

# *Archaeology Wales*

## **Dyfi National Nature Reserve, Ceredigion**

Archaeological Watching Brief



By  
Jerry Bond &  
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Report No. 1870

# *Archaeology Wales*

## **Dyfi National Nature Reserve, Ceredigion**

Archaeological Watching Brief

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Report No. 1870

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## **Non-Technical Summary**

*This report results from work undertaken by Archaeology Wales Ltd (AW) at the request of Natural Resources Wales. The work consisted of an archaeological watching brief during management works and intrusive groundworks associated with the Ynyslas sand dunes within Dyfi National Nature Reserve, North Boardwalk, Ynys Tachwedd, Ceredigion, Wales, SY24 5JZ, centred on SN 60527 93518.*

*No archaeological features or remains were encountered during groundworks. However, a small number of finds were recovered among which were some that could be related to the nearby military structures dating to WWII. These included bricks and fragments of brick walls thought to be from the nearby ruined military buildings, as well a metal object, a “screw picket” which was probably part of the barbed wired entanglements that would have been in place along the coast during WWII to guard against invasion.*

*All work was undertaken in accordance with the standards and guidelines of the Chartered Institute for Archaeologists (2014).*

*Mae'r adroddiad hwn yn ganlyniad i'r gwaith a wnaed gan Archaeology Cymru Cyf ar gais Cyfoeth Naturiol Cymru. Roedd y gwaith yn cynnwys briff gwylio archeolegol yn ystod gwaith rheoli a gwaith tir ymwithiol sy'n gysylltiedig â thwyni tywod Ynyslas o fewn Gwarchodfa Natur Genedlaethol Dyfi, Llwybr Pren y Gogledd, Ynys Tachwedd, Ceredigion, Cymru, SY24 5JZ, y mae ei ganolbwynt o fewn SN 60527 93518.*

*Ni chanfuwyd unrhyw nodweddion neu olion archeolegol yn ystod y gwaith tir. Fodd bynnag, cafwyd hyd i nifer fach o nodweddion, ac yn eu plith roedd rhai y gellid eu cysylltu â'r strwythurau milwrol gerllaw sy'n dyddio o'r Ail Ryfel Byd. Roedd y rhain yn cynnwys briciau a darnau o waliau brics y credir a ddaeth o'r adeiladau milwrol sydd wedi adfeilio gerllaw, yn ogystal â gwrthrych metel, “postyn sgriwio”, y mae'n debyg a oedd yn rhan o glymau o weiren bigog a fyddai wedi'u gosod ar hyd yr arfordir yn ystod yr Ail Ryfel Byd i warchod yn erbyn ymosodiadau.*

*Gwnaed yr holl waith yn unol â safonau a chanllawiau Sefydliad Siartredig yr Archeolegwyr 92014).*

# **1 Introduction**

## **Location and Scope of Work**

This report details the results of a watching brief undertaken in association with the proposed management works and intrusive groundworks aimed to create suitable ground nesting conditions for ringed plover and create early stage shingle and sand dune vegetation communities. The works were located at the Ynyslas sand dunes within Dyfi National Nature Reserve, North Boardwalk, Ynys Tachwedd, Ceredigion, Wales, SY24 5JZ, centred on SN 60527 93518 (Figure 1). It required the excavation of sand overlying shingle over an archaeologically sensitive area measuring 0.07ha.

The purpose of the archaeological mitigation (watching brief) was to provide DAT-HC with sufficient information regarding the nature of archaeological remains within the area of work, the requirements for which are set out in Planning Policy Wales (edition 10), Section 6.1.27 and Technical Advice Note (TAN) 24: sections 4.13 and 4.14. The work was to ensure that all buried artefacts and deposits are fully investigated and recorded if they are disturbed or revealed as a result of activities associated with the development. The following report provides details of the results of the work undertaken. The project was managed by Irene Garcia Rovira (MCIfA) and undertaken by Jerry Bond. The AW Project Number is 2783 and the Site Code DNR/20/WB.

## **Geology and Topography**

The site is located within the Ynyslas sand dunes of Dyfi National Nature Reserve. The dunes are on the southern side of the mouth of the Dyfi Estuary. The site is located approximately 900m northwest of the village of Ynyslas, and approximately 3.8km north of the town of Borth in the county of Ceredigion. The site is located within the Landmap Historic Landscape area of Ceredigion, which is described as land washed by the tides, including the sand flats of the Dyfi estuary, salt marsh and Borth beach. It also includes bands of sand dunes behind Borth Beach. There are no buildings in this area, which includes 28 HERs, mostly coastal structures, sea defences, wrecks, and a submerged forest. The specific archaeological interest of the area comprises of buried and waterlogged remains, relict earthworks and buildings and structures from prehistoric, post-medieval and industrial periods (NRW 2008; RCAHMW 2012).

The bedrock geology of the area is Llandovery Rocks (undifferentiated) - Mudstone, siltstone and sandstone. This is a sedimentary bedrock formed approximately 428 to 444 million years ago in the Silurian Period when the local environment was previously dominated by deep seas. The superficial deposits characteristic of the site comprises of blown sand - sand and gravel. These are a superficial deposit formed up to 3 million years ago in the Quaternary Period, when the local environment was previously dominated by wind-blown deposits (BGS 2020).

