Arfordir/Coastal Heritage:
Gwynedd

Progress Report

GAT Project No. 2072
Report No. 941
March 2011
Revised April 2014

Ymddiriedolaeth Archaeolegol Gwynedd
Gwynedd Archaeological Trust
Craig Beuno, Ffordd y Garth, Bangor, Gwynedd, LL57 2RT

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Prepared for
Cadw

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By
Iwan Parry

Ymddiriedolaeth Archaeolegol Gwynedd
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INTRODUCTION

The aim of the Arfordir/Coastal heritage project is to examine the potential impact of climate change and rising sea levels on coastal archaeology, and to incorporate the enthusiasm of local interest groups to help assess and mitigate the impact. The three year project, which is now coming to the end of its second year, will build upon the results of earlier coastal assessments undertaken between 1993 and 1998 and subsequent coastal projects.

Fieldwork forms a major component of the project methodology. As part of the survey process a number of factors are recorded, including: the significance of archaeological sites and historic landscapes in relation to heights above sea level, the nature of the coast edge and foreshore, and the rate of erosion. Similarly the pressures and impacts on sites from increases in extreme weather patterns and rising sea levels are being identified, and mitigation strategies proposed.

In Scotland SCAPE, through their project Shorewatch, has successfully integrated enthusiastic community interest with the need to assess, monitor and record archaeological remains within the eroding coastline. It was proposed that an approach be made to local communities to set up interest groups to undertake similar monitoring and recording tasks. Initially this approach has been made to existing historical groups and community groups.

All work has been undertaken in conjunction with the Dyfed Archaeological Trust, who are undertaking a similar project in association with the Pembroke National Park, and Glamorgan Gwent Archaeological Trust. Close liaison will be maintained with GGAT and DAT during the course of the project and meetings of the Welsh Coastal Heritage Environment Research Group will be attended, the last of which was held in November.

Initially the project was to be limited to the Cardigan Bay coast during the first year, however due to interest from Anglesey and Llŷn the project was extended to include the entire Gwynedd and Anglesey coastline.

In the second year of the project work has been largely concentrated on the Llŷn and Anglesey coastlines and has enjoyed continuous input from local volunteers.

SUMMARY OF WORK

The first task to be completed this year was to enhance the project database. This was done by incorporating the databases of previous projects undertaken between 1993 and 1997 that assessed and recorded coastal erosion and archaeological sites under threat. This provided a comprehensive list of known archaeological sites along the entire Gwynedd and Anglesey coastline, and by using GIS software a map showing all sites along with severity of erosion. This proved invaluable for providing volunteers with maps on which they could see the previously identified sites and mark on any new ones they discovered *(See Fig.1)*.

The main meeting of the year was held at Harlech. Most of those in attendance were members of the Harlech Historical Society. A presentation was given in the town hall, and a walk was organised around Llanfihangel y Traethau.

During the walk a number of previously unknown features were identified including a possible lime kiln *(Plate 1)*, outhouse with overflow on to the shore, and moorings associated with a previously recorded lime kiln.

Following the Harlech meeting it became apparent that the recording forms were somewhat complicated and off-putting to the volunteers. Using the feedback received these were edited, and more user friendly ones produced *(See Appendix A)*.

A presentation on the project's work to date and future plans was given to members of The Campaign for the Protection of Rural Wales in Llanfairpwll, Anglesey. Members were supportive of the project and stated an interest in volunteering.

The project was also promoted at various talks and outreach activities arranged by the trust. The main result of meetings and promotion of the project to date has been two active volunteers, one of which has recorded over 40 new features. It was the efforts of these volunteers that prompted the excavations and one of the surveys undertaken as part of the project.

Volunteers assisted with the trial excavation of a flint scatter site and the EDM survey of a headland where a number of previously unrecorded WW2 features associated with HMS Glendower had been identified *(Plate 2)*.

A previously unknown area of submerged peat and a probable fish weir *(Fig.5 & Plate 3)* were reported at Glanllynnau, Llanystumdwy by a volunteer working as part of the project. When the area was initially visited to confirm the discovery the eroding edge was observed for affected archaeology, behind sea defences a feature containing high quality flint and prehistoric pottery was discovered *(Plate 4)*. The peat and fish weir were surveyed and negotiations are on-going with the landowner to conduct a trial excavation in the area.

A possible standing stone, first identified in 2004 eroding from dunes, was recorded by a volunteer for the project and investigated further by GAT archaeologists *(Plate 5)*. A test pit was excavated against the face of the stone to try and identify the cut of the stone-hole and to gain better understanding of the date of erection. It was thought that the stone may have been a Medieval boundary marker, however upon investigation the stone was found to be over 2m in height and more likely to be a Prehistoric monument *(Plate 6)*.

A WW2 pillbox disguised as a cottage which is currently used as a garden shed and associated concrete platforms were reported to the trust and recorded by a volunteer working on the project *(Plate 8)*.

A granite quarry site at Porth Namarch, Holyhead which is largely only visible from the sea was reported to the trust as part of the project *(Plate 9)*.

The monitoring walks undertaken by GAT over the course of the year resulted in the discovery of 24 new archaeological sites and over 35 artefacts were recovered from eroding edges.

A training session was held at Nefyn Maritime Museum where volunteers had the opportunity to assist in the recording of a log boat *(Plate 10)*, gaining experience in drawing plans and sections and photographing artefacts.

The main problems encountered during monitoring walks during the year concerned high eroding cliffs and the resulting difficulties in identifying archaeological features. In areas where high cliffs were present only larger features such as ditches and field boundaries could be identified.

PROJECT DATABASE

Over the course of the year the project database has been greatly enhanced which has proved invaluable when dealing with enquiries and requests for information. Because of the increased use of GIS it was a simple procedure to print off lists and maps for specific areas and be able to show the areas most at risk *(Fig. 1)*. This was done by continually adding the information received from volunteers and combining it with data gathered during previous projects. The result is a visual database showing all known coastal sites and the severity of erosion where information can be easily added and manipulated.

The first step in producing this new database was to transfer information collected during earlier coastal projects into the main Arfordir database. Three previous projects had specifically looked at the problem of coastal erosion in Gwynedd and Anglesey, these were:

G0039 Coastal Erosion Survey – Aberdaron Bay to Great Orme, Report No. 79
G1315 Coastal Erosion Survey – Aberdaron to Aberdyfi, Report No. 198
G1386 Coastal Erosion Survey – Anglesey, Report No. 251

The aims of the projects were to assess the scale of erosion, record known archaeological sites and to identify new ones. They would then provide an environmental assessment of the coastline to assess the effects of past and future erosion and suggest management strategies for archaeological sites and areas of potential (Smith, 1993). The projects were undertaken between 1993 and 1997 which created a problem due to the digital format of the databases. Before being added to the current database the list of identified sites needed to be converted so that they could be used in conjunction with Microsoft Access. Once this was done the information was transferred and the database made mapable using Mapinfo which provided a very user friendly system that could easily be used to provide information for the volunteers.

In addition to the information about the identified archaeological sites, the survey reports included information on the severity of erosion for the entire length of coastline covered by the projects. This information was not available in digital form so was inputted manually. This meant that for information to be available in a user friendly way on Mapinfo, each section needed to be drawn digitally and colour coded in relation to severity of erosion. Once this was done maps could be produced for monitoring walks by staff and for volunteers which showed all known sites and the severity of erosion for any part of the coastline.

In total the project database now includes 1251 identified features 68 of which have been added in the last year of the project.

HARLECH PUBLIC MEETING

The main public meeting of the year was held in the Memorial Hall in Harlech, which was open to all members of the public.

The meeting was well promoted with flyers placed in local shops and on community notice boards in the area, and an announcement had been made on BBC Radio Cymru. The event was also promoted amongst Harlech Historical Society members by Secretary Clare Laurie and flyers had been handed out during a talk given to the U3A historical group in Penrhyndeudraeth.

The meeting was attended by 11 people, mostly members of the Harlech Historical Society but also by a member of the public who had seen the flyers locally.
An introduction was given to the coastal history and archaeology of the area by Andrew Davidson, this focused on features that would be seen during the guided walk but also raised awareness of features associated with coastal industries namely ship building and kelp burning for the production of soda 'ash' or sodium carbonate. This was followed up with a talk by Robert Evans who explained the aims of the project and gave a general roundup of the work done by the project to date. Finally Iwan Parry briefly explained the recording process and the way the information submitted by volunteers is used, showing examples of the database records and the maps that can be produced.

