Eastern Green Link 3

Outline Written Scheme of Investigation and Protocol for Archaeological Discoveries

Produced for National Grid

MSDS Marine MSDS Heritage

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Outline Written Scheme of Investigation and Protocol for Archaeological Discoveries

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Glossary

Term	Definition
Anthropogenic	Of or relating to human activity.
Applicant	National Grid Electricity Transmission (NGET) and Scottish Hydro Electric – Transmission (SHE-T).
Archaeological Contractor	Any archaeologist subcontracted by the Retained Archaeologist or by the Applicant to carry out archaeological works.
Archaeological Curator(s)	The body (or bodies) responsible for heritage matters and advising the planning authority on these. Within the marine environment, this remit extends seaward from MHWS. In Scotland, this role is performed by Historic Environment Scotland, however, local authority jurisdiction may extend down to MLWS, thus including the intertidal zone.
Client	See 'Applicant'.
Applicant	See 'Applicant'.
Fluviomarine (sediment/deposit)	Material laid down by joint sea and river processes.
Glacial (period)	An interval of time characterised by colder temperatures and glacier advances.
Glaciomarine (sediment/deposit)	Material laid down by joint glacier and sea processes.
Hominin	Human species: current, ancestral and closely related.
Interglacial (period)	An interval of time between glacial periods, characterised by warmer temperatures and glacier retreat.
Interstadial (period)	A minor period of glacier retreat during a glacial period; less pronounced than an interglacial.
Lithozone	An interval of geological strata defined on the basis of its characteristic lithostratigraphy.
Palaeochannel	A geological term describing a remnant of an inactive river or stream channel that has been filled or buried by younger sediment.
Palaeoenvironmental	Of or relating to a past (usually prehistoric) environment.
Palaeolandscape	A past (usually prehistoric) landscape.
Principal Contractor	An individual or organisation appointed by the Applicant to manage and control the construction phase of a project which will involve more than one contractor.
Pleistocene	The earlier and longer epoch of the Quaternary Period of earth's history.
Quaternary	The most recent period of Earth's history; comprises the earlier Pleistocene and later Holocene epochs.

Term	Definition
Receiver of Wreck	The Receiver of Wreck is the UK government official who administers the law dealing with maritime wrecks and salvage under the Merchant Shipping Act (1995).
Retained Archaeologist	A project's lead archaeological contractor following consent, typically appointed by the Applicant.
Stadial (period)	A minor period of colder conditions and glacial advance.
Study Area	Area of marine archaeological assessment, measured 2 km from the RLB (up to 200 m above MHWS).

Acronyms

Acronym	Definition
AAP	Area of Archaeological Potential
ACAS	Aberdeenshire Council Archaeology Service
AD	Anno Domini
ADS	Archaeological Data Service
AEZ	Archaeological Exclusion Zone
BC	(years) Before Christ
BP	(years) Before Present
CIfA	Chartered Institute for Archaeologists
CLV	Cable Lay Vessel
COWRIE	Collaborative Offshore Wind Research Into The Environment
DAC	Data Archive Centre
GIS	Geographic Information System
HES	Historic Environment Scotland
HER	Historic Environment Record
INTOG	Innovation and Targeted Oil & Gas
JCCC	Joint Casualty and Compassionate Centre
LAT	Lowest Astronomical Tide
MBES	Multibeam Echo Sounder
MD-LOT	Marine Directorate – Licensing Operations Team
MEAp	Marine Environment Appraisal
MEDIN	Marine Environment Data and Information Network
MHWS	Mean High Water Springs
ML	Marine License
MLWS	Mean Low Water Springs
MoD	Ministry of Defence
MPS	Marine Policy Statement
NM	Nautical mile
NSC	Non-submarine contact
nT	Nano Tesla
OASIS	Online Access to the Index of Investigations
PAD	Protocol for Archaeological Discoveries
PDE	Project Design Envelope
PLGR	Pre-lay Grapnel Run
ROV	Remotely Operated Vehicle

Acronym	Definition
RoW	Receiver of Wreck
SBES	Single Beam Echo Sounder
SBP	Sub-bottom Profiler
ScARF	Scottish Archaeological Research Framework
SCAUM	Standing Conference of Archaeological Unit Managers
SPVA	Service Personnel and Veterans Agency
SSS	Sidescan Sonar
TAEZ	Temporary Archaeological Exclusion Zone
UKHO	United Kingdom Hydrographic Office
UXO	Unexploded Ordnance
UTM	Universal Transverse Mercator
WSI	Written Scheme of Investigation

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1.0 Introduction

1.0.1 This document forms the Outline Written Scheme of Investigation (WSI) (hereafter referred to as the WSI) and Protocol for Archaeological Discoveries (PAD), produced in support of the Scottish offshore elements of the Eastern Green Link 3 (EGL 3) project (hereafter referred to as "the Project"). This WSI has been prepared at the pre-consent stage as an Appendix to support the Marine Environmental Appraisal (MEAp) **Chapter 14: Marine Archaeology** and may be updated as necessary.

1.0.2 This Outline WSI is applicable to the Scottish Offshore Scheme of the Project only (hereafter referred to as "the Proposed Development"). Separate documents have been prepared for the English Offshore Scheme and Scottish Onshore Scheme, both of which adjoin the Proposed Development.

1.0.3 The purpose of the document is to outline the embedded mitigation for marine archaeology within the Proposed Development, comprising the Red Line Boundary (RLB) from Mean High Water Springs (MHWS) in Sandford Bay, Aberdeenshire, to the boundary with adjacent English waters. This WSI also sets out the embedded mitigation and further work which has been recommended by **Chapter 14: Marine Archaeology** and where archaeological involvement may be required in future work scopes.

1.0.4 This WSI has been produced in line with best practice guidance, in particular Archaeological *Written Schemes of Investigation for Offshore Windfarm Projects* (The Crown Estate, 2014).

1.1 Location

1.1.1 The Project extends for *c*. 580 (+/- 5) km in the North Sea, from Anderby Creek, Lincolnshire, to Sandford Bay, Aberdeenshire. The Proposed Development extends to *c*. 145 km, from the boundary with adjacent English waters to MHWS at Sandford Bay, Aberdeenshire. The Proposed Development RLB location is shown in Figure 1.

1.1.2 A combined approach is being followed for consideration of the archaeological resource by the Proposed Development and the Scottish Onshore Scheme. To achieve this, both aspects include assessment of the baseline and impacts to archaeology, including geoarchaeology, within the intertidal zone, presenting a topic crossover between MHWS and Mean Low Water Springs (MLWS). This combined approach is ongoing, in conjunction also with stakeholder engagement.

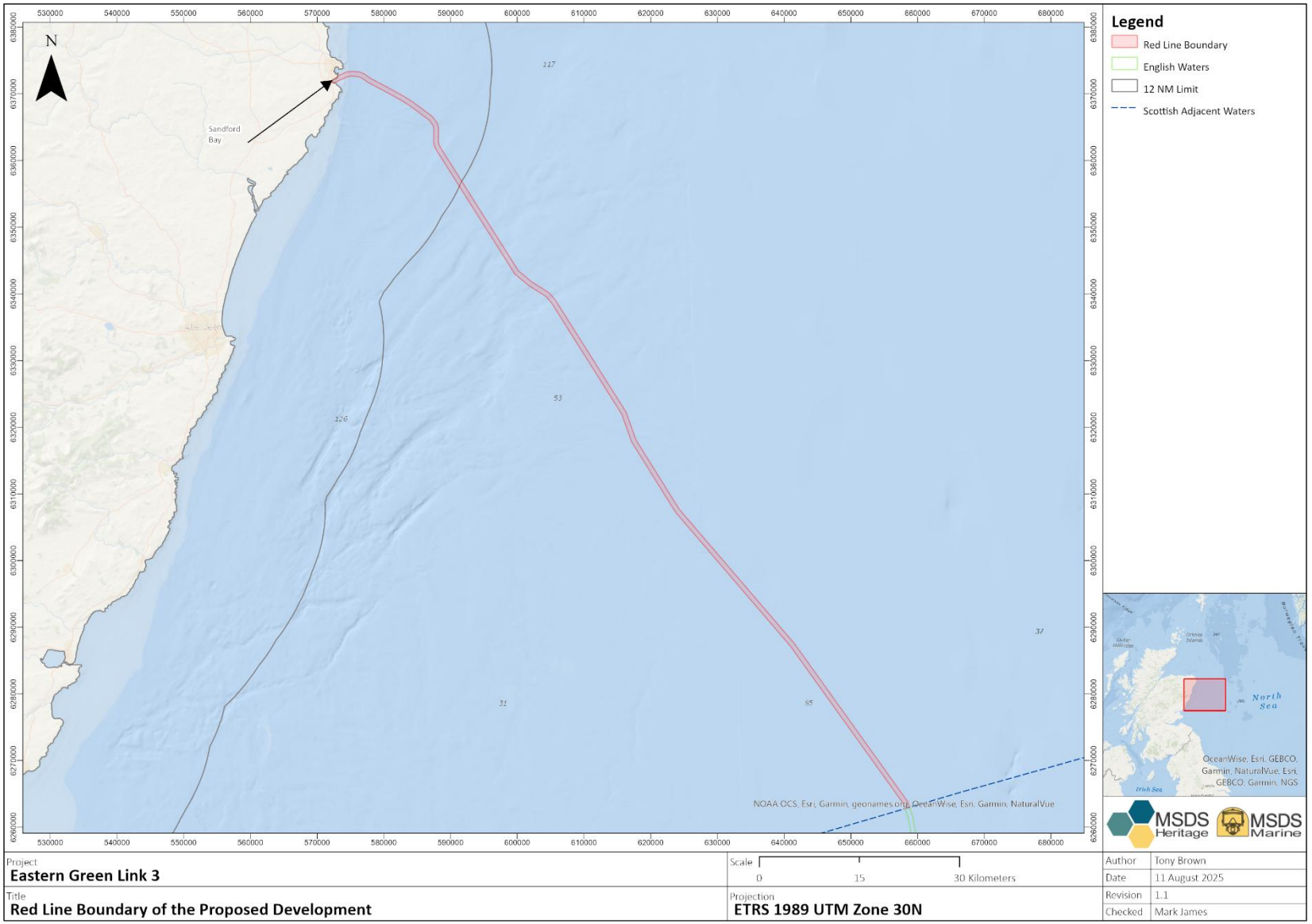

Figure 1: Redline Line Boundary of the Proposed Development

1.2 Aims and objectives

1.2.1 The objectives of the Outline WSI follow best practice guidance set out by The Crown Estate (2014) and aim to:

- Set out the roles and respective responsibilities of the Applicant, the Applicants Principal Contractor, Retained Archaeologist and Archaeological Contractor(s) and formal lines of communication between the parties and with Archaeological Curator(s) (see Section 2.1);
- Outline the known and potential archaeological receptors that could be impacted by the Proposed Development (see Section 3.0);
- Set out the importance of research frameworks in setting objectives that may be delivered through realisation of the known and potential archaeology (see Section 4.0);
- Outline the preliminary embedded mitigation measures that are to take place in various circumstances (see Section 5.0, in particular Section 5.3); and
- Provide methodologies for these archaeological actions, to be employed on archaeological work conducted in the post-consent period (see Sections 6.0 and 7.0).

1.3 Guidance

1.3.1 As described above, this document has been produced in line with best practice guidance, including:

- Archaeological Written Schemes of Investigation for Offshore Windfarm Projects (The Crown Estate, 2021);
- Historic Environment Scotland's Managing Change in the Historic Environment: Asset Management (2020);
- Historic Environment Scotland's Designation Policy and Selection Guidance (2019);
- Scottish Government Planning Advice Notes, in particular 2/2011: Planning and Archaeology; Planning Advice Note 1/2013: Environmental Impact Assessment (amended 2017); Planning Circular 1/2017: Environmental Impact Assessment Regulations (Scottish Government 2017);
- Historic England's (HE) Conservation Principles, Policies and Guidance for the Sustainable Management of the Historic Environment (English Heritage, 2008);
- CIfA Code of Conduct (Chartered Institute for Archaeologists, 2022);
- Standard and Guidance for Historic Environment Desk Based Assessment (Chartered Institute for Archaeologists, 2020);
- COWRIE's Historic Environment Guidance for the Offshore Renewable Energy Sector (COWRIE, 2007);
- Offshore Renewables Protocol for Archaeological Discoveries (The Crown Estate, 2014);
- COWRIE's Offshore Geotechnical Investigations and Historic Environment Analysis: Guidance for the Renewable Energy Sector (Gribble and Leather, 2011);
- Marine Geophysics Data Acquisition, Processing and Interpretation, Guidance Notes 2nd Edition (Historic England, 2025);
- Military Aircraft Crash Sites (English Heritage, 2002);
- Aircraft Crash Sites at Sea (Wessex Archaeology, 2008);
- Code of Practice for Seabed Development (Joint Nautical Archaeology Policy Committee, 2006); and
- Managing Change in the Historic Environment: Conserving Our Underwater Heritage (Historic Environment Scotland (HES), 2025).

1.4 Project description

1.4.1 The Project is being developed by National Grid Electricity Transmission (NGET) and Scottish Hydro Electric – Transmission (SHE-T). The Project comprises a 2 GW high voltage direct current (HVDC) system linking Peterhead in Scotland and Lincolnshire in England. The Marine Licence application will be made by SHE-T (the 'Applicant'), who are operating and known as Scottish and Southern Electricity Networks Transmission (SSEN Transmission).

1.4.2 A full description is given in **Chapter 3: Project Description** of the MEAp.

2.0 Implementation of the WSI

2.0.1 This Section sets out the primary responsibilities of the Applicant and the lines of communication during the pre-construction, construction, and operational phases of the Proposed Development, with the aim of ensuring that the archaeological environmental measures described are fully implemented in a timely manner that does not interfere with the smooth running of the proposed development programme.

2.0.2 During the construction phase of the Proposed Development the responsibilities of the Applicant, in relation to the implementation of the WSI, will be discharged (contractually) to the Principal Contractor. However, for clarity within this document, the term 'Applicant' is used throughout.

2.1 Responsibilities and communications

2.1.1 Primary responsibility for the delivery of this Outline WSI lies with the Applicant. However, as noted, the responsibilities will be discharged (contractually) to the Principal Contractor during the construction phase of the Proposed Development. Through project documentation and procedures, the implementation of this WSI will involve a range of archaeological contractors and curators.

2.1.2 The Applicant shall employ the services of a suitably qualified and experienced Archaeological Consultant (the 'Retained Archaeologist'), to ensure the effective implementation of the WSI and other relevant commitments in relation to archaeology.

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

2.1.4 Historic Environment Scotland (HES) is the Archaeological Curator responsible for heritage matters in the marine environment up to mean high water springs (MHWS) in Scottish waters. HES was invited to provide responses to the Scoping Report, disseminated in January 2024. No response was received by the time of writing. HES will be consulted regarding activities undertaken as part of this Outline WSI.

2.1.5 Local authority archaeologists are also curators down to MLWS. This is relevant for the intertidal area, which lies within the area of Aberdeenshire Council's Archaeology Services (ACAS). Aberdeenshire Council was invited to provide responses to the Scoping Report, disseminated in January 2024. No response was received by the time of writing. Post-consent consultation will precede any relevant activities undertaken as part of this Outline WSI which fall within the intertidal zone.

