Herefordshire Archaeology
Conservation and Environmental Planning
Planning Services
Environment Directorate
Herefordshire Council

Credenhill Fort Herefordshire:
A Summary Excavation Report Phase 5, 2009

NGR: SO 451 446

Herefordshire Archaeology Report No 271

Report prepared by
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Contents

Herefordshire Archaeology is Herefordshire Council's county archaeology service. It advises upon the conservation of archaeological and historic landscapes, maintains the county Sites and Monument Record, and carries out conservation and investigative field projects. The County Archaeologist is Dr. Keith Ray.

Credenhill Fort
Herefordshire:
A Summary Excavation Report

Herefordshire Archaeology Report No. 271

Herefordshire Archaeology, December 2009.

Summary

This summary report describes the rationale, extent and results of excavation carried out at Credenhill Fort, Credenhill, Herefordshire by Herefordshire Archaeology between June and September 2009.

This work was the third and final season of a three-year field project at the site. The purpose is to provide information on the type and preservation of archaeology on the site in order to provide a better picture of the use of the site in the Iron Age and Romano-British periods, to provide interpretative material, and to inform future woodland management on the site.

Six areas were excavated in 2009. An area examined in 2007 and 2008 (Trench 4) was reopened and completed. The archaeology here comprised features mainly of Roman date, beam slots and other cut features. An area within the internal quarry ditch just south of the eastern entrance was opened and two possible four post structures examined. A trench was cut across the ditch and counterscarp bank effectively extending the trench opened last year across the inner rampart. Ditch fills here were complex and are likely to represent later, possibly Medieval, use of the area as well as that associated with the hillfort itself.

Within the northern (clear-felled) half of the fort, an area containing slot-like features (Trench 13, 2008) was expanded. What had been tentatively interpreted as a Roman barrack block was found to be a much more irregular sub-rectangular arrangement of slots and is undated. Two further areas within the northern half of the site were opened but found to contain no significant archaeology.

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Introduction

This report provides a summary account of archaeological excavation at Credenhill Fort, Credenhill, Herefordshire. The work described was the third of three seasons of excavation on the site and was carried out between the 22nd June and the 18th September 2009.

Credenhill Fort is a Scheduled Ancient Monument (HSM 906, SAM Herefordshire 61) surmounting an elongated hilltop 5km northwest of Hereford city (figure 1). The site is now heavily forested largely with plantation conifer, having been stripped of its former cover of broadleaved woodland in 1965. The monument stands within Credenhill Park Wood, which originated from a Medieval deer-park, and which retains a substantial part of its deciduous woodland. The Woodland Trust purchased this woodland, along with the fort, in 2004.

The project to purchase the site and to establish plans to restore the semi-natural vegetation cover of the site was supported by Herefordshire Archaeology, acting as advisors to the Woodland Trust. Works following the purchase included archaeological surveys (specified and monitored by HA staff but undertaken by AIL Ltd of Hereford), and the preparation of a Conservation Management Plan for the Fort linked to the Management Plan for the site as a whole. A Project Statement was prepared in part as a means of specifying the background to and provisions for the current archaeological field project at the site. The aim has been to investigate for conservation and information purposes key areas of the massive and presently tree-covered Iron Age hillfort/Romano-British settlement partly in advance of and partly in tandem with a programme of disafforestation of the monument. The Project Statement covers some of the same ground as a detailed Project Design prepared to support an application for Scheduled Monument Consent for archaeological works at the site in 2007 and 2008.

Scheduled Monument Consent (SMC) was obtained in June 2009 for a programme of work involving the opening of 6 trenches (the specific details of each trench are set out below). Three trenches (4, 9 and 13) were a continuation of work that commenced in 2008, one (trench 10) was an extension of the trench excavated across the inner defensive rampart also in 2008 (figure 2). A further two trenches (15 and 16) were located within the area clear felled in the autumn of 2008.

Location and Geology

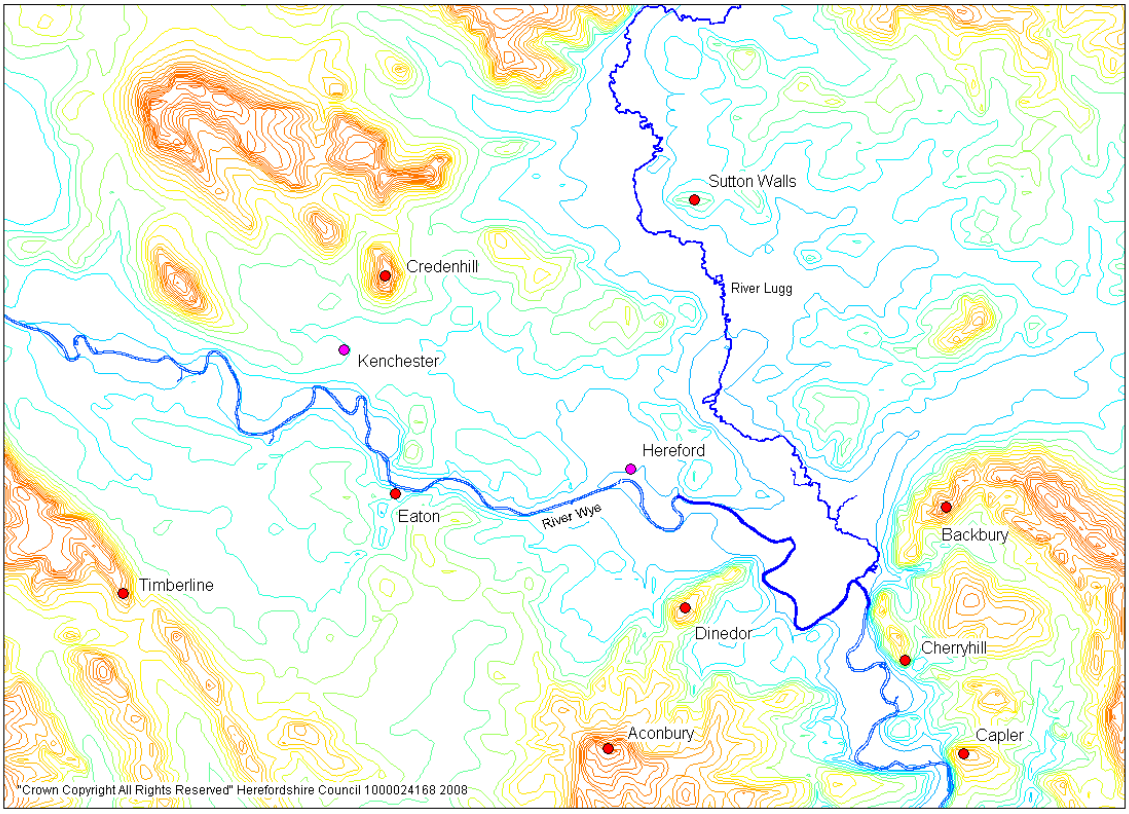

Figure 1. Site Location, nearby hillforts and topography

Credenhill Fort is located at NGR: SO 451 446 within the parish of Credenhill some 5km northwest of Hereford City. The site lies at a height of between 170m and 220m OD overlooking the Wye and Lower Lugg valleys and their confluence to the southeast of Hereford.

The underlying bedrock is Devonian Lower Old Red Sandstone of the St. Maughan's Formation. This is predominantly red-brown blocky mudstone with beds of sandstone and conglomerate, and with some inclusion of cornstones (immature calcretes). At Park Wood, Credenhill, there are also present some bands of Bishop's Frome limestone, but these apparently occur at lower elevations than the fort itself.

The soils are coarse loams of the Escrick I Association, mostly featuring non-calcareous brown earths (Ragg et al, 1984, 186-8). These soils are normally well drained, but are subject to localised periodic waterlogging.