### **Archaeological and Historical Background**

The historical background of Ynyslas stretches back to Prehistoric times and retains a rich history all the way through to the modern era, with most of the archaeological sites within the area being military installations. The specific archaeological interest of the area comprises of buried and waterlogged remains, relict earthworks and buildings and structures ranging from the prehistoric, medieval, post-medieval and industrial periods:

#### **Prehistoric (40,000BC - 910BC):**

- The submerged forest and peat deposits, for which Borth/Ynyslas beach is well-known, extend for some 4.1 km and have provided evidence for exploitation of the landscape by Neolithic communities (6500 – 2700 BP). Finds made amongst the beach peat deposits include a hearth from which fire cracked stones and charcoal were recovered. The scientific dating of associated peat deposits confirms human occupation at around 4,000 BP (NPRN 506498/PRN 30903) (DAT 2009). Nevertheless, evidence dating to Mesolithic chronologies is also present in the form of an antler shaft with a hole drilled through it (NPRN 5006500) (RCAHMW 2012).
- It is likely that the area was a focus of human activity during the Bronze and Iron Age, though no finds or sites have been discovered thus far. The cairns and other finds sites within the valleys and hills to the east of the study area confirm that Ceredigion was well-occupied in Bronze Age (RCAHMW 2012). Similar inference can be drawn with regard to Iron Age occupation from the substantial Iron-age hillfort at Pen Dinas near Aberystwyth, 13km south of the development site (NPRN 92236).
- 1km south of the development site, in Upper Borth, is a ring-like mark and extant ditch and possible mound. It was interpreted as a barrow with a possible surviving mound (RCAHMW 2007) (Driver 2007).

### **Medieval (43AD – 1485 AD)**

- The medieval site of the Dovey Estuary Ferry is located within the Dyfi estuary, slightly west of the development site. The chronicler, Giraldus Cambrensis reported crossing the Dyfi by boat in AD 1188. Yet, the first documentary evidence of boats crossing this estuary date to Henry VI in 1548, by a man named Jein ap Iorwerth of Ynys-y-Maengwyn who was a farmer under the crown of the mills of Cefn and Caethle. The tradition rights to the ferry were retained by the Ynys-y-Maengwyn estate (Corbett family) until sold to the railway company in the 1860s (Morgan 1863; NPRN 112292; RCAHMW 2009).

### **Post-Medieval (1485-1850)**

- Traeth Maelgwyn salt works are located approximately 1km east of the development site and comprise of two rectangular ponds cut into the salt marsh, associated with the herring fishery on the Dyfi estuary in 1567 (NPRN 506291) (RCAHMW 2009).
- Uwch yr Aig is situated on the B4 353 and comprises a house and outbuildings (NPRN 414041). There is a covered reservoir to the east of the property and MOS EE AA Ynyslas Ancillary building to east of the development site (NPRN 408004) (RCAHMW 2010).

### **Modern (1850- present day):**

- The Ynyslas hulks are located immediately west of the development site and comprise of three shipwrecks, named 1, 2 and 3. According to the 2012 RCAHMW report, by the early 1860s the construction of a railway to the west of Machynlleth effectively killed off the trade and shipbuilding on the Leri. In 1868 the three hulks were apparently placed on the west bank of the Leri to mark the approach to the channel and are marked as wrecks on an 1892 Admiralty chart. The wrecks are said to be submerged in estuarine silts and are in an advanced state of erosion (RCAHMW 2012) (DAT 2014) (NPRNs 407989; 408431; 506769). The wrecks are also listed as Scheduled Ancient Monuments (SAMs) (SM; CD282).
- The rabbit warren named Twyni Mawr, was mentioned by T Lewis in 1790, and again in a Sales Particulars dating to 1866 for the Ynyslas Estate. At the time, shooting rights over the warren and the wider estate were let to a Mr Williams for £110 per

annum (RCAHMW 2010).

- Towards the end of WWII, the sand dunes at Ynyslas were added to the military firing ranges of Cardigan Bay (NPRN 408392). It is known that the Ynyslas range, Mos EE AA Ynyslas, and had many uses including the testing of unrotated rocket projectiles (RCAHMW 2016) (Parry 2012). Structures associated with the military camp at Mos EE AA Ynyslas include the anti-tank block (NPRN 270399), Research Building (NPRN 402558), Ancillary Buildings (NPRN 408006), Firing Range Camera Position (NPRN 408010), Ministry of Supply Experimental Establishment Anti-Aircraft Rocket Range (NPRN 408394), Rocket Launch Track (NPRN 408394), Plumbers Workshop (NPRN 408396), Contact Mine (Ynyslas visitors centre) (NPRN 506529), Boundary Fence (NPRN 416321), Brynellen (NPRN 506347).

## **2. Aims and Objectives**

### **Watching Brief**

The aims of an archaeological watching brief, as defined by the Chartered Institute for Archaeologists (CIfA, 2014) are:

- To allow, within the resources available, the preservation by record of archaeological deposits, the presence and nature of which cannot be established (or established with sufficient accuracy) in advance of development or other potentially disruptive works;
- 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;
- To establish and make available information about the archaeological resource existing on the site.



### **3. Methodology**

#### **Fieldwork**

An archaeological watching brief was undertaken during all intrusive ground works associated with the development. The watching brief monitored all groundworks undertaken in an area comprising of a raised shingle beach and sand dunes located within a hollow to the west of the dunes and east of the shingle beach, covering an area 42m long N-S, 25m wide E-W.

