

THE CLWYD-POWYS ARCHAEOLOGICAL TRUST

Further Work on the Short Dykes of Mid and North-east Wales



CPAT Report No 782

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Project Report

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Report for Cadw: Welsh Historic Monuments

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Short Dykes in Mid and North-East Wales

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1 Introduction

This report forms an addition to the four previous reports on the study of the short dykes of mid- and north-east Wales (Silvester and Hankinson 2001, Hankinson 2002, Hankinson 2003, Hankinson 2005). It is concerned with the results of a programme of augering carried out on a further six dykes during 2005-6, and the subsequent excavation and environmental sampling carried out at one of the site in this group. Some of the results from this and the previous year's environmental sampling have now become available, and a separate section reports briefly on these results and considers their implications on our understanding of the contexts, dating, and function of the short dykes. This year's work should further refine the picture already provided by the dyke-sampling programme.

2 Methodology

Nineteen short dykes have been positively identified in the region, and in 2003-4, two were augered in an attempt to locate palaeoenvironmental deposits and determine the potential of the specific methodology which focused on limited interventions to recover suitable samples for radiocarbon dating. Subsequently, one of these, the Giant's Grave Dyke, near Llandinam in Montgomeryshire, was examined by cutting a trench through it to examine the structure of the dyke and to allow sampling of a sealed peat deposit by Cadw's environmental archaeologist, Mrs A Caseldine of UCW Lampeter.

At the Giant's Grave, a layer of peat was identified which had been sealed when the bank of the dyke was created (Hankinson 2003). Radiocarbon dating of the uppermost section of the peat layer provided a date of 340-530 AD for this material, thus providing a *terminus post quem* for the construction of the dyke. The success of this excavation led to the assessment of further sites where there was a potential for a stratigraphic relationship between a dyke and underlying palaeoenvironmental deposits

Six further short dykes were studied in 2004-5, using the same basic methodology. The initial phase of investigation consisted of taking auger samples at each dyke to assess whether deposits suitable for environmental sampling were present. Where such deposits were identified, an excavation was carried out. Three dykes were selected for excavation on the basis of their potential: the Clawdd Mawr Dyke (PRN 54) near Penybontfawr, in northern Montgomeryshire, the Crugyn Bank Dyke (PRN 1882), near Dolfor in southern Montgomeryshire, and the Short Ditch (PRN 1114), near Llangunllo in eastern Radnorshire.

The current year's study focussed on a further six earthworks, five of which had been positively identified as short dykes. The sixth was morphologically similar but had been interpreted as a medieval grange boundary. The known dykes comprised the Upper and Lower Short Ditches (PRN 1003 and PRN 235 respectively), near Kerry in eastern Montgomeryshire, the Clawdd Llesg Dyke (PRN 78), near Meifod in northern Montgomeryshire, the Red Hill Cross Dyke (PRN 35471), near Rhulen in southern Radnorshire, and the Cowlod Dyke (PRN 6871) in the Radnor Forest area of eastern Radnorshire. The remaining earthwork that was examined was the Dolhelfa Grange Boundary (PRN 17990), in north-western Radnorshire. Of this group of sites, only the Cowlod Dyke and the Dolhelfa Grange Boundary remain unscheduled. Where sites were statutorily designated, scheduled monument consent was obtained from Cadw prior to the commencement of augering.

3 *Results of the auger sampling*

An initial programme of augering was undertaken on all six earthworks, to enable the stratigraphic and palaeoenvironmental potential of each to be assessed. Although the damage caused by individual auger holes is negligible in terms of the overall area of any one dyke, particular care was still taken to minimise the impact of the work on the earthworks, consistent with providing enough information for a reasonable assessment of the dyke's potential to be made.

In comparison with the dykes included in the 2004-5 programme, the earthworks examined in 2005-6 were generally considered to have a lower potential for the preservation of readily datable environmental deposits. For all these dykes no specific areas in which sampling could be focussed were identified, and a more general sampling strategy covering the whole length of each site was adopted. As in previous years, any areas of erosion were also carefully inspected to determine whether suitable deposits had been revealed, but none was encountered.

3.1 *Lower Short Ditch*

The dyke runs for a total distance of 0.78km across the Kerry Ridgeway, which here forms the border between England and Wales. Only a short length of the dyke lies within Wales, with the majority (0.73km in length) being in Shropshire. The dyke consists of a single bank and ditch, but the section in Wales is effectively masked from view by a forestry plantation. Three auger samples were taken from the site on the Welsh side of the border: two from the bank at SO 22328846 and SO 22338847; and one from the ditch at SO 22328846. It should be noted here that all national grid references were determined using a hand-held GPS set with an estimated accuracy of ± 5 to 10m.

