Environmental Impact Assessment Report
Volume 4: Outline Written Scheme of Investigation (WSI) (Onshore)

MarramWind Offshore Wind Farm

December 2025

MarramWind

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1. Introduction

1.1 Overview

1.1.1.1 This Outline Written Scheme of Investigation (WSI) for the onshore elements of the Project has been prepared alongside the Environmental Impact Assessment (EIA) Report. Its purpose is to ensure that best practice is followed during the investigation and mitigation of impacts on archaeological remains arising from the construction of the Project's onshore components, as detailed in **Volume 1, Chapter 24: Onshore Archaeology and Cultural Heritage**. The implementation of the measures outlined in this Outline WSI will be secured through a planning condition.

1.2 Project background (onshore)

1.2.1.1 MarramWind Offshore Wind Farm (hereafter referred to as 'the Project') is wholly owned by ScottishPower Renewables UK Limited (SPR). MarramWind Limited, a subsidiary of SPR, is the Applicant for the Project.

1.2.1.2 The Project is a proposed floating wind farm located in the North Sea, with a grid connection capacity of up to 3 gigawatts (GW). The location of the Project is determined by the Option Agreement Area (OAA), which is the spatial boundary of the Northeast 7 (NE7) Plan Option within which the electricity generating infrastructure will be located. The NE7 Plan Option is located north-east of Rattray Head on the Aberdeenshire coast in north-east Scotland, approximately 75 kilometres (km) at its nearest point to shore and 110km at its furthest point. An Option to Lease Agreement (OLA) for the Project within the NE7 Plan Option was signed in April 2022.

1.2.1.3 A summary of the Project is provided in Section 1.2 of **Volume 1, Chapter 1 Introduction** and a comprehensive description of the Project is provided in **Volume 1, Chapter 4 Project Description**.

1.2.1.4 The Project's onshore infrastructure, located landward of mean low water springs (MLWS) includes:

- landfall(s) – the infrastructure associated with connecting the offshore export cables with the onshore export cables located above MLWS;
- underground onshore export cables running from the landfall(s) to the onshore substations;
- three onshore substations co-located at one site;
- underground grid connection cables (connecting the onshore substations to the grid connection point at Scottish and Southern Electricity Networks ((SSEN)) Netherton Hub);
- grid connection point (SSEN substation at the SSEN Netherton Hub, which is a separate consented project and does not form part of the consenting applications which the EIA and Outline WSI relate to); and
- associated temporary construction areas, including for example construction compounds, access tracks and haul roads.

1.2.1.5 The EIA Report accompanies applications for offshore consents, licences and permissions for the Project to Marine Directorate - Licensing Operations Team (MD-LOT) under Section 36 (s.36) of the Electricity Act 1989, the Marine (Scotland) Act 2010 and the Marine and

Coastal Access Act 2009, for the offshore infrastructure seaward of Mean High Water Springs (MHWS).

1.2.1.6 The EIA Report also accompanies an application to Aberdeenshire Council for planning permission in principle consent under The Town and Country Planning (Scotland) Act 1997, for the onshore infrastructure landward MLWS.

1.2.1.7 There are four sets of EIA regulations applicable to the Project: the Electricity Works (EIA) (Scotland) Regulations 2017 for offshore generating stations requiring s.36 consent; the Marine Works (EIA) (Scotland) Regulations 2017 and the Marine Works (EIA) Regulations 2007 for marine licence applications within Scottish territorial waters (0-12 nautical miles) and offshore waters (12-200 nautical miles) respectively; and the Town and Country Planning (EIA) (Scotland) Regulations 2017 for planning applications submitted to Aberdeenshire Council for onshore infrastructure located landward of MLWS.

1.3 Purpose of the Outline WSI (onshore)

1.3.1.1 The Outline WSI will form the basis of the Final Written Scheme of Investigation (WSI) (Onshore). The Final WSI will be finalised and approved post-consent and approved by Aberdeenshire Council as part of condition discharge prior to construction. This Outline WSI sets out the approach, methodologies and standards for archaeological works required as part of the overarching archaeological strategy to be followed for the construction of onshore components of the Project.

1.3.1.2 The broad objectives of the Outline WSI are as follows:

- to provide a mechanism to ensure that measures to mitigate potentially adverse impacts to archaeological remains are implemented ahead of any disturbance during construction of the Project;
- to set out the key roles and respective responsibilities relevant to the delivery of archaeological works;
- to outline the known and potential archaeological receptors that could be impacted by the Project;
- to set out the overarching procedures and standards for archaeological works; and
- to set out the importance of research frameworks in setting objectives.

1.3.1.3 Due to the optionality within the Project design envelope at submission, the Outline WSI does not provide detail on proposed survey areas etc. The detailed scope of the archaeological works will be determined on the basis of the final design. Archaeological works will be expected to be undertaken in areas of planned ground disturbance.

1.3.1.4 The Final WSI shall state the legislative requirements, current standards of practice and best practice measures that define the standard of construction practice adhered to by the Contractors. However, adhering to the Final WSI does not absolve the Applicant, Principal Contractors or Subcontractors from complying with legislation and bylaws relevant to their construction activities.

1.4 Legislation and guidance

1.4.1.1 The Outline WSI has been developed with reference to the following key legislation:

- Historic Environment Scotland Act 2014;
- Historic Environment (Amendment) Act Scotland 2011;

- Planning (Listed buildings and Conservation areas) (Scotland) 1997;
- Town and Country Planning (General Development Procedure) Scotland Order 1992;
- Electricity Act 1989;
- Protection of Military Remains Act 1986; and
- Ancient Monuments of Archaeological Areas Act 1979.

1.4.1.2 The Outline WSI has been developed with reference to the following key policies:

- National Planning Framework 4 (NPF4) 2023;
- Aberdeenshire Council Local Development Plan 2023;
- Aberdeenshire Council Natural Heritage Strategy 2019-2022;
- Historic Environment Policy for Scotland 2019 (HEPS) 2019; and
- Historic Environment Circular 1, Planning Advice Note (PAN) 2/2011 2011.

1.4.1.3 Relevant professional standards are listed in **Section 5.1.3**.

1.5 Implementation of the WSI (onshore)

1.5.1.1 The Final WSI, approved by Aberdeenshire Council will be incorporated into the contracts for the Principal Contractor responsible for the works. All parties involved, including Principal Contractors, Subcontractors and their suppliers, must comply with the relevant provisions of the Final WSI. They are obligated to provide documentation outlining how they will guarantee both the implementation and monitoring of the WSI requirements.

1.6 Scope of Final WSI (onshore)

1.6.1.1 The Final WSI will cover the following:

- onshore construction personnel, roles and responsibilities, and reporting structures in relation to environmental management, including for Principal Contractor and Subcontractors;
- onshore procedure for communicating and reporting any environmental compliance matters associated with the Onshore WSI with Aberdeenshire Council Archaeological Service;
- the onshore overarching archaeological mitigation strategy, a project archaeological background and research agendas; and
- standards for archaeological work, including all stages of work required to deliver archaeological mitigation measures, including fieldwork, analysis and reporting.

1.6.1.2 In addition, provision will be made for individual site-specific written schemes of investigation (SSWSIs) applicable to the pre-construction and construction stage works, which will be produced to describe in detail the measures for individual phases of investigation and mitigation within defined work areas within the Onshore Red Line Boundary.

1.6.1.3 Archaeological mitigation measures will be developed based on existing desk-based assessments and the results of any subsequent field surveys undertaken post-consent. For each stage of archaeological investigation, SSWSIs will be prepared to outline the proposed approach. SSWSIs will also be produced where mitigation is required following evaluation

surveys. The development of these strategies will involve input from relevant specialists (for example, geoarchaeologists, environmental archaeologists) and will be aligned with the detailed design as it evolves post-consent.

1.7 Other related implementation plans

1.7.1.1 The Final WSI and SSWSIs will be developed with consideration of the content and requirements of other relevant Implementation Plans.

