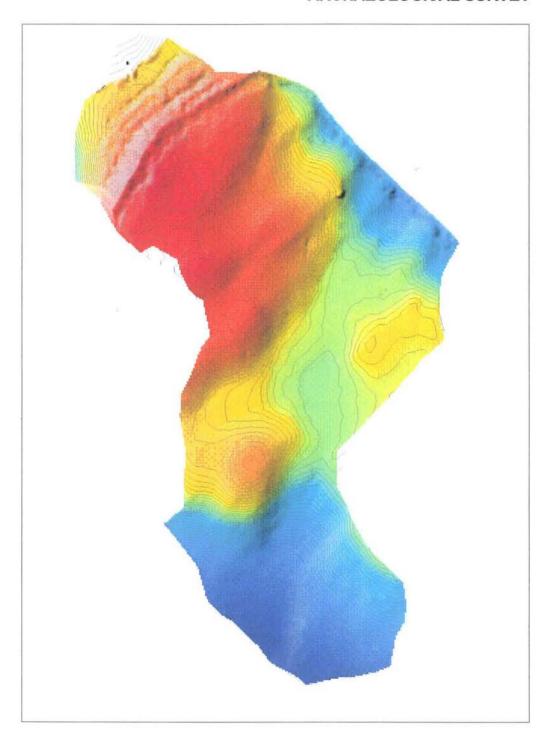
Penycloddiau Hillfort, Flintshire

ARCHAEOLOGICAL SURVEY



Penycloddiau Hillfort, Flintshire

ARCHAEOLOGICAL SURVEY

N Jones May 2004

Report for Denbighshire County Council

The Clwyd-Powys Archaeological Trust

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CPAT Report Record

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Fig. 4 False colour relief shade model

1 INTRODUCTION

1 INTRODUCTION

1.1 In June 2003 the Contracts Section of the Clwyd-Powys Archaeological Trust (CPAT) was invited by Mrs Fiona Gale, Denbighshire Countryside Service, to produce a quotation and specification for an archaeological survey of Penycloddiau Hillfort, Flintshire (SAM FI 9). The specification and quotation were accepted and the assessment was undertaken during April 2004.

1.2 The work follows extensive heather burning during April 2003 which has provided an opportunity to undertake detailed recording of newly revealed features.

2 LOCATION AND BACKGROUND

- 2.1 Penycloddiau is the largest of the six hillforts in the Clwydian Range Area of Outstanding Natural Beauty (AONB). The hillfort lies on the central ridge of the Clwydians, between the Wheeler Valley and the Vale of Clwyd (SJ 128676), which at this point rises to an altitude of around 440m OD. The inner western rampart forms the county boundary between Flintshire and Denbighshire.
- 2.2 Penycloddiau is one of the largest hillforts in Wales, with the defences enclosing an area of 21 ha. The hillfort is multivallate, with a continuous inner rampart and discontinuous outer rampart, together with additional outer defences at the northern end.
- 2.3 The northern end of the hillfort was subject to a total station survey in 2000. This was undertaken by CPAT in connection with erosion control works along the Offa's Dyke footpath, which follows the ridge through the hillfort.
- 2.4 The majority of the hillfort is covered with heather, a significant area of which was affected by a fire between 30 March and 1 April 2003. Subsequent aerial reconnaissance by the Royal Commission on the Ancient and Historical Monuments of Wales (RCAHMW) helped to identify the extent of the heather burning and also revealed the potential for newly revealed interior features.