Information regarding work on dykes in the area carried out by Dr David Hill of Manchester University in the 1980s came to light, after our original field survey of this site (Hankinson 2002). Some excavation had apparently been carried out on the English section of the Lower Short Ditch, and it appeared that environmental deposits in the form of peat and/or charcoal had been encountered. However, no analysis of these deposits seems to have been conducted out at the time, and a rare opportunity to establish a broad date for a dyke seems to have been bypassed.



Tree cover on the Lower Short Ditch (Photo CPAT 1978-05)

Some evidence of peat in the locality was revealed by both of the auger samples that investigated the composition of the bank, although in neither case was the peat in-situ. The best example of this was found at SO 22328846, where the deposits demonstrated that the bank was approximately 1.5m high, with a 10mm-thick layer of peat at a depth of 0.9m below its crest. Further traces of peat appeared in the ditch sample, where a banded layer of peat-rich clay silt was recorded at a depth of between 0.7m and 0.9m below the surface. This implied at least six phases of peat erosion and/or deposition interspersed with silting. The dense tree cover did not allow a surface profile to be taken of the earthwork.

The lack of in-situ palaeoenvironmental deposits and the evident difficulty which would be encountered in excavating a section across the monument, given the density of tree cover, means that the site is not likely to provide a worthwhile return at present. We may anticipate a time when the tree cover has been removed and access has improved when further augering could reveal the peat that is evidently present in the locality. It seems certain that palaeoenvironmental deposits will have survived in the English section of the dyke, a matter which could be drawn to the attention of both the Shropshire County Archaeological Service and English Heritage. Any opportunity for collaborative work here would be welcome and is likely to provide good results.

3.2 *Upper Short Ditch*

The dyke is situated some 3km to the west-south-west of the Lower Short Ditch and consists of a bank and ditch running across the Kerry Ridgeway for a total length of 0.57km. A little less than half of the dyke lies in Wales, with the remainder in Shropshire. The Welsh section lies entirely within a forestry plantation. Five auger samples were taken at the dyke: four from the bank at SO 19338707, SO 19408718, SO 19388714, and SO 19358711; and one from the ditch at SO 19338707.

Confirmation of organic material at the base of the bank was obtained at SO 19338707, where a layer of dark grey silty peat lay at a depth of approximately 1.0m below the crest of the bank. Two peat-rich layers, at approximate depths of 0.3m and 0.8m, were found in the sample taken from the ditch at this point. Peat was also found in the other three auger samples taken from the bank, at depths of between 1.1m and 1.3m, but tree cover prevented the examination of the corresponding ditch deposits. Comparison between the auger results and the present profile of the earthwork suggested that at SO 19338707 the ditch was originally dug out to a depth of approximately 1.5m with a width of 3.5m.

After assessing the results of the whole augering programme, it was decided that this was the earthwork most likely to provide useful results from the excavation of a section across the bank and ditch. That peat was present at the base of the bank in all auger locations, and that there was redeposited peat in the ditch, were the determining factors in the decision to proceed with excavation. The excavation and detailed environmental sampling was carried out in co-operation with Ms A Caseldine of UCW Lampeter, and the results are described below.

3.3 *Clawdd Llesg Dyke*

The dyke lies on the south-east side of the Vyrnwy valley, 2km south of the village of Meifod, and comprises a bank and ditch which run across an interfluvial spur for a total distance of 0.17km. Seven auger samples were taken in the vicinity of the dyke: four from the bank at SJ 15721124, SJ 15741128, SJ 15751132, and SJ 15761134; and three from the ditch at SJ 15731124, SJ 15761134, and SJ 15751132.

No evidence of a sealed layer of organic material was recovered from any of the auger samples taken from the bank, although a few flecks of charcoal were found in what was thought to be a trampled layer, 1.2m below the crest of the bank, at SJ 15751132. Charcoal was also found in the ditch at this location. The only other ditch layer of interest was a mottled black, red and grey

burnt clay, 1.05m to 1.20m below ground level at SJ 15731124. Comparison between the auger results and the present profile of the earthwork suggested that at SJ 15761134, the ditch was originally excavated to an approximate depth of 2.0m with a width of 7.0m. Although the slope of the ground at this point may mean that the dimensions are not typical of the dyke as a whole, this section is the best-preserved portion of the dyke.

The dyke does have some potential for further work, mainly owing to the presence of charcoal, which might perhaps be used to date a phase of activity at the dyke, though probably not the dyke itself. Some caution is needed, however, as the small size of sample derived from the augering makes it impossible to determine the amount of datable material that may be available.

3.4 *Red Hill Cross Dyke*

The dyke lies approximately 10km to the east of Bulth Wells, and is situated at a narrow section of the ridge of hills aligned from north-east to south-west that terminate on reaching the Wye valley near Erwood. The dyke consists of a bank and ditch, which is 0.09km long and is relatively unusual in that it ascends one side of a ridge and terminates on its crest. Five auger samples were taken from the dyke: four from the bank at SO 15024987, SO 15034985, SO 15034983, and SO 15044982; and one from the ditch at SO 15024987.