2.1.6 Contact with the Archaeological Curators will be administered by the Applicant, under advice from the Retained Archaeologist. The Retained Archaeologist will report to the project contact appointed by the Applicant in relation to the implementation of the WSI. Interaction with the Applicant's construction team will be administered by the project contact, advised by the Retained Archaeologist.

2.1.7 The responsibilities of the Retained Archaeologist will include:

- Maintaining, reviewing and updating the Outline WSI, as required;
- Advising the Applicant on the necessary archaeological works and input required to the stipulations of this Outline WSI are met;
- Advising the Applicant regarding which elements warrant archaeological involvement;
- Advising the Applicant in the course of evaluating scope of work specifications on their capacity to meet archaeological requirements;
- Advising the Applicant on the necessary interaction with third parties with archaeological interests, including the Archaeological Curator;
- Advising the Applicant on the implementation of generic archaeological requirements applicable to all construction activities;
- Advising the Applicant on the micro-siting of infrastructure covered by this WSI, based upon archaeological results from the MEAp and pre-construction surveys;
- Advising the Applicant on Method Statements for archaeological investigations;
- Preparing Method Statements for archaeological activities;
- Ensuring that the Applicant copies Method Statements to the Archaeological Curator for approval;
- Implementing and monitoring the Protocol for reporting finds of archaeological interest based on the Protocol for Archaeological Discoveries (PAD);
- Monitoring the work of and liaising with Archaeological Contractors, where this is not the Retained Archaeologist;
- Monitoring the preparation and submission of archaeological reports, as appropriate, and making them available to the Archaeological Curator;
- Preparing provisions for the management of the project archives in consultation with an appropriate museum; and
- Advising the Applicant on final arrangements for analysis, archive deposition, publication and popular dissemination and the necessary schedule for these deliverables.

2.1.8 Method Statements, reports or other deliverables will be submitted by the Applicant to the regulator (Marine Directorate – Licensing Operations Team (MD-LOT) ('the Regulator')) for approval, in consultation with the Archaeological Curator.

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

2.1.10 All relevant key contractors engaged in the construction of the Proposed Development shall:

- Familiarise themselves with the generic requirements of the WSI and make them available to their staff and/or subcontractors;
- Obey legal obligations in respect of 'wrecks' and 'treasure' under the Merchant Shipping Act 1995 and the Treasure Trove system[1] respectively;
- Respect constraint maps, archaeological exclusion zones (AEZs) and temporary archaeological exclusion zones (TAEZs);
- Assist and afford access to relevant activities by the archaeologists employed by the Applicant;

[1] Ralston, I. 2008. *Treasure Trove in Scotland: a code of practice*. Scottish Government. http://www.scotland.gov.uk/Publications/2008/12/04114930/0

- Inform the Retained Archaeologist of any environmental constraint or matter relating to health, safety and welfare of which they are aware that is relevant to the archaeologists' activities; and
- Implement the protocol for reporting finds of archaeological interest.

2.1.11 Other roles are referred to within this document. Where this is the case these roles, and associated definitions, can be found within the protocol for reporting finds of archaeological interest (see Sections 5.8, 9.0 and 10.0). These roles include the Site Champion and Nominated Contact.

2.2 Arrangements for reviewing the Outline WSI

2.2.1 Provision will be made for the Outline WSI to be revised post-consent, in line with any conditions and timings laid out in the granted Marine Licence (ML). Any revision will be prepared by the Retained Archaeologist and submitted to the Applicant, who will ensure they are submitted to and approved by the Regulator, in addition to other relevant licensing and consenting bodies in consultation with the Archaeological Curator. **Approval by the Archaeological Curator will be assumed if no response is received within 30 working days of submission.**

2.3 Monitoring compliance with the Outline WSI

2.3.1 Compliance with this Outline WSI will be ensured by regular meetings between the Retained Archaeologist and the Applicant. The regularity of meetings may alter during different phases of the development. These meetings ensure compliance through agendas which include discussions of the construction programme and any upcoming work which may require archaeological input, as per the stipulations of this WSI. The Retained Archaeologist also advises the Applicant of the required scope of any necessary works and plans these works at the meetings and other meetings as required.

2.3.2 Following this advice, appropriate Method Statements will be prepared as required for each element of the Proposed Development which requires archaeological involvement, in line with the requirements of the WSI. These will be submitted to the Regulator, in consultation with the Archaeological Curator, for approval. **Approval by the Archaeological Curator will be assumed if no response is received within 30 working days of submission.** The Retained Archaeologist will ensure compliance with these Method Statements during the subsequent works, thereby also ensuring compliance with the WSI.

2.3.3 The performance of the WSI will also be monitored through the provision of archaeological reports, prepared to inform on the results of various activities undertaken under its auspices. These include a review of new geophysical, geotechnical and environmental data and the implementation of the PAD during all offshore activities of the Proposed Development. These reports will be submitted to the Applicant, who will ensure their dissemination to the Archaeological Curator.

2.3.4 The responsibility for ensuring the implementation of the PAD (see Sections 5.8, 9.0 and 10.0) rests with the Applicant, who will ensure that its agents and contractors are contractually bound to implement the PAD.

2.3.5 Based on Sections 5.8, 9.0 and 10.0, the Applicant and the Retained Archaeologist will agree the system for archaeological reporting through the PAD.

2.3.6 During any site evaluation/investigation or construction work that has the potential to affect any archaeological heritage assets, the Retained Archaeologist will advise the Applicant who will liaise directly with the Archaeological Curator regarding site monitoring and reporting. The Applicant will be kept informed of any contact between the Retained Archaeologist and the Archaeological Curator. A programme of monitoring visits (if deemed appropriate) by the Archaeological Curator and the Applicant will be agreed in advance of the commencement of work on site.

2.4 Health and safety

2.4.1 The Retained Archaeologist will ensure that any Method Statements prepared to meet the requirements of the WSI are compliant with the requirements of the Applicants health and safety plans for the Proposed Development.

2.4.2 Health and safety considerations will be of paramount importance in conducting all fieldwork. Safe working practices will override archaeological considerations at all times.

2.4.3 All work will be carried out in accordance with the Health and Safety at Work Act 1974, the Management of Health and Safety at Work Regulations 1999, the SCAUM manual *Health and Safety in Field Archaeology* (Standing Conference of Archaeological Unit Managers, 2007) and all other relevant health and safety legislation, regulations and codes of practice in force at the time.

3.0 Summary of known and potential archaeology

3.0.1 A baseline assessment, including desk-based assessment and archaeological assessment of geophysical survey data, has been undertaken in support of the MEAp, using a study area measuring up to 2 km from the RLB within the marine environment and up to 200 m above MHWS (the 'Study Area'). The methodology and results of this assessment are set out in detail within **Appendix 14 A: Marine Archaeology Technical Report**. The following Section contains a summary of the findings.

3.1 Summary of designated heritage assets

3.1.1 No designated heritage assets lie within the RLB. Part of one Scheduled Monument and parts of three Conservation Areas lie within the terrestrial part of the Study Area, above MHWS:

- Scheduled Monument:
  - Boddam Castle (Designation Ref: SM3252);
- Conservation Area:
  - Boddam (Des. Ref: CA428);
  - Peterhead Central (Des. Ref: CA427); and
  - Peterhead Roanheads (Des. Ref: CA426).

3.1.2 In addition, 104 Listed Buildings lie within the terrestrial part of the Study Area (above MHWS), within one of the three represented Conservation Areas, with the exception of Buchanness Cottage, Boddam (Des. Ref: LB16366).

3.1.3 No World Heritage Sites, Historic Marine Protected Areas, sites under the Protection of Military Remains Act 1986, Battlefields, Gardens and Designed Landscapes or Properties in Care are recorded within the Study Area.

3.2 Summary of non-designated heritage assets

3.2.1 One (1) United Kingdom Hydrographic Office (UKHO) record has been identified within the RLB, as illustrated by Figure 2.

Wreck W_121

3.2.2 W_121 (UKHO ID: 2242) possibly represents the British-flagged steamship *Ennismore*, built in 1880 and torpedoed by a German submarine on 30 December 1917. The non-dangerous wreck is recorded as intact, upright and with bows to the southwest, measuring (on sonar) 33 m (L) by 8 m (W) by 4.5 m (H), in waters 93 m deep.

3.2.3 The UKHO record lies slightly further seaward of 12 NM, within the southern margin of the RLB. No geophysical or magnetic anomalies were identified at this location or nearby.

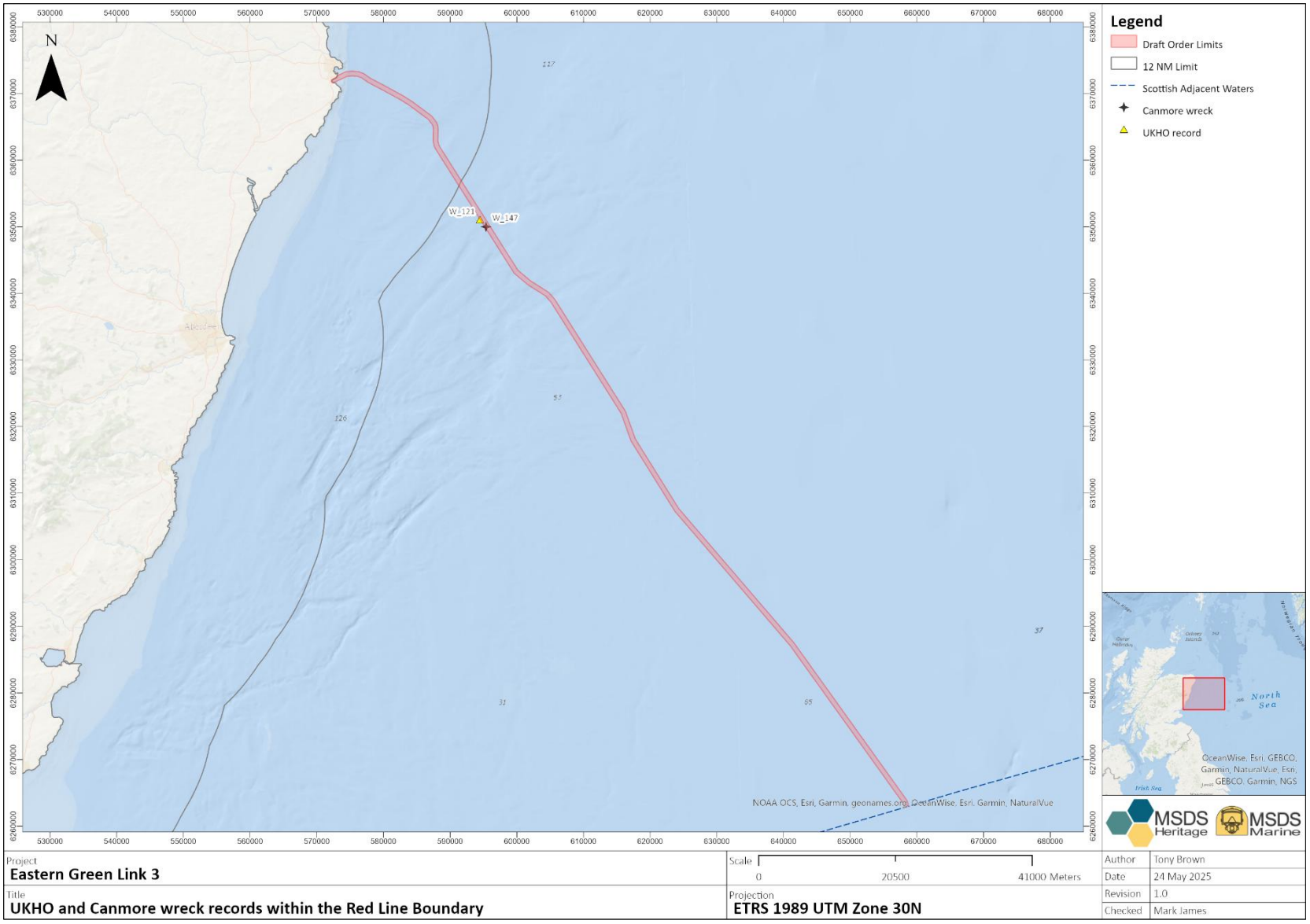

Figure 2: UKHO and Canmore wreck records within the RLB.

3.2.4 There are an additional 22 UKHO records within the Study Area but beyond the RLB (not reproduced in this WSI), relating to wrecks and obstructions:

- Nineteen (19) records of wreck, comprising:
  - Nine (9) 'live' positions;
  - Six (6) 'dead' positions;
  - Four (4) 'lifted' positions;
- Three records of foul ground, comprising:
  - One (1) unidentified, non-submarine contact;
  - One (1) loss of shipping containers; and
  - One (1) foul ground.

3.2.5 The distribution of records suggests a higher potential for wreck and foul ground within the nearshore part of the RLB, particularly near to the mouth of Peterhead Harbour.

3.2.6 In addition to the UKHO wrecks, a single wreck is recorded within the RLB by Canmore, without a corresponding UKHO record in the same position.

3.2.7 One Canmore record has also been reported within the RLB.

W_147

3.2.8 W_147 (Canmore ID: 202030) represents the location of reported wreckage. No further information is provided by the Canmore record, though it references a national diving guide, suggesting this record may have come from a diver sighting.

3.2.9 The Canmore record is located slightly beyond 12 NM, *c*. 1.44 km to the southeast of W_121. No geophysical or magnetic anomalies were identified at this location or nearby.

Intertidal sites

3.2.10 The intertidal walkover survey at Sandford Bay identified:

- Part of an embedded iron pipe (TI_001);
- The remains of a stone jetty (TI_002);
- An iron spike driven into a large stone, possibly formerly used as a mooring point (TI_003);
- A stamped brick (TI_004); and
- A fragment of wood, possibly representing an element of wreckage or naturally occurring driftwood (TI_005).

3.3 Submerged prehistoric archaeology

3.3.1 The RLB experienced multiple phases of advance and retreat of the British-Irish Ice Sheet over the past *c*. 1 million years and associated marine regression and transgression. The patterns of glaciation were complex and the interpretation of glacial extents in different periods remains a dynamic and evolving field of scholarship. These large-scale events have influenced the geomorphology, geology and archaeological potential of the landscape.

3.3.2 Initial interpretations of the seismic data, integration with the geotechnical results, preliminary results of the geoarchaeological analysis and wider assessment identified nine (9) Quaternary formations within the RLB. These were correlated with the following recognised formations:

- Surficial sediments (Unit 1);

- St Andrews Bay Member, Forth Formation (Units 2A and 2B);
- Largo Bay Member, Forth Formation (Unit 2D);
- Marr Bank Formation (Unit 3);
- Wee Bankie Formation (Unit 4B);
- Possibly elements of Marr Bank and Wee Bankie formations (Unit 4C);
- Coal Pit Formation (Unit 5); and
- Aberdeen Ground Formation (Unit 9).

3.3.3 Unit numbering follows on from that of the baseline assessment for the English Offshore Scheme, to preserve continuity, therefore the numbering of units within the Proposed Development is not always sequential.

3.3.4 Most provisionally correlated units have been interpreted as marine or glaciomarine in origin, thus precluding the potential for *in situ* archaeological remains relating to prehistory prior to or during the Holocene marine transgression. Units 2A, 2B, 2D, 3, 4B, 4C and 5 have been attributed a negligible or very low archaeological potential.