1.8 Project roles

1.8.1.1 Effective implementation of this Outline WSI requires clearly defined roles and responsibilities to ensure archaeological requirements are met throughout the project lifecycle. The key roles involved are outlined below in **Section 1.8.2** to **1.8.6**, with further detail to be provided in the Final WSI and SSWSIs for specific works.

1.8.2 The Applicant – MarramWind Limited

1.8.2.1 The Applicant (with their appointed contractors to the roles described in this Outline WSI) will be responsible for implementing the Final WSI (and subsequent SSWSIs). The Applicant will ensure that all relevant project personnel understand the archaeological requirements.

1.8.3 Onshore Archaeological Clerk of Works (ACoW)

1.8.3.1 The Onshore ACoW will be appointed by and act on behalf of the Applicant. The ACoW will provide advice, monitoring and supervision in the completion of agreed archaeological works.

1.8.3.2 The Onshore ACoW will be suitably qualified and experienced, with expertise appropriate to the responsibilities of this role. They will monitor all archaeological works on behalf of the Applicant and ensure that this Outline WSI, and any subsequent SSWSIs, fieldwork, and reporting, are properly implemented. The ACoW will also review archaeological method statements, sampling and finds policies, and reporting outputs. In addition, they will lead consultation with the Archaeological Curator (see **Section 1.8.4**), as advised by the Applicant, and ensure that this consultation is maintained throughout all stages of the archaeological works.

1.8.3.3 The Onshore ACoW will report to the Applicant and will provide advice to the Applicant to inform communication with stakeholders and contractors in relation to the implementation of the WSI and SSWSIs.

1.8.3.4 Attendance at site monitoring visits and meetings will be required by the Onshore ACoW during the archaeological works, as appropriate.

1.8.4 Archaeological curator

1.8.4.1 The curatorial responsibility for the historic environment of the onshore components of the Project post-consent resides with Aberdeenshire Council, with the Archaeological Officer at Aberdeenshire Council being the relevant Archaeological Curator for the onshore components of the Project.

1.8.4.2 The Archaeological Curator will be provided with copies of all relevant project documentation and will be consulted in all aspects of the historic environment.

1.8.4.3 As required, SSWSIs, reports and deliverables will be submitted to the Archaeological Curator by the Applicant. The Archaeological Curator may attend site visits and / or meetings where requested / required during monitoring of archaeological works.

1.8.4.4 Archaeological fieldwork will require signing off by the Archaeological Curator for each stage of the construction of the onshore infrastructure.

1.8.5 Principal contractor

1.8.5.1 The Principal Contractor will be appointed by the Applicant. Where the appointed Principal Contractor has responsibility for the construction stage of work, any archaeological works undertaken during this stage will be managed by them.

1.8.5.2 The Principal Contractor will inform the Onshore ACoW and Archaeological Contractor of any environmental constraints or matters relating to health, safety and welfare of which they are aware that is relevant to the archaeological works.

1.8.5.3 The Principal Contractor will ensure that all relevant project personal understand the archaeological requirements and will ensure no groundworks are undertaken in any area of the Onshore Red Line Boundary prior to the fulfilment of archaeological requirements and written sign-off from the Archaeological Curator, where relevant. Written confirmation of fulfilment of archaeological requirements should be provided to the Principal Contractor.

1.8.6 Archaeological contractor

1.8.6.1 Archaeological works (carrying out the fieldwork, post-excavation reporting, deposition of the archive and dissemination) will be undertaken by an Archaeological Contractor. Completion of archaeological works will be under the supervision of the Onshore ACoW. The Archaeological Contractor will have appropriate experience and be able to maintain appropriate staffing for the proposed work. The Archaeological Contractor shall be a Registered Organisation of the Chartered Institute for Archaeologists (CIfA) or have equivalent experience and expertise. The Archaeological Contractor shall be responsible for supplying any specialist technical or analytical services required for specific archaeological procedures.

2. Archaeological and historic background

2.1 Introduction

2.1.1.1 The Onshore Red Line Boundary encompasses all elements of the onshore infrastructure above MLWS. A study area extending 500m from the Onshore Red Line Boundary was adopted as part of the archaeological assessment in order to inform an understanding of the archaeological interests of identified assets and the potential for the presence of currently unidentified archaeological remains.

2.1.1.2 The historical and archaeological background for the Onshore Red Line Boundary has been documented in **Volume 3, Appendix 24.1: Onshore Archaeology and Cultural Heritage Desk Study** and **Volume 1, Chapter 24: Onshore Archaeology and Cultural Heritage**.

2.1.1.3 A gazetteer of heritage records within the Onshore Red Line Boundary and 500m study area are provided in **Volume 3, Appendix 24.2: Onshore Archaeology and Cultural Heritage Gazetteer** and shown on **Volume 2, Figure 24.1 Designated heritage assets** and **Volume 2, Figure 24.2 Historic environment records - monument, canmore records and light detection and ranging interpretation**.

2.2 Summary of heritage assets and archaeological potential

2.2.1.1 **Volume 1, Chapter 24 Onshore Archaeology and Cultural Heritage** identified the following heritage assets within the Onshore Red Line Boundary, broadly from east to west:

- World War II pillboxes (NK14NW0084; NK15SW0008; NK14NW0080; NK14NW0081; NK14NW0082; Canmore ID 367561; and 367562) – impact avoided through embedded environmental measure M-209;
- Scotson, site of former building (NK15SW0022);
- Prehistoric artefacts (Canmore ID 21346; NK15SW0003);
- Scotston, former Canal (NK15SW0005);
- Historic building (NK15SW0020) – impact avoided through embedded environmental measure M-207;
- Site of former farmstead (NK15SW0023);
- Remains of former farmstead and enclosures (NK15SW0012);
- Royal Observer Corps Post (NK15SW0094) – impact avoided through embedded environmental measure M-208;
- WWI Royal Observer Corps Post (NK15SW0006) – impact avoided through embedded environmental measure M-208;
- Cropmark of a ring ditch (NK14NW0031);
- Possible Iron Age settlement (NK14NW0001);
- Lunderton Bridge (NK14NW0600);
- Hallmoss Aqueduct (NK14NW0598);

- Lunderton Sluice (NK14NW0599);
- Cuttie Burn / Ugie Canal (NK15SW0013; NK04NE0025);
- Prehistoric artefacts (Canmore ID 86535; Canmore ID 106983);
- Possible Prehistoric Burial site (NK04NE0003);
- Earthwork remains of former historic field boundaries (RSply_ID_028; RSply_ID_033; RSply_ID_035; RSply_ID_036-38);
- Longside (Peterhead) Airfield (NK04NE0027);
- Remains of former building (NK04NE0045);
- Historic Mineral Extraction pits (RSply_ID_032; RSply_ID_044; RSply_ID_047; RSply_ID_042; RSply_ID_043);
- Rig and Furrow earthworks (RSply_ID_040-41);
- Downiehill brick and tile works (NK04NE0006);
- Air Raid Shelters and Military Camps (Canmore ID 13132);
- Rectangular cropmark, East Thunderton (NK04NE0042);
- Upstanding remains of former hospital block for Longside Airfield (NK04NE0054);
- Remains of Battle Headquarters associated with Peterhead (Longside) Airfield (NK04NE0125) – impact avoided through embedded environmental measure M-207; and
- Mineral extraction pits (NK04NE0073; NK04NE0067; RSply_ID_049; RSply_ID_050; RSply_ID_051).

2.2.1.2 In addition, the existing baseline indicates there is potential for as yet unknown archaeological remains to be present within the Onshore Red Line Boundary (detailed in **Volume 3, Appendix 24.1**. This is summarised below for the Project zones (as shown on **Volume 2, Figure 5.1 Onshore Red Line Boundary (zones)**.

2.2.1.3 For the landfall(s), there is:

- high potential for palaeoenvironmental remains, focused around the River Ugie and alluvial deposits;
- medium potential for archaeological remains associated with prehistoric settlement and land use;
- medium potential for prehistoric artefacts;
- very low potential for further remains of historic structures of post medieval date;
- low potential remains of former boundaries of medieval or post medieval date; and
- low potential for further remains of historic structures associated with 20th century defence infrastructure.

