

Archaeological Excavations at Tyn y Coed Earthworks, Dinas Powys, South Glamorgan, June/July 2013



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Summary

An archaeological excavation was undertaken on Tyn y Coed Earthworks (GM024) near Dinas Powys, South Glamorgan in June and July 2013. Site works were preceded by topographic and geophysical survey and trial excavation undertaken in 2011 and 2012 (Seaman 2011, Seaman and Lane 2012; 2013a; 2013b). Excavation focused upon three areas: bank A, bank B, and the area defined by bank B. Seven trenches were opened; one across bank A (trench 7), two across bank B (trenches 9 and 10) and four in the area defined by bank B (trenches 11, 12, 13, and 14). Trench 7 was targeted at recovering evidence for the date and function of bank B. Limited artifactual evidence was recovered, but two radiocarbon dates on hazel charcoal from the base of the ditch suggest that the ditch may have been cut in the seventh century AD. Trench 9 and 10 were targeted at recovering evidence for the date and function of bank B. Some dating evidence, including two radiocarbon dates and sherds of samian ware pottery, were recovered from trench 9, but it is not possible to draw firm conclusions. The terminal of bank B was identified in trench 10, showing that the earthwork did not form a complete enclosure. Trenches 11 to 14 were targeted at identifying evidence for activity/occupation within the area defined by bank B. No archaeological deposits were encountered and it is likely that evidence has been destroyed by post-medieval agriculture. The work forms part of a wider research project focused on the early medieval occupation at the nearby Dinas Powys promontory fort. It is recommended that further survey and limited excavation are undertaken in order to elucidate the date and function of the Tyn y Coed earthworks.

Introduction

The results of the third season of research excavation at Tyn y Coed earthworks are reported and some initial interpretations concerning date and function of the earthworks are presented. This report forms part of the wider 'Dinas Powys Revisited' project (for earlier reports see Seaman and Lane 2012, 2013a and 2013b; Seaman 2011). The project was conducted by the authors with the assistance of students from Cardiff University. The excavation was undertaken between June 23rd and July 21st 2013. Permission to undertake the work was granted by the Woodland Trust and Cadw. We are extremely grateful to Mr and Mrs Watts, John Mitchell (Woodland Trust), Jonathan Berry and Louise Mees (Cadw), Cambrian Archaeological Association, Medieval Settlement Research Group, Tudur Davies, Matt Austin, Leo Thomas, Belle Nielson, Nick Wells, Tim Young, Sue Virgo, Nicola Emmerson, Peter Butterworth, and the Cardiff University undergraduate students.

Site Location, Topography and Geology

Tyn y Coed earthworks (ST1494972015) are located on a prominent whale-back ridge between the valley of the River Cadoxton and a narrow gorge known as the 'Cwm George' in the eastern Vale of Glamorgan 5.5km west of Cardiff. The closest settlement is Dinas Powys village but the monuments actually lie within in the parish of the Michaelston le Pit (see Figure 1). The earthworks consist of the north-west and north-east sides of a possible enclosure with dimensions of at least 60m north-east by 50m south-west. The notional enclosure is delineated by a L-shaped bank (known as Bank B) fronted by a ditch with a second straight-sided rampart and ditch on the north-west side (known as Bank A) with an

'entrance' gap at its north-east end and a further section of bank and ditch beyond (see Figure 2; Seaman and Lane 2013b). The 'enclosure', a scheduled ancient monument (GM024), lies at c. 53 metres OD at the southern end of a Carboniferous limestone whale back ridge, overlain by thin soils of the Worcester 431 association. The 'enclosure' is 140 metres south of a small multivallate promontory fort known as Cwm George Camp or Dinas Powys fort (ST1483072245, GM023) (see Figure 3). The hillfort and Tyn y Coed earthworks are currently densely wooded, but the 1842 Tithe map (Glamorgan Records Office P43/1 & 2), an estate map of the 1750s (Glamorgan Records Office DF/26), aerial photography, and early editions of Ordnance Survey show that parts of the hilltop were open and in agricultural use as recently as the 1940s.