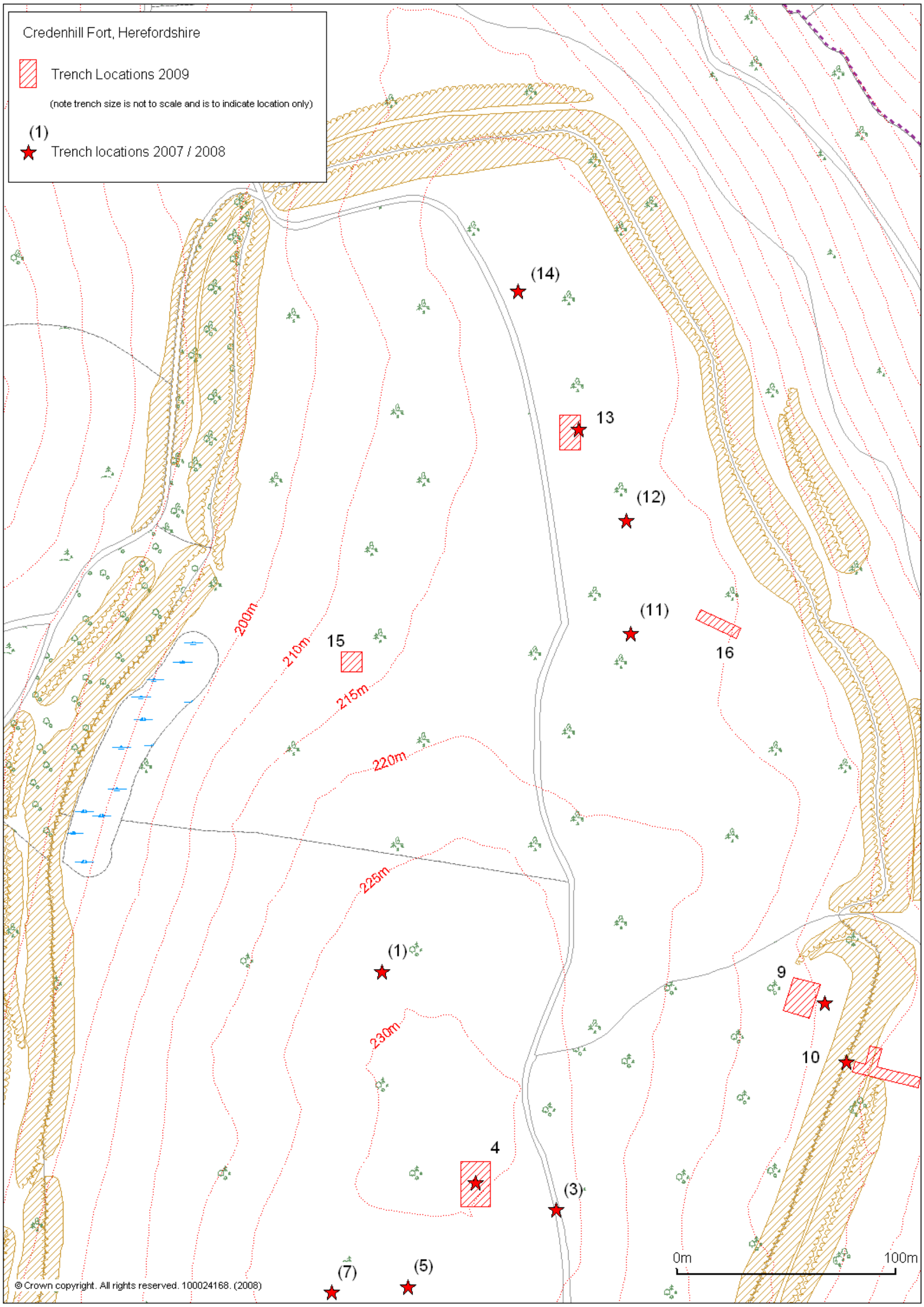

Figure 2. Trench Locations 2009

Methodology

All trenches were stripped of topsoil by machine under close archaeological supervision using a toothless ditching/grading bucket. Thereafter excavation was carried out by hand.

The stratigraphic sequences exposed in all trenches during the excavation were recorded by running context and scale drawings (1:20 for plans and sections). Context sheets were completed for all identified contexts. Photographic records were also made on digital media during the excavation.

Backfilling was carried out by machine again under archaeological supervision.

Results

Trench 4 (12.00m x 9.00m)

Trench 4 was originally opened in 2007 when remains dating to a Romano-British phase of activity on the site suggested a concentration of activity in this area. Excavation continued within an expanded area in 2008 and was completed this year (See summary reports for 2007 and 2008 for the details of work carried out in those years). The remains in this area are predominantly Romano-British in date and a number of features were rich in ceramics. The nature of the remains suggest that the southern part of this area was occupied by a substantial timber structure the sill beams for which ran east west across the site (Plate 1). The remains are consistent with those of known Roman granary buildings, for instance those at Brandon Camp in North Herefordshire (Frere, 1987). The northern part of the excavated area contained a series of intercutting pits mainly of Roman date. A smaller number of pits also contained Late Bronze Age/Early Iron Age pottery or Late Iron Age pottery.

Plate 1. Beam Slot partially excavated

Preliminary analysis of the Roman pottery assemblage recovered in all three years suggests a Pre-Flavian military use of the site (see below for 2008 report). Confirmation of this will need to await full analysis of the pottery.

Trench 9 (6.50mm x 6.00m)

Trench 9 was located within the inner quarry ditch just to the south of the eastern entrance to the hillfort and adjacent to areas opened by Dr Stanford in the 1960s (figure 2). It was originally opened in 2008 but was uncompleted then due to flooding.

A smaller area than the original trench was selected for excavation in 2009 based on the position of features excavated by Stanford and those identified in 2008. The intention was to examine a putative four post structure, the northern half of which was made up of two large pits half sectioned by Stanford and one feature of the southern half by a depression in a cobbled surface representing an underlying pit.

Plate 3. Area of cobbles within Trench 9, the edge of Stanford's Trench 23 is visible in the top left corner

The topsoil, hill-wash and a layer of gleyed clay were removed by machine to just above the cobbled surface identified in 2008, excavation then continued by hand. Ceramics recovered from this surface during the two years consisted only of Roman material.

A number of features were present within the excavation area and were sealed by the cobbling and by a deposit of red clay that appeared to be a deliberate layer perhaps a levelling or foundation deposit for the stone surface. The target structure was made up of four substantial features cut into the natural marls in the base of the, at this point, shallow quarry ditch. However the southern pair appear to be different in character to the northern pair, the

Plate 4. Trench 9 on completion of excavation

former having shallow ramps either for sliding in and erecting substantial timbers or resulting from excavation for post removal.

The eastern of these also contained a number of substantial stones that could be interpreted as collapsed packing stones. The fill in all cases was banded sands and sandy clays indicating that the pits had been emptied and left open to be filled, as the quarry ditch, by water borne deposits that appear to have accumulated fairly rapidly. Although the fills of the northern pair were similar there was no presence of ramps or packing stones. The four do however form a reasonable rectangle some 3.70m east-west and by between 2.80m and 3.20m north-south.

An additional four features, all of the same diameter and three of which had a very similar fill of small stones covering their base possibly acting as post pads, make up a further and in some ways more convincing four post structure. This had east-west sides of 3.10m and 3.40m and north-south sides of 2.30m. Although there was no direct relationship between the two structures, their ground plans overlapped showing that they could not be contemporary.

No dating evidence was recovered from any of the features and very little from the site in general below the level of the cobbles. A few fragments of fired clay and Malvernian style Iron Age pottery were recovered from the quarry ditch fills. A deposit of disturbed natural on the base of the quarry ditch did however contain a number of small pieces of fired clay and some fragments of charcoal which may provide a date for the construction of the quarry ditch itself.

It appears that this area was utilised for buildings very soon after the excavation of the quarry ditch, but that it was abandoned after a very short time, possibly due to problems with water and drainage. The quarry ditch appears to have filled fairly rapidly with a fill of water borne laminated sand and sandy clay deposits.

Trench 10 (1.50m x 25.00m)

Following the sectioning of the rampart last year (Dorling and Williams, 2009) it was proposed to continue this section down through the inter-vallum ditch and the outer/counterscarp bank.

This was carried out by machine and the ditch and bank sections then cleaned, examined and recorded. This work was hampered by very wet weather making for at times impossible working conditions. A detailed description of the section is given in Mike Allen's site visit report (below) so an interpretive account only is given in this section of the report.

Plate 5. A general view of trench 10, looking across the ditch towards the inner rampart. The material of the counterscarp bank can be seen in the section lower right

The ditch was 6.00m wide at this point and cut into natural marls to a depth of 2.60m below the inner lip of the ditch. At its centre the base of the ditch would have been around 1.80m below the original ground surface. Its depth below the current ground surface was 2.80m. The depth of the base of the ditch below the top of the surviving bank was 8.30m, which gives some indication of the impressive nature of the defences in the Iron Age at this point.

Plate 6. The base of ditch within trench 10

The counterscarp bank was less impressive and although it survived to between 5 and 6 m across, was only around 0.80m in depth.

The stone deposit recorded in the bank section in 2008 and thought then to be part of the rampart revetment appears, after the excavation of the ditch, to be late in the sequence and possibly related to the later use of the area as deer park or rabbit warren.

An apparently deliberate deposit of material on the inner lip of the ditch appears to form some method of revetment, against which are piled material from cleaning / re-cutting part of the ditch. The deposits here were complicated and boundaries were diffuse making interpretation difficult. It is thought that these deposits may again relate to a late use of the area, possibly a track that may again have been associated with the emparkment and or warrening.