2.2.1.4 For the onshore export cable corridor zone A, there is:

- low to medium potential for palaeoenvironmental remains focused on the River Ugie and;
- medium potential for archaeological remains possibly associated with prehistoric settlement and land use;

- medium potential for as-yet unknown prehistoric artefacts;
- medium potential for remains of former medieval or post medieval rig and furrow;
- low potential for the remains of former field boundaries of possible post medieval date; and
- medium potential for possible mineral extraction pits of unknown date.

2.2.1.5 For the onshore substation zone:

- low potential for palaeoenvironmental remains; and
- medium potential for archaeological remains associated with 20th century military and defence infrastructure.

2.2.1.6 For the onshore export cable corridor zone A:

- low to high potential for palaeoenvironmental remains;
- low potential for archaeological remains relating to prehistoric settlement and land use;
- medium potential for the remains of former mineral extraction pits of unknown date; and
- low potential for remains associated with 20th century military infrastructure.

3. Research Context

3.1 Introduction

3.1.1.1 Archaeological excavation is key for mitigation, but by its very nature a destructive act which results in the removal and loss of any physical archaeological remains. To ensure that this loss has a valuable outcome we must ensure that it contributes to our wider understanding and is placed within a broader research context. This Section will outline how the onshore archaeological work will align with national research priorities, and how it can help contribute to advancing knowledge of the historic environment of Aberdeenshire, and more broadly, Scotland.

3.1.1.2 The national Scotland Archaeological Research Framework (ScARF, 2012; undated) has been used to guide the identification of relevant research questions. ScARF outlines key research themes by period at the national level. While the North-East Scotland Regional Research Framework (NESRRF) is still in development and has only produced a definitive set of region-specific questions for the Upper Palaeolithic, Mesolithic and Neolithic, the national framework provides a suitable basis for the onshore components of the Project. Research priorities have been identified by considering the known and potential archaeological interest of the land required for construction and aligning these with the broader themes set out in ScARF and where available NESRRF.

3.2 General

3.2.1.1 Due to this Project being a linear scheme, it presents the opportunity to provide a representative sample of material from a range of topographical and geographical locations. It also allows for techniques of archaeological investigation to be tested over different areas and geological substrates. The linear form of the Project provides an opportunity to study the following:

- how different geological and topographical contexts in which archaeological remains are found to exist in along the Onshore Red Line Boundary; how the landscape across the coastal and inland areas been occupied, exploited or modified from prehistory through to the modern period; and
- how the archaeological record along the Onshore Red Line Boundary compares with other previously studied areas nearby, and whether comparison can be drawn with the wider understanding of the northeast of Scotland.

3.3 Prehistoric

3.3.1.1 The Prehistoric period includes remains from the Palaeolithic to the Iron Age. These periods are reasonably well understood in the northeast of Scotland; however, there are clear gaps in knowledge. The onshore components of the Project present the opportunity to investigate:

- is there any evidence of change or continuity of settlement patterns from the Neolithic through to the Iron Age?
- how can identified prehistoric features or artefacts found within along this route relate to the broader patterns of ritual, burial, settlement and everyday life in north-east Scotland?
- is there evidence for early prehistoric activity along the proposed onshore export cable corridor and, does the archaeological evidence support the presence of early prehistoric

activity (Palaeolithic or Mesolithic) in the inland or hinterland areas north of the River Ugie?

- is there any archaeological evidence of continuity, transformation or reorganisation of land use from the iron age into the early Pictish period?

3.4 Medieval

3.4.1.1 The medieval period represents a period of change religiously and socially from the prehistoric period. It is relatively well understood in the northeast of Scotland; however, ScARF has identified gaps in knowledge nationwide that the onshore component of this Project can present the opportunity to investigate:

- what evidence is there for rural medieval settlement and agriculture along Onshore Red Line Boundary and how does this inform our understanding of the land use and daily life beyond elite centres?
- is there continuity or reorganisation of settlement and land use from the Pictish period into the medieval era, what could this suggest about changing social or political structures?
- what could material culture and environmental remains from the medieval period along the Onshore Red Line Boundary tell us about subsistence strategies, craft activity and participation in local or regional trade?

3.5 Post medieval

3.5.1.1 The post medieval era saw further development in land improvement, settlement and local and national infrastructure from the medieval period. ScARF highlights some areas requiring further research areas nationally that can be applied to the north-east of Scotland. The onshore components of this Project may give the opportunity to investigate:

- what evidence survives for agricultural improvement, enclosure, and changing land use practices in the post medieval period?
- how does post medieval rural settlement along the Onshore Red Line Boundary relate to broader processes of population movement or landscape reorganisation?
- can material and environmental evidence recorded along the Onshore Red Line Boundary contribute to understanding daily life, economic and landscape management during the post medieval period?
- how do post medieval infrastructure features (for example, tracks, railways, canals, drainage systems, field boundaries or industrial remains) relate to regional economic changes in the 18th and 19th centuries?

3.6 Modern

3.6.1.1 The modern period in this part of the northeast of Scotland saw the continued progression of industry in population centres like Peterhead and a lot of conflict in the form of bombing during the second world War. This period is well documented and understood but there is some research contexts laid out by ScARF, that the onshore component of this Project may give the opportunity to investigate:

- what evidence is there along the Onshore Red Line Boundary for 20th century military infrastructure, especially from WWII, and how does this contribute to our understanding of north-east Scotland's role in wartime defence and logistics?

- how have military sites and landscapes from WWII period been repurposed, abandoned or incorporated into modern land use?

4. Development Impacts and Archaeological Response

4.1.1.1 Any Project activity which disturbs the ground, such as groundworks associated with construction of the landfall(s), onshore export cable corridor, transition joint bays, horizontal directional drilling pads and onshore substations, temporary construction compounds, haul roads and access tracks have the potential to damage or remove archaeological features, structures and deposits that may be present within the Onshore Red Line Boundary.

4.1.1.2 Archaeology is a non-renewable resource. When impacts cannot be avoided through exclusion from the Project, or changes in design, a programme of archaeological works (appropriate to the significance of the archaeological remains) is required to mitigate impact through investigation and detailed recording of archaeology likely to be damaged or destroyed by the Project.

4.1.1.3 Desk-based research as set out in the desk study (**Volume 3, Appendix 24.1**) has established that the Onshore Red Line Boundary has archaeological potential, indicated by data from the Aberdeenshire Historic Environment Record, and analysis of satellite imagery, LiDAR data and historic mapping.

4.1.1.4 Further evaluation of the archaeological potential will be undertaken to establish the presence or absence, and character and significance of archaeological remains. The scope of the evaluation stage will be determined through consultation with the Archaeological Curator but the investigation methods phase may include:

- geophysical survey;
- evaluation trenching; and
- geoarchaeological investigations and / or geoarchaeological monitoring of geotechnical investigations.

4.1.1.5 The results of the archaeological evaluations will inform a programme of archaeological mitigation. The purpose of which is to construct a detailed record of the archaeological remains that will be lost or damaged as a result of the construction stage of the Project. The scope of the evaluation stage will be determined through consultation with the Archaeological Curator, but the principal investigation methods to undertake this mitigation phase may include:

- archaeological monitoring (watching brief);
- archaeological excavation; and
- historic building recording.

4.1.1.6 The mitigation method used for each area of archaeological interest will reflect the archaeological potential identified at evaluation and the level of impact. The type of investigation initiated may change if significant archaeological remains are identified during the archaeological mitigation which were not indicated at the evaluation phase. For example, Archaeological Monitoring may be upgraded to Archaeological Excavation if important archaeological sites or features are identified at this stage.

4.1.1.7 The detail of evaluation and mitigation proposals, including the most appropriate methodology, and the exact extent of any intervention, will be agreed with the Archaeological Curator.

5. Archaeological Response

5.1 General principles

5.1.1 Aims

5.1.1.1 Archaeological work is intended to:

- mitigate loss of archaeological interest of at-risk heritage assets; and
- inform planning of non-archaeological (for instance, avoidance and design) mitigation.