Aims and Objectives

Dinas Powys hillfort (also known as 'Cwm George Camp') is the richest, best preserved, and most fully excavated early medieval secular settlement in Wales (Alcock 1963; Seaman 2013). The hillfort was extensively excavated by Leslie Alcock in the late 1950s. The subsequent publication became a seminal work of early medieval archaeology (Alcock 1963) and Dinas Powys is often quoted as the classic type site of the early medieval west. Nevertheless, major re-examination of the Dinas Powys finds assemblage and chronology undertaken during the 1980s and 1990s (Edwards and Lane 1988; Graham-Campbell 1991; Campbell 1991; Dark 1993) as well as a fuller understanding of the socio-political geography of early medieval south-east Wales arising from analysis of the Llandaff Charters and excavations at the neighbouring ecclesiastical centre at Llandough, has the potential to significantly transform our understanding of the site and its historic context (Seaman 2013). The 'Dinas Powys Revisited' project aims therefore to revisit Alcock's findings in the light of these developments. Our primary aims are to establish an absolute chronology for the site and establish socio-political and economic contexts for its unique early medieval occupation. The Tyn y Coed earthworks lie 140m south of Dinas Powys hillfort, but their function and relationship with the site are poorly understood. Thus one of the major objectives of the project is focusing upon ascertaining the date and function of the Tyn y Coed earthworks. Specific aims are to establish their:

1. Form and extent;
2. Date and chronology;
3. Function and interpretation;
4. Relationship, if any, with the hillfort.

To achieve these aims the project will:

1. Undertake geophysical and topographical survey within and around the earthworks;
2. Undertake targeted excavations on the basis of the aforementioned surveys;
3. Undertake an excavation across the earthworks.

Methodology

The 2013 excavations followed four small campaigns of topographic and geophysical survey and limited trial excavation undertaken in 2011 and 2012. During June and July 2013 six trenches were opened, trenches 7, 9, 10, 11, 12, 13, 14 (see Figure 4). The trench positions were determined by offsetting from known points using a Leica total station and Trimble dGPS survey system. All excavation was undertaken by hand and 100% of all deposits were dry sieved through a 10mm mesh. Archaeological deposits were recorded using pro forma record sheets with a unique numbering system for individual contexts. All archaeological features and deposits were planned at a scale of 1:20 with sections drawn at 1:10. All principal strata and features were related to the Ordnance Survey datum. A full photographic record of the investigations and individual features was maintained with digital images. At the completion of site works exposed archaeological strata were protected by a geotextile and all trenches were backfilled by hand. The weather was generally dry and bright throughout the duration of the fieldwork.

Results

Trench 7

Trench 7 was positioned across 'Bank A' immediately to the north-east of trench 5 which was dug in 2012 (See Figure 4 and 5). The aim of trench 7 was to excavate a larger sample of the bank and ditch in order to recover evidence for the date and function of the earthwork. The deposits identified were broadly similar to those observed in 1958 and 2012, but the larger trench allowed a more detailed understanding of the nature of the construction and sequence of the earthwork to be established.

The latest layer consisted of a highly bioturbated 0.30m thick humic topsoil (700) which overlay the ditch and bank deposits. The bank was 7.5m wide and survived to a height of 1.50m. A lateral section cut across the bank deposits revealed the construction sequence very clearly (see Figure 6). The bank, which had been constructed on top of a buried soil (712), consisted of four distinct dumps of material (715, 707, 714 and 713) which had been quarried from the adjacent ditch. It is clear from the sequence of the deposits that this part of the bank had been constructed from north-east to south-west. The upper layers of the bank were highly bioturbated, but patches of limestone rubble (704) survived in places and may represent remains of a rubble capping. On the southern side of the bank was a large spread of limestone rubble (705) (See Figure 7). This had been observed in 2012 (504) and was interpreted as deriving from the downward movement of the capping material of the bank and/or stone clearance from ground to the south of the earthwork. It is now clear, however, that although some rubble may have slipped from the steep sides of the bank this deposit must represent a deliberately laid surface to the rear of the rampart. Interpretation is speculative, but this may represent a rough path or trackway running along the rear of the rampart.