No evidence of a buried soil or peat layer was found in the auger samples, although peat was present in the surface soils that cover the dyke. The ditch deposits were also lacking in peat and it appears that at the time the earthwork was constructed peat growth had not commenced in this locality. The other possibility, that the ground had been cleared of peat before dyke construction, appears unlikely as some redeposited peat would almost certainly have been present in either the bank material or ditch deposits. Comparison between the auger results and the dyke profile suggested that at SO 15024987, the ditch was originally dug out to an approximate depth of 1.0m and width of 4.0m. In the absence of any recognisable organic deposits it seems unlikely that further work is merited at this site.

3.5 *Cowlod Dyke*

The dyke is 0.11km long, and crosses the south side of a saddle separating the main bulk of the



Auger sampling at the Cowlod dyke (Photo CPAT 1978-01)

Radnor Forest uplands from a west-facing spur ridge. Opinion is divided as to whether it is an authentic short dyke or a lesser earthwork. It lies less than one kilometre to the south of the Cefn y Crug dyke, a site that was tested for its palaeoenvironmental potential by augering in 2004-5. A total of five auger samples were taken at the dyke: four from the bank at SO 16526351, SO 16526350, SO 16526346, and SO 16536355; and one from the ditch at SO 16526350.

No evidence of a sealed peat deposit was found in any of the bank profiles, although some signs of the old ground surface beneath the dyke were noted. As was the case with the previous site, peat was present in the surface soils which covered the dyke and it is most likely that peat growth had not commenced in this locality at the time the dyke was constructed. A profile across the dyke was taken at SO 16526350, and this suggested that the ditch was originally cut only to a depth of 0.8m and had a width of approximately 3.5m.

Given that no sealed organic deposits were encountered in the auger samples, it seems unlikely that the site will merit any further investigation in the immediate future.

3.6 *Dolhelfa Grange Boundary*

This possible dyke is believed to have monastic associations and lies some 5km to the north-north-west of Rhayader. It consists of a bank and ditch, with an intermittent counterscarp, which runs for 0.44km across a saddle on the ridge between Mynydd Perthi and Garreg Lwyd. The ridge divides the Marcheini valley from that of the Wye, and the streams which commence at either end of the dyke form minor tributaries of their respective watercourses. Eight auger samples were taken from the site: seven from the bank at SN 95167338, SN 95167335, SN 95177331, SN 95177326, SN 95177322, SN 95137316 and SN 95087314; and one from the ditch at SN 95177326.



Recording of the auger sample results at the Dolhelfa Grange boundary (Photo CPAT 1978-09)

No evidence of sealed environmental deposits was recorded in the three northernmost auger samples, but traces were observed at SN 95177326, where there was a succession of peat, peaty silts and peaty clays, at a depth of approximately 0.7m below the crest of the bank. None of the remaining bank samples contained sealed peat layers, but some charcoal was recorded at the base of the bank at SN 95087314. Peat was not encountered in the ditch. Comparison between the

auger results and the dyke profile suggested that at SN 95177326, the ditch was originally excavated to a depth of approximately 1.0m and width of 3.5m.

Subsequent to the field assessment of the site completed in 2002, the central section of the site, roughly between SN 95177322 and SN 95137316, had been levelled off. Examination of this area revealed a peat layer at SN 95177320, covered by some remnants of the bank material. A small sample of this material was recovered and has been passed to Mrs Caseldine for examination. Although the area of sealed peat is relatively small in extent, it seems likely that some further investigation might be merited, but this may need to be re-assessed once the initial analysis of the sample taken from SN 95177320 has been carried out. Further information on the nature, authenticity and possible dating of this site would be useful.

4 The Upper Short Ditch excavation (Figs 2 & 3)

The dyke consists of a slightly curving bank (22) and ditch (23), running approximately north-east/south-west. The excavation was centred at SO 19338707, where augering had demonstrated that organic deposits were present, and comprised a single, hand-dug trench, 9.4m long by 1.0m wide, encompassing both elements of the dyke. The trench was excavated to the base of both the ditch and those deposits which were thrown up during dyke construction. The soils which predated the construction of the dyke were half-sectioned in order that they could be adequately sampled and so that the nature of the ground surface at the time of dyke construction could be assessed. The section demonstrated that the ditch had originally been excavated to a width of 4.1m and a depth of 1.5m. In comparison, the surviving section of original bank deposits was 4.2m wide and 0.9m high.

It should be noted here that individual numbers within and without brackets refer to context numbers given at the time of the excavations and these may or may not appear on the published drawings.