Those able to were then invited to walk a section of coastline at Ynys Llanfihangel-y-Traethau. The section was approximately 1.15km starting at Glan Meirion (SH59943579) and ending at Clogwyn-Melyn (SH58933567). The recording process was fully explained at a Lime-Kiln (SH59563584), it was at this point that it became apparent that the recording forms were too complicated and that simpler versions should be produced.

Feedback from the meeting was positive, however to date no new information has been submitted by those who attended.

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(See Fig.5)

A previously unknown area of peat (PRN 31661) was reported to the Trust by a volunteer who had been metal detecting on a beach at Glanllynnau, Llanystumdwy (SH 4653 3727). He also reported a number of wooden stakes protruding from the peat forming a straight line (PRN 31690) *(Plate 3)*. The site was visited by an archaeologist to confirm the discovery and to conduct a handheld GPS survey of the feature and peat deposit.

Within the peat was a fair amount of preserved organic material including branches of birch, coniferous bark, reeds and hazelnuts showing that the area was once likely to be covered in mixed woodland.

The stakes or posts within the peat appeared to be fairly small in circumference at first glance, however upon further investigation it appeared that they would have originally been larger. Within the peat the circumference of the majority of the posts was larger than expected, this appeared to have been caused by the erosion or decay of the sapwood above the line of the

peat leaving only the heartwood visible. The posts, of which there were at least 43, could be seen forming a line approximately 31m in length orientated north-west – south-east at an angle from the shore (centred on SH 4659 3729). This would be consistent with a fish trap or weir designed to trap fish as the tide retreated which in this area would occur from the west to the east. If this is the case the visible post alignment which forms the inner arm would stretch to the low water mark and an outer arm would extend towards the west forming an apex in which the fish would be trapped. The only concern with this interpretation is that the inner arm extends further than expected towards the shore and appears to be at a fairly extreme angle, although this may have changed closer to the low water mark.

It is possible that the fish trap is much earlier than other examples found in Gwynedd which are generally medieval and post medieval in date. It appears as if the estuary of the Dwyfor may have once been located around the area where the fish trap was discovered. If this is the case then the trap would have been located at the mouth of the river or within the river channel and may have been used to catch salmon as they swam to sea. It would be desirable to collect samples of the posts for radiocarbon dating and potentially dendrochronological dating which would enable us to make a more educated interpretation of the feature and help formulate a strategy for future work in the area.

During the visit to survey the peat and fish trap a short section of the coastline was walked as the edge was clearly eroding at an alarming pace, blocks of topsoil and clay could be seen falling from the edge every few minutes. The walk resulted in the discovery of a sherd of decorated Bronze Age pottery *(Plate 4)* which was exposed in the eroding edge, behind coastal defence boulders. Further investigation showed that the pot was within the fill of a shallow pit *(Fig. 2)* which also contained a flint bladelet, retouched flake, charcoal flecks and heat affected stone. Further heat affected stone found throughout the topsoil in the general area of the pit, along with two flint flakes suggest that there may be fairly intensive prehistoric activity in the area.

Negotiations are ongoing with the landowner to conduct an excavation at the site but he currently has reservations as he believes that excavation may accelerate the rate of erosion.

NEFYN MARITIME MUSEUM LOG BOAT (PRN ??)
(See Figs. 3&4 and Plate 10)

A request was made to the trust to assist with the recording of a log boat held in the collections of a small maritime museum in Nefyn on the Llŷn Peninsula. This was seen as having a direct link to coastal archaeology and heritage and that the work could be undertaken as part of the Arfordir project. Volunteers were invited to gain training and experience in recording methods that could be applied during fieldwork as well as for recording large artefacts. Attendance was good with 10 volunteers attending the session.

The exact date and location that the log boat was found is unclear. It was acquired by Nefyn Maritime Museum in the 1970s and prior to this it had been stored in garages, first in Caernarfon and then in Nefyn. It is believed that the boat was discovered on a sandbank in the Menai Straits, however this has not been confirmed and the date of the discovery is unknown.

Durham University student Jamie Davies has recently been researching the boat and has made some significant discoveries. He submitted samples of the wood to Museum of London Archaeological Services (MOLAS) and Durham University for analysis. MOLAS stated that the wood was probably Teak, likely to have originated in south-east Asia; however Durham University stated that the wood was a tropical hardwood likely to have originated in West Africa. Recent ethnographic research has concluded that the boat is typical of those found in West Africa and is likely to be 19th century or later in date.

PORTH NAMARCH GRANITE QUARRY, HOLYHEAD (PRN 31699)

A new site was reported to the Trust by a member of the public following a talk about the Arfordir project. This was a quarry on the north side of Holyhead Mountain some 400m south-east of North Stack and alongside a deeply indented steep sided gully (at SH 2493 8380). A levelled area is terraced into the slope above the gully and above the coast edge, and supported on the lower, seaward, edge by a high stone revetment wall some 2m high and 30m long. The wall is not visible from the landward side, but is clearly visible from out at sea. Within the terraced area are two small masonry towers 1.2m high and 2m square. Alongside one is a circular stone 1.45m in diameter, 0.38m thick with a square central hole 0.32m across *(Plate 9)*. From its dimensions and appearance it may have been used on edge to crush stone. Piles of crushed granite lie close by. The site is best interpreted as a small stone quarry producing road-stone, and was probably operational in the early 20th century.

EXCAVATIONS

As part of the project two trial excavations have been conducted to date, both on prehistoric sites. The sites were previously known to the Trust and were included in the regional HER but were re-recorded by volunteers working as part of the project. Both sites were deemed to be at risk and that excavation was justified to gain further information before more was lost.

Penychain Cĩŷű {Ŏl-űűŜ óŧwb стутú
See Appendix B for full report

The first site earmarked for excavation was a flint scatter site located on Penychain (SH 4353 3531), a rocky headland on the southern coast of the Llŷn Peninsula. Although erosion is generally less of a problem in areas with rocky geology, winter storms had started to wash away the ground above the cliffs exposing a number of flints and a possible buried soil layer. Each time the site was visited more flints were found and a decision was made to investigate the scatter in order to gain a better understanding of the site.

Morfa Abererch Standing Stone óŧwb мупллú
See Appendix C for full report

The second site was first reported to the Trust in 2004 and is located on the southern coast of the Llŷn Peninsula at Morfa Abererch (SH 4126 3576). Following a series of winter storms a walker on the beach noticed a stone that had become visible due to shifting sand dunes, he reported the find to the Trust and shortly after a visit was made by George Smith. It was noted that the stone may have

been a Medieval boundary marker but that there was a possibility of it being a prehistoric standing stone. When a recording sheet was submitted by a volunteer who had recorded the site a decision was made to re-visit the site to assess the current risk. It became apparent that the coastal edge had eroded further since the initial discovery of the stone, and a flint scraper (PRN31692, SH 41363573) found close to the site added weight to the theory that the stone may be prehistoric. A decision was made to conduct a trial excavation in an attempt to date the erection of the stone and to identify any contemporary ground surfaces that may be present.

AIMS 2011-2012

During the third year of the project the aim will be to build on the continuing success and to attempt to get a constant flow of information being submitted by volunteers. An attempt will be made to target a younger, more active audience as many that have been attending meetings to date have been too frail to undertake the fieldwork elements of the project. It has been decided that a training day will be arranged for Bangor University Archaeological Society which will hopefully provide new volunteers for the project and provide the opportunity of training by professionals which may be beneficial to the students in the future.

A larger scale excavation which will provide an opportunity for more volunteers to participate will be conducted in the coming year. Although there was an element of volunteer participation in the Penychain excavation only one volunteer attended regularly, this was partially due to access issues through the holiday camp. Two possible sites have been identified for future volunteer excavations, one at Porth Neigwl where prehistoric features have been found on the beach close to a car park, and another at Glanllynnau where Bronze Age pottery and flints were found. Negotiations are ongoing with landowners who have raised valid concerns about excavation accelerating the rate of erosion.

Work will continue on sites identified during the previous years of the project that have not yet been fully recorded. These include a mound at Penmon which will be surveyed in detail to produce a 3D model and a probable fish weir at Glanllynnau, Llanystumdwy.

Two talks on the project have already been arranged for 2011 and it is likely that the main meeting for the year will be at Llanfairfechan which will include a guided walk in the Abergwyngregyn area. It is also intended that a well publicised meeting will be held on Anglesey in an attempt to attract more volunteers on the island. The project will also be among the main priorities for promotion during the county shows which the Trust attends during the summer months.