After the transverse section had been cleaned and recorded a 2m section was cut lengthways across the baulk to expose a complete section across the rampart. The sequence of deposits that was revealed in section was confirmed by excavation in plan, and as with the previous excavations no evidence of revetment, post-holes or timber slots associated with the rampart was identified (see Figure 8).

The U-shaped rock-cut ditch was 4.85m wide and cut to a depth of 1.22m below the current ground surface. There appears to have been no berm between the bank and the ditch. The sequence of deposits in the ditch was broadly similar to those observed in 1958 and 2012 (see Figure 9). Below the bioturbated topsoil (700) was a thick layer of clean mid-reddish brown clayey silt (702) which had accumulated from the north, most likely as a result of agricultural processes being undertaken in the area between the earthworks and the hillfort to the north. Two small sherds of unidentifiable, but certainly post-medieval, pottery were recovered from this layer. On the southern side of the ditch (702) overlay a mid-orangey brown clay with very frequent medium to large limestone blocks (703). The stones are clearly derived from the adjacent bank, and the deposit may represent a discrete episode of bank collapse associated with a tree throw which was evident on the surface of the bank immediately above and to the south of (703). (703) overlay two silty clay deposits, (708) and (709), which were similar in composition to (702) and had accumulated from the north. (709) overlay a deep and compact rubble and silty clay layer (710) which had accumulated from the south and was clearly derived from the collapse of the adjacent rampart. The stones were generally small and are unlikely to have derived from a revetment. (710) lay above the 0.25m primary fill (711).

Table 1: Trench 7 finds by context.

Context	Material	Number	Weight (g)	Comments	Date
700	Copper alloy	12	70	Pin-fire and centre-fire shotgun cartridge heads.	late-C19th-C20th
700	Iron	1	55	Small horseshoe	C19th-C20th
700	Iron	1	1500	Substantial bar and socket, fragmentary. Part of agricultural equipment?	C19th-C20th
700	Iron	2	595	Two joining parts of a fragmentary half rounded object, possibly guttering?	C19th-C20th
700	Iron	1	75	Strip, 42mm x 1900mm, broken at both ends.	C19th-C20th
700	Ceramic	2	138	Red tile or pipe.	C19th-C20th
700	Glass	1	3	Body sherd of green vessel	C19th-C20th
700	Glass	1	34	Neck of brown glass bottle.	C19th-C20th
700	Glass	4	20	Clear vessel glass.	C19th-C20th
700	Glass	3	38	Rim and body sherds of clear vessel	C19th-C20th
700	Glass	1	5	Clear window glass.	C19th-C20th
700	Glass	3	120	Clear vessel glass.	C19th-C20th

700	Slate	4	465	Fragments of a roof tile	late-C19th-C20th
700	Pottery	5	35	White glazed cup or mug with blue dot motif.	C19th-C20th
700	Flint	1	153	Large fragment of a flint nodule. Striking platform visible, bulb of compression on ventral surface.	prehistoric
700	Copper alloy	1	5	Fragment of a copper alloy bracelet.	?Roman,
702	Iron	2	5	Highly corroded fragments, one possibly cylindrical in shape.	C19th-C20th
702	Copper alloy	1	4	Pin-fire shotgun cartridge	late-C19th
702	Flint	1	2	Un-diagnostic flake with cortex on dorsal surface.	prehistoric
702	Flint	1	2	Broken blade or end scraper, tip broken off, retouch visible on sides, cortex on dorsal surface.	prehistoric
702	Pottery	2	2	Un-diagnostic body sherds.	C19th-C20th
702	Vitrified material	1	1	Un-diagnostic, traces of wood charcoal present.	?
703	Animal bone	1	1	Very abraded fragment. Possibly poultry.	?
712	Flint	1	1	Un-diagnostic flake with cortex	prehistoric
712	Flint	1	1	Blade or flake	prehistoric
711	Stone	1	25	Pebble, possible sling stone.	?prehistoric or Roman

