of slaves from the west coast of Africa to the United States and Caribbean to produce predominantly cash crops of cotton, tobacco and sugar. The maritime heritage of the Bristol Channel, particularly as it relates to the triangular trade, is considered to be under-researched as most archaeological studies focus on the plantations and colonies of the West Indies.
- 1.3.36 Merchant vessels were required to register their movements between English ports from the 16th century which allowed for a more accurate understanding of the nature, scale and routes of the local coastal shipping activity in the early post-medieval period. In addition, maritime losses could also be tracked easier as a result of a more thorough record keeping. Following the creation of the Society for the Registry of Shipping, later the Lloyd's Register formed in the mid-18th century, record keeping increasingly became centralised. These registers were limited in their scope as they focused on ships over a certain tonnage (Royal Museums Greenwich research Guide H5).
- 1.3.37 Like in earlier periods, shipbuilding continued to be decentralised and local shipbuilding technologies exhibited the general trends with local variations. The ship material and building techniques evolved during this period from the traditional wooden carvel ships in the early centuries to predominantly iron and steel from the latter 1860s onwards in response to changing needs from both commercial and military organisations and pressures on natural resources (Wessex Archaeology 2011).
- 1.3.38 A new maritime era began in the 19th century as a result of the Industrial Revolution on shipbuilding practices. The innovations on naval engineering laid the foundations for the modern shipping industry, which was dominated by the transport of cargo in the late 19th and early 20th century. These technological innovations were driven by the demands of the rapidly increasing worldwide market. By 1890, Britain owned half of the world's tonnage of merchant ships. The British Isles had become a busy trading hub and large volumes of cargo vessels passed through its territorial waters and ports.
- 1.3.39 Local resource exploitation activities would have continued within Bideford Bay, the Celtic Sea and Atlantic Ocean. Coastal and fishing vessels are likely to have been locally built and predominantly remained built of wood. Within the study area, there are records of several shipwrecks dating to the post-medieval period including 40 shipwrecks (**A65**) dated between 1627 and 1870 within Bideford Bay, seven shipwrecks (**A74**) off Northam within Bideford Bay dated to between 1749 and 1871, the wreck of the *Pace* (**A88**) off Northam Sands within Bideford Bay in

1868, a French merchant brigantine wrecked on the Abbotsham Rocks in 1867 (**A144**) and two scheduled wrecks (**A89** and **A92**), the mid-18th to early 19th century wreck of a Severn trow and the mid- to late 18th century wreck of the *Sally*. Of these wrecks, only the two that are scheduled have been relocated archaeologically.

Modern (AD 1900 – modern day)

- 1.3.40 The size of the ships in use for both the transport of goods and passengers as well as the military increased through the 20th century as ship-building technology continued to evolve in response to changing needs from both commercial and military organisations. Goods continued to be shipped by sea but the size of the vessels necessitated the centralisation of ports. Local maritime activity increasingly became marginalised as local ports pivoted to service smaller leisure vessels or local fishing vessels as the transport of goods was undertaken from large container ports by motor vehicle. The technological innovations in naval design (namely the development of liners propelled by steam) enabled the growth of passenger trade in the 20th century.
- 1.3.41 The wreck of the steam ship *Thistleamor* (**A63**), which sunk during adverse weather in 1909, lies within the study area just off the coast of Clovelly. The steam-powered vessel sank while enroute from Cardiff for Cape Town with coal. It was identified during the archaeological assessment of the geophysical data undertaken in support of the proposed development (**Appendix 7.2**; Wessex Archaeology 2024a).
- 1.3.42 During both World Wars, Cornwall and the south west region of England was a considerable target. The German navy tried to take control of the sea lanes of the western approaches as this region comprised the eastern end of the trade routes with North America. Records show the possible remains of two submarines (**A33** and **A303**) within the study area and several casualties of submarine activity including the *Bessie Stephens* (**A43**), the *Glenart Castle* hospital ship (**A44**), the Cottingham steam ship (**A145**), the *Marcelle* (**A216**), the *Pelham* steam ship (**A279** and **A282**), the *Hinemoa* (**A307**) and the *Galway Castle* steam ship (**A311**) located from west of Lundy to the approach to the English Channel.
- 1.3.43 In the early 20th century, a civilian airfield, the Barnstaple and North Devon Aerodrome, was constructed on the north shore of the Taw estuary, c 10 km to the north east of the northern end of the OCC. The airfield was expanded through the construction of an aerodrome on the farmland of the Chivenor Farm and the base was named RAF Chivenor. Throughout the war, training and anti-submarine activities were undertaken from the base and 13 squadrons were stationed there at one point or another. Second World War military defence installations are recorded within the DHER and CITIZAN datasets including a site of anti-glider posts (**A91**), which would have covered the beach at Westward Ho!, 2.5 km to the north east of the north end of the OCC and coastal anti-invasion defences (**A77**) on the shore west of Northam Burrows on aerial photographs of the 1940s. After the conclusion of the Second World War, the airfield continued in use as an RAF base until the 1990s when it was taken over by the Royal Marines (Southwest Airfields Heritage Trust 2017).
- 1.3.44 Following the Second World War, maritime activity became increasingly centralised. Large ports are now mainly used for cargo shipping and smaller ports are for fishing boats and leisure vessels. UKHO records include the unidentified remains of five carrier ships from the 20th century (**A308**, **A312**, **A314**, **A316**, and

A318). UKHO records also contain the remains of modern fishing vessels (including the *Margaret and William II* (**A320**)).

1.4 Archaeological Potential and Statement of Significance

Palaeoenvironment

- 1.4.1 *The OCC has moderate potential for palaeoenvironmental remains and Pleistocene deposits.* The OCC is located on a previously exposed section of the continental shelf. The remains of early prehistoric (Palaeolithic and Mesolithic) land surfaces and vegetation and peats dating to the Neolithic period have survived in Bideford Bay under sand deposits. Organic remains have also been noted within a borehole within the Celtic Sea to the north of the Scilly Islands. Peat deposits preserve floral remains such as pollen, seeds and plant fragments. Organic material can also be dated by radiocarbon techniques, important for establishing the chronology for the depositional sequence. In combination with geoarchaeological assessment, examination of pollen and diatoms can provide valuable information of contemporary local environmental conditions.
- 1.4.2 Pleistocene deposits including glacial till deposits and deposits along the glacial ice margins have the potential to inform understanding about changes within the environment as well as how the environment may have been utilised for human activity.

Palaeolandscape

- 1.4.3 *The OCC has high potential for palaeolandscape remains.* Previous investigations into the Bristol Channel area suggest that the study area was exposed as part of water level changes during the glacial cycles. The remains of early prehistoric (Pleistocene and early Holocene) land surfaces as well as vegetation and peats dating to the Neolithic period have survived within the study area under sand deposits.

Prehistoric

- 1.4.4 *The OCC has moderate potential to contain Palaeolithic remains.* The OCC is thought to have been located on exposed sections of the continental shelf during the glacial maximums; however, the extent of occupation within this area is currently undetermined. The known Palaeolithic remains within the wider area are predominately within cave sites and comprise the remains of lithic tool manufacture, temporary camping sites, and resource processing. Isolated findspots of stone tools or faunal remains dated to this period are possible within or at the interface between Pleistocene deposits and later geological deposits.
- 1.4.5 *The OCC has moderate potential to contain Mesolithic prehistoric remains north and east of Lundy Island.* The northern end of the OCC is located on a previously exposed section of the continental shelf that was utilised during the Mesolithic period until inundation in the Neolithic. Evidence of Mesolithic activity is generally limited to lithic scatters but it is possible that evidence of temporary settlement is present in response to the abundant natural resources, both marine and terrestrial, that would have been available during the period.

- 1.4.6 *The OCC has moderate potential for evidence of marine resource exploitation during the Neolithic, Bronze Age and Iron Age within the nearshore area of the OCC and low potential for evidence of maritime trade throughout the OCC.* Marine resources including vegetation, shellfish and fish would have been exploited during these periods within the near shore. Evidence of this activity may include fish and eel traps, trackways within former marginal marshland and the remains of boats.

