Appendix 19.2: Marine Archaeology Written Scheme of Investigation and Protocol for Archaeological Discoveries

Array EIA Report

2024

Revision	Comments	Author	Checker	Approver
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CONTENTS

1. Introduction 1
   1.1. Background 1
   1.2. Project Description 2
   1.3. Aims and Objectives 2
2. Baseline 2
   2.1. Overview 2
   2.2. Submerged Prehistoric Archaeology 2
   2.3. Maritime and Aviation Archaeology 3
      2.3.1. Desk-Based Study 3
      2.3.2. Site-Specific Survey Data 3
3. Responsibilities and Communcations 5
   3.1. Introduction 5
   3.2. Contacts 5
   3.3. Responsibilities 5
      3.3.1. The Applicant 5
      3.3.2. Retained Archaeologist 6
      3.3.3. Archaeological Contractors 6
      3.3.4. Construction Contractors 6
      3.3.5. Archaeological Curator 6
4. Pre-Construction Geophysical and Geotechnical Surveys 6
   4.1. Introduction 6
      4.1.1. Health and Safety 6
   4.2. Planning 7
   4.3. Geophysical Survey 7
      4.3.1. Survey Specifications 7
      4.3.2. Interpretation 7
   4.4. Geotechnical Surveys 8
   4.5. Provisional Programme 8
5. Pre-Construction Remotely Operated Vehicle Surveys 8
   5.1. Non-Archaeological Remotely Operated Vehicle Surveys 8
   5.2. Archaeological Remotely Operated Vehicle Surveys 9
6. Archaeological Exclusion Zones 9
7. Temporary Archaeological Exclusion Zones 10
8. Low Archaeological Potential Contacts 10
9. Mitigation of Unavoidable Direct Impacts on Known Sites 11
   9.1. Overview 11
10. Protocol for Archaeological Discoveries 11
   10.1. Overview 11
   10.2. Approach to Finds 12
      10.2.1. Discovery of Artefacts 12
      10.2.2. Human remains 12
      10.2.3. Objects 12
      10.2.4. Discovery of Aviation Material 12
      10.2.5. Discovery of Wreck 12
      10.2.6. Environmental Evidence 13
11. Reporting 13
   11.1. Overview 13
   11.2. Publication 13
   11.3. Archives 13
12. Monitoring and Reviewing the WSI and PAD 13
13. References 15

Annex A: Protocol for Archaeological Discoveries 16
Annex B: Vessel and Installation Equipment Specifications and Project Organisation Chart 16
Annex C: Archaeological Discoveries: Example Preliminary Record Form 16
Annex D: Low Potential Archaeological Anomalies 16

TABLES

Table 3.1: Relevant Parties and Contact Details for Archaeological Works and Discoveries. 5

Table 4.1: Overview of Pre-Application and Pre-Development Offshore Geophysical and Geotechnical Survey for the Array.....8

Table 6.1: Proposed Archaeological Exclusion Zones Within the Array.....9

FIGURES

Figure 1.1: Array Location and Marine Archaeology Study Area.....1

Figure 2.1: Marine Archaeology Identified Within the Marine Archaeology Study Area 4

Figure 2.2: Marine Archaeology Survey Area and Marine Archaeology Study Area 4

Figure 2.3: Distribution of Medium and High Potential Geophysical Contacts Within the Marine Archaeology Survey Area.....5

Figure 6.1: Distribution of Proposed AEZs Within the Array (Proposed AEZs Not to Scale).....10

Figure 8.1: Distribution of Geophysical Contacts with Low Archaeological Potential Within the Marine Archaeology Survey Area 11

1. INTRODUCTION

1.1. BACKGROUND

1. Ossian Offshore Wind Farm Limited (Ossian OWFL) (hereafter 'the Applicant') is a joint venture between SSE Renewables (SSER), Copenhagen Infrastructure Partners (CIP) and Marubeni Corporation (Marubeni). The Applicant is developing Ossian, an offshore wind farm project within the E1 Plan Option (PO) Area awarded by Crown Estate Scotland (CES) as part of the ScotWind Leasing Round.

2. Ossian includes both the offshore and onshore infrastructure required to generate and transmit electricity from the offshore infrastructure to an onshore grid connection point. The Applicant is seeking consent to develop the offshore components of Ossian Array (hereafter referred to as 'the Array').

3. In March 2024, as part of the Holistic Network Design Follow Up Exercise (HNDFUE), the National Grid Electricity System Operator (ESO) published their Transitional Centralised Strategic Network Plan (TCSNP) in the 'Beyond 30' report (National Grid, 2024). Within this publication, it was confirmed that Ossian will be offered two grid connections in Lincolnshire, one at Weston Marsh and one at the Lincolnshire Connection Node. Separate consent applications will be submitted for the Proposed offshore export cable corridor(s) and the Proposed onshore transmission infrastructure (including Proposed onshore export cable corridor(s) and the Proposed onshore convertor station(s); landward of Mean Low Water Springs (MLWS)) once the grid connection location has been identified. The Proposed offshore export cable corridor(s) and Proposed onshore transmission infrastructure will be considered within the Cumulative Effects Assessment (CEA) of the Array Environmental Impact Assessment (EIA) Report (as appropriate) to comply with the EIA Regulations.

4. RPS has been commissioned to prepare an Archaeological Monitoring and Mitigation: Outline Written Scheme of Investigation (WSI) and Protocol for Archaeological Discoveries (PAD) (hereafter referred to as the outline WSI and PAD) for the Array. This outline WSI and PAD detail the principles to be implemented to ensure the protection of marine archaeological receptors through all three phases of the Array (construction, operation and maintenance, and decommissioning). The measures within this outline WSI and PAD encompass the range of development options under consideration for the Array to allow post-consent flexibility in the final design.

5. The outline WSI and PAD will be monitored and updated throughout the lifetime of the development to ensure that the outline WSI and PAD are appropriate for all activities associated with the Array. The outline WSI and PAD will continue to be developed in consultation with Historic Environment Scotland (HES) and will be submitted to Marine Directorate - Licensing and Operations Team (MD-LOT; as the licensing authority) for approval, prior to construction.

6. The combined outline WSI and PAD and the Marine Archaeology Technical Report are standalone documents. The Marine Archaeology Technical Report (volume 3, appendix 19.1) is provided with the Array application as an 'accompanying document' to ensure that the archaeological baseline that corresponds to the WSI is available to consultees.