Trench 9

Trench 9 was positioned at the northern end of the north-east face of Bank B (see Figure 4 and 5). The aim of the trench was to ascertain whether the eastern extension of Bank B displayed evidence of a stone revetment similar to that identified by Alcock on the northern side of the earthwork (Alcock 1963: plate VI B). The initial remit of this trench was to remove just leaf litter and topsoil (900) from a 3x3m stretch of the north-east facing side of the bank. This revealed the stone capping of the bank (901) and the upper ditch fill (904), but no evidence of revetment was visible (see Figure 10). Following consultation with Cadw permission was then granted to excavate a 1m slot across just under half of the bank and almost all of ditch deposits down to natural. The small size of this intervention limits the certainty with which we can reconstruct the character and sequence of the deposits, but it was possible to identify a fairly clear sequence which is broadly in keeping with that identified by Alcock.

The bank survives to a height of 1.32m. Below the bioturbated leaf litter and topsoil (900) was a series of clay with rubble deposits (901), (903), and (902) which made up the core of

the rampart (see Figure 11). This material represents redeposited soil and bedrock which was quarried from the adjacent ditch. No evidence of a surviving *in situ* revetment was identified, but it should be noted that the trench was only 1m wide and its absence cannot be taken to be conclusive. The interface between the bank deposits and the underlying soil horizon was diffuse but could be discerned with some confidence. The contrast between the soils underlying Banks A and B identified by Alcock (1963: 22, 190) was clearly evident, although the chronological implications of this may need to be reconsidered (see below).

As with Bank A there appears to have been no berm between bank and the ditch B. The full profile of V-shaped rock cut ditch was not revealed, but it is at least 1.30m deep by 2.35m wide (see Figure 12). The uppermost fill of the ditch was a reddish brown clayey silt which has silted in from the north-east following the collapse of the rampart. This overlay a reddish brown clayey silt with frequent limestone rubble which had accumulated from the south-west (904). Six joining fragments of Central Gaulish samian ware were recovered from towards the top of this deposit. (904) is likely to represent the slumping of rampart material into the ditch following the initial collapse of a stone revetment. Given that the sherds of samian ware were from the top of this deposit their chronological significance is ambiguous. (904) overlay a deep deposit formed almost entirely of large unweathered limestone boulders and rocks (907) (see Figure 13). Some clayey silt had washed into this deposit, but there were some large voids between stones. (907) lay immediately above the cut of the ditch and appears to have accumulated rapidly from south-west. The size and quantity of the stones is indicative of (907) having derived from a stone revetment which fronted Bank B. Given that no primary fill was identified below this deposit the revetment must have collapsed into the ditch very shortly after it was constructed.

Table 2: Trench 9 finds by context.

Context	Material	Number	Weight (g)	Comments	Date
902	Stone	1	62	Pebble, with excavation damage visible. Possible sling stone.	?prehistoric?
911	Flint	1	4	Undiagnostic flake. Cortex on dorsal surface.	?prehistoric?
904	Pottery	6	17	Joining fragments of Central Gaulish samian	Roman, c.A.D.125-150.

Trench 10

Trench 10 was positioned on the southern end of the north-east face of Bank B (see Figures 4 and 5). The aim of the trench was to ascertain whether traces of revetment survived in this area, and to investigate an apparent break and/or change of character of the earthwork observed in the topographic survey (Seaman and Lane 2013b). The initial remit of this trench was to remove just leaf litter and topsoil (1000) from a 3x3m stretch of the north-east facing side of the bank. This revealed two distinct deposits, one to the east and one to the west with a slight depression running in-between (see figure 14). Both these deposits were heavily bioturbated and root disturbed. The deposit to the west side of the trench

(1001) was clearly continuous with bank B, but appears to have terminated within the trench. This has been interpreted as the original termination of bank B, and no traces of revetment were visible. The deposit to the east of the trench (1002) was very different in character and was clearly not part of the same feature, although it did appear to form the north-western end of a shallow bank that extended a further ten metres to the south-east. Following consultation with Cadw permission was granted to excavate a 1m slot across (1002) down to natural. Below (1002) were two diffuse stony deposits (1003) and (1004) which overlay the natural subsoil (1005) and limestone bedrock (see Figure 15). Although forming a slight earthwork these deposits cannot be described as forming a defensive earthwork and no associated ditch was identified. The character of this feature is, however, in keeping with the post-medieval field bank or boundary that was identified in a trench cut across the same feature but a short distance to the south-west in 2011 (See trench 1 on Figure 4; Seaman and Lane 2012). Thus it appears that bank B terminates at around ST 14943 72030 before its line is picked by a later field boundary. It is possible that the narrow gap between the two features may reflect the location of a gate or style into the field defined by the earthworks.