The watching brief was undertaken using a tracked 360-degree excavator equipped with a flat-bladed bucket and was monitored by a suitably qualified archaeologist until either the foundation levels or the natural substrate had been reached. The work was undertaken to meet the standards required by The Chartered Institute for Archaeologists' *Standard and Guidance for Watching Briefs* (2014).

The site archaeologist undertaking the watching brief was afforded the required access by the main contractor in order to observe and where necessary to record any archaeological remains revealed. Groundworks were not undertaken without the presence of the site archaeologist. The site archaeologist recorded finds and less significant archaeological deposits and features without significant delay to the work program.

#### **4. Watching Brief results (Plates 1-21)**

The watching brief was carried out between the 3<sup>rd</sup> and 7<sup>th</sup> of February 2020, over an area comprising of a raised shingle beach and sand dunes located within a hollow to the west of the dunes and east of the shingle beach. The watching brief area covered an area measuring 42m in length and 25m in width centred on SN 60527 93518 (Figure 2).

The area monitored was located immediately north of two standing buildings dating from WWII, an observation post – made of brick - and a building of unknown purpose (Plates 1-2). Furthermore, a largely damaged pillbox (Plate 11) is located north of these structures, and a number of fragmentary brick walls are evidenced to the northwest, also dating to the WWII (Plate 16-17).

Underlying the site was the raised storm beach deposit, (1002), a firm layer of shingle and rounded beach cobbles, of at least 0.1m thickness and was across the site area. It was not fully excavated, and any underlying strata was not reached during the ground works.

Above was a layer of windblown sand (1001), which was a clean, pale yellow, wind-blown layer varying in thickness from 0.1m up to more than 1m where it was mounded up. To the southeast of the site where it was located closer to the water table, it was stained a dirtier brown colour and the same applied where it was thinner and closer to the overlying turf horizon. A number of finds were recovered from this deposit, some of which could have been related to the nearby military structures, one of them being a fragment of a “Screw picket” is a typical find from WWII coastal installations as well as CBM and bricks apparently the same as those from the nearby military structures. A small number of other ferrous objects were recovered, which have yet to be identified.

Overlying all was the extant topsoil horizon (1000) a layer of wind-blown sand bound together by a covering of grass, mosses and lichens. It was dark brown in colour, loosely compacted and of 0.1m to 0.2m thickness and was lying across the site area. A number of finds were recovered from it, including eight golf balls, an intact milk bottle from a dairy in Bude (north Cornwall) and fragments of CBM/bricks of the same type as those from the nearby military remains.

## 5. Finds

The find assemblage recovered during the watching brief is largely of post-medieval and modern chronologies. A summary of the finds assembled and kept during the watching brief can be found below:

CONTEXT	TYPE	AMOUNT	DATE
1000	golf balls	8x	Modern
1000	Intact glass milk bottle from Bude Dairies Ltd.	1x	Modern
1000	CBM/Brick with cement	1x	Late 19 <sup>th</sup> -Early 20 <sup>th</sup> Century
1001	CMB/Brick with cement	1x	Late 19 <sup>th</sup> -Early 20 <sup>th</sup> Century
1001	Tin Can 1	1x	Late 19 <sup>th</sup> -Early 20 <sup>th</sup> Century
1001	Tin Can 2	1x	Late 19 <sup>th</sup> -Early 20 <sup>th</sup> Century
1001	Unidentified Ferrous	4x	Unknown

	Objects		
1001	Large sherd of green bottle glass	1x	Late 19 <sup>th</sup> -Early 20 <sup>th</sup> Century
1001	Unidentified Ferrous Object, in fragments	1x	Unknown
1001	Ferrous screw picket fragment	1x	Post-medieval

## 6. Summary and conclusion

From the 3<sup>rd</sup> to the 7<sup>th</sup> of February 2020, Archaeology Wales Ltd (AW) carried out an archaeological watching brief at Ynyslas sand dunes at the Dyfi National Nature Reserve. The watching brief was associated with the intrusive groundworks that aims to create suitable ground nesting conditions for ringed plover and create early stage shingle and sand dune vegetation communities at Ynyslas Dunes, North Boardwalk, Ynys Tachwedd, Ceredigion, Wales, SY24 5JZ, centred on SN 60527 93518.

The watching brief was carried out over an area comprising of a raised shingle beach and sand dunes located within a hollow to the west of the dunes and east of the shingle beach. The watching brief area covered an area of 42m long N-S, 25m wide E-W.

During the watching brief, no archaeological features or remains were encountered within the footprint of the site, though a small number of finds were recovered among which were some that could be related to the nearby military structures dating to WWII. These included bricks and fragments of bricks thought to be from the nearby destroyed military buildings, as well a metal object, a “screw picket” which was probably part of the barbed wired entanglements that would have been in place along the coast during WWII to guard against invasion. Finds of a more modern date include a complete milk bottle from a dairy in North Cornwall, possibly carried here by the tides and also eight golf balls from the nearby golf course to the east of the site, as well as a large sherd of green bottle glass. Other finds of metalwork have yet to be identified and might date to the period of use of the military structures.

## **7. Bibliography and References**

DAT. 2014. Ynyslas Hulks, Ynyslas, Ceredigion: archaeological investigations, interim report. DAT Report 2010/39.

Parry, M. 2012. Rockets on the Beach, RCAHMW Collections.

RCAHMW. 2012. Ynyslas Nature Reserve: Aberdyfi Estuary, Non-Intrusive Survey.

