

XLINKS' MOROCCO-UK POWER PROJECT

Environmental Statement

Volume 3, Appendix 7.1: Marine Archaeology Desk-based Assessment

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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 site, onshore Direct Current and Alternating Current cables, converter stations, and road upgrade works.
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
BCE	Before Common Era
BGS	British Geological Survey
CE	Common Era
CIfA	Chartered Institute for Archaeologists
CITIZAN	Coastal and Intertidal Zone Archaeological Network
DCO	Development Consent Order
DEFRA	Department for Environment, Food and Rural Affairs
DESNZ	Department for Energy Security and Net Zero
DMER	Devon Historic Environment Record
EEZ	Exclusive Economic Zone
EIA	Environmental Impact Assessment
ES	Environmental Statement
HER	Historic Environment Record
MBES	Multibeam Echosounder
MSL	Mean Sea Level
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
ROTV	remotely operated towed vehicle
SAC	Special Area of Conservation
SBP	Sub-bottom Profiler
SSS	Sidescan Sonar
SSSI	Site of Special Scientific Interest
TW	Territorial Waters
UK	United Kingdom
UKHO	United Kingdom Hydrographic Office
WSI	Written Scheme of Investigation

Units

Units	Meaning
km	Kilometre
mbsf	Metres below sea floor

XLINKS' MOROCCO – UK POWER PROJECT

Units	Meaning
m/s	Metres per second
nm	Nautical Mile
nT	nanoTesla

1 MARINE ARCHAEOLOGY DESK-BASED ASSESSMENT

1.1 Introduction

- 1.1.1 This document forms Volume 3, Appendix 7.1: Archaeology desk-based assessment 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 marine archaeology desk-based assessment of all available and relevant data sources, to determine, as far as is possible from existing information, the nature, extent and significance of the marine archaeological resource associated with the Proposed Development area.

Project Background

- 1.1.3 WSP has been commissioned by Xlinks 1 Limited to produce a desk-based assessment for works relating to the construction of the Proposed Development within the UK's territorial waters and Exclusive Economic Zone (EEZ) from landfall at Barnstaple Bay/ Bideford, North Devon, routing to the north of the Scilly Isles, to the border of the UK EEZ (Figure 7.1 in Volume 3, Chapter 7 of the ES). Volume 1, Chapter 3: Project Description of the ES provides a description of the Proposed Development.

Aims

- 1.1.4 The specific aims of the assessment are to:
- Establish the known and potential marine cultural heritage and archaeology assets within the Proposed Development and study area;
 - Assess the significance of known and potential marine cultural heritage assets through weighted consideration of their valued components; and
 - Assess the significance of the historic seascape character of the Proposed Development.

1.2 Legislative and Policy Context

Legislation

- 1.2.1 The following legislation applies to archaeology and cultural heritage within both the UK Territorial Sea and the UK EEZ:
- Protection of Wrecks Act 1973: Sections One and Two;
 - The Marine and Coastal Access Act (2009);
 - Ancient Monuments and Archaeological Areas Act 1979 (as amended);

- Protection of Military Remains Act 1986; and
- Merchant Shipping Act 1995.

1.2.2 The above legislation provides protection for wrecks of high historical, archaeological or artistic value, as well as allowing military wrecks and aircraft remains to be protected. If encountered, all military aircraft crash sites are automatically protected under the Protection of Military Remains Act 1986. Ownership of any wreck remains is determined in accordance with the Merchant Shipping Act 1995.

1.2.3 In 2000, the UK government ratified The European Convention on the Protection of the Archaeological Heritage (Revised) 1992 (The Valletta Convention). The convention binds the UK to implement protective measures for the archaeological heritage within their jurisdiction, including sea areas.

1.2.4 The UNESCO Convention on the Protection of Underwater Cultural Heritage, adopted in 2001, is intended to enable States to better protect their submerged cultural heritage. The UK was one of a number of States that abstained from the 2001 vote and has not ratified the Convention. However, the UK has adopted the 'The Rules', an Annex to the Convention that sets out a standard for archaeological investigations, as government policy for underwater cultural heritage.

Planning Policy Context

1.2.5 The Proposed Development will be located within UK inshore waters and the UK EEZ offshore waters - beyond 12 nautical miles (nm) from the English coast (with the onshore infrastructure located wholly within Devon, England).

1.2.6 As set out in Volume 1, Chapter 1: Introduction of the ES, the Secretary of State for the Department for Energy Security and Net Zero (DESNZ) has directed that elements of the Proposed Development are to be treated as development for which development consent is required under the Planning Act 2008, as amended.

National Policy Statements

- 1.2.7 There are currently six energy National Policy Statements (NPSs), three of which contain policy relevant to the Proposed Development, specifically:
- Overarching NPS for Energy (NPS EN-1) which sets out the UK Government's policy for the delivery of major energy infrastructure (Department for Energy Security & Net Zero 2023a);
 - NPS for Renewable Energy Infrastructure (NPS EN-3) (Department for Energy Security & Net Zero 2023b); and
 - NPS for Electricity Networks Infrastructure (NPS EN-5) (Department for Energy Security & Net Zero 2023c).

The National Planning Policy Framework

1.2.8 The National Planning Policy Framework (NPPF) was published in 2012 and updated in 2018, 2019, 2021 and 2023 (Department for Levelling Up, Housing and Communities, 2023). The NPPF sets out the Government's planning policies

for England. This assessment has been undertaken in a manner consistent with the National Planning Policy Framework (NPPF).

- 1.2.9 Provision for the historic environment is principally given in section 16: 'Conserving and enhancing the historic environment' of the NPPF, which directs local authorities to set out "a positive strategy for the conservation and enjoyment of the historic environment, including heritage assets most at risk through neglect, decay or other threats". Local planning authorities should recognise that heritage assets are "an irreplaceable resource and should be conserved in a manner appropriate to their significance, so that they can be enjoyed for their contribution to the quality of life of existing and future generations" (DLUHS, 2023).
- 1.2.10 The aim of NPPF section 16 is to ensure that local planning authorities, developers and owners of heritage assets adopt a consistent and holistic approach to their conservation and to reduce complexity in planning policy relating to proposals that affect them.
- 1.2.11 The Planning Practice Guidance (PPG) (Department for Levelling Up, Housing and Communities and Ministry of Housing, Communities and Local Government, 2019) supports the NPPF and provides guidance across a range of topic areas. The PPG includes further information and guidance on how national planning policy is to be interpreted and applied locally. Although the PPG is an important and relevant consideration with respect to the Proposed Development, EN-1 (the Overarching NPS for Energy) is the key decision-making document.

Marine Policy

UK Marine Policy Statement

- 1.2.12 This assessment also takes account of the UK Marine Policy Statement (MPS) (DEFRA, 2021b). The MPS sets out high-level objectives for marine planning, which have directed development of the plan at a local level. Marine Plans must be in accordance with other relevant national policy and are intended to contribute to the achievement of sustainable development in the UK marine area. Of relevance to the Proposed Development is the South West Inshore and South West Offshore Marine Plan (DEFRA, 2021a) ('South West Marine Plan').

South West Inshore and South West Offshore Marine Plan

- 1.2.13 The South West Marine Plan has been prepared to address Section 51 of the Marine and Coastal Access Act 2009, which states "a marine plan authority may prepare a marine plan for an area consisting of the whole or any part of its marine planning region" to include "the authority's policies for and in connection with the sustainable development of the area", and has been agreed and adopted by the Secretary of State for Environment, Food and Rural Affairs. The South West Marine Plan covers the footprint of the Proposed Development and the associated marine archaeology and cultural heritage study area. Policy SW-HER-1 is concerned with heritage assets and states that proposals that conserve and enhance the value of the assets will be supported and that public benefit must be shown to outweigh any harm to the assets.

Local Planning Policy

- 1.2.14 The policy context for the Proposed Development is set out in Volume 1, Chapter 2: Policy and legislation context of the ES. The onshore elements of the Proposed Development are located within the administrative area of Torridge District Council. The relevant local planning policies applicable to Onshore Cultural Heritage and Archaeology are summarised in Volume 2, Chapter 2: Cultural Heritage of the ES.

North Devon Biosphere Reserve

- 1.2.15 The Proposed Development is located within the North Devon Biosphere Reserve, which is recognised under UNESCO's Man and the Biosphere (MAB) Programme and designated as an area for testing and demonstrating sustainable development on a sub-regional scale.
- 1.2.16 The North Devon Biosphere Reserve consists of three zones; a core zone centred around Braunton Burrows SAC/SSSI, a buffer zone consisting of the Taw Torridge Estuary (as far as Barnstaple and Bideford), and a transition zone formed by the catchment area of the rivers and streams that drain to the North Coast of Devon in addition to an area of sea as far out as Lundy.
- 1.2.17 Within the North Devon Biosphere Reserve, non-statutory programmes and plans relevant to marine archaeology and cultural heritage include:
- BioCultural Heritage Tourism Project - to increase the economic value of tourism based on their natural and cultural resources, whilst reducing its environmental impact; and
 - North Devon Marine Natural Capital Plan.

1.3 Methodology

Study Area

- 1.3.1 The study area comprised a 5 km buffer around the Proposed Development – defined to ensure a comprehensive search of all the relevant datasets and archive material associated with the Offshore Cable Corridor (OCC).

Archaeological Desk-Based Assessment

- 1.3.2 The desk-based assessment methodology follows best practice professional guidance outlined by the Chartered Institute for Archaeologists' (CIfA) *Standard and Guidance for Historic Environment Desk-Based Assessment* (2014, updated 2020).
- 1.3.3 The marine themes relevant to the marine archaeological baseline as assessed in this report are:
- Geoarchaeology;
 - Palaeogeography;
 - Seabed features;

- Intertidal heritage assets; and
- Historic seascape character.

1.3.4 Information on marine cultural heritage and archaeology within the study area was collected through a detailed desktop review of a number of data sources. These sources are summarised in **Table 1-1** below.

Table 1-1: Summary of key desktop sources

Title	Source	Year	Author
Records of known wrecks and obstructions (ships and aviation) within territorial and international waters	United Kingdom Hydrographic Office (UKHO)	2024	UKHO
Historic maritime monument and archaeological work records	Historic England	2024	Historic England
National Heritage List of England (NHLE)	Historic England	2024	Historic England
Historic Environment Records	Devon Historic Environment Record	2024	Devon Historic Environment Record
Marine geophysical and geotechnical survey reports	Wessex Archaeology	2024	Wessex Archaeology
GeoIndex (Offshore) Map Viewer	British Geological Survey (BGS)	2024	BGS
Records of remains within the foreshore and the intertidal.	Coastal and Intertidal Zone Archaeological Network (CITiZAN) at Museum of London Archaeology (MOLA)	2024	CITiZAN
Archaeological research frameworks	South West Archaeological Research Framework; People and the Sea: A Maritime Archaeological Research Agenda for England	2007; 2013	South West Heritage Trust; Ransley J., Sturt F., Dix J., Adams J., and Blue L.
Existing archaeological studies, reports, and published sources	Archaeological Data Service; GeoScienceWorld; The University of Sheffield; The University of Southampton; Devon Historic Environment Record	Various	Various

Geophysical Survey Methodology

1.3.5 Wessex Archaeology undertook an archaeological assessment of geophysical survey data acquired by GEOxyz in 2023. The methodology used is summarised below and fully detailed in Volume 3, Appendix 7.2: Archaeological assessment of geophysical data and Volume 3, Appendix 7.4: Palaeolandscapes assessment of sub-bottom profiler data of the ES.

1.3.6 The geophysical study area is defined by the client supplied shapefile (5260H-837-BB-01 Offshore Block Boundaries_Rev08) of the OCC (see Volume 3, Appendix 7.2: Archaeological assessment of geophysical data, Figure 1 of the ES).

Data sources

- 1.3.7 The data sources consulted during the archaeological assessment of the geophysical data by Wessex Archaeology included:
- geophysical survey datasets acquired by GEOxyz during 2022 and 2023;
 - client supplied survey reports (GEOxyz 2023a, b);
 - relevant background mapping from the area (admiralty charts received from MarineFIND, British Geological Survey (BGS) mapping (BGS 2024));
 - recorded wreck and obstruction data acquired via the United Kingdom Hydrographic Office (UKHO);
 - Wessex Archaeology marine geoarchaeological assessment report for the Proposed Development (Volume 3, Appendix 7.3: Stage 1 and 2 Marine Geoarchaeological Assessment of the ES); and
 - Previous relevant background work from the wider area.

Geophysical data technical specifications

1.3.8 Geophysical data were acquired 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 route survey area was divided into approximately 10 km long blocks with block U01 located at the UK territorial waters border with France and U39 (nearshore) at the UK landfall (GEOxyz 2023a, b).

1.3.9 The nearshore survey line spacing was approximately 20 m with four crosslines run at maximum 625 m. The offshore survey line plans were developed to ensure the full offshore cable corridor width was mapped, and line spacing varied between 50 m and 175 m. Crosslines were acquired extending 500 m beyond the OCC.

1.3.10 Further details on the equipment used is in **Table 1-2**.

Table 1-2: Summary of survey equipment

Survey Company	Survey Vessel	Data Type	Equipment	Data Format
Geoxyz	Geo Surveyor XI	MBES	Kongsberg EM2040 (350 kHz)	.xyz
		SSS	Edgetech 4200 (300/600 kHz, 50 m range)	.xtf
		Mag.	Geometrics G-882	.csv
		SBP	Innomar SES 2000 Medium Parametric sonar	.sgy
		Positioning	Trimble BD960 and Trimble BD982	N/A
	<i>Geo Ocean IV</i>	MBES	Kongsberg EM2040 (400 kHz) < 250 m	.xyz

Survey Company	Survey Vessel	Data Type	Equipment	Data Format
			water depth Reson 7160 (44 kHz) >250 m water depth	
		SSS	2 x Edgetech 4205 (300/ 900 kHz, 125 m range)	.xtf
		ROTV - SSS	Edgetech 2205 (230/540kHz, 125 m range (Nadir-filling option))	.xtf
		Mag.	Geometrics G-882	.csv
		SBP	Innomar SES 2000 Medium Parametric sonar	.sgy
		Positioning	Fugro SeaStar 9205	N/A

1.3.11 The survey data were acquired in WGS84 UTM29N (survey blocks U1–U22) and WGS84 UTM30N (survey blocks U23–U39) and the results are presented in the same coordinate systems.

Geophysical data – processing

1.3.12 A number of datasets were assessed over the study area, and each dataset was processed separately using the following software (**Table 1-3**). For full details on how the data was processed see Volume 3, Appendix 7.2: Archaeological assessment of geophysical data and Volume 3, Appendix 7.4: Palaeolandscapes assessment of sub-bottom profiler data of the ES.

Table 1-3: Software used for geophysical assessment

Dataset	Processing Software	Interpretation and rationalisation
MBES	QPS Fledermaus v8.5.2	ArcMap v10.8
SSS	CodaOctopus Survey Engine v8.7	
Mag.	Wessex Archaeology In-house proprietary software	
SBP	CodaOctopus Survey Engine v8.6	

1.3.13 The SBP data were processed using CodaOctopus Survey Engine Seismic+ software. The SBP data were interpreted with a two-way travel time (TWTT) along the z-axis. In order to convert from TWTT to depth, the velocity of the seismic waves was estimated to be 1,600 ms⁻¹. This is a standard estimate for shallow, unconsolidated sediments.

1.3.14 The position and dimensions of any anomalies or deposits/features of interest are noted in a gazetteer, and an image acquired of each anomaly for future reference (Volume 3, Appendix 7.4: Palaeolandscapes assessment of sub-bottom profiler data of the ES). It should be noted that anomalies of this type are rare, as the sensors must pass directly over such an object to detect an anomaly.

1.3.15 For the SBP assessment, the centre line of the route was initially assessed. Where features of interest were identified, additional lines were then interpreted to more accurately map the extents of these features.

- 1.3.16 The MBES data were gridded at 1 m and analysed using QPS Fledermaus software, which enables a 3-D visualisation of the acquired data and geo-picking of seabed anomalies. The data were gridded at the appropriate resolution of 1 m in the offshore area and 0.2 m in the nearshore area and analysed using QPS Fledermaus software,.
- 1.3.17 The SSS data were provided in the form of mosaic geotiffs (supplied as *.tifw* files). High frequency SSS mosaics were provided for the nearshore section of the route and low frequency SSS mosaics were provided for the offshore route. These mosaics were assessed using ArcPro. The provided survey company contact lists were used to mitigate the possibility of anomalies of archaeological interest being missed. The positions of contacts interpreted by the survey company as wreck, debris or suspected debris features were checked in the SSS mosaics and if they were considered to be of possible archaeological origin in the mosaic data, then they were added to a gazetteer (Volume 3, Appendix 7.2: Archaeological assessment of geophysical data of the ES).
- 1.3.18 The Mag. data were processed using Wessex Archaeology's in-house proprietary software. The software enables both the visualisation of individual lines of data and gridding of data to produce a magnetic anomaly map. The data were first smoothed to try and eliminate spiking. A trend was then fitted to the resulting data, and the trend values subtracted from the smoothed values. This was carried out to remove natural variations in the data (such as diurnal variation in magnetic field strength and changes in geology). The processed data were then gridded to produce a map of magnetic anomalies, and individual anomalies tagged based on the grid and individual profile lines.
- 1.3.19 For the purposes of this assessment, any identified magnetic anomalies have been 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). A threshold approach has been used for this assessment and all three data types in the assessment have been subject to these. Anomalies picked from the SSS mosaic were subject to a threshold: being over 5 m in any one direction merited inclusion in the gazetteer.
- 1.3.20 A sub-set of anomalies tagged by Wessex Archaeology in the SSS mosaics, MBES and Mag. data were further investigated in the individual line SSS data files (*.xtf*). These data are referred to in this report as 'raw SSS data' to distinguish them from the mosaics (even though some of the *.xtf* files received may have undergone some processing). These included anything with the potential to be classified as A1 - Anthropogenic origin of archaeological interest such as wreck, debris field and Mag. anomalies over 500 nT (that are not known to be modern).
- 1.3.21 Anomalies assessed in the raw SSS data were not subject to a size threshold, as this process was designed to ensure the full extents of significant anthropogenic seabed features, including adjacent related small anomalies, were recorded to ensure Archaeological Exclusion Zones (AEZs) are as comprehensive as possible.
- 1.3.22 The high frequency *.xtf* SSS data files were processed using CodaOctopus Survey Engine Sidescan+ software. This allowed the data to be replayed with various gain settings in order to optimise the quality of the images. The data were interpreted for any objects of possible anthropogenic origin. This involves creating a database of anomalies within Coda by tagging individual features of possible archaeological potential, recording their positions and dimensions, and acquiring an image of each anomaly for future reference.

Geophysical data – data quality

1.3.23 Once processed, the geophysical data sets were individually assessed for quality and their suitability for archaeological purposes, and were rated using the following criteria (Table 1-4).