Table 3: Trench 10 finds by context.

Context	Material	Number	Weight (g)	Comments	Date
1000	Iron	1	40	Iron rod, 10mm x 80mm	?C19th-C20th

Trenches 11, 12, 13 and 14

Trenches 11, 12, 13 and 14 were located within the semi-enclosed area defined by bank B (see Figures 4 and 5). The aim of these 2x2m trenches was to test for the presence and/or survival of archaeological deposits, and recover evidence relating to activity and/or occupation within the area defined by bank B. A geophysical survey was undertaken in this area in April 2013, but no features were identified (Seaman and Lane 2013b). In all of the trenches a heavily bioturbated mid reddish brown silty clay topsoil lay directly over the limestone bedrock to a thickness of 0.22-0.20m, and no features of archaeological significance were identified (see Figures 16-18). Early maps show this area to have been cultivated within the last 250 years (Glamorgan Records Office P43/1 & 2, DF/26) and it is likely that any archaeological deposits in this area have been destroyed as a consequence.

Context	Material	Number	Weight (g)	Comments	Date
800	Pottery	1	2	Single body sherd of North Devon gravel tempered ware.	Post-medieval
801	Glass	2	4	Body sherds of clear glass vessel	C19th-C20th
801	Pottery	1	4	single body sherd	Post-medieval
802	Pottery	1	1	Single body sherd of North Devon gravel tempered ware.	Post-medieval
802	Pottery	1	1	Single body sherd.	Post-medieval
803	Pottery	1	1	Single body sherd with black glaze on both surfaces.	Post-medieval

Finds

The majority of the finds were recovered from the topsoil in trench 7 (700) and are post-medieval in date. A fragment of a possible Romano-British bracelet was an unstratified surface find from just outside of trench 7 and may attest to some Romano-British activity in the vicinity of the earthworks (see Appendix 2), as do the six joining sherds of samian pottery from trench 9 (904) (see Appendix 3). The shotgun cartridge heads and pottery from the upper fill of ditch A (702) support a post-medieval date for the accumulation of this layer, although the presence of flints, albeit in a secondary context, is indicative of prehistoric activity in the vicinity of the earthwork. The single fragment of animal bone from (703) may have been associated with the use of the earthwork, but the possibility that it was residual or, given the poor level of bone preservation on the site, intrusive cannot be ruled out. The sling stone sized pebbles from (711) and (902) may have been brought to the site, but geological transportation cannot be discounted (pers comm Tim Young). Their presence may be significant as Alcock (1963: 19) reported the discovery of 'a number of sling stones in and about ditch and bank A'. Sling stones were used for both hunting and combat,

and although they are usually attributed to the Iron Age or Roman period a later date cannot be discounted (Wastling 2009: 431-432). The fragments of flint from (712) and (911) which included part of a blade cannot be dated precisely, but they are in-keeping with the evidence from earlier excavations and the radiocarbon dates from these layers. They are indicative of prehistoric activity at Tyn y Coed prior to the construction of the earthworks. The only find from trench 10 was a short iron rod from the highly disturbed top soil (100). The small quantity of post-medieval pottery and glass from trenches 11, 12, 13 and 14 is likely to be derived from maturing when this area was under cultivation.

Environmental

Samples for 'bulk' environmental analysis were taken from (709), (711), (712), and (911) all of which were bioturbated to a greater or less extent. Bulk samples ranged from 30-90 litres, and were processed using a water separation/flotation tank (Kenward et al. 1980) where light material was collected as coarse and fine flots (1mm and 300µm mesh sieves) and heavy material as residue (1mm mesh). The aim of the sampling was to recover short-life organic material suitable for radiocarbon dating. The flots and residues were examined for all basic material categories, but the only environmental material recovered was small quantities of poorly preserved wood charcoal. Specialist identification of the charcoal was undertaken by Lisa Grey (see Appendix 4). Two samples of hazel charcoal were submitted for radiocarbon dating from both (711) and (911) (see below).