3 GEOPHYSICAL SURVEY

- 3.1 A geophysical survey was undertaken by Stratascan within the north-eastern part of the burnt area, comprising 0.9ha of magnetometry (150m by 60m) and a sample 30m by area of resistivity (see Fig. 1). The full results from the survey are presented under separate cover (Donaldson 2004) and a summary provided below.
- 3.2 The results from the magnetometer survey revealed that responses across the site were generally of a very low magnitude, although a number of positive and negative anomalies were located. In particular, the results showed no evidence to suggest that the area had been subject to any modern disturbance.
- 3.3 Several linear and curvilinear anomalies were identified which could be of archaeological potential, including some which corresponded with earthwork platforms identified during the topographical survey (see below; PRNs 87100-87105). It is possible, however, that at least some of the anomalies may be the result of variations in the subsoil and bedrock.
- 3.4 The results from the resistivity survey revealed a number of areas of positive and negative resistance which could relate to features of archaeological potential, or perhaps signal changes in the geology and pedology.

4 TOPOGRAPHICAL SURVEY

4.1 The topographical survey was conducted using a Wild TC500 EDM in conjunction with Penmap survey software. The survey included the relevant control points, top and bottom of all features, broadly defined areas of erosion, limits of footpaths and modern boundaries. Reading were taken at appropriate intervals, normally around 6m apart, with sufficient points to allow a digital terrain model (DTM) to be produced of the area. Levels were related to the control points established during the previous survey by CPAT in 2000, not to Ordnance Datum.

- 4.2 Post-survey processing employed AutoCAD13 to position the survey data against the Ordnance Survey National Grid, achieved as a best fit against plotted boundaries. The survey has been plotted to an appropriate scale against the Ordnance Survey digital data provided by Denbighshire County Council. Digital data resulting from the survey have been passed to Denbighshire County Council in a GIS compatible format. The main features identified by the survey have been allocated Primary Record Numbers (PRNs) following consultation with the regional Sites and Monuments Record (SMR), and details have been entered into an SMR compatible database, a copy of which has been provided to the SMR.
- 4.3 Within the hillfort interior the survey has identified up to 16 certain or potential round hut platforms, most of which are terraced into the natural hill slope. In addition, a number of areas have been identified where it is considered likely that huts could have been located due to their sheltered position and the relatively level ground. A further 27 roughly circular hollows have been identified in the lee of the ramparts which could have contained huts, together with a number of less convincing hollows which may be simply quarry scoops for the construction of the rampart. One area of particular interest was noted along the western ramparts, just outside the survey area, where several roughly circular platforms are located immediately inside the defences. These were surveyed in outline only as an indicator of their position and extent. In addition, two previously recorded features also fell within the survey area: a possible Bronze Age burial cairn (PRN 102277) and a mound (PRN 102276) of unknown date or function.
- 4.4 Within the survey area the round hut platforms form two main groups, each taking advantage of the local topography to exploit the most sheltered positions. In the north-east corner of the hillfort six potential platforms were identified occupying a natural hollow, while to the south-east a further seven were located close to two shallow, seasonal ponds and within an adjacent hollow to the east. A small artificial pond was also recorded within the latter group, possibly having been excavated as a well. Two additional platforms were identified at the south-eastern extent of the survey area, one either side a modern track, with a further single platform identified on the western side of the hillfort.
- 4.5 The majority of the hillfort interior has a thin peat covering which has presumably developed since the Iron Age and this, together with an element of hill wash, has in part masked some of the archaeological features within the area. Combined with the dense heather it is therefore not surprising that most of the features revealed by the survey had not been previously recognised.
- 4.6 The survey data, including that undertaken in 2000, have been processed using Penmap survey software to produce a contour model with contours at 0.5m intervals (Fig. 3), and using Mapinfo Vertical Mapper to produce a relief shade model (Fig. 4). Both illustrations clearly demonstrate the use of sheltered locations for occupation.