Table 1-4: Criteria for assigning data quality rating

Data Quality	Description
Good	Data which are clear and unaffected or only slightly affected by weather conditions, sea state, background noise or data artefacts. Seabed datasets are suitable for the interpretation of upstanding and partially buried wrecks, debris fields, and small individual anomalies. The structure of wrecks is clear, allowing assessments on wreck condition to be made. Subtle reflectors are clear within SBP data. These data provide the highest probability that anomalies of archaeological potential will be identified.
Average	Data which are moderately affected by weather conditions, sea state and noise. Seabed datasets are suitable for the identification of upstanding and partially buried wrecks, the larger elements of debris fields and dispersed sites, and larger individual anomalies. Dispersed and/or partially buried wrecks may be difficult to identify. Interpretation of continuous reflectors in SBP data is problematic. These data are not considered to be detrimentally affected to a significant degree.
Below Average	Data which are affected by weather conditions, sea state and noise to a significant degree. Seabed datasets are suitable for the identification of relatively intact, upstanding wrecks and large individual anomalies. Dispersed and/or partially buried wrecks, or small isolated anomalies may not be clearly resolved. Small palaeogeographic features, or internal structure may not be resolved in SBP data.
Variable	This category contains datasets where the individual lines range in quality. Confidence of interpretation is subsequently likely to vary within the study area.

1.3.24 The data quality varied across the survey area:

- nearshore MBES and SSS mosaic data was rated as Good, meaning suitable, clear data in which anomalies can be clearly identified and interpreted and provides the highest probability for marine heritage receptors to be identified.
- offshore MBES, SSS mosaic, SSS raw data, magnetometer data and nearshore magnetometer data was rated as Average, meaning suitable, moderately affected data in which anomalies can be identified and interpreted and provides adequate probability for marine heritage receptors to be identified.
- the quality of the SBP data has been rated as 'Good' using the above criteria, with shallow reflectors easily visible. Penetration was relatively limited, as is standard for parametric sonar data, but the very shallow depth of bedrock in the area meant this was a not a detriment to palaeolandscape assessment of the data.

1.3.25 See Volume 3, Appendix 7.2: Archaeological assessment of geophysical data and Volume 3, Appendix 7.4: Palaeolandscapes assessment of sub-bottom profiler data of the ES for details on the individual data quality.

Geophysical Survey data limitations

- 1.3.26 A number of features identified as static fishing gear were encountered within the survey corridor and adjacent to it. This prevented the achievement of full coverage in several blocks including U32, U34, U38C and U38E, in addition to the route development area north of U33.
- 1.3.27 Route changes in the east of blocks U28 and U29 were introduced to widen the OCC and thus maximise separation distance from potential future TCE (The Crown Estate) Project Development Area (PDA) offshore renewable infrastructure. This change followed the completion of the geophysical surveys has therefore introduced a gap in the data coverage in this area. Pre-construction geophysical UXO survey data will be reviewed and used to supplement data gaps.
- 1.3.28 There is a gap in the MBES data along the south-west side of blocks U01-U07 which is approximately 25 m wide, however this was fully covered by SSS mosaic data, and therefore identification and interpretation of anomalies was still possible in this area.

Geophysical data – anomaly grouping and discrimination

- 1.3.29 The possibility of any one object being the cause of numerous anomalies in different datasets and apparently overstating the number of archaeological features in the exploration area is addressed through grouping the anomalies together; allowing one ID number to be assigned to a single object for which there may be, for example, a UKHO record, a MBES anomaly, and multiple SSS anomalies.
- 1.3.30 Once all the geophysical anomalies and desk-based information have been grouped, a discrimination flag is added to the record to discriminate against those which are not thought to be of an archaeological concern. For anomalies located on the seabed, these flags are ascribed as follows (**Table 1-5**).

Table 1-5: Criteria discriminating relevance of identified features to proposed scheme

Overview classification	Discrimination	Criteria	Data type
Archaeological	P1	Feature of probable archaeological interest, either because of its palaeogeography or likelihood for producing palaeoenvironmental material	SBP, MBES
Archaeological	P2	Feature of possible archaeological interest	SBP, MBES
Archaeological	A1	Anthropogenic origin of archaeological interest	MBES, SSS, Mag.
Archaeological	A2_h	Anomaly of likely anthropogenic origin but of unknown date; may be of archaeological interest or a modern feature	MBES, SSS, Mag.
Archaeological	A2_l	Anomaly of possible anthropogenic origin but the interpretation is uncertain; may be anthropogenic or a natural feature	MBES, SSS, Mag.
Archaeological	A3	Historic record of possible archaeological interest with no corresponding geophysical anomaly	MBES, SSS, Mag.
Non-archaeological	U3	Recorded loss	MBES, SSS, Mag.

- 1.3.31 It should be noted that the grouping and discrimination of information at this stage is based on all available information and is not definitive.
- 1.3.32 Any anomalies located outside of the defined study areas (which is the OCC for the geophysical surveys), either previously recorded in known databases (e.g. UKHO) or identified during this geophysical assessment, were deemed beyond the scope of the assessment of the geophysical data and were not included in the reports (Volume 3, Appendix 7.2: Archaeological assessment of geophysical data and Volume 3, Appendix 7.4: Palaeolandscapes assessment of sub-bottom profiler data of the ES).

Geoarchaeological Assessment Methodology

Introduction

- 1.3.33 Wessex Archaeology undertook the geoarchaeological assessment and used the following methodology (Volume 3, Appendix 7.3: Stage 1 and Stage 2 Marine Geoarchaeological Assessment of the ES).
- 1.3.34 Wessex Archaeology developed a five-stage approach, encompassing different levels of investigation appropriate to the results obtained, accompanied by formal reporting of the results. The stages are summarised below (**Table 1-6**).
- 1.3.35 The geoarchaeological assessment outlines the results of Stage 1 and 2 assessments of geotechnical logs from the Xlinks MUPP UK OCC acquired during a survey undertaken in September 2023. The geoarchaeological assessment

included a geoarchaeological review of geotechnical vibrocores alongside the recording and deposit modelling of selected sequences.

Table 1-6: Staged approach to geoarchaeological investigations

Stage	Description
Stage 1: Geoarchaeological review	Desk-based review of geotechnical and geological data. Establish likely presence/ absence/ distribution of archaeologically relevant deposits. Identify deposits or samples for Stage 2 works.
Stage 2: Geoarchaeological recording/monitoring	Target deposits or samples identified in Stage 1. Describe the sequences recovered and undertake deposit modelling (if suitable). Interpret depositional environment (if possible). Identify if suitable deposits are present for Stage 3 works.
Stage 3: Palaeoenvironmental assessment	Sub-sample deposits of archaeological interest for palaeoenvironmental assessment (e.g. pollen, plant macrofossils, foraminifera, ostracod and diatoms) and associated scientific dating. Provide an outline interpretation of the archaeological and palaeoenvironmental context. Any recommendations for Stage 4 works will depend on the potential for further analysis and the project research objectives.
Stage 4: Palaeoenvironmental analysis	Full analysis of samples and additional scientific dating as specified in Stage 3, together with a detailed synthesis of the results, in their local, regional or wider archaeological and palaeoenvironmental context. Publication would usually follow from a Stage 4 report.
Stage 5: Publication	Publication of the results of Stage 1-4 works for submission in a peer reviewed journal, book or monograph, depending on the archaeological significance of the work. The scope and location of the final publication will be agreed in consultation with the client and regulatory bodies where appropriate.

Coordinate System

- 1.3.36 The location information for the geotechnical vibrocores was initially presented in two different coordinate projections, WGS UTM Zone 29N for VC01 to VC31a and WGS UTM Zone 30N for VC32 to VC60. However, to support the import of data into Rockworks, coordinates were normalised and converted in ArcPro to WGS UTM Zone 30N Eastings and Northings.
- 1.3.37 The vertical reference level is given as metres below sea floor (mbsf) which assumes the top of the vibrocore is equal to the level of the seafloor. Water depths are given as metres relative to Mean Sea Level (MSL). The location and elevation data for geotechnical vibrocores is presented in Volume 3, Appendix 7.3: Stage 1 and Stage 2 Marine Geoarchaeological Assessment of the ES.

Geotechnical Coring Strategy

- 1.3.38 A total of 44 vibrocores, including four grab samples and 44 Cone Penetration Tests (CPTs) were acquired during the geotechnical survey within the OCC in September 2023. A Stage 1 and Stage 2 geoarchaeological assessment of the cores was undertaken by Wessex Archaeology. For details on the methodology utilised see Volume 3, Appendix 7.3: Stage 1 and Stage 2 Marine Geoarchaeological Assessment of the ES.

- 1.3.39 Vibrocores were acquired using a high-performance corer along the UK OCC. The target depth of the geotechnical vibrocores was c. 5.0 mbsf; however, this was only achieved at six locations. All geotechnical vibrocores were acquired in clear liners and were split into 1.0 m sections offshore. The vibrocores were split open lengthways, photographed and described in detail by the geotechnical engineer on the vessel and subsequently wrapped in clear plastic liners. The vibrocores selected for Stage 2 recording were delivered to Wessex Archaeology.
- 1.3.40 Each of the geotechnical vibrocore logs were reviewed by a trained geoarchaeologist to determine their potential for further geoarchaeological works. Deposits recovered were assigned either a high, medium or low priority status based on their perceived geoarchaeological significance as itemised in Volume 3, Appendix 7.3: Stage 1 and Stage 2 Marine Geoarchaeological Assessment of the ES.
- 1.3.41 The preliminary Stage 1 review undertaken by WSP UK Ltd identified three vibrocores with the potential to contain deposits of geoarchaeological significance (VC53, VC59 and VC60) (WSP 2024). All core samples from these locations were assessed as part of the Stage 2 geoarchaeological review.

Deposit Modelling

- 1.3.42 The results from the Stage 1 review of geotechnical logs and photographs and Stage 2 geoarchaeological recording were used to produce a deposit model. Deposit modelling identifies the range of Quaternary deposits that may be present in a defined area and maps their lateral extent and depth.
- 1.3.43 Only lithostratigraphic records with sufficiently detailed descriptive terminology and location data (including surface elevation) were included in the model. The surface elevation of some vibrocore samples exceeds -128 m MSL. Palaeogeographic modelling and reconstructions of Relative Sea Level (RSL) in the Celtic Sea during the Last Glacial Maxima (LGM) are not complete. Investigations for the south coast region in the English Channel found that the RSL was approximately 20 m higher than the Global Mean Sea Level (GMSL) curve, at around -100 m, during the LGM (Shennan et al. 2018). Although this estimated sea-level minimum will have some degree of error, it is assumed that the vibrocores recovered at -100 m or below would have remained submerged during the Late Weichselian. As such, a total of 20 vibrocores acquired in the south of the OCC (VC01-VC20a; between -128.9 m MSL and -102.5 m MSL), were excluded from the deposit models as they would have been sub-tidal.
- 1.3.44 In total 25 deposit records were used in the deposit modelling. All available data points were entered into industry standard geological utilities software (Rockworks™). Each stratigraphic unit was given a colour and pattern allowing cross correlation and grouping of the different sedimentary units. The grouping of these deposits is based on lithological descriptions, which define distinct depositional environments referred to as 'stratigraphic units' (e.g., Bedrock, Alluvium and Made Ground).
- 1.3.45 Outputs included two-dimensional stratigraphic profiles ('transects') of selected interventions, generated using RockWorks™. The locations of the transects are presented alongside the deposit models in Figures 4 to 8 in Volume 3, Appendix 7.3: Stage 1 and Stage 2 Marine Geoarchaeological Assessment of the ES.

1.4 Desk Study – Baseline Characterisation

Marine Geoarchaeological Assessment

Stage 1 review of geotechnical data

- 1.4.1 A total of 44 vibrocores and 44 CPTs were reviewed by geoarchaeology teams at WSP and Wessex Archaeology as part of a Stage 1 review and then three identified cores of interest (VC53, VC59, and VC60) were assessed in detail by Wessex Archaeology for the Stage 2. The results are summarised below and available in full detail in Volume 3, Appendix 7.3: Stage 1 and Stage 2 Marine Geoarchaeological Assessment of the ES.

Bedrock

- 1.4.2 Bedrock was recovered in a total of 15 vibrocores and comprised of structureless chalk further to the south and shale gravel to the north of the UK OCC. In two vibrocores (VC17 and VC18) sandy chalk gravel with shell fragments was recorded overlying structureless chalk and is interpreted as disturbed bedrock reworked by later marine processes.

Diamict

- 1.4.3 The lithostratigraphy of deposits encountered during the monitoring is listed and summarised below.
- 1.4.4 Dark grey firm to very stiff heterogeneous gravelly sandy clay was recovered in three vibrocores from the UK OCC (VC19grab, VC20a and VC60). The vertical extent of this deposit is unclear given the shallow depth of the vibrocores. However, where recovered, this deposit is typically at depths of between 0.54 metres below sea floor (mbsf) and 1.25 mbsf. The surface of this deposit was recovered at seabed in grab sample VC19, although terminates at a shallower depth of 0.14 mbsf. Rare shell fragments were also recorded and may suggest some degree of post-depositional reworking. The high shear strength and heterogeneous nature of this clay suggests it was deposited in a glacial environment and is interpreted as glacial till (Diamict). Diamict is assigned a low priority status.
- 1.4.5 In VC60, a thin unit of dense slightly sandy very clayey gravel was recorded at depths of between 0.68 mbsf and 1.00 mbsf. The gravel-dominated unit is stratigraphically constrained between glacial diamict and is therefore also glacial in origin, most likely representing subglacial outwash.

Glaciomarine

- 1.4.6 In seven vibrocores (VC04, VC07a, VC24, VC25, VC30, VC37a and VC39a) very dark grey firm to very stiff slightly to very sandy clay and dense sand with lenses of clay were recorded at depths of between 0.08 mbsf and 3.30 mbsf. Thin laminations are frequently observed within these deposits, and they occasionally display a convex structure possibly representing post-depositional alteration through glaciotectonic deformation. Gravel clasts are occasionally recorded within these deposits, interpreted as representing dropstones. Shell fragments are also

observed within this unit and suggest deposition within a subaqueous low-energy environment. This combined with the high-strength nature of these sediments suggests that deposition likely occurred within a glaciomarine environment.

Coastal to shallow marine

- 1.4.7 In a single vibrocore (VC53) a lithologically variable sequence of gravelly sands and fine to medium sands with rare sand and clay laminae and shell fragments was recorded between seabed and 4.73 mbsf. The laminations suggest deposition in a rhythmic low energy setting with sharp contacts to gravelly sands indicative of a rapid change of depositional energy. Fine to coarse shell fragments are also observed throughout and they are therefore tentatively interpreted to represent deposition in a highly active coastal to shallow marine setting. Coastal sediments are assigned a medium priority status.

Alluvium

- 1.4.8 In two vibrocores (VC59 and VC60) dark grey fine sand with occasional clay laminae and shell fragments are recorded overlying firm clay with laminae of sand and fragments of organic clay. The clay unit in VC60 (0.10 m) is thinner relative to that recorded in VC59 (1.28 m) and stratigraphically overlies a unit of gravelly clay, tentatively interpreted as periglacial sediments (i.e. Head). The presence of organic inclusions and fine-grained laminated sediments indicative of low-energy rhythmic deposition may suggest that deposits were formed in a shallow water alluvial environment. Alluvium is assigned a medium priority status.

Seabed sediments

- 1.4.9 A total of 38 vibrocores were recorded as comprising a transgressive sequence of sandy gravels overlain by occasionally gravelly medium to coarse sands. Both fragmented and whole shells are observed and suggest deposition in a marine setting. This unit is stratigraphically recorded at seabed level and typically overlies glacial sediments where present. These deposits are interpreted as post-transgressional seabed sediments and are considered to have low geoarchaeological potential.

Undifferentiated

- 1.4.10 Determining the depositional environment of the deposits from the Celtic Sea based on lithology alone is often complex and given the shallow recovery of vibrocores, resolving these complexities though stratigraphy is also challenging.
- 1.4.11 In VC28, a heterogeneous sequence of firm clay, sandy gravels and sands with thin laminations are recorded to a maximum depth of VC28. This sequence is lithologically unique with the majority of vibrocores in the vicinity comprising seabed sediments and in few instances, are underlain by glaciogenic deposits. Fragments of peat and woody plant remains are also observed and are detrital in nature. The depositional history of this sequence is unclear, however given the context of the area and the deposits recovered nearby, it may represent an ice-proximal sequence.
- 1.4.12 A firm very gravelly clay is recorded in VC60 between 0.54 mbsf and 1.55 mbsf. The lithology of the gravel is described as sandstone and shale and based on the core photograph, appears to be angular to subangular throughout. The

depositional history of this deposit is unclear, although it has characteristics similar to deposits associated with Diamict and Head.

- 1.4.13 The Quaternary stratigraphy of deposits recovered in vibrocores from the Xlinks' MUPP UK OCC is summarised in Table 2 in Volume 3, Appendix 7.3: Stage 1 and Stage 2 Marine Geoarchaeological Assessment of the ES, with deposits assigned to stratigraphic units defined by Lockhart et al. (2018). However, due to uncertainty around taphonomy, along with the large distance between sampling locations, it was not always possible to assign a single Formation with confidence; such deposits are grouped together as Undifferentiated.

Stage 2

- 1.4.14 Two vibrocores (VC59 and VC60) contained deposits interpreted as Alluvium assigned a medium priority status. In all three vibrocores, sands interpreted as coastal and shallow marine sediments were also assigned a medium priority status. No vibrocores were identified as containing deposits of high geoarchaeological potential (e.g. Peat).
- 1.4.15 A full list of vibrocores retained for Stage 2 geoarchaeological recording, along with sediment descriptions and an interpretation of depositional environment is presented in Volume 3, Appendix 7.3: Stage 1 and Stage 2 Marine Geoarchaeological Assessment of the ES.

Alluvium

- 1.4.16 Both VC59 and VC60 were assigned medium priority status as they comprised deposits interpreted as Alluvium.
- 1.4.17 VC59 recovered a dark grey slightly sandy clay with frequent becoming rare fine (<2mm) laminae of fine to medium sand. Frequent fine to coarse (<5mm) pockets of organic fragments are observed between 1.88 mbsf and 2.47 mbsf and become rare and fine (<1mm) to 2.70 mbsf. Rare shell fragments are recorded throughout the deposit and combined with the presence of fine laminations, suggest that deposition likely occurred within an estuarine setting. Black fragments of organic matter are detrital in nature and indicate a degree of reworking, with fragments likely redeposited from a semi-terrestrial environment in the local area.
- 1.4.18 VC60 comprised a thin (0.10 m) unit of Alluvium stratigraphically overlying very clayey gravels. The Alluvium in VC60 is described as dark brown slightly silty sandy clay with occasional black flecks of organics. The deposit is lithologically similar to the Alluvium identified in VC59; however, no bedding is observed, and both the upper and lower boundaries appear to be reworked. Rare black organic flecks are observed which are detrital in nature. The depositional history of this silty sandy clay is unclear given the maximum vertical extent of the unit, although it is possible that it captures the edge of an estuarine, or possibly floodplain, environment.

Shallow marine to coastal

- 1.4.19 In VC53, a sequence of bedded coarse sands and gravels and fine to medium sands with faint silt and clay laminations is recorded stratigraphically underlying modern seabed sediments.