The Dating, Chronology and Function of the Tyn y Coed Earthworks

The evidence from the 2013 excavation has made a significant contribution to our understanding of the form, date and chronology of the Tyn y Coed earthworks, but there is still little evidence with which to elucidate their function.

Bank and Ditch A

The *terminus post quem* for the bank provided by the later- prehistoric pottery sealed within the bank (Alcock 1963: 19; Campbell 1991: 99) and the radiocarbon date of 2831-2494 cal BC at 95% probability, on hazel charcoal from the old ground surface below the bank (Seaman and Lane 2012: 10), can now be complemented by two radiocarbon dates, also on hazel charcoal, from the primary fill of the ditch which give a possible date for the cutting of the ditch and a *terminus post quem* for the collapse of the rampart (see Table 4). The date ranges for the samples from the primary fill do not overlap and we cannot be certain that the samples were not ancient when they were washed into the ditch. Nevertheless, they provide a strong indication that the bank and ditch were not constructed before the 7th century AD. The absence of later pottery from below the rampart collapse suggests that the rampart was maintained for a short period of time and was not in use by the 12th century.

This is the first firm evidence to suggest that there was a relationship between the Bank A and Dinas Powys hillfort. The function of Bank A remains enigmatic however. The long south-western section of Bank A is a substantial earthwork which could be intended to form part of a defensive monument, and the laid surface to the rear of the rampart may imply the presence of a walkway or track. There is little evidence to suggest that Bank A forms part of

an incomplete enclosure however, and the earthwork to the north-east of the 'entrance' is much smaller and on a slightly different alignment, perhaps implying that they were not part of a unitary monument (Seaman and Lane 2013b). Indeed the configuration of the 'enclosure entrance' is not in keeping with the majority of univallate enclosures in Glamorgan which often have slightly swollen or in-turned terminals that face towards lower ground (RCAHMW 1976: 10). Moreover, whilst Gerrard *et al* (2006: 29) have noted that almost all of a sample of 73 defended enclosures from Glamorgan had entrances which opened in a southerly direction, the 'entrance' at Tyn y Coed opens in a north-westerly direction. It is therefore possible that the two sections of Bank A are of different date, only further excavation will be able to test this hypothesis however.

Bank and Ditch B

Until now there has been no firm dating evidence for Bank and Ditch B. The radiocarbon dates on hazel charcoal from (911) a buried soil below bank B provide a *terminus post quem* of 1418-1264 cal BC at 95% probability (see Table 4). The chronological significance of the 6 joining sherds of mid-second century samian from the top of the upper fill (904) of ditch B is ambiguous however. The layer was interpreted as rampart material which has washed into the ditch following the collapse of the revetment. If the sherds had been deposited as part of this layer then they would provide a *terminus post quem* for the construction of Bank B. If this is the case an early medieval date is possible (*cf.* Campbell 1991: 100). However, as the sherds were recovered from towards the top of this deposit it is also possible that they derive from activity in the area *after* the rampart had collapsed and thus provide a *terminus ante quem* for that event. If this is the case then a late prehistoric or early Romano-British date for bank B would be more appropriate. Further excavation is needed to resolve these issues.

The termination of bank B was identified in trench 10, and although its line was perpetuated by a later field boundary, there is no evidence to suggest that it once formed a complete enclosure which extended to the south and west (*cf.* Alcock 1963: 82). The rock-cut ditch and revetted bank stop and appear to genuinely represent an unfinished enclosure which collapsed or was demolished not long after it was partially constructed. The trial trenches inside the area defined by bank B failed to produce features of archaeological significance, and it is likely that had there been any evidence for activity/occupation within this area it would have been removed by post-medieval agriculture and bioturbation. The 2013 excavations have therefore helped to refine our understanding of the earthwork, but questions remain as to its date and we are still unable to ascertain why it was constructed.