5 ARCHAEOLOGICAL SUMMARY

5.1 The main features identified by the survey are summarised in Table 1 and Fig. 3.

Table 1: Summary of archaeological sites within the survey area.

| PRN | Name | Type | NGR |
|--------|---|--------------|------------------------------|
| 87100 | Penycloddiau round hut platform I | Hut platform | SJ1282367947 |
| 87101 | Penycloddiau round hut platform II | Hut platform | SJ1282367926 |
| 87102 | Penycloddiau round hut platform III | Hut platform | SJ1283867922 |
| 87103 | Penycloddiau round hut platform IV | Hut platform | SJ1284867921 |
| 87104 | Penycloddiau round hut platform V | Hut platform | SJ1282167911 |
| 87105 | Penycloddiau round hut platform VI | Hut platform | SJ1279267895 |
| 87106 | Penycloddiau round hut platform VII | Hut platform | SJ1281867783 |
| 87107 | Penycloddiau round hut platform VIII | Hut platform | SJ1283267832 |
| 87108 | Penycloddiau round hut platform IX | Hut platform | SJ1283467841 |
| 87109 | Penycloddiau round hut platform X | Hut platform | SJ1284867858 |
| 87110 | Penycloddiau round hut platform XI | Hut platform | SJ1287667878 |
| 87111 | Penycloddiau round hut platform XII | Hut platform | SJ1289167840 |
| 87112 | Penycloddiau round hut platform XIII | Hut platform | SJ1293867836 |
| 87113 | Penycloddiau round hut platform XIV | Hut platform | SJ1295567820 |
| 87114 | Penycloddiau round hut platform XV | Hut platform | SJ1295367820 SJ1287467803 |
| 87115 | Penycloddiau well | Well | SJ1289167803 |
| 87116 | | | |
| 87117 | Penycloddiau round hut platform XVI | Hut platform | SJ1269167877 SJ1269767885 |
| | Penycloddiau round hut platform XVII | Hut platform | |
| 87118 | Penycloddiau round hut platform XVIII | Hut platform | SJ1270367894 |
| 87119 | Penycloddiau round hut platform XIX | Hut platform | SJ1271367912 |
| 87120 | Penycloddiau round hut platform XX | Hut platform | SJ1272167921 |
| 87121 | Penycloddiau round hut platform XXI | Hut platform | SJ1273267929 |
| 87122 | Penycloddiau round hut platform XXII | Hut platform | SJ1274567941 |
| 87123 | Penycloddiau round hut platform XXIII | Hut platform | SJ1275867945 |
| 87124 | Penycloddiau round hut platform XXIV | Hut platform | SJ1277867962 |
| 87125 | Penycloddiau round hut platform XXV | Hut platform | SJ1278667967 |
| 87126 | Penycloddiau round hut platform XXVI | Hut platform | SJ1284967937 |
| 87127 | Penycloddiau round hut platform XXVII | Hut platform | SJ1285767928 |
| 87128 | Penycloddiau round hut platform XXVIII | Hut platform | SJ1286467920 |
| 87129 | Penycloddiau round hut platform XXXIX | Hut platform | SJ1289067895 |
| 87130 | Penycloddiau round hut platform XXX | Hut platform | SJ1290367878 |
| 87131 | Penycloddiau round hut platform XXXI | Hut platform | SJ1291267874 |
| 87132 | Penycloddiau round hut platform XXXII | Hut platform | SJ1291967865 |
| 87133 | Penycloddiau round hut platform XXXIII | Hut platform | SJ1293967848 |
| 87134 | Penycloddiau round hut platform XXXIV | Hut platform | SJ1294767841 |
| 87135 | Penycloddiau round hut platform XXXV | Hut platform | SJ1295967833 |
| 87136 | Penycloddiau round hut platform XXXVI | Hut platform | SJ1277867550 |
| 87137 | Penycloddiau round hut platform XXXVII | Hut platform | SJ1270767602 |
| 87138 | Penycloddiau round hut platform XXXVIII | Hut platform | SJ1271767585 |
| 87139 | Penycloddiau round hut platform XXXIX | Hut platform | SJ1272267571 |
| 87140 | Penycloddiau round hut platform XL | Hut platform | SJ1273067562 |
| 87141 | Penycloddiau round hut platform XLI | Hut platform | SJ1274167548 |
| 87142 | Penycloddiau round hut platform XLII | Hut platform | SJ1274967532 |
| 87143 | Penycloddiau round hut platform XLIII | Hut platform | SJ1276567513 |
| 102276 | Pen-y-Cloddiau mound | Mound | SJ12766767 |
| 102277 | Pen-y-Cloddiau round barrow | Round barrow | SJ12706790 |

PRN 87100 Penycloddiau round hut platform I

A levelled area c. 9m across terraced into the slope close to the north-eastern ramparts.