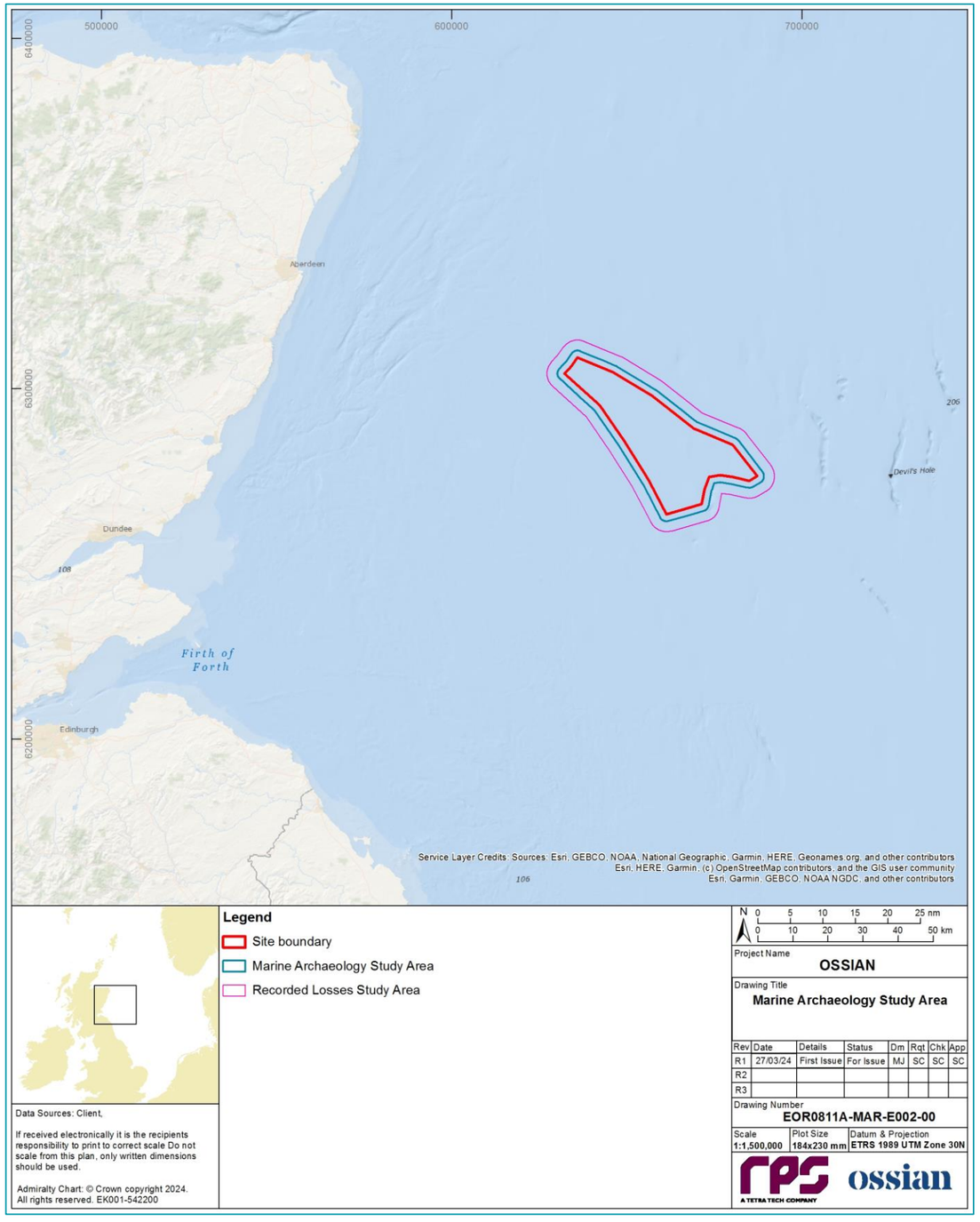

Figure 1.1: Array Location and Marine Archaeology Study Area

1.2. PROJECT DESCRIPTION

7. The offshore elements of the Array of relevance to this outline WSI and PAD relate to:

- site preparation activities;
- wind turbine generators;
- floating foundations and associated moorings and anchoring systems;
- Offshore Substation Platforms (OSPs);
- fixed bottom foundations for the OSPs;
- inter-array cables connecting the turbines to the OSPs;
- interconnector cables connecting the OSPs to each other; and
- scour protection and cable protection.

8. The Array will be located approximately 80 km south-east of Aberdeen, Scotland, with an area approximately 858 km^2 (Figure 1.1). A maximum of 265 wind turbines supported on floating foundations (including associated mooring and anchoring systems) will be installed within the Array. Up to three large OSPs and up to 12 smaller OSPs and associated fixed bottom foundations will be installed within the Array. Subsea dynamic/static inter-array cables will connect wind turbines to each other and to the OSPs. Interconnector cables will connect the OSPs to each other.

1.3. AIMS AND OBJECTIVES

9. The aim of this outline WSI and PAD is to present the archaeological mitigation measures to be undertaken by the Applicant prior to and throughout the construction, operation and maintenance, and decommissioning phases of the Array. The outline WSI and PAD is informed by pre-application consultation with HES (reported in volume 2, chapter 19) and the baseline review of known and potential archaeology within the marine archaeology study area (Figure 1.1) outlined in volume 3, appendix 19.1.

10. The objectives of the outline WSI and PAD are as follows:

- to fulfil the requirements of the Archaeological Curator (AC) in respect of archaeological monitoring and mitigation of works associated with the Array;
- to establish the exact position and extent of any Archaeological Exclusion Zones (AEZs) and Temporary Archaeological Exclusion Zones (TAEZs);
- to ensure consultation with archaeologists on all elements of the Array's design that have the potential to impact archaeological sites and materials;
- to ensure that any further geophysical and geotechnical investigations associated with the Array are subject to archaeological input, review, recording and sampling where required;
- to ensure archaeological involvement in any proposed remotely operated vehicles (ROVs) obstruction surveys conducted within the Array;
- to propose measures for the mitigation of archaeological remains encountered during further geophysical survey and/or geotechnical sampling or investigations, or during construction work associated with the Array; and
- to establish the reporting and archiving requirements for the archaeological works undertaken during all phases of the Array and post-construction monitoring.

11. The best practice guidance for Archaeological Written Schemes of Investigation for Offshore Wind Farm Projects (The Crown Estate, 2021) indicates that a WSI should "*set out the importance of research frameworks in setting objectives that are delivered through realisation of the work*". The Marine Archaeology Technical Report, and this outline WSI and PAD, were developed in line with the research objectives identified by the Scottish Archaeological Research Framework (ScARF) (ScARF, 2012). Regional research frameworks for the maritime regions of eastern Scotland, namely the Perth and Kinross Archaeology Research Framework (PKARF) (Perth and Kinross Heritage Trust, 2022). Other regional or practice specific frameworks may be deemed relevant, depending on specific packages of work undertaken.

12. Archaeological work and reporting under the WSI shall tie those outcomes into the relevant research frameworks to ensure the knowledge dissemination to those areas where there is a demonstrable need for further understanding. The identified objectives derived from relevant research frameworks will be used to guide the advice from the Retained Archaeologist (RA) to the Applicant.

13. Connections between the relevant research frameworks, site-specific investigation aims and objectives, and specific work packages will be identified within the Method Statements (MS) supplied before the onset of any archaeological work. The connection with the specific work package to be undertaken, and the relevant research framework, aims and objectives, will be identified within the MSs which will proceed archaeological work. The MS will also explain how the work package will be tied to the identified research frameworks during Online Access to the Index of Archaeological Investigations (OASIS) reporting.

2. BASELINE

2.1. OVERVIEW

14. A baseline review of known and potential archaeological assets within the marine archaeology study areas defined for the Array has been undertaken (as reported in volume 3, appendix 19.1). The marine archaeology study area comprises the Array with an added 2 km buffer, resulting in an overall study area of 1,173 km^2. An additional recorded losses study area was implemented and is defined as the Array with an added 5 km buffer resulting in an overall study area of 1,689.6 km^2. The following archaeological assets were identified within the marine archaeology study area:

- known wrecks;
- recorded shipping and aviation losses;
- possible unknown and undocumented wrecks from various periods;
- possible stray finds of shipborne debris from various periods; and
- geophysical anomalies that appear to be wreck sites or wreck debris.

15. A summary of the baseline environment is outlined in the following sections (full details are presented within volume 3, appendix 19.1).

2.2. SUBMERGED PREHISTORIC ARCHAEOLOGY

16. No prehistoric archaeological material has been recorded within the marine archaeology study area to date and it is unlikely that any archaeological material from the Palaeolithic and/or Mesolithic periods will survive within the marine archaeology study area due to the effects of repeated glaciations, marine transgressions and associated fluvial activity.

17. The potential for submerged terrestrial landscapes is very low. The Main Lateglacial Shoreline established during the Loch Lomond Stadial (circa 11,000-10,000 Before Present (BP)) was encountered to the south-east of North Berwick (120 km to the south of the Array) at a depth of -27 m and -18 m below Ordnance Datum (OD). The Array, however, lies between -61.6 m and -86.4 m OD, indicating that it would have been already submerged at this time. The marine transgression in this part of the north-western North Sea would have been complete by circa 8,000 BP, or perhaps even earlier (see Sturt *et al*., 2013; United Kingdom (UK) Government, 2022). The position of the Array and the palaeoshoreline, and the stages of marine transgression indicates that the marine archaeology study area remained submerged from shortly after the Last Glacial Maximum (LGM) to the Present Day. This suggests a very low potential for human occupation or activity, and therefore the presence of submerged prehistoric archaeological material.

2.3. MARITIME AND AVIATION ARCHAEOLOGY

2.3.1. DESK-BASED STUDY

Maritime archaeology

18. There are no Historic Marine Protected Areas (HMPAs) or designated sites recorded within the limits of the marine archaeology study area, and no wrecks or obstructions lie within the marine archaeology study area as recorded by the UK Hydrographic Office (UKHO).

19. Based on the desktop data, two wrecks are recorded on the Canmore National Record of the Historic Environment (NRHE) database for Scotland. One wreck (Canmore ID: 372955; Canmore, 2022a) lies outside of the Array but within the marine archaeology study area (Figure 2.1). This wreck was identified in previous geophysical survey operations but is out with the limits of the site-specific geophysical survey data.

20. The second wreck present in the NRHE database (Canmore ID: 372595; Canmore, 2022b) is located within the Array and has been corroborated by the geophysical seabed features assessment (Anomaly ID OS23_314) (see Figure 2.1 and section 2.3.2). The anomaly was subject to additional specialist shipwreck analysis which identifies the wreck as a diesel coaster or submarine (McCartney, 2023). From the additional assessment, the most likely scenario is that the seabed anomaly represents a coaster vessel that has inverted while sinking, and subsequently collapsed (McCartney, 2023). McCartney (2023) provides an alternative scenario in which the anomaly represents a previously unknown wreck of a submarine. This would indicate a wartime loss and thus protected by the Protection of Military Remains Act 1986 but cannot be firmly concluded without visual inspection. Further discussion of the wrecks identified during the archaeological assessment of geophysical data is presented in section 7 of this outline WSI/PAD and section 7.3.3 of volume 3, appendix 19.1. Proposed mitigation is presented in detail within volume 2, chapter 19 of the Array EIA Report.

21. Recorded losses are a category of record which do not correspond with identified remains on the seabed and are imprecisely located. There are six recorded losses located within the recorded losses study area (volume 2, appendix 19.1). Details of recorded losses are given in volume 3, appendix 19.1, annex A. Four of these six represent records of modern shipping casualties dating to the nineteenth and twentieth centuries. The remaining two relate to post-World War II aviation losses. It is possible that the recorded losses relate to the wrecks of unknown origin that have been identified within the geophysical data.

Aviation archaeology

22. Thousands of military and civilian aircraft casualties have occurred in UK waters since the advent of powered flight in the early 20th century. The bulk of these are casualties of World War II and most are concentrated off the south and south-east coasts of England. However, there is clear potential for aircraft casualties in the northern North Sea (Wessex Archaeology, 2008).