The natural subsoil consisted of reddish stony clay (27), and this was overlain by sandy orange silt (26), 0.09m thick, and also of natural origin. The surface of layer 26 was defined by a very thin (max 0.01m) orange-brown layer (25), which might represent a poorly developed ironpan. All of these layers were exposed in the sides of the V-shaped cut that formed the ditch (23). On the north-west side of the ditch, the natural subsoil was overlain by a layer of greyish-brown silt



The V-shaped profile of the ditch, exposed in the excavation (Photo CPAT 1978-21)

(28), 0.03m thick, while on its south-east side, the subsoils were covered by pale grey gleyed clay silt (24), 0.06m thick, above which was black, greasy peat, (21), up to 0.04m thick, the top of which is likely to represent the ground surface at the time the dyke was constructed.

The material derived from the excavation of the ditch had been thrown up to form the bank (22), thereby sealing the peat layer (21). The bank deposits which overlay the peat comprised a sequence of redeposited soils mirroring those described in the previous paragraph. At the edge of the ditch a thin lens of mixed dark grey peat (20), 0.04m thick, represented the initial bank deposit, where turf had been placed after being removed from the line of the ditch, and this was followed by pale grey (milky) clay silt (19), which was 0.1m thick and corresponded to layer 24.

After these initial deposits had been laid down, the main part of the bank was formed from more substantial redeposited subsoils, namely orange sandy silt (18), up to 0.35m thick, and reddish stony clay silt (17), up to 0.69m thick, which correspond to layers 26 and 27, respectively. Layer 18 contained a single slab of peaty material which no doubt represented a block of turf cut from the line of the ditch. A small lens of orange-grey stony silt (16), 0.05m thick, was present in the south-eastern part of the bank, and may be an original bank deposit created by the mixing of layers 24 and 26 when the ditch was excavated.



Section through the Upper Short Ditch, showing the sealed peat layer (Photo CPAT 1978-17)

Evidence for activity during the construction of the dyke comprised a 0.14m-thick layer of mixed dark grey, orange and brown clay silt (13), which occupied the slope linking the bank and ditch and seemed to represent an area of trampled material. This evidently post-dated the deposition of

layers 19 and 20, but could have been contemporary with 17 and 18, which form the main part of the bank. Once the bank had been constructed a band of dark grey to black silty peat (15), 0.09m thick, built up on its south-east side, followed by a layer of mid-grey to brown clay silt (14), 0.15m thick.

On the north-west side of the bank, the ditch was becoming progressively filled by a succession of deposits, commencing with a pale pinkish-red silt (12), up to 0.13m thick, and then dark grey to black greasy peat (11), up to 0.1m in thickness. After the termination of peat growth in the ditch, pale grey to greenish stony clay silt (10), up to 0.14m thick, was deposited, which was in turn overlain by reddish stony clay silt (9), also up to 0.14m thick. The material which formed layer 9 had probably eroded from the bank, as it was only present in the south-east part of the ditch. Further silting of the ditch was represented by mid-grey stony silt (5), up to 0.18m thick, and pale grey clay silt (4), up to 0.12m thick. It appeared that at the end of the deposition of layer 4, the bank had suffered further erosion and three separate phases could be detected, respectively designated by a lens of reddish clay silt (8), 0.2m thick, grey-brown clay silt (7), 0.16m thick, and reddish stony clay silt (6), 0.08m thick.

The bank and ditch deposits described in the previous paragraphs are all sealed by a layer of black silty peat (3), which varied between 0.06m and 0.1m in thickness. The surface of the ditch consisted of a mixture of modern brash from forestry operations and pale grey silt (collectively, layer 2), whereas the surface of the bank was a turf growing on grey-brown silt (1).

5 *Palaeoenvironmental sampling results*

A programme of sampling was undertaken at the end of the Upper Short Ditch excavation by Ms A Caseldine of UCW Lampeter. The sampling strategy consisted of the removal of a sequence of monoliths, taken from the main bank and the ditch of the dyke. The location of each monolith is depicted on the figure showing the excavated section (Fig. 3).



Palaeoenvironmental sampling of the bank deposits (Photo CPAT 1978-25)

In the absence of suitable deposits in the locality, no sample pits comparable to that cut at the Giant's Grave were excavated in the immediate vicinity of the dyke excavation.

At the time of writing, samples from the Clawdd Mawr and Crugyn Bank dykes, excavated in 2004-5, have been dated, together with a single sample from this year's Upper Short Ditch excavation. The results give a date for the sealed peat at Clawdd Mawr of 630-710 AD, the sealed peat at Crugyn Bank of 650-780 AD, and the sealed peat at the Upper Short Ditch of 540-660 AD. The date previously obtained for the Giant's Grave dyke (340-530 AD) is somewhat earlier than these more recently received results, but this may be due to a number of different factors, of which the sampling strategy used is one. Of the recent results, that from Clawdd Mawr was obtained from charred plant remains and is thought to be the most accurate because of the short-lived nature of this material. In contrast, the Crugyn Bank and Upper Short Ditch results were obtained from microscopic charcoal which could have been present in the soil for some time, and whose origin, though most probably from heather, could be from trees of unknown age at the time of burning.