5.1.2 Objectives

5.1.2.1 All archaeological mitigation will be proportionate to the significance and extent of the potential effects on archaeological remains and will be designed to address the specific research agenda set out in **Section 3**. The objectives of the archaeological evaluation and mitigation strategy are to:

- identify archaeological remains (extent, condition, character, and significance) which may be disturbed by the onshore components of the Project;
- where reasonably practicable, ensure that such remains are appropriately protected from disturbance during construction activities (preservation through avoidance);
- ensure that any remains which are disturbed are appropriately investigated and recorded (preservation by record);
- carry out appropriate post-excavation analysis to allow site records and analysis of archaeological material to be synthesised into an appropriate interpretative report; and
- disseminate the findings of the archaeological investigations at a level commensurate with their significance.

5.1.3 Professional standards

5.1.3.1 The following professional standards apply:

- Standard for archaeological field evaluation (CIfA 2023a) and Universal guidance for archaeological field evaluation (CIfA 2023b);
- Standard for archaeological monitoring and recording (CIfA 2023c) and Universal guidance for archaeological monitoring and recording (CIfA 2023d);
- Standards for archaeological excavation (CIfA 2023e) and Universal guidance for archaeological excavation (CIfA 2023f);
- Standard and guidance for archaeological geophysical survey (CIfA 2020a);
- Standard and guidance for the collection, documentation, conservation and research of archaeological materials (CIfA 2020b);
- Updated Guidelines to the Standards for Recording Human Remains (CIfA and BABAO (2017);
- Standard and guidance for the creation, compilation, transfer and deposition of archaeological archives (CIfA 2020c); and

- Code of Conduct (CIfA 2022).

5.1.3.2 Where necessary, additional technical guidance and standards are provided within the discussion of relevant evaluation and mitigation techniques in **Section 5.2**, **Section 5.3** and **Section 5.4**.

5.2 Proposed methodology and application

5.2.1.1 This Section provides an overview of the proposed evaluation and mitigation strategy to be used in finalising the WSI and in developing the SSWSIs established in response to meeting the aims and objectives in **Section 5.1** and **5.2**. The proposed application of each method is described in **Section 5.3**, whilst the professional standards by which all archaeological work will be undertaken are listed for each method or activity within **Section 5.4**. The work outlined by this Outline WSI relate to the proposed onshore construction activity within the study area.

5.2.2 Evaluation phase

5.2.2.1 Aside from site walkovers and desk-based research, no previous archaeological investigations have been undertaken within the Onshore Red Line Boundary for this Project. Targeted evaluation will be undertaken prior to construction to inform the mitigation phase. This may involve:

- geophysical survey, if requested by the Archaeological Curator, and only within areas of the Onshore Red Line Boundary where ground conditions and underlying geology are suitable for such techniques;
- trial trenching within areas of proposed ground disturbance within the Onshore Red Line Boundary, such as the landfall(s), onshore export cable corridor, onshore substations and temporary construction compound sites; and
- geoarchaeological investigations and / or geoarchaeological monitoring of geotechnical investigations.

5.2.2.2 Engagement with the Archaeological Curator must be sought prior to archaeological works commencing, in order to ascertain the level of evaluation required.

5.2.3 Mitigation phase

5.2.3.1 The results of the archaeological investigations in the evaluation phase will inform a programme of archaeological mitigation.

5.2.3.2 All archaeological mitigation will be proportionate to the significance and extent of the potential effects on archaeological remains and will be designed to address the specific research agenda set out at **Section 3**.

5.2.3.3 Where archaeological remains will be lost or damaged as a result of the onshore components of the Project, these will preserved by record. The principal investigation methods to undertake this mitigation phase are:

- archaeological monitoring (watching brief);
- archaeological excavation; and
- historic building recording.

5.2.3.4 The mitigation method used for each area of archaeological interest will reflect the archaeological potential identified at evaluation and the level of impact. The type of

investigation initiated may change if significant archaeological remains, not indicated at evaluation, are identified during the mitigation, for example, Archaeological Monitoring may be upgraded to Archaeological Excavation, if important archaeological sites or features are identified.

5.2.3.5 The detail of evaluation and mitigation proposals, including the most appropriate methodology, and the exact extent of any intervention will be agreed with the Archaeological Curator, and will be set out within the SSWSIs. Any amendments which may be required to SSWIs will need to be agreed with the Archaeological Curator.

5.2.3.6 In addition, the Project has the potential to directly impact a non-designated built heritage asset: Upstanding remains of former hospital block for Longside Airfield (NK04NE0054). Where avoidance is not possible, a programme of historic building recording is likely to be required in advance of demolition works.

5.3 Evaluation and mitigation techniques

5.3.1 Evaluation

Geophysical survey

5.3.1.1 Where geophysical survey is undertaken, this will likely take the form of magnetometry survey in order to identify geomagnetic anomalies of potential archaeological origin. However, the use of this survey technique is unlikely to be suitable in areas of the Onshore Red Line Boundary where there is underlying igneous bedrock (see **Volume 2, Figure 24.5: Geology**). In these areas, it may be more appropriate to progress directly to evaluation trenching, where archaeological remains might potentially be affected. Application of geophysical survey, if adopted, is therefore likely to be targeted and piecemeal, and therefore its inclusion in the evaluation phase of the Outline WSI is a precautionary measure. Details of scope and methodology for geophysical survey would be set out in a SSWSI and agreed with the Archaeological Curator.

5.3.1.2 Geophysical work and reporting will be carried out in line with professional guidance:

- EAC Guidelines for the Use of Geophysics in Archaeology (Schmidt et al 2016); and
- Chartered Institute for Archaeologists Standard and Guidance for archaeological geophysical survey (CIfA 2020a).

Evaluation trenching

5.3.1.3 The objective of trial trench evaluation as defined by the CIfA is to '*determine, record and report on the nature, extent, preservation and significance of archaeological remains within a defined area*' (Chartered Institute for Archaeologists, 2023a). The results of the evaluation will inform an appropriate mitigation strategy for any further archaeological remains, if required.

5.3.1.4 Details of the trial trenching to be carried out will be provided within the SSWSIs and will be based on a sampling strategy commensurate to anticipated archaeological remains to be evaluated. This shall be proportionate to the potential and significance of the archaeological interests and will be determined on the basis of desk study and survey information and in consultation with the Archaeological Curator.

5.3.1.5 Evaluation trenching will comprise the excavation of a sample of the area to be affected by construction of the onshore components of the Project, typically using 30m or 50m by 1.8m or 2m, trenches unless otherwise agreed with the Archaeological Curator.

5.3.1.6 All evaluation trenches will be opened initially by a mechanical excavator equipped with a toothless grading bucket, under supervision of the archaeological fieldwork contractor, who will decide when remains of archaeological significance requiring recording are revealed.

5.3.1.7 Following initial exposure of archaeological horizons (a specific layer or level within a stratigraphic sequence that is characterized by a distinct set of archaeological artifacts or features), investigation by the archaeological fieldwork contractor will be by hand, including cleaning, examination, sampling and recording (see below) in the appropriate manner. Archaeological hand dug investigation, and recording will proceed only until significant archaeological levels have been reached and will be sufficient to allow the nature, extent, survival and significance of archaeological remains to be identified.

5.3.1.8 It may be appropriate to resort to supervised machine excavation, a technique that is only appropriate for the removal of homogeneous and 'low-grade' layers where it can reasonably be argued that more detailed attention would not produce information of value, and where their removal may give a 'window' onto underlying levels.

5.3.1.9 The levels at which all sampling excavation and / or mechanised excavation will cease will be determined by consultation between the Onshore ACoW and the Archaeological Curator. This will typically entail a site visit. Where the evaluation has revealed no significant archaeological remains digital photographs may be sufficient.

5.3.1.10 In addition to the evaluation of archaeological (for instance, man-made) deposits, in accordance with an identified research objective, an assessment of natural deposits may be necessary, especially when these are organically preserved and laid down within archaeological timescales; for example, alluvial or peat deposits, which can hold palaeoenvironmental potential.