23. There are no known aviation wreck sites within the marine archaeology study area, but there are significant wartime aviation facilities in north-eastern Scotland (volume 3, appendix 19.1). For example, aviation training and mission flights were conducted from eastern Scotland such as Royal Air Force (RAF) Dalcross, RAF Kinloss, RAF Lossiemouth, Crimond (HMS Merganser), and RAF Dyce during World War II, all of which may contribute as yet unlocated aviation losses within the marine archaeology study area (Scottish Aviation Trail, 2024).

24. Although the aviation archaeology record is potentially very large, the ephemeral nature of aircraft wrecks ensures that many sites remain unknown and unrecorded. In addition, despite the potential extensive losses at sea, records are seldom tied to an accurate position. These difficulties complicate any assessment of the likely presence of aircraft wreckage on any particular area of seabed.

25. No aviation losses have been recorded on either the UKHO or NRHE databases for within the marine archaeology study area, and no material consistent with aviation losses was identified on the seabed. Two recorded aviation losses were identified within the recorded losses study area and are presented within volume 3, appendix 19.1. Civilian aircraft wrecks are not subject to protection under the terms of the Protection of Military Remains Act 1986.

2.3.2. SITE-SPECIFIC SURVEY DATA

26. Site-specific geophysical survey data have been assessed by a marine archaeology specialist. The detailed assessment methodology and results are presented within volume 3, appendix 19.1. A total of 324 anomalies of potential archaeological interest were identified through geophysical seabed features analysis within the marine archaeology survey area. Of these, 295 are within the site boundary; the remaining 29 anomalies lie outside of the site boundary but within the extents of the marine archaeology survey area. Of the 324 anomalies within the marine archaeology survey area, three have been classified as high potential anomalies, 14 as medium potential, and 307 as low potential. Within the site boundary only, two were classified as high potential anomalies, 14 as medium potential, and 279 as low potential. Details of high and medium potential anomalies are provided below in paragraphs 27 and 28 details of low potential anomalies are provided in volume 3, appendix 19.2, annex D. The distribution of anomalies with high and medium archaeological potential are shown in Figure 2.3. All low potential anomalies are presented in volume 3, appendix 19.2, annex D.

27. The high potential anomalies comprise of two certain wrecks (one of which is corroborated with the NRHE database as Canmore ID 372595, see paragraph 20) and one potential wreck. Two are located within the Array (OS23_312 and OS23_314) and one is located outside the Array (OS23_92). The distribution of these is shown in Figure 2.3. It is possible that the unidentified wreck observed during the archaeological assessment of geophysical data (OS23_312) correlates with one of two recorded losses: either *Scottish Queen* or *Titan,* based on the size of the anomaly and the reported dimensions of those vessels. Similarly, the unidentified wreck observed during the archaeological assessment of geophysical data (OS23_314; Canmore ID 372595) may be one of two other recorded losses: either *Duva* or *Svein Jarl*. Full descriptions of the high potential anomalies are presented by MSDS (2023) and in section 7.3.3 of volume 3, appendix 19.1.

28. Medium potential anomalies have characteristics that indicate a likelihood of representing anthropogenic material such as debris or potential debris. The distribution of these is shown in Figure 2.3. Full descriptions of the medium potential anomalies are presented by MSDS (2023) and in section 7.3.2 of volume 3, appendix 19.1.

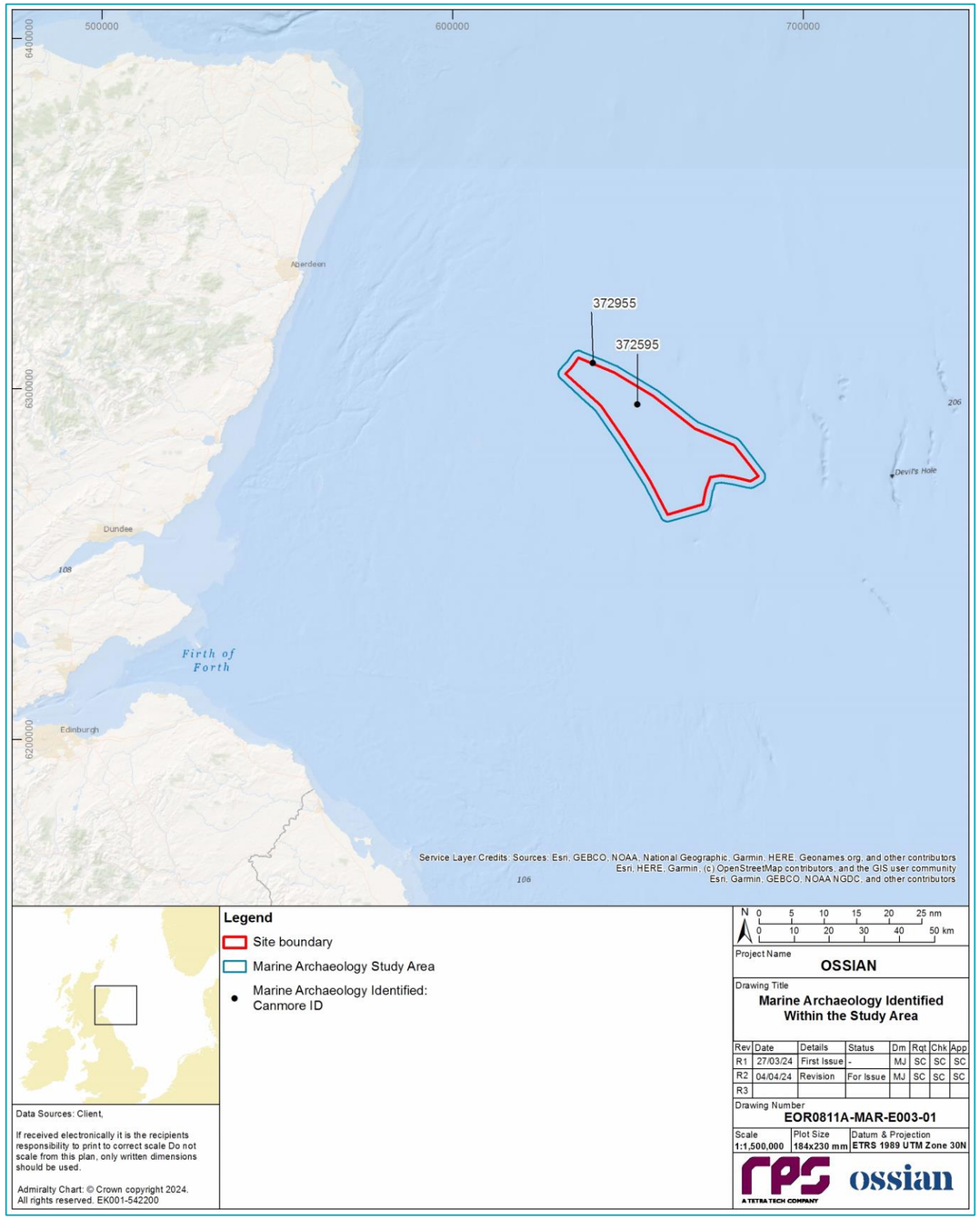

Figure 2.1: Marine Archaeology Identified Within the Marine Archaeology Study Area