BIBLIOGRAPHY AND SOURCES

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Hopewell, D. 2000. *An Assessment of Coastal Fish Weirs and Traps (G1589)*, Gwynedd Archaeological Trust Report No. 363

Historic Environment Record, Gwynedd Archaeological Trust, Craig Beuno, Garth Road, Bangor, Gwynedd, LL57 2RT

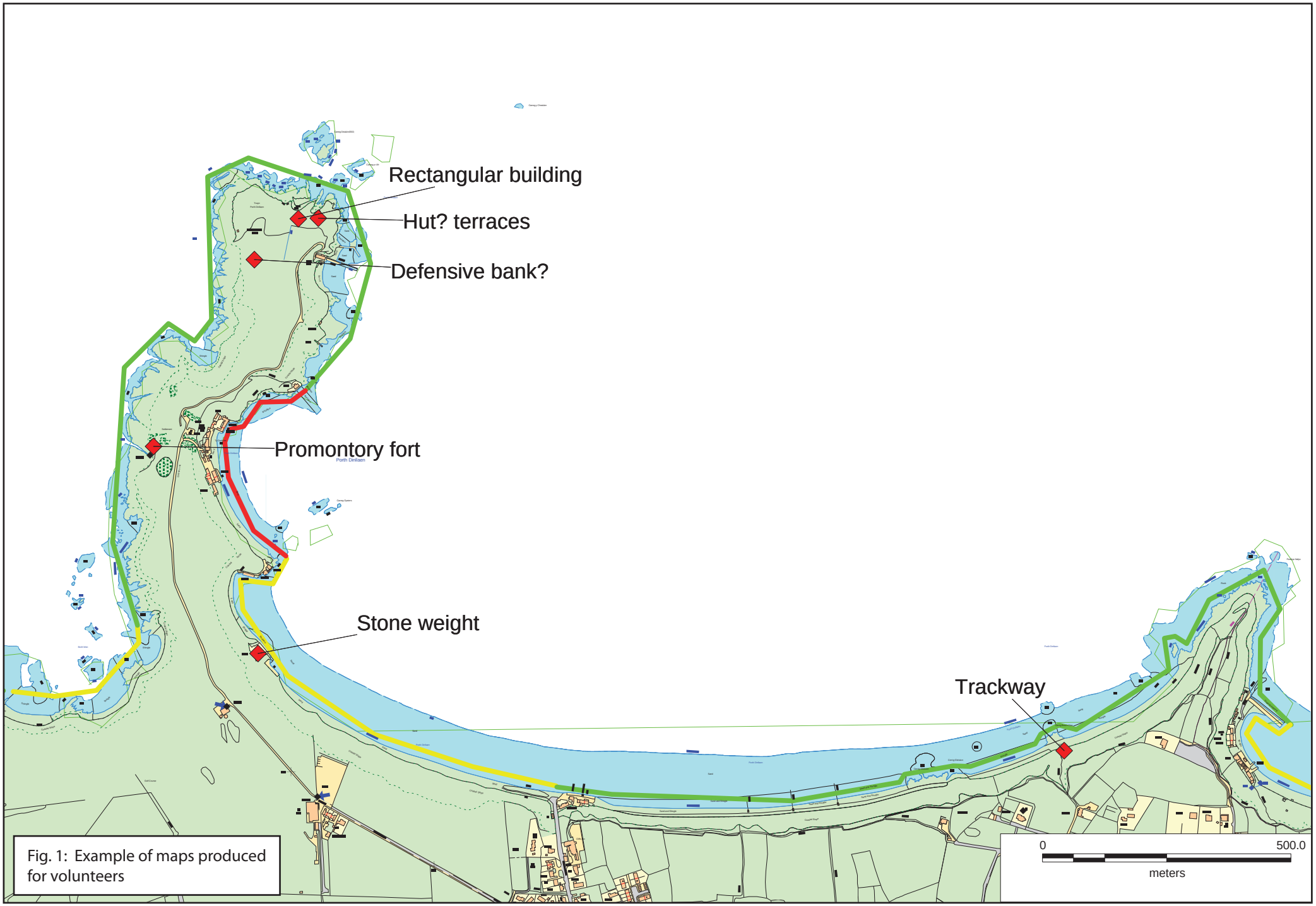

Fig. 1: Example of maps produced for volunteers

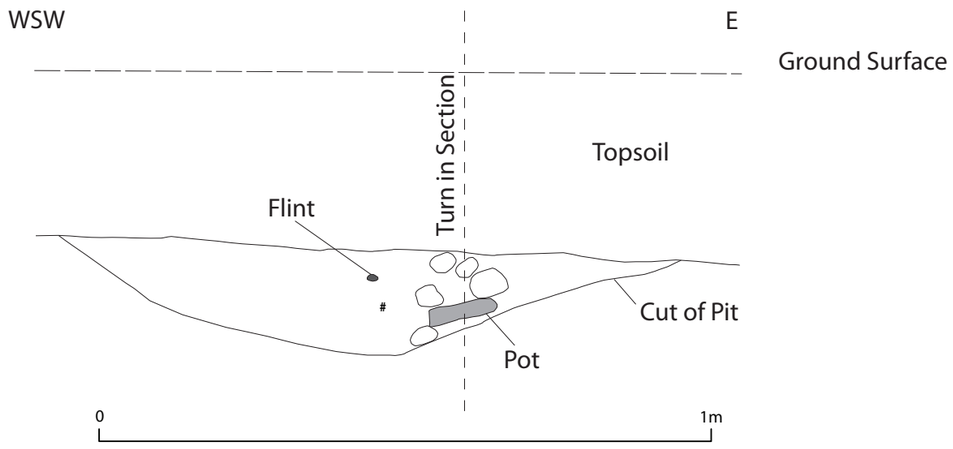

Fig. 2: Section of Bronze Age pit, Glanllynnau

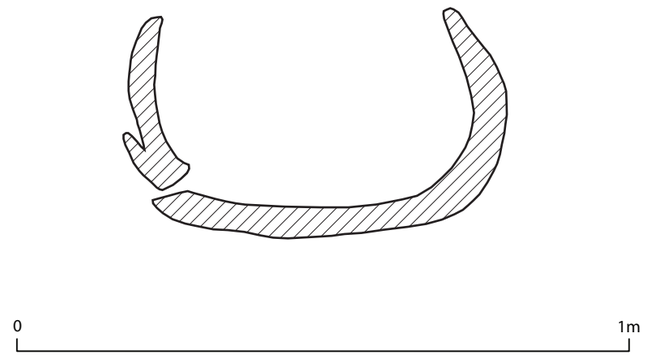

Fig. 3: Section of Nefyn Maritime Museum Log Boat

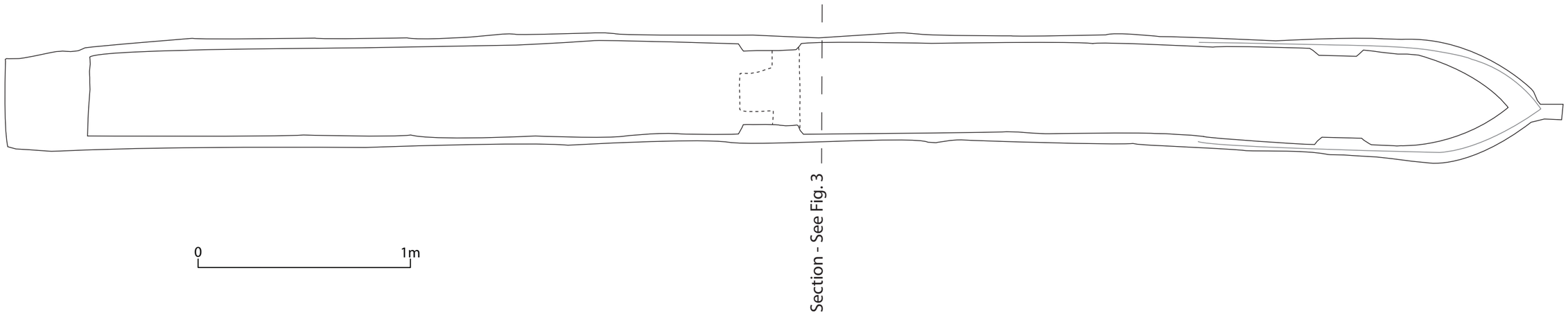

Fig. 4: Plan of Nefyn Maritime Museum Log Boat

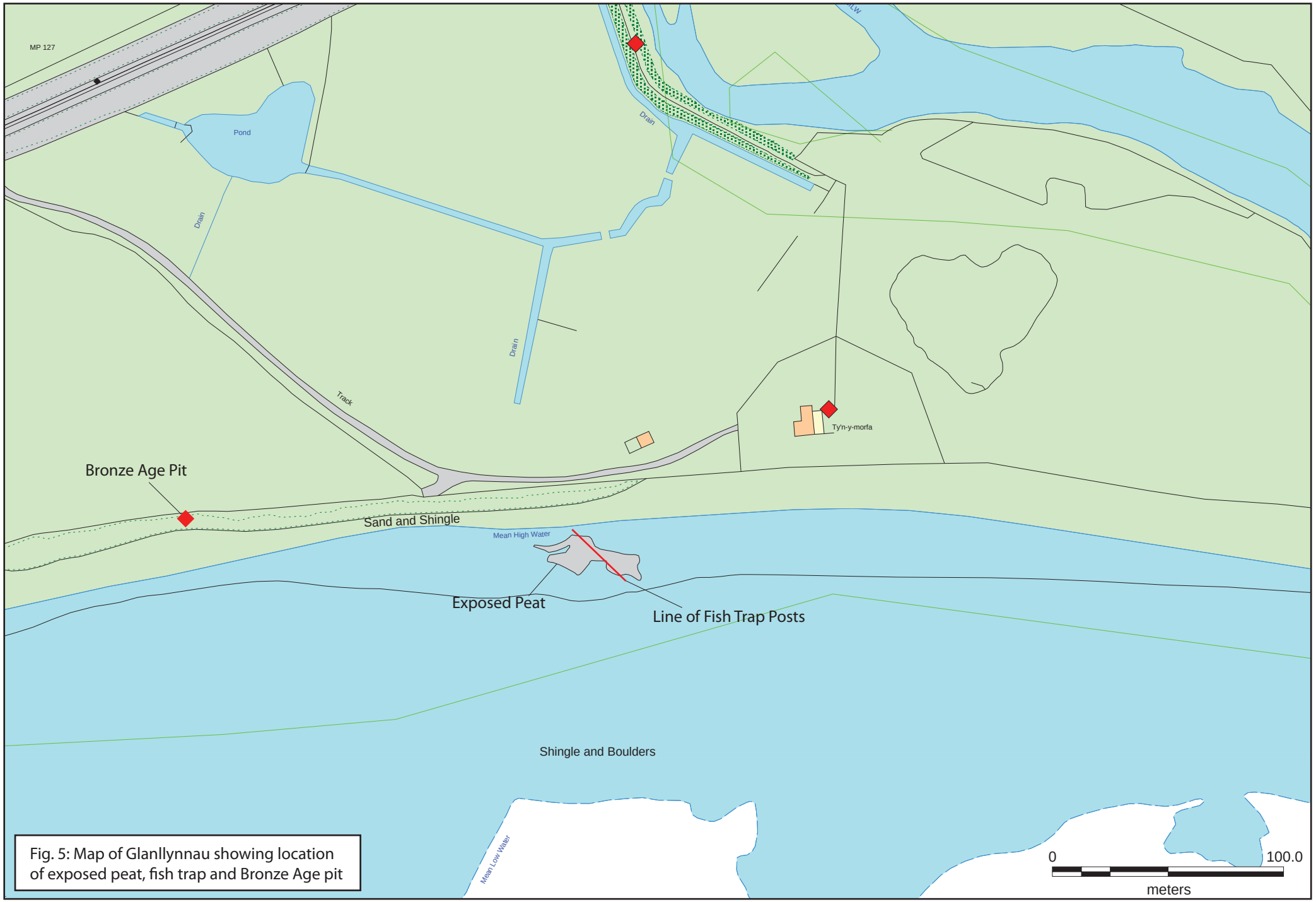

Fig. 5: Map of Glanllynnau showing location of exposed peat, fish trap and Bronze Age pit

Plate 1: Examining a possible kiln during the Harlech meeting guided walk

Plate 2: Volunteer Russ Sherry excavating a test pit during excavations at Penychain

Plate 3: Landowner Hywel Richards observing the fish trap and exposed peat at Glanllynnau

Plate 4: Bronze Age pottery eroding from a shallow pit at Glanllynnau

Plate 5: Abererch standing stone pre-excavation

Plate 6: Abererch standing stone post-excavation

Plate 7: Newly exposed peat at Abererch

Plate 8: Second World War pillbox disguised as a cottage, Llanddona

Plate 9: Grinding stone found at Porth Namarch granite quarry, Holyhead

Plate 10: Nefyn Maritime Museum Log Boat

Appendix A

New Recording Form
and
Guide

Arfordir Recording Form

SITE ID This information will be used to distinguish the site from others

PRN no. (if any)	**Coastal Survey no.** (if any)	**Your Site no.**

LOCATION OF THE SITE This information will help you and others return to the site

Site Name and Location (topographical description, nearest map name, nearest town)

National Grid Reference (NGR) – or mark on map provided

SITE DESCRIPTION The description will help to identify the site type, function and date

Dimensions (Metric) – If easier note measurements on a sketch

Length	**Width**	**Height/Depth**	**Orientation**	**Dist to High Water**

Full description – include as much information as possible – construction material, shape, unusual features, local information, possible function, estimated period etc.

Associated Finds/ Sites – include information of any finds or sites associated with the site e.g. if recording a pill box note any other defensive features in the area.

Condition and Threats – brief description of the condition of the site and any apparent threats e.g. erosion or vandalism.

FIELDWORK INFORMATION

Recorded by	**Date**

The Arfordir Recording Form : Guide

Using the Arfordir form will ensure that all relevant information about a site is recorded. The data is compatible with that held by the HER. This means that information you collect can be passed on to easily, allowing new records to be generated or existing records to be updated.

The form will also help remind you of the condition of the site at the time of your first visit, allowing you to compare how much it changes. If you make a follow-up visit to your sites, you will be able to use the completed forms to evaluate any differences.

Ideally, the form should be completed in the field, but this is sometimes impractical due to strong winds or heavy rain. If this is the case, the form can be completed after you return home. If you leave it until later, try to complete the form as soon as possible, while things are fresh in your mind.