3.3.5 Unit 1 has been attributed a low archaeological potential. Deposition of related sediments correlates with human activity in Scotland and, although marine deposits would not hold *in situ* remains, *ex situ* artefacts may feasibly be present.

3.3.6 Non-glacigenic deposits hold a broad potential for evidence such as diatoms, ostracods and dinoflagellates, which can be used to infer palaeoenvironmental conditions. Units 3, 4C and 5 have therefore been attributed a low to moderate potential for palaeoenvironmental remains.

3.3.7 Units 2A, 2B and 2D were sampled during geotechnical investigation. Deposits relating to Units 2A and 2B were present in many cores and were concluded through Stage 1 analysis to be of limited archaeological interest. Four deposits, relating to Unit 2D, were identified for further analysis at Stage 2, however, it was concluded that these represent glaciomarine to marine sediments warranting no further investigation. Units 2A, 2B and 2D therefore hold a low potential for palaeoenvironmental remains.

3.3.8 Unit 1 has been attributed a negligible potential for palaeoenvironmental remains, as this comprises mobile, Holocene marine sediments with no local indication of features such as peat beds or submerged forests.

3.3.9 The Aberdeen Ground Formation (Unit 9) was deposited over a considerable period, spanning a range of depositional environments. As such, the archaeological and palaeoenvironmental potential is particular to each facies. Further analysis is required to characterise Unit 9 and determine the lithology, age and depositional environment(s) of any confidently interpreted Aberdeen Ground Formation deposits.

3.3.10 A summary of the archaeological and palaeoenvironmental potential of these units is presented by Table 1.

3.3.11 Sea level and glacial modelling suggest that the RLB lay beneath glacial ice during the Anglian (478,000 to 424,000 BP; Marine Isotope Stage 12), Wolstonian (374,000 to 123,000 BP; MIS 10 to 6) and Devensian (109,000 to 11,700 BP; MIS 5d to 2) glaciations and had transitioned to a fully marine environment by 18,000 BP at the latest (with some slightly later transgression along a thin strip adjacent to the present coastline possible; Brooks *et al*. 2011). Correlation of the

modelling with the archaeological resource in Scotland and the central North Sea suggests a very low potential for hominins to have occupied the RLB during any periods of subaerial exposure.

3.3.12 There are no known prehistoric sites or findspots within the RLB. There is potential for prehistoric remains to be contained within secondary contexts, where their primary, sub-aerial deposits have been eroded by subsequent hydrodynamic and/or glacial processes, though any such remains are likely to be highly dispersed and difficult to quantify.

3.3.13 The rarity of *in situ* prehistoric sites in offshore contexts, particularly in the central North Sea, suggests that any such sites encountered in the RLB will be of at least national interest. The cultural significance of these sites would be derived from their potential to contribute to international and national research objectives through interpretation of in situ anthropogenic material and palaeoenvironmental remains. These may hold a combination of intrinsic, contextual and associative value which may contribute to several regional, national and international research objectives and may be considered of up to the highest importance.

3.3.14 Isolated finds of prehistoric archaeological material within secondary contexts may preserve intrinsic value, however, their contextual and associative values may have been diminished or wholly removed. Such remains would hold cultural significance, though this may likely be of no greater than medium importance.

3.3.15 Palaeoenvironmental material derives a key part of its importance from its primary context and *ex situ* remains may be considered of limited to no value.

Geological unit[2]		Depositional environment	Lithology (NextGeo, 2024b)	Potential	
MSDS	NextGeo			Prehistoric archaeology	Palaeoenvironmental
1	1a	Marine	Sand, with gravel in different proportions. Locally containing shells, pebbles or Cobbles/boulders. Occasional clay lenses occur. Potentially mobile sediments.	Low	Negligible
2A	1b	Shallow marine	Soft to firm, brown to reddish clay, containing sand and gravel	Very low	Low
2B	1c	Shallow marine, possibly beach and/or fluviomarine	Interbedded sand and clay. Possibly former coastal sandbar.	Very low	Low
2D	1d	Estuarine to offshore marine	Silty, sandy clay, often containing shell fragments, laminated, soft to firm clay, with an occasional gravel component.	Negligible	Low
3	2a	Shallow glaciomarine	Sand with gravel. Component of firm to stiff clay, with cobbles/boulders.	Negligible	Low to moderate
	2b		Dense sand and gravel. Occasional clay layers/lenses. Cross-laminated relict bedforms similar to sand bars or ridges.		
4B	2d	Glacigenic	Glacial deposit/till. Unsorted sediment, soft to stiff clay, with interbeds of sand and pebbly sand and layers/lenses of coarse sand and gravel.	Negligible	Very low
4C	Palaeochannel	Likely elements of glacigenic and shallow glaciomarine.	Likely elements comparable to Units 3 and 4B.	Negligible	Very low to moderate
5	3	Mostly glaciomarine; upper member locally interpreted as intertidal.	Often stratified unit containing usually stiff clay, silt, sand, gravel, pebbles and boulders.	Very low	Low to moderate
9	4	Delta-front/pro-delta/nearshore/open marine; sub-glacial, proximal glaciomarine, distal glaciomarine and marine facies	No interpretation.	Uncertain	Uncertain

Table 1: Summary of potential for provisionally identified geological units.

[2] Unit numbering follows on from that of the baseline assessment for the English Offshore Scheme, to preserve continuity, therefore the numbering of units within the Proposed Development is not always sequential.

3.4 Maritime and coastal remains

3.4.1 The coastal and maritime archaeology encompasses remains and evidence of human interaction with the marine environment, ranging from the immediate Late Pleistocene and Holocene marine transgressions to the present. This timespan includes all archaeological periods from the Upper Palaeolithic to the Modern. Archaeological evidence in this context may comprise (but is not limited to):

- Vessels (including evidence of their construction, use and maintenance);
- Navigational aids (including lighthouses and buoys);
- Infrastructure (including harbours and jetties);
- Evidence of resource gathering (including fish traps, salterns); and
- Individual or groups of artefacts (including cargo).

3.4.2 Coastal and maritime evidence pre-dating the post-medieval period is rare and is poorly represented within the Study Area and northeast Scotland more widely. Although there are some coastal sites with medieval origins (settlement core of Peterhead) suggestive of occupation during this period and highlighting a potential for contemporary interactions with the marine environment, no such evidence has been recorded to date and the overall likelihood of such being present within the RLB is very low.

3.4.3 Recording of maritime losses was given more attention from the 18th century, during which period vessel use became more widespread as new technologies made seafaring safer and Britain traded with and transported between its colonies and other nations. Maritime losses from the 17th to 21st centuries are recorded in the dataset for the Study Area, reflecting this trend.

3.4.4 Appendix 14 A: Marine Archaeology Technical Report identified 23 UKHO records within the Study Area, comprising 20 wrecks and three (3) other records. A single UKHO wreck record lies within the RLB (see Section 3.2 for further details).

3.4.5 In addition to the UKHO records, the baseline assessment has identified within the RLB:

- Thirty-seven (37) documented losses (maritime losses derived from eyewitness and documentary evidence) held by Canmore and the Aberdeenshire Historic Environment Record (HER) (having no correlating UKHO record), comprising:
  - Thirty-four (34) maritime craft;
  - Three (3) aircraft loss records (relating to two lost aircraft); and
- Three coastal and terrestrial records held by the HER.

3.4.6 A further Canmore record relates to the loss of the Ennismore, represented also by the sole UKHO record within the RLB (see Section 3.2).

3.4.7 Archaeological assessment of the geophysical data has identified within the RLB:

- One (1) high potential anomaly;
- Four (4) medium potential anomalies:
  - Three (3) within 12 NM;
  - One (1) beyond 12 NM;
- Seventy-seven (77) low potential anomalies:

- Seventy-one (71) within 12 NM;
- Six (6) beyond 12 NM;

- Six hundred and eighty-one (681) magnetic anomalies >5 nT:
  - Six hundred and fifty-two (652) within 12 NM; and
  - twenty-nine (29) beyond 12 NM.

3.4.8 The documented loss records highlight the broad potential for maritime wreckage and cargo within the RLB, supported by the geophysical and magnetic anomalies (which may or may not represent wrecks and/or material relating to human interaction with the marine environment). Documented loss records themselves are of varying reliability, many attributed a broad position based on historic insurance records, coastguard reports and even eyewitness accounts. Spatial analysis of these records must be undertaken with caution and provisional conclusions caveated. Further detail relating to the utility, nature and character of documented losses can be found in Appendix 14 A: Marine Archaeology Technical Report.

3.4.9 The distribution of geophysical and magnetic anomalies within the RLB, as identified through review of the geophysical and hydrographic data in Appendix 14 A: Marine Archaeology Technical Report, is presented below by Figure 3 and Table 2 for geophysical anomalies and by Figure 4 and Table 3 for magnetic anomalies.

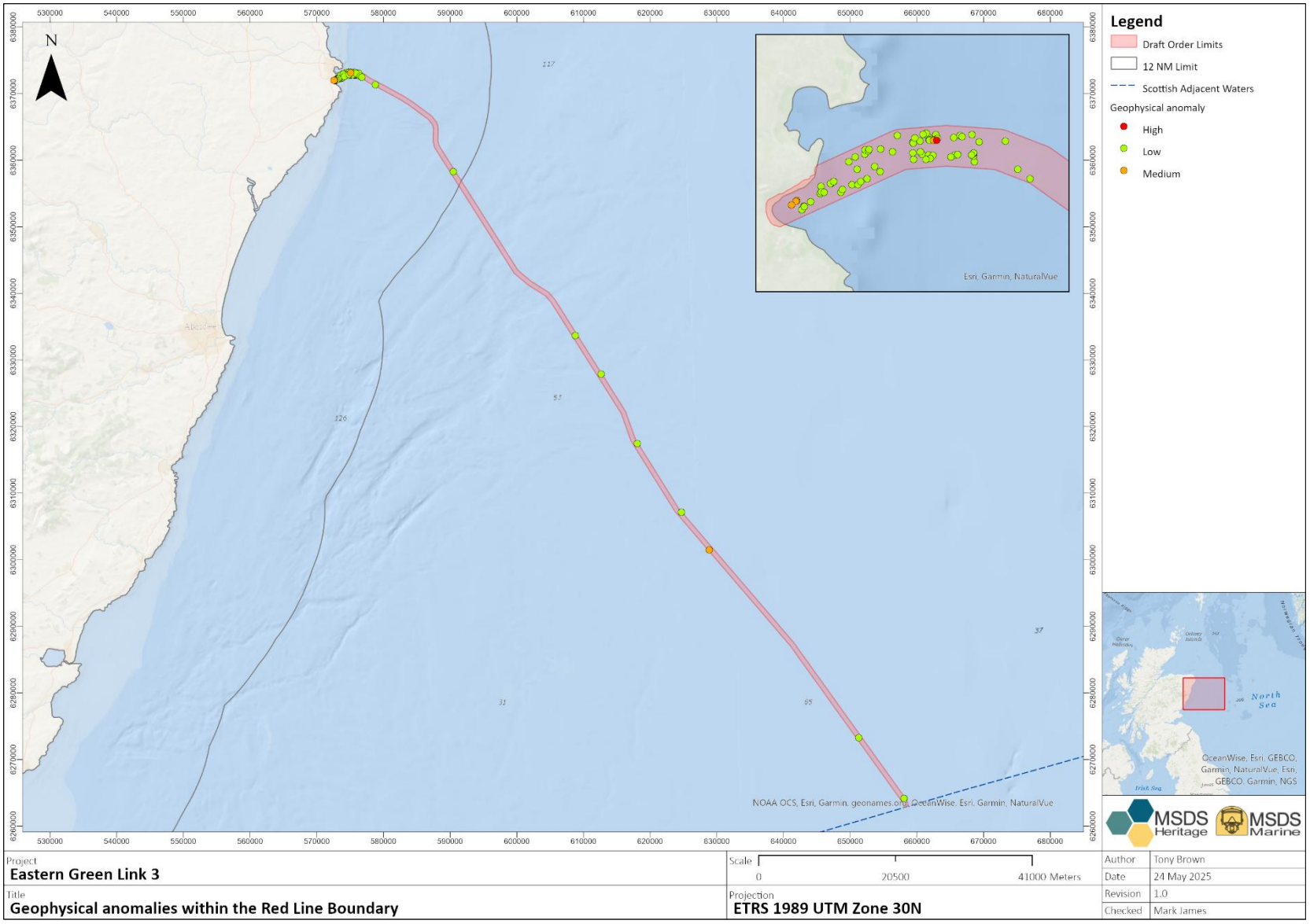

Figure 3: Geophysical anomalies within the RLB.

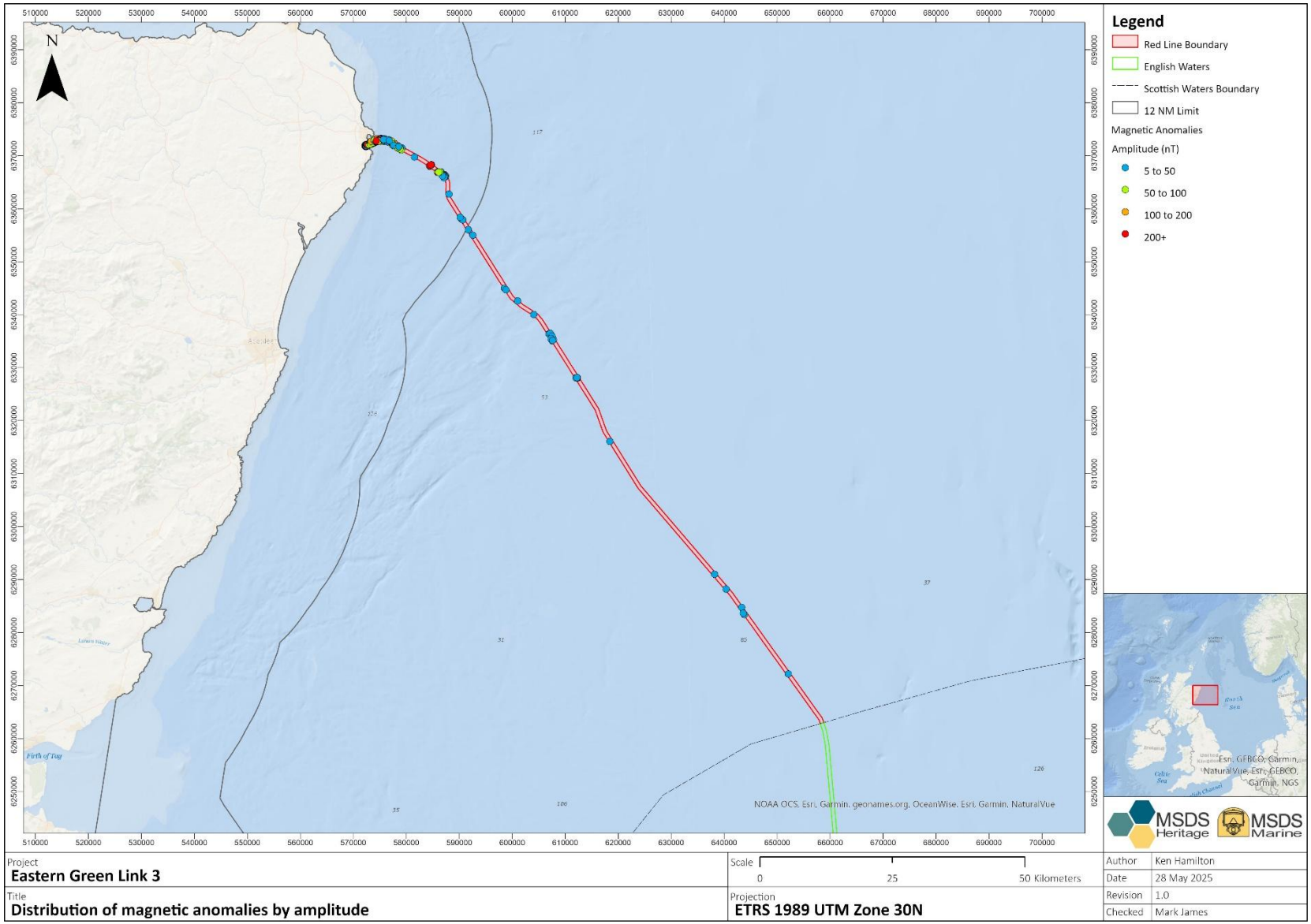

Figure 4: Distribution of magnetic anomalies by amplitude.