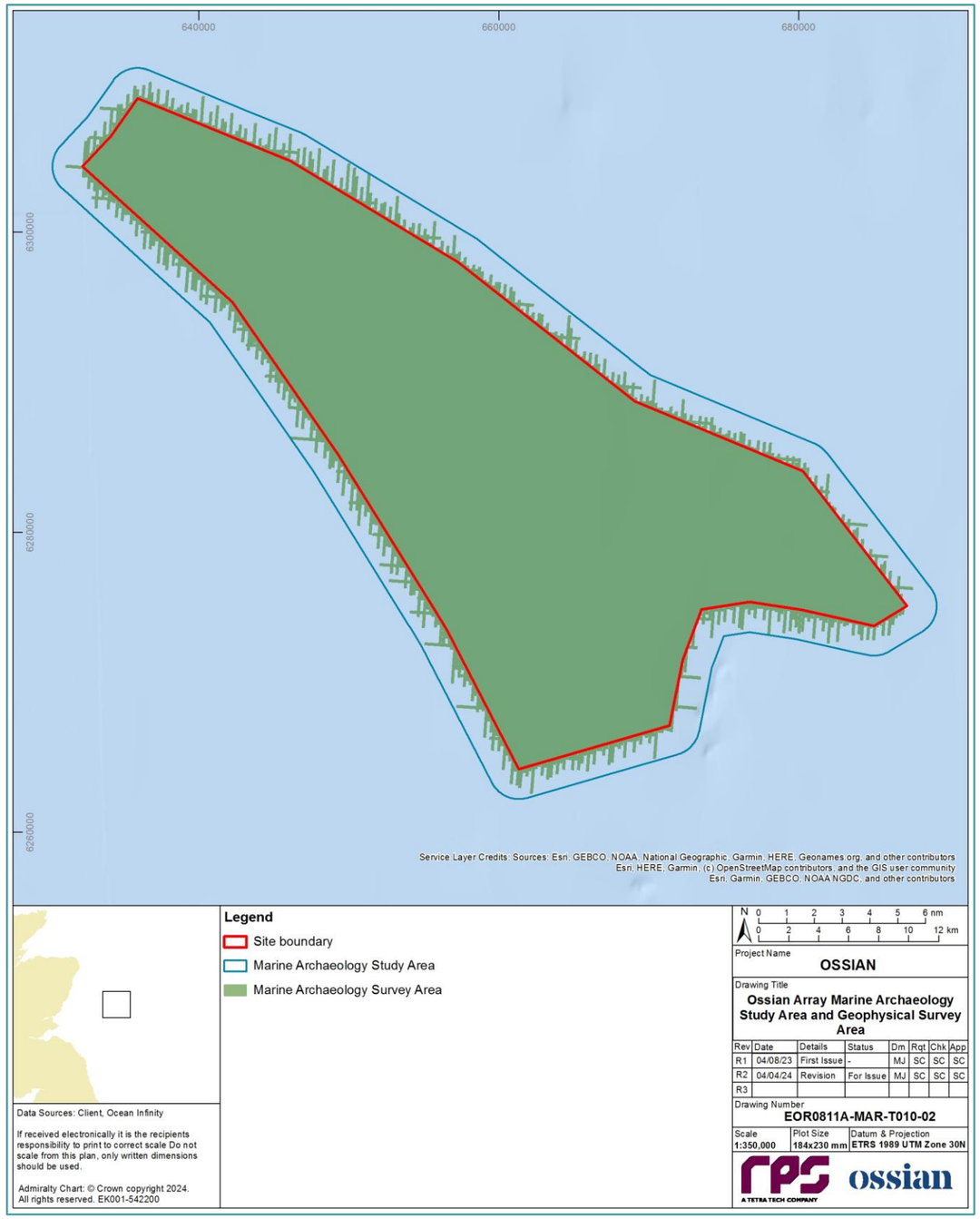

Figure 2.2: Marine Archaeology Survey Area and Marine Archaeology Study Area

Figure 2.3: Distribution of Medium and High Potential Geophysical Contacts Within the Marine Archaeology Survey Area

3. RESPONSIBILITIES AND COMMUNCATIONS

3.1. INTRODUCTION

29. This section sets out the responsibilities of relevant parties and the lines of communication. This aims to ensure that the archaeological mitigation measures described within the outline WSI and PAD are fully implemented in a timely manner that does not interfere with the smooth running of the Array programme.

3.2. CONTACTS

30. The relevant contacts are given in Table 3.1 below.

Table 3.1: Relevant Parties and Contact Details for Archaeological Works and Discoveries.

Contact	Address	Email	Phone
HES Consents and Advice Service	Longmore House Salisbury Place Edinburgh EH9 1SH	hmconsultations@hes.scot	0131 668 8896
HES (Canmore)	John Sinclair House 16 Bernard Terrace Edinburgh EH8 9NX	archives@hes.scot	0131 651 6872
Wessex Archaeology (PAD Implementation Service)	Portway House Old Sarum Park Salisbury, Wiltshire SP4 6EB	protocol@wessexarch.co.uk	0203 817 2575
Receiver of Wreck (RoW)	The Maritime and Coastguard Agency Spring Place 105 Commercial Road Southampton SO15 1EG	row@mcga.gov.uk	0131 247 4120
Treasure Trove Team	National Museums of Scotland Chambers Street Edinburgh EH1 1JF	treasuretrove@nms.ac.uk	0131 247 4120

3.3. RESPONSIBILITIES

3.3.1. THE APPLICANT

31. The Applicant will directly engage with the appointed Construction Contractor and the RA, as necessary. The responsibility for implementing the WSI and PAD rests with the Applicant and its appointed

representatives. Following the grant of development consent, the Applicant will provide the RA with the programme of construction.

32. The Applicant or their representative will advise the RA of its requirements or responsibilities under any Environmental Management Plan (EMP) produced for the Array. The EMP will fully reference the WSI and PAD to inform all phases of the Array. An outline EMP for the Array can be found in volume 4, appendix 21.

33. The Applicant or their representatives will submit the archaeological MSs or reports to MD-LOT in the first instance who will then forward to the AC for approval (HES).

3.3.2. RETAINED ARCHAEOLOGIST

34. The Applicant shall employ the services of a suitably qualified and experienced Archaeological Contractor (the RA) to ensure the effective implementation of the WSI and PAD and other relevant commitments in relation to archaeology.

35. Prior to Array application submission, RPS (supported by MSDS Marine) are acting in the role of the RA.

36. In relation to the implementation of the WSI, the RA will report to the Applicant or their named representative. Interaction with the Applicant's construction team will be administered by the Applicant or their appointed representative and advised by the RA.

37. The responsibilities of the RA will include:

- maintaining, reviewing and updating the WSI as required;
- advising the Applicant's construction team on those elements of the Array that require archaeological involvement;
- ensuring the scope of work specifications for the Array meet archaeological requirements;
- liaising with the Applicant's construction team or other Construction Contractors regarding timescales of completion of site investigations (SI) to ensure sufficient time is available to complete all archaeological work in accordance with the WSI;
- advising the Applicant's Project Manager on the micrositing of infrastructure, particularly wind turbines, OSPs based upon archaeological results from pre-application and pre-construction surveys;
- advising, preparing and issuing MSs to the AC for approval;
- implementing and monitoring of the PAD;
- providing advice to vessel staff/Unexploded Ordnance (UXO) specialists in the event of a discovery of high archaeological interest;
- monitoring the work of and liaising with the Archaeological Contractor(s) where this is not the RA;
- monitoring the preparation and submission of Archaeological Reports as appropriate and making them available to the AC for approval;
- preparing provisions for the management of Ossian Offshore Wind Farm archives in consultation with an appropriate museum; and
- advising the Applicant and the AC on final arrangements for the analysis, archive deposition, publication and popular dissemination of the results of the archaeological works.

3.3.3. ARCHAEOLOGICAL CONTRACTORS

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

3.3.4. CONSTRUCTION CONTRACTORS

39. All Construction Contractors engaged in the construction, operation and maintenance and decommissioning of the Array shall:

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

3.3.5. ARCHAEOLOGICAL CURATOR

40. HES are the public body responsible for the care and protection of Scotland's historic environment, which includes marine archaeology from the 200 nm offshore. HES are also statutory consultees per the Environmental Assessment (Scotland) Act 2005 (UK Government, 2005).

41. Contact with the AC will be through MD-LOT as the Regulator.

42. MSs, assessment reports or other deliverables will be submitted by the Applicant to the MD-LOT who will forward on to the AC for approval. Their agreement/acceptance of the documents will be assumed if no contrary response is received within 30 working days of submission.

43. To encourage timely decisions relating to archaeological mitigation and avoid disruptions to the Array programme, MD-LOT and HES will be consulted as soon as practicable on discoveries made during the programme of works and regarding the management and removal of AEZs or TAEZs.

4. PRE-CONSTRUCTION GEOPHYSICAL AND GEOTECHNICAL SURVEYS

4.1. INTRODUCTION

44. Pre-construction geophysical and geotechnical work is anticipated within the Array. Archaeological input into survey specifications will be obtained to secure specialist advice on methods to investigate areas of archaeological potential and avoid impacts on known heritage assets.

4.1.1. HEALTH AND SAFETY

45. Health and safety considerations are of paramount importance in conducting all archaeological work in relation to the mitigation outlined in this outline WSI and PAD. Safe working practices will always override archaeological considerations. All work must be carried out in accordance with the Health and Safety at Work etc. Act 1974, the Management of Health and Safety at Work Regulations 1999 the Federation of Archaeological Managers and Employers health and safety manual (Federation of Archaeological Managers and Employers 2010) and all other relevant and contemporary health and safety legislation, regulations and codes of practice that apply at the time the works take place.

46. The RA will ensure that any MSs prepared to meet the requirements of the WSI are compliant with the requirements of the Applicant's Health and Safety Plans.

4.2. PLANNING

47. When planning geophysical and geotechnical surveys the Applicant will advise the RA (or RPS supported by MSDS Marine if pre-submission) well in advance of the survey planning to secure specialist input into the scope of works.

48. The RA will advise on measures to optimise archaeological results from the geotechnical and geophysical surveys. Areas to be considered will include:

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

49. The advice from the RA may also include:

- altering vibrocore/borehole positions to maximise the potential for the collection of archaeological data; and/or
- altering grab sample positions to maximise the potential for the collection of archaeological data.

50. The results of the surveys will be used to inform the final positioning of wind turbines and other infrastructure. Where a direct impact on a heritage asset is likely to occur, any anomalies identified will be subject to further investigation to determine whether they represent archaeological material. In situations where such investigation suggests an archaeological origin, the anomalies in question will be subject to formal AEZs. The Applicant will consult the RA in advance of the finalisation of the wind turbine and infrastructure positions to ensure that known archaeological constraints identified by these surveys are avoided.

51. A detailed MS will be produced by the RA in advance of each geophysical and geotechnical survey. Approval by the Archaeological Contractor will be assumed if no response is received within 30 days of submission of each individual MS.

52. The MSs produced will be in accordance with the clauses set out in the Archaeological Written Schemes of Investigation for Offshore Wind Farm Projects (The Crown Estate, 2021).