If you are not completing the form in the field, take notes about your site, recording them in a notebook or on a piece of the waterproof drafting film in order to remind you of the information required on the form when taking notes, use the Arfordir field guide. Laminated copies of this are available from the Iwan Parry at Gwynedd Archaeological Trust.

Use a black pen to complete the form, as this is the most clear when photocopied. You don't need to use block capitals, but you should write as clearly as possible so that others can read the form later.

Once the form is completed, send a copy to Iwan Parry, Gwynedd Archaeological Trust, Craig Beuno, Bangor, Gwynedd, LL57 2RT.

The following describes the various sections of the Arfordir form, and explains the type of information required in each of the boxes.

SITE ID This information will be used to distinguish the site from others

These boxes ask you to give the numbers that you and others have given the site. Some sites will have been examined before, and a record already made in the HER. If this is the case, use their information to complete the relevant boxes, making notes if you think their information is incorrect.

Regardless of whether a site has been numbered before, you should always give your own unique number to it. Use this number to distinguish your site from others. This is particularly important in areas where there are several sites close to each other (for example, on the edge of a remote sandy bay or on the end of a promontory). If all the sites were given the same number (or given no number at all), it would be hard to recognise which site the record referred to. Identifying sites uniquely is also important for cross-referencing finds, photographs, drawings and other records which have come from the site.

Your Site no.	You should give every site that you record a unique number, regardless of whether it has already been given a number by another organisation. This is your own group's number and should be taken from your Site Register. Using the Site Register ensures that no two sites end up having the same number.
PRN no.	If the site has been recorded on the Historic Environment Record for Gwynedd, and you know its number, write the number here.
Coastal Survey no.	If you know the number assigned to the feature during the previous Gwynedd Archaeological Trust Coastal Erosion Survey note it here.

LOCATION OF THE SITE This information will help you and others to return to the site

It is extremely important to be able to return to a site after you have found it. You should record both the name of the site, including the parish and Local Authority area, and try to get a grid co-ordinate. Although a site may appear obvious at the time of your visit, it may not be so easy to find a second time, once bracken has grown up around it or the coast edge altered after a severe storm. Recording the location as precisely as possible increases the chance of finding the site again. The grid co-ordinate can be determined from maps or can be taken using a Global Positioning Satellite (GPS). Gwynedd Archaeological Trust can also provide you with printed maps of the areas that you intend to work so that sites can be marked directly on the sheet, once these are returned to us we can add the NGR to your sheets.

