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Machynys Golf Course, Machynys, Llanelli

archaeological watching brief



Report
prepared
for

Ove Arup & Partners.



A R C H A E O L O G

CAMBRIA

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**ARCHAEOLOGICAL WATCHING BRIEF
MACHYNYS GOLF COURSE, MACHYNYS
LLANELLI**

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SUMMARY

The construction of a golf course on land at Machynys, Llanelli, was a part of a multi-million pound redevelopment of the Llanelli coastline, The Millennium Coastal Park. The golf course covered an area of reclaimed coastal marsh, which had been embanked in several phases beginning in the early post-medieval period. Previous investigations of the site had shown that there was a deep sequence of alluvial and peat deposits which revealed an overall rise in sea levels with several episodes of tidal regression. The most significant of these dated from the Neolithic through to the Bronze Age, when the area became dry enough to support a varied bogland flora. Evidence from this watching brief has led to a greater understanding of the extent and character of the alluvial sequences and the development of the pre-golf course landscape.



Plate 1: View northeast across lake 1. The peat deposit is clearly visible in the centre of the lake.

1. INTRODUCTION

1.1 PROJECT COMMISSION

Construction of the new Machynys Golf Course on reclaimed coastal marsh at Llanelli required an archaeological watching brief. The watching brief was deemed necessary in the light of previous archaeological work in the area that highlighted the potential of the area for containing intact palaeoenvironmental evidence for past land use and vegetation changes as well as a complex surface history of land reclamation dating from the early post-medieval period. Ove Arup and Partners commissioned Cambria Archaeology to undertake the watching brief which took place between winter 1999/2000 and winter 2000/2001.

1.2 SCOPE OF PROJECT

The watching brief was intended to monitor the major groundworks, which included the excavation of three lakes and a number of roads across the site. In particular, the watching brief was aimed at locating the buried peat deposits which were known to extend beneath the site. A number of site visits were made to record all the deposits exposed by the groundworks.

1.3 REPORT OUTLINE

This report describes the physical environment of the site before summarising the watching brief results (Section 2) and the conclusions (Section 3). Supporting data, including detailed records of the watching brief (Appendix One), are given in a series of appendices.

1.4 ABBREVIATIONS

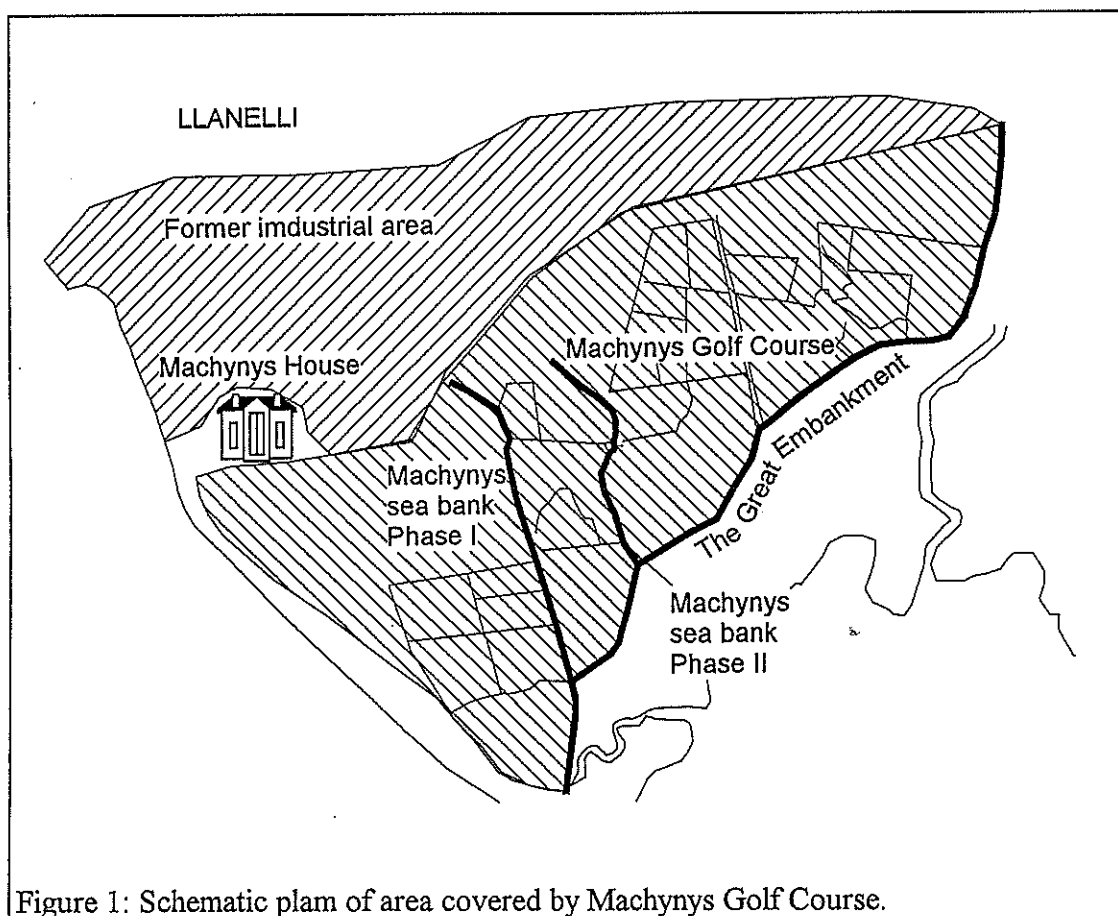
Sites recorded on the county Sites and Monuments Record (SMR) will be identified by their Primary Record Number (PRN) and located by their National Grid Reference (NGR). Any new sites discovered during the course of the project will be allocated a new PRN and identified by their NGR.