Archaeological potential	Count		
	Within 12 NM	Beyond 12 NM	Total
High	1	0	1
Medium	3	1	4
Low	71	6	77
Total	75	7	82

Table 2: Archaeological potential of geophysical anomalies.

3.4.10 Six hundred and eighty-one (681) magnetic anomalies were identified within the RLB, ranging in amplitude from 5.0 nT to 5,431.8 nT (see Figure 4 and Table 3).

3.4.11 Whilst the vast majority of these are unlikely to be of archaeological interest, some may represent anthropogenic material. All isolated anomalies of 50 nT or less are likely to be of limited archaeological significance, however, a low amplitude may be the result of distance between the anomaly and the sensor. Magnetic anomalies of >100 nT are typically described as large and have the potential to be of archaeological significance.

Amplitude (nT)	Count		
	Within 12 NM	Beyond 12 NM	Total
200+	57	0	57
100 to 200	99	0	99
50 to 100	141	0	141
≤50	355	29	384
Total	652	29	681

Table 3: Magnetic anomalies by amplitude.

3.5 Aviation remains

3.5.1 There are no known aviation remains within the RLB. Three documented loss records, however, relate to aircraft casualties.

3.5.2 Two of these have the same positional coordinates, near Peterhead Harbour. One represents the loss of an Armstrong Whitworth Whitley training aircraft on 24 October 1943 and the other a loss on 18 June 1946 (with no further detail). The shared position likely indicates an arbitrary location, rather than the exact crash site for both, therefore, the presence of physical remains here is unlikely.

3.5.3 The third loss is situated within the Study Area (beyond the RLB) and recorded by the UKHO. This record concerns the sighting of wreckage from a helicopter which could not be subsequently relocated (see Appendix 14 A: Marine Archaeology Technical Report for further detail). The traumatic mechanism of aircraft crashes, identification of surface wreckage and inability to relocate this suggest that any debris may have travelled on the surface or laterally through the water column before settling on the seabed. As such, physical remains are unlikely to be present at this location.

3.5.4 Further potential for aviation remains is suggested by the site of the former First World War seaplane base at Peterhead, *c*. 90 to 750 m north from the RLB (HER ID: NK14SW0022).

3.5.5 There is a very limited potential for aircraft remains to be present within the RLB, in consideration of documented loss records and nearby historic activities. Any physical remains relating to, or suspected to relate to, aircraft losses would automatically fall under the Protection of Military Remains Act 1986 and therefore be considered of high heritage importance.

3.6 Geophysical data quality and limitations

3.6.1 The following data limitations have been identified by Appendix 14 A: Marine Archaeology Technical Report.

Geophysical survey

3.6.2 The coverage of geophysical data for the Proposed Development is presented by Figure 5. The data collected across the extents of the pre-defined survey boundary (which included the entirety of the Study Area and beyond in some places) are of good quality overall, with the multibeam echo sounder (MBES) providing 100% coverage and the sidescan sonar (SSS) providing 100% with the exception of survey Block B008, noting however, that this has a limited impact on the ability to undertake the archaeological assessment.

3.6.3 Sub-bottom profiler (SBP) data were collected to a pre-determined line plan, largely providing suitable coverage and penetration for the interpretation of the sub-seabed Quaternary sequence.

3.6.4 The Magnetometer data were collected to a pre-determined line plan suitable for the identification of ferrous material, with a peak-to-peak amplitude of 5.0 nT and the minimum detection size increasing with distance from the tracklines.

3.6.5 The data are considered of an appropriate specification, coverage and quality to undertake a robust archaeological assessment to inform the MEA, noting that additional data collection and interpretation may be required prior to construction.

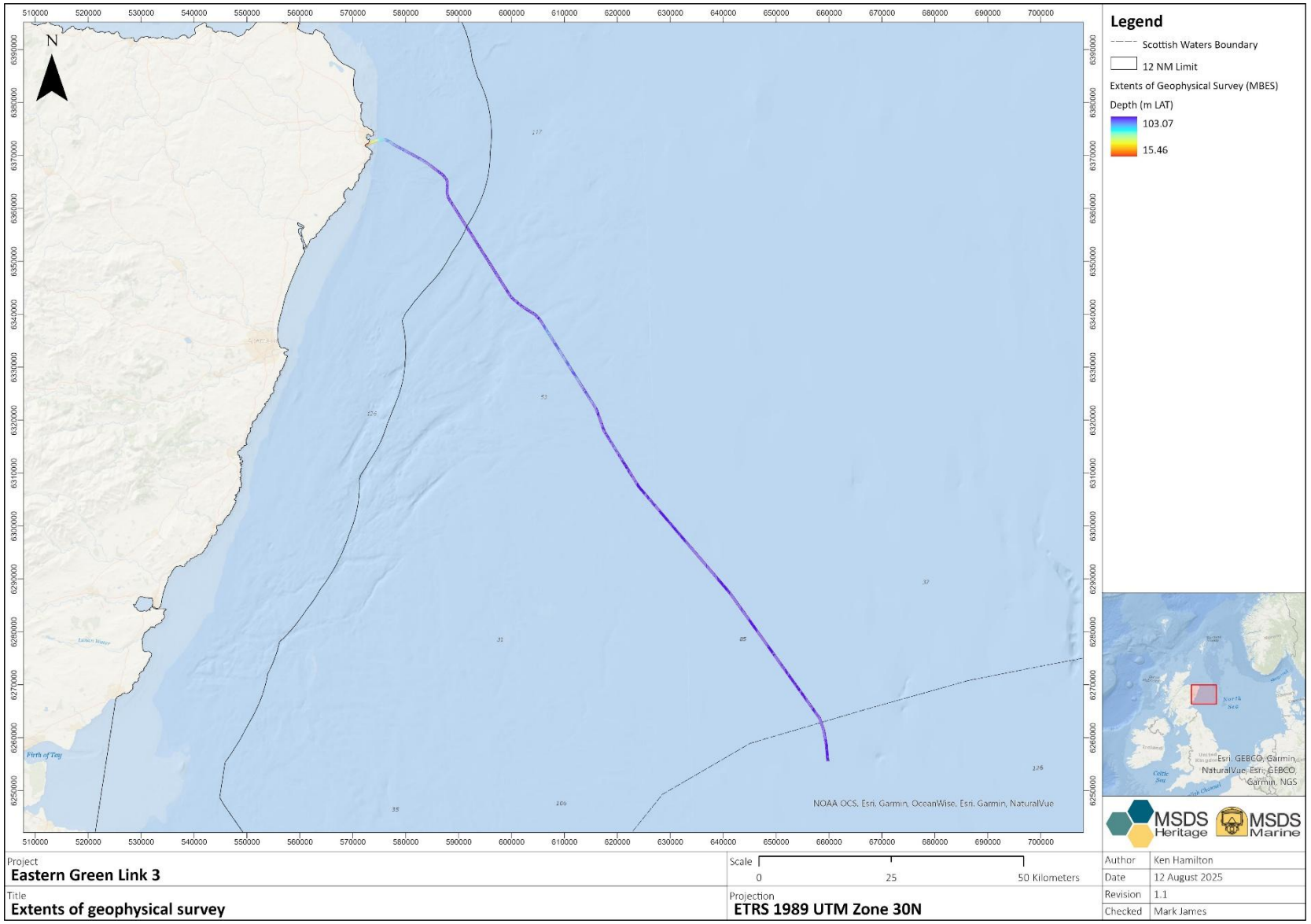

Figure 5: Extents of geophysical survey.

4.0 Research agendas

4.0.1 The best practice guidance within Archaeological *Written Schemes of Investigation for Offshore Windfarm Projects* (The Crown Estate, 2021) indicates that a WSI should "*set out the importance of research frameworks in setting objectives that are delivered through realisation of the work*".

4.0.2 Several research frameworks are of relevance to the archaeological remains and area of the Proposed Development. These include:

- The Scottish Archaeological Research Framework (ScARF) Marine and Maritime theme (ScARF, n.d.);
- The North East Scotland Regional Research Framework (Aberdeen Council, 2013); and
- The North Sea Prehistory Research and Management Framework (Research Frameworks Network, 2025).

4.0.3 Other frameworks, including those concerning specific themes other than those set out above, may also be relevant, depending on the specific work package undertaken. Any archaeological activities and reporting under this Outline WSI will tie research into the relevant research frameworks, ensuring that the Proposed Development contributes to archaeological knowledge of areas where research frameworks demonstrate a need for further understanding. The objectives of the research framework will be used to guide work and recommendations made by the Retained Archaeologist to the Applicant.

4.0.4 The connection with the specific work package to be undertaken and the relevant research framework, aims and objectives will be identified within the Method Statements which will precede archaeological work. The Method Statement(s) will also set out how the work undertaken will be tied into the relevant research framework during the Online Access to the Index of Investigations (OASIS) reporting (see Section 7.1).

5.0 Impacts and mitigation

5.1 Overview

5.1.1 This Section presents the proposed activities within the RLB with the potential to impact on marine archaeology receptors. The activities and their extents are derived from the Project Design Envelope (PDE) and may be altered within the scope of the maximum design parameters.

5.1.2 The worst-case scenarios identified in **Chapter 14: Marine Archaeology**, informed by the maximum design parameters as at the time of writing (presented by **Chapter 3: Project Description** of the MEAp), have been selected as those having the potential to result in the greatest effect on an identified receptor or receptor group.

5.1.3 The impact assessment and PDE activities relevant to marine archaeology presented within **Chapter 14: Marine Archaeology** and this Outline WSI will be reviewed and amended as necessary post-consent.

5.1.4 A summary of activities for each Proposed Development phase with the potential to impact marine archaeology receptors is given below.

Construction phase

5.1.5 The following construction activities are anticipated or may be employed:

- Surveys and site investigation:
  - Pre-construction UXO/archaeology geophysical survey;
- Route preparation:
  - Pre-lay grapnel runs (PLGR);
  - Boulder clearance;
  - Sandwave clearance;
  - Trial trenching;
- Cable laying, with all seabed sections of cable buried where possible;
- Installation of cable protection, where cable burial is not achievable and at infrastructure crossings;
- Landfall enabling works and cable pull-in;
- Cable wet storage; and
- Anchoring/jack-up of construction installation vessels.

Operation phase

5.1.6 The operation phase of the Proposed Development is anticipated to last a minimum of 40 years and may be extended to 60 years. Operation activities will include:

- Cable repairs and maintenance (if required); and
- Anchoring/jack-up of vessels.

5.1.7 Cable repair may involve the laying of replacements cable sections beyond the as-laid footprint of the construction phase, resulting in impacts beyond this.

Decommissioning phase

5.1.8 The expected minimum operational life of the proposed landfall infrastructure is 40 years, with replacement only expected to occur upon the failing of specific assets.

5.1.9 The below ground transition joint bay providing onshore to offshore cable interface may be left in place as well as the ducts installed to bring the cables onshore. As a result, it is expected that there would be similar methods to remove these components as those used to install the asset.

5.1.10 The minimum design life of the Proposed Development's subsea cables is 40 years, although with repairs, some cable systems last upwards of 60 years. The Proposed Development will require a Licence or Lease from Crown Estate Scotland. An Initial Decommissioning Plan (IDP) will be written once the final route and construction methodology is chosen and it may be a condition of the Marine Licence for the Proposed Development (if granted) that the IDP should be approved by MD-LOT (and potentially other consultees) before construction can commence. This is a legal requirement necessary to secure the Crown Estate Scotland Lease or Licence. The IDP will form the basis of the Final Decommissioning Plan which would be developed in consultation with Crown Estate Scotland and in line with the following decommissioning principles:

- The measures and methods for any decommissioning would comply with any legal obligations which would apply to the decommissioning of the Proposed Development when it takes place;
- All sections of the cables within 12 NM would be removed, except for any section or sections which are preferable to leave *in situ* having regard to the principles below:
  - That the measures and methods for any decommissioning are the best for, or minimise the risks to:
    - The safety of surface or subsurface navigation;
    - Other uses of the sea;
    - The marine environment including living resources; and/or;
    - Health and safety; and
- The seabed would be restored, as reasonably as possible and to the extent reasonably practicable, to the condition that it was in before the cable was installed.

5.1.11 The IDP is periodically reviewed and updated in line with the applicable guidance and regulations at the time of writing.

5.1.12 The full environmental impact of works required to decommission the Proposed Development would be assessed at the time of decommissioning and a separate Marine Licence would be applied for in relating to any decommissioning works proposed. Removal of the subsea cable is a similar process to the installation of the cable, but in reverse. The environmental impact can therefore not be fully assessed until the environmental conditions at the time of decommissioning are established.

5.2 Areas of work

5.2.1 The RLB will be the focus for all Proposed Development construction and operation activities. Route preparation, cable installation and cable maintenance activities will be contained within this area.

5.3 Embedded mitigation

5.3.1 The Applicant has committed to a series of embedded mitigation measures to mitigate impacts to marine archaeology, as presented within Table 4. These follow industry-standard mitigation measures, engaged to manage the marine archaeological resource in line with current policy and guidance.