Morgan, T O. 1863. The Aberdyfi Guide and handbook to the Aberystwyth and Welsh Coast Line, 2nd edition, pg 5

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**APPENDIX I:**



Borth Sands

Traeth  
Maelgwn

Site Location

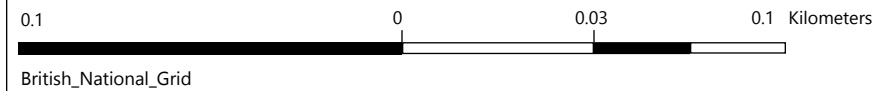
100 0 100 m

Figure 1. Site Location.



## Legend

## Notes



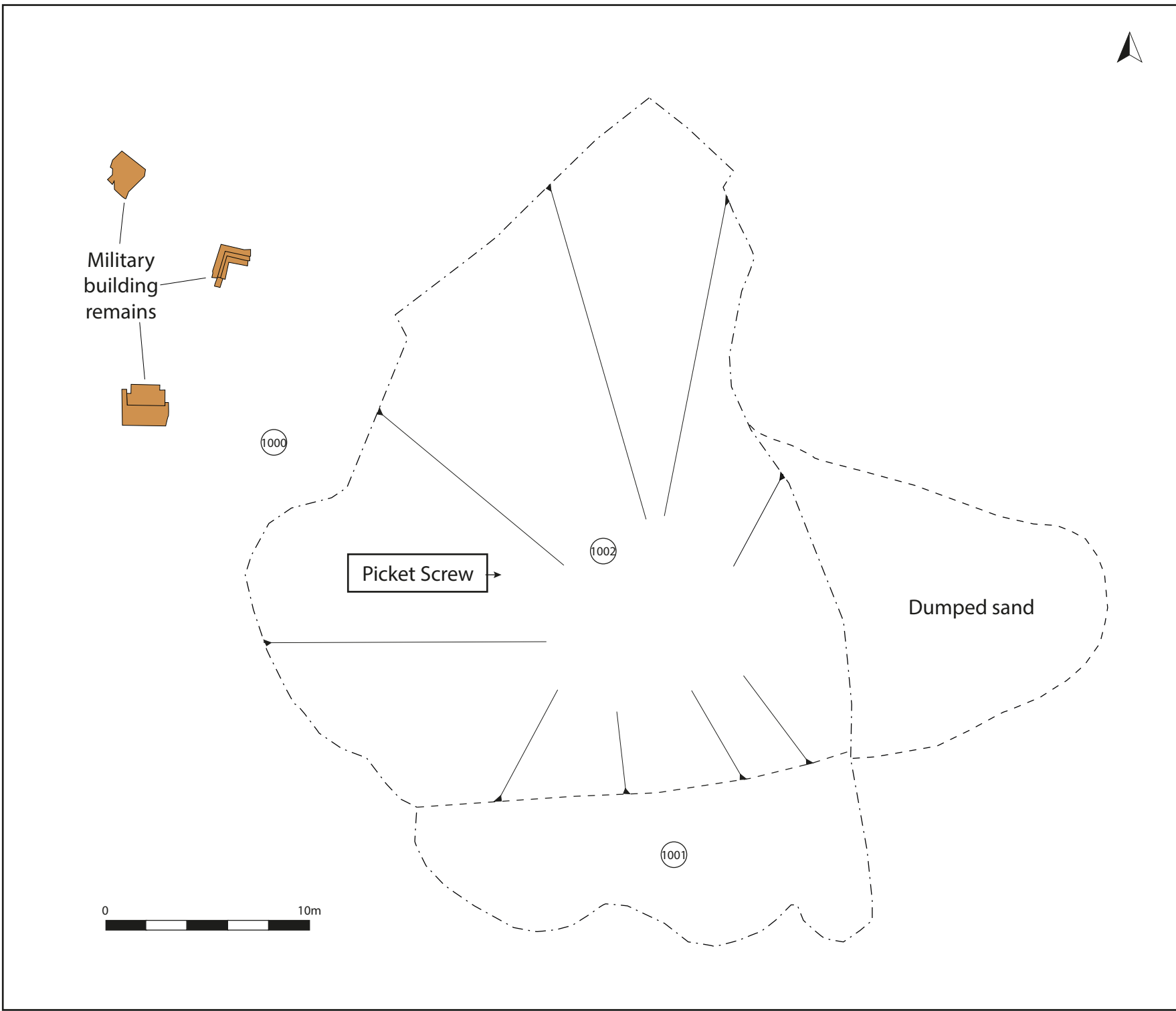


Figure 3  
Plan of site



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**APPENDIX II:**



Plate 1. Military building, looking NE



Plate 2. Military building, looking SE



Plate 3. Remains of a military building, looking E



Plate 4. View of sand dunes, looking S



Plate 5. Pre-excavation shot, looking S



Plate 6. Pre-excavation of site, looking S



Plate 7. Initial strip, looking E



Plate 8. Remains of a brick wall, looking S



Plate 9. Remains of brick wall, looking N

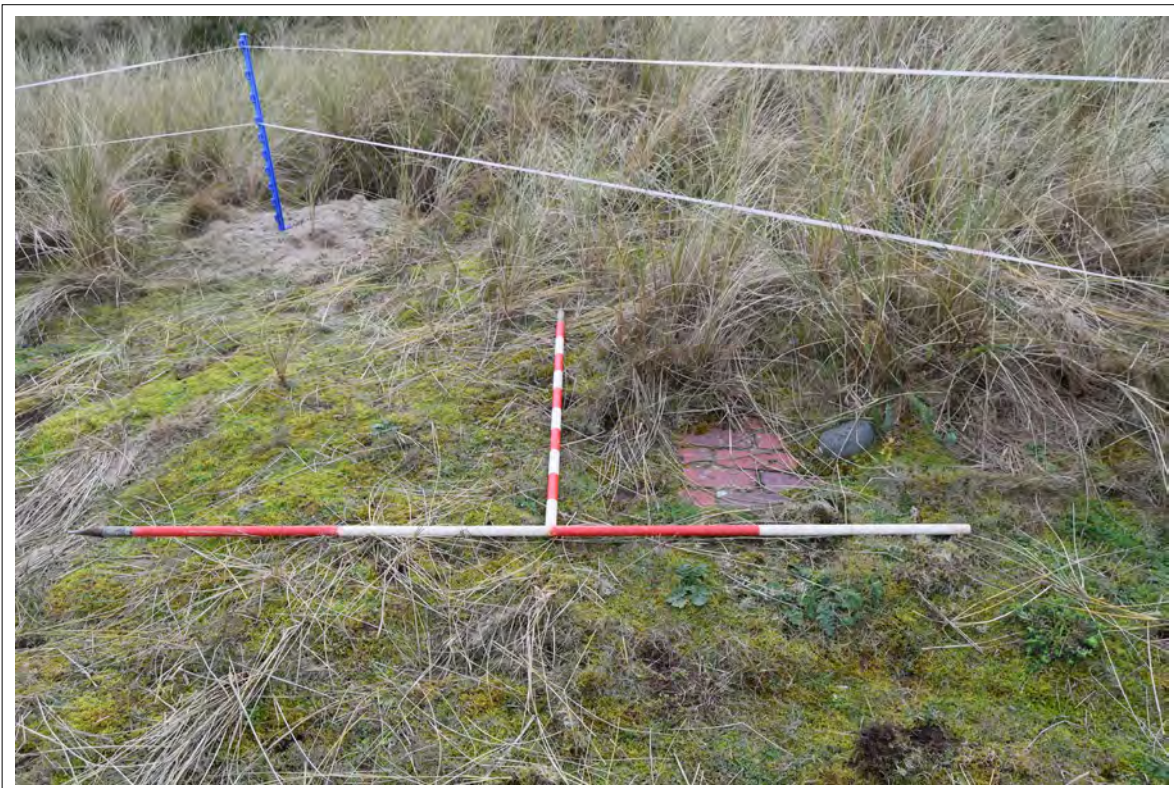


Plate 10. Remains of wall, looking W



Plate 11. Detail, looking SW



Plate 12. View of strip, looking S



Plate 13. View of strip, looking E



Plate 14. View of strip, looking N





Plate 15. View of strip, looking W



Plate 16. Remains of brick wall outside development boundary, looking S



Plate 17. Remains of brick wall outside development boundary, looking W



Plate 18. Strip of SW quadrant, looking E



Plate 19. Two fragments of a tin, looking E



Plate 20. Remains of concrete and brick, looking N



Plate 21. Working shot, looking E



Plate 22. Close-up of screw picket.

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**WRITTEN SCHEME OF INVESTIGATION**

**FOR AN ARCHAEOLOGICAL WATCHING BRIEF**

**Ynyslas Sand Dunes, Dyfi National Nature Reserve**

**Prepared for:**  
Natural Resources Wales

**Project No: 2783**

**January 2020**



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Figure 1. Location map

## 1. Introduction and planning background

This Written Scheme of Investigation (WSI) details a programme of archaeological mitigation to be undertaken by Archaeology Wales Ltd (henceforth – AW) at the request of Natural Resources Wales (henceforth – NRW).