A levelled area c. 7 x 5m terraced into the slope close to the north-eastern ramparts.

PRN 87102 Penycloddiau round hut platform III

A well-defined platform c. 7.5m across terraced into the slope close to the north-eastern ramparts.

PRN 87103 Penycloddiau round hut platform IV

A well-defined platform c. 5 x 6m terraced into the slope close to the north-eastern ramparts.

PRN 87104 Penycloddiau round hut platform V

A slight earthwork suggesting a platform c. 7m across terraced into the slope.

PRN 87105 Penycloddiau round hut platform VI

A slight earthwork suggesting a platform c. 5m across terraced into the slope.

PRN 87106 Penycloddiau round hut platform VII

A levelled area c. 6.5m across terraced into the slope close to the north-eastern ramparts.

PRN 87107 Penycloddiau round hut platform VIII

A levelled area \dot{c} . 7 x 5m terraced into the slope, overlooking a level area with ponds to the southeast.

PRN 87108 Penycloddiau round hut platform IX

A well-defined platform c. 9 x 6m terraced into the slope overlooking a level area with ponds to the south-east.

PRN 87109 Penycloddiau round hut platform X

A well-defined platform c. 8m across terraced into the slope overlooking a level area with ponds to the south-east.

PRN 87110 Penycloddiau round hut platform XI

A slight earthwork suggesting a levelled area c. 5m across, terraced above the slope close to the north-eastern ramparts.

PRN 87111 Penycloddiau round hut platform XII

A levelled area c. 5.5m across terraced into the slope close to the north-eastern ramparts.

PRN 87112 Penycloddiau round hut platform XIII

A well-defined platform c. 7 x 5m across terraced into the slope close to the north-eastern ramparts.

PRN 87113 Penycloddiau round hut platform XIV

A well-defined platform c. 7 x 6m across terraced into the slope close to the north-eastern ramparts.

PRN 87114 Penycloddiau round hut platform XV

A levelled area c. 7m across terraced slightly above the slope, close to the well PRN 87115.

PRN 87115 Penycloddiau well

A small roughly circular pond c. 5m in diameter with surrounding earthworks suggesting it may have been excavated as a well.

PRN 87116 Penycloddiau round hut platform XVI

A levelled area c. 3m across terraced into the slope to the rear of the northern rampart.

PRN 87117 Penycloddiau round hut platform XVII

A levelled area c. 3m across terraced into the slope to the rear of the northern rampart.

PRN 87118 Penycloddiau round hut platform XVIII

A levelled area c. 4m across terraced into the slope to the rear of the northern rampart.

PRN 87119 Penycloddiau round hut platform XIX

A levelled area c. 4m across terraced into the slope to the rear of the northern rampart.

PRN 87120 Penycloddiau round hut platform XX

A levelled area c. 5m across terraced into the slope to the rear of the northern rampart.

PRN 87121 Penycloddiau round hut platform XXI

Well-defined levelled area c. 6m across terraced into the slope to the rear of the northern rampart.

PRN 87122 Penycloddiau round hut platform XXII

A levelled area c. 4m across terraced into the slope to the rear of the northern rampart.

PRN 87123 Penycloddiau round hut platform XXIII

A levelled area c. 6.5m across terraced into the slope to the rear of the northern rampart.

PRN 87124 Penycloddiau round hut platform XXIV

A levelled area c. 5m across terraced into the slope to the rear of the northern rampart.