- 1.4.20 The beds of sands and gravels are moderately well sorted with the gravel lithology described as predominantly fine subrounded flint and quartz clasts with rare medium (<32 mm) subrounded clasts between 4.35 mbsf and 4.70 mbsf. Marine bivalves and tusk mollusc shells were identified within these coarse-grained units and are indicative of deposition in a partially, or fully, marine environment. The upper boundaries of these beds are sharp and are followed by thick units of fine to medium sands with silt and clay laminations. This sequence is characteristic of a transgressive sequence, with an abrupt change in depositional regime from high-energy marine inundation to low-energy sands associated with rhythmic, likely tidal, processes. The sediments recorded in VC53 are therefore interpreted as forming part of a transient coastal to shallow marine sequence.
- 1.4.21 The alluvial sediments in both VC59 and VC60 are overlain by predominantly fine to medium, occasionally coarse, sands with faint laminae, occasional fine to medium shell fragments and dark grey mottling throughout. The fine-grained nature of these sands, presence of fragmented shells and laminae are collectively characteristic of rhythmic deposition in either a coastal or shallow marine environment.

Undifferentiated

- 1.4.22 During the Stage 1 review, a very gravelly clay was defined as 'Undifferentiated' as the depositional history of the deposit was unclear based on the vibrocore log alone. During Stage 2 recording, frequent orange sands were observed and have been interpreted as oxidised slate bedrock. The gravel comprised angular to subangular slate and subangular flint clasts and the clay was recorded as high strength. During the initial review, this unit was assumed to likely represent Diamict, however both the high gravel content and angularity of clasts suggests that this deposit was laid down by slope processes in a periglacial environment (i.e. Head), reworking into the upper surface of the underlying Devonian to Carboniferous bedrock.

Deposit Modelling

- 1.4.23 Cross section 1 is located in the central Celtic Sea and comprises eight geotechnical vibrocores (Figure 4 in Volume 3, Appendix 7.3: Stage 1 and Stage 2 Marine Geoarchaeological Assessment of the ES). Bedrock subcrops beneath a thin veneer of seabed sediments to the southwest, whereas in the northeast thick glaciomarine deposits are recorded and are overlain by transgressive sands and gravels. The lower boundary of these glaciomarine sediments was not reached due to the shallow recovery of vibrocores.
- 1.4.24 Quaternary deposits are present in two vibrocores in Transect 2 (Figure 5 in Volume 3, Appendix 7.3: Stage 1 and Stage 2 Marine Geoarchaeological Assessment of the ES) and are entirely absent, with the exception of seabed sediments in Transect 3 (Figure 6 in Volume 3, Appendix 7.3: Stage 1 and Stage 2 Marine Geoarchaeological Assessment of the ES). It should be noted that many vibrocores included in these cross sections recovered <1.00 m of material and therefore the true extent of Quaternary deposits is unknown based on geotechnical information alone. The upper surface of the glaciomarine units identified in VC37a and VC39a were both recorded at a similar elevation of c. 76.2 m RSL. To the north west in Transect 3, the surface of VC46 is recovered at -60.70 m RSL and shows a shallowing of the seabed as the cable route reaches landfall.

- 1.4.25 Cross section 4 comprises three vibrocores located in the nearshore area of Barnstaple Bay (Figure 7 in Volume 3, Appendix 7.3: Stage 1 and Stage 2 Marine Geoarchaeological Assessment of the ES). The upper surface of the Coastal to Shallow Marine sequence recorded in VC53 is recorded at c. -31.0 m RSL and would have been submerged earlier than both VC59 and VC60, recorded at -13.50 m RSL and -10.0 m RSL, respectively (Figure 7 in Volume 3, Appendix 7.3: Stage 1 and Stage 2 Marine Geoarchaeological Assessment of the ES). Although Alluvium is absent in VC53, it may stratigraphically underly the transgressive sediments, however this is unclear given the shallow penetration of vibrocores. The Alluvium stratigraphically underlies a unit of Coastal to Shallow Marine sediments in VC59 and possibly represents the infill of a palaeochannel, the edge of which may be identified in VC60. The Alluvium in VC60 overlies a Head sequence indicating a degree of subaerial reworking in a periglacial environment.
- 1.4.26 The Quaternary stratigraphy of deposits recovered in vibrocores from the Xlinks MUPP UK OCC is summarised in **Table 1-7**, with deposits assigned to stratigraphic units defined by Lockhart et al. (2018). However, due to uncertainty around taphonomy, along with the large distance between sampling locations, it was not always possible to assign a single Formation with confidence; such deposits are grouped together as Undifferentiated.

Table 1-7: Stratigraphy of deposits within the Xlinks MUPP UK OCC

Unit Name	Description	Epoch	Formation
Seabed Sediments	Medium to coarse sand with shell (Modern seabed)	Late Weichselian to Modern	Layer A
	Gravelly sand and sandy gravel (Gravel lag)	Late Weichselian to Late Holocene	Layer B
Coastal to Shallow Marine	Fine to medium sand with faint laminae and rare shells	Early Holocene	N/A
Alluvium	Low strength sandy clay	Early Holocene	N/A
Head	Gravelly clay and clayey gravel	Late Weichselian to Early Holocene	N/A
Glaciomarine	Firm to stiff sandy clay with laminae of sand and shell fragments	Late Weichselian	Upper Little Sole
Diamict	High strength gravelly sandy clay	Late Weichselian	

Palaeolandscapes Assessment Results

- 1.4.27 Wessex Archaeology undertook the palaeolandscapes assessment and the results are as follows (Volume 3, Appendix 7.4: Palaeolandscapes assessment of sub-bottom profiler data of the ES). The shallow stratigraphy of the OCC has been based on that presented in the marine geoarchaeological assessment report (Volume 3, Appendix 7.3: Stage 1 and Stage 2 Marine Geoarchaeological Assessment of the ES) but the discussion was modified to include additional features visible in the geophysics but not observed within previously assessed cores (**Table 1-8**). Similarly, some fine scale subdivisions present within the core samples are not resolvable within the SBP data. It should be noted that a

complete stratigraphy as outlined in (Table 1-8) and in the further discussion below will not be present in any one vibrocore sample or SBP data section.

Table 1-8: Shallow stratigraphy of the study area

Unit	Unit Name	Geophysical Characteristics ⁽¹⁾	Sediment Type ⁽²⁾	Archaeological Potential
7	Seabed sediments (Holocene)	Generally observed as a thin veneer with occasional sand ripples, or thickening into large sand bank towards the nearshore. Boundary between surficial sediments and underlying Units 5 and 6 (where present) is not always discernible.	Gravelly sand and sandy gravel (Gravel lag)	Considered of low potential in itself, but possibly contains re-worked artefacts and can cover wreck sites and other cultural heritage.
6	Coastal to shallow marine (Early Holocene)	A relatively well defined, sub-horizontal reflector overlain by a relatively acoustically transparent unit that contains numerous faint internal reflectors, suggesting a complex structure.	Fine to medium sand with faint laminae and rare shells	Potential to contain derived archaeological and palaeoenvironmental material, and to protect underlying surfaces.
5	Alluvium (Early Holocene)	A relatively well defined, sub-horizontal basal reflector and a single phase of generally unstructured, acoustically transparent fill. Some internal reflectors are visible, but do not show a coherent structure. Occasionally punctuated by erosive features (channels) that often cut through the whole thickness of the unit.	Low strength sandy clay	Potential to contain <i>in situ</i> and derived archaeological and palaeoenvironmental material, and to protect underlying surfaces.
4	Head (Late Weichselian to Early Holocene)	Not definitively identified within the geophysical data.	Gravelly clay and clayey gravel.	Unlikely to contain archaeological material.
3	Glaciomarine (Late Weichselian)	Not definitively identified within the geophysical data.	Firm to stiff sandy clay with laminae of sand and shell fragments.	Unlikely to contain archaeological material.
2	Diamict (Late Weichselian)	Tentatively identified in the nearshore area as an acoustically transparent unit.	High strength gravelly sandy clay.	Unlikely to contain archaeological material.
1	Pre-Quaternary bedrock	Variable, but often with a strong upper reflector and irregular/dipping internal reflectors.	Variable.	Pre-Earliest occupation of the UK.
(1) Based on geophysical data				

Unit	Unit Name	Geophysical Characteristics ⁽¹⁾	Sediment Type ⁽²⁾	Archaeological Potential
(2) Based on vibrocore data, Volume 3, Appendix 7.3: State 1 and 2 Marine Geoarchaeological Assessment of the ES				

- 1.4.28 Unit 1 is visible along most of the OCC and represents the pre-Quaternary bedrock in the region. The unit is characterised by a strong upper reflector, and variable internal structure, often comprising irregular and/or dipping reflectors. The upper surface is often irregular and eroded in nature, and the unit is often directly overlain by modern seabed sediment. The bedrock is likely to vary in composition but is all interpreted to pre-date the earliest known hominin occupation of the UK. As such, Unit 1 is not considered to be of archaeological potential.
- 1.4.29 Ten small cut and fill features have been identified cutting directly into the surface of Unit 1, all located along a stretch of route approximately 30 km long approximately northwest of Padstow (Figure 2 in Volume 3, Appendix 7.4: Palaeolandscapes assessment of sub-bottom profiler data of the ES). These features (ID numbers 7500 to 7509) are similar in character, and are relatively shallow features characterised by well defined, often irregular, basal reflectors, and a single phase of acoustically transparent or unstructured fill (Figure 3 in Volume 3, Appendix 7.4: Palaeolandscapes assessment of sub-bottom profiler data of the ES). In some cases, the base is less distinct, but this is less common.
- 1.4.30 None of the Proposed Development vibrocores sampled any of these features, and their nature and fill composition is currently uncertain. Additionally, as they are cut into pre-Quaternary bedrock (Unit 1) and directly overlain by modern seabed sediment (Unit 7) there is little stratigraphic control with which to assign a potential age for the features. They are located within relatively deep water (approximately 70 m LAT) but modelling work by BRITICE-Chrono suggests they are in an area that was likely exposed as a terrestrial environment after the LGM (Clark et al. 2022). As such they could be small, remnant fluvial features, and could be of archaeological potential. Conversely, they could also represent deposits of glacial till (Unit 2) within hollows, potentially formed through glacial erosion or subglacial meltwater, in the irregular bedrock surface, and as such would be considered of low archaeological potential. As discussed with Historic England, should further geotechnical investigation be undertaken in these areas, then the scope of those investigations should include archaeological investigation (c.f. Volume 3, Chapter 7: Marine Archaeology & Cultural Heritage of the ES). Any such investigations could include for example, geoarchaeological boreholes within the identified features to determine the nature and age of the deposits and refine the potential for palaeoenvironmental or prehistoric archaeological remains. Any such cores would be subject to the five-stage approach (detailed in **Table 1-6**) undertaken by a qualified marine geoarchaeologist.
- 1.4.31 Unit 2 was identified within three geotechnical samples (Volume 3, Appendix 7.3: Stage 1 and Stage 2 Marine Geoarchaeological Assessment of the ES), and was only tentatively identified within the nearshore area of the proposed route in the SBP data. As an interpreted glacial deposit/diamict, Unit 2 is not considered to be of archaeological potential.
- 1.4.32 Unit 3, a deposit of glaciomarine sediments, was identified within seven vibrocore logs during the Stage 1 geoarchaeological assessment (Volume 3, Appendix 7.3: Stage 1 and Stage 2 Marine Geoarchaeological Assessment of the ES), within which all deposits were visible in the upper 3 m of the stratigraphy. This unit was

not definitively identified within the geophysical data, and so is likely to either be too thin in most places to be properly resolved in the SBP data, or is acoustically indistinguishable from the overlying seabed sediment. However, as a glaciomarine deposit, Unit 3 is not considered to be of archaeological potential.

- 1.4.33 Unit 4 is a very thin (<1 m thick) unit identified in a single vibrocore sample (VC_60). This has not been resolved in the SBP data, presumably due to its thin nature and composition as reworked glacial till. It is not considered to be of archaeological potential.
- 1.4.34 Unit 5 is visible within the Bideford Bay area of the proposed route, close to the UK landfall (Figure 2 in Volume 3, Appendix 7.4: Palaeolandscapes assessment of sub-bottom profiler data of the ES). It is characterised by a relatively well defined, sub-horizontal basal reflector and a single phase of generally acoustically transparent fill (Figure 4 in Volume 3, Appendix 7.4: Palaeolandscapes assessment of sub-bottom profiler data of the ES). Some internal reflectors are visible, but do not show a coherent structure. There are potentially three separate deposits of this unit, 7510, 7512, and 7513; although 7512 and 7513 are likely to be the same feature that is just separated in the data by an area of lower seismic penetration caused by a sand bar.
- 1.4.35 Several cut and fill and channel features (7514, 7515, 7516, 7517, and 7518) have been observed cutting into Unit 5. These often cut through the whole thickness of the unit and into the underlying bedrock/till, and are characterised by irregular basal reflectors and single phases of acoustically transparent/unstructured till (Figure 4 in Volume 3, Appendix 7.4: Palaeolandscapes assessment of sub-bottom profiler data of the ES).
- 1.4.36 Unit 5 was found by vibrocore samples (VC_59 and VC_60, Volume 3, Appendix 7.3: Stage 1 and Stage 2 Marine Geoarchaeological Assessment of the ES) to comprise low-strength sandy clay and the SBP data shows that the unit contains associated shallow fluvial features. It is considered that this deposit is likely comprised of Early Holocene alluvium which accumulated during a time of post-glacial sub-aerial exposure of Bideford Bay. None of the channel features identified were directly sampled by the vibrocoring. As a terrestrial deposit, Unit 5 is considered of high archaeological potential, and could contain *in-situ* archaeological artefacts and/or palaeoenvironmental material.
- 1.4.37 Previous work in the area (Wessex Archaeology 2012) has identified acoustic blanking within the nearshore terrestrial sediments, potentially indicative of organic material. No such blanking or high amplitude horizons were identified within the current SBP data set, and no organic material was recovered from any of the nearshore vibrocores. One single survey line exhibited some high amplitude reflectors within the seabed sediments, but these were not corroborated by any adjacent or overlapping lines and so were regarded as a spurious result.
- 1.4.38 However, as a terrestrial deposit associated with a fluvial/floodplain system, there is potential for thin layers of organic material to be present within Unit 5, particularly at its upper surface. The potential presence of these is corroborated by the known submerged forest remains on the beach at Westward Ho!, close to the proposed landfall (Grant et al. 2021). Any remains of this type would also be considered of high archaeological potential.
- 1.4.39 Unit 6 is represented by a single feature, 7511, also located within Bideford Bay. This is characterised by a relatively well defined, sub-horizontal reflector overlain by a relatively acoustically transparent unit that contains numerous faint internal

reflectors, suggesting a complex structure. The unit was found by vibrocore (VC_53, Volume 3, Appendix 7.3: Stage 1 and Stage 2 Marine Geoarchaeological Assessment of the ES) to comprise fine to medium sand with faint laminae and rare shells, but the potentially complex structure within the SBP data suggests it may be laterally variable. This unit is interpreted as a potential Early Holocene coastal deposit, probably dating from the period of the post-glacial marine transgression, and forms the core of a sand bar that crosses the Offshore Cable Corridor at this location. As a potential coastal deposit, Unit 6 may contain reworked archaeological and palaeoenvironmental material, and is considered of medium archaeological potential.

- 1.4.40 A second deposit of possible Early Holocene coastal sediments was recorded from vibrocores VC_59 and VC_60, close to UK landfall. In the SBP data, these coastal sediments are indistinguishable from modern seabed sediment deposits, and so have not been mapped.
- 1.4.41 Unit 7 represents the modern marine sediment along the proposed route. For the majority of the route, this comprises a thin veneer overlying bedrock, with some areas of slightly thicker accumulations and mobile bedforms. In the nearshore area, this thickens to a few metres over a possible sand bank, and then again towards the landfall. Vibrocores found the sediment to comprise gravelly sand and sandy gravel, changing to fine to medium sand close to landfall (Volume 3, Appendix 7.3: Stage 1 and Stage 2 Marine Geoarchaeological Assessment of the ES).
- 1.4.42 As a modern deposit, Unit 7 is not considered to be of potential in itself, but could potentially contain re-worked artefacts or cover wreck sites and other cultural heritage. This is particularly the case in the nearshore area, where it could cover and protect sites close to landfall and contain material re-worked from the underlying alluvial material. However, in general, Unit 7 is considered of low archaeological potential.

Archaeological and Historical Background

- 1.4.43 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).

Prehistoric (700,000 Before Common Era (BCE) – 43 Common Era (CE))

- 1.4.44 The Lower (700,000–250,000 BCE) and Middle (250,000–40,000 BCE) Palaeolithic saw intermittent, perhaps seasonal Hominin occupation of Britain as the climate alternated between long cold (glacial) and short warm (interglacial) stages. The glacial cycles resulted in periods of lower and higher sea-levels which alternatively exposed and inundated the continental shelf. The site and study area have been impacted by three major glaciations over the past 970,000 years which each led to lower sea levels and, periods when varying areas of the now submerged land of the European Continental shelf, including the study area, was exposed and suitable for hominin occupation (Wenban-Smith, 2002). 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.

- 1.4.45 The study area may have been at the edge or just within the limit of the Anglian ice sheet but is not considered to have been within the landscape directly under the glacier masses during the Wolstonian and Devensian glaciation events. The land would have been subject to a rise and successive fall of ground level as result of crustal deformation due to the weight of the glacial mass as it accumulated and decayed (Harff et al. 2017, 20-21). The sea level fluctuated as a result of the degrading glaciers precipitating a gradually rise from a low of c 120 m lower than modern levels around the European Continental shelf at the LGM around 22,000 years before present (BP). As a result of low sea levels and crustal deformation, the coastline is thought to have been located considerably further west than its current location but the extent of the exposed land after LGM in this area has yet to be fully determined.
- 1.4.46 The Upper Palaeolithic (40,000–10,000 BCE) spans the last glacial cycle of the Pleistocene (the British Devensian). Climate change following a long period of deglaciation, lasting between 18,000 years BCE and 4,000 years BCE, caused sea levels to gradually rise eventually shifting the coastline to its modern position in the beginning of the Holocene, c. 10,000 BCE (Harff et al. 2017, 18). The Devensian ended with the improved climatic conditions of the Holocene, 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 may have supported animal life and in turn early humans during the Late Upper Palaeolithic until c. 12,500 BCE when a period of global cooling, the Younger Dryas, caused the climate to become too harsh to support human occupation.
- 1.4.47 The periods of occupation were directly related to the glacial cycle and evidence suggests that the population was characterised by its high mobility in which they ranged over considerable geographical distances (Fitch and Gaffney 2011, 8). The archaeology of the Upper Palaeolithic is characterised by new stone-working techniques, the use of bone and other materials, art and anatomically modern humans (*Homo sapiens sapiens*). No evidence of Palaeolithic activity has been identified within the study area and the known sites dated to this period are noted within cave sites to the north-east in Somerset and South Devon. The north of the study area within the Celtic Sea near the Bristol Channel would have been exposed into the Mesolithic period but it is currently unclear when the land was habitable and for how long it was used for occupation and resource exploitation.
- 1.4.48 By the Mesolithic period (10,000–4000 BCE), the Bristol Channel changed drastically, with sea level rise causing the coastline to retreat further inland. The isle of Lundy remained connected to the mainland at the beginning of the Mesolithic period. 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. 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). 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.