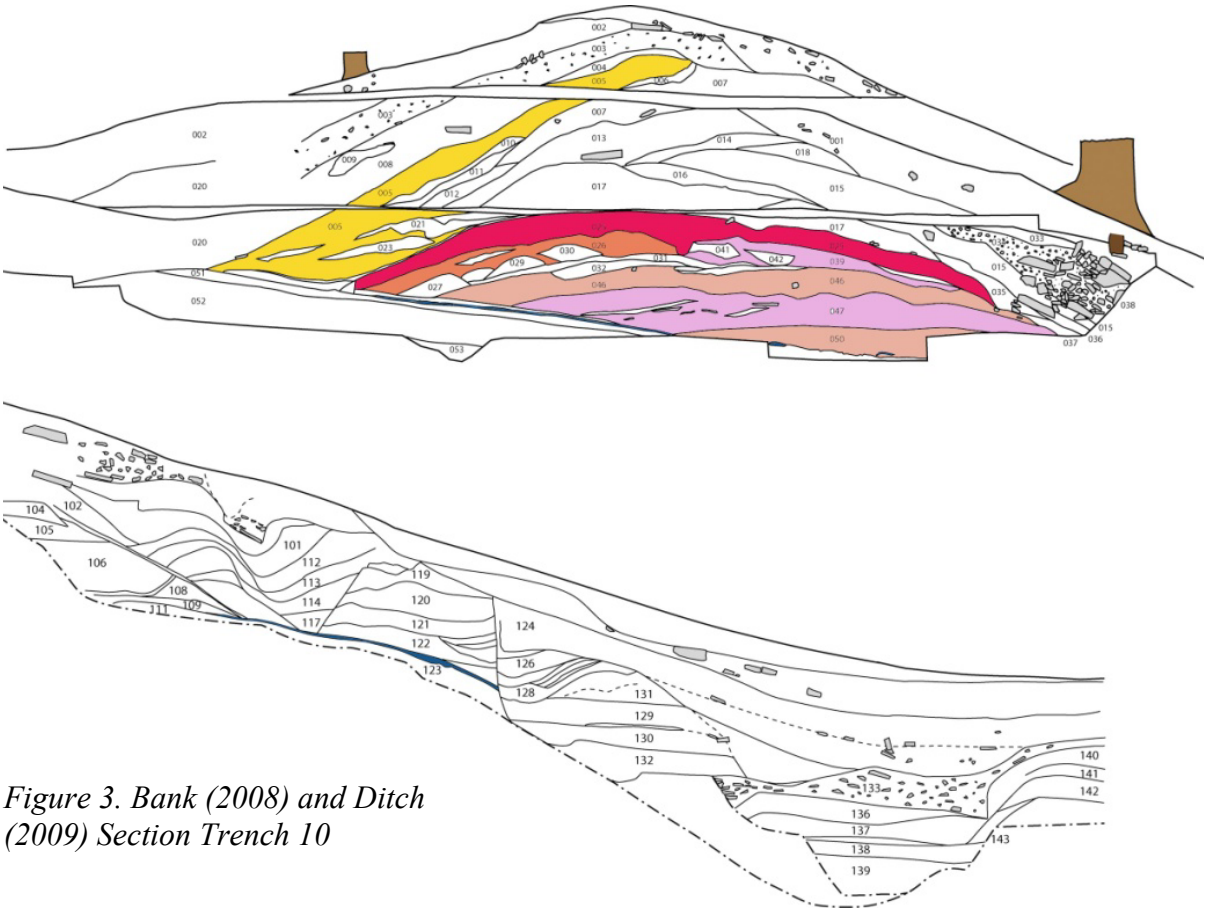

Figure 3. Bank (2008) and Ditch (2009) Section Trench 10

Trench 13 (17.00m x 9.00m max)

Trench 13 was one of four evaluation trenches originally opened in 2008 to test the nature of the archaeological deposits within the northern half of the site. Within this initial trench two distinct slots were recorded within a 4.00m x 4.00m excavation area (plate 7). Their basic disposition was suggestive of a Roman Imperial army barrack block, that is to say a

Plate 7. The features recorded in 2008, the view is looking south

corridor with rooms opening off it. However, given the limited area examined, no definitive interpretation could be made.

A larger area was opened in 2009 in order to try to recover a more complete ground plan for the building. This was hampered to some extent by the tree stumps remaining after clear felling during the previous autumn. These could not be removed as this would have caused too great a disturbance to the archaeology.

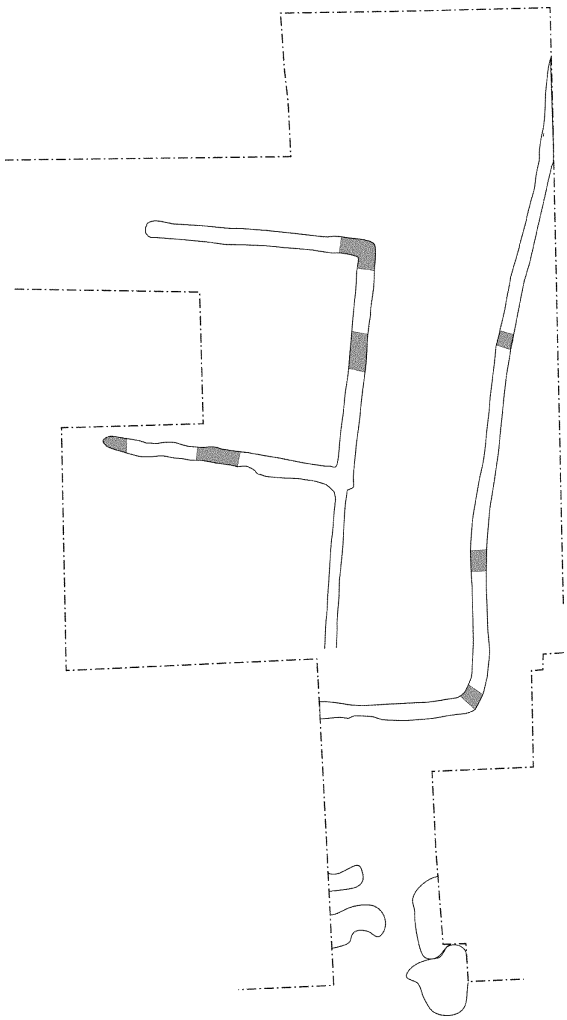

Figure 4. Plan of features in trench 13

Although a larger ground plan was recovered (figure 4) the interpretation of the features is still somewhat ambiguous. However it now seems unlikely that it is a barrack block. The remains of a bipartite rectangular structure at least partially enclosed by an outer rectangle were recorded. To the south a number of shallow intercutting pits were recorded. No dating evidence was recovered from any of the features and the lack of Roman pottery especially may suggest that this is an earlier (or later) complex. However the location of this feature, on the crown of the ridge may have lead to some truncation of the features by ploughing. Parallels for rectangular features similar to this are not unknown from Iron Age sites for instance from Cadbury Castle and Maiden Castle.

Trench 15 (5.00m x 3.00m)

This trench was opened in order to test the nature of deposits on a terrace on the western side of the hillfort. The area became identifiable after clear-felling in the northern half of the fort in late 2008. It was anticipated that colluvium may have protected archaeological deposits in this area.

Plate 9 Trench 15

It was soon apparent that only natural deposits were present in the area of the trench and the proposed 5.00m by 5.00m trench was restricted to 5.00m by 3.00m.

Below a humic topsoil coluvium or hill-wash had accumulated to a depth of around 0.60m, this lay directly over natural subsoil.

Trench 16 (2.00m x 10.00m)

Trench 16 was located in order to investigate a linear stone spread that was visible on the surface after clear felling and brash mulching in the northern half of the fort.

Excavation by machine showed this to be a surface deposit along a break of slope. It most likely accumulated here through field clearance during episodes of cultivation of the interior. Once this was established no further excavation was carried out within this trench.

Post Excavation Programme

The finds recovered from the 2009 excavations were pottery or burnt clay. This has been processed and dispatched to our pottery specialist.

Jane Evans of WHEAS has examined the Iron Age and Romano-British pottery from 2007 and 2009 to provide an initial assessment. A full pottery report has been commissioned and will be completed in mid 2010. Her summary assessment report on the pottery from 2008 is attached below. Initial indications are that the assemblage from 2009 confirms the 1st century Roman military activity.

The Conservation department at Cardiff University has carried out conservation work and where appropriate x-ray photography on the metalwork recovered in 2007 and 2008. This includes iron objects and fragments, 4 coins and several lead and cast bronze objects including a brooch. Other notable small finds include a glass gaming counter and a small fragment of rim from a fairly fine glass vessel. Specialist reports for these will be commissioned.

A charcoal sample collected from below the bank in trench 10 in 2008 proved unsuitable for radiocarbon dating due to mineralisation. Charcoal samples were however recovered from the lower ditch fill in trench 10 and from a deposit of disturbed natural on the base of the internal quarry ditch in trench 9. These will be submitted for C14 dating in due course. Internal burnt residue identified on some pottery sherds will also be assessed for radiocarbon dating.

Dr Michael Allen of Allen Environmental Archaeology has already sub-sampled the soil monolith from trench 2 and the report was submitted with the summary report of 2007. His site visit report for Trench 10, the rampart section, is attached below. His recommended tasks a to d (Section 8, page 22) have been commissioned. Tasks c and d apply also to the soil sample from Trench 2 taken in 2007.

It is anticipated that work will begin on the final report in mid 2010.

Site archive

1. Site notebook
2. Photographs
3. Site drawings
4. Drawing Catalogue
5. Context Catalogue
6. This document
7. Assorted finds

Reports and other documents referred to in the text

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Validation

Herefordshire Archaeology operates a validation system for its reports, to provide quality assurance and to comply with Best Value procedures.

This report has been checked for accuracy and clarity of statements of procedure and results.