4.3. GEOPHYSICAL SURVEY

53. A site-specific survey was carried out between 15 April 2022 and 20 July 2022 wihin the marine archaeology survey area shown in Figure 2.2. The survey resulted in the mobilisation of a Multi-beam Echo Sounder (MBES), a Sidescan Sonar (SSS), a magnetometer, a parametric Sub-Bottom Profiler (SBP), and a Two Dimensional (2D) Ultra High-Resolution Seismic (UHRS) 'Sparker' and hydrophone array. This survey is described in further detail within volume 3, appendix 19.1.

54. New geophysical data obtained for areas where direct impacts to archaeological receptors are anticipated will undergo analysis by a suitably qualified Archaeological Geophysical Contractor.

55. Additional survey data may be collected to inform potential modifications to an AEZ that has been implemented to protect identified sites and/or anomalies of interest. In this instance the collection of such data will be supervised by a suitably qualified Archaeological Geophysical specialist who may be present on the survey vessel to ensure the quality of these data.

4.3.1. SURVEY SPECIFICATIONS

56. Should further site-specific geophysical surveys be required for the purposes of informing approaches to marine archaeology receptors, the following specifications are advised to complement advice from the RA. These specifications are based on the Historic Environment Guidance for the Offshore Renewable Sector (COWRIE, 2007) and Marine Geophysics Data Acquisition, Processing and Interpretation Guidance Notes (Plets *et al*., 2013):

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

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

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

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

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

62. Geophysical surveys may be required for a number of purposes and may be to a lower specification than is generally required to be optimum for archaeological surveying purposes as identified above. If a lower specification is proposed, then it is important that early consultation is undertaken with the RA to allow scope for additional lines of survey in order to fully understand the nature and extent of anomalies identified.

63. If a UXO survey is conducted the magnetometer dataset will be subject to archaeological analysis in order to clarify the nature and extent of the known sites and anomalies and to identify as yet unknown buried sites.

4.3.2. INTERPRETATION

64. 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 RA or a suitably qualified Archaeological Contractor for archaeological analysis and interpretation.

65. Archaeological interpretation will include:

- examination of SSS, magnetometer, MBES and seismic data for areas within the vicinity of known wreck sites and previously identified archaeological anomalies;

- examination of SSS, magnetometer, MBES and seismic data within areas that will be subject to direct impacts from the Array to identify any unknown wreck remains;
- the assessment of seismic data to plot the general trend of the sub-surface sediments with archaeological potential; and
- further detailed interpretation of seismic data following the initial assessment within those areas that will be subject to impacts from the Array.

66. The archaeological results of any further geophysical survey will be compiled as a report by the RA or the Archaeological Contractor (if different to the RA) and will include likely requirements (if any) for further archaeological work. The report will be submitted to the Applicant by the RA and then on to the Archaeological Contractor for approval. The scope of any further work will be agreed between the Applicant (through the RA) and the AC. The work may be used to inform the final design.

4.4. GEOTECHNICAL SURVEYS

67. Geotechnical data assessment will be subject to a staged programme of assessment and analysis by a suitably qualified Geoarchaeological Contractor. Early planning and liaison with the Geoarchaeological Contractor to enable the archaeological recording of intact cores will be a key requirement of this dataset.

68. As summarised in section 6.5 of volume 3, appendix 19.1, the potential for surviving submerged prehistoric archaeology is low. The staged approach to geotechnical data assessment presented below illustrates the potential full realisation of an assessment programme. Each stage, however, is justified based on the satisfactory results and justification from the previous stage. The requirement for geoarchaeological assessment will be established in consultation with a Geoarchaeological Contractor and the AC and with advice from the RA.

69. The stages are based on the Historic Environment Guidance for the Offshore Renewable Sector (COWRIE, 2007). Each stage of this phased assessment of the cores is subject to the results of the preceding stages:

- Stage 1: Archaeological Assessment of geotechnical logs by a competent geoarchaeologist upon completion of the geotechnical investigations. This will provide an overview of the sedimentary sequence within the area, including whether any organic material is present and whether there are homogenous sedimentary layers throughout the area.
- Stage 2: Geoarchaeological recording of geotechnical cores identified in Stage 1 if the Stage 1 assessment identifies horizons of archaeological potential. This will entail the detailed recording of the sediments within selected cores for a range of palaeoenvironmental indicators and dating material. The geotechnical cores need to be retained until the selection for archaeological recording has been made. Ideally one undisturbed half of each core is required for archaeological recording. The assessment programme will comprise the longitudinal splitting of each core section, the cleaning of half of each section and the detailed archaeological recording of each section, noting sediment colour, sediment type, sedimentary architecture and inclusions. A Stage 2 outline report will present the results of the archaeological recording and will indicate whether a Stage 3 laboratory assessment of the cores is warranted. The scope of further work will be agreed by the Applicant (via the RA) and the AC. If no further work is recommended a final (Stage 5) report will be produced by the Geoarchaeological Contractor.
- Stage 3: Geoarchaeological Assessment of selected cores identified during the Stage 2 recording as warranting further laboratory assessment. Stage 3 will comprise the sampling and laboratory assessment to a level sufficient to enable an assessment of the value of the palaeoenvironmental material (pollen, diatoms, ostracods and foraminifera) surviving within the cores along with sampling for radiocarbon (C-14) and/or optically stimulated luminescence (OSL) dating purposes. The assessment seeks to further establish the preservation, diversity and quantity of palaeoenvironmental material to further refine the interpretation of the sedimentary sequence. A Stage 3 outline report will present the results and will indicate whether further (Stage 4) analysis of samples is required. The scope of further work will be agreed by the Applicant (via the RA) and the AC. If no further work is recommended a final (Stage 5) report will be produced by the Geoarchaeological Contractor.
- Stage 4: Geoarchaeological analysis of the core material. It typically involves the full counts and analysis of pollen, diatom, ostracod and foraminifera samples and will be supported by C-14 dating of suitable sub-samples. This phase will result in an account of the successive environments within the coring area, a model of environmental change over time and an outline of the archaeological implications of the analysis. It will include the incorporation of the results into a model of the seabed sediments and palaeotopography based on the analysis of the seismic data. If a full seismic analysis has not been undertaken prior to this point it will be required.
- Stage 5: A final report will be prepared by the Geoarchaeological Contractor at the end of the last stage of works. This will include a synthesis of all aspects of the palaeotopography, geoarchaeology and prehistory of the area affected by the Array. This will be based on the results of the archaeological work carried out in support of the Array Application in addition to the pre-construction surveys. It may include relevant data generated from the Marine Archaeology Technical Report, geophysical surveys and particularly seismic data. The report will incorporate appropriate 2D and Three Dimensional (3D) illustration of the sediment sequences identified in different parts of the development zone. This will include a geoarchaeological deposit model but will also include plans and sections of areas where more detailed analysis has been possible. The RA will submit the report to the Applicant and the AC for approval.

4.5. PROVISIONAL PROGRAMME

70. A programme of future geophysical and geotechnical surveys is planned in connection with the Array. The anticipated timeframes for completed and planned survey works are outlined in Table 4.1 below.

Table 4.1: Overview of Pre-Application and Pre-Development Offshore Geophysical and Geotechnical Survey for the Array

Date	Survey Type	Extent	Overview of Survey	Status	Reference
01 April – 07 July 2022	Geophysical	Array	Geophysical survey.	Completed	Ocean Infinity (2022) MSDS (2023)
12 June – 16 August 2023	Geotechnical	Array	Geotechnical borehole survey.	Completed	Fugro (2023)
02 May – 04 October 2023	Geotechnical	Array	Geotechnical Cone Penetration Testing, Seismic Cone Penetration Testing (SCPT) and Vibrocore survey.	Completed	Ocean Infinity (2023)

5. PRE-CONSTRUCTION REMOTELY OPERATED VEHICLE SURVEYS

5.1. NON-ARCHAEOLOGICAL REMOTELY OPERATED VEHICLE SURVEYS

71. To maximise the benefit of any non-archaeological surveys, archaeological input from the RA will be sought at the planning stage. Any survey specifications will be informed by the Array survey programme so that archaeological considerations can be taken into account.

72. Advice from the RA will include:

- the available details of sites and/or anomalies identified in the volume 3, appendix 19.1;
- the archaeological potential of areas where no existing sites and/or anomalies are yet known;
- the type and level of ROV positioning, voice recording and video/still recording to be utilised; and
- the type of sites and finds to be reported and recorded.

73. However, where non-archaeological surveys do not provide clear results, additional archaeological ROV surveys may be required.

74. Video and positional data not acquired by archaeological survey (for example, that collected within the Array by ROV obstruction or UXO surveys) should be subject to archaeological assessment. Typically, this is appropriate for sites subject to AEZs for which the avoidance of direct impacts is not possible. However, this measure is particularly relevant for UXO/boulder clearance and for areas where there are survey gaps.

75. The Applicant will consider provisions for a suitably qualified archaeologist to be present either as an observer or participating diver to optimise archaeological results and therefore reduce the need for repeat surveys.

5.2. ARCHAEOLOGICAL REMOTELY OPERATED VEHICLE SURVEYS

76. Archaeological ROV surveys can be employed to gather archaeological data concerning wreck sites for archaeological anomalies to safeguard the archaeological record.

77. For sites subject to AEZs, for which the avoidance of direct impacts is not possible and non-archaeological surveys have not provided clear results, an archaeological ROV survey will be commissioned by the RA (or a suitably qualified Archaeological Contractor).