- 1.4.49 A single flint tool, potentially a projectile, dated to the transition period between the Upper palaeolithic and the early Mesolithic was found in 2009 on the Westward Ho! Beach (**A117**) 2.1 km to the north-east of the north 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. Analysis of Mesolithic human bone fragments by Schulting and Richards in the late 20th and early 21st centuries suggest that human diets were dependent upon marine resources and evidence shows an emphasis on coastal camping sites presumably in order to exploit the resources from both terrestrial and maritime environment (Peters 2014). The extent of maritime travel or trade during this period is not clear but there is evidence that the Mesolithic populations in Britain possessed the technology in the form of 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).
- 1.4.50 By the Neolithic period (4000–2200 BCE), sea-level was near modern levels and the coastline has retreated to near its historic position. The coastline begins to be impacted by coastal change processes including erosion and deposition. Bideford Bay, in which the north end of the OCC is located, appears to have been sheltered from this period as organic deposits containing peats dated to the Neolithic are recorded within the Devon Historic Environment Record (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**). The creation of these deposits suggests that the interface between Bideford Bay and the estuary of the Rivers Torridge and Taw included marshland. Evidence of occupation and use of the marshland during this period includes finds of flint tools (**A99** and **A105**) 1.4 to 2.5 km from the north end of the OCC and the remains of a possible trackway in the form of two lines of wooden stakes, one semi-circular and one curving, found in the late 19th century and rediscovered and dated in the 1980s (**A104**) 2.3 km to the north-east of the north end of the OCC.
- 1.4.51 The western seaways, which includes the study area, is thought to have been utilised by the Neolithic population to facilitate the proliferation of ideas, material cultural, and people between the British Isles and the European continent (Garrow et al. 2017); however, no known examples of boats capable of offshore navigation dating to the Neolithic have been found to date. The known remains of early watercraft suggest that the technology was limited to log boats that are generally thought to be restricted to coastal or riverine environments. This limit is likely to be the result of survivor bias as the only boats found have been within riverine or marshy coastal environments. It is considered possible that boats produced through basket-weaving technology similar to later coracles could have been used for offshore navigation but remains of this type are incredibly fragile and no direct evidence has been found to confirm or refute this hypothesis to date (Historic England 2016).
- 1.4.52 Evidence of occupation and activity during the Neolithic period is present on the Isle of Lundy, c. 5 km north of the OCC, which would have been isolated within the Celtic Sea by 9000 BCE. The remains of a chambered tomb (**A7**) likely dating to the Neolithic and nine standing stones, two of which lie within the study area (**A2** and **A6**), dating to the late Neolithic or early Bronze Age are noted on the southern cliffs of the island. 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). This suggests the possibility that maritime activity was utilised during this period to facilitate access to the island and allow for the spread of new technologies and ritual practices.

- 1.4.53 During the Bronze Age (2200–800 BCE), shipbuilding technology continued to advance allowing for a broadening of trade links. Sewn-plank construction techniques are first identified in the archaeological record in Britain in the middle Bronze Age. These construction techniques can be used to construct seaworthy vessels but no examples of known seagoing vessels Bronze Age have been identified within the British Isles to date. Evidence suggests that the Bronze Age population maintained links with settlements in Ireland and the European mainland allowing for continued movement of goods, natural resources, people and ideas during the period. The first evidence of bulk trade with the European continent is suggested by remains found within the South Devon sites of Moor Sand, Salcombe B and Erme Ingot but it is not currently clear how extensive the trading network extended within Britain. The local trade routes taken are unknown but are likely to have included the study area.
- 1.4.54 Settlements on the mainland dating to the Bronze Age and continuing in use into the Iron Age have been identified around Barnstaple Bay and down the coast of Devon and Cornwall. Similar evidence of activity and occupation have been found on the Isle of Lundy, 5 km to the north of the OCC, and the Isles of Scilly, located 51 km to the south east of the closest point of the OCC at the southern end, suggesting that the islands continued to be accessible and connected to mainland populations allowing for the transmission of new practices and technologies. Changes in the pollen profile detected indicated that people from the mainland have accessed these islands (Ransley et al., 2013) provide more support to the hypothesis that seagoing technology was in use during this period. Bronze Age occupation is further evidenced within 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.
- 1.4.55 Although no evidence dated to the Iron Age (800 BCE – 43 CE) has been identified within the study area, it is considered likely that activity continued. 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 including Clovelly Dykes hillfort (NHLE 1018522) located outside the study area approx. 7 km to the south of the OCC, a hillfort at Buck's Mills (NHLE 1002527) located outside the study area 5.5 km to the south of the OCC, Windbury Head Camp (NHLE 1003864) located outside the study area 6.5 km to the south of the OCC, Embury Beacon Camp (NHLE 1003845) located outside the study area 19.5 km to the south of the OCC, and The Castle (NHLE 1002542) located outside the study area c. 13 km to the north east of the north end of the OCC. 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.
- 1.4.56 The OCC skirts along the western coast of Cornwall, c. 40 to 60 km to the west of the coastline, before circling around the west side of the Isles of Scilly to head toward the Bay of Biscay. Along the western coastline the remains of hillforts dating to the Iron Age were found overlooking the approaches from the Celtic Sea and Atlantic Ocean. Thirteen of these forts are designated as scheduled monuments (NHLE 1003106, 1004388, 1004390, 1006712, 1016991, 1020026,

1021004, 1004234, 1004625, 1021006, and 1003097). 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 the 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.

- 1.4.57 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 (43–410 CE)

- 1.4.58 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, 107). 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.
- 1.4.59 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).
- 1.4.60 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.

- 1.4.61 Bideford Bay is one of the few natural harbours within this region of the south-west coast of Britain and would have acted as an important anchorage particularly given the exposed cliffs along the Hartland coast to the south-west and to the north-east to Somerset (Carr 1992). The only known heritage asset dating to the Romano-British period within the study area is a wooden stake alignment (**A100**) which has been recorded 2.5 km north east of the OCC. The finding of pottery from South Devon or Dorset at the Roman period site of Beacon Hill on the Isle of Lundy suggests that the inhabitants of the island were integrated into the local coastal trading network (Lundy Field Society 2024).
- 1.4.62 The remains of a Roman period ship, the Barland's Farm Romano-Celtic boat, was identified within the remains of fen-edge settlement within the Caldicot Level in the Severn estuary during investigations in the 1990s. Analysis of the surviving timbers shows that she was constructed in the Romano-Celtic shipbuilding tradition that utilised a mix of techniques and features from both the local Celtic shipbuilding tradition as well as the Roman tradition. However, the builders did seem to draw more heavily on the local Celtic techniques suggesting it was likely to have been constructed locally (Nayling and McGrail 2004, 228). She was constructed as an estuary and sea-going vessel and may have been used for both military troop movements as well as mercantile activity along the coast as well as further afield. The Barland's Farm boat is considered to be representative of the ships that were in use within the wider area and likely within the study area. The survival of these types of remains are more likely within deep alluvial deposits.

Early medieval (410–1066 CE)

- 1.4.63 The impact of Roman administration and military withdrawal in Devon and Cornwall is currently unclear but would have precipitated a corresponding decline in Roman maritime activity within the region. The archaeological record in Devon and Cornwall suggest that the nature of Romano-British society and its relationship with the Roman military and government were different from the rest of the south of England making it possible that the local impact was relatively minimal (Webster et al. 2024). If the native social and political structures survived the Roman state intact then it is likely that trade and travel continued relatively unchanged in the mid to late 5th century.
- 1.4.64 The western kingdom of Dumnonia, first mentioned by Gildas in the mid-6th century, emerged following the withdrawal and extended from the Somerset Levels to Land's End (Fletcher, 2022). Evidence from early medieval settlements within Cornwall and Devon show continued links with the continent and western isles, particularly Armorica (in modern Brittany, France) and Ireland, suggesting that the local population maintained trade links rather than devolving into the chaos seen in the east of England. Additional evidence to support the theory that maritime trade and other activity within the study area continued includes documentary evidence from the *Vita Germanus* written about Saint Germanus in the 5th century by his disciple. The text recounts two visits to the British Isles in the 5th century to counter heresy which suggests that information was continuing to travel between the British Isles and the Catholic Church in Rome (Fletcher 2022, 6). Local evidence of maritime activity within the north of the study area includes graves found on the Isle of Lundy associated with a monastic community (Lundy Field Society 2024). The foundation of monastic communities on islands within the Irish and Celtic Seas became increasingly common as the Irish Church grew in local influence in conflict with the central Church in Rome (Fletcher 2022, 17).

- 1.4.65 The Saxon kingdom of Wessex began expansionist activities within the west along the former Roman military roads in the 6th century which seems to have united the varying groups of Britons in the south-west against a common enemy in the succeeding centuries (Fletcher 2022, 29%). Maritime trade and communication remained a key activity particularly in connecting communities along the coast crossing into the study area, particularly given the challenging terrain and intermittent periods of hostilities with Anglo-Saxon neighbours punctuated by periods of diplomacy where English-speaking settlement was accepted. By the 9th century, Devon had been incorporated into the Saxon kingdom of Wessex following nearly a century of regular battles.
- 1.4.66 The impact that the change in political governance had on the study area is currently unclear. Barnstaple, on the River Taw, was one of four 'burghs' allowed to mint coins, the earliest of which found is dated to the mid-10th century, suggesting that it was well established by the time the area was incorporated as part of Wessex (Carver et al. 2013). The increased prominence of Barnstaple as a market town does suggest the continuance and possibly the rise in mercantile activity much of which would have been through coastal trading. 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.
- 1.4.67 Victories by the Anglo-Saxons in Cornwall in the 9th century led to Cornwall coming under the control of Wessex as a vassalage though the existing ties with the Norse and the rather contentious relationship with Wessex led to period of neutrality and diplomatic negotiation (Fletcher 2022). Raiding activity did continue in the late 9th century and late 10th century along the North Devon coast, where reportedly there were attempts to intercept the raiding ships at sea with varying success (McGrail 1992), and in Padstow in the late 10th century. Mercantile activity, consisting mainly of trade in tin, copper and slaves, along the coasts and with Ireland and Brittany continued throughout this period.
- 1.4.68 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. The harsh coastline and lack of easily navigable rivers would not have been appealing for Norse raiders but small bays and inlets would have allowed for safe anchorage while piloting around the coasts to more profitable targets (Fletcher 2022, 49). Evidence of Norse trade goods entering into the local markets in Cornwall as well as evidence of settlement generally in the form of the construction of Norse style burial monuments and changes to religious iconography suggests that the local relationship with the Norse was more complicated and enduring than simple raiding activity.
- 1.4.69 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 large ships 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 materials to construct. Short distance travel may still have been undertaken in smaller logboats 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.

- 1.4.70 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 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 (1066–1540 CE)

- 1.4.71 In the years immediately following the Norman conquest, the sons of Harold Godwinson began to raid the south-west coast from their exile in Dublin. It is thought that the site of one battle reported in William of Jumieres' *Gesta Normannorum Ducum* between them and Brian of Brittany, a local earl, was Northam, 2.5km to the north-east of the OCC (Fletcher 2022, 85). This has not been confirmed archaeologically but 66 ships of fighters were reported within the text to have been brought by the brothers for the raid. These ships would have likely been of the clinker-built Norse style similar to the ship remains found in Skuldelev in Denmark.
- 1.4.72 The Norman lords granted lands within the south-west were predominately Breton in origin further solidifying links between the two areas which continued during the rest of the period. The introduction of the feudal system and the ban of slavery within the kingdom as well as the trade in slaves in 1070 removed a lucrative aspect of the economy, particularly in Cornwall, and constituted a significant change to the social structure (Fletcher 2022). Following the introduction of these changes, the ports on the west coast of Britain, including Padstow on the River Camel, 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 majority of the large Cornish ports during the period were located on the southern English Channel coast and traded with ports in France and further afield. Ships engaging in trade between these ports as well as eastern English ports would have travelled across the southern end of the OCC.
- 1.4.73 The most prominent North Devon port is 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). Trade from the ports around Bideford Bay, Barnstaple, Appledore, and Bideford, was dominated by cloth which by the late 15th century was distinctive enough to be sold as Barnstaples for export further afield (Childs 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.
- 1.4.74 The most prominent west Cornish port was that of Padstow which was the only one on the coast that had borough status, regular markets and fairs, a fleet of trading vessels, and was a regular port of call for overseas shipping (Kowaleski 2014; 44). The protected nature of the harbour due to its position within the estuary of the River Camel is likely the reason for Padstow's prominence. The majority of the ports along the Cornish west coast were small fishing villages

which contributed to a growing cured fish industry within Cornwall that supplemented the agricultural activity within the area and also exported to the east of Britain, France, and Spain (Kowaleski 2014; 47).

- 1.4.75 Historical documentation from the 13th century suggests that the Isle of Lundy was occupied by a village in the north of the island and two farms within the south with areas of common grazing (Lundy Field Society 2024). It is reported that the island was owned by the de Newmarch family from the 12th century who leased it to the de Mariscos in around 1150 (Landmark Trust 2024). Piratical activity began when Henry II gave the island to the Knights Templar 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. Marisco Castle (NHLE 1016034; outside the study area), a fortress constructed on the orders of Henry III in 1243 when he recovered the island from William de Marisco, was built on a small bay on the south-east end of the island, 5.1km north of the OCC, to secure the island against future misuse (Landmark Trust 2024).
- 1.4.76 Tensions between France and Britain, Spain and Britain as well as English military activity within Ireland contributed to an increase in hostilities on the sea throughout the period. Privateering activity became common within the study area as a result of enemy coastal raiding during the Hundred Years War and the Crown's dependence on merchant ships for naval services due to a lack of a royally controlled navy (Kowaleski 2014; 49). Piratical and smuggling activity along the coast continued into the post-medieval period taking advantage of the lack of oversight from the British government and the tensions between Britain and its neighbours.
- 1.4.77 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. Additionally, the organic nature of the ships during this period makes survival of complete vessels and identification of the vessel remains on the seabed more difficult. It is possible that some of the unidentified wrecks within the study area are related to medieval vessel losses. The ships would be of the clinker-style or carvel-style but short-distance travel was still undertaken in smaller boats, potentially clinker style but may also have included log boats and coracles.

Post-medieval (1540–1900 CE)

- 1.4.78 Britain as a whole became increasingly dependent on maritime activities as a result of advances in shipbuilding technology, the expansion of trade routes to south and east Asia and colonial expansion throughout the world. 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 in addition to smaller ones like Barnstaple and Bideford. The post-medieval period is considered to be one of the most important periods for maritime activity given the rapid innovations in ship technology including the gradual shift from traditional wind-powered ships to later steam and petrol engines which were driven in part by the demands of the increasingly global maritime trade and naval

activity and the innovations of the Industrial Revolution (Wessex Archaeology 2011).

- 1.4.79 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 (Youings and Cornford 1992, 100). Maritime losses could also be tracked more easily as a result of better record keeping which became increasingly centralised following the creation of the Society for the Registry of Shipping, later the Lloyd's Register, formed in the mid-18th century though it was focused on ships over a certain tonnage so is limited in its scope as a complete record.
- 1.4.80 The OCC crosses portions of the Bristol Channel, Celtic Sea, and Atlantic Ocean which were exceptionally busy sea lanes during this period as the British Empire continued to grow. The western British ports in particular were heavily involved in what is called 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 raw materials would be shipped to ports like Bristol, Liverpool and Glasgow to be used in the manufacture of goods and the manufactured goods then shipped out to Africa for the purchase of slaves. Merchants in the western ports became wealthy and powerful from the amounts and value of the goods and materials passing through the ports facilitated by the trade networks. Ships engaged in this trade would have passed through the Bristol Channel and its approaches traversing the OCC.
- 1.4.81 Although advances in navigation technology and the construction of lighthouses and other navigational apparatus at known hazards in the 18th and 19th centuries were making considerable strides to making the Cornish and North Devon coast safer to navigate, ships remained reliant on local pilots for most coastal navigation (Doe et al. 2014; 146). Descriptions of the Isle of Lundy from the early 19th century state that the eastern side of the island was utilised as a safe waiting area for pilot skiffs waiting to provide navigational services to ships heading into the Bristol Channel and that the passage between the south end of Lundy and Hartland should be preferred as it was considered to be the safer of the options even with the large tidal variation and strong tidal currents (Ternstrom 2007; 15%). Arguments about the most advantageous location for a lighthouse as well as local opposition as a result of prolific smuggling activities pushed back the construction of a lighthouse on Lundy Island to 1819, nearly 70 years after an initial request was submitted to Trinity House. In that time the North Devon coast and Bristol Channel were 'referred to as the sailor's grave' on account of the large number of ships lost within this stretch of sea (Ternstrom 2007, 18%). Additionally, it was well known that the tidal stream heading north along the coast began 18 to 21 nm to the west of the isles of Scilly and was treacherous and that high densities of mineral lode within the rock to the north of Land's End caused compass malfunctions which may have contributed to the high number of wrecks within the study area (Webb 2014; 226).
- 1.4.82 Like in earlier periods, shipbuilding continued to be decentralised and local shipbuilding technologies exhibited the general trends with local variations during the early to middle centuries of the post-medieval period. Shipwrecks are considered to provide 'significant information about shipyard practices and innovation and variation in ship design, as well as the origin of timber used and the repair and maintenance of vessels' for which information has not survived on

land (Dellino-Musgrave and Ransley 2013, 173). 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 in the later centuries in response to changing needs from both commercial and military organisations and pressures on natural resources. Coastal and fishing vessels are likely to have been locally built and predominantly remained built of wood even after the transition to iron and steel. The development of local types of smaller vessels exhibiting a mix of traditional features and new innovations created distinctive types including the Picarooner, a small fishing vessel common to the North Devon coast.

- 1.4.83 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. It is noted that the rest of the records are considered to be loss records for which an arbitrary point within the general vicinity of the observed or recorded wreck is assigned as the exact location of the wreck has not been determined. It is considered therefore that these wrecks are indicative of potential of remains within the area.
- 1.4.84 The UKHO notes the remains of six potentially post-medieval steam ships within the study area including the named remains of the *Pallion* built in 1871 (**A50**) and the *City of Exeter* built in 1870 (**A45**). Of the remaining four, the construction date is not certain as the ships have not been identified and the use and construction of steam ships bridges the late post-medieval and modern periods.
- 1.4.85 Local resource exploitation activities would have continued within Bideford Bay, the Celtic Sea and Atlantic Ocean. The fishing of pilchards in particular remained an important industry along the Cornish and Devon coasts into the 19th century. Advances in fish preservation techniques meant that fish that did not take well to the traditional means of preservation, including mackerel, began to be commercially viable where previously they were only exploited for local consumption. Mackerel fishing in particular was undertaken further offshore, likely within the OCC, and utilised heavier nets and larger boats. The increasing value of the fishing industry attracted fishermen out of the east of Britain in the late 19th century leading into the modern period that utilised heavier trawling nets (Pawlyn 2014; 267-268). Trawling was controversial, as it was considered damaging for the spawning grounds and the marine habitat; however, it was ultimately adopted as the dominate fishing methodology due to the commercial success of the fishermen employing it.