Roman

- 1.4.7 *The OCC has moderate potential to contain Roman remains.* Roman coastal structures, i.e. harbours, docks, etc., are rare within Britain; however, a wooden stake alignment dated to this period is noted within Bideford Bay and further evidence of utilisation is possible extending into the Bideford Bay section of the OCC. Evidence of the use of ships for coastal trading and Roman military activity is possible throughout the OCC but is considered most likely to survive within deep alluvial deposits in the nearshore. Marine resources including vegetation, shellfish and fish would have continued to have been exploited during the Roman periods within the intertidal and near shore. Evidence of this activity may include fish and eel traps and the remains of small local fishing boats.

Early medieval

- 1.4.8 *The OCC has moderate potential to contain early medieval remains.* Evidence suggests that coastal trading, international trading, and local resource exploitation continued into the early medieval as the retreat of the Roman military is not thought to have had a meaningful effect on the local population's activities. Trade with Ireland and the Brittany region in France continued in this period and merchant ships as well as local fishing vessels would have been common throughout the OCC. Conflict with both the Anglo-Saxon kingdoms of eastern England and later Norse viking activity would have been facilitated using the coastal travel routes and was increasingly common in the latter half of the period in both North Devon and Cornwall.

Medieval

- 1.4.9 *The OCC has high potential to contain medieval remains.* Evidence suggests that coastal trading, international trading, and local resource exploitation continued into the medieval and trade links with Brittany were strengthened as land within North Devon and Cornwall was given to Breton lords who supported the Norman invasion. Ports within the Taw, Torridge and Camel rivers continued to grow supporting local and international trade. The area of the OCC would have also been used to facilitate travel and trade to ports including Dublin, Bristol and Chester. Small ports would have facilitated local fishing vessels and small coastal traders. Smuggling, privateering and pirate activity were common throughout the study area and were noted particularly around Lundy Island and between the continent and Cornwall. The ubiquitousness of maritime vessels for trade, travel and resource exploitation, the lack of comprehensive records and the dangers of maritime activity suggest that there is substantial potential for unknown shipwrecks throughout the OCC.

Post-medieval

1.4.10 *The OCC has high potential to contain post-medieval remains.* Merchant and naval activity expanded in the post-medieval period as the British Empire grew. The area of the OCC would have also been used to facilitate travel and trade to ports including Bristol and Liverpool both of which grew to be key ports on the west coast. Resource exploitation, particularly in the form of pilchard and mackerel fishing, continued into the post-medieval mainly being undertaken from the small ports along the coast until the end of the period when larger trawlers out of ports including Plymouth became more common. Smuggling, privateering and pirate activity continued to be common throughout the study area in the early post-medieval but was largely stopped by the government by the 19th century. Although recordkeeping improved through the period, the ubiquitousness of maritime vessels for trade, travel and resource exploitation, the lack of comprehensive records in the early centuries of the period and the dangers of maritime activity suggest that there remains substantial potential for unknown shipwrecks throughout the OCC. The 19th century was a transitional period in shipbuilding technology as shipbuilding became more regional with less local construction and changed from wood as the primary building material to iron for a period of 30 years (from 1860 to 1889) to steel in the last decade of the period.

Modern

1.4.11 *The OCC has high potential to contain modern remains.* The area of the OCC would have continued to have been used to facilitate travel and trade to western ports including Bristol and Liverpool until the decline of maritime trade and travel following the Second World War when trade became centralised to large container ports. Submarine activity during both World Wars resulted in numerous wrecking events of commercial, military and personal vessels. The German submarine campaigns in the study area were partially thwarted using the recently developed air force squadrons based in Cornwall and Devon. Evidence of aircraft and submarine remains are present within the study area.

1.5 Research Priorities

1.5.1 Archaeological Written Schemes of Investigation for Offshore Wind Farm Projects (The Crown Estate, 2021) states that a WSI should set out '*the importance of research frameworks in setting objectives that are delivered through realisation of the work*'.

1.5.2 The following research frameworks have been identified as relevant to the marine archaeology resource of the Proposed Development study area:

- South West Archaeological Research Framework (Somerset County Council, 2007) is a comprehensive research framework that provides an academic basis for undertaking work in the historic counties of Gloucestershire, Somerset, Wiltshire, Dorset, Devon and Cornwall. The document comprises an assessment for each archaeological period from the Palaeolithic to the modern periods and identifies 36 research aims.
- The People and the Sea: A Maritime Archaeological Research Agenda for England (Ransley *et al.*, 2013) assesses the current state of marine archaeological knowledge along the English Coast and within territorial waters. The research agenda compiled a series of research aims and priorities both

for specific periods and for wider cross-period themes. The document comprises an assessment and a research agenda for each archaeological period from the Palaeolithic to the modern periods.

- 1.5.3 The following research aims identified from the South West Archaeological Research Framework have been identified for the site:
- Research Aim 16: Increase the use and improve targeting of scientific dating.
 - Research Aim 18: Target specific soil and sediment contexts for environmental remains.
 - Research Aim 23: Improve our understanding of past climate and sea level changes together with their effects on the people's relationships with landscapes and the sea.
 - Research Aim 25: Improve our understanding of Palaeolithic and Mesolithic landscapes.
 - Research Aim 37: Increase our knowledge of maritime archaeological sites.
 - Research Aim 53: Increase our knowledge of the effects of colonialism on the region and the wider world.
- 1.5.4 Additional research aims may be identified as relevant depending on the specific archaeological work to be undertaken. Any archaeological work and reporting under this OOWSI will tie research into the relevant research frameworks and agendas, ensuring that the project makes a contribution to archaeological knowledge. The objectives of the research frameworks will be used to guide work and recommendations made by the Archaeological Consultant and Retained Archaeologist to Xlinks 1 Limited 'the Applicant'.

1.6 Committed Mitigation Measures

Embedded Mitigation

- 1.6.1 In order to prevent significant impacts, the following mitigation has been embedded in the Proposed Development design, as required by the relevant securing documents below (and as set out in Volume 1, Appendix 3.1: Commitments Register of the ES):
- 100m Archaeological Exclusion Zones (zone in which no construction activities will take place) are committed around the extents of known (x1 site identified) wreck sites and anomalies of archaeological interest. This commitment will lead to archaeological preservation *in-situ*.
 - See paragraphs 1.8.36–1.8.47
 - This OOWSI will secure this measure. This OOWSI is a requirement of the Deemed Marine Licence, which is currently in draft as a Schedule to the draft Development Consent Order
 - 100m Archaeological Exclusion Zones (zone in which no construction activities will take place) are committed around the recorded point locations of previously recorded sites that have not been seen in the geophysical data but at which archaeological material is likely to be present, possibly buried. There are x3 such point locations identified. This commitment will lead to archaeological preservation *in-situ*.

- See paragraphs 1.8.36–1.8.47
- This OOWSI will secure this measure. This OOWSI is a requirement of the Deemed Marine Licence, which is currently in draft as a Schedule to the draft Development Consent Order
- 30m Archaeological Exclusion Zones (zone in which no construction activities will take place) are committed around the extent of likely anthropogenic debris. There are x1 such points identified. This commitment will lead to archaeological preservation *in-situ*.
 - See paragraphs 1.8.36–1.8.47;
 - This OOWSI will secure this measure. This OOWSI is a requirement of the Deemed Marine Licence, which is currently in draft as a Schedule to the draft Development Consent Order
- Geophysical anomalies identified within the offshore archaeological assessment will be avoided where possible by micro-routing. Where this is not possible this OOWSI will provide the framework for potential further actions. This commitment will lead to archaeological preservation *in-situ*.
 - This OOWSI will secure this measure. This OOWSI is a requirement of the Deemed Marine Licence, which is currently in draft as a Schedule to the draft Development Consent Order
- Further investigation of identified anomalies and previously recorded sites that cannot be avoided by micro-routing of design will be undertaken within the framework of this OOWSI
 - See paragraphs 1.8.45—1.8.52;
 - This OOWSI will secure this measure. This OOWSI is a requirement of the Deemed Marine Licence, which is currently in draft as a Schedule to the draft Development Consent Order
- Protocol for Archaeological Discoveries (PAD) - Additional unknown or unexpected cultural heritage and marine heritage features identified during the project stages will be reported utilising the project specific PAD, which is appended to the ES (Volume 3, Appendix 7.6 Protocol for Archaeological Discoveries of the ES)
 - See paragraphs 1.8.10–1.8.16;
 - This OOWSI will secure this measure (the protocol is an integrated requirement of this OOWSI). This OOWSI is a requirement of the Deemed Marine Licence, which is currently in draft as a Schedule to the draft Development Consent Order
- The archaeological assessment of any further geophysical data collected
 - See paragraphs 1.8.17–1.8.25;
 - This OOWSI will secure this measure. This OOWSI is a requirement of the Deemed Marine Licence, which is currently in draft as a Schedule to the draft Development Consent Order

Additional Mitigation

- 1.6.2 Additional mitigation may be required where anomalies or AEZs cannot be avoided, sites are potentially of sufficient importance, or where unexpected

discoveries are encountered and reported through the PAD. This may include measures to further investigate the nature and extent of anomalies and/or discoveries, to establish the archaeological interest and to record them prior to removal. The precise methodology for such works would be set out in works site-specific method statements in consultation with Historic England prior to works commencing.