PRN 87125 Penycloddiau round hut platform XXV

A levelled area c. 6m across terraced into the slope to the rear of the northern rampart.

PRN 87126 Penycloddiau round hut platform XXVI

A levelled area c. 4m across terraced into the slope to the rear of the north-eastern rampart.

PRN 87127 Penycloddiau round hut platform XXVII

A levelled area c. 6 x 4m terraced into the slope to the rear of the north-eastern rampart.

PRN 87128 Penycloddiau round hut platform XXVIII

A levelled area c. 6 x 3m terraced into the slope to the rear of the north-eastern rampart.

PRN 87129 Penycloddiau round hut platform XXXIX

A levelled area c. 6 x 3m terraced into the slope to the rear of the north-eastern rampart.

PRN 87130 Penycloddiau round hut platform XXX

A levelled area c. 4m across terraced into the slope to the rear of the north-eastern rampart.

PRN 87131 Penycloddiau round hut platform XXXI

A levelled area c. 4 x 2.5m terraced into the slope to the rear of the north-eastern rampart.

PRN 87132 Penycloddiau round hut platform XXXII

A levelled area c. 5 x 3m terraced into the slope to the rear of the north-eastern rampart.

PRN 87133 Penycloddiau round hut platform XXXIII

A levelled area c. 5 x 3m terraced into the slope to the rear of the north-eastern rampart.

PRN 87134 Penycloddiau round hut platform XXXIV

A levelled area c. 6 x 3m terraced into the slope to the rear of the north-eastern rampart.

PRN 87135 Penycloddiau round hut platform XXXV

A levelled area c. 6 x 5m terraced into the slope to the rear of the north-eastern rampart.

PRN 87136 Penycloddiau round hut platform XXXVI

A levelled area c. 7.5m across terraced into the slope close to the western rampart.

PRN 87137 Penycloddiau round hut platform XXXVII

A levelled area c. 8m across terraced into the slope to the rear of the western rampart.

PRN 87138 Penycloddiau round hut platform XXXVIII

A levelled area c. 6.7m across terraced into the slope to the rear of the western rampart.

PRN 87139 Penycloddiau round hut platform XXXIX

A levelled area c. 6m across terraced into the slope to the rear of the western rampart.

PRN 87140 Penycloddiau round hut platform XL

A levelled area c. 5.5m across terraced into the slope to the rear of the western rampart.

PRN 87141 Penycloddiau round hut platform XLI

A levelled area c. 8m across terraced into the slope to the rear of the western rampart.

PRN 87142 Penycloddiau round hut platform XLII

A levelled area c. 5.5m across terraced into the slope to the rear of the western rampart.

PRN 87143 Penycloddiau round hut platform XLIII

A levelled area c. 7.5m across terraced into the slope to the rear of the western rampart.

PRN 102276 Pen-y-Cloddiau mound

An elongated mound measuring c. 4.5m long, 3.5m wide and up to 0.25m high lies on the south side of a natural hollow to the west of the Offa's Dyke footpath. The mound is certainly artificial but of unknown date and function.

PRN 102277 Pen-y-Cloddiau round barrow

A low mound situated at the northern end of the hillfort, on the highest point, just inside the ramparts, measures 5.2m in diameter and 0.4m high. The cairn is partly eroded by a footpath on the east side, and has a walkers' cairn on the summit. The mound is generally composed of small stone in a soil matrix and is likely to be a denuded Bronze Age burial cairn.