Dr Keith Ray, County Archaeologist

Credenhill, Herefordshire: Summary of the pottery recovered during the 2008 excavations by C. Jane Evans

Trench	Context	*Pottery*				Fired clay wt. (g)
		LBA	**IA/LIA**	**Roman**	**Trench Pottery Total**	
Tr 4	110	0	0	18	18	55
	012	17	10	131	158	1685
	017	0	0	5	5	5
	021	5	0	2	7	23
	025	0	0	1	1	35
	027	0	0	1	1	0
	039	0	0	2	2	0
	040	8	1	7	16	15
	047	7	13	12	32	80
	052	0	0	2	2	55
	053	0	0	0	0	10
	058	2	0	0	2	0
	060	4	0	3	7	2
	065	0	1	0	1	0
	066	0	24	0	24	0
	069	0	0	1	1	0
	073	0	0	1	1	20
	074	2	0	0	2	0
	075	1	0	0	1	0
	077	1	0	0	1	0
	080	0	0	4	4	90
	108	0	0	1	1	0
	111	0	0	5	5	0
	112	0	1	1	2	0
	US	0	0	17	17	80
Tr 4 Total		**47**	**50**	**214**	**311**	**2155**
Tr 9	006	0	0	3	3	0
	007	0	1	26	27	100
	008	0	3	30	33	0
	US	0	0	2	2	50
Tr 9 Total		**0**	**4**	**61**	**65**	**150**
Tr 10		**0**	**2**	**0**	**2**	**0**
Tr 11		**0**	**1**	**1**	**2**	**5**
Tr 13		**1**	**0**	**0**	**1**	**0**
Total		**48**	**57**	**276**	**381**	**2310**

Table 1 summary of the pottery assemblage by trench and period

The excavations produced 381 sherds of pottery and 2310g of fired clay. Most of the pottery was very fragmentary and abraded. For the purpose of this summary the pottery was sorted into broad chronological categories, based on fabric and form. More detailed analysis, recording precise fabrics and forms, would be required for publication of the results. The pottery is discussed by trench

Trench 4

The largest assemblage by far came from Trench 4. The assemblage included 47 sherds in a coarse quartz tempered fabric, mainly from 012 (17 sherds), but also from 021, 040, 047, 058, 060, 074, 075 and 077. This fabric, previously recorded from the 2007 excavations at Credenhill, most likely dates to the Late Bronze Age or early Iron Age. A similar fabric was recorded from the as yet unpublished excavations at Wellington North (Wellington W1; Robin Jackson, pers. comm.), and has parallels on

other Bronze Age sites in Worcestershire (cf WSM Fabric 5.4). Diagnostic sherds included three upright, flat topped rims (012), and a thin walled, flat topped rim (075). These forms have parallels in the assemblage from Potterne, Wiltshire, dated to the end of the Late Bronze Age (Morris 2000). The date of the Credenhill sherds could extend into the early Iron Age, this being poorly defined in ceramic assemblages of this region. A couple of sherds (eg from 021) had slight burnt residues internally. These might be suitable for C14 dating. Context 112 produced a base sherd in a grog tempered fabric, perforated on the wall just above the base. This is probably also a late Bronze Age vessel, and has parallels at Potterne (Morris 2000, fig. 60.122). Further fragmentary sherds of grog tempered ware were recovered from 012. The assemblage also included two very coarsely tempered sherds of Malvernian ware (from 006 and 017), which might be earlier prehistoric.

A similar quantity of mudstone tempered ware was recovered (Morris 1982, Group D). This has been recorded previously at Credenhill (Tomber 1985, 120), representing 73% of the assemblage. It is also recorded from Dinedor (40%) and Croft Ambrey (11%). The fabric dates broadly from the 5th century BC in to the 1st century AD, but does not continue in use in the Roman period. The only form was a gently everted rim, probably from a late Iron Age jar (sherds from 047 and 065 possibly from the same vessel). One body sherd (from 060) had significant burnt residues that could be submitted for C14 dating, if required.

As with the 2007 fieldwork, most of the Roman pottery came from Trench 4, mainly from 012 (158 sherds). The assemblage predominantly comprised oxidised Severn Valley ware and oxidised sandy wares, along with reduced and oxidised organic tempered Severn Valley ware. The latter included a large storage jar (from 012). Small quantities of Malvernian ware were present, including a rim from a tubby cooking pot (from 112) dating to the 1st or 2nd century (Peacock 1967). The more closely dated forms and fabrics pointed to a 1st century date, perhaps extending in to the early 2nd century. Forms included a Hofheim-type flagon (from 012), with a collared rim and internal cup. This is similar to flagons published from Wroxeter (Evans 2000, fig. 4.49, F1.13) and found widely on military sites up to and including the Flavian period (late 1st century). three fragments of ribbed handle probably come from this, or a similar vessel. Another, flat topped, flagon rim may be from a two-handled flagon, similar to a Wroxeter type dated to the pre-Flavian period (Evans 2000, fig.4.51 F8.1). Other early forms included a flange-rimmed bowl (from 012) in a reduced sandy grey ware, similar to Wroxeter type B17 (Evans 2000, fig 4.68), a broadly Flavian to Trajanic type; and from 047 an out-turned rim from a necked jar, broadly similar to types noted in the military assemblage at Wroxeter (Evans 2000, fig. 4.59 JM7).

Imports included an amphora body/handle fragment, possibly from a *Beltrán* I amphora dating to the late 1st to early 2nd century (Peacock and Williams 1986, Class 17), from 110; and three sherds of 1st century, South Gaulish samian from La Graufesenque. These included an abraded rim from a form 27 cup (from 012).

Only six sherds of Dorset BB1 were present. This ware becomes widely available from *c* AD 120, but elsewhere is present in small quantities in earlier contexts.

Most of the fired clay came from Trench 4, particularly from 012. Some fragments, for example from 052, had clear wattle marks, indicating that they came from a structure, perhaps an oven.

Trench 9
The second largest group came from Trench 9. Once again, this comprised mainly regional coarse wares. Roman forms included a plain-rimmed, Severn Valley ware jar (from 008); the base from a mortarium with coarse rock trituration grits, possibly from Wroxeter or Wilderspool; and a bead-rim jar in organic tempered Severn Valley ware. The four sherds of possible late Iron Age pottery comprised sherds in mudstone tempered ware and grog tempered ware.

Trench 10, Trench 11 and Trench 13
The other trenches produced only a couple of sherds of pottery each. From Trenches 10 and 11 came sherds of mudstone tempered ware, broadly Iron Age in date. Trench 13 produced an undiagnostic sherd of Malvernian ware, dating to the Iron Age or Roman periods.

Conclusions
A brief scan of the pottery from the 2008 excavations paints a similar picture to the finds from the 2007 fieldwork. There is evidence for Late Bronze Age activity, and probably late Iron Age activity. Most evidence dates to the Roman period. The Roman pottery has parallels in the Wroxeter military and early civil assemblages. While firm conclusions cannot be drawn about the nature of Roman activity, in particular whether there is a military influence on the site, the range of forms is much more 'Romanised' than would be expected on, for example, a contemporary rural farmstead.

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Credenhill Hillfort, Hereford, Herefordshire, SO 451 445, (CH 08)

Site visit report: geoarchaeology résumé 2009

by ***Michael J. Allen, PhD, MIFA, FLS, FSA***

version AEA 021.5.01
24th July 2009

for:-

Herefordshire Archaeology

AEA: Allen Environmental Archaeology

Redroof, Green Road, Codford St. Peter, WARMINSTER, Wiltshire, BA12 ONW (Tel: 07828 103454)

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Credenhill Hillfort, Hereford, Herefordshire, SO 451 445, (CH 08)
Site visit report: geoarchaeology résumé 2009

Report based on site visit on 23rd July 2009
Michael J. Allen

PART ONE: GEOARCHAEOLOGY RÉSUMÉ OF 2009 RAMPART TRENCH

1.1: Introduction
The site was visited on 23rd July 2009, and excavation (a continuation of trench 10 excavation in 2008) exposed a section of the tail end of the Iron Age rampart, the rampart scarp, the ditch and counter scarp bank

1.2: Field Geoarchaeology Interpretations

Buried Soils
The tail end of the rampart sealed no full buried soils; only truncated lower portions of the bB survived under the rampart and the counter scarp bank. Better sequences were described and sampled in 2009 (This was agreed with the Lisa Moffet; English Heritage Archaeological Science Advisor).

Turflines
A clear incipient turfline was recorded over the face of the phase 1 rampart and beneath clumped phase 1 rampart material

A dark reddish grey (7.5YR 4/2) apedal stone-free silty clay loam (?slightly organic) with sharp to abrupt boundary over red (2.5YR 4/6) to dark red (2.5YR 3/6) bank material and over light greenish (10GY 7/1) post-depositional surface gley. The upper contact is abrupt to clear suggesting some limited post-depositional biotic re-working and / or moderate to slow, rather than rapid, burial and 'sealing' process.

The comments about the weak incipient 'turfline' recorded between the phase 1 and phase 2 ramparts in 2008 will be reconsidered in light of observations in 2009. This will be added to the report.

Rampart Slumping
The unstable nature of the rampart deposits was clearly demonstrated in the section by the rotational slip of a consolidated portion of the phase 1 rampart that contain clearly formerly horizontal tip and dump lines, that had slipped *en mass* and slip down the incipient turf forming over the face of the rampart and coming to rest near its base.

Stone revetments
Re-examination of the stone revetment against the front edge of the phase 2 rampart stone indicated that these need not be a part of the phase 2 monument.

There is clear slumped material *beneath* the stone revetment and above the phase 1 rampart.
It is not clear if the material behind the revetment is phase 2 construction or has been cut into the phase 2 construction at a later date, or as suspected, this relates to erosion of the phase 2 rampart and revetment at a much later (medieval or post-mediaeval) date relating to the management and recreation in the woodland park. It is considered that the latter is the most likely.

Base of Rampart Deposits
A clear cut with defined layers upslope of it were present below the rampart. Downslope other mixed deposits and other clear layers were present.

1) the 'cut'
A cut or revetment; i.e. contexts truncated and removed or contexts accumulating against a barrier?

The cut has a very sharp, near vertical edge, against which is a clear narrow infill deposit. This suggest the cut for a barrier (stones, horizontal planking or palisade), and some packing material behind it. The barrier cannot have been comprised of high uprights (palisade) as there is no posthole or deeper cut for them. The cut has an indistinct Downslope face suggesting that a revetment has been cut into the slope from the downside, and that the material has later been robbed and removed leaving indistinct and mixed contexts downslope.

2) deposits upslope
The deposits upslope rise at the cut/revetment edge. Although possibly indicating deposits accumulating against the revetment, it seems more likely these are layers of deposit packed in behind the revetment during its construction. A cut for this is uplsope.