1.7 Roles, Responsibilities and Communication

- 1.7.1 Overall responsibility for the implementation of the final Offshore WSI will lie with the Applicant who will ensure that its agents and contractors are contractually bound to adhere to the terms of the final Offshore WSI and to implement the Protocol for Archaeological Discoveries (PAD; see paragraphs 1.8.10–1.8.16).
- 1.7.2 For each package of archaeological works, the Applicant or their agents will, as required, procure the services of specialist archaeological contractors with the requisite experience and expertise to undertake the necessary works. In addition, the Applicant will retain the services of a suitably qualified and experienced archaeological consultant (the Retained Archaeologist) to ensure the effective implementation of the final Offshore WSI and other contractual commitments in relation to archaeology.
- 1.7.3 The 'Regulator' is responsible for the approval of the WSIs and is advised by the Archaeological Curator. The regulator within England is the MMO.
- 1.7.4 The MMO's statutory advisor on the marine historic environment and the archaeological curator for heritage matters offshore (below MHWS) is Historic England. The 'Archaeological Curator(s)' provides the development control and planning advice to the regulators, has the final decision on the scope of work and signs off the archaeological fieldwork when it is complete, in consultation with the consultant.
- 1.7.5 The 'Archaeological Consultant' is responsible for managing the scope and for monitoring and assuring the work on behalf of the client. The team will liaise directly with the Retained Archaeologist, curator, and the Regulator.
- Compiling, reviewing and updating this Outline Offshore WSI following consultation with the regulators (MMO) and curators (Historic England) post-consent to produce a final, agreed Offshore WSI; Advising the Applicant on their responsibilities regarding the implementation of the final Offshore WSI and the PAD;
 - Compiling, agreeing and issuing method statements for archaeological contractors to adhere to, following consultation with the Applicant and the regulators and curators;
 - Advising the Applicant on the necessary interaction with the regulators, curators and other third parties.
- 1.7.6 The 'Retained Archaeologist' is responsible for managing the implementation of the Protocol for Archaeological Discoveries (PAD) (see paragraphs 1.8.10–1.8.16; Volume 3, Appendix 7.6: Protocol for Archaeological Discoveries of the ES) and for monitoring and assuring the work of specialist archaeological contractors, on behalf of the client. The team will liaise directly with the archaeological consultant, curator and the Regulator. The Retained Archaeologist should have the autonomy to make recommendations, based on their specialist knowledge and experience. The responsibilities include:

- Procuring, monitoring the work of, and liaising with specialist archaeological contractors;
- Monitoring the preparation and submission of archaeological reports as appropriate and making them available to the regulators and curators for review and approval; and
- Advising the Applicant on any final requirements and arrangements for further analysis, archive deposition, publication and popular dissemination.

1.7.7 The 'specialist archaeological contractors' are responsible for carrying out the fieldwork, post-excavation reporting, deposition of the archive and dissemination as needed. The specific responsibilities of specialist archaeological contractors during subsequent phases of work will be set out in separate task/work package-specific method statements.

1.7.8 All agents and contractors engaged by the Applicant will:

- Familiarise themselves with the requirements of the final Outline Offshore Archaeological WSI and make it available to their staff, explaining the requirements and need for strict adherence;
- Familiarise themselves with the Protocol for Archaeological Discoveries (PAD) (see paragraphs 1.8.10–1.8.16) and ensure the implementation of and adherence to the protocol by staff, including ensuring staff awareness of the protocol and making staff available for training through toolbox talks, as necessary;
- Assist and afford access to archaeological contractors as advised by the Applicant and the Retained Archaeologist; and
- Inform the Retained Archaeologist and the archaeological contractors of any environmental or health and safety constraints of which they may be aware that are relevant to the archaeologist's activities on site.

1.7.9 Prior to and during the course of any geoarchaeological recording, assessment and analysis, consultation with the Historic England Regional Science Advisor for Southwest England is also recommended to agree on the suitability of the approach.

1.8 Archaeological Strategy

1.8.1 The methodologies presented below summarise the Archaeological Written Schemes of Investigation for Offshore Wind Farm Projects (The Crown Estate, 2021). It is an essential requirement of this Outline Offshore WSI that all approaches presented in this document adhere to The Crown Estate's methodologies with the exception of any adaptations and amendments under agreement with the MMO in consultation with Historic England.

Archaeological Samples and Artefacts

1.8.2 In the event that further environmental samples are obtained during any additional pre-construction geotechnical surveys, any samples that are suitable for archaeological and palaeoenvironmental assessment will be subject to geoarchaeological assessment (see paragraphs 1.8.26–1.8.35).

1.8.3 Any remains encountered during the project activities would be treated in accordance with the relevant guidance (The Crown Estate, 2021) and:

- Standards and guidance for the collection, documentation, conservation and research of archaeological materials (ClfA, 2020b);
 - First Aid for Finds (Leigh *et al.*, 1998) and
 - First Aid for Underwater Finds (Robinson, 1998).
- 1.8.4 Isolated discoveries of artefacts that may come to light during the course of the development will be dealt with through the Protocol for Archaeological Discoveries (PAD; see paragraphs 1.8.10–1.8.16).
- 1.8.5 With regard to archaeological works from the point of discovery, all finds will be held by the archaeological contractor in appropriate conditions pending further recording, investigation, study or conservation.
- 1.8.6 Recovered objects will be selected, retained or disposed of in accordance with the policy agreed with the institution receiving the archive, and in consultation with the archaeological contractors. Contingency will be made for specialist advice and conservation needs on-site should unexpected, unusual or extremely fragile and delicate objects be recovered.
- 1.8.7 If human remains are discovered an application for a licence from the Ministry of Justice under Section 25 of the Burials Act 1857 will be made by the Archaeological Contractor(s). The works will also take place in accordance with the appropriate Environmental Health regulations. With regard to the remains of crashed aircraft, the majority of aircraft wrecks are military and so fall under the legal protection of the Protection of Military Remains Act 1986. Other specific and bespoke requirements may also be required.
- 1.8.8 All archaeological artefacts that have come from a shipwreck are considered to be subject to the Merchant Shipping Act 1995. The Applicant, via their archaeological contractors, should ensure that the Receiver of Wreck is notified within 28 days of recovery, by the Applicant or their agents, for all items of wreck that have been recovered.
- 1.8.9 All recovered materials will be subject to a conservation assessment to gauge whether special measures are required while the material is being held. This conservation assessment will be carried out by the Retained Archaeologist or an archaeological contractor with advice from appropriate specialists. The Retained Archaeologist (where appointed) or an archaeological contractor will implement recommendations arising from the conservation assessment. Where no special measures are recommended, finds will be conserved, bagged, boxed and stored in accordance with industry guidelines (Leigh *et al.*, 1998 and ClfA, 2020b).