Environmental measure	Description
Archaeological Exclusion Zones	Archaeological Exclusion Zones (AEZs) and Temporary Archaeological Exclusion Zones (TAEZs) will be implemented around identified (known) and potential Marine Archaeological receptors. The extents of exclusion zones will be determined by the potential significance of the receptor, the seabed dynamics, the potential impacts and extents of any outlying debris. The AEZs will be agreed with the Archaeological Curator and will remain for the lifetime for the Proposed Development or an until further works are undertaken to allow re-assessment.
Retained Archaeologist	The Proposed Development will retain the services of an archaeological consultant, the 'Retained Archaeologist', to implement the Written Scheme of Investigation. The Retained Archaeologist will provide guidance as to the requirements for archaeological assessment of further pre-construction surveys and the specifications of such surveys. This can include, but is not limited to, geophysical, hydrographic, Remotely Operated Vehicle (ROV), diver and geotechnical surveys. The Retained Archaeologist will provide input into site preparation, pre-construction and construction activities where appropriate and where archaeological monitoring of such works may be required.
Archaeological assessment of geotechnical samples*	The archaeological assessment of geotechnical samples will be undertaken as necessary, informed by the interpretated potential of the marine archaeology Study Area. The archaeological assessment of geotechnical samples will be preceded by a Method Statement and will follow a staged process after Offshore Geotechnical Investigations and Historic Environment Analysis: Guidance for the Renewable Energy Sector (Gribble and Leather, 2011).
Protocol for Archaeological Discoveries	The Protocol for Archaeological Discoveries (PAD) will follow best practice outlined in Protocol for Archaeological Discoveries: Offshore Renewables Projects (The Crown Estate, 2014). The PAD provides the mechanism for the reporting of unexpected finds of potential archaeological interest, and the subsequent treatment of such finds. The PAD does not replace archaeological processes but enhances the protection for the historic environment. The PAD also provides additional mitigation for geophysical anomalies interpreted as of low archaeological potential.
Written Scheme of Investigation	The Written Scheme of Investigation (WSI) will follow the best practice as outlined in Archaeological Written Schemes of Investigation for Offshore Windfarm Projects (The Crown Estate, 2021). The WSI will: • Set out the roles and respective responsibilities of the Applicant, Contractors and Retained Archaeologist and Archaeological Contractor(s); • Outline the known and potential archaeological receptors that could be impacted by the Proposed Development; • Set out the importance of research frameworks in setting objectives that may be delivered through realisation of the known and potential archaeology; • Outline the agreed mitigation and archaeological actions that are to take place in various circumstances; and • Provide methodologies for these archaeological actions, to be employed on archaeological work conducted in the post-consent period.

Table 4: Summary of embedded mitigation.

*Stage 1 and 2 geoarchaeological analysis has been undertaken on samples acquired by the preliminary geotechnical campaign. The analysis concluded with the recommendation for no further investigation. Given the low potential recorded by the previous assessment and plans to conduct no further geotechnical work, further geoarchaeological assessment is not likely to be required. However, the environmental measure is included here both for posterity (as written into **Chapter 15 – Schedule of Mitigation**) and should the need for future assessment occur (e.g. in case of changes to the scheme or geotechnical plans or should deposits of interest be identified through the archaeological review of data or other methods). See also Section 6.2.5.

5.3.2 The undertaking of such activities as described within Table 4 and with the potential to interact with Marine Archaeology receptors should be preceded by task-specific Method Statements, to be prepared and agreed with the Archaeological Curator on an 'as-needed' basis. Further detail of additional activities would be provided within the associated Method Statement.

5.3.3 This Outline WSI provides further mitigation options that may be employed as necessary during the Proposed Development lifespan. If implementation is agreed, detail of additional activities would be provided through task-specific Method Statements, to be prepared and agreed with the Archaeological Curator on an 'as-needed' basis. Such activities may include:

- Archaeologists to be consulted in the preparation of any pre-construction Remotely Operated Vehicle (ROV) / diver surveys and, if appropriate, in monitoring/checking of data (see Section 6.6);
- Operational awareness of the location of those geophysical anomalies identified as having a low archaeological potential. Reporting through the agreed protocol will be undertaken should material of potential archaeological interest be encountered (see Sections 5.8, 9.0 and 10.0);
- Archaeologists to be consulted in the preparation of site preparation or other pre-construction operations and, if appropriate, to carry out archaeological monitoring (e.g. a watching brief) of such work (see Section 5.6);
- Mitigation of unavoidable direct impacts on known sites of archaeological significance. Options include: i) preservation by record; ii) stabilisation; or iii) detailed analysis and safeguarding of otherwise comparable sites elsewhere. Direct impacts upon archaeological sites are not planned - all known sites of potential significance are protected by AEZs and will be avoided by development impacts. Should potential for any unforeseen and unavoidable impacts be identified, a Method Statement will be produced in agreement with Archaeological Curator, detailing how these will be handled and general archaeological practices (see Section 5.7) will be followed where preservation by record or detailed analysis of sites elsewhere is an agreed approach. Methods for any stabilisation and safeguarding will be site-specific and will be detailed within a Method Statement, should the need for these interventions arise; and
- Commitment to implementation of the WSI (the current document) prior to any post-consent works within the RLB.

5.4 Exclusion zones

Archaeological Exclusion Zones

5.4.1 Best practice favours the *in situ* preservation of archaeological remains. Therefore, the preferred mitigation for archaeological remains is avoidance (COWRIE, 2007). AEZs will be implemented within the RLB that prohibit development-related activities within their extents, which vary depending upon the nature of the site.

5.4.2 The establishment, position, extents and rationale for AEZs are presented in **Chapter 14: Marine Archaeology**, to be agreed with the Archaeological Curator. These will be incorporated into constraints mapping and provided to all contractors and sub-contractors, typically within Vessel Information Packs (VIPs).

5.4.3 In view of their potential archaeological significance, AEZs should be placed around high and medium potential geophysical survey anomalies within the RLB. These anomalies will be recommended AEZs based on the size of the anomaly, the extents of any debris, the potential

significance of the anomaly, the potential impact of the activity and the seabed dynamics within the area.

5.4.4 AEZs should be recommended as a distance from the extents. Particularly in the case of shipwrecks, which tend to be greater in length than width, the use of a circle provides unequal protection around the extents. This not only impacts the protection afforded but does not present proportional mitigation.

5.4.5 Provisionally recommended AEZs are presented by Table 5, Figure 6, Figure 7 and Figure 8 and may be subject to future amendment.

MSDS ID	Description (provisional)	Potential	ETRS89 Z30N		Within 12 NM?	AEZ (m)
			X	Y		
EGL3SW_065	Wreck	High	575118	6373106	Yes	50 (from extents)
EGL3SW_068	Wreck debris	Medium	575081.579	6373106.879	Yes	Lies within EGL3SW_065 AEZ (>25 m from centre)
EGL3SW_069	Wreck debris	Medium	575073.337	6373109.216	Yes	Lies within EGL3SW_065 AEZ (>25 m from centre)
EGL3SW_071	Potential debris	Medium	628869.283	6301478.072	No	25 (from centre)
EGL3SW_083	Linear	Medium	572613.325	6371988.443	Yes	25 (from centre)

Table 5: Recommended Archaeological Exclusion Zones.

5.4.6 The recommended AEZs may evolve or be removed (with the agreement of the Archaeological Curator) as the Proposed Development progresses, subject to layout designs and additional subsequent surveys that may be required. Scope will be allowed for their amendment considering further evidence and with the involvement of consultees. There will be no impacts to finalised AEZs during the construction and operational activities.

Temporary Archaeological Exclusion Zones

5.4.7 Temporary Archaeological Exclusion Zones (TAEZs) would be recommended where an anomaly is not visible in the geophysical dataset but is known to exist, based on information from other datasets (e.g. UKHO data), where the position cannot be determined with enough accuracy for refined exclusion zones or where the extents are not fully known. They are often larger than AEZs but are identified as temporary as they are highly likely to be altered following higher resolution or full coverage data assessment, or investigation with an ROV, however, they will remain in place until alterations have been formally agreed.

5.4.8 The mechanisms and methods for adding, altering or removing AEZs are equally applicable to TAEZs.

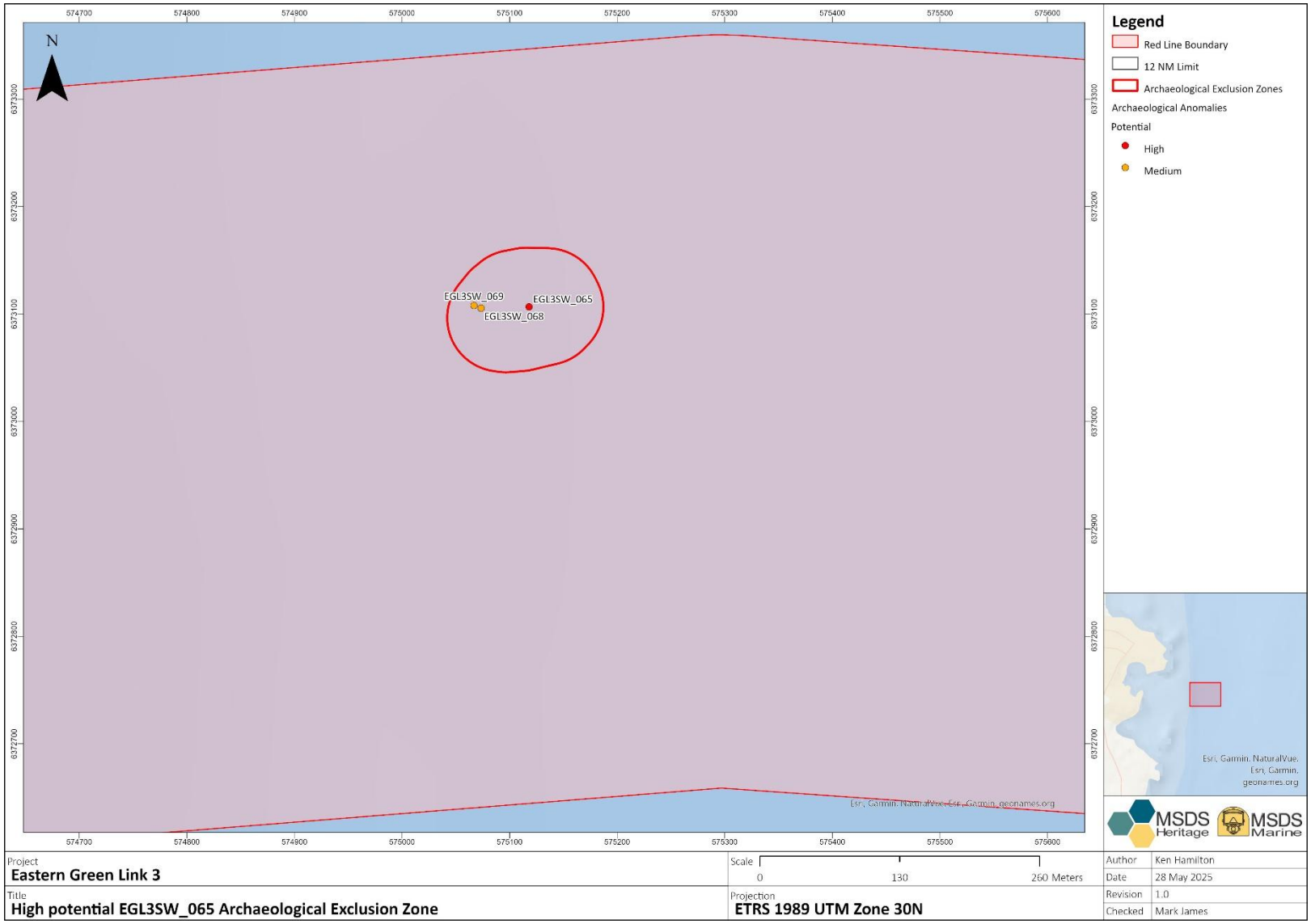

Figure 6: High potential EGL3SW_065 Archaeological Exclusion Zone.

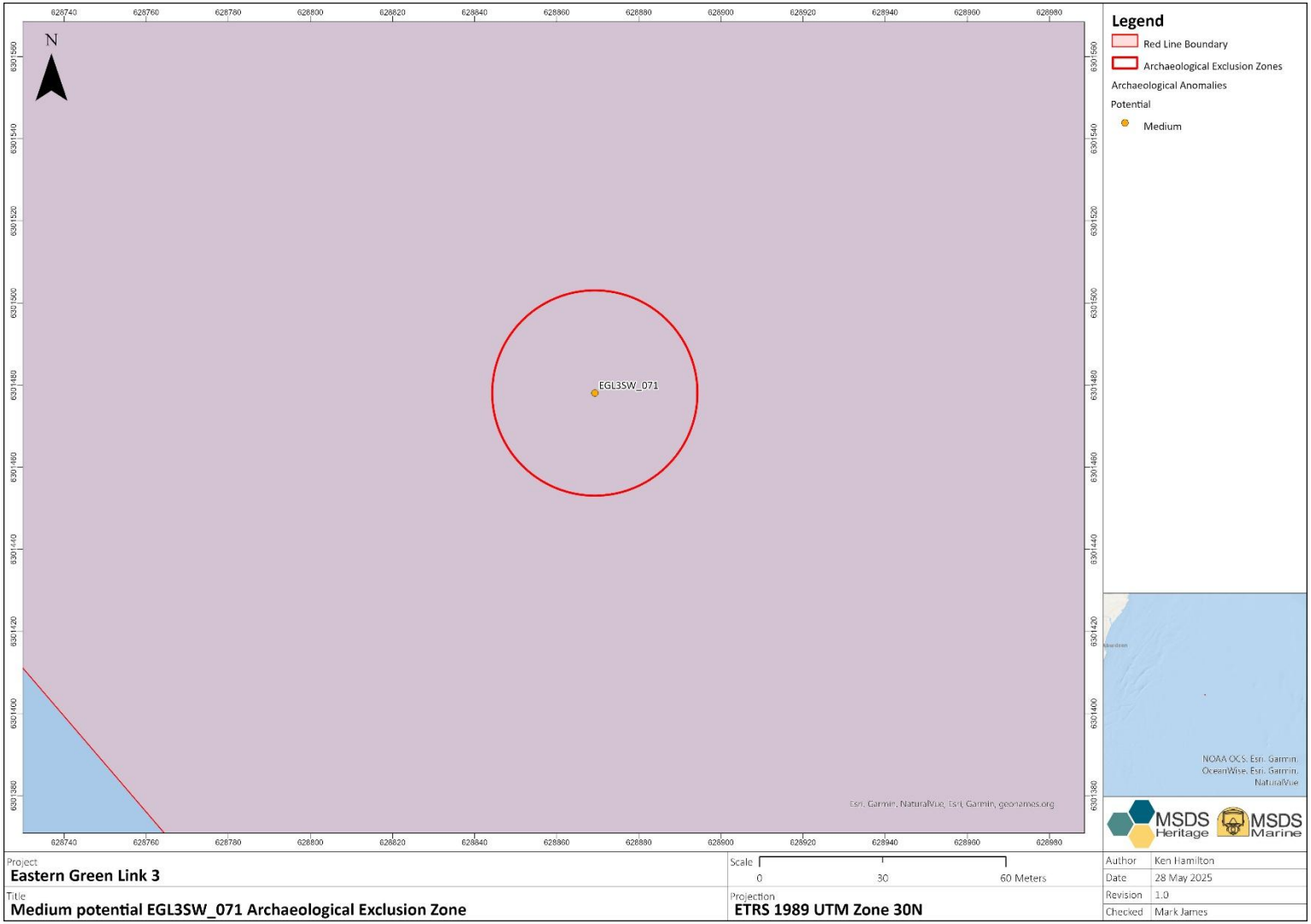

Figure 7: Medium potential EGL3SW_071 Archaeological Exclusion Zone.