78. Following the completion of the ROV survey all data, including any video footage, will be reviewed by the RA/Archaeological Contractor. This review will help to inform the potential for archaeological interest at relevant sites. Typically, this will involve the identification of vessel remains, rather than 'chance find' artefacts. A report will identify sites and/or geophysical anomalies of sufficient archaeological interest to warrant further investigation. It will also identify those sites that are no longer of archaeological interest and hence may be removed from the list of sites protected by AEZs.

79. The archaeological results of any ROV survey will be compiled into a report by the RA/Archaeological Contractor. The report will include a statement of the likely requirements (if any) for further archaeological work.

80. The report will be forwarded to the Applicant and the AC.

6. ARCHAEOLOGICAL EXCLUSION ZONES

81. Best practice favours the preservation *in situ* of archaeological remains, therefore the ideal preferred mitigation for archaeological remains is avoidance. For the Array, AEZs have been proposed that prohibit development-related activities within their extents, which vary depending upon the nature of the site. The final Array layout will take into account these preliminary zones, which may evolve or be removed (with the agreement of MD-LOT and HES) as the Array progresses, subject to layout designs and additional subsequent surveys that may be required.

82. All AEZs agreed with the statutory historic body, through the WSI, will be marked on the Design Plan. If impacts cannot be avoided, measures to reduce, remedy or offset disturbance will be agreed.

83. In view of their potential archaeological significance, AEZs (either in the form of individual AEZs or clusters) will be placed around the anomalies which have been identified within the Array: two anomalies classified as being of high archaeological potential and 14 anomalies classed as being of medium potential. One further high potential anomaly has been identified within the geophysical data, however this anomaly is located more than 100 m from the Array boundary, as such there is no pathway for direct impact to the receptor from the development and therefore no AEZ has been assigned. These anomalies have been recommended AEZs based on the size of the anomaly, the extents of any debris, the potential significance of the anomaly, the potential impact of the development and the seabed dynamics within the area. Additional details regarding the establishment of AEZs can be found in MSDS (2023).

84. Dependant of the form of the anomaly, AEZs have either been recommended as a radius from the centre point of the anomaly or as a distance from the extents. Particularly in the case of shipwrecks, which tend to be longer in length than width, the use of a radius about the centre point provides unequal protection around the extents. This not only impacts the protection afforded but does not present proportional mitigation.

85. The AEZs identified for the Array have been reviewed against desk-based and site-specific data, and as a result of this review AEZs have been identified of varying sizes according to the size and spread of the individual archaeological receptor.

86. The proposed AEZs are listed in Table 6.1 and shown in Figure 6.1. The list of AEZs is 'live' and will be held in the GIS project file maintained by the RA. Scope is allowed for their amendment in light of further evidence and with the involvement of consultees. At all stages of the Array lifecycle, the Applicant should supply the RA and all contractors with the agreed AEZ shapefile data.

Table 6.1: Proposed Archaeological Exclusion Zones Within the Array

Anomaly ID	Description	Potential	ETRS89 30N		AEZ (m)
			X	Y	
OS23_035	Debris	Medium	651865	6288021	50 Radius
OS23_037	Debris	Medium	666377	6285964	25 Extents
OS23_049	Debris	Medium	661064	6280372	25 Extents
OS23_059	Debris	Medium	667679	6269756	25 Radius
OS23_062	Debris	Medium	661237	6265197	25 Extents
OS23_084	Debris	Medium	645773	6299724	35 Radius
OS23_101	Potential Debris	Medium	650935	6300407	25 Radius
OS23_119	Debris	Medium	654868	6278993	25 Extents
OS23_168	Debris	Medium	661027	6273087	25 Radius
OS23_181	Debris	Medium	662687	6273323	50 Extents
OS23_184	Debris	Medium	664141	6291722	25 Radius
OS23_212	Debris	Medium	660962	6270181	50 Extents
OS23_248	Debris	Medium	672919	6280043	35 Radius
OS23_280	Debris	Medium	682009	6279921	35 Radius
OS23_312	Wreck	High	684936	6277926	50 Extents
OS23_314	Wreck	High	652760	6295702	100 Extents

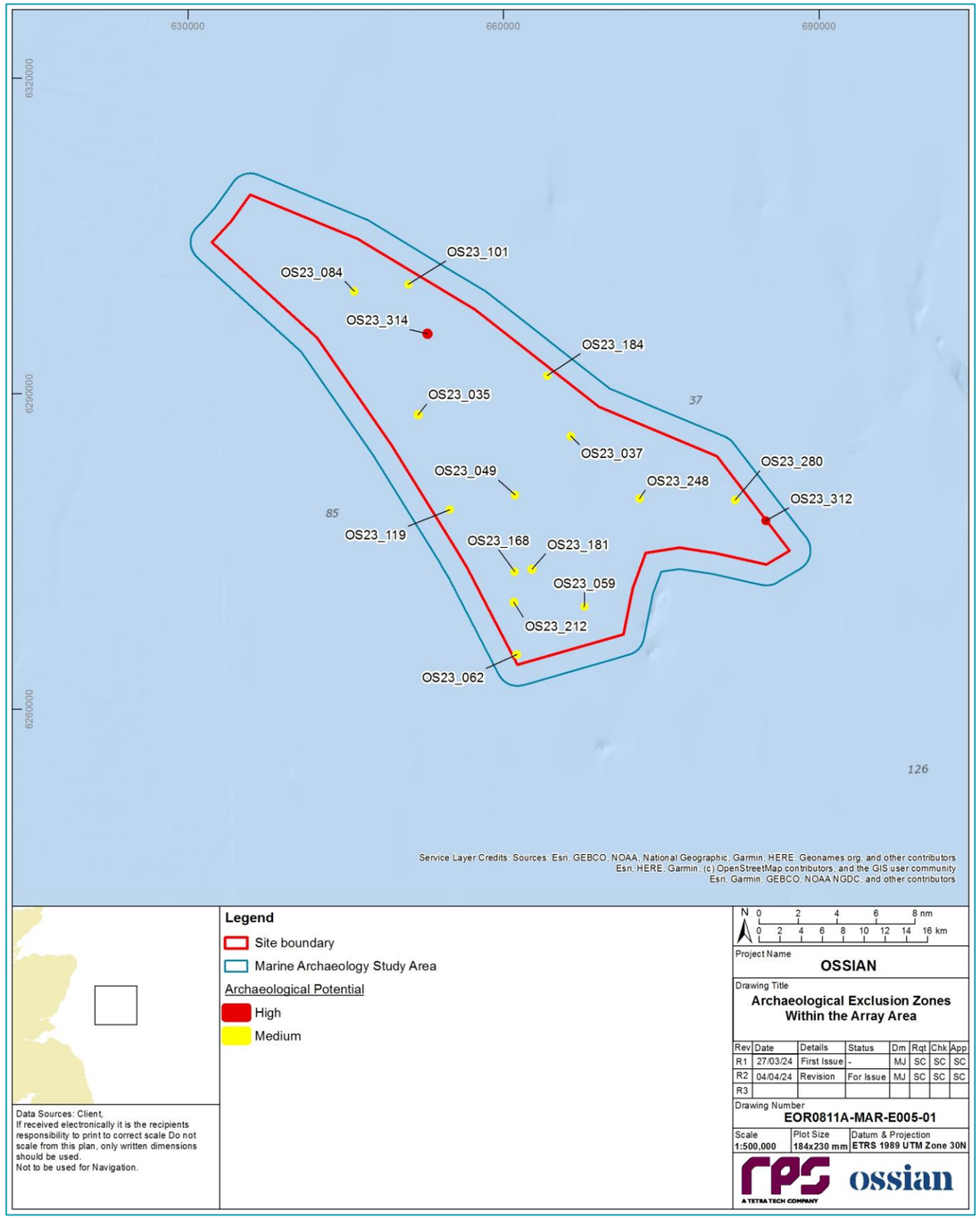

Figure 6.1: Distribution of Proposed AEZs Within the Array (Proposed AEZs Not to Scale)

7. TEMPORARY ARCHAEOLOGICAL EXCLUSION ZONES

87. As set out in The Crown Estate (2021) guidance, AEZs may be altered (enlarged, reduced, moved, or removed) as a result of further data assessment or archaeological field evaluation covering those areas that are subject to AEZs. If new finds of potential archaeological significance come to light during the assessment of marine geophysical data or works associated with the Array during the course of construction, operation, or decommissioning phases, as reported through the PAD, they may be subject to the implementation of a TAEZ. A TAEZ will prevent impact to the seabed within their extents but allow activities in other areas to continue. The need for a TAEZ, its position and extent, the implementation of any new exclusion zones or any alterations to existing AEZs will be subject to discussions between the RA and the Applicant. In consultation with MD-LOT and HES, these will be confirmed with a formal response. Following alteration, a new plan giving details of the AEZs will be drawn up and issued to each relevant party.

8. LOW ARCHAEOLOGICAL POTENTIAL CONTACTS

88. There are 307 low potential anomalies within the Array where no archaeological significance has been interpreted from the archaeological analysis of the geophysical survey results (Figure 8.1). These anomalies are listed in full in volume 3, appendix 19.2, annex D.