Protocol for Archaeological Discoveries (PAD)

- 1.8.10 To account for unexpected discoveries of archaeological material during construction, operation and decommissioning a formal protocol is required. It is recommended that if any objects of possible archaeological interest are encountered, that they should be reported using the protocol outlined in Volume 3, Appendix 7.6: Protocol for Archaeological Discoveries of the ES, which is based on the Protocol for Archaeological Discoveries: Offshore Renewables Projects (The Crown Estate, 2014). This will establish whether the objects are of archaeological interest and recommend appropriate mitigation measures where necessary.
- 1.8.11 Activities during which previously unidentified sites or unexpected discoveries of material may be encountered include:

- Pre-construction surveys, examples may include:
 - Anomalies on the seabed identified by geophysical contractors;
 - Obstructions on the seabed encountered during geotechnical surveys or grab sampling;
 - archaeological material within cores or grab samples; and
 - Seabed features identified during diver or ROV surveys.
 - Seabed clearance, pre-lay grapnel runs (e.g. finds brought to the surface);
 - Plough and grapnel clearance activities;
 - Vessel anchoring (e.g. anchor caught on obstruction); and
 - Installation of the HVDC cables (e.g. obstruction interactions with cable lay plant).
- 1.8.12 PADs were first used in December 2010 and were applied to pre-construction, construction and installation activities in developing offshore renewable energy schemes where an archaeologist was not present on site. The protocol allows for the effective reporting of discoveries of archaeological material to ensure that advice, concerning measures to address discoveries, is received and implemented efficiently.
- 1.8.13 Each vessel or worksite team has a Site Champion, a single person responsible for reporting discoveries to a Nominated Contact in the Applicant's core team. The Nominated Contact will contact the Retained Archaeologist and Archaeological Consultant regarding any new discoveries.
- 1.8.14 Individual Site Champions for specific activities will be specified in work package method statements and the identity of the Site Champion will be clearly communicated to work teams. The Applicant will be responsible for ensuring that teams are provided with appropriate training in the application of the PAD and that all staff and contractors are aware of their responsibilities under the protocol. The Applicant may utilise the expertise of the appointed Retained Archaeologist to manage the PAD.
- 1.8.15 Training to construction staff, site crews and work teams with regard to the practical application of the protocol can be provided by the Retained Archaeologist. Hard copies of the PAD document will be made available for use on board the construction vessels.
- 1.8.16 Provision will be made by the Applicant, in accordance with PAD, for the prompt reporting/recording to Historic England of archaeological remains encountered or suspected during works. If the find is a wreck within the meaning of the Merchant Shipping Act (1995) then a report will also be made to the Receiver of Wreck. If the find is treasure within the meaning of the Treasure Act (1996) then a report will also be made to the Coroner.

Marine Geophysical Investigations

- 1.8.17 Geophysical site characterisation survey was conducted across the footprint of the OCC. The data were collected by GEOxyz onboard survey vessels Geo Surveyor XI for the nearshore survey area between 27 August and 5 September 2022 and Geo Ocean IV for the offshore survey areas between 23 August 2023 and 08 September 2023. The geophysical survey provided coverage of the nearshore area and the footprint of the OCC.

1.8.18 Wessex Archaeology, a specialist marine and coastal contractor, was appointed to undertake the archaeological assessment of the geophysical survey data. All data acquired within the OCC was made available for archaeological assessment and Wessex Archaeology reviewed the entire dataset. For further information regarding the assessment, technical specifications and data processing see Volume 3, Appendix 7.2: Archaeological assessment of geophysical survey data of the ES.

1.8.19 The overarching objectives of the assessment of marine geophysical survey data are to:

- Identify known heritage assets and provide additional detail on the nature and extent of those assets;
- Identify previously unidentified seabed features;
- Identify buried palaeolandscape features that help to clarify the nature of the submerged prehistoric landscape; and
- Monitor the construction and post-construction effects.

Table 1-2: Summary of data types and their quality acquired by marine geophysical surveys

Survey Vessel	Survey Type	Interpretation requirements	Data quality
Geo Surveyor XI, Geo Ocean IV	Multibeam echosounder	The data were gridded at the appropriate resolution of 1 m in the offshore area and 0.2 m in the nearshore area	Offshore data rated as 'average'; Nearshore data rated as 'good'
Geo Surveyor XI, Geo Ocean IV	Sidescan sonar	High frequency SSS mosaics were provided for the nearshore section of the route and low frequency SSS mosaics were provided for the offshore route. Anomalies picked from the SSS mosaic were subject to a 5 m threshold in any one direction	Offshore data rated as 'average'; Nearshore data rated as 'good'
Geo Surveyor XI, Geo Ocean IV	Magnetometer	20nT threshold for anomaly picking. The magnetic anomalies were classified depending on their amplitude as small (25 nT to 49 nT), medium (50 nT to 99 nT), large (100 nT to 499 nT) or very large (>500 nT).	Offshore data rated as 'average'; Nearshore data rated as 'average'
Geo Ocean IV	Remotely Operated Towed Vehicle (ROTV) Sidescan sonar	Raw SSS data was not subject to a size threshold	Offshore data rated as 'average'

1.8.20 A total of 218 seabed anomalies of archaeological potential were identified within the study area (Volume 3, Appendix 7.2: Archaeological assessment of geophysical survey data of the ES). These are summarised as follows:

- total of four were assigned an A1 archaeological discrimination; anthropogenic origin of archaeological interest;
- a total of 22 were assigned an A2_h archaeological discrimination; anomaly of likely anthropogenic origin but of unknown date; may be of archaeological interest or a modern feature;
- a total of 186 were assigned an A2_I archaeological rating; anomaly of possible anthropogenic origin but the interpretation is uncertain; may be anthropogenic or a natural feature;
- one item, a recorded wreck, was assigned an A3 archaeological discrimination; historic record of possible archaeological interest with no corresponding geophysical anomaly; and
- five items were given an U3 archaeological discrimination; recorded loss.

1.8.21 Twenty-seven anomalies have been assessed as high or moderate archaeological potential as summarised below and detailed in Volume 3, Appendix 7.2: Archaeological assessment of geophysical survey data of the ES:

- 7026 corresponds to the UKHO record 12198, which is an unknown recorded wreck. Following a survey in 2008 the record was amended to 'dead'. In the 2023 datasets no corresponding anomalies were identified, however, this record has been retained in the gazetteer as previously remains in this position have been identified. Archaeological discrimination: A3.
- Debris 7027 is an anomaly that lies only 6 m to the north east from the wreck Thistlemor (wreck 7028, UKHO 12339). The angular dark reflector with shadow measures 6.3 x 4 x 1.2 m. Archaeological discrimination: A1.
- 7028 corresponds with UKHO record 12339, the *Thistlemor*. The Thistlemor was a steam ship which sunk in 1909. The wreck measures 105.2 x 35.7 x 1.3 east to west. The wreck appears to be broken and degraded and debris has been identified in the vicinity. Archaeological discrimination: A1.
- 7030 is a strong magnetic anomaly, measuring 526 nT. The nature of this anomaly cannot be confirmed without further inspection but it has been interpreted as modern ferrous debris. Archaeological discrimination: A1.
- 7196 is a strong magnetic anomaly, measuring 1840 nT. Possibly it is ferrous debris. Archaeological discrimination: A1.
- 7005 is a possible ferrous debris, which may be modern. It is situated in the proximity of an UKHO obstruction recorded as a pipe or diffuser and maybe associated. Archaeological discrimination: A2_h.
- 7011 is a moderately strong isolated magnetic anomaly (347nT). Archaeological discrimination: A2_h.
- Debris 7014 is a double peaked mound measuring 2.2 x 1.2 m, which is surrounded by scour. Archaeological discrimination: A2_h.
- 7019, 7072, 7129, 7188 and 7189 are linear debris' which were interpreted as length of rope or chain. Archaeological discrimination: A2_h.
- 7031, 7035, 7039, 7040, 7112, 7146, 7166, 7175, 7187 and 7207 are possibly ferrous debris' which are either buried or have no surface expression. Archaeological discrimination: A2_h.
- 7079 is a possible linear debris which may be interpreted as an uncharted cable; however, this cannot be confirmed without further investigation. The

debris may be buried or have no surface expression. Archaeological discrimination: A2_h.