The archaeological mitigation will consist of a watching brief and will be undertaken during ground works associated with habitat management work aimed at creating suitable ground nesting conditions for ringed plover, and at creating early stage shingle and sand dune vegetation communities. The work will take place at Ynylas sand dunes within Dyfi National Nature Reserve (henceforth – ‘the site’). The work will require the excavation of sand overlying shingle over an area of 0.07ha in an archaeologically sensitive area. The grid reference of the centre of the work area is SN60527 93518.

This WSI has been prepared by James Evans, Project Archaeologist, AW.

The methodology set out in this WSI has been agreed with Dyfed Archaeological Trust–Heritage Management (henceforth – DAT-HM). Following a site visit with DAT-HM and NRW and a review of the regional Historic Environment Record (HER), which contains over 60,000 core records of archaeological and historical interest, it was advised that there is an important archaeological resource in the application area, notably the 20th century military remains relating to the use of the site for Experimental Missile testing and Second World War beach defences.

The purpose of the archaeological mitigation (watching brief) is to provide DAT-HC with sufficient information regarding the nature of archaeological remains within the area of work, the requirements for which are set out in Planning Policy Wales (edition 10), Section 6.1.27 and Technical Advice Note (TAN) 24: sections 4.13 and 4.14. The work is to ensure that all buried artefacts and deposits are fully investigated and recorded if they are disturbed or revealed as a result of activities associated with the development.

All work will be undertaken to the standards and guidance set by the Chartered Institute for Archaeologists (2014). AW is a Registered Organisation with the Chartered Institute for Archaeologists (CIfA).