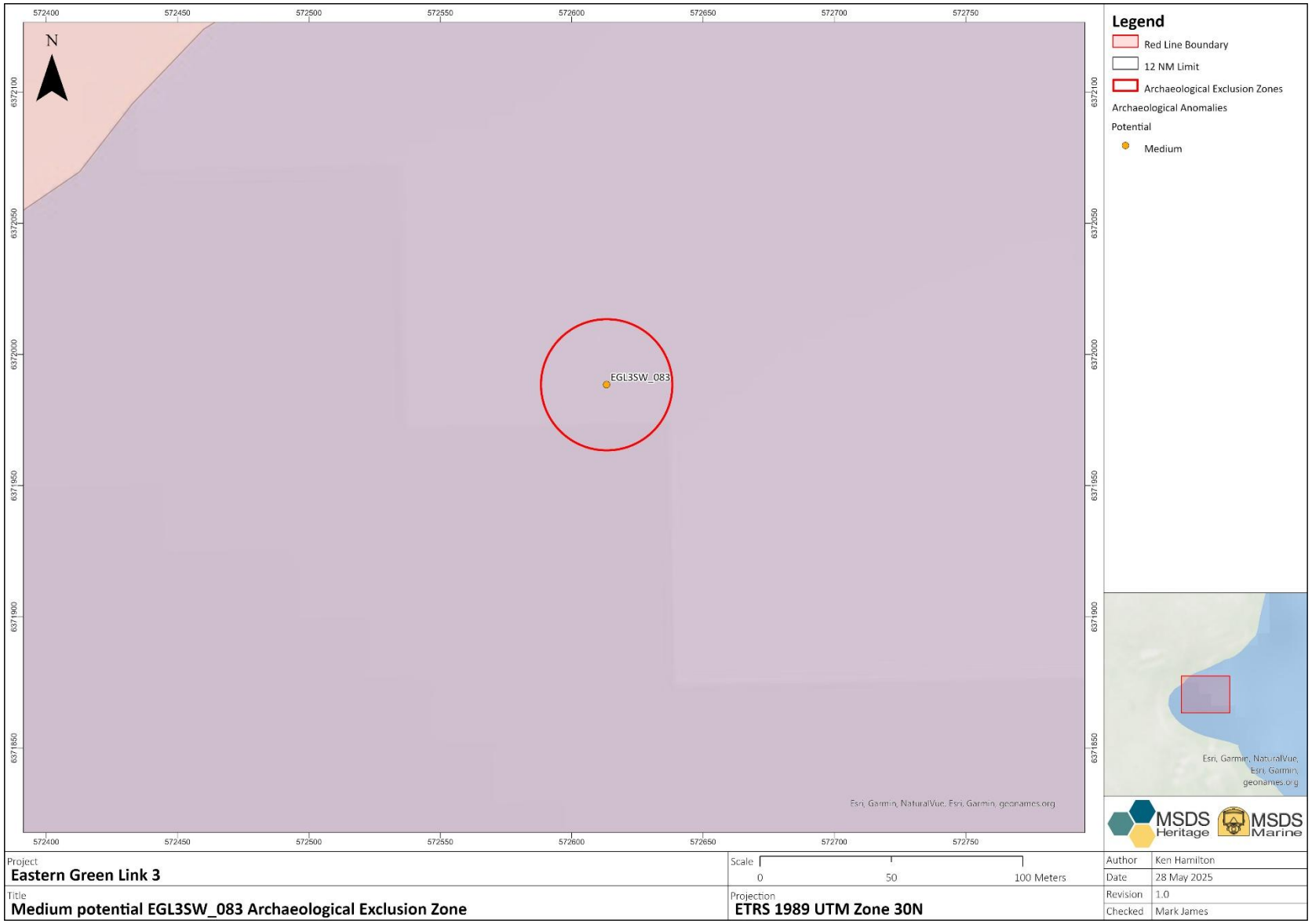

Figure 8: Medium potential EGLSW_083 Archaeological Exclusion Zone.

Establishing new Archaeological Exclusion Zones

5.4.9 If new finds of archaeological importance are made during construction (or any subsequent stage of the Proposed Development), they may be subject to the recommendation of additional AEZs (or TAEZs). The establishment of new AEZs may occur where additional geophysical data within the RLB is collected and subject to archaeological assessment or where activities such as ROV UXO investigations identify additional features.

5.4.10 All finds of archaeological material will be reported to the Retained Archaeologist/Nominated Contact by the Construction Contractor(s), in accordance with the PAD (see Sections 5.8, 9.0 and 10.0). The Retained Archaeologist will inform the Archaeological Curator(s) and the Applicant of all reports.

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

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

Altering Archaeological Exclusion Zones

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

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

Monitoring Archaeological Exclusion Zones

5.4.15 The effectiveness of the AEZs and TAEZs (as implemented) will be monitored by regular review by the Retained Archaeologist of vessel track plots and anchor spots supplied by the Applicant. This data will be reviewed monthly by the retained archaeologist, at a minimum.

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

5.4.17 On completion of the construction phase, the Retained Archaeologist will compile a report on the effectiveness of the AEZs, any alterations to them and the results of monitoring.

5.5 Areas of Archaeological Potential

5.5.1 An Area of Archaeological Potential (AAP) serves to highlight the potential for material of archaeological interest to be identified in an area, following the collection of higher resolution or denser geophysical survey data. These could originate, for example, from the identification of a high concentration of magnetic anomalies, where the positions cannot be determined and with no correlating seabed feature. An AAP by itself carries no formal mitigation, i.e. an exclusion zone.

5.5.2 Although no AAPs are proposed at the time of writing, further data acquisition and review may result in the implementation of this mitigation measure.

5.6 Archaeological monitoring

5.6.1 The following Section sets out brief methodologies for monitoring, should this be required. Monitoring activities will be supported by a task-specific Method Statement, approved by the Archaeological Curator.

Marine or intertidal watching brief

5.6.2 The methodology for the landfall construction suggests that no watching brief would be required within the intertidal zone. The entry of the Horizontal Directional Drilling (HDD) will occur at the Transition Joint Bay (TJB) above MHWS and emerge within the marine zone below MLWS, passing beneath the intertidal zone (see Section 3.2.5 of Chapter 3: Project Description of the MEAp).

5.6.3 The requirement for marine watching briefs will be determined on an 'as needed' basis, to be informed by future revisions of this Outline WSI or task-specific Method Statements, in conjunction with the Applicant and Archaeological Curator.

Watching brief methods

5.6.4 If a watching brief is required, it would be conducted by a suitably qualified and experienced marine archaeologist, in line with the CIfA standards and guidance (Chartered Institute for Archaeologists, 2023). A detailed Method Statement would also be produced and approved by the Archaeological Curator before any watching brief activities are undertaken.

5.6.5 Development activities will include provision for sampling of features and deposits to recover artefacts, ecofacts and dating evidence, to determine stratigraphic relationships. Recording will include written, drawn and photographic elements, as conditions allow.

5.6.6 Where appropriate, sieving of bulk environmental samples will be undertaken to enhance levels of artefact recovery. Bulk soil samples may be taken specifically for artefact recovery. Any finds will be collected and allocated a record number and their position will be logged.

5.6.7 Suitable time will be allowed and resources made available within the construction programme for each such intervention.

5.6.8 If significant archaeological or palaeoenvironmental deposits are encountered, the Applicant, in consultation with the Archaeological Curator, will make provision for the Archaeological Contractor to undertake a programme of investigation commensurate with the evidence discovered.

Recording and reporting

5.6.9 A site plan at an appropriate scale will be annotated with the position of areas observed in relation to the construction footprint and provided to the relevant Contractors. The plan will show the location of features observed and recorded during the investigations. The site plan should include a note of the position-fixing method and the accuracy achieved.

5.6.10 The basic record of each feature/structure identified during the watching brief should include:

- A full photographic record;
- Drawn record (plans and sections);

- Position in three dimensions; and
- A written description including initial interpretation and contextual relationships.

5.6.11 Positions will be related to a single, and agreed, Coordinate Reference System (CRS), typically this will be ETRS89 UTM Zone 30N.

5.6.12 The archaeological results will be compiled in a report by the Archaeological Contractor, in accordance with CIfA requirements and in accordance with reporting procedures set out in Section 7.2.

5.7 General archaeological practices

5.7.1 During all phases of the Proposed Development, archaeological finds and deposits may be encountered and records may need to be produced. This situation may arise under various circumstances, for example, during watching brief activities. Where it does arise, the following general methods will be employed.

Survey and recording

5.7.2 All finds and seabed archaeological deposits will be recorded using a *pro forma* recording system operated by the Retained Archaeologist or appointed Archaeological Contractor, and a running matrix of assigned contexts will be maintained for each site.

5.7.3 A full photographic record will be maintained using video and digital stills photography. The photographic record will illustrate both the detail and the general context of the principal features, finds excavated and the site as a whole.

Positioning

5.7.4 Surveys will be carried out to a single, and agreed, CRS, typically this will be ETRS89 UTM Zone 30N.

Finds and conservation

5.7.5 Objects relating to human exploitation of the area that may be identified during the Proposed Development will be recovered by the Archaeological Contractor or recorded, where recovery is impracticable. All finds will be recorded by context and significant objects ('special finds') in three dimensions using a sequence of unique numbers.

5.7.6 Finds and other items of archaeological interest recovered offshore during investigation are the property of The Crown Estate Scotland, as the landowner, with the exception of:

- All human remains;
- Items that are 'treasure' for the purposes of the Treasure Trove system (relevant in the intertidal zone); and
- 'Wreck', for the purposes of the Merchant Shipping Act 1995.

5.7.7 The Applicant will seek permission from the landowner to donate finds to an appropriate museum service prior to depositing the archive.

5.7.8 In the event of the discovery of items that fall under the Treasure Trove system, the Contractor will immediately notify the Retained Archaeologist, who will notify the local Treasure Trove Unit within 14 days. The Applicant and the Archaeological Curator will be notified as soon as

possible. Items falling under the Treasure Trove system will be removed from the site by the Archaeological Contractor and stored in a secure location, pending a decision by the Coroner.

5.7.9 All archaeological artefacts and material derived from a vessel or site of a vessel (such as if the vessel has deteriorated) are considered to meet the definition of 'wreck' for the purposes of the Merchant Shipping Act 1995. For all articles of wreck recovered during the Proposed Development, the Retained Archaeologist, with the approval of the Applicant, shall notify the Receiver of Wreck within 28 days of recovery.

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

5.7.11 Any finds and environmental samples will be processed according to professional standards for finds analysis, environmental sampling and archive preparation and in accordance with the CIfA's *Standard and Guidance for the collection, documentation, conservation and research of archaeological materials* (Chartered Institute for Archaeologists, 2014) and *Standard and Guidance for the Creation, Compilation, Transfer and Deposition of Archaeological Archives* (Chartered Institute for Archaeologists, 2014).

5.7.12 Finds will be primarily conserved, bagged and boxed in accordance with guidelines set out in the United Kingdom's Institute for Conservation's Conservation Guidelines No 2 (Institute of Conservation, 1984). In consultation with the Applicant and the Archaeological Curator, the Retained Archaeologist will advise on the implementation of passive conservation for smaller objects pending more detailed conservation strategies. The Applicant will also make provision for a professional conservator to undertake a conservation assessment of assemblages, including recommendations and timescales for the conservation of the object.

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

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

Human remains

5.7.15 In the event of the discovery of any confirmed human remains, the Construction Contractor or Archaeological Contractor will immediately inform the Retained Archaeologist. The Retained Archaeologist will inform the Applicant, who shall inform the Archaeological Curator and the local Police who will inform the Coroner. Should the Police propose not to investigate the remains, the Retained Archaeologist shall contact the Ministry of Justice to obtain the relevant licence.

5.7.16 It is proposed that any such remains will be left *in situ* until the Applicant, the Police and the Archaeological Curator have been informed and an onward decision made. Where Proposed Development activities will unavoidably result in disturbance, remains will be fully recorded, excavated and removed from the site subject to compliance with the relevant Ministry of Justice Licence for such activities, which will be obtained by the Retained Archaeologist.

5.7.17 The final placing of human remains following analysis will be subject to the requirements of the Ministry of Justice Licence.

5.7.18 Any human remains encountered in association with suspected aviation wreck shall be managed as laid out in Section 5.9.

5.8 Protocol for reporting finds of archaeological interest

5.8.1 A protocol for reporting finds of archaeological interest will be implemented during all activities relating to construction, operation, maintenance and decommissioning. It will address the reporting of unexpected finds of archaeological material, recovered from the sea during these activities.

5.8.2 The protocol will largely follow the format laid down in the document *PAD: Offshore Renewables Projects* (The Crown Estate, 2014). The Retained Archaeologist will operate to administer the Protocol for Archaeological Discoveries (PAD), provide initial advice to the Applicant and will liaise with the Archaeological Curators, as necessary. The details of the PAD, including key roles and communication steps, are set out in Section 9.0.

5.8.3 Once agreed by the Applicant and the Archaeological Curator(s), the PAD with its *pro forma* reporting form (Section 9.0: Appendix B: Protocol for archaeological discoveries: preliminary record form) will be distributed in a form suitable for use onboard construction vessels. The Applicant will ensure that the relevant staff on all construction vessels are informed of and have access to the PAD, including supporting material, detailing the find types that may be of archaeological interest and the potential importance of any archaeological material encountered.

5.8.4 All finds of archaeological material will be reported by the Construction Contractor(s) to the Retained Archaeologist/Nominated Contact, who will inform the Applicant and then the Archaeological Curator. If the find is 'wreck', within the meaning of the Merchant Shipping Act 1995 (see paragraph 5.7.9 of this Outline WSI), the Retained Archaeologist/Nominated Contact will also make a report to the Receiver of Wreck. Full contact details for all relevant parties will be included in the PAD.

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

5.8.6 The PAD will be implemented by means of toolbox talks presented to the relevant vessel crews to ensure that all staff are made aware of what constitutes an appropriate find. The frequency and timing of these toolbox talks is determined in relation to ongoing activities. The PAD will be supported by a package of awareness training for the Applicant and its contractor's and sub-contractor's staff.

5.8.7 At the end of the construction phase, the Retained Archaeologist will prepare a report on the results of the PAD. The results will be included in the final archaeological report in the section covering maritime sites and finds within the area affected by the Proposed Development.

5.9 Crashed aircraft procedures

5.9.1 The marine archaeology baseline assessment identified a very low to negligible potential for the remains of crashed aircraft to occur within the RLB. This Section sets out the specific procedures to be followed in the unlikely event that remains of an aircraft are identified during the construction or operational phases of the Proposed Development.

5.9.2 Most aircraft wrecks are military and so fall under the legal protection of the Protection of Military Remains Act 1986. Archaeological Contractors should refer to guidance outlined in *Collaborative Offshore Wind Research into the Environment* (COWRIE) *Historic Environment Guidance* (COWRIE, 2007), *Draft Interim Guidance on the use of the Protocol for Reporting Finds of Archaeological Interest in relation to Aircraft Crash Sites at Sea* (Wessex Archaeology, 2008) and *Military Aircraft Crash Sites: Archaeological guidance on their significance and future management* (English Heritage, 2002).

5.9.3 Any finds that are suspected of being military aircraft will be reported immediately to the Retained Archaeologist. The Applicant will be informed, as well as the Service Personnel and Veterans Agency (SPVA: Joint Casualty and Compassionate Centre (JCCC) – SO3 Historic Casualty Casework). The Retained Archaeologist should seek specialist advice for the identification of aircraft remains, where necessary.