3) main deposit downslope
The revetment cuts into, overlaid and related to the 'main' sandy greenish deposit. This main deposit encompasses the base of the slope below the rampart and a large proportion of the higher and upper (tertiary) ditch fills, clearly indicating a post Iron Age date, and more probably a medieval or post-medieval accumulation date.

4) layers downslope above 'main deposit'
Overlying the 'main deposit' is a series of alternating layers which seem to form a arc, against the natural flow or gravity of slope. This suggests material from the ditch and ditch side was thrown up against the base of the slope rather than material washing from upslope. These deposits are however, very late in the sequence and do not relate to the Iron Age phases.

Comment and conclusions
There is a major greenish sandy 'main deposit' which forms at the base of the slope / across the rampart side of the ditch. Stratigraphically this is very much later.

Ditch
The unexcavated basal deposits in the ditch were augered to define the base of the ditch and the ditch profile, and the nature of th4e primary fill deposits.

Augering revealed the profile (data plotted by P. Dorling), and indicated relatively shallow deposits remaining to be excavated.

A layer of stones across the ditch may indicate a recut in the upper ditch making it a very broad 'terrace' rather than ditch and may relate to the medieval or post-medieval activities in the wood. The stones and possible cut are overlain by a 'main' sandy greenish deposit (see above).

The deposits in the four auger points were all inorganic reddish silty clay loams over stone, gleyed marl or weathered shaley deposits. No organic deposits or any evidence of waterlogging was present.

Counter Scarp bank
Beneath the shallow counter scarp bank was a poorly preserved and largely truncated or re-worked soil. An interruption in the soil profile and 'step' were examined. This location had a light greenish grey gley 'halo' was considered to be the location of a former tree. An interpretation agreed with by Niall Sharples

PART TWO: RECOMMENDATIONS AND THOUGHTS ON FURTHER WORK

2.1: Basic Geoarchaeology of the section
To finalise the interpretation of the rampart and ditch section it is suggested that the full section be completed and reproduced and colour washed.

The main contexts should then be discussed combining the geoarchaeology and archaeological information to provide a single interpretative statement which will form the basis of the report and publication narrative.

2.2: Proposed geoarchaeological and palaeo-environmental analytical work
No further soil magnetic susceptibility or soil pollen work is required.

The soil thin sections and soil chemistry should now be considered for analysis.

Bulk samples for charcoal should be processed, the charcoal (and any charred plant remains) identified. The selection for radiocarbon dating can be considered.

2.3: Proposed Geoarchaeological and Palaeo-environmental reporting
The geoarchaeology reporting in Allen 2007a; 2007b; 2008 and 2009 and here should be reported for publication.

The palaeo-environmental evidence and reports can be edited and summarised providing a regional over for publication.

Costing of the above can be provided if and as required.

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24th July 2009

Credenhill Hillfort, Hereford, Herefordshire, SO 451 445, (CH 07 & CH 08)

Geoarchaeology and pollen assessment report

by ***Michael J. Allen, PhD, MIFA, FLS, FSA***

version AEA 021.4.01
July 2009

for:-
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Credenhill Hillfort, Hereford, Herefordshire, SO 451 445, (CH 07 & CH 08)

Geoarchaeology and pollen assessment report

Michael J. Allen

Buried soils beneath the Iron Age hillfort rampart and colluvium/lynchets were examined in two locations. The hillfort rampart (trench 10) was sited at a clear sharp break of slope where inclination of the slope was moderate to steep. Hillwash had accumulated in a lynchet (trench 2) and against the Iron Age rampart (trench 10), and pre Iron Age buried soils were well preserved beneath the lynchet in trench 2 (CH 07) and beneath the rampart and colluvium forming against the rampart in trench 10 (CH 08). These were described and sampled (Allen 2007a; 2007b; 2008).

This report provides : -

Geoarchaeology of the pre-hillfort buried soils (trenches 2 and 10)
Soil magnetic susceptibility of the pre-hillfort buried soils (trenches 2 and 10)
Soil pollen assessment (conducted by Dr. R. Scaife)
Soil micromorphological assessment of the pre-hillfort buried soils (trenches 2 and 10)

Geology topography and soils

The hillfort is located on an outcrop of Devonian lithology and overlooks low-lying land of the Welsh Marshes at the confluence of the Rivers Lugg and Wye. It attains an altitude of over 200m, and the bivalate hillfort encloses about 20ha. The hilltop supports typical argillic brown earths over Devonian silty shale and soft siltsones and occasionally coarse loamy soils over sandstone of the Bromyard Association (Findlay *et al.* 1984) under planted ancient woodland and ancient semi-natural woodland. Much of the mixed woodland currently extant, and being managed, was planted in the 1960s.

The local geology as recorded during excavation is highly variable comprising siltstones with silty clays. Blocks of siltstone strata form striking edges, but the siltstone comprises bands of stone within and over silty clays. The dipping lithic strata can create sharp edges and linear features that may be enhanced by anthropogenic excavation.

GEOARCHAEOLOGY

In trench 2 (CH 07) a buried soil under a lynchet was examined in the interior above the rampart quarry. The profile was examined and described, and although a darker clay-rich horizon occurs at the base of the profile, with obvious clear structure, this is not a full buried soil, but the clay rich horizon (translocated clay) of a former argillic brown earth (brown forest soil).

In trench 10 (CH 08) the rampart is impressive if only because of the varying and striking nature of the bank material. The variation in the local geology gives rise to clearly separable deposition phases. A well-developed buried soil exists beneath the rampart with an astonishing sharp boundary between the two (Figure 2a).

Field records, Sampling and Analytical Methods

The section in trenches 2 and 10 were fully described following standard terminology outlined by Hodgson (1976); in trench 10 the section was described in detail in four separate locations, two of them being selected for sampling. The described profiles are given either within the body of the report or in Appendix 1. In each trench the key sequence comprising the buried soil and overlying rampart or colluvium was sampled as undisturbed sediment in 0.5m long monolith tin for more detailed descriptions and to facilitate sub-sampling in laboratory conditions for pollen and magnetic susceptibility studies. A record of the samples taken is given in Appendix 2.

Sub-samples were from the monoliths (colluvium, rampart and buried soils) for magnetic susceptibility measurement. Weighed 10g air dried samples <2mm were placed in azlon pots and measured using a Bartington MS2 meter coupled to MS2B dual frequency sensor calibrated for 10cc of sample. Three measurements were made at low frequency and three at high frequency, the modal results at high frequency are discussed here and present in Table 1. All results (χ) are expressed in SI units $m^3\ kg^{-1}\ x10^{-6}$. The creation of a magnetic susceptibility profile (Figure 1) can aid the interpretation of the geoarchaeology (Allen 1988; Allen & Macphail 1987). Topsoils (i.e. A horizons) are enhanced as a result of biological fermentation (Allen 1988) and show higher magnetic susceptibility levels than 'subsoils' (i.e. B horizons); it may, therefore, be possible to detect the presence of A horizon versus B horizon material, and to differentiate the buried soil from the colluvium. Here the parent material ('natural') has very low magnetic susceptibility levels (3-5 SI $\times$ $m^3\ kg^{-1}\ x10^{-6}$) and thus does not contribute to the overall enhancement, but its incorporation into colluvium may dilute susceptibility levels.

Buried soils

Trench 2

Beneath a lynchet in trench 2 (CH 07) was the base of clearly defined buried soil (context 005a and 005b). This was described in the field as an argillic brown earth or brown forest soils (Limbrey 1975). Trench sectioned a plateau-edge lynchet on the

interior of the hillfort, at the toe of which was a 'cobbled' path or trackway. In the field a pronounced typical lynchet form was present in section being *c.* 0.9m height and indicating tillage inside the hillfort.

The main lynchet comprised a reddish brown (5YR 4/4) stone-free massive silty ploughwash, with indistinct vague horizontal single-stone strings (context 003). The lower portion of the lynchet represent a former soil (a BB; context 005a) and an ancient argillic horizon (bBt; context 005b) of an argillic brown earth, the A and B horizons of which may have been truncated by activity such as deforestation, clearance and/or tillage or reworked in to the base of the lynchet.

Profile – trench 2

context	***depth***	***Pollen***	***MS***	***SM***	***description***
001	0-7cm				Reddish brown (5YR 4/3) stone-free silt, small moderate blocky structure, common small and medium woody roots, abrupt boundary. Ah horizon; bare soil under deciduous tree cover
002	7-20cm				Reddish brown (5YR 4/4) stone-free silt with weak large-medium block structure, rare small stones, rare fine charcoal flecks, clear wavy boundary A horizon
003	20-55cm				Reddish brown (5YR 4/4) stone-free silt, massive structure, rare indistinct vague horizontal single-stone strings, clear boundary Colluvial B; lynchet
		42cm	42-46		
		46cm	46-50		
		50cm	50-54		
		54cm			
005a	55-67cm	58cm	54-58		Reddish brown (5YR 4/3) stone-free silty clay loam, with a slight polish on surface, weak large prismatic structure, strings, clear boundary Transition B2/bB
		62cm	58-62		
		66cm	62-66		
			66-70	64-74cm	
005b	67-88cm	70cm	70-74		Reddish brown (5YR 4/3) stone-free very hard silty clay with strong medium blocky possibly columnar structure, becoming clearer with depth, clear surface polish, clear wavy boundary. bB (?t)
		74cm	74-78		
		78cm	78-82		
		82cm	82-84		
		86cm		80-90cm	
006	88cm +	90cm	88-90		Dark reddish brown (2/5YR 3/4) massive clay Rw – R weathered regolith/parent material

0 in monolith = 40 cm. MS = magnetic susceptibility; SM = soil micromorphology

Overlying the toe of the lynchet, and sealing the 'cobbled' trackway (context 019), was a slope wash; a reddish brown (5Y 4/3) silt loam with medium to large weak blocky structure (context 003). It was differentiated by slightly different chroma, weak structure and the absence of a Bt horizon, but was not archaeologically differentiated or allocated a separate context number and is 'invisible' on the field drawings. Nevertheless this deposit represents slopewash, not dissimilar to the lynchet ploughwash, but that post-dates both the main lynchet formation and the trackway.