Site Name and Location (address or description)	If the site has already been recorded in the HER, use the name that they have given. Only record the main name of the site, not the alternatives. If you think the name they have given is incorrect, record this name, stating why you think it is wrong, and write in the correct name. If the site has not been previously recorded, please write your own name for the site. The name given is usually that of the nearest marked point on the Ordnance Survey map. Include, if necessary, a description of where the site is in relation to this place (for example, *the south end of Trefor Pier* or *200 metres north of Penrhyn Bay*). If the site is in a town, village or other easily identifiable place, enter the postal address.
National Grid Reference (NGR)	Record the full Ordnance Survey National Grid Reference (NGR), separating it into Map Square; Easting; and Northing. This is most easily done with a hand held GPS, however if you are using a map to determine the grid reference, use the largest scale possible. **REMEMBER YOU CAN ALSO MARK THE LOCATION ON MAPS AVAILABLE FROM IWAN PARRY AT GWYNEDD ARCHAEOLOGICAL TRUST**
Map Square	Write down the two letter code which identifies the Ordnance Survey 100km square THE MAJORITY OF GWYNEDD'S COASTLINE WILL BE **SH** THE EXCEPTION IS THE SOUTH IN THE TYWYN AREA WHICH IS **SN**.. The map square is displayed by a GPS and is shown in the margin and the top left corner of an OS map. Note that the code changes when the first two numbers of either the Eastings or Northings equal '00'.
*** Easting**	Eastings are the numbers at the bottom of a map, and are the first numbers given by a GPS.
*** Northing**	Northings run up the side of a map, and are the second numbers given by the GPS.

SITE DESCRIPTION The description will help to identify the site type, function and date

Many archaeological sites are a distinctive shape or size, due to when they were built or what they were used for. By describing a site, you can help determine the nature, function and date of the archaeological remains. Often, looking carefully at a site in order to write the description can help you to start thinking about the remains in a different way, making you notice clues about the site which may help with its interpretation.

When writing the description, imagine that you are writing for someone who is not present and cannot see what you are looking at. Remember that in many cases, a photograph can often be worth hundreds of words, so photograph parts of the site and make reference to these photos in the description. Even if you aren't able to guess the site's type and date, giving a detailed description and providing photos may help someone else to understand the significance of your find.

Even if only very little of the site is visible, for example, as remains eroding out of a sand dune or cliff edge, record what you can see with as much detail as possible.

Site Dimensions	Record the dimensions of the site. If only approximate, write *approx*. All measurements should be metric (metres, centimetres and millimetres).
Length	Record the length of the site, and state which orientation the measurement relates to (for example *12.20m N-S*).
Width	Record the width of the site, and state which orientation the measurement relates to (for example *6.45m E-W*).
Height/Depth	Record the height of the site if above ground (for example, the height of standing walls or of a mound), or the depth if below ground (for example, a pit seen in an eroding section). It is usual to note the maximum height or depth. State what has been measured and whether the measurement given is 'height' or 'depth' (for example, *max. height of walls 0.45m; max. depth of pit 1.20m*).

*** Full description**	Use this space for a full description of the site. Where necessary, take photographs to illustrate features within the site. Describe the shape and form of the site (for example, *linear wall; rectangular building;* or *circular mound*) and if the site is a structure, state what it is made from and how it is constructed (for example, *mortared bricks*; *heap of loose stones*). Record other features that the site relates to (for example, *one of several mounds in the area*), and put it in its setting (*on a small hill overlooking Porth Neiwgl*). You can also record any local knowledge about the site that you may have. If necessary, continue writing the description on the reverse of the sheet (making sure you leave enough room for your sketches). Enter the site type if known. This can be quite general (for example, *rectangular building, dry-stone wall*). If unsure, record what you think it may be, using a question mark at the end. Record the period that you think the site belongs to. This can be quite hard, but certain periods are obvious, such as structures that include modern materials such as concrete. Previous archaeological work at the site, or the discovery of certain finds may also help to date a site. If you don't know the exact period, but can estimate an approximate period, put a question mark after the date. If there are no clues to the date, write ***Don't Know***. This is the most usual thing written in this box. If you were able to give a period, state how you did so (for example, *previous archaeological work at site*; *local knowledge; site built of concrete and bricks*).
Condition and Threats	This section allows you to record the condition of the site. This is important information and it helps to show how stable or vulnerable the site is. It also provides information from which future monitoring can be based and helps to show how the site changes over time. You also use this section to recommend any future work that needs to be done at the site. State the condition of the site using one of the standard terms below. Remember that you are describing the condition of an archaeological site, not a perfectly preserved building. The site will already have been damaged in the past - you are describing whether the site is in danger of further damage. ***Good*** (walls in stable condition, site showing no signs of being damaged). ***Fair*** (parts of walls collapsing, site showing some signs of damage but presently in a fairly stable condition). ***Poor*** (site in danger of collapse or of being destroyed in the near future). ***Destroyed*** (site known about from previous visits or through the records of others, but no longer existing). Only use the term *destroyed* if you are sure that the site no longer exists. If you can't locate a site previously identified, but suspect it may be buried or hidden under vegetation, write ***Not Found***. State what threats you think there are to the site, (for example, *on-going coastal erosion; animal damage; plants growing on it; recreational use*). Record whether you think that these threats are likely to get worse.

FIELDWORK INFORMATION This will remind you and others about the actual survey

This section records who did the survey, who filled in the recording sheet and when the survey was done. This is key information as there may be things recorded on the form that need to be clarified or added to at a later date.

*** Form recorded by**	Write down the name of the person or people who filled in the form. Make sure you record who actually did the writing in the field, as sometimes they are in the best position to read their own writing, especially after a cold afternoon's recording!
*** Survey date**	Write down the date of the survey. This is important for monitoring the site as it shows when the site was in a certain state and allows the rate of change to be evaluated.

ARFORDIR - RECORDING FORM

Sketch drawings

Sketch-drawings convey a great deal of information, and one sketch often saves hundreds of words. They are very important as they help you to find a site again on subsequent visits. You can also use simple sketch-drawings to illustrate the principal elements of the site and its surrounding landscape, and you can refer to them in your written description.

Use the drawings to show the relative positions of features (for example, the position of the site in relation to an outcrop of rock or to a road) or to illustrate irregular shapes (for example, complicated building plans or architectural details such as doorways).

It is often easier to draw two sketches at different scales, one showing the site within the surrounding landscape, the other illustrating details of the site. It is not always necessary to make both sketch-drawings and sometimes just a single one is enough.

How…

As you are only drawing sketches, you don't need to worry about great accuracy or drawing to scale. If you think that accurate and detailed plans are necessary, these can be done as separate drawings.

It is normal practice to have north at the top of any archaeological drawing and if possible you should follow this convention. Exceptions occur when the space provided on the page does not match the shape of the site. Whichever direction north is pointing, always place a north arrow on your sketch-drawing.

You should record distances on your sketches, as this will give necessary information about the size and position of the site. When recording distances, always use the metric system (metres, etc.), making sure that you have used the correct side of the tape when taking measurements (it is very easy to confuse the Imperial and Metric side of some tapes). If distances are only approximate, write ***approx*** after them.

SKETCH LOCATION DRAWING: a drawing showing the location of the site in relation to other features (with distances), the location of the coast edge (if relevant) and the approximate position of north (usually north is at the top of the drawing).

The **sketch location drawing** shows the site within its surrounding landscape. Its purpose is to help you and others find the site again on subsequent visits. If the site is going to be easy to find (for example, it is marked on OS maps or is in a back garden), this sketch may not be necessary. If you think that finding the site again may be difficult, mark on as many things as possible that will help identify it in the future.

Try to use 'hard' features, things surrounding the site that are easy to spot and are unlikely to move. These could be natural (such as trees or outcrops of rock), or man-made (such as walls or buildings).

Mark the distances from the hard features to the site on the sketch. Use measuring tapes if the features are close enough, or pace out the distance if they are far way. If pacing out distances, try to get your pace as close to one metre as possible. If you want to practice, try stretching out the tape in the direction that you are going to walk and pace out the length of the tape, then continue walking towards the feature.