## 2. Site Description

The site is located within the Ynylas sand dunes of Dyfi National Nature Reserve. The dunes are on the southern side of the mouth of the Dyfi estuary. The site is approximately 900m north-west of the village of Ynylas, and approximately 3.8km north of the town of Borth in the county of Ceredigion.

The underlying geology of the area comprises of mudstone belonging to the Borth Mudstones Formation. The sedimentary bedrock formed approximately 433 to 444 million years ago in the Silurian Period, where the local environment was previously dominated by deep seas (BGS, 2019).



### 3. Archaeological and Historical Background

There are several records from the HER within close vicinity of the site. Apart from a single post-medieval record, the remaining records relate to 20<sup>th</sup> century military installations.

#### Post-Medieval (1485 – 1850)

It is recorded that the sand dunes 'Twyni Mawr', that separate Ynyclas from the sea, were once utilised as a breeding place for rabbits in the post-medieval period. This rabbit warren was also described as being one of the best in the principality that extending over nearly 100 acres. The former warren has been incorporated to a modern golf course, which lies adjacent to the dunes and the proposed area of works, and there are no indications on the ground of its former use (PRN 105401).

#### Modern (1850 – present day)

Approximately 250m to the south-east of the site is a modern flat roofed concrete block military structure, also located on the golf course at Ynyclas. The structure's function is unknown, but it has narrow openings piercing the north wall that may suggest it was once a rifle or observational post. However, the single skin concrete block construction and the open south wall suggests that the structure was originally enclosed by earth defences, but it was not possible to substantiate this (PRN 100615).

Approximately 368m to the east of the site, located in a layby and opposite a holiday park, are an anti-tank pimple and an anti-tank cylinder. However, they are not in original situ, and the anti-tank cylinder has since been removed (PRN 94903).

On the north-eastern side of the Ynyclas sand dunes there are a series of remains dating from the end of the Second World War when a range was established at Ynyclas for the testing of anti-aircraft missiles (PRN 94906). The remains consist of a brick and concrete observation post for observing missiles tested in the Dyfi estuary (PRN 118033); three concrete pads with metal holdfasts (PRN 118034); a further series of concrete pads which formed the rocket launch pad for testing missiles in the Second World War (PRN 118032); and the remains of a structure built of sand bags in the sand dunes (PRN 118031).

### 4. Objectives

This WSI sets out a program of works to ensure that the watching brief will meet the standard required by The Chartered Institute for *Archaeologist's Standard and Guidance for Archaeological Watching Briefs* (2014).

The objective of the watching brief will be:

- to allow the investigation and recording of any archaeological features that are uncovered during the proposed groundworks within the application area.
- to provide the 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 are not sufficient to support the treatment to a satisfactory or proper standard.

A written report will be compiled following the fieldwork. Sufficient desk-top research will be undertaken to ensure that the results of this work are properly understood, interpreted and reported.

The report will include a comprehensive assessment of the historic context within which the archaeological evidence rests and will aim to highlight any relevant research issues within regional, national and, if relevant, international research frameworks.

## **5. Timetable of Works**

### **5.1. Fieldwork**

The watching brief will be undertaken during ground works associated with the proposed development. AW will update DAT-HM with the exact date.

### **5.2. Report delivery**

The report will be submitted to the client and to DAT-HM within three months of the completion of the fieldwork. A copy of the report will also be sent to the regional HER.

## **6. Fieldwork**

### **6.1. Detail**

The work will be undertaken to meet the standard required by The Chartered Institute for Archaeologist's *Standard and Guidance for Watching Briefs* (2014).

The Watching Brief will be carried out by a suitably qualified archaeologist on all groundworks associated with the development that could disturb sub-surface deposits containing potential archaeological material. The mechanical excavation will be undertaken by a tracked 360-degree excavator using a toothless ditching bucket wherever possible.

The site archaeologist undertaking the watching brief will be afforded the required access by the main contractor in order to observe and where necessary to record any archaeological remains revealed. Groundwork will not be undertaken without the presence of the site archaeologist. The site archaeologist will record finds and less significant archaeological deposits and features without significant delay to the work program.

Where significant or complex archaeological deposits or features are encountered there will be a requirement for those areas to be fenced off and highlighted to all contractors employed on the site. Machines or contractors shall not enter this area until archaeological recording has been completed. If significant archaeological features are revealed during the work a meeting between the client, DAT-HM and AW will be called at the earliest convenience.

To comply with professional guidelines, a contingency for a further limited period of uninterrupted access to each such areas and for a suitably sized team of further archaeologists to be employed should be provided. Contingency costs will be agreed in advance before any extension to the programme commences and will follow a site meeting between AW, the client and DAT-HM.

## 6.2. Recording

Recording will be carried out using AW recording systems (pro-forma context sheets etc) using a continuous number sequence for all contexts.

Plans and sections will be drawn to a scale of 1:50, 1:20 and 1:10 as required and related to Ordnance Survey datum and published boundaries where appropriate.

All features identified will be tied into the OS survey grid and fixed to local topographical boundaries.

Photographs will be taken in digital format with an appropriate scale, using a 12MP camera with photographs stored in Tiff format.

The archaeologist undertaking the watching brief will have access to the AW metal detector and be trained in its use.

## 6.3. Finds

The professional standards set in the Chartered Institute for Archaeologists' *Standard and guidance for the collection, documentation, conservation and research of archaeological* (2014) will form the basis of finds collection, processing and recording.

All manner of finds regardless of category and date will be retained.