- Debris 7102 is a distinct mound anomaly with steep sides and a double peak. Archaeological discrimination: A2_h.
- 7113 may be an uncharted cable but this cannot be confirmed without further inspection. The anomaly was interpreted as possible ferrous debris, either buried or with no surface expression. Archaeological discrimination: A2_h.
- Debris 7195 is an anomaly signified by a distinct raised area of seabed. On the south-east side the feature has a steep side and the north-west edge is possibly buried. Archaeological discrimination: A2_h.

1.8.22 The remaining 191 anomalies have been characterised as low potential. Most of them are isolated linear features, modern debris or weak magnetic anomalies.

1.8.23 If required, a method statement will be issued by the Applicant in advance of any further geophysical survey campaigns that incorporate archaeological objectives, as advised by the Retained Archaeologist and/or archaeological contractor. The method statement will set out the specific details of the campaign and the methodology for archaeological assessment in order to inform consultation with Historic England and to provide sufficient instruction for the completion of data acquisition programmes to the highest quality standards possible. Archaeological briefings for survey staff will be carried out prior to the commencement of surveys and the Applicant will be responsible for ensuring that surveys proceed in accordance with any planned method statement in consultation with Historic England.

1.8.24 The results of further geophysical interpretation will be compiled as an archaeological report consistent with industry guidelines. The results of further geophysical interpretation will also inform requirements for further investigation (e.g. ground-truthing as set out in paragraphs 1.8.45—1.8.52).

1.8.25 The National Maritime Information Centre (NMIC) should be notified as soon as possible following new discoveries with the aim of protecting any new wreck sites from salvage attempts. Procedures for contacting the NMIC following the identification of any new wreck sites should be made clear within agreed documentation, including method statements for the archaeological assessment of geophysical data.

Marine Geoarchaeological Investigations

1.8.26 Geotechnical data comprising 44 cone penetration tests (CPT) and 44 vibrocores (VC) acquired by GEOxyz in 2023 were initially reviewed (Stage 1) by a geoarchaeology team at WSP. To date, two of the four stages of assessment has been undertaken:

- Stage 1: Geoarchaeological review of preliminary core logs (Wessex Archaeology, 2024; Volume 3, Appendix 7.3 Stage 1 and 2 Marine Geoarchaeological Assessment of the ES);
- Stage 2: Geoarchaeological description and interpretation (Wessex Archaeology, 2024; Volume 3, Appendix 7.3 Stage 1 and 2 Marine Geoarchaeological Assessment of the ES);
- Stage 3: Sub-sampling and palaeoenvironmental assessment (not currently recommended); and

- Stage 4: Palaeoenvironmental assessment (not currently recommended).
- 1.8.27 The requirement for further geoarchaeological investigation is currently being assessed as part of the geoarchaeological assessment of the existing borehole data. If further investigation is required, any results will be reviewed and assessed by qualified geoarchaeologists in accordance with industry guidelines. HE will be consulted regarding scope and methodology of any further investigations.
- 1.8.28 It is recommended that a data review is undertaken by a suitability qualified and experienced archaeological contractor prior to the acquisition of any further geotechnical data (if required). As part of any such review, the archaeological contractor will identify any data gaps and any specific archaeological objectives to inform the acquisition of geotechnical data. This may include detail concerning proposals for further palaeoenvironmental assessment and dating in terms of what should be assessed and how this work should be carried out. Objectives should take account of the specific research objectives identified through the initial geoarchaeological assessment.
- 1.8.29 The primary aim of any geoarchaeological investigations will be the further development of a Quaternary (sedimentary) deposit model for the OCC which will both inform and be expanded by subsequent phases of work. An outline deposit model will be prepared as part of the geoarchaeological assessment.
- 1.8.30 Historic England will be consulted on the scope of all further geotechnical surveys and all geotechnical investigations and subsequent geoarchaeological assessment commissioned by the Applicant will be undertaken in accordance with best practice as set out in:
- Offshore Geotechnical Investigations and Historic Environment Analysis: Guidance for the Renewable Energy Sector (Gribble and Leather, 2011);
 - Environmental Archaeology: A Guide to the theory and practice of methods, from sampling and recovery to post-excavation (Historic England, 2011); and
 - Geoarchaeology: using earth sciences to understand the archaeological record (Historic England 2007).
- 1.8.31 In planning any further geotechnical surveys, which may be undertaken primarily to meet engineering/design objectives, general provisions should include:
- Micro-siting of borehole/vibrocore locations to avoid recommended AEZs and anomalies of possible archaeological interest;
 - Comparison of the proposed locations to the positions of previously identified paleogeographic features and deposits of archaeological interest to micro-site the proposed locations to ensure that opportunities to obtain samples to inform archaeological interpretation are not missed; and
 - Consideration given to the acquisition of second 'archaeology only' cores at specific locations, if required, following advice from the Retained Archaeologist, the geoarchaeological contractor and in consultation with Historic England.
- 1.8.32 During all geotechnical surveys, all operatives should observe the PAD, as set out in paragraphs 1.8.10–1.8.16.
- 1.8.33 The Applicant will procure the services of a specialist geoarchaeological contractor to undertake assessment, and, if required, palaeoenvironmental analysis and dating. Geoarchaeological assessment will also be carried out in accordance with interpretations of sub-bottom profiler data currently being

assessed by Wessex Archaeology. Any further sub-bottom profiler data acquired for the project will be assessed by a suitably qualified and experienced archaeological contractor for integration with the results of the geotechnical surveys and any subsequent geoarchaeological assessment.

- 1.8.34 Prior to the commencement of any site investigation campaign, a method statement will be issued by the Applicant setting out the specific details of the campaign once the geoarchaeological requirements and locations have been established in order to inform consultation with Historic England. Archaeological briefings for survey staff will be carried out prior to the commencement of surveys and the Applicant will be responsible for ensuring that surveys proceed in accordance with any planned method statement agreed with the MMO in consultation with Historic England.
- 1.8.35 The results of further marine geoarchaeological assessment will be compiled as an archaeological report consistent with best practice on reporting and will form part of the project archive (see paragraphs 1.8.62–1.8.73).

Archaeological Exclusion Zones

- 1.8.36 AEZs will be employed for archaeologically significant anomalies that are clearly identifiable in the survey data, or for historic records where remains have been previously identified. The implemented AEZs will remain for the entirety of the project or until further data are acquired (ground truthing, higher resolution geophysical data) that will prompt the re-evaluation of the potential, significance or extents of the identified sites. The principal objective of an AEZ is to prevent damage to or disturbance of a wreck, aircraft or features on the seafloor during activities that may cause direct impacts to a receptor.
- 1.8.37 The implementation, monitoring and modification of AEZs will take place in accordance with the measures specified by The Crown Estate (2021).
- 1.8.38 AEZs preclude development activities from taking place within their boundaries, thereby avoiding significant impacts to assets contained within. The position, extent and design of an AEZ should take into account all available information including geology, hydrology and sediment transport and should extend around the boundaries of the asset rather than around a centre-point within the site. In addition, an AEZ will incorporate a buffer in order to ensure that all material associated with that asset is encapsulated within its boundary, as well as to reduce the risk of unintentional impacts.
- 1.8.39 As part of the embedded mitigation for the Proposed Development, the size and position of AEZs agreed between the Applicant and Historic England will inform the design of the cable route. The size and position of AEZs is expected to be:
- 100m AEZs around the extents of known wreck sites and anomalies of archaeological interest within which no development-related activities will take place (x1 at time of drafting);
 - 100m AEZs around the recorded point locations of previously recorded sites that have not been seen in the geophysical data but at which archaeological material is likely to be present, possibly buried (x1 at time of drafting);
 - 100m AEZs around magnetic anomalies discriminated as A1 based on their amplitudes, and interpreted as substantial ferrous debris - but buried with no surface expression (x2 at time of drafting);