5.3.1.11 In the unlikely event that remains of very high significance warranting preservation in situ are identified, the Archaeological Contractor will inform the Onshore ACoW immediately, who will then consult with the Archaeological Curator. Appropriate measures will be taken to protect such remains from any damage or deterioration. This might involve for instance protective boxing, wrapping deposits or features in a geo-textile such as terram, sealing with sand or other suitable soft materials, or other means as deemed suitable / appropriate in consultation with the Archaeological Curator and relevant specialists, where required.

5.3.1.12 Topsoil and subsoil will be stored separately adjacent to each trench to enable backfilling.

Sampling strategy

5.3.1.13 In order to obtain sufficient information on the likely nature, date, extent, survival and significance of any potential archaeological features and deposits identified, these will be sample excavated by hand. It is not the objective of the evaluation to archaeologically excavated features in their entirety as this would form part of a future mitigation strategy for preservation by record.

5.3.1.14 The following sampling strategy will be carried out:

- linear features will be hand excavated to achieve a minimum of a 10 per cent sample along their length, with a minimum of a section of 1.0m width;
- the termini of any linear features will hand excavated sufficient to determine their form.
- significant solid or bonded structural remains, building slots or postholes will be preserved intact, even if fills are sampled;
- discrete features such as postholes and pits will be 50 per cent excavated; and

- complex features such as hearths, kilns and structural / funerary / industrial features will be excavated sufficient to establish their form, phasing and construction techniques. All intersections will be investigated to determine the relationship(s) between the component features.

5.3.1.15 Datable finds from the sampled areas will be recovered to allow features and deposits to be dated.

5.3.1.16 In addition to the recording of archaeological (for instance, man-made) deposits, in accordance with an identified research objective, an assessment of natural deposits may be necessary, especially when these are organically preserved and laid down within archaeological timescales; for example, alluvial or peat deposits, which can hold palaeoenvironmental potential.

Geoarchaeological investigations and / or geoarchaeological monitoring of geotechnical investigations

5.3.1.17 In advance of non-archaeological geotechnical works being undertaken, the scope of these works should be reviewed by a geoarchaeological specialist to understand where geoarchaeological monitoring of such works may be of value. Borehole or test pit logs produced by geotechnical works may be reviewed by a geoarchaeological specialist and information used where relevant to inform / update a site deposit model.

5.3.1.18 Geoarchaeological boreholes, augering or test pits may be undertaken either as standalone or as a component of other archaeological investigations, to confirm the extent, nature and significance of any surviving deposits with geoarchaeological potential in areas where there may be developmental impact within the Onshore Red Line Boundary.

5.3.1.19 The assessment of significance of any surviving remains will be undertaken in the context of the wider archaeological regional research priorities, as set out in the overarching research agenda for the ScARF, and where available NESRRF. Objectives and research questions for these works are expected as a minimum to broadly consider the following:

- the nature and level of natural topography;
- the earliest and latest deposits;
- the presence and nature of paleoenvironmental deposits;
- evidence for period-specific remains; and
- the extent of modern / post-depositional disturbance.

5.3.1.20 The scope of geoarchaeological investigations and monitoring will be agreed with the Archaeological Curator and specified in a SSWSI.

5.3.2 Mitigation

Archaeological monitoring (watching brief)

5.3.2.1 Archaeological monitoring (watching brief) will be used:

- to provide opportunities for archaeological investigation and recording in circumstances where investigation would otherwise be impractical; or
- where archaeological remains of limited value or extent are suspected within a working area.

5.3.2.2 The aim of the watching brief is defined by the CIfA, is "*a formal programme of observation, investigation and recording conducted during works carried out for non-archaeological reasons, where there is a possibility that archaeological deposits may be disturbed or destroyed. This will be within a specified area or site on land, in an inter-tidal zone or under water*." (CIfA 2023b).

5.3.2.3 The guidelines further state that the purpose of a watching brief is "*to allow… …the preservation by record of archaeological deposits, the presence and nature of which could not be established… …in advance of development or other potentially disruptive works' and 'to provide an opportunity, if needed, for the watching archaeologist to signal to all interested parties, before the destruction of the material in question, that an archaeological find has been made for which the resources allocated to the watching brief itself are not sufficient to support treatment to a satisfactory and proper standard*".

5.3.2.4 The aim of the watching brief is record, as far as reasonably possible, the location, extent, condition, significance, and quality of any survival archaeological remains discovered and observed; carry out a programme of post-excavation assessment; and disseminate the results.

5.3.2.5 It will comprise an archaeologist being present, either continuously or on an agreed schedule of inspection-based visits, during intrusive groundworks so that the presence, or absence, of archaeological remains can be confirmed, and any such remains can be appropriately recorded.

5.3.2.6 The risk that archaeological remains might be present will be well established on the basis of previous stages of evaluation and / or mitigation, and the areas identified within the SSWSIs. Any site-specific requirements will be set out in the individual SSWSIs.

5.3.2.7 The need to monitor construction activity will be predictable, and appropriate arrangements for inspection visits by the Archaeological Curator will be acceptable in most instances.

5.3.2.8 Following initial exposure of archaeological horizons, if identified, investigation by the archaeological fieldwork contractor will be by hand, including cleaning, examination, sampling and recording (see below) in the appropriate manner. Archaeological hand dug investigations, and recording will proceed only until significant archaeological levels have been reached and will be sufficient to allow the nature, extent, survival and significance of archaeological remains to be identified.

5.3.2.9 In addition to the recording of archaeological (for instance, man-made) deposits, in accordance with an identified research objective, an assessment of natural deposits may be necessary, especially when these are organically preserved and laid down within archaeological timescales; for example, peat deposits, which can hold palaeoenvironmental potential.

5.3.2.10 In the unlikely event that remains of very high significance are identified, the archaeological fieldwork contractor will consult with the Archaeological Curator. The identification of such remains may require further fieldwork, such as targeted excavation, with the deployment of additional archaeological staff. Appropriate measures will be taken to protect such remains from any damage or deterioration. This might involve for instance protective boxing, wrapping deposits or features in a geo-textile such as terram, sealing with sand or other suitable soft materials, or other means as deemed suitable / appropriate in consultation with the Archaeological Curator and relevant specialists, where required.

5.3.2.11 Archaeological monitoring and recording will be undertaken to the standards set out at **Section 5.4.**

Archaeological excavation

5.3.2.12 Archaeological excavation will be undertaken where evaluation has identified the extent and character of significant archaeological remains, allowing for a definitive investigation area, sampling and finds recovery policy to be defined.

5.3.2.13 The individual defined areas identified for set-piece excavation will be set out in the individual SSWSI. This will include provision to extend areas if important archaeology continues beyond the defined extent.

5.3.2.14 Following initial machine overburden strip, which will be directed and monitored by the Archaeological Contractor, the area should be examined, and a plan of identified and potential archaeological features and deposits prepared at an appropriate scale. This will inform proposals for sample excavation, to be agreed with the Archaeological Curator.

5.3.2.15 This requirement to sample and record identified features will be continually monitored during fieldwork and amended according to its effectiveness in meeting research objectives. Where necessary to allow construction activity to continue, the release of a part of an area may be agreed with the Archaeological Curator once and appropriate agreed level of investigation has been completed. In this situation, areas which have not been released will be clearly demarcated.

5.3.2.16 Following completion of archaeological investigation to the satisfaction of the Archaeological Curator, the relevant area, or agreed parts thereof, will be released to the Principal Contractor to enable construction activity to proceed.

5.3.2.17 Set-piece excavation and recording will be undertaken to the standards set out at **Section 5.4**. Any site-specific sampling requirements will be set out within the individual SSWSIs.

Historic building recording

5.3.2.18 Where the Project design requires the demolition of the upstanding remains of former hospital block for Longside Airfield (NK04NE0054), a programme of historic building recording will be required in advance. The scope of the works should be agreed with the Archaeological Curator, however, it is anticipated based on the condition and heritage value of the asset that this would take the form of a Level 1 or 2 building survey (Historic Environment Scotland 2003), which is likely to comprise the production of a drawn, photographic and written record.

5.4 Standards for archaeological work

5.4.1 Machine overburden strip

5.4.1.1 For all areas identified as requiring intrusive archaeological work in SSWSIs, removal of topsoil or overburden to the first significant archaeological horizon will be undertaken by a back-acting excavator fitted with a wide (1.8m or 2m) toothless ditching bucket, under the continuous supervision of the Archaeological Contractor with the authority to halt and direct machine excavation.