Material from the Short Ditch near Knucklas in Radnorshire, excavated in 2004-5, remains to be dated. This is largely a result of the inherent complexity of the sealed peat layers, which may represent more than one phase of activity that pre-dates the dyke. It is hoped that a date may be achieved once soil micro-morphology has clarified the sequence.

6 *A brief assessment of the project to date with possible future directions for the short dyke study*

Table 1 offers an overview of the results of the sampling strategy employed on the short dykes during this project over the last three years. As has been mentioned above, the authenticity of the Dolhelfa Grange boundary is uncertain, but it has been included here due to its morphological similarity to several of the known dykes. Sites which have not been examined are denoted by a line in the respective column. No site was excavated where the auger sampling provided only negatives results.

A number of avenues for further research are feasible for the short dykes in Powys. Many of the known dykes have been sampled by augering, and although others remain to be examined by this method it should be stressed that the sites most likely to retain environmental deposits have now been selected. With the exception of the Two Tumps Dykes, which are viewed as part of the same system as the Crugyn Bank dyke, most of the sites which have not been augered are in lowland locations and are not so likely to produce sealed deposits of interest. Despite this, there still remains the possibility that datable charcoal, from a clearance phase preceding dyke construction, might exist at any one of the dykes. The main factor to flag up here is that the present study has focussed on those sites which could provide a broad spectrum of palaeoenvironmental evidence, thereby giving an environmental context for the dyke, rather than concentrating on obtaining a simple date. There could be other useful methodologies that might provide dates alone, although the seeming failure of the long-running campaign on Offa's Dyke does not provide grounds for optimism on this matter.

Auger samples were taken at the Lower Short Ditch, but no sealed environmental deposits were found. Yet it seems certain that palaeoenvironmental deposits will have survived beneath the English portion of this dyke, and a collaborative exercise with English agencies would be welcome, to provide comparative dates with that for the Upper Short Ditch.

Previous reports have highlighted the potential importance of the group of dykes that are thought to be related to the former cantref of Mechain. The date of 630-710 AD, recently obtained for the Clawdd Mawr dyke, one of this alleged group, has further demonstrated the potential of the sites for assisting our understanding of the area in the early medieval period. A number of questions remain to be answered, however, not the least of which is whether all of these dykes are actually related. At present, there seems to be no way to prove this conclusively, despite there being strong topographical grounds for the hypothesis. As mentioned above, more detailed work concentrating

on the recovery of datable organic deposits might assist, particularly as the Clawdd Mawr date provides a potential context for the remainder of the group. Some charcoal was found near the base of the bank on the Bwlch-y-cibau dyke during augering, which demonstrates the potential for datable material surviving at the other sites.

Table 1 Sites examined by augering and excavation (see also Fig 1)

Dyke Name	PRN	SAM number	Augered	Excavated	Radiocarbon date (scaled peat)
Aber Naint Dyke	1479	Mg024(POW)	—		
Aberbechan Dyke	1041	Mg061(POW)	—		
Bwlch Aeddau Dyke	77	Mg100(POW)	—		
Bwlch y Cibau Dyke	50449	Mg077(POW)	09/2004	—	
Cefn y Crug Dyke	993		06/2004	—	
Clawdd Llesg Dyke	78	Mg098(POW)	10/2005	—	
Clawdd Mawr Dyke	54	Mg101(POW)	08/2004	01/2005	630-710 AD
Cowlod Dyke	6871		07/2005	—	
Crugyn Bank Dyke	1882	Mg062(POW)	09/2004	11/2004	650-780 AD
Dolhelfa Grange boundary	17790		09/2005	—	
Fron Hill Dyke	2145		—		
Giant's Grave Dyke	3711		05/2003	08/2003	340-530 AD
Lower Short Ditch	235	Mg223(POW)	09/2005	—	
Pen y Clawdd Dyke II	1986		—		
Red Hill Cross Dyke	35471	Rd183(POW)	09/2005	—	
Shepherds Well Dyke	992		—		
Short Ditch	1114	Rd089(POW)	10/2004	12/2004	Forthcoming
Two Tumps Dyke I	4034	Mg063(POW)	—		
Two Tumps Dyke II	6242	Mg063(POW)	—		
Ty Newydd Dyke	1478	Mg025(POW)	06/2004	—	
Upper Short Ditch	1003	Mg201(POW)	09/2005	11/2005	540-660 AD
Wantyn Dyke	1053	Mg208(POW)	05/2003	—	

One of the uncertainties is whether there are any further dykes that remain to be identified in the landscape. The Dolhelfa Grange boundary is one such site where there is some doubt regarding its authenticity and it seems very likely that there will be others. Possibly increased awareness of the dykes resulting from the work on this project may lead to new discoveries in other parts of Wales and the borders, perhaps where short dykes of early medieval age have not previously been recognised as a distinct local site type. In this, site recognition by aerial examination of the

landscape may be considered to be a cost-effective way of assessing the potential for further sites. One implication of this territorial hypothesis is that dykes might be more widely spread through Wales than seems to be the case at present, unless they are restricted to particular political areas.