Modern (1901 – present)

- 1.4.86 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 the ship-building technology continued to evolve in response to changing needs from both commercial and military organisations. The development of aeroplane technology from a small industry to the main international transport industry of passengers also had an impact on maritime activity (Parham et al. 2013). 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.

- 1.4.87 The remains of the *Thistle* (**A63**) was recorded within the UKHO wrecks and obstruction data adjacent to the OCC and identified during the archaeological assessment of the geophysical data taken in support of the proposed development (Wessex 2024a). The *Thistle* was a merchant steamer constructed in 1906 by the Craig, Taylor and Co. shipbuilding firm in Stockton-On-Tees. During her use life, she was engaged as part of the Allan, Black, and Co. tramp fleet out of Sunderland. The *SS Thistle* was surveyed in November 1909 by surveyors from Lloyds Register to determine the extent of any repairs required prior to setting sail from Cardiff to Capetown, South Africa with a cargo of coal and was signed off in good condition (Lloyds's Register, 1909). The ship foundered during a storm following the failure and subsequent washing away of an on-deck ventilator which left a void that could not be sufficiently plugged to prevent the flooding of the main cargo hold (United Kingdom Government 1909). Although the majority of the crew were rescued, a small number were drowned as a result of the foundering.
- 1.4.88 Cornwall and the approaches into the west of Britain were a considerable target during both World Wars as they comprised the eastern end of the trade routes with North America. The German navy tried to take control of the sea lanes of the western approaches, including the study area, in an attempt to isolate the British Isles, cripple the economy and force surrender (Bennett and Bennett 2014; 377). The German submarine fleet undertook significant campaigns during both World Wars within this area. During the First World War, British efforts to protect mercantile and naval activity took the form of the adoption of the convoy system in 1916, the use of decoy ships within Cornish waters, and utilising the fledgling maritime aviation teams to harass U-boats into abandoning their intended targets (Bennett and Bennett 2014; 379 - 380). Anti-submarine work was dangerous for both watercraft and aircraft alike, with a number of craft engaged in it succumbing to enemy fire.
- 1.4.89 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. There is some uncertainty about the identification of the *Pelham* and two ships are identified by the UKHO as potential remains for this ship located 7.9 km apart and located on either side of the OCC (where it runs to the north of Land's End). The location of the submarine remains (**A33** and **A303**) are noted 3.2 km north of the OCC west of Lundy Island and 2.2 km to the west of the OCC where it curves around the Scilly Islands.
- 1.4.90 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, which was co-opted by the Royal Air Force in 1940 as part of the war effort to protect the coast (Southwest Airfields Heritage Trust 2017). 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 at one point or

another during the war. The squadrons participated in patrolling the Bay of Biscay, the Celtic Sea and western approaches to the English Channel for protection from U-boats and other enemy submarines which were vulnerable to aerial attack (Southwest Airfields Heritage Trust 2017). The remains of a single aircraft (**A36**) is recorded by the UKHO 2 km north of the OCC and 3.7 km to south east of Lundy. After the conclusion of the Second World War, the airfield continued in use as an RAF base until the 1990s though predominantly as a training facility. It was taken over by the Royal Marines in the mid-1990s and is kept active for the use of RAF heavy transport aircraft (Southwest Airfields Heritage Trust 2017).

- 1.4.91 The Cornish coast and coastline played an important part in the invasions of Normandy during the Second World War through both training and as staging grounds for raids and intelligence operations (Bennett and Bennett 2014; 383). The Cornish and North Devon coasts were vulnerable to attack and 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, anti-tank obstacles (**A67**) at Northam Burrows 5km to 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.
- 1.4.92 Following the Second World War, maritime activity became increasingly centralised to large container ports with smaller ports only being used by leisure craft and small fishing boats. The UKHO records include the unidentified remains of 5 carrier ships within the study area (**A308**, **A312**, **A314**, **A316**, and **A318**); only one of which is named, the *Telana* (**A318**).
- 1.4.93 Resource exploitation became limited to commercial fishing with other resources like shellfish being ignored during the latter half of the 20th century. Although modern ship technology has made it safer to be out on the open ocean, the UKHO records contain the remains of modern fishing vessels including the *Margaret and William II* wrecked in 1991 (**A320**) within the study area at the southern end of OCC. Recently, seaweed farming which began to be undertaken off the coast in the 21st century with one being established within Bideford Bay in 2021.

Uncertain or undefined period

Ship Remains

- 1.4.94 The majority of the known wrecks recorded within the DHER and UKHO databases within the study area are dated to the later post-medieval or modern periods (see paragraphs **1.4.83**, **1.4.89** and **1.4.92**). The bias toward post-medieval or modern wrecks within the data is likely a result of better record keeping nationally and locally and should not be considered representative of the full breadth of the potential wrecks within the study area.
- 1.4.95 There are an additional 42 shipwrecks noted within the UKHO data for which there is little to no information and possible period was not able to be determined. Some of these wrecks are noted as 'dead' which signifies that they were unable to be relocated during subsequent surveys.

Fishermen’s fasteners

- 1.4.96 Records classed as fishermen’s fasteners, or are unidentified and not associated with vessel or structural remains (including records classified as dead by the UKHO), are unidentified obstructions reported by fishermen, possibly indicative of a wreck or submerged feature. No other baseline information is available for any of these obstructions, and while they may well represent archaeological remains, the nature of these remains is not possible to ascertain from the existing sources.
- 1.4.97 Within the study area, there are currently 138 records classed as fishermen’s fasteners recorded by the UKHO.

1.5 Known Maritime Sites

Seabed features assessment

Introduction

- 1.5.1 Wessex Archaeology undertook the archaeological assessment of geophysical data to identify features of archaeological potential relating to maritime and aviation activity and the results are summarised below. The reference numbers noted in the following section corresponds to the reference numbers given by Wessex during their analysis (Volume 3, Appendix 7.2: Archaeological assessment of geophysical data of the ES).
- 1.5.2 A total of 218 features have been identified as being of possible archaeological potential within the OCC and are discriminated as shown in **Table 1-9**.

Table 1-9: Anomalies of archaeological potential within the OCC

Archaeological discrimination	Quantity	Interpretation
A1	4	Anthropogenic origin of archaeological interest
A2_h	22	Anomaly of likely anthropogenic origin but of unknown date; may be of archaeological interest or a modern feature
A2_l	186	Anomaly of possible anthropogenic origin but the interpretation is uncertain; may be anthropogenic or a natural feature
A3	1	Historic record of possible archaeological interest with no corresponding geophysical anomaly
U3	5	Recorded loss
Total	218	

- 1.5.3 Furthermore, these anomalies can be classified by probable type, which can further aid in assigning archaeological potential and importance (**Table 1-10**).

Table 1-10: Types of anomaly identified

Anomaly Classification	Definition	Number of Anomalies
Wreck	Areas of coherent structure including wrecks of ships, submarines and some aircraft (where coherent structure survives)	1
Debris field	A discrete area containing numerous individual debris items that are potentially anthropogenic, and can include dispersed wreck sites for which no coherent structure remains	1
Debris	Distinct objects on the seabed, generally exhibiting height or with evidence of structure, that are potentially anthropogenic in origin	3
Seabed disturbance	An area of disturbance without individual, distinct objects. Potentially indicates wreck debris or other anthropogenic features buried just below the seabed	20
Linear debris	Distinct linear objects on the seabed, either straight or curved, generally exhibiting height or with evidence of structure, that are potentially anthropogenic in origin. May represent linear anthropogenic debris which can include, for example, lengths of rope or chain or abandoned fishing gear	8
Dark reflector	Individual objects or areas of high reflectivity, displaying some anthropogenic characteristics. Precise nature is uncertain	39
Mound	A mounded feature with height not considered to be natural. Mounds may form over wreck sites or other debris	13
Magnetic	No associated seabed surface expression, and have the potential to represent possible buried ferrous debris or buried wreck sites	125
Magnetic trend	A linear trend of individual or continuous magnetic anomalies with no associated seabed surface expression, and have the potential to represent possible buried ferrous debris	2
Recorded wreck	Position of a recorded wreck at which previous surveys have identified definite seabed anomalies, but for which no associated feature has been identified within the current data set	2
Recorded obstruction	Position of a recorded obstruction (e.g. foul ground, fisherman's fastener recorded by the UKHO), but for which no associated feature has been identified within the current data set	4
Total		218

1.5.4 A total of four anomalies have been discriminated as A1 – anthropogenic origin of archaeological interest (7027, 7028, 7030 and 7196).

1.5.5 Wreck 7028 is a recorded wreck visible in the SSS data as a large spread of dark reflectors, comprising multiple angular and elongate objects with shadows, measuring 105.2 x 35.7 x 1.3 m (see Sheet 1 in Volume 3, Appendix 7.2: Archaeological assessment of geophysical data of the ES). The largest dark reflectors visible are thin and elongate objects, orientated east to west and are likely pieces of surviving hull, though this is not intact. There are multiple smaller dark reflectors outside of the interpreted hull on the northern and southern sides indicating the wreck has spread and is broken up and degraded. Internally no clear superstructure is visible; however, the wreck appears upright. In the MBES data the wreck is visible as a large, compact group of distinct mounds and depressions situated at the edge of the data extents. The wreck appears to be

highly broken up and degraded, with distinct scour on the northern side. The wreck has a large Mag. anomaly associated measuring 241 nT.

- 1.5.6 The wreck corresponds with the location of UKHO 12339 (**A63**), reported as the steamship *Thistle*, which sunk in 1909 during heavy weather. The wreck was first identified in 1985 and was last surveyed in 2008, when its dimensions were found to be 108.4 x 36.5 x 3.6 m, with bows to the east. A strong magnetic anomaly was associated with this wreck and debris has been identified within the vicinity.
- 1.5.7 Debris 7027 has been discriminated as A1 due to its proximity to wreck 7028 as it is situated 6 m to the north-east. It was identified in the SSS data as a distinct, angular dark reflector with shadow measuring 6.3 x 4 x 1.2 m. In the MBES data, it was visible as a distinct angular mound within scour.
- 1.5.8 Both 7027 and 7028 are situated outside of the OCC; however, a proposed AEZ would impact the OCC and, therefore, these have been retained within the gazetteer.
- 1.5.9 Two magnetic anomalies have been discriminated as A1 based on their amplitudes; anomaly 7030 measures 526 nT and anomaly 7196 measures 1840 nT. There is nothing visible on the SSS or MBES data at these positions. They were interpreted as substantial ferrous debris.
- 1.5.10 One anomaly (7026) has been discriminated as A3. This is the position of UKHO record 12198, an unknown recorded wreck first reported in 1940, and later recorded as having a doubtful position in 1944. The location was last surveyed in 2008 and described as an area of disturbed seabed and the record was amended to dead. No anomalous features were identified in the 2023 geophysical datasets.
- 1.5.11 A total of 22 anomalies (for the full list see Volume 3, Appendix 7.2: Archaeological assessment of geophysical data of the ES) have been discriminated as A2_h - anomaly of likely anthropogenic origin but of unknown date; may be of archaeological interest or a modern feature.
- 1.5.12 A total of 186 anomalies (for the full list see Volume 3, Appendix 7.2: Archaeological assessment of geophysical data of the ES) have been discriminated as A2_l - anomaly of possible anthropogenic origin but the interpretation is uncertain; may be anthropogenic or a natural feature.
- 1.5.13 Five records have been discriminated as U3. As remains have never been identified on the seabed at these positions and they were considered not to exist at these locations.

1.6 Archaeological Potential and Statement of Significance

Palaeoenvironment

- 1.6.1 *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.

- 1.6.2 Such remains have evidential value for the past environment in which prehistoric and later people lived, and would be of **medium** heritage significance, derived from archaeological value, depending upon the survival and extent.
- 1.6.3 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.
- 1.6.4 Such remains have evidential value for the past environment in which prehistoric and later people lived, and would be of **high to medium** heritage significance, derived from archaeological value, depending upon the survival and extent.

Palaeolandscape

- 1.6.5 *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.
- 1.6.6 Wessex Archaeology's palaeolandscapes assessment (Volume 3, Appendix 7.4: Palaeolandscapes assessment of sub-bottom profiler data of the ES) has indicated that the majority of the proposed OCC route is characterised by pre-Quaternary bedrock overlain by modern seabed sediments. This is considered of low archaeological potential. However, features of archaeological potential were identified closer to the UK landfall.
- 1.6.7 A total of 19 features of palaeogeographic interest were identified within the study area. These are summarised as follows:
- a total of two channels were assigned a P1 archaeological rating;
 - a total of three fine-grained deposits were also assigned a P1 archaeological rating;
 - a total of 13 simple cuts and fills were assigned an P2 archaeological rating;
 - a single erosion surface was also assigned a P2 archaeological rating.
- 1.6.8 The deposits and features identified within Bideford Bay record the glacial and postglacial development of the environment within the bay from a low-lying area containing fluvial systems and flood plains, to a coastal environment with tidal/sand bar deposits, to a modern marine environment. The alluvial/fluvial sediments of Unit 5, potentially similar in date to the submerged forest at Westward Ho!, are of the highest archaeological potential.
- 1.6.9 Such remains have evidential value for the past environment in which prehistoric and later people lived, and would be of **high to medium** heritage significance, derived from archaeological value, depending upon the survival and extent.

Prehistoric

- 1.6.10 *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 a 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.
- 1.6.11 If present, Palaeolithic temporary settlement remains would be of **high or very high** significance, depending on preservation and extent, from derived from archaeological value. Remains of lithic material would be **low** significance if comprised of isolated lithic remains or **medium** significance if comprised of lithic scatters, depending upon the type and extent.
- 1.6.12 *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.
- 1.6.13 If present, Mesolithic temporary settlement remains would be of **medium or high** significance, depending on preservation and extent, from derived their archaeological value. Remains of lithic material would be **low** significance if comprised of isolated lithic remains or **medium** significance if comprised of lithic scatters, depending upon the type and extent.
- 1.6.14 *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.
- 1.6.15 If present, remains of later prehistoric traps and trackways would be of **low or medium** significance, depending on preservation and extent, derived from archaeological value. Remains of later prehistoric boats is considered unlikely but would potentially be of **high** significance derived from archaeological value. Isolated remains would be of **low** significance derived from archaeological value.

Roman

- 1.6.16 *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.

- 1.6.17 Remains of Roman period ships, likely in the Romano-British tradition, would potentially be of **high** significance derived from their archaeological value. If present, remains of Roman coastal infrastructure would be of **high or medium** significance, depending on preservation and extent, derived from archaeological value. Isolated remains would be of **low** significance derived from archaeological value.

Early medieval

- 1.6.18 *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.
- 1.6.19 Remains of early medieval ships would potentially be of **high** significance derived from their archaeological value if present. Remains of early medieval coastal infrastructure would be of **high or medium** significance, depending on preservation and extent, derived from archaeological value. Isolated remains would be of **low** significance derived from archaeological value.

Medieval

- 1.6.20 *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.
- 1.6.21 Remains of medieval ships would potentially be of **high** significance derived from their archaeological and historical value if present. Remains of medieval coastal infrastructure would be of **high or medium** significance, depending on preservation and extent, derived from archaeological and historical value. Isolated remains would be of **low** significance derived from archaeological value.

Post-medieval

- 1.6.22 *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.
- 1.6.23 Remains of early post-medieval ships would potentially be of **high** significance derived from their archaeological and historical value if present. Remains of later wooden and iron post-medieval ships would be of **high or medium** significance, depending on type, preservation and extent, derived from archaeological value. Early steel shipwrecks would likely be of **medium** significance depending on type, preservation and extent, derived from archaeological value. Isolated remains would be of **low** significance derived from archaeological value.

Modern

- 1.6.24 *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.
- 1.6.25 Remains of modern shipwrecks would likely be of **medium** significance derived from archaeological and historical value. Aircraft remains would be of **high** significance derived from archaeological and historical value. Submarine remains would be of **high** significance derived from archaeological and historical value. Isolated remains would be of **low** significance derived from archaeological value.

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Annex A: Marine Historic Environment Gazetteer

The table below represents a gazetteer of known historic environment sites and finds within the study area. Each entry has an assessment reference number. The gazetteer should be read in conjunction with the historic environment features map (Volume 3, Figure 7.1 and Figure 7.2 of the ES). Map projected in WGS 1984 UTM Zone 30N for clarity and consistency. The data transformed from British National Grid.