The presence of the base of a former argillic brown earth at the base of the lynchet is significant, as if correct. This indicates the presence of a former deciduous woodland cover over the hilltop prior to the construction and occupation of the hillfort. We can assume that this woodland was cleared either before, or for, the hillfort. The woodland on the site at

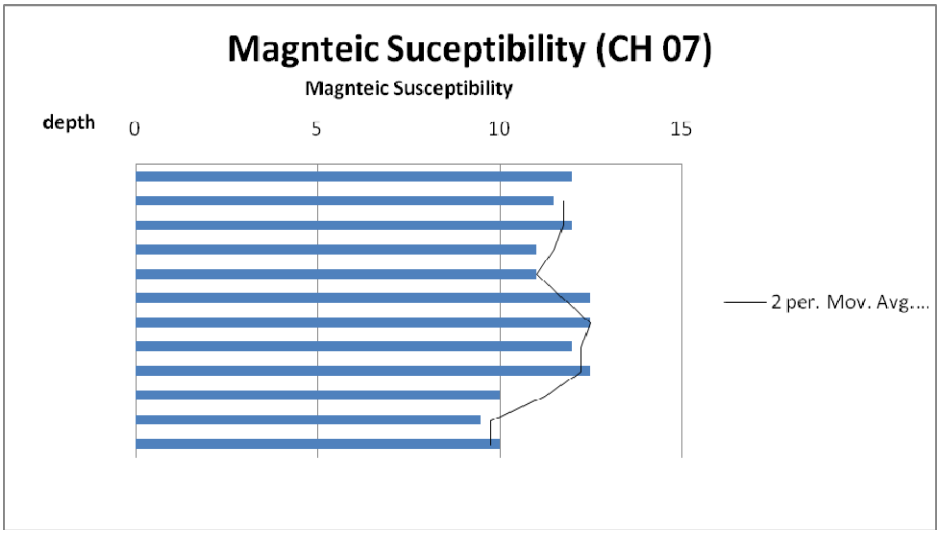

Figure 1. Magnetic susceptibility profile through the colluvium and buried soil in trench 2.

present, although classified in part as ancient woodland is, in archaeological terms, recent; i.e. late medieval or post medieval, and probably planted for deer hunting. It is just possible that the argillic horizon relates to the more recent (i.e. medieval to modern) woodland phases. Soil micromorphological analysis of the thin sections would help define this.

Context	*depth*	*Deposit type*	*LF*	*HF*	$\chi^{fd\%}$ *(LF-HF/LF) × 100*	χ^{fd} *mass specific dependency ((LF-HF)/mass)/ 10*
003	42-46cm	Colluvial B	10	8	25.0	2.0
	46-50cm		9.5	7.5	26.0	2.0
	50-54cm		10	8.5	17.6	1.5
005a	54-58cm	Transition B2/bB	12.5	11.5	8.7	1.0
	58-62cm		12	11	9.1	1.0
	62-66cm		12.5	10.5	19.0	2.0
	66-70cm		12.5	11	13.6	1.5
005b	70-74cm	bB (?t)	11	9.5	15.8	1.5

	74-78cm		11	9.5	15.8	1.5
	78-82cm		12	10.5	14.3	1.5
	82-86cm		11.5	9.5	21.1	1.5
006	88-90cm	Rw - R	12	11	9.1	1.0

Table 1. Magnetic susceptibility (χ) from the colluvium and buried soil in trench 2, expressed in SI units $m^3\ kg^{-1}\ x10^{-6}$

Magnetic susceptibility measurements (χ ; Table **) show low reality low results with limited variation (9.5-12.5). The colluvial B horizon of the lynchet ploughwash gave an average of 9.8, while the base of the lynchet and buried B horizon shows slight enhancement (ave 14.4). The argillic horizon, shows suppressed levels (ave 8.9) over the weathered parent material (12 SI $m^3\ kg^{-1}\ x10^{-6}$). The magnetic susceptibility profile (Figure 1), does not display significant enhancement; the former topsoil which we would expect to have been enhanced has clearly been lost. Results do indicate, however, that the lynchet is primary comprised of B horizon material eroded from the interior, and this compares well with results from the lynchet at Bourne Valley, Eastbourne, East Sussex (Allen 2007c).

Trench 10

The rampart is impressive if only because of the varying and striking nature of the bank material. The variation in the local geology gives rise to clearly separable deposition phases. A well-developed buried soil exists beneath the rampart with an astonishing sharp boundary between the two (Figure 2a). The section was described in detail in four separate locations, two of them being selected for sampling. The profile descriptions given in Appendix 1.

Figure 2a. Kubiena sample 1 (K1), sampling the sharp junction of the buried soil under the centre of the rampart at profile 2 and,
2b) Monolith 2 (M2), and kubiena samples K2 and K3 sampling the full well-developed buried soil at profile 1

The pre buried soil beneath the phase 1 bank and colluvium accumulating against it (profile1; see Appendix 1) was a well-developed typical brown earth or colluvial brown earth soil with clear cohesive fragments of charcoal low in the soil, in the bB horizon (74-105cm in profile 1), indicating former, pre-Iron Age activity. These soils may also have a colluvial elements (soil micromorphology may determine this), which may relate to these burning activities and to destabilisation of the local steep slopes, perhaps relating to pre-Iron Age clearance activities. The fact these charcoals relatively large and well don the bB horizon may suggest some antiquity possibly even of Mesolithic or Neolithic age.

Profile 1: soil under the edge of the rampart / colluvial deposits against the bank – monolith M2 and kubiena samples K1 and K2

context	***depth 1***	***depth 2***	***Pollen***	***MS***	***SM***	***description***
020	0-21					Reddish brown (2.5YR 4/3) silty clay with weak small blocky structure, rare small and medium stones, common medium fleshy and wood roots, occasional 'dustings' of charcoal, clear wavy boundary Upper hillwash against rampart
020	21-61cm	-0.5cm	0cm		0-12cm K1	Reddish brown (5YR 4/4) stone-free moist plastic silty clay weak very large (to 25cm) blocky structure, some fine fleshy roots, rare stones and rare fine charcoal flecks towards base of context, abrupt smooth boundary ?Colluvial / bank
051	61-74cm	0.5-11cm	2cm **4cm** 6cm **8cm** 10cm	1-4 4-8 8-12		Weak red to reddish brown/dark reddish brown (5YR 4/3-2) stone-free silty clay loam, dry crumbly, but very weak large blocky structure, rare fine charcoal flecks, smooth clear boundary bAh
051/052	74-104cm	11-15cm	12cm 14cm	12-16		Transition A/B
055		15-50cm	16cm 20cm 24cm 28cm **32cm** 36cm 40cm 44cm 48cm	16-20 20-24 24-28 28-32 32-36 36-40 40-44 44-48	29-41cm K2	Brown (7.5YR 4/3) loam – silty clay loam, weak structure, almost stone-free (rare small pieces), rare small charcoal pieces to 5mm, at 58cm in profile brown (7.5YR 4/3), but in the field give a greenish hue, large, diffuse mottles [possible charred branch in this] bB (/Rw)
055	104-118+cm					As above but with reddish hues; dark reddish brown (7YR 3/3) silty clay (takes finger print) with reddish and greenish mottles, some fine Mn mottles R/Rw

The contact of the buried soil (051) with the rampart is abrupt to sharp showing no evidence of biotic reworking, except where the soils is buried by colluvium against

the rampart (profile 1). Boundary here is clear to abrupt possibly indicating limited biotic reworking. Under the rampart the contact is so sharp as to indicate little disruption of the surface and no evidence of trampling, relating to the construction activity. Post-depositional surface gleying on the soil

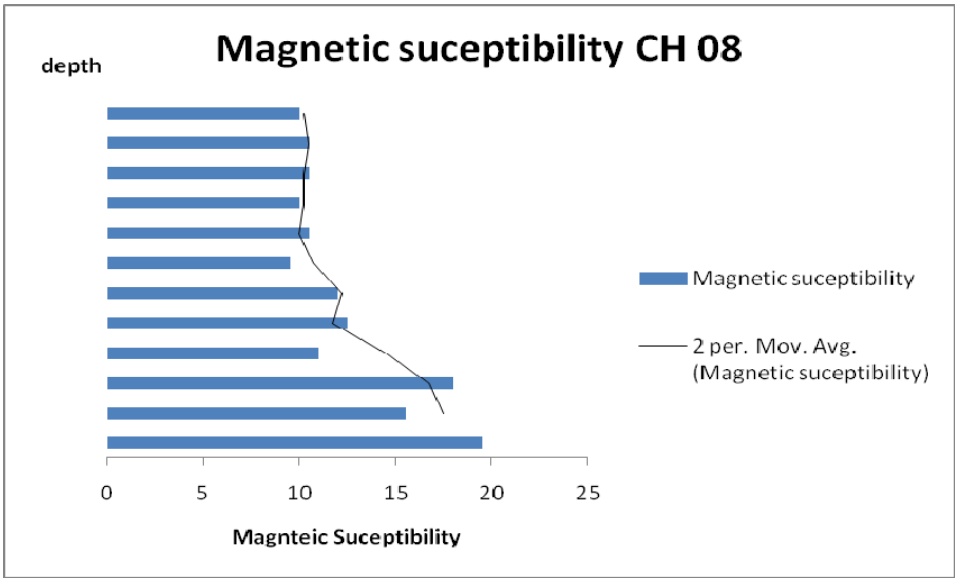

Figure 3. Magnetic susceptibility profile through the buried soil (profile 1) in trench 10.

beneath the rampart bank (profile 2b) is common under these extreme burial conditions and indicates accentuation of the contact by post-depositional changes. The distinct nature of the A?h, picked out by post-depositional gleying, tends to suggest an established grassland, and sharp and smooth nature of the contact between it and the rampart, and lack of any other indurations seem to support this.