89. Low potential anomalies are not provided AEZs or TAEZs but will be considered in the final Project Design through micrositing via the acquisition of post high-resolution geophysical data, to be acquired post-consent and as part of the mitigation strategy. Should material of potential archaeological significance be identified during the course of pre-development and development works then they should be reported through the agreed PAD (see section 10).

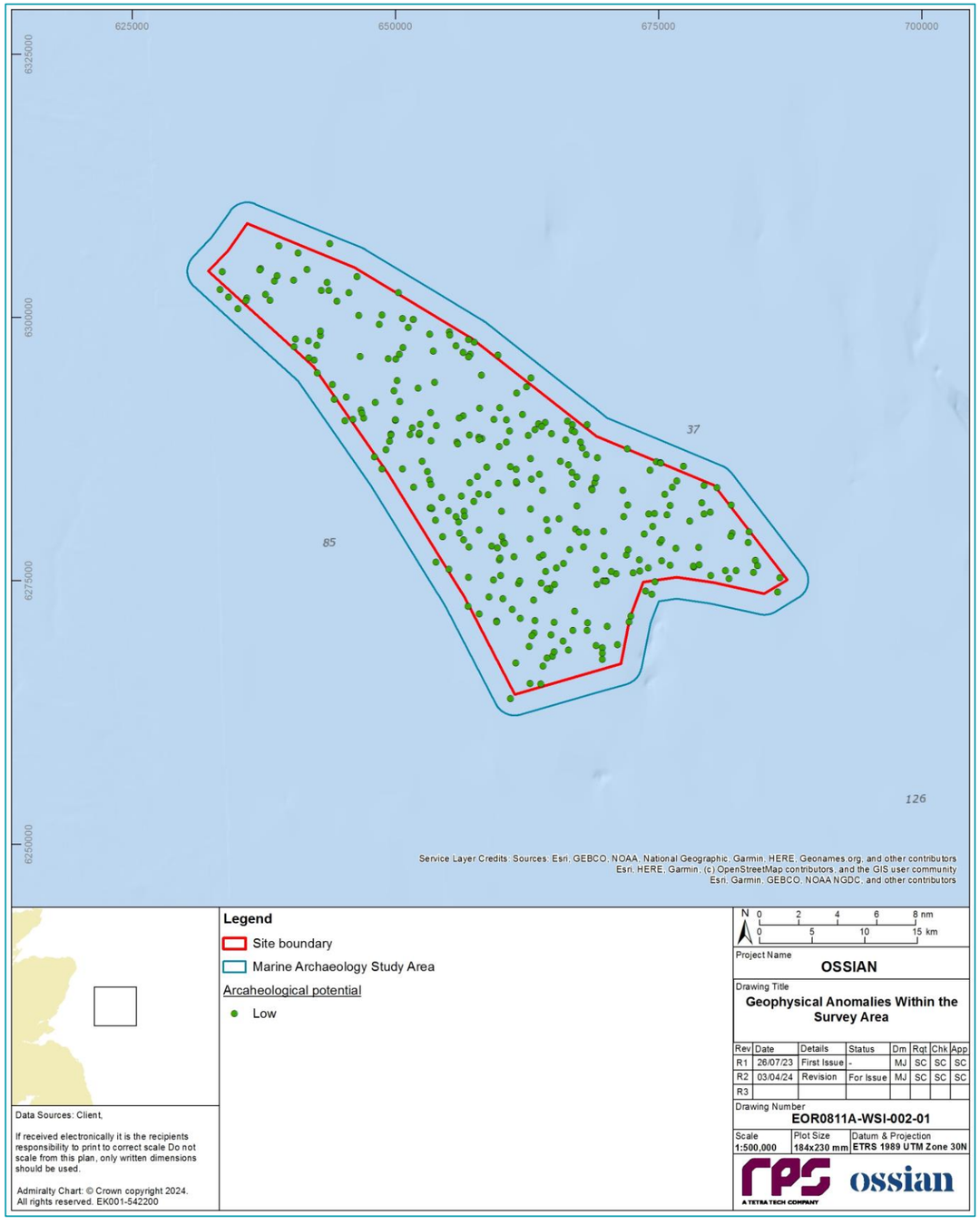

Figure 8.1: Distribution of Geophysical Contacts with Low Archaeological Potential Within the Marine Archaeology Survey Area

9. MITIGATION OF UNAVOIDABLE DIRECT IMPACTS ON KNOWN SITES

9.1. OVERVIEW

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

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

- preservation by record – this may involve geophysical survey, and/or ROV surveys and in cases excavation and recording of known sites; and
- stabilisation – this may involve the reburial of remains.

10. PROTOCOL FOR ARCHAEOLOGICAL DISCOVERIES

10.1. OVERVIEW

92. A PAD will be implemented during all subtidal construction, operation and maintenance and decommissioning activities. It will address the reporting of unexpected finds of archaeological material, recovered from the sea during these activities. More detailed information relating to the PAD is set out in volume 3, appendix 19.2, annex A so only a short summary is included here.

93. The responsibility for ensuring the implementation of the PAD (volume 3, appendix 19.2, annex A) rests with the Applicant who will ensure that its agents and Construction Contractors are contractually bound to implement the Protocol (volume 3, appendix 19.2, annex A).

94. The PAD will follow the format laid down in the Protocol for Archaeological Discoveries: Round 3 Offshore Renewables Projects (The Crown Estate, 2014). An Implementation Service will operate to administer the PAD, provide initial advice to the Applicant and the team and liaise with the RA and Archaeological Contractor as necessary (volume 3, appendix 19.2, annex A).

95. Once agreed by the Applicant, MD-LOT and the AC, the PAD will be distributed in a form suitable for use onboard vessels. The Applicant will ensure that the relevant staff on all vessels are informed of and have access to the PAD. The Implementation Service will provide supporting materials together with the PAD that detail the find types that may be of archaeological interest and the potential importance of any archaeological material encountered (volume 3, appendix 19.2, annex A).

96. A Preliminary Record Form will be made available (volume 3, appendix 19.2, annex C) to all vessel crews for completion on discovery of archaeological material.

97. All finds of archaeological material will be reported by the Construction Contractor(s), in accordance with the communication plan, to the Site Champion on their vessel (usually the senior person on the vessel), who then reports to the Nominated Contact (who has been nominated by the Applicant to co-ordinate implementation of the PAD). The Nominated Contact will inform the Implementation Service that will, in turn, inform the Applicant/RA and the AC. If the find is identified as 'wreck' within the meaning of the Merchant Shipping Act 1995, then the Implementation Service will also make a report to the RoW. Full contact details for all relevant parties will be included in the PAD (volume 3, appendix 19.2, annex A).

98. 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 (volume 3, appendix 19.2, annex A).

99. The PAD will be implemented by means of an initial visit by the Implementation Service to the relevant vessels to ensure that all staff are made aware of what constitutes an appropriate find, and through periodic reports by the Nominated Contact. The frequency and timing of these visits will be determined once the construction programme is known. The PAD will be supported by a package of 'awareness training' for the Applicant and its Construction Contractors and Construction sub-contractor's staff (volume 3, appendix 19.2, annex A).

100. At the end of the construction phase, the Implementation Service 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 Array.

10.2. APPROACH TO FINDS

101. In Scotland, all archaeological finds must be reported to the Treasure Trove Unit at the National Museums of Scotland either directly or through an intermediary such as the AC (Ralston, 2008). Objects which are not claimed through the Treasure Trove System will be returned with a Certificate of Disclaim. However, the Scots Common Law right relating to found archaeological and historic items in Scotland (and therefore processed through the Treasure Trove System) does not extend to the marine environment beyond the foreshore. All items of wreck will be reported to the RoW.

102. Any finds and environmental samples will be processed according to professional standards for finds analysis, environmental sampling and archive preparation and in accordance with the Chartered Institute for Archaeologist's (CIfA) Standards and guidance for the collection, documentation, conservation and research of archaeological materials (CIfA, 2015) and the Standards and Guidance for nautical archaeological recording and reconstruction (CIfA, 2014a).

10.2.1. DISCOVERY OF ARTEFACTS

103. Any finds recovered or exposed during archaeological works by the Array activities will, at the point of discovery, be held by the Archaeological Contractor or, where recovery is impractical, recorded.

104. Where finds are discovered onboard the vessel, approximate positions will be assigned for where the artefacts were recovered. A full photographic record will be maintained.

105. In the event of the discovery of items that may be eligible for legal protection, the Contractor will notify the RA who will notify the relevant legal authority as soon as is possible. The Applicant and the Archaeological Contractor will be notified as soon as is possible.

10.2.2. HUMAN REMAINS

106. If human remains are identified, they should be treated with due care and respect. In any event, the RA will inform the local police and the ACs. If the police do not propose to investigate the remains, the Crown Office and Procurator Fiscal Service (COPFS) will be contacted by the Applicant.

107. If required, excavation, recording, analysis and storage of any human remains will be undertaken in line with the Guidelines to the Standards for Recording Human Remains (Mitchell and Brickley, 2017) and follow best practice as appropriate (HES, 2016; British Association for Biological Anthropology and Osteoarchaeology (BABAO), 2010). An appropriate human skeletal biologist will, if required, be available to advise on and assist with the recovery and storage of human remains. Where human remains are associated with vessels and aircraft that were in military service when they were lost or wrecked, the provisions of the Protection of Military Remains Act 1986 apply.