Finds recovered that are regarded as Treasure under *The Treasure Act 1996* will be reported to HM Coroner for the local area.

Any finds which are considered to be in need of immediate conservation will be referred to a UKIC qualified conservator (normally Phil Parkes at Cardiff University).

## 6.4. Environmental sampling strategy

Deposits with a significant potential for the preservation of palaeoenvironmental material will be sampled, by means of the most appropriate method (bulk, column etc). Where sampling will provide a significant contribution to the understanding of the site AW will draw up a site-specific sampling strategy alongside a specialist environmental archaeologist. All environmental sampling and recording will follow English Heritage's *Guidelines for Environmental Archaeology* (2<sup>nd</sup> Edition 2011).

## 6.5. Human remains

In the event that human remains are encountered, their nature and extent will be established, and the coroner informed. All human remains will be left *in situ* and protected during backfilling. Where preservation *in situ* is not possible the human remains will be fully recorded and removed under conditions that comply with all current legislation and include acquisition of licenses and provision for reburial following all analytical work. Human remains will be excavated in accordance with the Chartered Institute for Archaeologists' *Updated Guidelines to the Standards for Recording Human Remains* (2017).

A meeting with DAT-HM, and the client and AW will be called if the human remains uncovered are of such complexity or significance that the contingency arrangement (6.1 above) would not be of sufficient scope.

## 6.6. Specialist advisers

In the event of certain finds, features or sites being discovered, AW will seek specialist opinion and advice. A list of specialists is given in the table below although this list is not exhaustive.

Artefact type	Specialist
Flint	Kate Pitt (Archaeology Wales)
Animal bone	Richard Madgwick (Cardiff University)
CBM, heat affected clay, Daub etc.	Rachael Hall (APS)
Clay pipe	Charley James-Martin (Archaeology Wales)
Glass	Rowena Hart (Archaeology Wales)
Cremated and non-cremated human bone	Malin Holst (University of York)/Richard Madgwick (Cardiff University)
Metalwork	Kevin Leahy (University of Leicester)/ Quita Mold (Freelance)
Metal work and metallurgical residues	Dr Tim Young (GeoArch)
Neo/BA pottery	Dr Alex Gibson (Bradford University)
IA/Roman pottery	Jane Timby (Freelance)
Roman Pottery	Rowena Hart (Archaeology Wales)/ Peter Webster (Freelance)
Post Roman pottery	Stephen Clarke (Monmouthshire Archaeology)
Charcoal (wood ID)	John Carrot (Freelance)
Waterlogged wood	Nigel Nayling (University of Wales – Lampeter)
Molluscs and pollen	Dr James Rackham
Charred and waterlogged plant remains	Wendy Carruthers (Freelance)

## 6.7. Specialist reports

Specialist finds and palaeoenvironmental reports will be written by AW specialists, or sub-contracted to external specialists when required.

## 7. Monitoring

DAT-HM will be contacted approximately five days prior to the commencement of archaeological site works, and subsequently once the work is underway.

Any changes to the WSI that AW may wish to make after approval will be communicated to DAT-HM for approval on behalf of NRW.

Representatives of DAT-HM will be given access to the site so that they may monitor the progress of the watching brief. DAT-HM will be kept regularly informed about developments, both during the site works and subsequently during post-excavation.

## 8. Archive and Reporting programme

### 8.1. Site archive

An ordered and integrated site archive will be prepared in accordance with *The National Standard and Guidance to Best Practice for Collecting and Depositing Archaeological Archives in Wales 2017* (National Panel for Archaeological Archives in Wales) and the guidelines of the Chartered Institute for Archaeologists upon completion of the project.

The site archive (including artefacts and samples) will be prepared in accordance with the National Monuments Record (Wales) agreed structure and deposited with an appropriate receiving organisation, in compliance with CifA Guidelines (Standard and guidance for the creation, compilation, transfer and deposition of archaeological archives', 2014). The legal landowners' consent will be gained for deposition of finds. The project will adhere to the Welsh Archaeological Trust's joint Guidance for the Submission of Data to the Welsh Historic Environment Records (2018).

### 8.2. Analysis

Following a rapid review of the potential of the site archive, a programme of analysis and reporting will be undertaken.

This will result in the following inclusions in the final report:

- A bilingual non-technical summary
- Location plan showing the area/s covered by the watching brief, all artefacts, structures and features found
- Plan and section drawings (if features are encountered) with ground level, ordnance datum and vertical and horizontal scales.
- Written description and interpretation of all deposits identified, including their character, function, potential dating and relationship to adjacent features. Specialist

descriptions and illustrations of all artefacts and soil samples will be included as appropriate.

- An indication of the potential of archaeological deposits which have not been disturbed by the development
- A discussion of the local, regional and national context of the remains by means of reviewing published reports, unpublished reports, historical maps, documents from local archives and the regional HER as appropriate.
- A detailed archive list at the rear listing all contexts recorded, all samples finds and find types, drawings and photographs taken. This will include a statement of the intent to deposit, and location of deposition, of the archive.

### **8.3. Reports and archive deposition**

#### **Report to client**

Copies of all reports associated with the watching brief, together with inclusion of supporting evidence in appendices as appropriate, including photographs and illustrations, will be submitted to the client upon completion, and for formal submission to PCC.