Pre-Bank Soils

The contrast in the nature of the soil horizons lying below banks A and B noted by Alcock 1963: 22, 190) was confirmed by the 2013 season of excavation. Whereas the buried soil below bank A ((712), and also observed in 2012 as layer (513)) was a very heterogeneous mid- to dark- reddish brown clayey silt with organic content and occasional charcoal flecking; the soil below bank B was a more homogeneous stiff dark reddish brown silty clay with rare small limestone fragments and comparatively little charcoal or organic content. Alcock

suggested that ‘this may be held to suggest that between the construction of bank A and that of bank B the soil had been disturbed, perhaps by deforestation or by agriculture, so that some loss of organic matter has occurred [in the soil below bank B]. This implies a gap in time between the two works, but of course it gives us no clue to the duration of the hiatus’ (Alcock 1963: 22). Whilst Alcock may have been right in suggesting that the contrast in soil conditions implied a relative chronology for the earthworks the sequence may be incorrect. The soil conditions below bank B are in more in keeping with what would be expected of a pristine soil horizon on this geology, whereas that under bank A is indicative of disturbance through agricultural activity (pers comm Tudur Davies 2013). This being the case the relative chronology should be reversed. Further work, including soil micromorphology analysis is needed to test this hypothesis.

Table 4: Radiocarbon dates.

Lab Reference	Sample Type	Date BP	Cal 1 sigma range	Cal 2 sigma range	Trench	Context
Beta-366908	Corylus avellana L.	4560 +/- 30 BP	3366-3130 BC	3487-3107 BC	9	(911) buried soil below bank B
Beta-366907	Corylus avellana L.	3080 +/- 30 BP	1403-1298 BC	1418-1264 BC	9	(911) buried soil below bank B
Beta-366906	Corylus avellana L.	1420 +/- 30 BP	612-650 AD	582 - 660 AD	7	(711) primary fill of ditch A
Beta-366905	Corylus avellana L.	1300 +/- 30 BP	668-764 AD	660-770 AD	7	(711) primary fill of ditch A

Conclusions

The 2013 season of excavation at Tyn y Coed has contributed significantly to our understanding of the monument. We have been able to start to construct an absolute chronology for bank A, and now have some dating evidence for bank B. We have a much firmer understanding of the form and extent of the monuments, and have the first evidence to suggest that the Tyn y Coed earthworks, or bank A at least, was associated with the Dinas Powys hillfort. We have identified evidence for prehistoric and Romano-British activity within the vicinity of the earthworks, although it is not possible to associate this with construction or use of the earthworks. Nevertheless, a series of major questions remain unanswered: the date of Bank B is unresolved, we have very limited evidence with which to ascertain the function of both earthworks, and the relationship between the two sections of bank A is problematic. The source of the Romano-British material recovered from the 2013

excavations also remains unidentified. Further targeted survey and excavation will be required to address these issues and the absence of stratified occupation material may mean some of these questions may not be fully answerable.