- 30m AEZ around the extent of a likely anthropogenic debris within which no development-related activities will take place (x1 at time of drafting);
- 1.8.40 AEZs can be reduced, enlarged or removed in agreement with the MMO in consultation with Historic England if further relevant information becomes available. Unless modified by agreement, it is important that AEZs are retained throughout the project lifetime and monitoring of AEZs may be required by the regulator and curator to ensure adherence both during construction and in the future operation of the cable.
- 1.8.41 The Applicant will ensure that details of the AEZs are supplied to all agents and contractors and will retain responsibility for ensuing adherence to the AEZs throughout the project lifespan (pre-construction, construction, operation and decommissioning).
- 1.8.42 Subject to approval by HE, AEZs will be implemented around the following anomalies:
- 7026: 100m buffer around the recorded position (401827, 5658228);
 - 7027: 30 m buffer merged with wreck 7028 (401717, 5658018);
 - 7028: 100m buffer around feature extent (401663, 5658016);
 - 7030: 100m buffer around recorded position (398469, 5660373); and
 - 7196: 100m buffer around recorded position (657296, 5455055).
- 1.8.43 It is considered these AEZs are appropriate to ensure robust, but proportional, mitigation from the impacts of development. The agreed AEZs will be the primary means employed to preserve features or remains of archaeological interest or potential in situ.
- 1.8.44 The AEZs agreed during the EIA process must be supplied as a GIS shapefile. The Retained Archaeologist has responsibility for maintaining the live AEZ shapefiles in the project GIS. In addition, all documentation required for project delivery provided to contractors will include the lists and illustrated locations of AEZs, which will be updated as needed as the project develops.

Archaeological Investigations Using Divers and/or ROVs

- 1.8.45 The principal objective of diver/ROV investigation will be to further establish the archaeological interest of previously unidentified seabed features seen in the geophysical data in order to inform the strategy of avoidance through revisions to the scheme design.
- 1.8.46 It is possible that the nature and extent of individual anomalies may only be achieved through the use of drop-down cameras or diver/ROV survey. Ground truthing may also be required in order to clarify the extent of a site in order to alter (enlarge, reduce, move or remove) AEZs.
- 1.8.47 All ground-truthing that may be required to inform the construction of the Proposed Development's mitigation strategy will be carried out in accordance with best practice outlined by The Crown Estate (2021).
- 1.8.48 Diver or ROV-based investigations will take place as required and, where the primary objectives are archaeological, operations will be led by archaeologists.

However, it may also be possible to combine such surveys with non-archaeological objectives, for identification of UXO for example.

- 1.8.49 In order to maximise the potential benefits of any proposed diver or ROV surveys, the Applicant will seek archaeological input at the planning stage of any such works. Any such survey specification will be informed by previous stages of the project, including the Proposed Development ES and assessment of geophysical data so that archaeological considerations can be taken into account. Following the completion of a diver/ROV survey, all data, including video footage, will be reviewed by an archaeological contractor with appropriate expertise.
- 1.8.50 Anomalies, as identified from the archaeological assessment of pre-construction geophysical data (see paragraphs 1.8.17–1.8.25), will be selected for further study if they cannot be avoided through micro-siting, or where clarification is required to inform micro-siting in the final design. A detailed method statement for any archaeological works will be agreed in advance of works commencing with the MMO in consultation with Historic England.
- 1.8.51 The results of diver/ROV assessment will be compiled as an archaeological report consistent with best practice on reporting and will form part of the project archive (see paragraphs 1.8.62–1.8.73).
- 1.8.52 As stated above for marine geophysical assessments, in the event of a new discovery, it is important to notify the NMIC as soon as possible following the identification of a new wreck site in order to protect against salvage attempts. Procedures for contacting the NMIC following the identification of any new wreck sites should be made clear within agreed documentation, including method statements for archaeological investigations using divers and/or ROVs.

Archaeological Watching Brief

- 1.8.53 Due to the use of HDD to install cables at the landfall, extending to at least 5 m below LAT, watching briefs within the intertidal area will not be required. Activities which may result in archaeological material being brought to the surface, including pre-lay grapnel runs, may require on-board supervision by a suitably qualified and experienced archaeologist.
- 1.8.54 The scope and methodology of any archaeological watching brief required will be agreed with the MMO in consultation with Historic England and set out through a site-specific method statement or WSI. If areas subject to clearance are considered of medium or high archaeological importance, on board monitoring may be considered necessary to ensure appropriate consideration of archaeological material brought to the surface. In areas of low archaeological importance, any material brought to the surface will be dealt with through the PAD (see paragraphs 1.8.10–1.8.16). Historic England will be notified and consulted regarding any archaeological material collected during the works.

Monitoring

- 1.8.55 Monitoring requirements are anticipated to comprise:
- Monitoring of the final Offshore WSI by the Retained Archaeologist in order to ensure that the scheme of investigation is appropriate to the scheme design;
 - Monitoring of archaeological works by the archaeological curators, including monitoring of the effectiveness of AEZs; and

- Monitoring during and post-construction, including a conservation programme for finds.
- 1.8.56 The performance of the final Offshore WSI will be monitored during the course of the pre-construction phase and the contents will be reviewed and updated as necessary prior to construction to inform a construction phase document specific to the final design. Provision will also be made for the final Offshore WSI to be revised as appropriate should elements of the project change or particular archaeological issues come to light. Any revisions will be prepared by the Retained Archaeologist and submitted by the Applicant, or their agents to the MMO for approval in consultation with Historic England.
- 1.8.57 All reports prepared for each package of archaeological works will be disseminated to MMO and Historic England by the Applicant, or their agents, so that the results can be reviewed and any concerns addressed. All survey reports undertaken for the purposes of archaeological evaluation will be submitted to the MMO and Historic England within a specified timescale of the survey being completed to be agreed with the regulator.
- 1.8.58 Historic England and the MMO will be notified in advance by the Applicant or their agents of the commencement of work timetables and the commencement of any work on site that may have an impact on archaeology and will be informed at this time of the name and contact details for the Retained Archaeologist. During any site evaluation/investigation or construction work that has the potential to impact archaeological remains the Retained Archaeologist may liaise directly with Historic England with regard to site monitoring and reporting only after prior reference to the Applicant. The Applicant will be kept informed of all contact between the Retained Archaeologist and the archaeological curators.
- 1.8.59 In order to monitor the effectiveness of AEZs, periodic archaeological reports will be prepared by the Applicant, or by the Retained Archaeologist on behalf of the Applicant, to review whether there have been any incursions into each zone and whether there are still archaeological grounds for maintaining each zone. The frequency of such reports will be agreed with the MMO in consultation with Historic England but may include reports at the conclusion of key construction phases and a post-construction monitoring report, including an archaeological assessment of post-construction geophysical survey data. If it becomes apparent that activities have encroached upon an AEZ, the Applicant will seek advice from the Retained Archaeologist.
- 1.8.60 To effectively direct post-construction monitoring, a method statement prepared by the Retained Archaeologist should be produced in consultation with HE. If the Retained Archaeologist does not have a sufficient level of experience with regards to the specific project work required, then the Applicant shall appoint a suitably qualified and experienced archaeological contractor to prepare the document and undertake the works. Dependent on the type of remains being monitored, diver or ROV-based investigations may be considered.
- 1.8.61 A post-construction monitoring report including the archaeological assessment of post-construction geophysical survey data relative to the baseline data will also assess the effects of any indirect impacts that may have occurred to heritage assets as a result of the cable construction. Based on the results of the initial post-construction review, any further requirements during the operation phase will be agreed in consultation with Historic England.