Context	*depth*	*Deposit type*	*LF*	*LF*	*HF*	*χfd% (LF-HF/LF) × 100*	*χfd mass specific dependency ((LF-HF)/mass)/ 10*
051	1-4cm	A	10	9	9	11	1.0
	4-8cm		10.5	10	9	16.6	1.5
	8-12cm		10.5	9	10	5	0.5
051/055	12-16cm	A/B	10	9	9	11.0	1.0
055	16-20cm	B – Rw	10.5	10	8.5	23.5	2.0
	20-24cm		9.5	9	8	18.8	1.5
	24-28cm		12	11	10	20.0	2.0
	28-32cm		12.5	12	11	13.6	1.5
	32-36cm		11	10	9.5	16.7	1.5
	36-40cm		18	17	17	5.9	1.0

	40-44cm		15.5	15	14	10.7	1.5
	44-48cm	Rw	19.5	19	19	2.6	0.5

Table 2. Magnetic susceptibility (χ) from the buried soil (profile 1) in trench 10, expressed in SI units m^3 kg^{-1} $x10^{-6}$

Magnetic susceptibility (χ) measurements of the buried soil under the edge of the rampart (profile 1) show limited and suppressed magnetic susceptibility enhancement – as seen in trench 2. The results (Figure 3), show values of 10.3 SI units m^3 kg^{-1} $x10^{-6}$ and susceptibility rises down through the profile with the Rw being higher her (*c.* 17 SI units m^3 kg^{-1} $x10^{-6}$). The magnetic susceptibility profile here is not helpful in interpreting the sequence, and we suspect that post-burial changes and suppressed and modified susceptibility levels (cf. Allen & Macphail 1987).

Lying directly on the buried soil (051) under the centre of the rampart was deposit of mixed A horizon (topsoil) and dumped material. Sat the contact (i.e. on the surface of the buried soil) was a 2mm thick band of pure fine comminuted charcoal which extended in the section for 250mm (profile 3; Appendix 1). This represents burning events possibly relating to the first phase on construction, and again the abrupt to sharp boundaries reinforces the lack of disturbance of the soil prior to deposition of the rampart bank

Hillwash

There is evidence of destabilisation of the hillslopes and colluviation prior to the Iron Age activity as evidence in the colluvial brown earths beneath the rampart in trench 10. Clear post Iron Age colluviation is evidence by the creation of fields and lynchets in the interior of the hillfort (trench 2). These events have largely been discussed above.

POLLEN ANALYSIS

Pollen analysis of the buried soils

Rob Scaife

Six samples were considered for rapid pollen assessment. Four samples from the buried soil were examined to see if sub-fossil pollen and spores are present and thus, potential for reconstructing the past vegetation of the site. These were taken from the base of the overlying colluvial B (50cm) and the buried B horizon (62cm) in trench 2, and the bA\B horizon (4cm) and lower weather regolith (bB\C) at 32cm in trench 10; the sample of the buried possible Bt or the argilic brown earth (78cm) was not assessed. Even though large samples (for pollen analysis) were used, the results were disappointing with only a very small number of pollen grains present and substantial numbers of bracken spores at 50cm. This indicates very poor pollen preserving conditions with differential preservation and

Trench 2 (CH07)

@ 50cm	colluvial B	✓assessed
@ 62cm	B2\bB	✓assessed
@ 78cm	bB(?t)	

Trench 10 (CH08)

@ 4cm	bA\B	✓assessed
@ 8cm	bA\B	
@ 32cm	bB\w	✓assessed

Preparation

Pollen was prepared using standard techniques along with micromesh sieving to aid removal of the mineral fraction (Moore and Webb 1978; Moore *et al.* 1991). Samples of 3ml volume were used. Examination used an Olympus biological research microscope fitted with Leitz optics and phase contrast facility. Markers (*Lycopodium*) were added to the measured volume of sample (Stockmarr 1971). Taxonomy follows Bennett *et al.* (1994) for pollen and Stace (1991). Pollen was too spares to enable either pollen counts or calculations of absolute pollen numbers. Of the 4 samples only those at 4cm (A\B) and at 32cm (B\Rw) had very occasional pollen grains.

Aims

A series of site-specific and wider palaeo-environmental questions were addressed of the pollen:-

- What is the pre-Iron Age rampart local vegetation history?
- Is there evidence of a former woodland, as tentatively suggested, for the sequence in trench 2 (Allen 2007a)?
- Is there evidence of clearance and/or cultivation (trench 10) in the pre-Iron Age hillfort phase associated with the charcoal low down in the buried soil and the colluvial brown earth?
- What was the immediate pre-burial local environment? Is this open long-established grassland as indicated by soil description?
- Is there evidence of immediate pre-rampart occupation, i.e., cultivation or pasture?

The pollen data

It was not possible to obtain pollen counts because numbers of grains present are too small to obtain meaningful counts. Scanning of slides produced a small number of grains I the buried 'bA\B' at 4cm comprising Poaceae (5), *Corylus avellana* type (1), cf. *Quercus* (1). There were moderate numbers of *Pteridium aquilinum* and a single *Dryopteris* type. The 'B\Rw' horizon sample contained substantial numbers of spores of *Pteridium aquilinum* with individual occurrences of *Quercus*, Poaceae and *Plantago lanceolata*

Because of the very small numbers of pollen grains which are preserved (badly), it is not possible to provide any real palaeovegetation interpretation. The dominance of

bracken spores illustrates that the preserving environment is poor, probably through faunal action (earthworms) in a neutral or basic soil (Dimbleby 1985). Bracken probably grew on the site at some time in the development of the soil.

Conclusion and suggestion for further analysis
There is almost no pollen present in this buried soil and it has not been possible to obtain even standard assessment counts of 100-150 grains. This is in spite of rigorous extraction/concentration techniques. Consequently, no further analysis seems plausible unless other profiles are sampled which may have better preservation. Although such variations can occur, two soil profiles have been examined, one of each side of the hillfort.

SOIL MCROMORPHOLOGY ASSESSMENT

The analysis of the five soil micromorphology slides from buried soil in trench 2m, and the buried soils (profile 1) in trench 10 have the potential to aid in clarifying and confirming interpretations presented above. Questions which can be addressed of the samples are as follows.

Trench 2

- Is this a colluvial argillic brown earth (i.e. two soil welded together) or is this a single argillic brown earth profile?
- Is there evidence of former truncation of an earlier soil profile?
- What is the cause of this truncation?
- What is the level of human activity coeval with the hillfort occupation?
- What type of anthropogenic activity can be identified; burning, stabling, buildings, bone working etc?
- Is there evidence of animal pasturage and or tillage?
- Is the upper profile an A and B horizon or a colluvial soil?

Trench 10

- Is the buried soil well-developed colluvial brown earth supporting grassland? [K1, K2 & K3]
- Is there evidence of a former, disrupted, argillic brown earth (woodland soil) [K2]?, and is that due to deforestation and/or cultivation (colluviation and agricutans)? [K2]
- Was the soil de-durfed or truncated prior to rampart construction? [K1 & K3]

- Is there evidence of pre-hillfort human activity – egg, animal trampling and pasturage, cultivation, burning and other anthropogenic activities?

PALAEO-ENVIRONMENTAL SUMMARY

Long term Holocene woodland allowed an argillic brown earth (brown forest soil) to form over some of the hilltop, probably largely on the hilltop plateau. It seems likely that there was very early disturbance of the Holocene woodland (evidenced by charcoal low down in the bB horizon – trench 10, profile 1), and resulting in the destabilisation of the slopes and colluviation. The buried soil (trench 10) seems to be a colluvial brown earth that formed prior to the construction of the Iron Age rampart bank. Wider more extensive clearance occurred prior to, and not for the hillfort construction. Examination of the buried soil seems to indicate the presence of established grassland (to be confirmed by soil micromorphology) under the rampart bank (trench 10). Clearance of the woodland pre-dates the hillfort and may relate to other prehistoric activities on the hilltop. Construction ensued, and post-hillfort use there is clear evidence of tillage and destabilisation of slopes on the interior.

1. Argillic brown earth (woodland soil) develops (trench 2)

2. Coherent charcoal deposits low down within B horizon of the buried soil suggest activity at some considerable time prior to the construction of the Iron Age rampart [trench 10; AEA profile 1].

3. We can postulate that this activity (??Neolithic) may have been associated with deforestation and/or cultivation resulting in local colluviation creating a minor plateau-edge deposit (*sensu* Bell 1981) [trench 10; AEA profile 1].