#### **Additional reports**

After an appropriate period has elapsed, copies of all reports will be deposited with the relevant county Historical Environment Record (DAT-HM), the National Monuments Record and, if appropriate, Cadw. The report and all relevant information will be submitted to the Historic Environment Record following the guidelines and procedures laid out in the *Guidance for the Submission of Data to the Welsh Historic Environment Records* (WAT 2018).

#### **Summary reports for publication**

Short archaeological reports will be submitted for publication in relevant journals; as a minimum, a report will be submitted to the annual publication of the regional CBA group or equivalent journal.

#### **Notification of important remains**

Where it is considered that remains have been revealed that may satisfy the criteria for statutory protection, AW will submit preliminary notification of the remains to Cadw.

#### **Archive deposition**

The final archive (site and research) will, whenever appropriate, be deposited with a suitable receiving institution, usually the relevant Local Authority museums service. Arrangements will be made with the receiving institution before work starts. If the archive is not acceptable the archive will be deposited with Amgueddfa Cymru – National Museum Wales, Cardiff. If no artefacts are recovered then the archive will be deposited with the *National Monuments Record*, RCAHMW, Aberystwyth. Arrangements will be made with the receiving institution before work starts.

Although there may be a period during which client confidentiality will need to be maintained, copies of all reports and the final archive will be deposited no later than six months after completion of the work.

Copies of all reports, the digital archive and an archive index will be deposited with the National Monuments Record, RCAHMW, Aberystwyth.

Wherever the archive is deposited, this information will be relayed to the HER. A summary of the contents of the archive will be supplied to DAT-HM.

### **Finds deposition**

The finds, including artefacts and ecofacts, excepting those which may be subject to the Treasure Act, will be deposited with the same institution, subject to the agreement of the legal landowners.

## **9. Staff**

The project will be managed by Irene Garcia Rovira MCIfA (AW Project Manager) and the fieldwork undertaken by AW Staff. Any alteration to staffing before or during the work will be brought to the attention of DAT-HM and the client.

## **10. Health and Safety**

### **10.1. Risk assessment**

Prior to the commencement of work AW will carry out and produce a formal Health and Safety Risk Assessment in accordance with *The Management of Health and Safety Regulations 1992*. A copy of the risk assessment will be kept on site and be available for inspection on request. A copy will be sent to the client (or their agent as necessary) for their information. All members of AW staff will adhere to the content of this document.

### **10.2. Other guidelines**

AW will adhere to best practice with regard to Health and Safety in Archaeology as set out in the FAME (Federation of Archaeological Managers and Employers) health and safety manual *Health and Safety in Field Archaeology (2002)*.

## **11. Community Engagement and Outreach**

Wherever possible, AW will ensure suitable measures are in place to inform the local community and any interested parties of the results of the site investigation work. This may occur during the site investigation work or following completion of the work. The form of any potential outreach activities may include lectures and talks to local groups, interested parties and persons, information boards, flyers and other forms of communication (social media and websites), and press releases to local and national media.

The form of any outreach will respect client confidentiality or contractual agreements. As a rule, outreach will be proportional to the size of the project.

Where outreach activities have a cost implication these will need to be negotiated in advance and in accordance with the nature of the desired response and learning outcomes.

## **12. Insurance**

AW is fully insured for this type of work and holds Insurance with Aviva Insurance Ltd and Hiscox Insurance Company Limited through Towergate Insurance. Full details of these and other relevant policies can be supplied on request.

## **13. Quality Control**

### **Professional standards**

AW works to the standards and guidance provided by the *Chartered Institute for Archaeologists*. AW fully recognise and endorse the Chartered Institute for Archaeologists' *Code of Conduct*, *Code of Approved Practice for the Regulation of Contractual Arrangements in Field Archaeology* and the *Standard and Guidance for archaeological watching briefs* currently in force. All employees of AW, whether corporate members of the Chartered Institute for Archaeologists or not, are expected to adhere to these Codes and Standards during their employment.

### **Project tracking**

The designated AW manager will monitor all projects in order to ensure that agreed targets are met without reduction in quality of service.

## **14. Arbitration**

Disputes or differences arising in relation to this work shall be referred for a decision in accordance with the Rules of the Chartered Institute of Arbitrators' *Arbitration Scheme for the Institute for Archaeologists* applying at the date of the agreement.

## **15. References**

Chartered Institute for Archaeologists, 2014. *Standards and guidance for the collection, compilation, transfer and deposition of archaeological archives*

Chartered Institute for Archaeologists, 2014. *Standards and guidance for the collection, documentation, conservation and research of archaeological materials*

Chartered Institute for Archaeologists, 2014. *Standards and guidance for an archaeological watching brief*

English Heritage, 2002. *Guidelines for Environmental Archaeology*

English Heritage, 2006. *Management of Research Projects in the Historic Environment (MORPHE)*



Meek, J., 2011. *Arfordir Coastal Heritage, 2010-2011*, (Dyfed Archaeological Trust Report: 2011/18)

National Panel for Archaeological Archives in Wales, 2017. *The National Standard and Guidance to Best Practice for Collecting and Depositing Archaeological Archives in Wales*

Welsh Archaeological Trusts, 2018. *Guidance for the Submission of Data to the Welsh Historic Environment Records (HERs)*

### **Websites**

British Geological Survey: Geology of Britain viewer, [www.bgs.ac.uk/discoveringGeology/geologyOfBritain/viewer.html](http://www.bgs.ac.uk/discoveringGeology/geologyOfBritain/viewer.html) (accessed 24/01/20)



## Legend

## Notes