Table 1-11: Historic Environment Gazetteer

Assess. ref.	Latitude	Longitude	Description	Period	HER / NHLE / CITIZAN ref.	UKHO ref.
1	5670974	383361	Lundy Heritage Coast	N/A	11	N/A
2	5669229	383208	Standing stone and cairn 490m south of The Old Lighthouse, Lundy scheduled monument is comprised of a standing stone set on a small crescent-shaped bank, and a cairn immediately to its north. The stone is upright and oriented north west to south east. The base of the stone lies buried in the cairn and so it cannot be determined whether it was originally earth-fast or packed into position. The stone is one of a group of nine recorded across the southern part of the island. A hollow in the centre of the mound suggests that it has been explored by antiquarians although there is no record of this excavation. It would seem that the burial cairn was sited so as to be close to an already ancient standing stone.	Prehistoric	1015929	N/A
3	5669197	383525	Low bank oriented east south east – west north west. Cut by coast path. 24m long by 3m wide by 0.5m high. A second similar bank on same alignment runs from south west corner of field to the cliff edge,	Post-medieval	MDV45992; 73272	N/A

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Assess. ref.	Latitude	Longitude	Description	Period	HER / NHLE / CITIZAN ref.	UKHO ref.
			again overlain by path. No trace of the banks continuing north of modern field wall and this field is under cultivation. These are further remnants of field system.			
4	5669189	383645	Disused quarry, Benjamin's Chair. A platform is terraced into the slope of the cliffs c 10m below coast path.	Post-medieval	MDV45996; 73352	N/A
5	5669179	383625	Un-named mine in cliffs at the Rattles. Site of a trial exploration for copper in 1853.	Post-medieval	MDV19484; 72701	N/A
6	5669165	383541	Standing stone 250m south west of St Helen's Church, Lundy scheduled monument is comprised of a formerly standing stone in the south west corner of Tent Field. It lies where it has fallen and some of the packing stones at the northern end. The stone lies with its head to the south and base to the north. The stone is columnar rather than slab-shaped measuring 2.2m long and 0.6m wide on average. Given their position, the four earth-fast boulders at the northern end of the fallen stone are considered to be part of the monument, representing packing stones.	Prehistoric	1018266; 71215; MDV45993	N/A
7	5669136	383520	Chambered tomb 165m north east of the Rocket Pole Pond, Lundy scheduled monument is comprised of a stone-built cist lying in the depression formed by a 19th century excavation. Surrounding stonework suggests that it is the remains of a chambered tomb. The excavation revealed a block of granite 0.47m thick resting on two upright slabs enclosing a chamber about 1.8m wide and 1.8m deep. This slab appears to have been moved to the north to expose the interior. Although the chamber has been exposed, other details of the original construction including buried features such as pits, secondary burials and the remains of the covering cairn will survive.	Prehistoric	1015931; 71124; MDV7112	N/A
8	5669122	383366	Small disused quarry pits abound in the area around the rocket pole. Two of these have filled up with rainwater, the deepest is known as rocket pole pond.	Post-medieval	MDV45995	N/A

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Assess. ref.	Latitude	Longitude	Description	Period	HER / NHLE / CITIZAN ref.	UKHO ref.
9	5669119	383896	Primary flint flake found in castle region. Probably from bashed lump. In Langham collection.	Prehistoric	MDV46147	N/A
10	5669115	383346	Rocket pole, life-saving apparatus posts. Erected in 1893 by the Board of Trade for the Coastguard Service for training exercises.	Post-medieval	MDV45997; 73321	N/A
11	5669107	384226	Grassed over garden plots on Lundy	Post-medieval	MDV45; 72436	N/A
12	5669093	384296	The Grade II listed Lundy South Lighthouse including engine house and accommodation block was constructed in 1897 when the Old Lighthouse was abandoned as it was often obscured by fog due to height above sea level.	Post-medieval	1326625	N/A
13	5669069	384278	The Grade II listed magazine is located immediately south-south west of Lundy South Lighthouse. The magazine was constructed for storing signal explosives, circa 1897 as part of the South and Lundy North Lighthouse construction.	Post-medieval	1277623	N/A
14	5669028	393213	Sarla (possibly) non-dangerous wreck, fishing vessel	Uncertain	N/A	12372
15	5669007	383072	Montagu Steps scheduled monument comprises the remains of a series of rock-cut steps on Lundy Island in 1907 in order to assist with the salvage of HMS Montagu (NHLE 1440450); a Royal Naval battleship which ran aground off south-west Lundy in 1906. The steps formed part of an aerial walkway connecting the Montagu with Lundy Island.	Modern	1461607; 73264 MDV45998	N/A
16	5668973	383228	Coastal platform terraced into the cliff below the coastal path + shown on the National Trust map of Lundy.	Uncertain	MDV65720; 73792	N/A
17	5668972	383128	Flint found in rabbit scrape at Benjamin's Chair on Lundy Island.	Prehistoric	MDV59548; 73608	N/A

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Assess. ref.	Latitude	Longitude	Description	Period	HER / NHLE / CITIZAN ref.	UKHO ref.
18	5668901	384590	Wreck of 19th century paddle tug off Lundy.	Post-medieval	MDV108384	N/A
19	5668809	383376	Dangerous wreck; Halton	Uncertain	N/A	12232
20	5668809	383100	Atlas, wreck of Lundy.	Post-medieval	MDV57578	N/A
21	5668783	383015	The remains of the HMS Montagu (ex-Montague) are a scheduled monument. Duncan class battleship built in 1901. The naval vessel grounded on rocks off Shutter Point, Lundy, due to dense fog in 1906. The commanding officer and navigating officer were both found guilty in subsequent court martial proceedings.	Post-medieval/ Modern	1440450; MDV46048	12231
22	5668694	384365	Non-dangerous wreck; Carmine Filomena; steam ship. Ex-Operosita, ex-Urlana. Ran aground.	Post-medieval	N/A	12233
23	5668507	383005	Ethel.		MDV57576	
24	5668474	393026	Dangerous wreck; no further information available.	Uncertain	N/A	12230
25	5668424	384206	SS Earl of Jersey.	Post-medieval	MDV53576	N/A
26	5668420	383906	British barquentine built in 1825 and stranded 3 cables south west from east end of Rat Island in 1829.	Post-medieval	MDV57572	N/A
27	5668420	383906	Vessel wrecked at Landing Beach in 1838	Post-medieval	MDV57573	N/A
28	5668420	383906	Wooden merchantman stranded in 1866.	Post-medieval	MDV57574	N/A
29	5668420	383906	Barque wrecked on Landing Beach in 1867.	Post-medieval	MDV57575	N/A

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Assess. ref.	Latitude	Longitude	Description	Period	HER / NHLE / CITIZAN ref.	UKHO ref.
30	5668068	384406	Cambronne, a non-dangerous wreck, built in 1938 by NV Schpsw 'Delfzijl'. Oil engine, single shaft steam ship. Passage Hayle for Newport, Monmouthshire. Struck rocks off Lundy Island and sank.	Post-medieval	N/A	12228
31	5667999	392777	Sarla, non-dangerous wreck, trawler. Sank by the stern following an explosion and fire in engine room. Was on passage from Swansea to Tilbury.	Uncertain	N/A	12229
32	5667638	399569	Non-dangerous wreck; no further information available.	Uncertain	N/A	71949
33	5667317	381837	Possible submarine recorded by geophysical survey.	Modern	MDV112345	N/A
34	5667259	381568	Dangerous wreck; no further information available.	Uncertain	N/A	73741
35	5666899	393981	Steamship built in 1921 by C Hill and sons of Bristol. Spanish flag, home port Bilbao. Two boilers, triple expansion engine, single shaft. Passage of Newport for Genoa. Stove in a bow plate in north west storm.	Post-medieval	N/A	12225
36	5666507	386823	Aircraft, non-dangerous wreck. Ditched. Four survivors rescued by helicopter. (MRCC Plymouth)	Modern	N/A	12224
37	5666400	383322	Non-dangerous wreck; no further information available.	Uncertain	N/A	12223
38	5666102	398954	No description. Noted as originally found by survey vessel through acoustic sensor in 2007.	Uncertain	N/A	71950
39	5666061	390313	No description. Noted as dead and originally found by survey vessel through acoustic sensor.	Uncertain	N/A	12222
40	5665779	394972	Non-dangerous wreck; HMS Annie Smith; drifter. Built in 1907 as a steam drifter. Hired 4.1919. Sank following collision. (SIBI & SRN).	Modern	N/A	12221
41	5665188	373060	Charlyne II (probably), trawler, non-dangerous wreck. Reported taking in water. Was abandoned by crew and sank.	Uncertain	N/A	12381

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Assess. ref.	Latitude	Longitude	Description	Period	HER / NHLE / CITIZAN ref.	UKHO ref.
42	5665025	389360	Probable bottom feature. Noted as originally found by survey vessel through acoustic sensor in 2007.	Uncertain	N/A	72153
43	5664595	366068	Bessie Stephens, sailing vessel, non-dangerous wreck. Captured and sunk by submarine.	Modern	N/A	12218
44	5664572	366943	Glenart Castle, hospital ship, non-dangerous wreck. Torpedoed by German submarine UC-56 on route from Newport to Brest.	Modern	N/A	12217
45	5664277	378898	City of Exeter, steam ship, non-dangerous wreck. Built in 1870 at Stockton owned at time of loss by John Holmin and sons. Passage Cardiff for St Nazaire. Foundered.	Post-medieval	N/A	12216
46	5664253	368530	Foul ground; Fisherman's Fastener	Uncertain	N/A	12214
47	5663949	393768	Queen Victoria sailing vessel, non-dangerous wreck. Captured and sunk by submarine.	Modern	N/A	12215
48	5663172	386750	Non-dangerous wreck thought to be Temptress.	Uncertain	N/A	12212
49	5662147	374917	Foul ground; Fisherman's Fastener	Uncertain	N/A	12209
50	5661850	374037	Pallion (probably), non-dangerous wreck. Built in 1871 at Pallion. Two boilers, compound expansion engine of 120HP, single shaft steam ship. Passage Cardiff for Suez. Cargo coal. Foundered in good weather when prop shaft broke.	Post-medieval	N/A	12210
51	5661592	383290	Almost certainly granitic outcrop.	Uncertain	N/A	72168
52	5661357	384959	Gurli, non-dangerous wreck. Ex-Sita. Built in 1908 by Lodose Varf, Lodose. Two boilers, compound expansion engine of 66NHP, single shaft steam ship. Passage Swansea for Rouen.	Post-medieval	N/A	12208
53	5660599	372524	Foul ground; Fisherman's Fastener	Uncertain	N/A	12204

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Assess. ref.	Latitude	Longitude	Description	Period	HER / NHLE / CITIZAN ref.	UKHO ref.
54	5660418	385522	No description. Noted as originally found through acoustic sensor in 1934.	Uncertain	N/A	12207
55	5660341	389023	Rajah sailing vessel, non-dangerous wreck. Passage Barry for Hong Kong. Foundered off Lundy in heavy weather. Probably only two survivors.	Uncertain	N/A	12206
56	5660064	405489	Foul ground; no further information available.	Uncertain	N/A	72164
57	5659280	404967	Foul ground; no further information available.	Uncertain	N/A	72166
58	5659183	400385	No description. Noted as originally found by Naval vessel through acoustic sensor in 1940.	Uncertain	N/A	12202
59	5659163	356580	Foul ground; Fisherman's Fastener	Uncertain	N/A	11853
60	5658267	413449	No description. Noted as originally found through acoustic sensor in 1971.	Uncertain	N/A	70007
61	5658248	412555	Elephant tusks and deer antlers were often dredged up by fishermen in the bay.	Prehistoric	MDV107314	N/A
62	5658228	401827	No description. Noted as originally found by Naval vessel through acoustic sensor in 1940.	Uncertain	N/A	12198
63	5658020	401661	Site of the wreck of the Thistlemor, a merchant steamer which foundered four miles north east of Clovelly in 1909. Classified by the UKHO as a dangerous wreck. Built In 1906 By Craig, Taylor & Co Of Stockton-On-Tees. Owned At Time Of Loss By Allan, Black & Co. Two Boilers, Triple Expansion Engine Of 316 Hp, Single Shaft.	Post-medieval/ Modern	N/A	12339
64	5657951	397013	Dangerous wreck; no further information available.	Uncertain	N/A	59490
65	5657830	414048	Site of the wreck of the Rover, a Bideford Polacker lost circa 1870 in the 'Gut', a navigation channel running up the Torridge.	Post-medieval	MDV43297; 73140	N/A

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Assess. ref.	Latitude	Longitude	Description	Period	HER / NHLE / CITIZAN ref.	UKHO ref.
66	5657803	412049	Site of an unknown vessel which was stranded at Appledore in 1627.	Post-medieval	MDV57839	
			Site of the wreck of the Cumgwilly which was stranded at Appledore in 1762.		MDV57840	
			Site of the wreck of the Cleveland which was stranded near Appledore in 1771.		MDV57841	
			Site of the wreck of the Mary and Kitty which was stranded near Appledore in 1776.		MDV57842	
			Site of the wreck of the Maria which foundered near Appledore in 1790.		MDV57843	
			Site of the wreck of the Charlotte which was stranded near Appledore in 1796.		MDV57844	
			Site of the wreck of the Paul which was lost following a collision with Middle Ridge Bouy in 1852.		MDV57848	
			Site of the wreck of the Marquis which was stranded near Appledore in 1853.		MDV57849	
			Site of the wreck of the Clifton, a schooner from Bristol, which was stranded at Appledore in 1859.		MDV57851	
			Site of the wreck of the Ellen Gwenllian which was stranded at Appledore in 1859.		MDV57852	
			Site of the wreck of an unknown merchant cutter which was stranded at Appledore in 1859.		MDV57853	
			Site of the wreck of the Eliza, lost off Appledore in 1870.		MDV57855	

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Assess. ref.	Latitude	Longitude	Description	Period	HER / NHLE / CITIZAN ref.	UKHO ref.
			Site of the wreck of the Cornflower, lost at Appledore in 1911.		MDV57856	
			Site of the wreck of the Saint Austell which was stranded in Appledore Harbour in 1916.		MDV57907	
			Site of the wreck of the Hawke which was stranded in Appledore Harbour in 1775.		MDV57908	
			Site of the wreck of the Martha which foundered in Barnstaple Bay in 1743.		MDV57925	
			Site of the wreck of the Dieppe packet which was stranded in Barnstaple Bay in 1751.		MDV57926	
			Site of the wreck of the Charles which was stranded near Barnstaple Bay in 1757.		MDV57927	
			Site of the wreck of the Sandwich which was stranded in Barnstaple Bay in 1785.		MDV57928	
			Site of the wreck of the Woolton, stranded in Barnstaple Bay in 1785.		MDV57929	
			Site of the wreck of an unknown vessel lost in Bideford Bay in 1823.		MDV57930	
			Site of the wreck of the Hawke which foundered in Barnstaple Bay in 1829.		MDV57931	
			Site of the wreck of the Mary Ann which foundered in Bideford Bay in 1834.		MDV57932	
			Site of the wreck of the Pride of the West, a British schooner stranded at Barnstaple in 1869.		MDV57933	

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Assess. ref.	Latitude	Longitude	Description	Period	HER / NHLE / CITIZAN ref.	UKHO ref.
			Site of the wreck of the Mary, a merchant smack which foundered two miles south of Bell Buoy, Bideford in 1908.		MDV57935	
			Site of the wreck of the Model, a merchant ketch stranded near Bideford Bay in 1911.		MDV57937	
			Site of the wreck of the Chrysolite, a British schooner which foundered after a collision in Bideford Bay in 1918.		MDV57938	
			Site of the wreck of the Amoretta which foundered near Bideford in 1744. She was bound from Virginia to Bristol carrying tobacco.		MDV58148	
			Site of the wreck of the Prosperous, on voyage from Neath to Exeter, which foundered near Bideford in 1764.		MDV58152	
			Site of the wreck of the Beulah which was lost at Bideford in 1764. She was on voyage from New York to London.		MDV58153	
			Site of the wreck of the Walsingham which was stranded near Bideford in 1801.		MDV58155	
			Site of the wreck of the Farmers Adventure which, bound from Cork to Southampton, was stranded at Bideford in 1810.		MDV58163	
			Site of the wreck of the Endeavour which was lost near Bideford in 1816.		MDV58164	
			Site of the wreck of the Sappho which was stranded near Bideford in 1833.		MDV58166	
			Site of the wreck of the Erato, an Irish Brig which was lost at Bideford in 1836. The crew were rescued by lifeboat.		MDV58168	
			Site of the wreck of the British schooner, Commerce which was wrecked off Bideford in 1841 with the loss of all crew.		MDV58171	

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Assess. ref.	Latitude	Longitude	Description	Period	HER / NHLE / CITIZAN ref.	UKHO ref.
			Site of the wreck of the John and Mary which was lost at Bideford in 1845.		MDV58172	
			Site of the wreck of the Bideford, a schooner lost at Bideford in 1848.		MDV58173	
			Site of the wreck of a vessel called Elizabeth which was stranded near Bristol in 1855.		MDV58174	
			Following a collision with another ship in 1867, the British merchant smack, Mary was taken in tow and managed to reach Saunton Sands where she broke up.		MDV58175	
			Site of the wreck of the Phoebe, lost near Bideford in 1811.		MDV58258	
			Site of the wreck of the Fanny, a British sailing vessel wrecked on Mixon Sand near Bideford in 1842.		MDV58264	
			Site of the wreck of an unidentified French merchant vessel carrying ammunition and ordnance which was lost at Bideford Bar in 1689.		MDV58263	
67	5657754	414565	Anti-Tank Obstacles, Northam Burrows	Modern	MDV107527; 72427	N/A
68	5657607	412319	Structure, dangerous wreck. Started taking in water while in tow of a salvage tug St Piran from Newport to Appledore for repairs. Was beached to prevent it sinking.	Modern	N/A	12382
69	5657536	414158	Sand and clay layer containing animal hoof prints, possibly representing a medieval land surface, revealed on Northam Burrows foreshore following storms.	Medieval	MDV76315; 74309	N/A
70	5657326	414040	Possible submerged forest deposits on the foreshore north of Sandymere, although may represent eroded modern sand dune vegetation.	Uncertain	MDV107446; 72731	N/A

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Assess. ref.	Latitude	Longitude	Description	Period	HER / NHLE / CITIZAN ref.	UKHO ref.
71	5657069	413471	Dolphins/Poles/Posts/Piles	Uncertain	N/A	12403
72	5657012	346467	Foul ground; Fisherman's Fastener	Uncertain	N/A	11848
73	5657000	413908	A small circular pit surrounded by upcast spoil is visible on the shore at Northam Burrows on aerial photographs of 1945. It is likely to have been created by exploding ordnance, possibly a buried mine from the Second World War minefield	Modern	MDV102481; 70568	N/A
74	5656817	413062	Site of the wreck of the Endeavour which was stranded off Northam Burrows in 1816.	Post-medieval	MDV57924	N/A
			Site of the wreck of the Salisbury which foundered at Northam Burrows in 1749. She was a merchant vessel on voyage from Jamaica to London carrying rum and sugar.		MDV58149	
			Site of the wreck of the Britannia which was lost off Northam in 1760. She was sailing from New York to Bristol loaded with rum and sugar.		MDV58150	
			Site of the wreck of the Susanna, a merchant vessel wrecked at Northam Burroughs in 1763.		MDV58151	
			Site of the wreck of the Elizabeth lost on Northam Sands in 1833.		MDV58167	
			Site of the wreck of the British merchant schooner, Brothers which was stranded on Northam sands in 1871.		MDV58177	
			Site of the wreck of the Elizabeth, built in 1823, which foundered on Northam Sands in 1833		MDV58179	
75	5656617	413456	A submerged forest is located at Northam Beach. Finds have also been discovered including bones, teeth, shells and worked lithics.	Prehistoric	MDV107325; 75301	N/A

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Assess. ref.	Latitude	Longitude	Description	Period	HER / NHLE / CITIZAN ref.	UKHO ref.
76	5656557	405301	Foul ground; Site of the wreck of the Alpha, a British cargo vessel lost 4-5 miles off Clovelly in 1930.	Uncertain	N/A	12196
77	5656544	413479	Structures visible on the shore west of Northam Burrows on aerial photographs of the 1940s are probable coastal anti-invasion defences of Second World War date.	Modern	MDV102477; 69099	N/A
78	5656437	413493	Wooden wreck visible above the clay and sand at low tides. Ribs, some strakes, ceilings, stem, and stern posts are protruding. Heavy timber construction joined with trenails.	Post-medieval	MDV63744; 74101	N/A
79	5656436	413393	An area of 'blue clay' and peat was exposed during low spring tides. Remains were noted in the peat, and bivalve shells, bone and antler in the clay.	Prehistoric	MDV63742; 74099	N/A
80	5656278	413577	Possible squared timber on Westward Ho beach	Uncertain	84767	N/A
81	5656136	413447	Wooden wreck visible above the clay and sand at low tides. Ribs, some strakes, ceilings, stem, and stern posts are protruding. Heavy timber construction joined with trenails.	Post-medieval	MDV63743; 74100	N/A
82	5656116	345446	Foul ground; Fisherman's Fastener	Uncertain	N/A	11844
83	5656001	412951	A peat deposit located at Westward Ho!.	Prehistoric	MDV107433	N/A
84	5655977	412952	A peat deposit located at Westward Ho!.	Prehistoric	MDV107434	N/A
85	5655933	361693	Foul ground; Fisherman's Fastener	Uncertain	N/A	12194
86	5655846	413292	A peat deposit located at Westward Ho!. Deposit description; peat on bluish grey sandy clay (containing pollen), on top of sterile blue clay (no organics). Peat patches between pebble ridge and low water mark. Associated artefacts; flints found (Ellis, 1866). Wooden stakes found by Hall. Red deer antler found by Worth (1934). Early	Prehistoric	MDV107427; 73149	N/A