6 CONCLUSIONS

- 6.1 The programme of archaeological survey has revealed significant new information regarding the interior of the hillfort and in particular has identified a number of previously unrecorded earthworks likely to represent round hut platforms. A total of 43 platforms have been identified, 16 of which lie within the interior and a further 27 are situated in the lee of the ramparts.
- 6.2 The heather burning has provided an invaluable opportunity to examine a significant area of the hillfort interior in detail and the combination of geophysical and topographical surveys has proved most rewarding. The latter in particular has not only identified important new detail, but has also enabled a better appreciation of the topography and its relationship to the occupation of the hillfort.
- 6.3 The data provided by the surveys not only provides a detailed record of the archaeological potential within the area investigated, but also allows the information on settlement patterns to be used as a predictive tool for the remainder of the hillfort interior. Thus, we may generally expect the majority of occupation to lie in the lee of the ramparts and those more sheltered areas on the north-eastern side of the hillfort which afford a degree of protection from the prevailing south-westerly winds.

7 ACKNOWLEDGEMENTS

7.1 I would like to thank the following people for their assistance during the project: Wendy Owen, CPAT; Fiona Gale, Denbighshire County Council; and Peter Barker and David Sabin, Stratascan.

8 REFERENCES

Donaldson, K T, 2004. Pen y Cloddiau Hillfort, Flintshire: Geophysical Survey Report. Stratascan J1828.

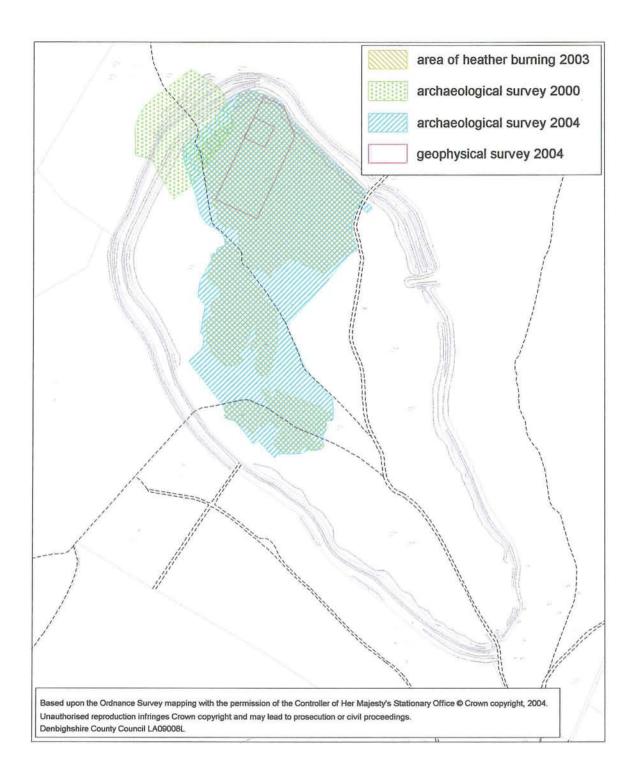


Fig. 1 Penycloddiau Hillfort: survey areas and extent of heather burning. 1:5,000



Fig. 2 Penycloddiau Hillfort: interior features and areas of potential occupation. Contours at 0.5m intervals, scale 1:2,500