5.4.1.2 Spoil will be temporarily stockpiled onsite at an identified location, at a safe distance from the stripped areas, and other archaeological constraints, to the satisfaction of the Principal Contractor. Topsoil, subsoil, and archaeological deposits should be kept separate during excavation to allow for subsequent backfilling of the excavated area. Topsoil should be examined for archaeological material.

5.4.1.3 Areas stripped for, or under, archaeological investigation must be clearly marked and identified to the Principal Contractor, so that the area is not tracked over, or otherwise disturbed, until the area is clear of archaeological remains. The Onshore ACoW will confirm to the Principal Contractor when an area has been released from archaeological control, and vehicle can track over the specified area.

5.4.1.4 The first significant archaeological horizon, and all subsequent archaeological deposits, will be cleaned by hand. Excavation of any archaeological deposits identified will proceed by hand to the standards set out below, unless agreed with the Archaeological Curator or to any site-specific requirements set out in the individual SSWSIs.

5.4.1.5 Following completion of archaeological investigation to the satisfaction of the Archaeological Curator and the Principal Contractor, each trench or excavation area will be backfilled with the spoil and compacted by machine to level the fill, unless otherwise instructed by the Principal Contractor.

5.4.2 Hand excavation

5.4.2.1 There is the presumption that excavation of all archaeological deposits will be done by hand unless it can be shown there will not be a loss of evidence by using a machine.

5.4.2.2 Archaeological features will be hand cleaned prior to excavation, to provide accurate definitions. For linear features, such hand cleaning will be targeted at sample excavation points. Deposits interpreted as natural subsoil should be tested by hand, or machine excavation to determine the validity of this interpretation. Where features are interpreted as natural, a percentage of these features, agreed with the Archaeological Curator, will be hand excavated to establish the accuracy of the interpretation.

5.4.3 Excavation

5.4.3.1 Features will be excavated according to the following sampling strategy:

- Features which are, or could be, interpreted as structural must be fully excavated.
- Postholes and pits must be examined in section. Full excavation may be appropriate for specific problem solving, complex depositional sequences and finds recovery. Full excavation may also be appropriate if pits or postholes are small.
- Fabricated surfaces (for example, yards and floors) must be fully exposed and cleaned, and representative sections excavated, to determine their construction and whether they seal earlier deposits. Where earlier features are suspected of underlying surfaces, the surface will be hand-lifted once it has been fully recorded. The collection of spatially distinct samples will be considered to investigate the use / function of an area and if different activity zones can be identified.
- All burial deposits and associated remains will be subject to 100 per cent excavation and recorded in accordance with an agreed methodology.
- Other features must be sufficiently examined to establish, where possible, their date and function. In general: 50 per cent of the representative non-structural linear cut features; and 10 per cent of the fills of substantial linear features (for example, ditches) in order to establish the feature's character, date and morphology and to provide information on activities taking place in close proximity to the feature. These samples may be varied with the agreement of the Archaeological Curator to reflect specific site conditions observed during excavation.

- Where complex sequences are observed during the excavation, an amended excavation strategy will be agreed with the Archaeological Curator.

5.4.3.2 The sampling excavation strategy will be reviewed continuously throughout the course of fieldwork and, if necessary, amended to take account of changing circumstances and understanding. Any changes or amendments will be agreed in advance of implementation with Archaeological Curator and confirmed in writing. For any complex remains, a sampling strategy will be discussed and agreed with the Archaeological Curator.

5.4.3.3 Where insufficient dating material or information has been retrieved from a partially sectioned feature, further sampling may be undertaken, subject to consideration of residuality, or other factors that might limit the integrity of archaeological data, with reference to the research objectives, and in consultation and agreement with the Archaeological Curator. This may include bulk or column sampling for scientific dating, and / or environmental analysis (for example, grain or faunal species) which may provide broad dates.

5.4.3.4 Guidelines for developing site-specific sampling strategies will be set out in the individual SSWSIs. The sampling strategy will be kept under review during the excavation work, and will consider the following:

- A robust spatial framework of excavation to provide an understanding of the distribution of past activities across the investigated area. This will include any 'special' deposits and any patterning in artefact distribution. Such a framework will consider the inter-relationships of major features.
- The investigation of the intersections of features of archaeological fate to obtain a phasing of the site.
- Structural remains and other areas of significant and specific activity (domestic, industrial, religious, hearths, 'special' / patterned deposits etc.) will be excavated and recorded to a degree whereby their extent, date, form and function, and relationship to other features and deposits can be established.

5.4.4 Survey

5.4.4.1 Surveying will be undertaken using a survey-grade global positioning system (for example, Leica CS20/GS08 or Trimble TSC5 + R8/R12/R580).

5.4.4.2 The archaeological excavation area grid will be accurately tied into the OS National Grid and located on the 1:2500 or 1:1250 map of the area. Elevations will be levelled to the Ordnance Datum.

5.4.5 Recording

5.4.5.1 A full and proper record (written, graphic and photographic, as appropriate) will be made for all work. A register of all trenches, features, photographs, survey levels, small finds and human remains will be retained.

5.4.5.2 Unique context numbers will be issued for all features, layers and deposits. Each will be individually documented on a context sheet and drawn in section and plan.

- plans of any archaeological features onsite are to be drawn at 1:20 or 1:50 depending on the complexity of the feature being recorded;
- sections should be drawn at 1:10, or 1:20 depending on the complexity of the feature being recorded;

- all levels should relate to Ordnance Datum;
- a photographic record of the work will comprise digital images (minimum file size of 6MP) taken on a high-resolution digital camera; and
- photographs will include general site shots and photographs of specific features. Photographs will include a scale, north arrow, site code and feature number (where relevant), and will be listed on the photograph register.

5.4.6 Environmental sampling

5.4.6.1 The onsite sampling policy will be inclusive, as the significance of individual features may not be fully understood, until wider patterns of spatial distribution and phasing are understood. As set out in the general methods above, arrangements for the processing of bulk samples taken for the recovery of environmental materials should be confirmed. The minimum bulk sample size will normally be 40 litres or 100 per cent of the deposit if the deposit does not amount to 40 litres, though the final sampling and discard policy for individual archaeological sites will be agreed with the Archaeological Curator and set out within the SSWSI. Processing of samples should be undertaken while evaluation excavations are being undertaken in order that information can be fed back and inform the ongoing strategy.

5.4.6.2 Archaeological deposits will be sampled systematically in bulk samples. All samples will be collected from the fills of cut features, and from any other securely stratified deposits that have the potential to provide environmental or economic information, such as occupation layers or material accumulating on use surfaces. Particular emphasis will be placed on contexts that may supply material suitable for scientific dating of potential early medieval and prehistoric features. Decisions on sampling must also take account of stratigraphic factors, and consider the opportunity to employ chronological, and spatial controls, in the recovery of samples in order to generate environmental information of sufficient quality to meet the research objectives.

5.4.6.3 Provision will be made for column and other appropriate samples to be taken for geoarchaeological assessment, and analysis as appropriate and in line with technical guidance. Due consideration will be given to the collection of samples suitable for microfossil analysis, and other specialised analysis from suitable deposit sequences, that might inform the pattern of changing environmental conditions over time. Waterlogged and cess deposits will be specifically sampled for microfaunal and invertebrate analysis. Bulk samples will also be taken from any waterlogged deposits present for assessment of organic remains. Any organic artefacts that are retrieved during the excavation will be stored in appropriate conditions and assessed by a qualified archaeological conservator.

5.4.6.4 If required, a detailed site-specific sampling policy in line with regional and national guidance will be set out in the individual SSWSI. This will detail specific categories of material that are of interest for the individual archaeological sites and identify a programme of work to support the research objectives. Revised as appropriate throughout the excavation and post-excavation phases.