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Assess. ref.	Latitude	Longitude	Description	Period	HER / NHLE / CITIZAN ref.	UKHO ref.
			work; first identified de la Beche (1839). Considered sea level to be 4-6m below present at time of peat formation.			
87	5655827	413170	Peat Deposit at Westward Ho! Dated sample description; wood from peat. Uncalibrated date; 6680 ± 120 BP.	Prehistoric	MDV107428; 75304	N/A
88	5655803	412076	Site of the wreck of the merchant barque, Pace which was lost off Northam Sands in 1868.	Post-medieval	MDV58176	N/A
89	5655779	413348	Wreck off Northam Burrows scheduled monument comprises the wreck of a wooden sailing vessel, likely to be a Severn trow, lost off Northam Burrows between the mid-18th to early 19th centuries.	Post-medieval	1432949; MDV63741; 74098	12405
90	5655710	413289	Midden at Westward Ho! Samples taken to establish dating of both the archaeological and 'natural' sediments and analyse the material from the midden and associated levels. The dates yielded largely fell within the expected Mesolithic date range, timber stakes and animal bone from the foreshore gave much later Roman or post-Roman dates suggesting a number of different phases of channel development.	Prehistoric; Roman	MDV107377; 73116	N/A
91	5655682	413103	The beach at Westward Ho! was covered with anti-glider/landing posts during the Second World War.	Modern	MDV50849; 73429	N/A
92	5655601	413209	Wreck at Westward Ho! scheduled monument comprises the wreck of a pre-1840 wooden sailing vessel thought to have been built in the mid- to late 18th century and wrecked at Westward Ho!, probably within the same period, and likely to be that of the Sally, lost 1769.	Post-medieval	1432418; MDV50848; 71638	12404
93	5655583	413205	Site of the smaller of two wooden wrecks which lies 570 yards due north of the base of the slipway. The vessel is entirely wooden with all wooden fastening. It appears to be flat-bottomed from the small amount of its shape that is visible. The vessel is tilted towards the sea, with the seaward side best preserved beneath the sand. The	Post-medieval	MDV58099; 73716	N/A

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Assess. ref.	Latitude	Longitude	Description	Period	HER / NHLE / CITIZAN ref.	UKHO ref.
			other side of the hull is missing with what looks like the flat bottom of the hull emerging from the sand. From the visible shape it would appear to be of the same type as the Severn trows that have traded in the Bristol Channel for centuries. By its position it may have been wrecked in mid-18th century.			
			Baleen whalebone harpoon found on Westward Ho! Beach was initially thought to be associated with Mesolithic deposits but may be post medieval in date, associated with a wreck.	Prehistoric or Post-medieval	MDV59277; 73592	N/A
94	5655521	413005	Submerged oak, elm and hazel woodland at Westward Ho!. Willow carr nearby c. 5900-4900 cal BC.	Prehistoric	MDV107374; 72901	N/A
95	5655517	413170	A submerged forest at the south end of the beach at Westward Ho!. Deposit description; 70-80 large tree stumps in the peat were excavated, seen to be growing in situ. Mainly oak, with some pine and fir. Deposit stratigraphy; 2ft 6 inches sand, on blue clay, on forest and peat bed 4ft thick (stumps of trees, flint flakes, acorns, hazel nuts, tree rootlets). On blue clay, on reddish clay 3ft, on head. Associated artefacts; Jan 1865 - found abundant flint flakes and cores, and kitchen midden. Also, pointed stakes, and abundant bones (mostly deer, some ox, roe deer, wild boar, goat, wolf). Sample method; exposure in Winter of 1863-64. Depth of deposit; extended from the base of the pebble ridge to below low tide.	Prehistoric	MDV107430; 75306	N/A
96	5655467	413353	A submerged forest on the outside of the southern end of Northam Pebble Ridge. Deposit description; submerged forest bed, on top of angular fragments of carbonaceous grit pebbles (layer a few inches thick), on top of blue mud. Extends 200 yards [182.88 m] along ridge, probably under the ridge into Northam Marsh. Associated artefacts; broken flints, flint flakes, flint implements found in submerged forest - found within forest deposit of prostrate boughs and trunks of birch/alder/oak trees and roots, nuts and acorns. Depth of deposit; forest height is at about mean sea level. Flints	Prehistoric	MDV107425; 73148	N/A

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Assess. ref.	Latitude	Longitude	Description	Period	HER / NHLE / CITIZAN ref.	UKHO ref.
			were found halfway between pebble ridge and low water mark, at 1-8 inches [2.54 to 20.32 cm] deep. No dates available.			
97	5655464	413196	A peat bed was exposed by exceptional storms in March 1970. Depth of sample; 2 m below high water mark. Dated sample description; wood from roots within peat. Uncalibrated date; 4995 ± 105 BP. Calibrated date; 3045 BC. Areas 2 and 3. Peat bed 0.6m thick.	Prehistoric	MDV107429; 75305	N/A
98	5655464	413196	Peat Deposit, Westward Ho! Dated sample description; wood from roots in situ in peat bed 0.6m thick. Uncalibrated date 4995 ± 105 years BP. wood fragments from peat bed exposed by exceptional storms in March 1970 on beach. Part of submerged forest drowned by Flandrian transgression.	Prehistoric	MDV107431; 75307	N/A
99	5655464	413393	Ovate flint blade tool of Late Neolithic or Early Bronze Age date, found in spring 2009 on the pebble ridge at Westward Ho!, exact location not known.	Prehistoric	MDV104112; 74451	N/A
100	5655453	413166	Wooden stakes and stake lines identified in 1983-4 and dated to the Romano British period. Clearly used at a time when the small silted channels in and around the area were part of the estuary. Three large stakes, more than 10m apart, within and to one side of one of the channels probably performed some mooring function. A line of close set small hazel stakes are tentatively identified as a fish trap produced a Carbon 14 date of 1600+/-80 BP (HAR-6440).	Roman	MDV44570; 73212	N/A
101	5655431	413017	Outcrop of peat at Westward Ho! Five areas of peat were surveyed at Westward Ho! by English Heritage in 2002. The survey found substantial erosion had occurred since 1984 particularly on the seaward edges of the peat. Area C at this location was a large area of peat 25m x 20m with the northern edge masked by sand. A small wooden stake was found in the clay 4m to the southeast of the peat & three further stakes 15m to the south.	Prehistoric	MDV71574; 74186	N/A

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Assess. ref.	Latitude	Longitude	Description	Period	HER / NHLE / CITIZAN ref.	UKHO ref.
102	5655430	412997	Submerged Forest, Westward Ho! Drowned forest - oak, birch, hazel, alder, elder, bramble, dogwood and other herbs. Peat rested on bluish, grey sticky clay. Associated artefacts; bones of red deer, ox, boar, wolf, horse, sheep, goat, pig, dog, man. Mesolithic flints. First identified Ussher (July 1878). No dates available. Referred to as forest submerged by postglacial sea level rise - peat had formed during Flandrian transgression	Prehistoric	MDV107372; 72885	N/A
103	5655422	413087	Several fragmentary outcrops of peat between the larger areas at Westward Ho! Five areas of peat were surveyed at Westward Ho! by English Heritage in 2002. The survey found substantial erosion had occurred since 1984 particularly on the seaward edges of the peat. Area D at this location comprised several fragmentary outcrops of peat between Area C (see MDV71574) & Area E (see MDV50845).	Prehistoric	MDV71575; 74220	N/A
104	5655401	413067	Two lines of wooden stakes, one semi-circular and one curving were found in the late 19th century. A survey in 1983 recorded 2 converging lines of stakes in Area 2. All stakes were approx. 30mm in diameter, and set 1m apart. Two stakes removed for dating survived to 20-40mm long, and show signs of pressure bands which result from being driven into resistant ground or from load-bearing stress. Both had been sharpened to a point, but not diagnostic of a particular tool or period. Carbon 14 Dating analysis produced a result of 4840+/-70 BP (HAR-5642). These represent the only definite evidence of Neolithic activity. May represent the substructure of trackway such as 'Tinney's A' in Somerset levels.	Prehistoric	MDV44569; 73248	N/A
105	5655390	412987	In 1863 the stumps of 70-80 large trees were visible which were part of the Prehistoric submerged forest at Westward Ho! In 2002 evidence of only a few trees remained. Bones and teeth of mammalia found in the peat, associated with flint flakes, flint cores and large quantities of comminuted shells, principally oyster and cockle.	Prehistoric	MDV44568; 73211	N/A

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Assess. ref.	Latitude	Longitude	Description	Period	HER / NHLE / CITIZAN ref.	UKHO ref.
106	5655386	413021	Small outcrop of peat only exposed at very low water at Westward Ho!	Prehistoric	MDV71573	N/A
107	5655381	413067	Peat deposit on the beach at Westward Ho! with evidence for Mesolithic and later activity. Five areas of peat were surveyed at Westward Ho! by English Heritage in 2002. The survey found substantial erosion had occurred since 1984 particularly on the seaward edges of the peat. No peat deposits were located at this location in 2002.	Prehistoric	MDV53224; 73366	N/A
108	5655381	413007	Line of stakes identified at Westward Ho! Which may have been part of a fish trap or a trackway. Lifted in blocks for laboratory excavation, but it was not possible to determine the nature of the surface from which they were inserted. All were sampled for wood identification and were found to be of hazel, with exception of one alder. Possibly part of a fish trapping system or a trackway.	Prehistoric	MDV44571; 73214	N/A
109	5655381	413007	Seven beaker sherds recovered from the foreshore at Westward Ho! in 1992 by Mr Trapnell. Decoration consists of horizontal lines made by impressions from a round-toothed implement, irregularly applied.	Prehistoric	MDV70164; 74020	N/A
110	5655381	413007	Sherd of Peterborough pottery found on Westward Ho! Beach in a pool of sea water in exposed clay, close to where a scatter of Beaker sherds were previously found. The sherd is later in date than the clay and the overlying peat with Mesolithic midden deposits and probably, therefore, like the Beaker sherds, derives from a feature dug down into the clay from a higher level. The sherd derives from the neck and shoulder of a Peterborough vessel, possibly of the Mortlake style, and is decorated with fingernail impressions.	Prehistoric	MDV77890; 74374	N/A
111	5655337	413029	A submerged forest at Westward Ho!.	Prehistoric	MDV107435	N/A
112	5655316	412982	Late Mesolithic flint tools found at the site of the submerged forest at Westward Ho!	Mesolithic to Early Neolithic	MDV468	N/A

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Assess. ref.	Latitude	Longitude	Description	Period	HER / NHLE / CITIZAN ref.	UKHO ref.
113	5655314	413042	Organic deposits have been discovered at Westward Ho!.	Prehistoric	MDV102445; 70708; 70709; 72045; 72046	N/A
114	5655313	413021	Organic deposits have been discovered at Westward Ho!.	Prehistoric	MDV107375	N/A
115	5655306	413023	Mesolithic shell middens at the south end of Westward Ho! Beach. No evidence remained in 2002.	Prehistoric	MDV14854	N/A
116	5655236	412944	A blue clay layer containing fragments of submerged forest and beneath the clay was a midden containing Mesolithic microliths. Further excavation and survey in 1980 identified the site as one of the earliest Mesolithic middens in Northwest Europe.	Prehistoric	MDV107373	N/A
117	5655181	413010	Mesolithic flint tool found on the beach at Westward Ho! in 2009. The leaf-shaped tool with no cortex is circa 7.5 centimetres long by 3.8 centimetres wide and possibly came from Orleigh Court. The tool may be a projectile of the early Mesolithic or Upper Palaeolithic period.	Prehistoric	MDV76285; 74283	N/A
118	5655114	412471	Site of Westward Ho! Pier. Foundations for Westward Ho! pier, consisting of multiple piles.	Post-medieval	84768	N/A
119	5655038	346350	Foul ground; Fisherman's Fastener	Uncertain	N/A	11841
120	5654949	412113	Crop circles show up from time to time on the raised beach, quite close to the kitchen midden at Westward Ho!	Uncertain	MDV53862; 73605	N/A
121	5654884	353791	Foul ground; Fisherman's Fastener	Uncertain	N/A	11842
122	5654801	411889	Four Mesolithic scrapers found in the area of Rock Nose.	Prehistoric	MDV11720	N/A

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Assess. ref.	Latitude	Longitude	Description	Period	HER / NHLE / CITIZAN ref.	UKHO ref.
123	5654790	411090	Site of the wreck of the Elsa Kuehlke, a German cargo vessel stranded 1 mile west off Rocks Nose in 1926, enroute from Fremington to Copenhagen carrying China clay.	Post-medieval	MDV57955	N/A
124	5654738	410293	Unity, trawler, dangerous wreck. 25.5.22 single boiler, triple expansion engine. Burnt out in Bideford Bay. (LL 25.5.22).	Modern	N/A	12193
125	5654722	411637	12 flints, including a scraper, cores and flakes, were recovered during field walking in fields named as Three Acres and Meadow on the 19th century tithe map. Total of 12 flints found including two cores, seven flakes, one scraper and one core preparation piece with straight retouched edge, and one core preparation piece with retouch forming shallow notch.	Prehistoric	MDV25585; 73021	N/A
126	5654369	352315	Foul ground; Fisherman's Fastener	Uncertain	N/A	11840
127	5654263	352779	Foul ground; Fisherman's Fastener	Uncertain	N/A	11839
128	5654026	410688	Diffuser; no further information available.	Uncertain	N/A	62763
129	5653636	411117	Flint Scatter, Cornborough. Just over 200 flints were found during fieldwalking on fields named as Yearnborough Land and Took's Land on the 19th century tithe map and apportionment. The flints included 35 false starts, one hundred and three core preparation pieces.	Prehistoric	MDV25572; 73024	N/A
130	5653999	413439	Area of peat where animal bones dated to the Roman era were found. Accumulations of animal bones in channels in Area 1 of 1984 survey. Do not relate to particular features; generalised scatters. Include domestic species such as cattle, sheep/goat, dog. Some evidence of butchery and dog-chewing. Also 3 red deer antlers. Piece of bone dated to 1560 +/- 80BP (HAR-6513). Adjacent group of stakes dated to 1600 +/- 80BP (HAR-6440).	Roman	MDV50845; 73430	N/A

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Assess. ref.	Latitude	Longitude	Description	Period	HER / NHLE / CITIZAN ref.	UKHO ref.
131	5653775	411239	Mesolithic Lithic Scatter from Abbotsham Court	Prehistoric	MDV77220; 69478	N/A
132	5653744	411148	An oval circular mound is visible as an earthwork on aerial photographs of 1945 onwards, above Abbotsham Cliff, Abbotsham, is likely to be the remains of a former limekiln.	Post-medieval	MDV102152; 68955	N/A
133	5653649	411599	The earthwork remains of Abbotsham rifle range targets and earthwork mantlet are visible at Abbotsham cliff, on aerial photographs of 1945 onwards. Used as a racecourse for an unknown period after 1922.	Modern	MDV102153	N/A
134	5653647	411615	19th century field name. The borough element may indicate an earthwork.	Post-medieval	MDV106683	N/A
135	5653636	411117	Swimming pool located below Abbotsham cliff dating to the late 19th century. Still visible on modern mapping, however it is unclear as to whether it is still in use.	Post-medieval	MDV122170	N/A
136	5653605	411157	Documentary source states there were structures at the base of the cliff, possibly used in shellfish processing. Possibly 19th century date.	Post-medieval	MDV131054	N/A
137	5653592	411161	Temporary structures were erected at the top of the cliff, shown on 1905 Ordnance Survey map, apparently summer houses for the Taylor family of Abbotsham Court, replaced by ex-army huts in the 1920s.	Modern	MDV131052	N/A
138	5653528	411146	Agricultural improvement ridge and furrow at Abbotsham Cliff. Narrow ridge and furrow of probable modern date is visible at Abbotsham Cliff as earthworks on aerial photographs of 1945 onwards. The ridge and furrow was probably made for agricultural improvement and drainage.	Medieval; Post-medieval	MDV102151; 69715	N/A

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Assess. ref.	Latitude	Longitude	Description	Period	HER / NHLE / CITIZAN ref.	UKHO ref.
139	5653445	411103	'Kiln' marked on Ordnance Survey 1832 chart. Not shown on later historic mapping.	Post-medieval	MDV132468	N/A
140	5653131	346020	Foul ground; Fisherman's Fastener	Uncertain	N/A	11837
141	5653066	410498	Eva V, motor vessel, wreck showing any portion of hull or superstructure. 20.3.81 was in tow of mv 'Carlo', enroute to Swansea for breaking, when line broke. Drifted ashore at Greencliff, Abbotsham. (LL, 20.3.81 and Bideford Gazette, 20.3.81).	Modern	N/A	12328
142	5652994	410680	Greencliff Lime Kiln, Abbotsham	Post-medieval	MDV30193; 70380	N/A
143	5652778	410553	Landing point at Boatlake referred to in 17th century.	Post-medieval	MDV75166; 74285	N/A
144	5652777	410117	Site of the wreck of a French merchant brigantine stranded and lost Abbotsham Rocks in 1867.	Post-medieval	MDV58198	N/A
145	5651787	359593	Cottingham, steam ship, non-dangerous wreck. Captured by submarine and sunk by gunfire. 7 lives lost.	Post-medieval	N/A	11833
146	5651393	409481	Former building south-west of Babbacombe Mouth.	Post-medieval	MDV102335; 69156	N/A
147	5651309	351252	Foul ground; Fisherman's Fastener	Uncertain	N/A	17284
148	5651145	341162	Foul ground; Fisherman's Fastener	Uncertain	N/A	17280
149	5651090	349217	Non-dangerous wreck; no further information available.	Uncertain	N/A	17281
150	5651001	399749	Hartland Heritage Coast	N/A	9	N/A
151	5650750	408145	Site of the wreck of the Thistlemore, a merchant steamer which foundered four miles north east of Clovelly in 1909.	Modern	MDV57936	N/A

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Assess. ref.	Latitude	Longitude	Description	Period	HER / NHLE / CITIZAN ref.	UKHO ref.
152	5650716	408901	The name Portledge implies a landing point at an early date.	Uncertain	MDV75037; 74274	N/A
153	5650563	343017	Foul ground; Fisherman's Fastener	Uncertain	N/A	17279
154	5650543	408704	Bath house shown on 1838 Tithe Map.	Post-medieval	MDV75039; 74278	N/A
155	5650398	348572	Foul ground; Fisherman's Fastener	Uncertain	N/A	17278
156	5650328	408537	Portledge Mouth Limekiln, Alwington	Post-medieval	MDV75026; 68931	N/A
157	5650230	344841	Foul ground; Fisherman's Fastener	Uncertain	N/A	17275
158	5650097	408086	Peppercombe Lear marked on late 19th century Ordnance Survey map and later 2019 Getmapping. Aerial images show channel circa 100 metres long x 20 metres wide cut through foreshore rock platforms allowing landing of lime to nearby limekiln. Lear reported	Post-medieval	MDV125645	N/A
159	5650065	408130	Limekiln' on 1840 Tithe Apportionment and 1840 Tithe Map (plot No. 1451). Advertised as 'lime kilns and coal cellar' in 1857. 'Old Limekiln' on 1886 Ordnance Survey map; not shown on 1905 edition.	Post-medieval	MDV75161; 74284	N/A
160	5650063	407979	Ruined Boat Shed, Pepper Combe Castle	Post-medieval	MDV107364; 75303	N/A
161	5650041	408092	House north west of The Castle, Peppercombe, Parkham	Post-medieval	MDV75163; 69079	N/A
162	5649989	339565	Foul ground; Fisherman's Fastener	Uncertain	N/A	17273
163	5649913	342022	Foul ground; Fisherman's Fastener	Uncertain	N/A	17272