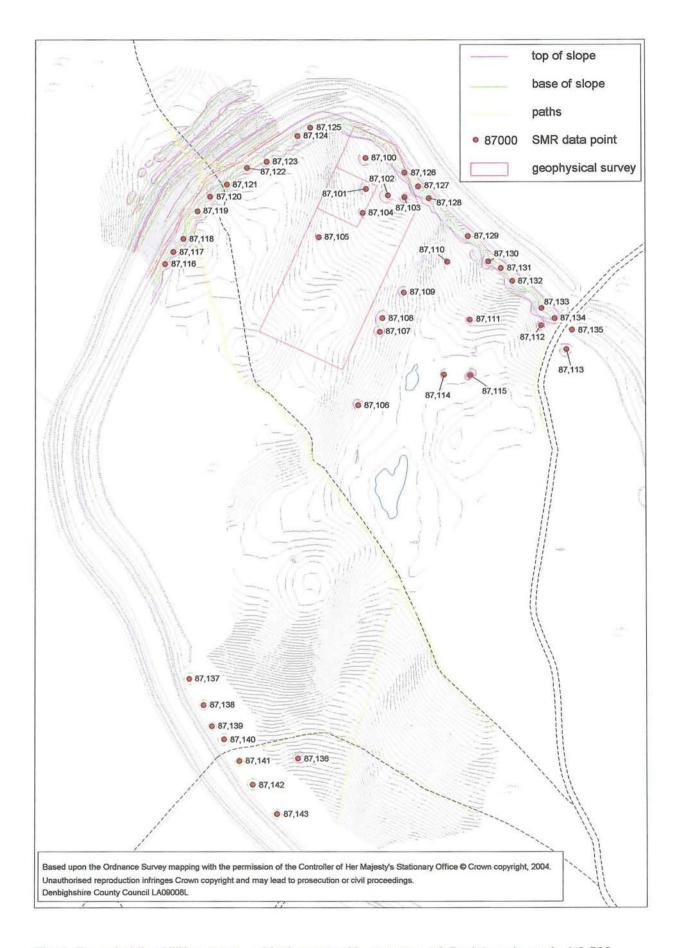


Fig. 3 Penycloddiau Hillfort: topographical survey with contours at 0.5m intervals, scale 1:2,500

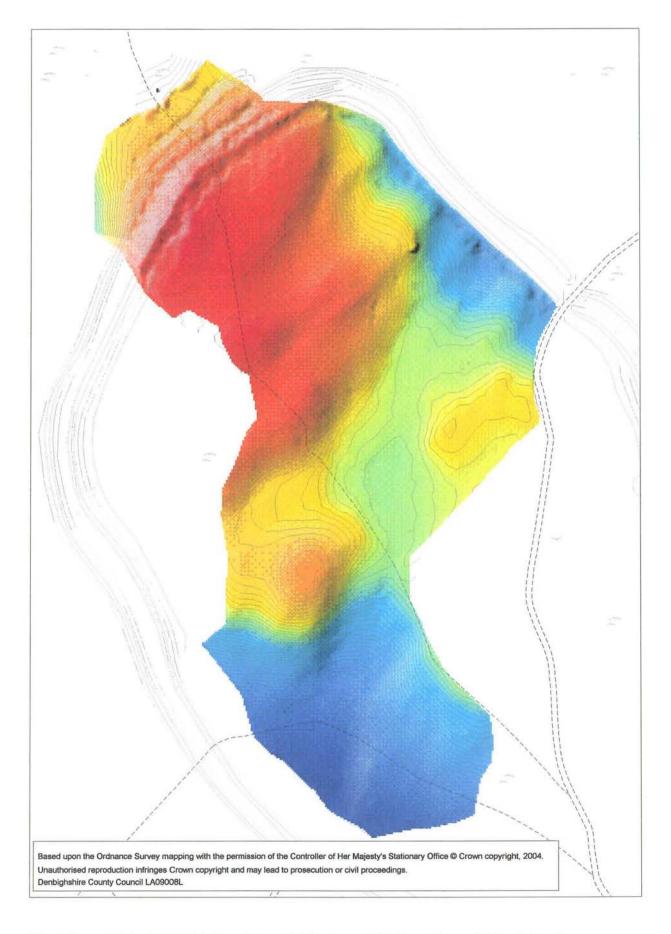


Fig. 4 Penycloddiau Hillfort: false colour relief shade model with contours at 0.5m intervals (red is high ground, blue low ground), scale 1:2,500

APPENDIX 1

SITE ARCHIVE

Photographs

18 digital images photographic catalogue

Digital data

Mapinfo tables (with dxf and AutoCAD13 files)

pycsurv survey earthworks pycnodes survey points 05cont 0.5m contours 1mcont 1m contours 2mcont 2m contours