5.9.4 Any subsequent actions will be guided by *Crashed Military Aircraft of Historical Interest: Licensing of Excavations in the UK – Guidance Notes for Recovery Groups* (MoD and SPVA, 2007) and by advice received from the SPVA. In the case of a military aircraft being investigated under licence, any human remains will be reported immediately in accordance with paragraph 14 of the guidance. In the event of encountering suspected or likely human remains, these shall be left *in situ* and prevented from further disturbance until further notice (see paragraphs 5.7.15 to 5.7.18).

6.0 Methods for archaeological involvement in further work

6.1 Introduction

6.1.1 Archaeological involvement in further work is a key component in the ongoing process of assessing known and potential archaeological remains within the RLB, to ensure robust and proportionate mitigation for heritage assets which may be impacted.

6.1.2 A detailed Method Statement will be produced by the Retained Archaeologist, for agreement with and approval by the Applicant and the Regulator, in consultation with the Archaeological Curator, in advance of each archaeological element discussed below. Overviews of methods are given below. **Approval by the Archaeological Curator will be assumed if no response is received within 30 working days of submission of individual Method Statements.** These methods are in line with best practice guidance, set out within *Archaeological Written Schemes of Investigation for Offshore Windfarm Projects* (The Crown Estate, 2021).

6.2 Further surveys requiring archaeological involvement

6.2.1 Following the submission of this Outline WSI as part of the MEA, further pre-construction surveys will be undertaken, which will subsequently inform any revision to future renditions of the WSI. At the time of writing, the following planned surveys/activities will require archaeological involvement:

- Archaeological review of additional geophysical/hydrographic data acquired during pUXO surveys prior to construction.

6.2.2 In addition, any data gaps identified will be addressed by the acquisition of suitable data and archaeological review of this. The baseline and impacts for marine archaeology will subsequently be amended, as appropriate.

6.2.3 Further surveys requiring archaeological involvement may include:

- Geophysical survey: requiring archaeological assessment of the survey dataset;
- UXO target investigation: requiring archaeological assessment of the survey dataset (video and positional data; investigation may involve remote and / in-person archaeological attendance); and
- Diver/ROV obstruction surveys: requiring archaeological assessment of the survey dataset (video and positional data).

6.2.4 Should archaeological material be encountered by these works, sufficient time and resources will be made available to ensure the archaeological assessment of such material. In areas where there are to be further impacts, no impacts will take place until the assessment has been conducted and mitigation actions agreed and implemented. The scope of any further assessment will be agreed with the Archaeological Curator and, where necessary, further suitable mitigation measures will be instigated in agreement with the Archaeological Curator.

6.2.5 A staged process of geoarchaeological analysis has been undertaken and the preliminary results made available to inform this Outline WSI. Four samples acquired through geotechnical investigation were identified by Stage 1 as of geoarchaeological interest. Stage 2 concluded limited interest in further analysis and recommended no further investigation. Additional

geoarchaeological assessment is unlikely to be required, however, should deposits of interest be identified through archaeological review of data or other methods, the WSI shall be amended as appropriate or a suitable Method Statement appended to inform on the archaeological involvement.

6.3 Planning surveys

6.3.1 When planning geophysical and geotechnical surveys, the Applicant will advise the Retained Archaeologist in advance of survey commencement with suitable lead-in time for discussion and to seek their input into the scope of work. Archaeological input will take the form of advice from the Retained Archaeologist on measures to optimise archaeological results from the planned geotechnical, geophysical and other surveys or work (such as benthic grabs). Areas to be considered will include:

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

6.3.2 The required response to elements of archaeological input may include:

- Altering vibrocore/borehole positions to maximise the potential for the collection of archaeological/palaeoenvironmental data;
- The collection of higher resolution geophysical data in areas of direct impact;
- 'Boxing' wreck sites, to provide the best possible images and positional data; and/or
- Altering grab sample positions to maximise the potential for the collection of archaeological data.

6.4 Fieldwork

6.4.1 Where further survey work has as one of its objectives the ensonification of previously identified sites and/or anomalies to alter or remove an AEZ, the Applicant will make provision for a suitably qualified Archaeological Geophysical Contractor (which may be the Retained Archaeologist) to be available to provide advice and input into the survey and as the survey is ongoing. In some cases, this may include the presence of the Retained Archaeologist on the vessel alongside the vessel crew or, in most cases, this advice may be given remotely. In all cases, the archaeologist will ensure that the best possible data is collected for those anomalies subject to review.

6.5 Archaeological assessment of marine geophysical survey data

6.5.1 New marine geophysical data that covers areas of development impact and AEZs will be subject to analysis by a suitably qualified Archaeological Geophysical Contractor (the Retained Archaeologist, if suitable). Any such assessment will be preceded by a Method Statement which will set out in detail the methods to be used, along with the aims and objectives of the work. The Method Statement will be submitted to the Regulator, in consultation with the Archaeological Curator, prior to the work being conducted. Approval by the Archaeological

Curator will be assumed if no response is received within 30 working days of submission of individual Method Statements.

6.5.2 The Applicant will seek archaeological input at the planning stage of any such works, to maximise the potential benefits of any geophysical survey.

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

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

6.5.5 Archaeological interpretation may include:

- Examination of SSS, magnetometer, MBES and seismic data, where acquired, for areas within the vicinity of known wreck sites and previously identified geophysical anomalies;
- Examination of SSS, magnetometer, MBES and seismic data, where acquired, within areas that will be subject to development to identify any as yet unknown wreck remains; and
- Assessment of seismic data and the geotechnical interpretation report to plot the general trend of the subsurface sediments with archaeological potential.

6.5.6 An example of the criteria for assessing the archaeological potential of geophysical contacts is set out in Table 6, below.

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

Table 6: MSDS criteria for the assessment of potential.

6.5.7 The archaeological interpretation or findings of any further geophysical surveys will be compiled as a report by the Archaeological Contractor and will include likely requirements (if

any) for further work or any required changes to mitigation including the addition, removal or alteration of AEZs. The report will be submitted to the Applicant by the Retained Archaeologist and to the Archaeological Curator. The scope of any further work will be agreed by the Applicant and the Archaeological Curator.

6.6 Archaeological assessment of diver/ROV survey data

6.6.1 Seabed photography and video footage (including that acquired during UXO target investigation) will be subject to archaeological assessment and analysis by a suitably qualified Archaeological Contractor. Any such assessment will be preceded by a Method Statement which will set out in detail the methods to be used, along with the aims and objectives of the work. The Method Statement will be submitted to the Regulator, in consultation with the Archaeological Curator, prior to the work being conducted. **Approval by the Archaeological Curator will be assumed if no response is received within 30 working days of submission of individual Method Statements.**

6.6.2 The Applicant will seek archaeological input at the planning stage of any such works, to maximise the potential benefits of any proposed diver/ROV surveys.

6.6.3 Archaeological input will take the form of advice from the Retained Archaeologist on measures to optimise archaeological results from the planned survey. Advice will include:

- Available details of sites and/or anomalies identified in the marine archaeology baseline assessment;
- The archaeological potential of areas where no existing sites and/or anomalies are yet known;
- The type and level of diver/ROV positioning, voice recording and video/still recording to be utilised;
- The provision of clear guidance on the types of sites and finds that are to be reported and recorded;
- Input into the scope of works to include potential archaeological sites/AEZs where more detailed mitigation planning is required, wherever possible; and
- Other specific advice, given depending on the nature and purpose of the investigations. All such areas would be outlined within the Method Statement for the work.

6.6.4 Consideration will be given to having an Archaeological Contractor (or archaeological team) present during any diver or ROV surveys, either as an observer(s) or participating diver(s), to optimise archaeological results and reduce the need for repeat survey. However, operational constraints as well as the relevance and scope of the operation, will have to be considered when trying to accommodate archaeologists aboard.

6.6.5 Following the completion of the diver/ROV survey, all data, including video footage, will be reviewed by the Archaeological Contractor. This review will identify any anomalies or sites that are potentially of archaeological interest. A report will identify those sites and/or geophysical anomalies that are of sufficient archaeological interest to warrant further investigation and/or mitigation. It will also identify those sites that are no longer of archaeological interest and hence may be removed from the list of AEZs.

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

6.6.7 The report will be forwarded to the Retained Archaeologist, who will submit it to the Applicant and the Archaeological Curator for a decision on the scope of any further work where required.

7.0 Activities subsequent to investigations

7.1 OASIS V

7.1.1 In late 2020, the Online Access to the Index of Investigations (OASIS) version V was launched by the Archaeological Data Service (ADS). OASIS is an online form which allows for archaeological investigations to be reported to regional HERs and national heritage bodies. The system also allows for reports to be shared for public release through the ADS library. Reporting through OASIS has been incorporated within this WSI, in line with best practice.

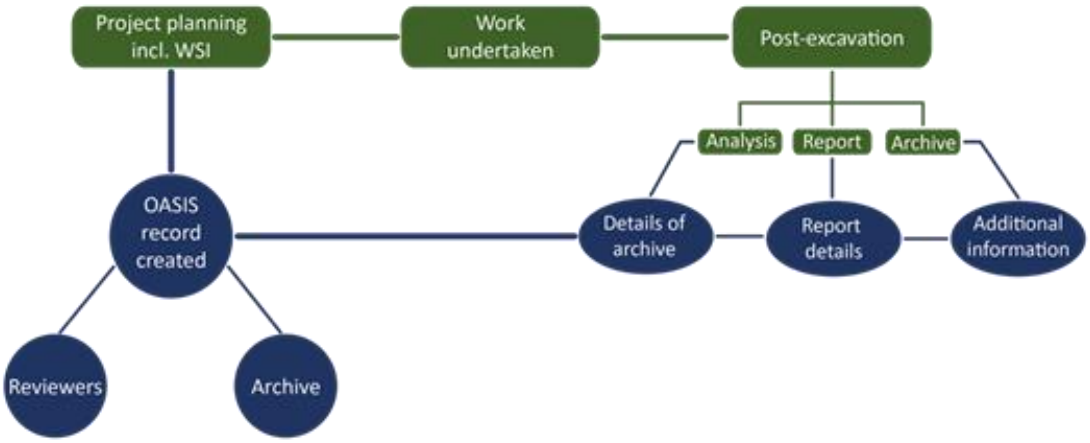

Figure 9: OASIS V procedure and standard archaeological workflow.

7.1.2 In contrast to previous iterations of OASIS, OASIS V is a new, flexible system that is kept live throughout the course of a project. An overview of the new system is set out in Figure 9. The new system recommends that an overarching OASIS record be established at project inception (for example on receipt of marine licences and production of a WSI).

7.1.3 An OASIS record will therefore be set up following receipt of consent, to notify the relevant authorities of future work that is taking place. The Applicant must then ensure that an archaeological report is agreed with and submitted to MD-LOT and the Archaeological Curator following completion of any survey and subsequent investigation. The Applicant must then ensure that a copy of the agreed archaeological report is submitted through the OASIS form within two weeks of acceptance by the Archaeological Curator and MD-LOT. Sign off on the OASIS record will be by the Archaeological Contractor, who are responsible for administering the OASIS reporting system. The Applicant should notify MD-LOT that the OASIS report has been submitted within two weeks of the submission.

7.2 Reports

7.2.1 Reports should be prepared in accordance with the guidance provided in the relevant CIfA Standard and Guidance documents (see http://www.archaeologists.net/codes/cifa) and with reference to any other activity or analysis specific guidance. Reports will also satisfy all requirements set out within the relevant Method Statement covering the work package.

7.2.2 The timetable for depositing archives with the receiving institution after completion of the post-fieldwork programme will be set out in the relevant Method Statement.

7.2.3 If little of significance is found during construction, a final report on the investigative work will be prepared by the Archaeological Contractor within six weeks of completion of all construction activities.

7.2.4 If significant archaeological sites and finds are recorded, the final report will be preceded by the submission to the Retained Archaeologist by the Archaeological Contractor of investigation reports following the completion of fieldwork.

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

7.2.6 Reports are expected to detail the work undertaken and the archaeological evidence encountered. They should discuss the importance of the results including their potential contribution to archaeological knowledge and understanding, including relevant research frameworks.

7.2.7 In accordance with guidance issued by the Crown Estate (The Crown Estate, 2021), reports will typically include:

- A non-technical summary;
- The aims and methods of the work;
- The results of the work including finds and environmental remains;
- A statement of the potential of the results;
- An explanation of how this work is relevant to the objectives and research agendas from applicable local and national archaeological research frameworks;
- Proposals for further analysis and publication; and
- Illustrations and appendices to support the report.

7.2.8 Where appropriate, the report should provide recommendations for further assessment and/or analysis requirements.

7.2.9 The Applicant will provide a digital (pdf) copy of each report to the Archaeological Curator and MD-LOT (as appropriate), following survey completion.

7.2.10 Decisions regarding the level of post-excavation work, if required, will be taken following submission of investigation reports and consultation by the Applicant and the Retained Archaeologist with the Archaeological Curator.

7.2.11 Following the production and acceptance of archaeological reports, these will be deposited with the relevant repositories by submitting an OASIS form with a digital copy of the report.

7.3 Publication

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

7.4 Archives

7.4.1 Archive planning will be included within detailed Method Statements for each activity undertaken. Archiving will follow best practice as laid out within:

- *Archaeological Archives: A guide to best practice in creation, compilation, transfer and curation* (Brown, 2011);
- *Standard and Guidance for the Creation, Compilation, Transfer and Deposition of Archaeological Archives* (Chartered Institute for Archaeologists, 2014); and
- *Archaeological Written Schemes of Investigation for Offshore Windfarm Projects* (Section 13.5: Archiving) (The Crown Estate, 2021).

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

7.4.3 Where there is the likelihood of any archaeological fieldwork, the Retained Archaeologist will contact an appropriate receiving institution to discuss the intended fieldwork and seek its agreement to accept the site archive for long-term storage and curation. The Retained Archaeologist will consult the receiving institution regarding its policy on the selection, retention and disposal of excavated material and to confirm the requirements in respect of the format, presentation and packaging of archive records and materials. A museum accession number will also be sought on each occasion. For offshore digital data, it may be appropriate to archive this with a Marine Environment Data and Information Network (MEDIN) Data Archive Centre (DAC).

7.4.4 Project archives, including written, drawn, photographic and material elements (together with a summary of the contents of the archive), will be prepared and deposited by the Retained Archaeologist in accordance with the requirements of the receiving repository.

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

7.4.6 Born-digital records, including digital photographs, will be stored and deposited in accordance with guidelines issued by the receiving repository, CIfA (Chartered Institute for Archaeologists, 2024) and the ADS (Archaeology Data Service, 2025).

7.4.7 The timetable for depositing archives with the receiving repository after completion of the post-fieldwork programme will be agreed with the Applicant and Archaeological Curator.

7.4.8 On completion of the scheme, an OASIS form will be produced, and copies of all archaeological reports will be attached as data files. Notification of the completion of the OASIS form will be sent to Archaeological Curator and MD-LOT (where appropriate).

7.4.9 The costs of archiving (whether digital, paper or object) will be met by the Applicant. Tenders or costings by contractors for work packages should include provision for the preparation and deposition of the expected archive.

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9.0 Appendix A - Protocol for reporting finds of archaeological interest

9.1 Purpose of the document

9.1.1 This section sets out the procedure for reporting discoveries of potential archaeological interest made during construction, operation and maintenance and decommissioning activities associated with the Proposed Development.