5.4.7 Artefact recovery and conservation

5.4.7.1 All recovery, retention and treatment of finds and samples will be carried out mindful of the overall purpose of the exercise, for instance, to evaluate for further decision making, as expressed in CIfA (2023a and 2023b). To this end, all artefactual and ecofactual material will be reviewed onsite for its capability to inform the evaluation report.

5.4.7.2 Identified archaeological finds and artefacts will be carefully recovered by hand and bagged or boxed according to the type of artefact (for instance, pottery, ceramic building material / CBM, bone, worked flint, metal) archaeological context from which they came, with a label indicating the site code, find type and context reference number). Particularly notable artefacts will be recorded as a 'registered' find and recorded three dimensionally with Ordnance Datum levels. This will include in situ prehistoric worked flint.

5.4.7.3 Initial conservation and storage will be in a proper manner and to standards set out follow First Aid for Finds (Leigh et al 1998) and the Standard and Guidance for the collection, documentation, conservation and research of archaeological materials (CIfA 2020b). If necessary, an appropriately qualified and experienced archaeological conservator will be appointed to advise and assist in the lifting of fragile finds of significance and or value and to arrange for the X-raying and investigative conservation of objects as may be necessary.

5.4.7.4 Certain classes of bulk material, for instance, post-medieval pottery and building material may be discarded if there is a considerable quantity (more than a single standard archive box of approximately 0.016m²), after recording with a representative sample.

5.4.7.5 All pottery, bone and worked flint will be washed and then marked in accordance with the project archive repository guidelines. Most building material and burnt flint (not including significant diagnostic material) will be identified, counted, weighed and discarded. Samples will be retained as appropriate. The finds identification and specialist work will be undertaken by the relevant finds specialists agreed with the Aberdeenshire Archaeological Advisor to assess the date range of the assemblage with particular reference to pottery use relevant county or region-specific type series for identification and dating, where available. This evidence will be used to characterise the site, and to establish the potential for all categories of finds, should further archaeological work be necessary. Records of artefact assemblages will clearly state how they were recovered, sub-sampled and processed. Consideration will be given for donation of appropriate artefacts to type series reference collections.

5.4.7.6 The arrangement for the final disposal of any artefacts discovered during the archaeological work, will be deposited in keeping with Scottish legal requirements as set out within Scottish Government guidance. All assemblages recovered from archaeological fieldwork must be reported to the Scottish Archaeological Finds Allocation Panel through its secretariat, the Treasure Trove Unit.

5.4.8 Scientific dating

5.4.8.1 Achieving coherent intra and inter-site chronologies across all phases of activity is a key objective as this may help resolve problems in the identification of cultural activity during period when ceramics were not generally available to communities, or where features do not contain readily datable artefacts. A strategy for the selection of samples for scientific dating will be set out for each site in the relevant SSWSI, taking into consideration statistical procedures designed to enhance the accuracy of site chronologies.

5.4.8.2 Samples of material suitable for scientific dating techniques including Accelerator Mass Spectronomy Carbon 14 dating, archaeomagnetism (for example, charred seeds or in situ burnt clay from appropriate contexts), or thermoluminescence will be collected where available in accordance with individual SSWSIs. Where a specialist may be required to visit the site and collect samples this will be identified at the earliest opportunity.

5.4.8.3 Scientific dating will be a significant consideration during the post- excavation assessment and the assessment of the chronology within a Bayesian framework should be considered if significant remains or sequences are identified.

5.4.8.4 Scientific dating, undertaken concurrent with the excavation fieldwork, may be required to inform levels of sampling of certain features or structures, such as wooden trackways. If there is the potential for significant waterlogged wooden remains to be found, a wood specialist may be required onsite to records and sample remains, and dendrochronology specialists be used to support the dating of remains where necessary.

5.4.9 Geoarchaeological investigations

5.4.9.1 The methodology for geoarchaeological investigations will be set out in accordance with the Historic England guidelines for Environmental Archaeology (Historic England 2011) and Geoarchaeology (Historic England 2016).

5.4.9.2 Boreholes will be undertaken by mechanical excavation (for instance, drilling rigs), following hand dug starter pits where necessary. Within deposits with geoarchaeological potential, continuous samples will be collected and cores recovered by techniques that cause minimal disturbance. Samples will be retrieved in plastic tubes and retained for off-site assessment. Gross description and preliminary interpretation of the soil and sediment will be made onsite and an overview of the stratigraphy produced to characterise the deposit sequence and identify soil / sediment processes. The geoarchaeologist will keep a field log of the boreholes and a photographic record of the site and cores. Borehole locations will be surveyed, with each borehole position located to a six figure national grid reference and levelled to metres above ordnance datum. The borehole samples will be sealed and labelled and kept in controlled storage during the assessment and analysis stages of the work.

5.4.9.3 Cores will be split or extruded, cleaned and recorded off-site according to standard sedimentary criteria. The data from the geoarchaeological borehole investigation will be combined with any previous geotechnical information to reconstruct a site stratigraphy. Deposits should be viewed in terms of their landscape context and in relation to the wider terrain and sub-surface topography.

5.4.9.4 If suitable organic sediment is recovered, consideration will be given to carrying out radiocarbon (14C) dating, in order to provide a dating framework for the stratigraphic sequence. Where undertaken, the number of samples should be discussed in advance with the Archaeological Curator.

5.4.9.5 The presence / absence of environmental remains will be assessed by choosing the ‘best’ borehole sequence (for instance, that retained unopened from site), sub-sampling key horizons and / or deposits and examining for a range of environmental proxies. Sub-samples will be submitted to external specialists for the assessment of microfossils (such as pollen, ostracods and diatoms).

5.4.9.6 The combined information on the terrain, buried topography, site stratigraphy and palaeoenvironmental will be used to preliminary reconstruct past environmental changes and depositional processes across the site. This information will be used to assess the potential for further detailed palaeoenvironmental work.

5.4.10 Procedures in respect of statutory designated remains

Human remains

5.4.10.1 In the event of human remains being discovered, their presence will be reported to the Onshore ACoW, who will inform the Applicant, the Archaeological Curator and Historic Environment Scotland. The Archaeological Contractor will then inform the local police on the discovery and arrange for any necessary site visits to be made. After confirmation from the procurator fiscal that they are satisfied the remains are historic in origin, they shall be

covered and protected before being backfilled. If deemed necessary by the Archaeological Curator, the remains may be excavated in accordance with guidance provided by Historic Environment Scotland (Historic Environment Scotland, 2006).

5.4.10.2 If human remains are uncovered, which require excavation, they will be excavated with due reverence and in accordance with recognised professional guidelines (Historic Environment Scotland, 2006). The site will be adequately screened from public view. Once excavated, human remains must not be exposed to public view. If human remains are not to be removed their physical security will be ensured, by backfilling as soon as possible after recording.

Treasure

5.4.10.3 All finds of gold and silver, or other objects definable as 'treasure' under the Treasure Trove in Scotland A Code of Practice July 2014 (as revised to 13 January 2016), will be removed to a safe place and reported to the Treasure Trove Unit according to the procedures of the Treasure Trove in Scotland A Code of Practice July 2014 (as revised to 13 January 2016).

5.5 Post-excavation work, reporting and dissemination

5.5.1 Finds

5.5.1.1 All finds processing, conservation work and storage of finds must be carried out in compliance with the CIfA Guidelines for the collection, documentation, conservation and research of archaeological materials (CIfA 2020b). Finds should not be left unprocessed onsite during the completion of the fieldwork.

5.5.1.2 The deposition and disposal of artefacts must be agreed with the legal owner and the relevant recipient museum prior to the work taking place.

5.5.1.3 All retained artefacts must be cleaned and packaged in accordance with the requirements of the recipient museum.

5.5.2 Site archive

5.5.2.1 The Archaeological Contractor will specify the relevant recipient museum, and confirm that arrangements for receipt of archaeological material, and site archives, have been agreed before the commencement of fieldwork.

5.5.2.2 The archive and the finds must be deposited in the relevant recipient museum within six months of completion of the post-excavation work and report.