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Assess. ref.	Latitude	Longitude	Description	Period	HER / NHLE / CITIZAN ref.	UKHO ref.
164	5649749	406852	Three channels cut through foreshore rock platform. Cut across rock bedding but little evidence of faulting. Purpose unknown, possible failed attempt at cutting landing places. Marked on Ordinance Survey maps as 'Three Lakes'.	Uncertain	MDV125638	N/A
165	5649144	344964	Foul ground; Fisherman's Fastener	Uncertain	N/A	17271
166	5649018	338815	Non-dangerous wreck; no further information available.	Uncertain	N/A	17270
167	5648868	339843	Foul ground; Fisherman's Fastener	Uncertain	N/A	17268
168	5648702	346337	Foul ground; Fisherman's Fastener	Uncertain	N/A	17269
169	5648322	348746	Foul ground; Fisherman's Fastener	Uncertain	N/A	17266
170	5648158	341812	Non-dangerous wreck; no further information available.	Uncertain	N/A	17262
171	5647945	344745	Foul ground; Fisherman's Fastener	Uncertain	N/A	17261
172	5647443	348135	Foul ground; Fisherman's Fastener	Uncertain	N/A	17257
173	5647401	343311	Foul ground; Fisherman's Fastener	Uncertain	N/A	17256
174	5647288	337939	Foul ground; Fisherman's Fastener	Uncertain	N/A	17253
175	5647058	339396	Foul ground; Fisherman's Fastener	Uncertain	N/A	17252
176	5646822	336069	Foul ground; Fisherman's Fastener	Uncertain	N/A	17250
177	5646658	346452	Foul ground; Fisherman's Fastener	Uncertain	N/A	17251
178	5646049	339013	Foul ground; Fisherman's Fastener	Uncertain	N/A	17247
179	5645865	344027	Foul ground; Fisherman's Fastener	Uncertain	N/A	17246
180	5644872	335168	Foul ground; Fisherman's Fastener	Uncertain	N/A	17241

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Assess. ref.	Latitude	Longitude	Description	Period	HER / NHLE / CITIZAN ref.	UKHO ref.
181	5644777	339189	Foul ground; Fisherman's Fastener	Uncertain	N/A	17242
182	5644478	337851	Foul ground; Fisherman's Fastener	Uncertain	N/A	17238
183	5643729	342106	Foul ground; Fisherman's Fastener	Uncertain	N/A	17233
184	5643507	332408	No description. Noted as originally found by survey vessel through acoustic sensor in 1968.	Uncertain	N/A	17230
185	5643228	336307	Foul ground; Fisherman's Fastener	Uncertain	N/A	17228
186	5642311	332116	Foul ground; Fisherman's Fastener	Uncertain	N/A	17220
187	5641913	341836	Foul ground; Fisherman's Fastener	Uncertain	N/A	17218
188	5641905	336109	No description. Noted as originally found by survey vessel through acoustic sensor in 1968.	Uncertain	N/A	17217
189	5641628	343078	Foul ground; Fisherman's Fastener	Uncertain	N/A	17216
190	5641541	340867	Foul ground; Fisherman's Fastener	Uncertain	N/A	17213
191	5641165	340015	Foul ground; Fisherman's Fastener	Uncertain	N/A	17207
192	5641128	330474	Foul ground; Fisherman's Fastener	Uncertain	N/A	17298
193	5641028	335495	No description. Noted as dead and originally found by survey vessel through acoustic sensor.	Uncertain	N/A	17204
194	5640612	332080	Foul ground; Fisherman's Fastener	Uncertain	N/A	17200
195	5640450	339152	Foul ground; Fisherman's Fastener	Uncertain	N/A	17201
196	5640247	342743	Foul ground; Fisherman's Fastener	Uncertain	N/A	17199
197	5639235	332603	Foul ground; Fisherman's Fastener	Uncertain	N/A	17189

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Assess. ref.	Latitude	Longitude	Description	Period	HER / NHLE / CITIZAN ref.	UKHO ref.
198	5638729	333767	Non-dangerous wreck; no further information available.	Uncertain	N/A	61590
199	5638403	329681	Foul ground; Fisherman's Fastener	Uncertain	N/A	17185
200	5637208	338035	No description. Noted as dead and originally found by survey vessel through acoustic sensor in 1968.	Uncertain	N/A	17177
201	5635943	327389	Foul ground; Fisherman's Fastener	Uncertain	N/A	17163
202	5635867	337445	Plastron, tug, non-dangerous wreck; no further information available.	Uncertain	N/A	17167
203	5635738	338596	Foul ground; Fisherman's Fastener	Uncertain	N/A	17164
204	5634488	336071	Foul ground; Fisherman's Fastener	Uncertain	N/A	17157
205	5634117	337038	Non-dangerous wreck; no further information available.	Uncertain	N/A	17152
206	5632287	336276	Foul ground; Fisherman's Fastener	Uncertain	N/A	17133
207	5629541	332212	Foul ground; Fisherman's Fastener	Uncertain	N/A	17106
208	5627389	320714	Foul ground; Fisherman's Fastener	Uncertain	N/A	17078
209	5627349	330388	Non-dangerous wreck; trawler; no further information available.	Uncertain	N/A	58754
210	5627007	329327	Foul ground; Fisherman's Fastener	Uncertain	N/A	17077
211	5626798	322616	Non-dangerous wreck; no further information available.	Uncertain	N/A	17071
212	5626194	331516	Foul ground; Fisherman's Fastener	Uncertain	N/A	17067
213	5626073	323042	Non-dangerous wreck; no further information available.	Uncertain	N/A	17061
214	5624415	329203	Non-dangerous wreck; no further information available.	Uncertain	N/A	17048

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Assess. ref.	Latitude	Longitude	Description	Period	HER / NHLE / CITIZAN ref.	UKHO ref.
215	5623861	319926	Foul ground; Fisherman's Fastener	Uncertain	N/A	17035
216	5623719	329180	Marcelle, trawler, non-dangerous wreck. Built in 1907 by Cochran and Son, Selby. Home port Ostende, Belgian flag. Single boiler, triple expansion engine of 74hp, single shaft. Machinery by C D Holmes, Hull. Sunk by gunfire.	Modern	N/A	17032
217	5623621	317936	Foul ground; Fisherman's Fastener	Uncertain	N/A	17029
218	5623100	324118	Foul ground; Fisherman's Fastener	Uncertain	N/A	17022
219	5621686	314061	Foul ground; Fisherman's Fastener	Uncertain	N/A	17003
220	5621356	316385	Foul ground; Fisherman's Fastener	Uncertain	N/A	57526
221	5621293	318189	Foul ground; Fisherman's Fastener	Uncertain	N/A	17001
222	5620760	319309	Non-dangerous wreck; no further information available.	Uncertain	N/A	16993
223	5620502	324129	Non-dangerous wreck; no further information available.	Uncertain	N/A	16988
224	5620325	314071	Foul ground; Fisherman's Fastener	Uncertain	N/A	16983
225	5620269	315640	Foul ground; Fisherman's Fastener	Uncertain	N/A	16982
226	5618789	317296	Foul ground; Fisherman's Fastener	Uncertain	N/A	16967
227	5618742	312503	Foul ground; Fisherman's Fastener	Uncertain	N/A	16961
228	5618711	308259	Non-dangerous wreck; no further information available.	Uncertain	N/A	16957
229	5618229	318278	Foul ground; Fisherman's Fastener	Uncertain	N/A	16953
230	5618013	313891	Foul ground; Fisherman's Fastener	Uncertain	N/A	16946
231	5617459	305306	Foul ground; Fisherman's Fastener	Uncertain	N/A	16931

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Assess. ref.	Latitude	Longitude	Description	Period	HER / NHLE / CITIZAN ref.	UKHO ref.
232	5617409	304164	Foul ground; Fisherman's Fastener	Uncertain	N/A	16928
233	5617406	305913	Foul ground; Fisherman's Fastener	Uncertain	N/A	16929
234	5616952	315032	Foul ground; Fisherman's Fastener	Uncertain	N/A	16927
235	5616627	319912	Foul ground; Fisherman's Fastener	Uncertain	N/A	16924
236	5615409	301455	Foul ground; Fisherman's Fastener	Uncertain	N/A	16900
237	5614942	299904	Foul ground; Fisherman's Fastener	Uncertain	N/A	16891
238	5614562	319723	Foul ground; Fisherman's Fastener	Uncertain	N/A	16897
239	5613852	296893	Foul ground; Fisherman's Fastener	Uncertain	N/A	16876
240	5613606	299263	Foul ground; Fisherman's Fastener	Uncertain	N/A	16872
241	5613538	296232	Foul ground; Fisherman's Fastener	Uncertain	N/A	16871
242	5613432	305510	Foul ground; Fisherman's Fastener	Uncertain	N/A	16874
243	5613100	295546	Foul ground; Fisherman's Fastener	Uncertain	N/A	16862
244	5613098	294032	Foul ground; Fisherman's Fastener	Uncertain	N/A	16859
245	5613061	317529	Foul ground; Fisherman's Fastener	Uncertain	N/A	16875
246	5612996	291923	Foul ground; Fisherman's Fastener	Uncertain	N/A	16854
247	5612944	303682	Foul ground; Fisherman's Fastener	Uncertain	N/A	16865
248	5612700	305246	Foul ground; Fisherman's Fastener	Uncertain	N/A	16860
249	5612525	300048	Foul ground; Fisherman's Fastener	Uncertain	N/A	16850

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Assess. ref.	Latitude	Longitude	Description	Period	HER / NHLE / CITIZAN ref.	UKHO ref.
250	5612453	297075	Foul ground; Fisherman's Fastener	Uncertain	N/A	16847
251	5612306	292919	Foul ground; Fisherman's Fastener	Uncertain	N/A	16842
252	5612297	312901	Foul ground; Fisherman's Fastener	Uncertain	N/A	16858
253	5612096	295920	Foul ground; Fisherman's Fastener	Uncertain	N/A	16836
254	5611894	307793	Foul ground; Fisherman's Fastener	Uncertain	N/A	16844
255	5611876	304114	Foul ground; Fisherman's Fastener	Uncertain	N/A	16841
256	5611825	312274	Foul ground; Fisherman's Fastener	Uncertain	N/A	16845
257	5611154	312880	Foul ground; Fisherman's Fastener	Uncertain	N/A	16833
258	5610728	287543	Foul ground; Fisherman's Fastener	Uncertain	N/A	16058
259	5610120	301471	Foul ground; Fisherman's Fastener	Uncertain	N/A	16814
260	5609459	295345	Foul ground; Fisherman's Fastener	Uncertain	N/A	16807
261	5608599	299996	Foul ground; Fisherman's Fastener	Uncertain	N/A	16796
262	5608427	284063	Foul ground; Fisherman's Fastener	Uncertain	N/A	16055
263	5608374	306011	Foul ground; Fisherman's Fastener	Uncertain	N/A	16795
264	5608172	298248	Foul ground; Fisherman's Fastener	Uncertain	N/A	16785
265	5607615	297459	Foul ground; Fisherman's Fastener	Uncertain	N/A	16777
266	5607561	298854	Foul ground; Fisherman's Fastener	Uncertain	N/A	16776
267	5607510	296155	Foul ground; Fisherman's Fastener	Uncertain	N/A	16773

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Assess. ref.	Latitude	Longitude	Description	Period	HER / NHLE / CITIZAN ref.	UKHO ref.
268	5607482	290602	Foul ground; Fisherman's Fastener	Uncertain	N/A	16764
269	5607318	299534	Foul ground; Fisherman's Fastener	Uncertain	N/A	16768
270	5607189	298072	Foul ground; Fisherman's Fastener	Uncertain	N/A	16763
271	5606968	300604	Foul ground; Fisherman's Fastener	Uncertain	N/A	16760
272	5606739	293743	Foul ground; Fisherman's Fastener	Uncertain	N/A	16753
273	5606473	300624	Foul ground; Fisherman's Fastener	Uncertain	N/A	16752
274	5605686	284542	Foul ground; Fisherman's Fastener	Uncertain	N/A	16051
275	5605293	291992	Foul ground; Fisherman's Fastener	Uncertain	N/A	16737
276	5604502	287870	Antioche III (probably), fishing vessel, non-dangerous wreck. Sank after collision with ore carrier Lena. Nine men recovered, four lost.	Uncertain	N/A	16804
277	5604225	290846	Foul ground; Fisherman's Fastener	Uncertain	N/A	16723
278	5603857	284644	Foul ground; Fisherman's Fastener	Uncertain	N/A	16050
279	5600050	267268	Pelham (possibly), steamship, non-dangerous wreck. Captured by German submarine U-35 and sunk using explosive charges. On passage Malta to Barry.	Post-medieval	N/A	16029
280	5599937	272688	Non-dangerous wreck; no further information available.	Uncertain	N/A	16046
281	5599037	282540	Non-dangerous wreck; Golfstrom; motor vessel. Ex-Adelheid Sibum '64. Built by Jansen Martin, Leer. Owned at time of loss by Richard Garbers, Hamburg. Oil engine, single shaft. Passage Aveiro for Mostyn. Reported with severe list after	Modern	N/A	16135
282	5597530	274726	Pelham (possibly), steam ship, non-dangerous wreck. Captured by German submarine U-35 and sunk using explosive charges. (Naval	Modern	N/A	16144

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Assess. ref.	Latitude	Longitude	Description	Period	HER / NHLE / CITIZAN ref.	UKHO ref.
			Staff monographs, Vol.13). Was on passage Malta to Barry. (Lloyds war losses).			
283	5597496	274793	Non-dangerous wreck; no further information available.	Uncertain	N/A	16137
284	5597059	281547	One boiler, single shaft steam ship. Considered to be a non-dangerous wreck.	Post-medieval	N/A	81210
285	5595747	258410	Non-dangerous wreck; no further information available.	Uncertain	N/A	16044
286	5595334	276162	Non-dangerous wreck; no further information available.	Uncertain	N/A	16045
287	5593207	258807	Non-dangerous wreck; no further information available.	Uncertain	N/A	16143
288	5592563	271540	Non-dangerous wreck; no further information available.	Uncertain	N/A	16042
289	5592262	261569	Non-dangerous wreck; no further information available.	Uncertain	N/A	16041
290	5587446	251937	Non-dangerous wreck; no further information available.	Uncertain	N/A	16036
291	5585258	237978	Non-dangerous wreck; no further information available.	Uncertain	N/A	16149
292	5577519	230605	Non-dangerous wreck; no further information available.	Uncertain	N/A	16152
293	5576723	239092	Non-dangerous wreck; no further information available.	Uncertain	N/A	16153
294	5567600	232399	Non-dangerous wreck; Restormel; steam ship. Built 1901 by Grangemouth and Greenock Dockyard Co, Greenock, with 3 cylinder triple expansion engine of 210hp, single shaft, 2 boilers. Owned at time of loss by New Restormel SS Company Ltd	Post-medieval	N/A	69386
295	5565877	227958	Non-dangerous wreck; no further information available.	Uncertain	N/A	16023
296	5557759	224218	Non-dangerous wreck; no further information available.	Uncertain	N/A	16156
297	5550047	217500	Foul ground; Fisherman's Fastener	Uncertain	N/A	16138

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Assess. ref.	Latitude	Longitude	Description	Period	HER / NHLE / CITIZAN ref.	UKHO ref.
298	5540837	216634	Non-dangerous wreck; no further information available.	Uncertain	N/A	21918
299	5536066	213203	Non-dangerous wreck; no further information available.	Uncertain	N/A	21854
300	5531484	214379	Non-dangerous wreck; no further information available.	Uncertain	N/A	21920
301	5506645	211715	Non-dangerous wreck; no further information available.	Uncertain	N/A	21703
302	5505883	206307	Steam ship, non-dangerous wreck; no further information available.	Post-medieval	N/A	21533
303	5500391	204822	Submarine, non-dangerous wreck; no further information available.	Modern	N/A	21531
304	5498578	206294	Foul ground; no further information available.	Uncertain	N/A	21553
305	5495316	207085	Non-dangerous wreck; no further information available.	Uncertain	N/A	21529
306	5492531	212860	Non-dangerous wreck; no further information available.	Uncertain	N/A	21674
307	5492275	203776	Hinemoa, sailing vessel, non-dangerous wreck. Captured by German submarine and sunk (WWI).	Modern	N/A	21527
308	5491270	210374	Carrier, non-dangerous wreck; no further information available.	Modern	N/A	21525
309	5490229	210743	Non-dangerous wreck; steam ship; no further information available.	Post-medieval	N/A	21921
310	5483271	212372	Ile De Feu, yacht, non-dangerous wreck. Found unmanned and abandoned. Presumed later to have sunk. (Lloyds Vol. 235).	Uncertain	N/A	21632
311	5481547	209858	Galway Castle, non-dangerous wreck. Steam ship torpedoed by submarine and sank while in tow (WWI). Built in 1911 by Harland and Wolff. Owned at time of loss by the Union-Castle Mail SS Co. Quadruple.	Modern	N/A	21516

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Assess. ref.	Latitude	Longitude	Description	Period	HER / NHLE / CITIZAN ref.	UKHO ref.
312	5480430	207577	Carrier, non-dangerous wreck; no further information available.	Modern	N/A	21514
313	5479567	212177	Non-dangerous wreck; no further information available.	Uncertain	N/A	21617
314	5472925	219351	Carrier, non-dangerous wreck; no further information available.	Modern	N/A	21605
315	5464343	219275	No description. Noted as dead and originally found by Naval vessel through acoustic sensor 1961.	Uncertain	N/A	21586
316	5461022	224025	Carrier, non-dangerous wreck; no further information available.	Modern	N/A	21585
317	5453323	218066	Foul ground; Fisherman's Fastener	Uncertain	N/A	21580
318	5452834	226602	Non-dangerous wreck; Telana; carrier. Vessel sank when cargo shifted in calm weather. Survivors picked up by Russian research vessels.	Modern	N/A	21576
319	5451114	218832	No description. Noted as originally found by survey vessel through acoustic sensor in 2006.	Uncertain	N/A	68698
320	5447039	231189	Margaret and William II, fishing vessel, non-dangerous wreck. 4.9.91 struck and sunk by [possibly] 'Jacobus Broere' 4.9.91. (LL, 7.9.91).	Modern	N/A	21931
321	5434927	232127	Non-dangerous wreck; no further information available.	Uncertain	N/A	21556
322	5431377	236775	Non-dangerous wreck; no further information available.	Uncertain	N/A	25175