4. This activity, and ensuing colluviation disrupted the former soil removing clear evidence of an argillic brown earth observed previously in trench 2 or that the argillic brown earth (brown forest soil) did not occur on the eastern side [trench 10; AEA profile 1]

5. Gentle colluviation upslope and long-term grassland and the formation of a deep-well developed grassland soil – typical (colluvial) brown earth [trench 10; AEA profile 1 and 2]

6a. Quarry pits were opened and the rampart was built directly on the grassland. Deposition was large enough to prevent virtually all biotic re-working (*contra* that under, for instance, Balksbury, Hampshire, Macphail 1986; 1995) [AEA profile 3]. Reduction of the organic (grassland Ah) horizon lead to grey colours (with bluish hues) at this contact – as also seen in the buried grassland soil beneath Silbury Hill (Allen pers. obs.).

6b. On the downslope side near the break in slope some disruption of the grassland surface did occur [AEA profile 4]. A clear charcoal lens lies above this disruption and in the lowest part of the bank provides an ideal opportunity to obtain a radiocarbon assay for this construction phase.

7. The bank was constructed initially primarily with reddish brown silty clays and was initially topped out with the stony dusky red (purple) marl. We assume this represent the reverse of the geological stratigraphy as encountered in the quarry pits [trench 10; AEA profile 1and 2].

8. A limited hiatus is indicated by both a slurry deposit indicating rainwash of the last marl deposit [AEA profile1], and by the onset of a second phase of rampart construction. The latter is marked with a thin crumbly unconsolidated deposit of soil material (either B horizon or weathered parent material, Rw) [AEA profile 3], possibly indicating the extension or, or opening a new, quarry pit. The separation between these two 'phases' may be only hours or days, but could be conceivably be up to a couple of generations.

9. The remaining rampart and the stone at its frontage are emplaced.

10. Colluviation against the inside of the rampart

11. Cultivation of the hilltop in the interior of the hillfort result in lynchet formation and colluvial deposits forming at the field edge and preserving the Bt horizon locally
(trench 2)

12. Re-forrestation for recreation – woodland management

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APPENDIX ONE

GEOARCHAEOLOGY DESCRIPTIONS

Profile 1
Profile sampled in monolith – description from top of step 40cm upslope from datum (orange pegs)

context	*depth 1*	*depth 2*	*Pollen*	*MS*	*SM*	*description*
020	0-21					Reddish brown (2.5YR 4/3) silty clay with weak small blocky structure, rare small and medium stones, common medium fleshy and wood roots, occasional 'dustings' of charcoal, clear wavy boundary Upper hillwash against rampart
020	21-61cm	-0.5cm	0cm		0-12cm K1	Reddish brown (5YR 4/4) stone-free moist plastic silty clay weak very large (to 25cm) blocky structure, some fine fleshy roots, rare stones and rare fine charcoal flecks towards base of context, abrupt smooth boundary ?Colluvial / bank
051	61-74cm	0.5-11cm	2cm **4cm** 6cm **8cm** 10cm	1-4 4-8 8-12		Weak red to reddish brown/dark reddish brown (5YR 4/3-2) stone-free silty clay loam, dry crumbly, but very weak large blocky structure, rare fine charcoal flecks, smooth clear boundary bAh
051/052	74-104cm	11-15cm	12cm 14cm	12-16		Transition A/B
055		15-50cm	16cm 20cm 24cm 28cm **32cm** 36cm 40cm 44cm 48cm	16-20 20-24 24-28 28-32 32-36 36-40 40-44 44-48	29-41cm K2	Brown (7.5YR 4/3) loam – silty clay loam, weak structure, almost stone-free (rare small pieces), rare small charcoal pieces to 5mm, at 58cm in profile brown (7.5YR 4/3), but in the field give a greenish hue, large, diffuse mottles [possible charred branch in this] bB (/Rw)
055	104-118+cm					As above but with reddish hues; dark reddish brown (7YR 3/3) silty clay (takes finger print) with reddish and greenish mottles, some fine Mn mottles R/Rw

Interpretation
Well-developed typical brown earth with clear cohesive charcoal fragments in the bB horizon indicating former (pre-Iron Age) activity ... possibly ?even Neolithic.

The surface shows no clear turf, but the boundary is not sharp suggesting some biotic reworking on the edge of the bank or even hillwash against the bank.

Profile 2a buried soil beneath phase 1 bank 0= on step 2.45m downslope from datums

context	***depth***	***description***
	0-11cm	Bank
	11-25cm	Brown (7.5YR 4/4) stone-free, silty fine sand loam, some 'inclusions' of reddish brown (2.5YR 4.3) silty clay, and patches of light olive green clay, sharp boundary Bank
	25-31cm	As above, mixed with common large inclusion of olive yellow (2.5Y 6/6) silty clay, sharp boundary Bank
	31-34cm	Dark reddish grey (5Y 4/4) silty clay, many fine mottles of orange – red, no sturtcure, abrupt boundary Slurry wash
	34-52cm	Dark red to dark reddish brown (2.5YR 3/2 – 3/3) silty clay with rotted shale, marl, (white, yellow and olive patches), Dumped bank deposit
025, 026, 029	52-91cm	Various bank fills
	91-97cm	Reddish brown (2.5YR 4/4) clay sharp smooth boundary Dumped bank deposits
051	97-98cm	Reddish grey (5YR 5/2) smooth silty stone-free, clear boundary bAh
052	98-132cm	Brown (7.5YR 4/3) loam – silty clay loam, weak structure, almost stone-free (rare small pieces), rare small charcoal pieces to 5mm, at 58cm in profile brown (7.5YR 4/3), but in the field give a greenish hue, large, diffuse mottles bB
052	132-140cm	transition
052	140-162cm	As above but with reddish hues; dark reddish brown (7YR 3/3) silty clay (takes finger print) with reddish and greenish mottles, bRw

Profile 2b – repeat of 2a but at 140cm downslope

context	***depth***	***SM***	***description***
049	99-119cm		Reddish brown (2.5YR 4/4) clay sharp smooth boundary, but with some squared shallow inverted involution – very little biotic reworking Dumped bank deposit
051	119-120cm	K3	Greyish brown (2.5Y 5/2) – has bluish hue int erh field – silty clay either gley surface horizon or bAh
051	120-129cm		Reddish brown (5Y 4/3) structureless silty clay, abrupt boundary bA
052	128-140cm		Brown (7.5YR 4/3) to dark reddish brown (7YR 3/3) silty clay loam (takes finger print) weak structure, almost stone-free (rare small pieces),with reddish and greenish mottles, some fine Mn mottles bB

SM = soil micromorphology sample

Interpretation (profiles 2a & 2b)
The buried soils (2a, 2b and1) are well-developed and may have a colluvila element. If so this may relate to burning and activities seen in profile 1 @ 94-118cm destabilising the local steeper slopes

The rapid burial of the grassland (?truncated) surface with almost immediate cessation of *all* biotic activity has resulted in little disruption of the surface – so no evidence of trampling – but see the boundary form in profile 3

Profile 3 – top of step and 1.15m upslope of plastic datum peg

context	***depth***	***description***
050	125-149cm	Highly mixed soil material and clay, reddish brown and yellowish olive clays, abrupt boundary Bank deposit
051	149-154cm	Brown (7.5YR 4/3) silty clay @ 151cm - 2mm thick 260mm long charcoal band Mixed Ah material
051	154-162+cm	Reddish brown 97.5YR 4/3) silty clay, massive plastic Ah material Ah

Interpretation:
The charcoal lens represents the initial phase of construction

APPENDIX TWO
INVENTORY of SAMPLES

Monoliths (0.5m long)

CH07 1: Monolith (monolith 1) through colluviums and buried soil (contexts 003, 005a, 005b 006); described and sub-sampled

A series of 13 pollen sub-samples taken and 13 samples for magnetic susceptibility

CH08 1: Monolith (monolith 2) through rampart slip/colluvium (contexts 020, -51 and 052); described and sub-sampled

A series of 17 pollen sub-samples taken and 12 samples for magnetic susceptibility

Kubiena samples (soil micromorphology)

CH07 K1: contexts 005a/005b (46-74cm; Bt/bB and bB): - soil thin section slide manufactured – retained by AEA

CH07 K2 contexts 005b/006 (80-90cm; B and Rw): - soil thin section slide manufactured – retained by AEA

CH08 K1: contexts 020/051 (0-10cm; rampart bA): - soil thin section slide manufactured – retained by AEA

a kubiena tin sampling the upper 12cm of that sampled in monolith 2 and encompassing; i) the base of the rampart, ii) the contact with the old land surface and potential turf horizon, iii) the A and the top of B horizon of the soil.

CH08 K2: context 052 (40-50cm; bB/Rw): - soil thin section slide manufactured – retained by AEA

a kubiena tin sampling a portion represented by 29-41cm in monolith 2 and encompassing; the B horizon, the area of burning low in the B horizon and, the top of the weathered parent material, Rw

CH08 K3: contexts: 020/051 (rampart / burnt soil bAh):- soil thin section slide manufactured – retained by AEA

a kubiena tin sampling the strikingly sharp boundary of the bank material and the AH of the buried soil under the centre of the rampart

Soil chemistry

CH 07	Context 005a	B2/bB
CH 07	Context 005b	bB
CH 07	Context 006	Rw
CH 08	Context 051	bA?h
CH 08	Context 051/055	A/B
CH 08	Context 055	bB