Where appropriate, archaeological features and contexts will be referred to using the continuous three-figure numbering system (e.g.001) employed by Archaeoleg Cambria Archaeology Field Section.

2. THE RESULTS OF THE WATCHING BRIEF

2.1 THE SITE: LOCATION

Machynys Golf Course covers c.122ha of reclaimed coastal marsh on the southeastern edge of Llanelli (centred on SN51499820). The course lies at the western extent of the former Llanelli Marsh, an area of coastal saltmarsh that has been enclosed piecemeal since the early post-medieval period. Its west edge is formed by the higher ground of Machynys, the southern boundary is formed by the present sea bank, the Penclacwydd Wildfowl and Wetland Centre forms its eastern boundary and along the north side is land earmarked for residential development.



2.2 DEVELOPMENT OF THE MACHYNYS LANDSCAPE

Previous work in the Machynys area (James 1993a&b; James and Morgan 1994; Page 1997; Page 1999; Page 2000) has shown that the landscape has been developing since the end of the last ice-age, 10,000 - 12,000 years ago. The high ground at Machynys is the remnants of a glacial moraine that formerly stretched across the Loughor to the north Gower coast. Following the retreat of the ice-sheets the Burry Inlet, that part of the Afon Loughor where it flows between the Llanelli and Gower coastlines, was a wide flat channel, which began to accumulate silts that were brought downstream and deposited along the channel sides as the Loughor slowed as it widened in the Inlet. This led to the extensive formation of saltmarsh throughout the Inlet.

Analysis of part of the sedimentary sequence (Lillie *et al* 2000) has revealed an overall trend in sea-level rise (transgression) interspersed with periods when the rate of rise slowed, or fell (regression) sufficiently for the area to become increasingly terrestrialised. These periods are evinced by bands of peat within the sedimentary sequence. The most significant and sustained of these periods started in the Neolithic and continued into the Bronze Age when the area developed through a succession of saltmarsh, brackish bog environments to a freshwater bog supplied solely by rainwater run-off. A rapid rise in sea-levels followed, which continued to deposit thick layers of sediment in this area until enclosure of the marshes started in the later medieval and early post-medieval periods. This enclosure process culminated in the construction of the Great Embankment in 1810 which still forms much the present sea defence for this area.

2.3 THE RESULTS OF THE WATCHING BRIEF

Several visits made during the major earth moving operations revealed extensive evidence for the peat deposit associated with the Neolithic - Bronze Age sea-level regression. It is clear from monitoring the lake excavations that the peat extends across the whole site and that its top surface ranges from c.1.5m to 4m-5m below ground level. The thickness of the peat itself varies across the site from c.0.5m to over 1m thick in places. Overlying the peat were thick alluvial deposits associated with the sea-level rise which followed the Neolithic-Bronze Age regressive episode (plates 1, 3 & 4). The alluvium was in turn overlain in places by up to 3m of made up ground consisting of building debris and industrial waste.

There was no scope within the conditions of the watching brief for intrusive archaeological investigation. This meant that even though all exposed deposits were examined, particularly the peat layer and the overlying alluvial sequence, the field visits were primarily concentrated on recording the surface features that were to be destroyed. These included the remnants of the late 17th - early 18th century sea defence banks at Machynys (Plate 2). The banks at Machynys are the earliest identifiable surviving sea defences in the area, although embankment of parts of Llanelli Marsh had started in the medieval period. Both banks are marked on a map of Machynys Farm published in 1761 (CRO ref: Stepney mapbook 1761). The rest of the study area was enclosed by the Great Embankment constructed in 1808-9 (Phase 3), which ran from Penrhyngwyn Point on the eastern edge of Machynys to Maes-yr-Dafen, now below the Trostre steelworks, northeast of the study area.