5.5.2.3 The Archaeological Curator will require confirmation that the archive has been submitted in a satisfactory form.

5.5.3 Reporting

5.5.3.1 Reports will be produced for all archaeological survey and fieldwork undertaken. The type of report produced will reflect the nature of the investigations, as detailed below. Reports must also be produced for all archaeological investigations undertaken, within an agreed programme following completion of any stage of fieldwork. Reports will include as a minimum, the following:

- *non-technical summary* - one-page summary outlining project background and circumstance, the principal reason for the work and when it was undertaken and by whom, its objectives, main results, and where appropriate, recommendations;
- *the project design* or appropriate reference to it;
- *introduction, aims and objectives* - this will set out the circumstances of the project such as planning background and the reason for the work and will include the aims and specific research objectives reflected or reiterated in this Outline WSI, as well any differentiation from the project design;
- *fieldwork methodology* - the methods used. This will include the detail of any variation to the agreed project design and the reasons for such;
- *archaeological and historical background* - a brief summary with the site description (including size, geology and topography, location) and background. In most cases this will be derived from the desk-based assessment;
- *results* - this will present a series of research aims that were highlighted in the project design, organised clearly in relation to the methods used, and describing both structural data and associated finds and / or environmental data recovered. Descriptive material will be clearly separated from interpretative statements. Technical terminology (including dating or period references) will be explained and it will include how the results have impacted on our regional and project design research objectives;
- *conclusions* - summary and interpretation the results and their likely significance. Other elements might include a confidence rating on the results and limitations (for example, weather or problems of access). Recommendations on further work may also be included, that might help that confidence rating on the results;
- *archive locations* - the post-deposition of the archive (records and finds) will be noted in the report along with the pre-deposition site code assigned by the relevant project archive repository;
- *references and bibliography* - a list of all sources used;
- *appendices* - essential technical and supporting detail, including for example lists of artefacts and contexts or details of measurements, gazetteers etc. Pottery reports will be expected to refer to the appropriate type series for Roman, medieval and post-medieval pottery; and
- *illustrations, plans and essential technical and supporting detail* - location plan, plans and sections at appropriate scales showing location and position of trenches dug and features located and selective photography. Section drawing will include heights Above Ordnance Datum (AOD); plans should include AOD spot heights for all principal strata and features. All this will help to locate areas of investigation in the future.

5.5.4 Publication

5.5.4.1 The results of the investigation will need to be disseminated at a level that is appropriate to the significance of the remains recorded, but formal publication of the results of some or all of the fieldwork is likely to be required. The results of the fieldwork will be reviewed and decisions taken on the scope and level of any publication(s) following the submission of the reports and review. This will consider the most appropriate route for dissemination, and the scope of any dissemination, including consideration of whether thematically or chronologically related archaeological sites should be reported together.

5.5.4.2 Provision will be made for full grey literature research archive reports for all sites that do not proceed to publication.

5.5.5 Public outreach

5.5.5.1 It is recognised that the archaeological works may generate public interest. In response to this, a programme of public outreach will be instigated.

5.5.5.2 A detailed scope for outreach will be developed by the Onshore ACoW, Archaeological Contractor, with support from the Applicant and the Principal Contractor, and agreed with the Archaeological Curator in advance of the commencement of the archaeological mitigation, and may include some or all of the following as appropriate:

- a regularly updated social media presence reporting the important discoveries and promoting specific engagement events (for example, talks, open days etc.) at an appropriate stage;
- press releases to local media where particularly significant remains are identified or where specific events are to be promoted and can appropriately be communicated. These would be coordinated and issued through the wider Project communications programme;
- a series of publicly accessible talks, provided by the Onshore ACoW or Archaeological Contractor, to local interest groups, such as schools, local groups / councils, discussing the excavations, as they progress; and
- production of popular publications (additional to the formal publication of results) describing the significant discoveries for a general audience. Any popular publications will be linked to school curriculum.

6. Health, Safety and Environment

6.1.1.1 Health and Safety will take priority over all other requirements. A conditional aspect of all archaeological work is both safe access to the area of work, and a safe working environment. All relevant health and safety legislation, regulations, and codes of practice should be respected and adhered to. Site-specific risk assessments will be carried out in respect of each element of the mitigation fieldwork prior to commencement of the fieldwork, and copies sent to the representatives of the client for approval.

6.1.1.2 Where conflict between Health and Safety and progressing archaeological works is identified, every effort will be made by the client, in discussion with the Onshore ACoW, Archaeological Contractor and the Archaeological Curator, to identify a safe way of completing the archaeological investigations to appropriate standards.

6.1.1.3 The archaeological works will be carried out in accordance with safe working practices and under the defined Health, Safety and Environmental Policy.

6.1.1.4 Copies of the successful contractor's insurance policies will be required in advance by the client or their nominated representative.

6.1.1.5 The appointed Archaeological Contractor(s) will take responsibility for securing the excavation areas (for example, by fencing), provision of welfare, backfilling and reinstatement of the excavation areas and the removal of materials brought onto the site during the excavation.

6.1.1.6 Service plans will be supplied by the Principal Contractor. Any archaeological intervention must respect all requirements for safe stand-off distances and working practices in regard of these features.

6.1.1.7 Any specific site security requirements will be set out within the individual SSWSIs, and these will be discussed and agreed with the Applicant and the Principal Contractor.

7. Monitoring

7.1.1.1 The Archaeological Curator must be informed of the start date and timetable in advance of the evaluation and mitigation phases commencing.

7.1.1.2 Reasonable access to the archaeological excavation area must be afforded to the ACoW, Archaeological Curator, or their nominee at all times, for the purposes of monitoring the archaeological excavations.

7.1.1.3 Regular communication between the Archaeological Contractor, the ACoW and the Archaeological Curator, the Applicant, Principal Contractor and other interested parties must be maintained to ensure the project aims and objectives are achieved.

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9. Glossary of Terms and Abbreviations

9.1 Abbreviations

Acronym	Definition
ACoW	Archaeological Clerk of Works
CEMP	Construction Environmental Management Plan
CIfA	Chartered Institute for Archaeologists
EIA Report	Environmental Impact Assessment Report
GW	Gigawatts
km	kilometres
MD-LOT	Marine Directorate – Licensing Operations Team
MHWS	Mean High Water Springs
MLWS	Mean Low Water Springs
NE7	North East 7
NESRRF	North-East Scotland Regional Research Framework
OAA	Option Agreement Area
OLA	Option to Lease Agreement
s.36	Section 36
ScARF	Scotland Archaeological Research Framework
SSWSI	Site-specific Written Scheme of Investigation
WSI	Written Scheme of Investigation

9.2 Glossary of terms

Term	Definition
Archaeological excavation area	An area defined as requiring archaeological mitigation.
Archaeological site	An area, or group of physical remains representing evidence of past human activity.
Baseline	Refers to existing conditions as represented by latest available survey and other data which is used as a benchmark for making comparisons to assess the impact of development.
Baseline conditions	The environment as it appears (or would appear) immediately prior to the implementation of the Proposed Development together

Term	Definition
	with any known or foreseeable future changes that will take place before completion of the Project.
Bayesian dating method	Provides an explicit, probabilistic method for combining different sorts of evidence to estimate the dates of events that happened in the past and for quantifying the uncertainties of these estimates.
Chartered Institute for Archaeologists	CIfA is the leading professional body representing archaeologists working in the UK and overseas.
Ecofact	A natural object, such as an animal bone, seed, or shell, which has not been manufactured or significantly modified by humans but has cultural relevance because it provides evidence about past human environments, diets, and ways of life.
Geoarchaeology	The use of earth sciences to understand the archaeological record.
Microfauna	Microscopic animals and organisms that exhibit animal-like qualities and have body sizes that are usually <0.1 mm.
Offshore	Pertaining to the seaward side of the MLWS, and typically in reference to locations some distance from the coast.
Onshore	Pertaining to the landward side of MHWS.
Palaeoenvironment	An environment of a past geological age.
Posthole	A hole dug for a post.
Rig and furrow	A system of strip cultivation that was widely used during the medieval and post medieval period.
Thermoluminescence dating	The determination, by means of measuring the accumulated radiation dose, of the time elapsed since material containing crystalline minerals was either heated (lava, ceramics) or exposed to sunlight (sediments).

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