If using field boundaries to measure from, remember that one stretch of wall can look much like another, so try to show the overall shape of the field. Mark on the corners of walls, gates, etc. and where possible, take measurements from these positions rather than from a straight section of wall.

The sketch location drawing should show the position and distance to the coast, if it is nearby. It should also indicate areas under threat around the site (for example, eroding dunes, areas where the coast edge is retreating or areas of animal damage).

If you have several sites in the same area, and are going to complete a separate recording form for each of the sites, you needn't make a different location sketch for each. Draw a sketch on the first sheet, which identifies the position of all the sites to be recorded and on subsequent forms, refer to this location sketch, instead of copying the whole drawing each time.

DETAILED SKETCH PLAN / SECTION: a more detailed drawing showing the principal elements of the site, either in plan, section, or both. Show the dimensions of features and the approximate position of north.

The **detailed sketch** is a more detailed drawing of the archaeological site described on the recording form. This sketch-drawing can be a plan, a section/elevation, or both. Remember, however, that it is a sketch whose purpose is to help you and others remember the layout of the site and its principal elements; it is not meant to be an accurate representation drawn at scale.

Draw as many relevant features as necessary. These could include areas where walling is exposed, places where the site's shape is visible as a bump in the ground, or places where the site has been damaged.

Don't forget to mark on the sketch-drawing the dimensions of the site and the position of north. If you have taken detailed photographs of parts of the site, you could mark the position of the photographed features on the sketch plan.

Appendix B

Penychain Excavation Report

GAT Project No. 2072

Ymddiriedolaeth Archaeolegol Gwynedd
Gwynedd Archaeological Trust
Craig Beuno, Ffordd y Garth, Bangor, Gwynedd, LL57 2RT

Penychain Excavation

Figures

Plates

Ymddiriedolaeth Archaeolegol Gwynedd
Gwynedd Archaeological Trust
Craig Beuno, Ffordd y Garth, Bangor, Gwynedd, LL57 2RT

INTRODUCTION

The Penychain headland is located on the southern coast of the Llŷn Peninsula midway between the estuaries of the Erch and the Dwyfor *(See Fig. 1)*. The area is best described by Gresham (1973) who states the following:

'The low rocky headland which gives its name to the township of Penychen projects boldly out into the sea from the southern coastline of Eifionydd, of which it is one of the principal features. It is formed of fine-grained, intrusive, igneous rock of a warm golden-brown colour. The coast of the promontory has been eroded into a series of small coves, above which the cliffs rise to a height of no more than fifty feet. Inland the ground is broken up by a number of small rocky hillocks, partially clothed with gorse and bracken – the highest just reaching a hundred feet above sea level. Amongst these hillocks some patches of ground have been roughly cleared into fields and enclosures, hedged about with brambles and wind-swept thorn bushes. The whole district forms a most lovely piece of coastline, of which the detail is all in miniature, while from every part of it is obtained a superb view, including both the mountains of Ardudwy rising from the sea across the bay, and those of Eifionydd above the green of the lowlands.'

To the west of the headland the sweeping sand and shingle beach stretches about 5km to the eastern limits of Pwllheli, and to the west there are a number of small pebble beaches and sections of actively eroding farmland stretching to the Dwyfor estuary and beyond to Criccieth.

Gresham also refers to the erosion that has already taken place in the area stating that:

'The west side of Penychen was once a shallow bay, which has been gradually silted up by materials carried along the coast by forces of wind and tide; on the east side was a gently undulating plain, a southward extension of the existing coast which the sea has rapidly washed away since the early medieval period.'

BACKGROUND

The Gwynedd HER showed 4 recorded sites in within a kilometre radius of the headland including a probable long hut (PRN 1332), flint findspot (PRN 6787) and the site of the Second World War naval training camp, HMS Glendower (PRN 7248). As part of the Arfordir Coastal Heritage project the headland was frequently visited and recorded by a very active volunteer who reported a total of 34 sites in the area.

METHODOLOGY

It was hoped that the fieldwork would identify any buried ground surfaces present in areas where lithics had been found falling out of eroding edges. To do this it was decided to excavate a number of meter square test pits close to the eroding edges and on a flat plateau that is under threat from erosion.

Five test pits were located on the plateau centred on (SH 4353 3531), where flints had previously been found (PRN 6787). A 10 m² grid was laid out *({ŜŜ Fig. 2)*. A test pit was located at each corner of the grid and an additional one was placed in the centre.

A sixth test pit was located close to an edge which had produced a number of lithics during previous visits. Unexpectedly the test pit was the deepest of all excavated and produced flint and a definite buried soil under wind-blown sand.

The headland was surveyed using a Geodimeter Pro electronic distance measuring total station. The actively eroding edges were surveyed along with all of the identified features and test pit locations *(See Fig. 2)*.

RESULTS

TP01

See Plate 3

Test pit 01 measured 1x1m and was excavated to a maximum depth of 0.67m. Below the turf there was 0.2m of clean wind blown sand (0102) which was overlying a slightly compacted red-brown sand (0103) containing occasional small stones which may have been an exposed ground surface at some point in the past, two flint fragments were found in the deposit which was generally 0.15m thick. Underlying (0103) was a layer of compacted dark brown sand (0104) 0.15m in thickness. The natural was very stony compacted clay (0105). The area had clearly been disturbed by deep animal burrows which were generally running east-west and branched off to the north.

TP02

See Plates 2&4

Test pit 02 measured 1x1m and was excavated to a maximum depth of 0.5m. Below the turf the first deposit encountered was a thin layer of mid brown-grey silty sand (0202) which was generally 0.04m thick, two flint flakes were recovered from the deposit. A thin mid brown-orange sandy, silt-clay layer (0203) which also contained a flint flake overlay 0.04m of dark black-brown slightly sandy peat (0204) which may have been a buried ground surface. Below this was a layer 0.08m thick (0205) which consisted of light brown-grey sand and contained a single flint fragment. (0206) was a mottled grey-orange sandy clay containing some stone, it measured 0.08m thick. The layers below this were all almost certainly natural, (0207) was a dark orange-brown stony clay and (0208) was a dark brown-orange stony clay. There was some evidence of burrowing in the trench. A surprising amount of water was present in the area of the test pit. Water was constantly flowing in during excavation, and after leaving the excavation open overnight it had completely filled. This may be explained as groundwater from recent wet weather however it may be possible that there is a spring in the vicinity.

TP03

See Plate 7

Test pit 03 measured 1x1m and was excavated to a maximum depth of 0.33m. Below the turf there was a 0.03m thick layer of mid brown clay-sand (0302) which overlay a compacted clay-sand layer (0303) which was 0.1m thick and contained 3 flint fragments. Below this was a compacted mid grey-brown clay-sand (0304) which was 0.1m thick. The natural was very stony clay.

TP04

See Plates 5&6

Test pit 04 measured 1x1m and was excavated to a maximum depth of 0.45m. Below the turf there was 0.1m of blown sand (0402). Below (0402) was a possible relict ground surface (0403) was a dark peaty soil measuring 0.03m in thickness, a sample was collected for environmental analysis and possible dating. (0404) was a light brown-grey sandy clay 0.04m thick, which overlay a mottled orange-grey clayey, silty-sand 0.15m in depth. The natural was stony, dark orange-brown silty-clay. Although a possible relict ground surface was identified no flint was recovered from the test pit.

TP05

Test pit 05 measured 1x1m and was excavated to a maximum depth of 0.35m. Below the turf there was a compacted mid brown-grey clay-sand layer (0502) which contained flint and measured 0.08m in depth. (0503) was a compacted dark brown clay-sand which was very similar to (0502). The natural was very stony clay. There was no obvious ground surface.

TP06

See Plate 8

Test pit 06 measured 1x1m and was excavated to a maximum depth of 0.9m. Below the turf a layer of mid brown-orange sand (0602) measuring 0.14m deep overlay a dark grey-brown sand layer (0609) which was 0.17m thick. (0603) was similar to (0609) but contained some stone and charcoal flecks, the layer was 0.1m thick. (0604) was a slightly clayey dark orange-brown sand layer which was 0.1m thick. A sample was collected from (0605) which was a 0.05m thick dark grey-brown silty-clay, the layer contained flint and charcoal which may provide suitable material for dating. (0606) was a layer of dark brown-orange clay 0.15m thick, this overlay (0607) a mottled mid grey-orange clay 0.05m thick which may have been the interface between the layer above and the mid yellow-grey clay natural. This test pit clearly showed distinct episodes in the encroachment of the sand. It is almost certain that (0605) was a relict ground surface which was subsequently buried by the encroaching sand.