Only five, or no more than 25%, of the dykes have been subject to detailed palaeo-environmental examination. Others, as noted above, may yet reveal some elements that might elucidate particular points and allow particular sites to be placed in context. Additionally, further work remains to be done on samples already taken during the excavations and the results of this may add to our understanding of particular sites.

Although it is unlikely that the work carried out as part of this project will be the last word in the study of short dykes in Powys, it is hoped that the results of the project will provide an impetus for the study of short dykes elsewhere and provide a background of information against which similar sites can be assessed and studied in the future.

7 Acknowledgements

Thanks are due to the owners - Forest Enterprise, Coed y Gororau District - for permission to carry out the excavation and sampling at the Upper Short Ditch and auger sampling at the Lower Short Ditch. Thanks are also due to the following for permission to carry out the auger sampling: Mr Jones and Mr Evans on the Clawdd Llesg Dyke; Dr S Marsh-Smith on the Red Hill Cross Dyke; Ms S Williams on the Dolhelfa Grange boundary; and the Gwernaffel Estate and their representatives Chester-Master Ltd, on the Cowlod Dyke. The writer would additionally like to thank Mr Ian Grant, CPAT, for his assistance with the excavation and sampling; Ms A Caseldine, UCW Lampeter, and her colleagues for their work with the palaeo-environmental sampling; and to Mr B Williams, CPAT, for his work on the site drawings for publication.

8 References

- Hankinson, R, 2002, *The Short Dykes of mid and north-east Wales*, Welshpool: CPAT
- Hankinson, R, 2003, *The Short Dykes of mid and north-east Wales*, Welshpool: CPAT
- Hankinson, R, 2004, *The Short Dykes of mid and north-east Wales*, Welshpool: CPAT
- Silvester, R J & Hankinson, R, 2002, *The Short Dykes of Mid and North-East Wales*, Welshpool: CPAT