The earliest of the two Machynys sea banks (PRN 31688) still forms the southernmost 300m of the present sea wall, although, it was originally much longer and extended into the industrialised area of the former Machynys Brick Works (at NGR SS51229833). Prior to golf course construction the bank survived for c.400m, with a much eroded section (c.100m long x c.1.7-2m high) surviving inside the modern sea wall. Part of this section has been removed during the landscaping of the golf course.

The second phase bank (PRN 31867) extended from a point approximately 500m from the southern end of the phase 1 bank and extended northeast before turning more northerly and terminating at c.NGR SS51509835. For its northernmost 500m the bank ran along the west bank of a large creek, which is still on the main drains in the study area. Only 400m-450m of the bank survive today, the southern 300m of the bank have been incorporated in to the modern sea wall but the rest has eroded and is obscured by thick hedgerow cover. A smaller section of the bank survives as a low mound at approximately NGR SS51629812, and a better preserved section runs from NGR SS51649815, around the eastern edge of a small pond and ends at c.NGR SS51639821. This bank has also been affected by the construction works.

The Great Embankment (PRN 31684) extended from the second phase bank (at NGR SS51449762) to the Maesardaven Sea Bank, now beneath the Trostre Steelworks. Proposals for its construction were received by the Enclosure Commissioners in 1808 and the bank was built over the following two years, enclosing some 600 acres of former saltmarsh and tidal flats (James 1993,17; Page 1999, 11).



Plate 2: The remains of the second phase embankment at Machynys.

Drainage of the study area

Once embanked the enclosed land had to be drained and in the study area that was achieved through a complex, hierarchical system of drains that combined the natural channels of the former saltmarsh creeks with the artificial drains (fig 2). Previous study of the area (Page 1997, 12; Page 1999, 12-14) has shown that there are three principal types of drainage present in the study area: a) natural drainage; b) enhanced natural drainage; and c) artificial drainage.

- a) Natural drainage consists of former saltmarsh creeks and watercourses that drained the unenclosed marshes. The channels are typically serpentine and dendritic in character and give the landscape an irregular appearance.
- b) Enhanced natural drainage channels are existing creeks and watercourses that have been modified in some way, i.e. recutting or rerouting, but still retain some natural characteristics. Enhancement of some the creeks would have allowed a certain amount of control over the movement of water and begun to stabilise the enclosed land.
- c) Artificial drainage is usually straight and uniform resulting in a regular, rectilinear pattern of fields and enclosures. It would have fully stabilised the enclosed land allowing year-round access and production. Artificial drainage includes both soft drainage (open drains) and hard drainage (Buried ceramic or plastic drains). It also includes the main field boundary drains and the field drains.

All three types of drains are evident within the study area. Figure 1 clearly shows the pattern of old tidal creeks and watercourses that existed in the saltmarsh prior to embankment. In places, most notably between the two banks at Machynys the channels were substantial enough to form field boundaries. Many of the creeks showed evidence of enhancement, particularly the creek that feeds out of the sluice in the Great Embankment, which had clearly had its course smoothed to improve the flow of water towards the sluice. The artificial drainage is a combination of field drains, the field boundary ditches, main drains and the back drain which runs along the rear of the sea bank.

Construction work on the golf course has altered the drainage pattern by reworking some of the creeks and cutting many of the existing field drains and drainage ditches.

CONCLUSIONS

Prior to golf course construction, the area was typical of reclaimed coastal marshlands, in that it was largely flat and crossed by many drainage channels and hedged boundaries which divided it into fields. The introduction of artificial topography and the removal of many of the boundaries and alterations to the drainage pattern during landscaping on the course has changed the fundamental character of the area. However, this is just the latest manifestation of the Llanelli Marsh - Machynys region which has a long and varied history of change and development.



Plate 3: excavation of one of the lakes showing the alluvial deposits above the Neolithic - Bronze Age peat.



Plate 4: Detail of the top of the peat and the overlying alluvial deposits in lake 1.

APPENDIX ONE: CATALOGUE OF WATCHING BRIEF ARCHIVE

The project archive has been indexed and catalogued according to National Monument Record (NMR) categories and contains the following:

- A.** Copy of final report.
- B.** Site records, including context record sheets and site notebook.
- C.** Drawing catalogue and site drawings.
- D.** Site photographs - catalogue, colour slide and B/W contact sheets.
- I.** Archive report and draft copies of final report.
- M.** Miscellaneous correspondence.

There is no material in categories **E, F, G, H, J, K, L** and **N**.

The archive is currently held by Archaeoleg Cambria Archaeology Field Operations, Llandeilo, Dyfed as project number 37422.

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