Mapinfo tables (with dxf files only)

heather extent of heather burning occupation extent of possible occupation

relief relief shade model survey areas geophys geophysical survey area

Penmap survey and dxf file

penyclod

Geophysical survey

Stratascan report

APPENDIX 2

PENYCLODDIAU HILLFORT SPECIFICATION FOR AN ARCHAEOLOGICAL SURVEY BY CLWYD-POWYS ARCHAEOLOGICAL TRUST

1 Introduction

- 1.1 The Contracts Section of the Clwyd-Powys Archaeological Trust has been approached by Fiona Gale, Denbighshire Countryside Service, to produce a quotation and specification for an archaeological survey of Penycloddiau Hillfort, Flintshire (SAM FI 9).
- 1.2 The proposed work follows extensive heather burning which has provided an opportunity to undertake detailed recording of newly revealed features.

2 Objectives

- 2.1 The objective of the survey is to produce a detailed digital ground plan, complimented by geophysical survey.
- 2.2 Several options are proposed as follows:

Total Station Option 1: survey of the area of heather burning, totalling up to 7ha within the

interior

Total Station Option 2: survey of the entire hillfort, including the defences, totalling up to

25ha

Geophysical Survey Option 1: survey of a trial area of the area of heather burning, totalling up to

1ha

Geophysical Survey Option 2: survey of the total area of heather burning, totalling up to 7ha

3 Methods

Total Station Survey

- 3.1 The Total Station survey will be conducted using a Wild TC500 EDM in conjunction with Penmap survey software. The survey will include the relevant control points, top and bottom of all features, broadly defined areas of erosion, limits of footpaths and modern boundaries. Reading will be taken at appropriate intervals, normally between 5m and 10m apart and will include sufficient points to allow a digital terrain model (DTM) to be produced of the area. Levels will relate to the control points established during a previous survey by CPAT in 2000, not to Ordnance Datum. The data will be coded using a standard set of layers, a list of which will be provided with the archive.
- 3.2 Post-survey processing will use AutoCAD13 to position the survey data against the Ordnance Survey National Grid, achieved as a best fit against plotted boundaries. The survey will be plotted to an appropriate scale against the Ordnance Survey digital data provided by Denbighshire County Council.

Geophysical Survey

- 3.3 The geophysical survey will employ magnetic gradiometry, with readings taken at 1m centres in traverses 0.5m apart. The survey will be based on 30 x 30m grids, the location of which will be included in the topographical survey.
- 3.4 An independent report will be produced on the results from the geophysical survey, the details from which will be integrated into the overall project report.

Report and archive

3.5 Following the on-site work an illustrated and bound report will be prepared synthesising the results from the two surveys. This will be in A4 format and contain conventional sections on: Site location, Topography and Geology; Historic Background; Topographical Survey; Geophysical Survey; Conclusions and References.

3.6 On completion of the project the archive will be deposited with the Regional Sites and Monuments Record, and a copy provided to the client. Copyright to be retained by CPAT. The archive will include: digital data in Penmap, AutoCAD13, DXF and Mapinfo formats; survey plots; list of digital layering.

4 Resources and Programming

- 4.1 The Total Station survey will be undertaken by Nigel Jones, a member of CPAT's staff who is experienced in total station ground survey, together with a survey assistant. The geophysical survey will be conducted by Stratascan, on behalf of CPAT.
- 4.2 It is anticipated that the survey options will require the following time periods, although both surveys may be undertaken concurrently, and that the post-survey processing will be conducted immediately thereafter:

Total Station Option 1:

10 days

Total Station Option 2:

30 days

Geophysical Survey Option 1:

1 day

Geophysical Survey Option 2:

7 days

- 4.3 The report will be produced within one month of survey completion.
- 4.4 Requirements relating to Health and Safety regulations, together with the Institute of Field Archaeologist Code of Conduct will be adhered to by CPAT and its staff.
- 4.5 CPAT is covered by appropriate Public and Employer's Liability insurance.

N.W. Jones 27 June 2003