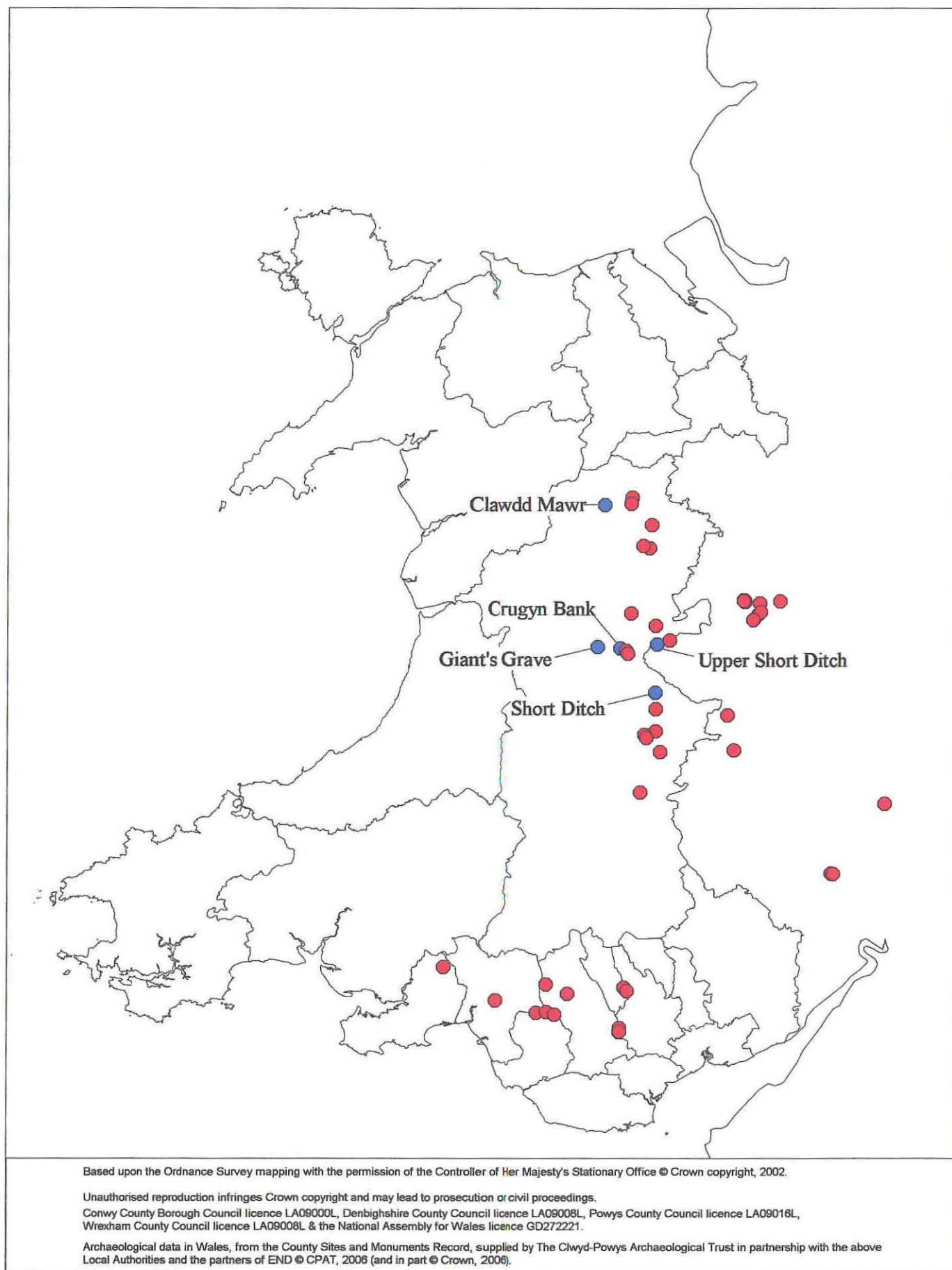


Fig 1 Excavated sites in relation to the dykes of the Welsh borderland

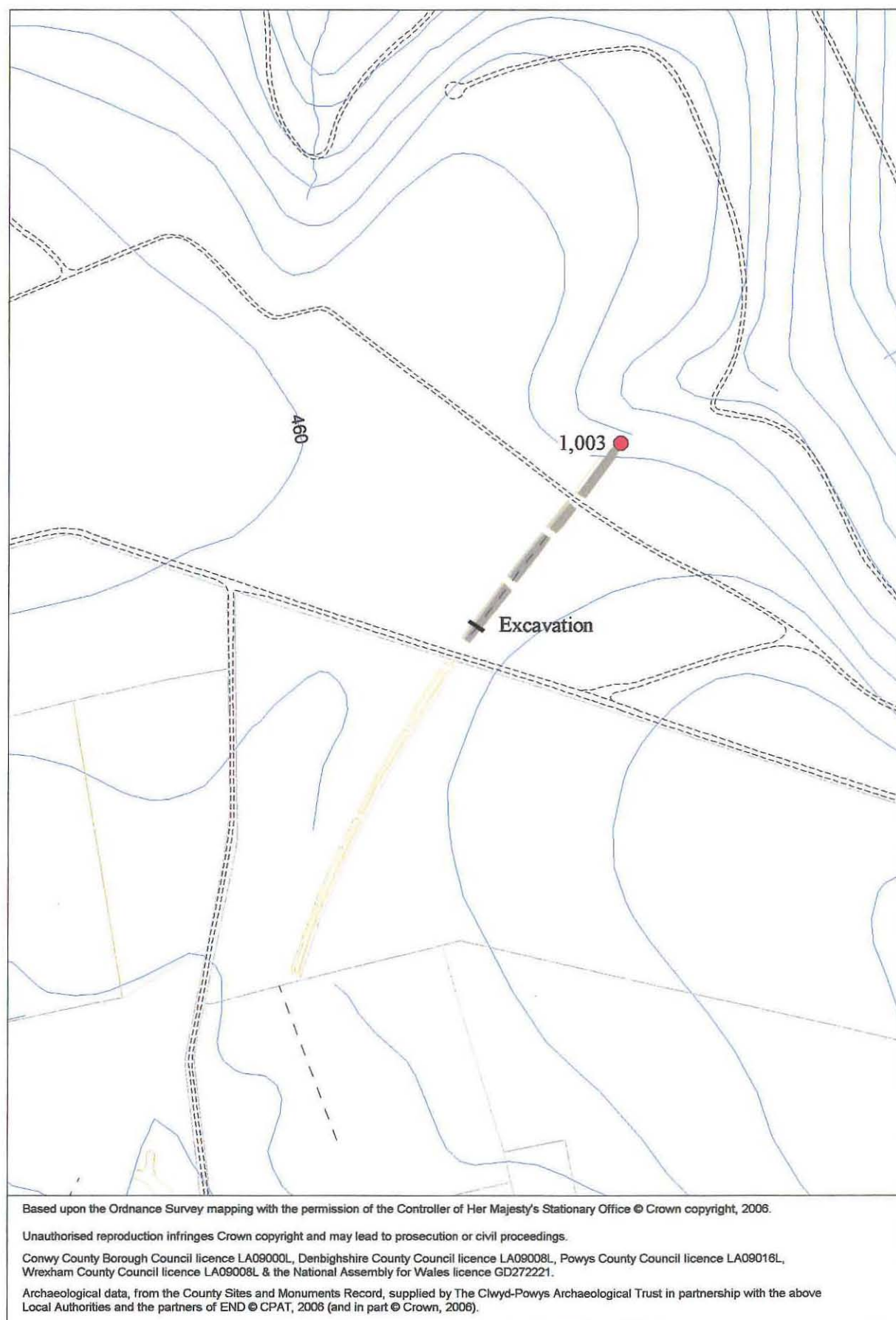