Archaeological Recording, Reporting, Data Management and Archiving

- 1.8.62 With regard to survey reports, each package of works will be accompanied by written reports pursuant to the requirements of those works and demonstrating appropriate planning, recording and data management and archiving and public dissemination of results as needed.
- 1.8.63 For all aspects of recording, reporting, data management and archiving, the Applicant will adhere to industry standards and guidance.
- 1.8.64 Once agreed, the methodology for each package of works will be set out in a method statement prepared under the requirements of the final Offshore WSI and appended to it. Each method statement will be agreed with the relevant archaeological curator prior to works commencing.
- 1.8.65 Each archaeological report will satisfy the method statement requirements for the investigation and will present the project information in sufficient detail to allow interpretation. In accordance with the ClfA standards and guidance (2023), this will include as a minimum, the following:
- Non-technical summary;
 - The project design or appropriate reference to it;
 - The aims, objectives and methods used, including any departure from the project design;
 - Results, referring to the research aims in the project design and including research implications;
 - Illustrations, plans and essential technical and supporting detail, with accurate spatial information sufficient to locate the areas of investigation in the future;
 - Conclusions, including a confidence rating on techniques used, and any recommendations for further work that might improve that confidence;
 - References and bibliography, list of all sources used. The final destination of the archive (records and finds) will be noted in the report along with the site code assigned by the relevant project archive repository.
 - Archive locations (pre- and post-deposition if known); and
 - Copyright.
- 1.8.66 Each archaeological report will be submitted in draft to the Retained Archaeologist for submission to the Applicant. If the report is prepared by the Retained Archaeologist, it will be submitted directly to the Applicant. Where appropriate, further desk-based and/or archival research will be undertaken as part of the reporting process to meet the policy provisions set out in NPS EN-3.
- 1.8.67 Decisions regarding the scope of post-fieldwork assessment will be made by agreement between the Applicant and the archaeological curators following submission of investigation reports and based on the possible importance of the results in terms of their contribution to archaeological knowledge, understanding or methodological development.
- 1.8.68 The assessment phase may include (but is not limited to) the following elements:
- The conservation of appropriate materials, including the X-raying of metalwork;

- The spot-dating of all pottery from any investigation. This will be corroborated by the scanning of other categories of material;
 - The preparation of site matrices with supporting lists of contexts by type, by spot-dated phase, and by structural grouping supported by appropriate scaled plans;
 - An assessment statement will be prepared for each category of material, including reference to quantity, provenance, range and variety, condition and existence of other primary sources; and
 - A statement of potential for each material category and for the data set as a whole will be prepared, including specific questions that can be answered and the potential value of the data to local, regional and national research agendas.
- 1.8.69 On the basis of post-fieldwork assessment, and as agreed by the relevant archaeological curators, mitigation requirements will be satisfied by carrying out analysis and reporting of the post-fieldwork assessment. If appropriate, this may include publication of important results in a recognised peer-reviewed journal or as a monograph.
- 1.8.70 On completion of archaeological works relating to construction of the scheme, an overarching report on the archaeology of the scheme will be prepared and submitted to the MMO and Historic England to a timetable to be agreed with the Applicant, the regulator and the archaeological curators. The overarching report need not repeat the details contained in each preceding report, but should serve as an index to, and summary of, the archaeological investigations as a whole.
- 1.8.71 It is accepted practice to keep project archives, including written, drawn, photographic and artefactual elements (together with a summary of the contents of the archive) together wherever possible and to deposit them in appropriate receiving institutions once their contents are in the public domain. Archives will be developed in line with guidance including:
- Standard and guidance for the creation, compilation, transfer and deposition of archaeological archives (ClfA, 2020a);
 - Archaeological Archives. A guide to best practice in creation, compilation, transfer and curation (Archaeological Archives Forum, 2011);
 - Standards in the Museum Care of Archaeological Collections (Museums and Galleries Commission, 1992);
 - Selection, Retention and Dispersal of Archaeological Collections. Guidelines for use in England, Wales and Northern Ireland (Society of Museum Archaeologists, 1993); and
 - Towards an Accessible Archive. The Transfer of Archaeological Archives to Museums: Guidelines for Use in England, Northern Ireland, Scotland and Wales (Society of Museum Archaeologists, 1995).
- 1.8.72 The relevant archaeological curators and the archaeological contractor will agree with the receiving institution a policy for the selection, retention and disposal of excavated material, and confirm requirements in respect of the format, presentation and packaging of archive records and materials, and will notify the receiving institution in advance of any fieldwork.
- 1.8.73 In England, the NRHE and the National Marine Heritage Record (NMHR) by Historic England are the repositories for fieldwork and archaeological records.

These databases operate a policy for the selection of records relating to sites of national importance. On completion of the scheme construction, the Applicant or their agents will produce an OASIS form for any completed and agreed archaeological reports produced as a result of the final OOWSI and ensure that a copy is submitted as a PDF file to the NRHE and NMHR, to notify the relevant archaeological curators of compliance with the final OOWSI and potential deemed Marine Licence conditions.

- 1.8.74 In consultation with the Applicant and the Archaeological Curator, the Retained Archaeologist will ensure the results of important archaeological investigations undertaken in connection with the scheme will be published in an integrated manner. Publication media and all publication matters will be discussed and agreed in advance with the Applicant and Archaeological Curator.

1.9 Health and Safety

Introduction

- 1.9.1 Health and Safety will take priority over all other requirements. A conditional aspect of all archaeological work is both safe access to the area of work and a safe working environment. The project will be carried out in accordance with safe working practices.

Risk Assessment and Methodology Statement (RAMS)

- 1.9.2 The archaeological fieldwork subcontractor will produce a site-specific Risk Assessment and Methodology Statement (RAMS) to cover the onsite fieldwork and will supply a copy of the company's Health and Safety Policy. These will be reviewed by the consultant to ensure that the policy and measures are appropriate.
- 1.2 The archaeological fieldwork subcontractor's RAMS will:
- Be clear, concise, site-specific, and without generic text for hazards that do not apply or mitigation that is not applicable;
 - Include tabulation of site-specific hazards, risk grading and mitigation measures;
 - Include site manager's contact details, along with a deputy.
 - Include an emergency action plan, with an address and route map to the closest Accident and Emergency.
- 1.9.1 Subcontractor RAMS will be reviewed by an appropriately qualified and experienced member of staff (e.g., Project Manager), ideally with final approval by the H&S Manager/Senior Manager prior to review by the consultant. The RAMS will have been read, understood, and signed by all staff attending the site before any fieldwork commences.
- 1.9.2 All RAMS will need to be submitted to the Principal Contractor for review in advance of commencing works.

Personal Protection Equipment (PPE)

- 1.9.3 Staff present on site will be required to wear the appropriate Personal Protective Equipment (PPE), as identified in the RAMS.

Non-Archaeological Constraints

Unexploded Ordnance (UXO)

- 1.9.4 In the event that any ordnance is discovered it should be treated with extreme care as it may not be inert. Guidelines on addressing Unexploded Ordnance (UXO) discoveries provided to contractors by the Applicant must be followed prior to any recording of items for archaeological purposes. The responsibility for all aspects of Health and Safety in respect of UXO will be the responsibility of the Applicant.
- 1.9.5 To ensure that the UXO risk is reduced to As Low as Reasonably Practicable, industry good practice is to undertake a marine UXO geophysical survey so that the risk can be sufficiently identified. UXO awareness briefings should be given to site staff to ensure that in the unlikely event that suspect UXO is discovered, appropriate action can be taken with care and reduced risk.