10.2.3. OBJECTS

108. In the event of the discovery of unexpected, unusual or extremely fragile and delicate objects and deposits, the RA, the Applicant and the Archaeological Contractor will be notified immediately. Additional work required to recover, record, analyse, conserve and archive such objects and deposits will be agreed with the AC.

109. Objects that require immediate conservation treatment to prevent deterioration will be treated according to guidelines laid down in First Aid for Underwater Finds (Robinson, 1998). A full record will be made of any treatment given.

110. In consultation with the Applicant and the AC, the RA will advise on the implementation of passive conservation for smaller objects pending more detailed conservation strategies. The Applicant will make provision for a professional conservator to undertake a conservation assessment of assemblages normally through the RA.

111. Specialist work approved by the Archaeological Contractor on metal work, bone (including worked bone, human remains and other organic remains), ceramic material, glass and lithic material will be carried out by a suitable Archaeological Contractors, monitored by the RA. All retained finds will then be processed in accordance with the Chartered Institute for Archaeologist's Standard and guidance for the collection, documentation, conservation and research of archaeological material (CIfA, 2014b).

112. Subject to the agreement reached with a suitable museum regarding selection, retention and disposal of material, the Archaeological Contractor will retain all recovered objects unless they are undoubtedly of modern or recent origin. The presence of modern objects will, however, be noted.

10.2.4. DISCOVERY OF AVIATION MATERIAL

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

- Historic Environment Guidance for the Offshore Renewable Energy Sector (COWRIE, 2007);
- Protocol for Archaeological Discoveries: Offshore Renewables Sector (The Crown Estate, 2014);
- Military Aircraft Crash Sites: Archaeological guidance on their significance and future management (Historic England, 2002); and
- Crashed Military Aircraft of Historic Interest: Licencing of Excavations in the UK - Guidance Notes for Recovery Groups (Ministry of Defence (MOD), 2018).

114. Any finds suspected of being military aircraft will be reported immediately to the RA. 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 II, especially if two or more pieces of aluminium are fixed together by rivets. All occurrences should be reported. The Applicant will be informed as well as the Service Personnel and Veterans Agency (SPVA: Joint Casualty and Compassionate Centre – SO3 Historic Casualty Casework). Any subsequent actions will be guided by the SPVA (2011) 'Guidance Notes' and by advice received from SPVA. In the case of a military aircraft being investigated under licence, any human remains will be reported immediately in accordance with paragraph 15 of the Guidance Notes, to the MOD and the local police and, through them, the COPFS.

115. Civilian aviation wreck sites are not covered by the Protection of Military Remains Act 1986. Any recovery of civilian aviation material will be reported to the Air Accidents Investigation Branch (AAIB) under the Department of Transport.

10.2.5. DISCOVERY OF WRECK

116. 'Wreck' includes all craft, parts of these, their cargo or equipment. Section 236 of the Merchant Shipping Act 1995 stipulates that all wreck within the UK's waters and any wreck UK from outside the UK's waters which is brought into UK waters must be declared to the RoW who acts on behalf of the Maritime and Coastguard Agency (MCA) in administering this section of the Act. If any maritime finds are brought

onshore the RoW must be notified and the finds must be kept until the RoW determines ownership or requests that they be given to the RoW. The act is administered by the MCA.

117. All items of wreck which are raised from the seabed, regardless of age or importance, must be reported to the RoW who will act to settle questions of ownership and salvage. A copy of the form to report wreck and salvage is available from the MCA (UK Government, 2022).

10.2.6. ENVIRONMENTAL EVIDENCE

118. For each programme of archaeological work, environmental sampling strategies and methods including methods for processing, assessing and/or analysing samples – will be set out in the MS for the archaeological work.

119. Approaches and methods will be consistent with Environmental Archaeology: a guide to the theory and practice of methods, from sampling and recovery to post-excavation (Campbell, *et al*, 2011).

11. REPORTING

11.1. OVERVIEW

120. Each Archaeological Report will be consistent with this WSI and the Crown Estate (2021) guidance on reporting, and will demonstrate sufficient planning, recording, and data management, with a commitment to archiving and the public dissemination of results. Each draft report will satisfy the MS for that particular investigation and will present the project information in sufficient detail to allow interpretation without recourse to the project archive.

121. All Archaeological Reports will be prepared in accordance with the guidance given in the relevant CIfA's Standards and Guidance and conform to Monument Inventory Data Standard (MIDAS) (the UK's historic environment data standard). Reports will typically include:

- a Non-Technical Summary (NTS);
- the aims and methods of the work;
- the results of the work including finds and environment remains;
- a statement of the potential of the results;
- proposals for further analysis and publication; and
- illustrations and appendices to support the report.

122. The RA will forward a hard copy and digital (.pdf) copy of each report to the Archaeological Contractor and the Applicant. All Archaeological Reports (inclusive of geophysical and geotechnical investigations) produced during the development and construction process will be submitted to OASIS.

123. Decisions regarding the level of post-excavation work required will be taken following submission of investigative reports and consultation with the AC.

124. An overarching final report on the marine archaeology recorded within the Array will be produced by the RA after the completion of the archaeological works relating to the Array. If little of significance is found during the construction phase, a final report on the investigative work will be prepared by the RA/Archaeological Contractor within six weeks of works being completed. The final report will establish final arrangements for publication.

11.2. PUBLICATION

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

126. Publication media and all publication matters will be discussed and agreed in advance with the AC.

11.3. ARCHIVES

127. The Archaeological Contractor will be notified of any archaeological investigations in advance and any specific requirements related to the preparation and deposition of the Array archives will be accommodated as appropriate. Archives will be developed in line with guidance including:

- Standard and guidance for the creation, compilation, transfer and deposition of archaeological archives (CIfA, 2014b).
- Environmental guidelines for the permanent storage of excavated material from archaeological sites (Institute of Conservation, 1984).
- Guidelines for the preparation of excavation archives for long-term storage (Walker, 1990).

128. Where there is the likelihood of any archaeological investigations, the RA 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 RA will consult with the receiving institution with regard to its policy on the selection, retention and disposal of archaeological material and to confirm the requirements in respect of the format, presentation and packaging of archive records and materials.

129. The final Archaeological Report should be archived with HES for incorporation into the NRHE. An OASIS form will be produced for each deemed Marine Licence (ML) and all copies of any reports generated (e.g. geophysical, geotechnical data analysis) and agreed with the relevant curatorial body are to be attached as data files in compliance with the appropriate standards. A copy of the final reports will be submitted to Aberdeenshire, Scottish Borders, East Lothian and Fife Historic Environment Record.

130. The timetable for depositing archives with the receiving institution after completion of the post-fieldwork programme will be set out in the relevant MS. For Scotland, HES is the repository for all fieldwork records generated during archaeological fieldwork.

12. MONITORING AND REVIEWING THE WSI AND PAD

131. At each stage of the Array including construction, operation and maintenance and decommissioning and sub-stages therein, the RA will advise the Applicant as to the potential requirements for the specific archaeological investigations as outlined in this document. Appropriate MSs will be prepared as required in line with the requirements of the WSI and these will be submitted to MD-LOT for onward submission to the AC for approval. Approval by the AC will be assumed if no response is received within 30 working days of submission.

132. These MSs will include provision for the AC to monitor the progress of the archaeological investigations as appropriate.

133. Provision will be made for the WSI and PAD to be revised as appropriate should elements of the Array change (within the Maximum Design Scenario (MDS)) or particular archaeological issues come to light. Any revisions will be prepared by the RA and submitted to the Applicant who will ensure they are submitted to MD-LOT for onward submission to the AC. Approval by the AC will be assumed if no response is received within 30 working days of submission.

134. The performance of the WSI and PAD will be monitored through the provision of a series of Archaeological Reports prepared to inform on the results of various activities undertaken under its auspices. These include a review of new geophysical, geotechnical and environmental data and the implementation of the PAD (volume 3, appendix 19.2, annex A). These reports will be submitted to the Applicant who will ensure dissemination to MD-LOT and onward submission to the AC.

135. The Applicant and the RA will agree the system for archaeological reporting.

136. MD-LOT, as the first point of contact for consultation on archaeological matters relating to the fulfilment of the ML, will be notified in advance by the Applicant/RA of work timetables and the commencement of any work on site that may affect the site's archaeology and will be informed at this time of the RA's key staff. A programme of monitoring visits (if appropriate) by the AC will be agreed in advance of the commencement of construction activities and again as appropriate during operation and maintenance and decommissioning activities.

137. The Applicant will be kept informed of any contact between the RA and the AC.

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ANNEX A: PROTOCOL FOR ARCHAEOLOGICAL DISCOVERIES

138. Please find Annex A attached to this document separately.

ANNEX B: VESSEL AND INSTALLATION EQUIPMENT SPECIFICATIONS AND PROJECT ORGANISATION CHART

139. Please find Annex B attached to this document separately.

ANNEX C: ARCHAEOLOGICAL DISCOVERIES: EXAMPLE PRELIMINARY RECORD FORM

140. Please find Annex C attached to this document separately.

ANNEX D: LOW POTENTIAL ARCHAEOLOGICAL ANOMALIES

141. Please find Annex D attached to this document separately.

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