Fig 2 Upper Short Ditch (PRN 1003) excavation location, Scale 1:5,000

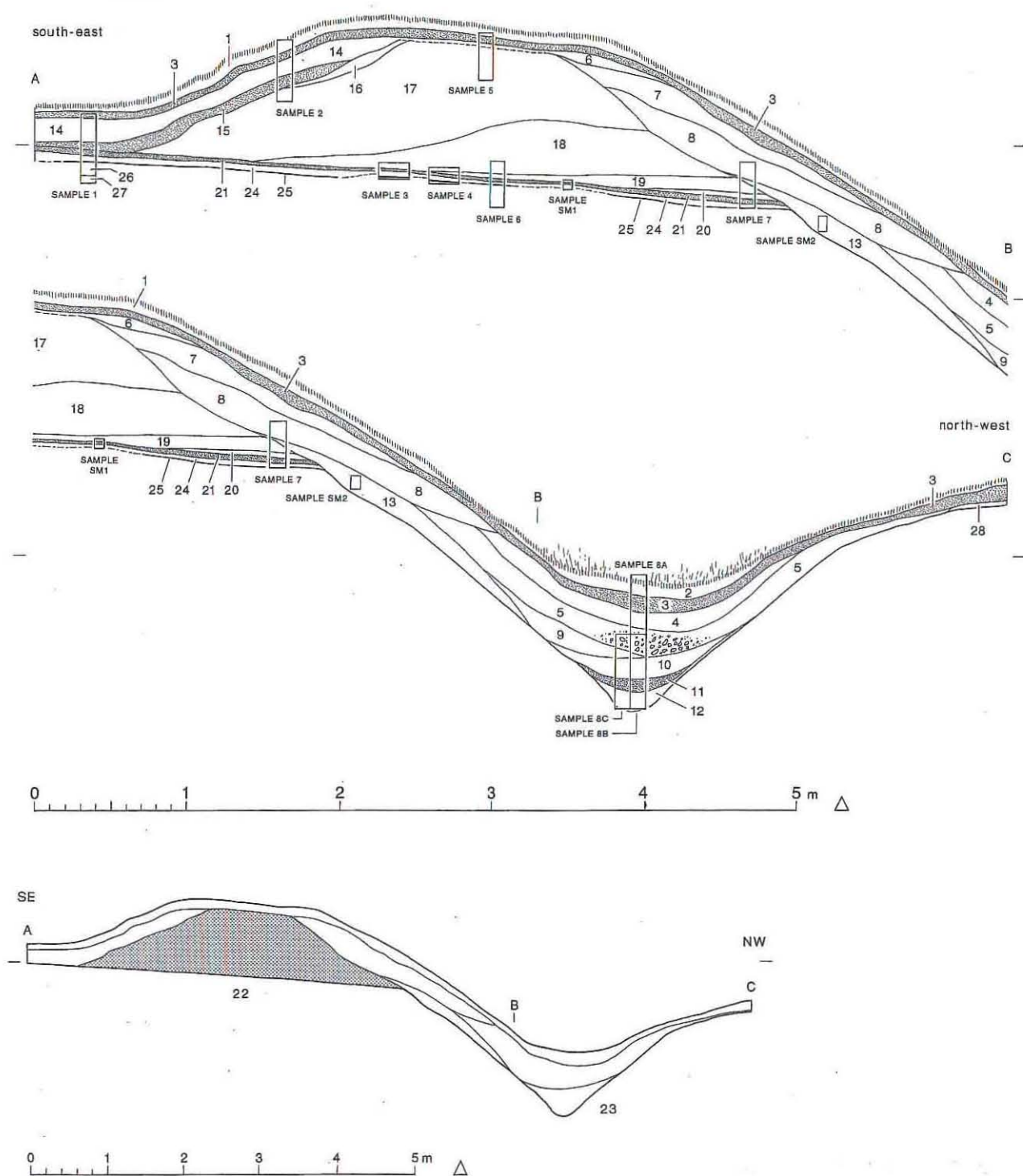


Fig 3 Upper Short Ditch excavation section