The results show that there may be at least two phases of human activity at the site. TP06 showed a clear ground surface containing no sand which suggests activity at the site before any sand encroachment, whereas the flints in test pits 01, 02, 03 and 05 were found in deposits containing sand showing that a degree of encroachment had occurred prior to the deposition of the flints. It is possible that some of the flints had been displaced by animal burrowing but it is unlikely that all had been moved from their original context. It is also worth noting that all of the possible buried ground surfaces in test pits 01, 02, 03 and 04 contain sand suggesting that the sand was present when the ground surfaces formed. This seems to indicate that there are either two episodes of initial sand encroachment or two episodes of prehistoric activity at the site. This could potentially be resolved by processing the samples collected to try and extract material suitable for radiocarbon dating. Two samples were collected during the excavation, one of these samples was from a possible ground surface containing sand in TP04 and the other from a definite ground surface containing no sand in TP06.

FURTHER WORK

The test pitting did show evidence of human activity and identified at least one buried ground surface. Further test pitting over a wider area could potentially provide further evidence of the possible phases of activity, both sand encroachment and flint working, and could identify archaeological features. Continued monitoring of the area by volunteers will hopefully identify more eroding artefacts and any new features that become threatened.

It would be desirable to conduct a small scale excavation on a feature which is believed to be associated with HMS Glendower but may be prehistoric. The circular feature, which consists of a low bank 'wall', was first identified by a volunteer working as part of the Arfordir project who interpreted it as a possible roundhouse. Closer inspection seems to suggest that there is no 'entrance' into the circle and that it may well be contemporary with the other features of HMS Glendower although it is clearly not of a brick and concrete construction. This may raise the possibility that it is a sandbag structure, possibly some sort of machinegun nest. A small slot across the 'wall' is likely to provide the answers needed to date the feature, this would be among the main priorities if further excavation was to take place on the headland.

Other identified features that would be candidates for future excavation include a possible cist that may simply be a natural feature and a possible terrace that may be associated with a previously recorded bank and ditch.

The broad span of human history from Mesolithic to 20th century makes the site a prime candidate for a larger scale volunteer excavations and field survey.

BIBLIOGRAPHY AND SOURCES

Gresham, C. A. 1973. *Eifionydd: A Study of Landownership from the Medieval Period to the Modern Day*, University of Wales Press, Cardiff

Historic Environment Record, Gwynedd Archaeological Trust, Craig Beuno, Garth Road, Bangor, Gwynedd, LL57 2RT

Fig. 1: Location map of Penychain
Taken from OS 1:2500 Sheets 33 & 43

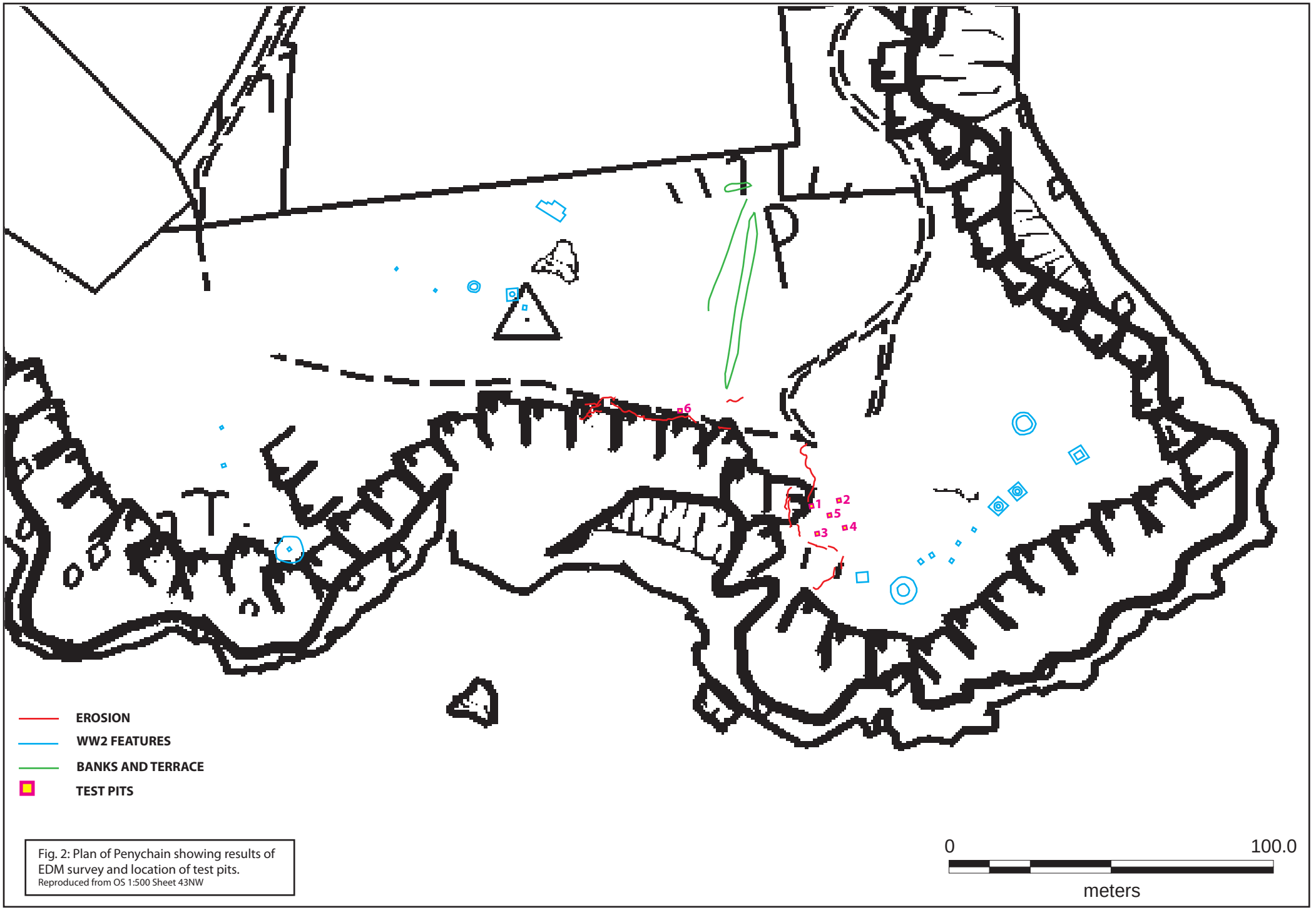

Fig. 2: Plan of Penychain showing results of EDM survey and location of test pits.
Reproduced from OS 1:500 Sheet 43NW

Plate 1: Actively eroding area of Penychain from the west

Plate 2: Volunteer Russ Sherry excavating TP02

Plate 3: North facing section of TP01

Plate 4: West facing section of TP02

Plate 5: Possible buried ground surface (0403) in TP04

Plate 6: West facing section of TP04

Plate 7: Stony natural in TP03, view from the south

Plate 8: South facing section of TP06

Appendix C

Abererch Excavation Report

GAT Project No. 2072

Ymddiriedolaeth Archaeolegol Gwynedd
Gwynedd Archaeological Trust
Craig Beuno, Ffordd y Garth, Bangor, Gwynedd, LL57 2RT

Abererch Excavation

Figures

Plates

INTRODUCTION

The standing stone (PRN 18400) at Abererch was first reported to Gwynedd Archaeological Trust in 2004. It is located on the beach at Morfa Abererch (SH 4126 3576) and is eroding from dunes and is close to an actively eroding edge.

BACKGROUND

The standing stone was first reported to GAT in 2004 after a walker noticed the stone following a storm. The site was visited by George Smith of GAT shortly after who reported that the stone could be a Prehistoric monument or a Medieval boundary marker. No excavation took place as part of the assessment, and no work took place subsequently. The stone was visited and re-recorded by a volunteer working as part of the Arfordir Coastal Heritage project in 2010, subsequently a visit was made by GAT during which a possible buried soil, flint scraper and debitage were discovered in the area.

METHODOLOGY

It was decided that test pits would be used to try and determine the date of the standing stone and to try and identify the extent of the buried soil so as to gain better understanding of the ancient landscape of the area.

When the site was visited to start the excavation, following a stormy period, the area was found to have dramatically changed due to shifting sands *(Plates 1, 2&3)*. Sand had retreated from the beach revealing areas of glacial clay and peat *(Fig.1 & Plates 7&8)*. The location of the peat showed that the raised area on which the standing stone was located probably didn't extend a great deal further to the south than it does today, although a conservative estimate would suggest that the land has retreated by around 10m.