1.10 References

- Archaeological Archive Forum (2011). Archaeological Archives: a guide to best practice in creation, compilation transfer and curation. Available at: https://archives.archaeologyuk.org/Archives_Best_Practice.pdf
- Bournemouth University (2018). *Moor Sand & Salcombe B Conservation Statement & Management Plan*. Available at: historicengland.org.uk/images-books/publications/moor-sand-and-salcombe-b-conservation-statement-and-management-plan/moor-sand-and-salcombe-b-csmp/
- Chartered Institute for Archaeologists (CIfA) (2020a). Standard and guidance for the creation, compilation, transfer and deposition of archaeological archives. Available at: https://www.archaeologists.net/sites/default/files/CIFAS%26GArchives_4.pdf
- Chartered Institute for Archaeologists (CIfA) (2020b). Standard and guidance for the collection, documentation, conservation and research of archaeological materials. Available at: https://www.archaeologists.net/sites/default/files/CIfAS%26G Finds_2.pdf
- Chartered Institute for Archaeologists (CIfA) (2020c). Standard and guidance for archaeological geophysical survey. Available at: https://www.archaeologists.net/sites/default/files/CIfAS%26GGeophysics_3.pdf
- Chartered Institute for Archaeologists (CIfA) (2020d). Standard and guidance for nautical archaeological recording and reconstruction. Available at: https://www.archaeologists.net/sites/default/files/CIfAS%26GNautical_2.pdf
- Chartered Institute for Archaeologists (CIfA) (2020e). Standard and guidance for stewardship for the historic environment. Available at: https://www.archaeologists.net/sites/default/files/CIfAS%26GStewardship_3.pdf
- Chartered Institute for Archaeologists (CIfA) (2022). Code of Conduct. Available at: <https://www.archaeologists.net/sites/default/files/Code%20of%20conduct%20revOct2022.pdf>
- Chartered Institute for Archaeologists (CIfA) (2023). Universal guidance for the archaeological monitoring and recording. Available at: <https://www.archaeologists.net/sites/default/files/Universal%20guidance%20for%20archaeological%20monitoring%20%26%20recording.pdf>
- Fitch, S. and Gaffney, V. (2011) *West Coast Palaeolandscapes Survey*. Birmingham, University of Birmingham, Visual and Spatial Technology Centre Gribble J and S Leather (2011). Offshore Geotechnical Investigations and Historic Environment Analysis: Guidance for the Renewable Energy Sector. Available at: <https://www.historicenvironment.scot/media/2376/2011-01-offshore-geotechnical-investigations-and-historic-environment-analysis-guidance-for-the-renewable-energy-sector.pdf>
- Harff J., Flemming N., Groh A., Hünicke B., Lericolais G., Meschede M., Rosentau A., Sakellariou D., Uścińowicz S., Zhang W., and Zorita E. (2017) 'Sea Level and Climate' in Flemming N., Harff J., Moura D., Burgess A., and Bailey G. (eds) *Submerged Landscapes of the European Continental Shelf: Quaternary Palaeoenvironments* pp. 11-49. John Wiley and Sons, Croydon.
- Joint Nautical Archaeology Policy Committee (2006). Code for Practice for Seabed Development. Available at: https://www.historicenvironment.scot/media/2374/jnipc_brochure_may_2006.pdf

Kowaleski, M. (1992) 'The Port Towns of Fourteenth Century Devon' in Duffy M., Fisher S., Greenhill B., Starkey D.J., and Youngs J. (eds) *The new Maritime History of Devon, Volume 1: From Early Times to the Late 18th Century* pp. 17-24. Conway Maritime Press Ltd: Great Britain

Leigh, D, Watkinson D, and Neal V (1998). *First Aid for Finds*

Lloyd's Register (1909) *Report of Survey for Repairs, &c. for Thistleamor, 26th November 1909*. Available on Lloyd's Register Foundation (2024):

<https://hec.lrfoundation.org.uk/archive-library/documents/lrf-pun-w750-0161-r> (Accessed 29/07/2024)

Lundy Field Society (2024) *Archaeology of Lundy*. Available at:

<https://www.lundy.org.uk/about-lundy/archaeology> (Accessed 14/02/2024)

A Maritime Archaeological Research Agenda for England. Available at: [A Maritime Archaeological Research Agenda for England - A Maritime Archaeological Research Agenda for England \(researchframeworks.org\)](https://www.maritimearchaeology.org.uk/researchframeworks)

Merchant Shipping Act (1995), c. 21. Available at: [Merchant Shipping Act 1995 \(legislation.gov.uk\)](https://www.legislation.gov.uk/ukpga/1995/17)

Museums and Galleries Commission (1992). *Standards in the Museum Care of Archaeological Collections* [Online]. Available at: <https://collectionstrust.org.uk/wp-content/uploads/2016/11/Standards-in-the-museum-care-of-archaeological-collections.pdf>

National Heritage List for England (NHLE) (2023) *Historic England Open Data Portal Download Listing Data - GIS Shapefiles | Historic England* (Accessed: December 2023).

Nayling, N., McGrail, S. (2004) *The Barland's Farm Romano-Celtic Boat, CBA Research Report 138*. Council for British Archaeology, York.

Peters, C. (2014) 'The Origins of Maritime Cornwall' in Payton P., Kennerley A., and Doe H. (eds) *The Maritime History of Cornwall* pp 31-42. Exeter: University of Exeter Press.

Plets R, J Dix, and R Bates (2013). *Marine Geophysical Data Acquisition, Processing and Interpretation – guidance notes* Available at: <https://historicengland.org.uk/images-books/publications/marine-geophysics-data-acquisition-processing-interpretation/mgdapai-guidance-notes/>

Ransley, J and Sturt, F with Dix, J, Adams, J and Blue, L (2013). *People and the Sea: A Maritime Archaeological Research Agenda for England*. Council for British Archaeology; British Library

Robinson, W (1998) *First Aid for Underwater Finds*. Archetype Publications

Royal Museum Greenwich, *Research Guide H5*. Available at: [Research guide H5: Lloyd's Registers held by the National Maritime Museum | Royal Museums Greenwich \(rmg.co.uk\)](https://www.rmg.co.uk/research-guide/h5) (Accessed 30/07/2024).

Society of Museum Archaeologists (1993). *Selection, Retention and Dispersal of Archaeological Collections. Guidelines for use in England, Wales and Northern Ireland*. Available at: <http://socmusarch.org.uk/socmusarch/gailmark/wordpress/wp-content/uploads/2017/06/Selection-retention-and-dispersal-of-collections.pdf>

Society of Museum Archaeologists (1995). *Towards an Accessible Archive. The Transfer of Archaeological Archives to Museums: Guidelines for Use in England, Northern Ireland, Scotland and Wales*

Southwest Airfields Heritage Trust (2017) *RAF Chivenor* Available at: <https://www.southwestairfields.co.uk/page33.html> (Accessed 15/02/2024).

XLINKS' MOROCCO – UK POWER PROJECT

The Crown Estate (2014). Protocol for Archaeological Discoveries: Offshore Renewables Projects. Available at: <https://www.thecrownestate.co.uk/media/1782/ei-protocol-for-archaeological-discoveries-offshore-renewables-projects.pdf>

The Crown Estate (2021). Archaeological Written Schemes of Investigation for Offshore Wind Farm Projects. Available at: <https://www.thecrownestate.co.uk/media/3917/guide-to-archaeological-requirements-for-offshore-wind.pdf>

Treasure Act 1996, c. 24. Available at: <https://www.legislation.gov.uk/ukpga/1996/24/contents>

United Kingdom Government (1909) Shipping Casualties (Loss of the Steamship “Thistlemor.”). Darling and Son, Ltd.: London. Available at: <https://www.kirkoid.com/thistlemor/Thistlemor%20Report%201910.pdf>

United Kingdom Hydrographic Office (2024) Admiralty Marine Data Portal. Available at: <https://seabed.admiralty.co.uk> (Accessed: January 2024)

Walsh M., Brockman A., Eddy M., Grainge G., Jones J.E., Locker A., Moore A., Murphy P., Satchell J., Tomalin D., and Wilson P. (2013) ‘Roman, c AD 43 to 400’ in Ransley J., Sturt F., Dix J., Adams J., and Blue L. (eds) *People and the Sea: a maritime archaeological research agenda for England* pp. 93-112. Available at: https://archaeologydataservice.ac.uk/archiveDS/archiveDownload?t=arch-281-1/dissemination/pdf/RR171_People_and_the_Sea.pdf

Webster, C. (ed.). 2007. The archaeology of South West England: South West archaeological research framework resource assessment and research agenda. Somerset Heritage Service: Taunton.

Wenban-Smith, F. (2002) Palaeolithic and Mesolithic Archaeology on the Seabed: Marine Aggregate Dredging and the Historic Environment. Salisbury, Wessex Archaeology.

Wessex Archaeology Ltd (2007). Historic Environment Guidance for the Offshore Renewable Energy Sector. Available at: https://www.wessexarch.co.uk/sites/default/files/field_file/COWRIE_2007_Wessex_%20-%20archaeo_%20guidance_Final_1-2-07.pdf

Wessex Archaeology Ltd (2011). Assessing boats and ships (1860-1913). Archaeological Desk-based Assessment. Available at: https://archaeologydataservice.ac.uk/archives/view/boatsandships_eh_2011/overview.cfm

Wessex Archaeology Ltd (2024a). Xlinks Morocco-UK Power Project. Archaeological assessment of geophysical data. Ref: 293540.01

Wessex Archaeology Ltd (2024b). Xlinks Morocco-UK Power Project. Palaeolandscapes assessment of sub-bottom profiler data. Ref: 293540.1