9.1.2 The aim of the protocol for reporting finds of archaeological interest is to reduce any adverse effects of the development upon the historic environment by enabling people working on the Proposed Development to report their finds in a manner that is both convenient to their every-day work and effective regarding curatorial requirements.

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

9.2 Protocol details and version

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

9.3 Circumstance of discovery

9.3.1 This PAD addresses finds of archaeological interest made on the seabed, intertidal zone or on-board vessels during a wide range of activities associated with construction, operation and maintenance and decommissioning of the Proposed Development.

9.4 Scope of the protocol

9.4.1 The Applicant will employ a Retained Archaeologist to provide archaeological consultancy and to liaise with and report as appropriate to the Contractors, the Applicant and the Archaeological Curator.

9.5 Operations of the protocol

Introduction

9.5.1 The PAD has been designed to allow Applicants to report unexpected finds of archaeological interest made on the seabed during the course of development works. A series of actions is defined for such cases.

9.5.2 The Protocol anticipates that discoveries made by project staff are reported to the Site Champion (e.g. Vessel Master or Site Foreman) on their vessel or site, who would then report to the Nominated Contact (the Retained Archaeologist is the recommended Nominated Contact).

9.5.3 The Retained Archaeologist will liaise with the Applicant and the Archaeological Curator, along with any additional relevant stakeholders depending on the nature and significance of the find, and planned activities within the area. Additional mitigation may be recommended depending on the nature of the find.

Terms and roles

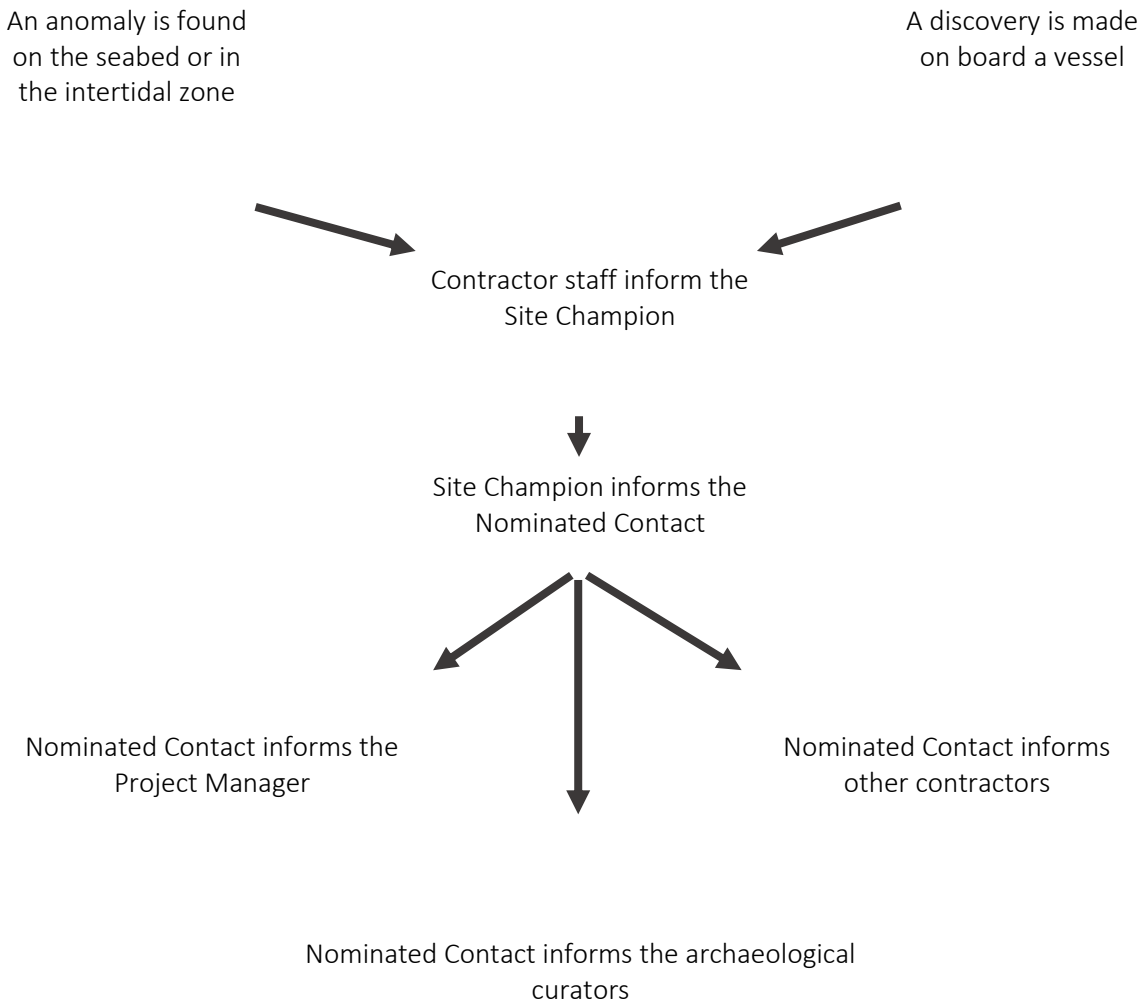

Figure 10: PAD process and roles.

9.5.4 A summary of the key roles and steps in the PAD process are set out in Figure 10.

9.5.5 On the vessel or site, the person responsible for reporting anomalies or finds will be the Site Champion. Anomalies or finds will be brought to the attention of the Site Champion by the Contractors or Project Staff. The Site Champion will inform the Nominated Contact (who can be the Retained Archaeologist).

9.5.6 The Retained Archaeologist can provide specialist advice on finds identification, assessments of significance, and technical support services relating to the mitigation of the impacts of the Proposed Development on the historic environment[3].

9.5.7 The Retained Archaeologist, along with the Applicant and their contractors, shall draw to the attention of all relevant staff the potential for archaeological material to be found during survey and inform them of the possible importance of such finds.

9.5.8 Personnel working on the Proposed Development will be briefed on the Protocol for Archaeological Discoveries and copies of this Protocol will be available onboard the survey vessels and on all sites.

Legal implications

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

9.5.10 Furthermore, all items of 'wreck' are reportable to the Receiver of Wreck under the terms of the Merchant Shipping Act 1995. Appropriate finds will be reported to the Receiver of Wreck within the required timescales (28 days) by the Retained Archaeologist, thereby satisfying this legal requirement under section 236 of the Merchant Shipping Act (1995).

9.6 Guidelines for identifying and handling finds

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

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

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

[3] Note, the Crown Estate (2014) Protocol for Archaeological Discoveries includes an additional step whereby the report is passed to the Implementation Service who provide additional support on identification and input into mitigation. This Service is run by an archaeological contractor. The Retained Archaeologist, who has access to all project datasets and typically has a strong understanding of the archaeological potential of the area, along with specialists in maritime archaeology, is best placed to give this advice. As such there is no need for the inclusion of the additional step of corresponding with the Implementation Service, who do not have access to the up-to-date project data. They will therefore not be included within the Protocol for Archaeological Discoveries implemented during this project. The 2021 Crown Estate guidance on Archaeological Written Schemes of Investigation, which post-dates the 2014 PAD guidance, indicates that although the 2014 guidance sets out one protocol, others can also be used and further states that the 2014 guidance can be used to 'support the development of a protocol for any OWF project' (Crown Estate, 2014: 42). The approach set out here is therefore in line with existing guidance

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

9.6.5 General advice for finds handling and storage is:

- ⊕ Handle all finds carefully;
- ⊕ Photograph all sides of a find with a scale;
- ⊕ Take close up photographs of any markings, glazing, or imagery;
- ⊕ Keep finds wet and ensure the water is changed regularly if biological growth is detected;
- ⊕ Keep finds cool and ideally in the dark;
- ⊕ Keep finds in protective containers where possible;
- ⊕ Label any finds;
- ⊕ Follow the information below on finds storage and contact the Retained Archaeologist if further advice is required;
- ⊗ Do not attempt to clean the find by removing any sediment build up, concretion, or marine life;
- ⊗ Do not allow finds to dry out; and
- ⊗ Do not handle finds more than necessary.

Metal

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

Iron and steel

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

Other metals

9.6.8 Items made of thin, tinned or painted metal sheet are unlikely to be of archaeological interest. Aluminium objects may indicate aircraft wreckage from World War Two, especially if two or more pieces of aluminium are fixed together by rivets. All occurrences should be reported and remains of this nature may be subject to the Protection of Military Remains Act 1986. Copper and copper alloy (bronze, brass) objects might indicate a wreck, or they may be very old. All occurrences should be reported. Precious metal objects and coins are definitely of archaeological interest because they are relatively easy to date. All occurrences should be reported (The Crown Estate 2014: 19).

Actions to take

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

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

9.6.11 Metals can sometimes be identified from the colour of their corrosion. Table 7 can be used to help identify the type of metal.

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

Table 7: Identification of metal corrosion.

Ceramics

9.6.12 Pottery can be made from china, porcelain, terracotta, earthenware and other clay-based materials. Typical finds might include crockery, ornaments, clay pipes, lamps, containers and tableware. Any fragment of pottery is potentially of interest, especially if it is a large fragment. Items which look like modern crockery can be discarded, but if the item has an unusual shape, glaze or fabric it should be reported (The Crown Estate, 2014). Additionally, clay pipes should be reported.

Actions to take

9.6.13 Photograph finds with a scale, especially if they have any glazing or markings. Store in saltwater.

Ceramic building material

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

9.6.15 Bricks with modern proportions and 'V'-shaped hollows ('frogs') are of no archaeological interest. Unfrogged, 'small', 'thin' or otherwise unusual bricks may date back to Medieval or even Roman times and should be reported (The Crown Estate, 2014). Occurrences of tile should also be reported.

Actions to take

9.6.16 Photograph finds with a scale, especially if they have any glazing or markings on them. Store in saltwater.

Stone

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

9.6.18 Small to medium size stones that are shaped, polished and/or pierced may be prehistoric axes. All occurrences should be reported. Objects such as axe heads or knife blades made from flint are likely to be of prehistoric date and should be reported. Large blocks of stone that have been pierced or shaped may have been used as anchors or weights for fishing nets. All occurrences should be reported. The recovery of numerous stones may indicate the ballast mound of a wreck, or a navigational cairn. All occurrences should be reported (The Crown Estate, 2014).

Actions to take

9.6.19 Photograph with a scale and then store in water or wrap in soaked towelling.

Skeletal material and faunal remains

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

9.6.21 Discoveries of animal bone, teeth and tusks are of archaeological interest because they may date to periods when the seabed formed dry land and should be reported. Such bones, teeth, tusks, etc. may have signs of damage, breaking or cutting that can be directly attributed to human activity. Large quantities of animal bone may indicate a wreck (the remains of cargo or provisions) and should be reported. Human bone is of archaeological interest and may, if buried and found within territorial waters, be subject to the provisions of the Burial Act 1857. Alternatively, it may be subject to the Protection of Military Remains Act 1986. Any suspected human bone should be reported and treated with discretion and respect.

9.6.22 Objects made of bone (such as combs, harpoon points or decorative items) can be very old and are of archaeological interest. All occurrences should be reported (The Crown Estate, 2014).

Actions to take

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

Wood

9.6.24 Wooden finds could be evidence of a wrecked vessel. Typical wooden finds might include small personal items (such as tools and bottle corks) or larger finds (such as ships timbers, furniture, chests, barrels, dwelling posts and wattle panels).

9.6.25 Light coloured wood, or wood that floats easily, is probably modern and is unlikely to be of archaeological interest. 'Roundwood' with bark (such as branches) is unlikely to be of archaeological interest, although it may provide paleo-environmental evidence. However, roundwood that has clearly been shaped or made into a point should be reported. Pieces of wood that have been shaped or jointed may be of archaeological interest, especially if fixed with wooden pegs, bolts or nails – all occurrences should be reported. Objects made of dark, waterlogged wood (such as bowls, handles, shafts, etc.) can be very old and are of archaeological interest. All occurrences should be reported (The Crown Estate, 2014).

Actions to take

9.6.26 Timber finds are often very fragile and so must be lifted with care. Photograph with a scale. Do not allow the wood to dry out and ensure that it has sufficient support to stop it falling apart and submerge it in seawater. Keep the find in a cool and dark area. Change the water if biological growth is detected e.g. algae or mould. If the find is too large to store in water, try to keep it damp and cool in a darkened area.

Peat and clay

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

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

Actions to take

9.6.29 Any sediments collected should be stored in a sealed container with seawater and keep cool. Do not try to break apart the deposits.

Fibre and Textiles

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

Actions to take

9.6.31 Due to the incredibly fragile nature, once any fibrous or textile find has been recovered it must be dealt with quickly. Take photographs with a scale, but do not use flash. Carefully place it in a sealed container. Try to keep it out of the light. If possible, keep the find in its original burial deposit e.g. the sediment it was found in, and seawater. This will help to protect the material.

Synthetics

9.6.32 In most cases, rubber, plastic, Bakelite and similar modern synthetic materials are not of archaeological interest and can be disregarded. One exception is where such materials are found in the same area as aluminium objects and structures, which may indicate aircraft wreckage. Such material should be reported (The Crown Estate, 2014).

Actions to take

9.6.33 Do not bend or clean any plastic or rubber finds. Photograph the find with a scale and then store in seawater in a cool and dark area.

Resinous or mineral substances

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

Actions to take

9.6.35 These finds might appear stable, but if they are not stored properly, they may begin to deteriorate. Photograph a find with a scale and keep stored in seawater.

Glass

9.6.36 Glass finds may include bottles, beads and panes of glass from ship's windows. Unless obviously modern (beer bottles, etc.), glass finds should be reported, particularly where it occurs alongside other finds, as this may represent a wreck site.

9.6.37 Glass is likely to survive in marine conditions, but it does degrade. Glass deterioration is usually categorised by leaching, with causes an iridescent pattern to form on the glass, it looks somewhat like an oil slick. It can also begin to flake away.

Actions to take

9.6.38 Photograph with a scale before packing carefully to avoid breakage. Ensure it is covered in cool seawater in the dark.

10.0 Appendix B: Protocol for archaeological discoveries: preliminary record form

Protocol for Archaeological Discoveries (PAD)			
Preliminary record form: discoveries on the seabed/on-board/in the intertidal zone/on land			
Company Name			
Vessel/Team Name			
Site/Sea Area Name			
Date			
Time of compiling information			
Name of compiler (Site Champion)			
Name of finder			
Time at which discovery was encountered			
Vessel position at time when anomaly was encountered			
Latitude		Longitude	
Datum (if different from WGS84)			
Original position of the anomaly on the seabed, if known			
Notes on likely accuracy on position stated above:			
How accurate is the position?			
Is the position the original position or has the material been moved by operations?			
Details of circumstances that led to the discovery			
Description of the find / anomaly			
Apparent size /extent of the anomaly			
Details of any find(s) recovered			
Details of any photographs, drawings of other records made of the find(s) e.g. location figure			
Details of treatment or storage of find(s)			
Date and time Nominated Contact informed			
General notes if discovered on the seabed:			
Derived from e.g. Obstacle Avoidance Sonar, Cable Tensiometer?			
Apparent size/ extent of anomaly (length, width, height above seabed)			
Extent of deviation/ route development			
Signed		Date	