Because of the new information gained through the discovery of the peat and the general lack of working space it was decided that only a single test pit would be excavated, located immediately in front of the standing stone.

It was decided that it would be appropriate to record the extent of the newly revealed peat and glacial clay with a handheld GPS.

RESULTS

TP01
See Plates 4, 5&6

The test pit was located immediately in front of the standing stone and was excavated to a depth of 1.1m before being abandoned due to safety concerns.

A much greater depth of wind-blown sand than expected was found during the excavation. This was contrary to what could be seen in the eroding section where there was clearly less blown sand. In

total there was 0.95m of blown sand which had built up against the stone. It appeared that more of the stone may have been visible at when it initially found, or that someone had excavated next to the stone around the time of its discovery, as beer cans with best before dates of November 2004 were found at a depth of around 0.4m.

A grey clay deposit was found at a depth of 1m *(Plate 5)*. This layer appeared to contain frequent charcoal specks. A sample was collected for possible dating and environmental analysis. A similar clay deposit has been encountered during other excavations in the area and has been dated to the Roman period (G. Smith pers comm.). Within the test pit a piece of red ochre and flint were recovered from the deposit.

The base of the stone was not identified within the test pit and neither was the cut of the hole in which the stone was erected. The full height of the stone is still unknown but it can now be said to be a minimum of 2.05m tall. The stone appeared to be fairly stable but had clearly started to slump back to the north west.

Peat Deposits

The shifting sand did provide the opportunity to gain better understanding of the surrounding landscape without the need for excavation. It became clear that the standing stone had been erected on a piece of raised ground in a generally wet area. Evidence of human activity was found in and on the peat in the form of heat affected stone (SH41443573, PRN 31693) *(Plate 9)* and a possible stone axe roughout (SH41453573, PRN 31609). There were also a number of tree boles present within the peat along with branches, bark and hazelnuts, providing evidence that the area was once, at least partially, covered in mixed woodland.

As well as the peat two wooden posts, probably oak, were found in the natural clay that underlay the peat deposits (SH41323574, PRN 31694) *(tfl·ű̂ мл)*. It is likely that these were preserved, at least in part, by the peat which has now eroded.

FURTHER WORK

Further work would help our understanding of the site, however there is a need to strike a balance between maximising archaeological information gained and minimising the threat of further erosion.

Standing Stone

The greatest confusion is currently created by the stark difference between the deposits that can be seen in the eroding section and those encountered in the test pit. By looking at the deposits in the section it was thought that the cut of the stone hole would be located a few centimetres below the surface but excavation showed that there was up to a meter of sand built up against the stone. This depth of sand raised concern that the test pit was located entirely within the cut of stone hole, however this is highly unlikely as the sand is not believed to have been present in the locality when the stone was erected.

All of these concerns could be answered through further excavation. It would be desirable to extend the original test pit towards the eroding edge to try and identify the relationship between the deposits in the test pit and those in the eroding edge. If this was to be done the test pit could also be

widened to reveal the full width of the stone. This approach is ideal from an archaeological point of view but could potentially accelerate the rate of erosion.

The sample of clay collected from the base of the test pit will be processed to try and extract macroscopic artefacts and material suitable for radiocarbon dating.

Peat Deposits

Excavation could also take place in the areas of newly discovered peat. The area of heat affected stone would be an obvious initial target. There have been good results from excavation of a similar site at Porth Neigwl where a burnt mound with associated timber lined trough and water channel. Excavation at the site provided a wealth of environmental material including preserved cereal grains. It would also be possible to conduct excavations in the area of the two posts, although it may prove challenging due to their location in relation to the high tide.

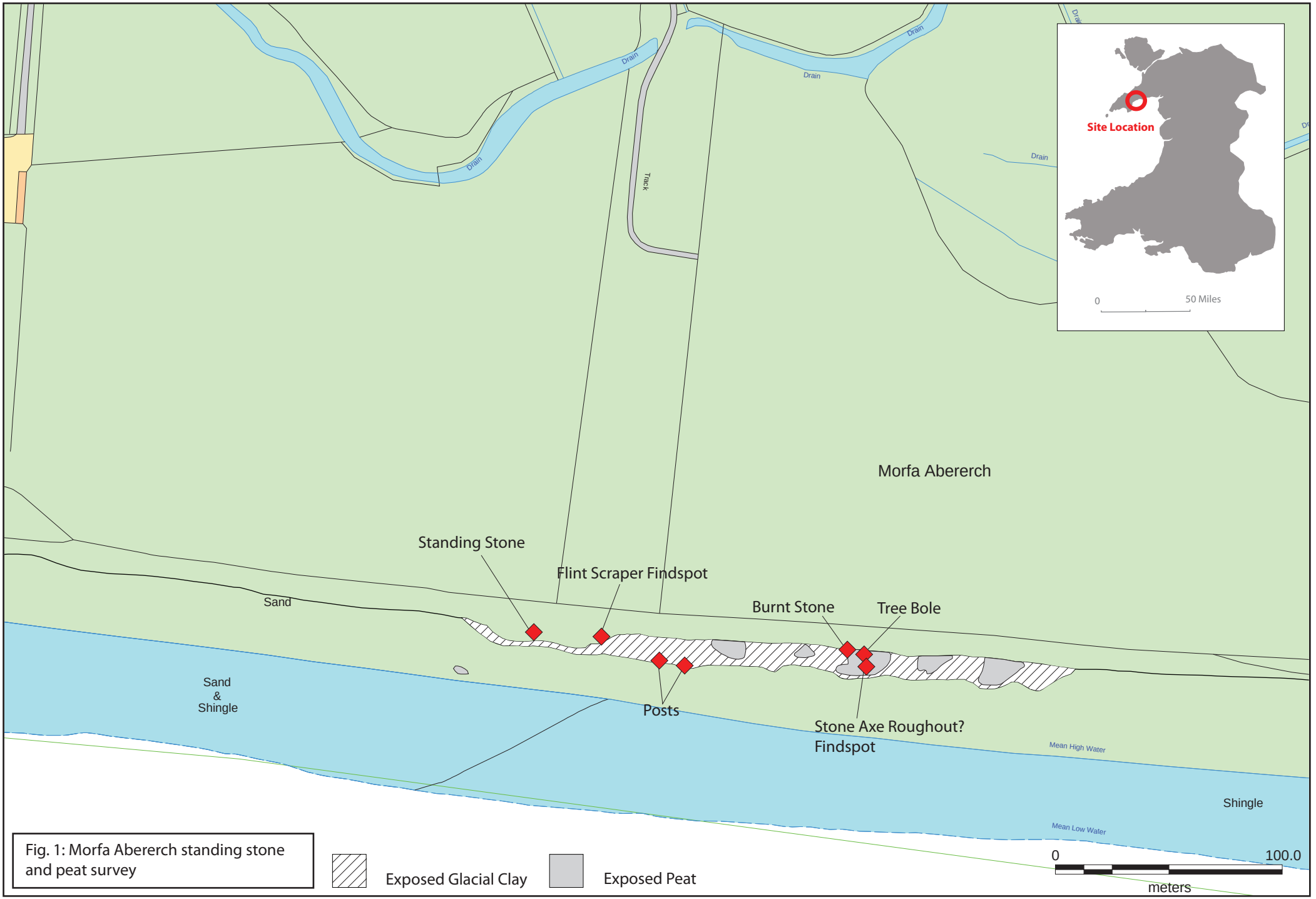

Fig. 1: Morfa Abererch standing stone and peat survey

Plate 1: Abererch standing stone June 2010

Plate 2: Abererch standing stone December 2010

Plate 3: Abererch standing stone February 2011

Plate 4: Morfa Abererch standing stone pre-ex

Plate 5: Grey clay layer encountered before the test pit was abandoned

Plate 6: Morfa Abererch standing stone at limit of excavation

Plate 7: Exposed peat to the west of the standing stone site

Plate 8: Exposed peat and glacial clay to the east of the standing stone site

Plate 9: Burnt stone in exposed peat deposits

Plate 10: Oak post in glacial clay

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ARCHAEOLOGICAL
TRUST

Craig Beuno, Ffordd y Garth, Bangor, Gwynedd. LL57 2RT
Ffon: 01248 352535. Ffacs: 01248 370925. email:gat@heneb.co.uk