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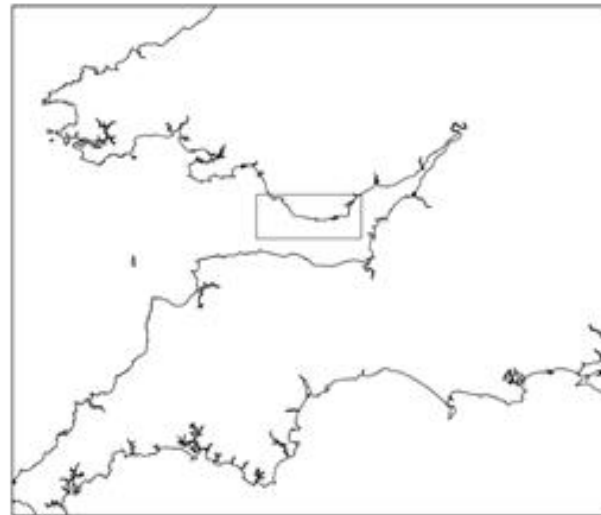
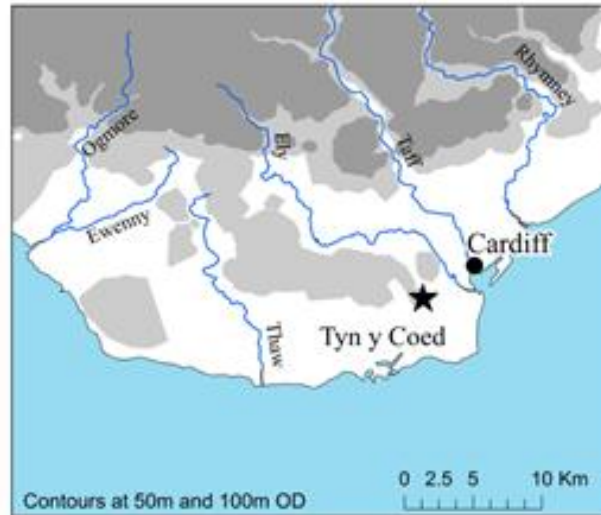
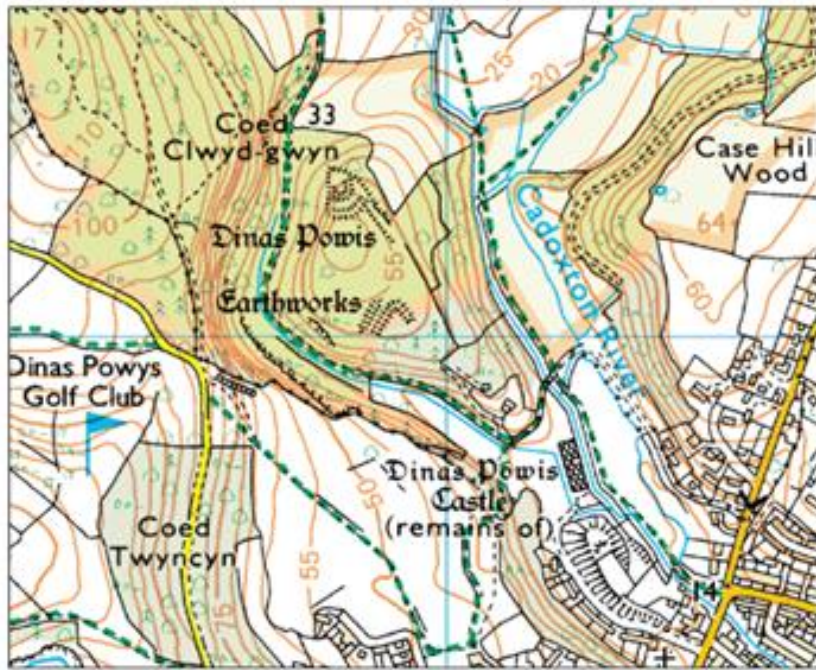
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Site Summary

Title	Archaeological Survey and Excavation at Tyn y Coed Earthworks, Dinas Powys, South Glamorgan, June/July 2013.
Site Name and Code	Tyn y Coed Enclosure/TYC13
Grid Reference	ST148720
HER number of site	00015S
SM number of site	GM24
Site Activity	Excavation
No. of Trenches:	7
Total Area of Excavation	94 m ²
Date of Field Work	June 23 rd -July 20 th 2013
Date of Report	11/04/14
	NUMBER AND TYPE OF FINDS
Pottery	Period: Roman (4), post-medieval (12)
Flint	Period: Prehistoric? Quantity: 6
Iron	Period: Post-medieval Quantity: 8
Glass	Period: Post-medieval Quantity: 15
Stone	Period: Prehistoric? (2), post-medieval (1)
Copper Alloy	Period: Roman (1), post-medieval (13)
	NUMBER AND TYPE OF SAMPLES COLLECTED
Sieving for charred plant remains	No. of deposits sampled: 4 Name of charcoal specialist: Lisa Grey
C¹⁴/scientific dates	No. and Type: 4 AMS C14 dates on hazel charcoal recovered in floatation from (711) and (911).
Pollen	No. of columns/spot samples: N/A Name of pollen specialist: N/A
Bone	Number of buckets sieved for bone: N/A Quantity Recovered: N/A

Appendix 1, Figures



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Figure 1: Location Map

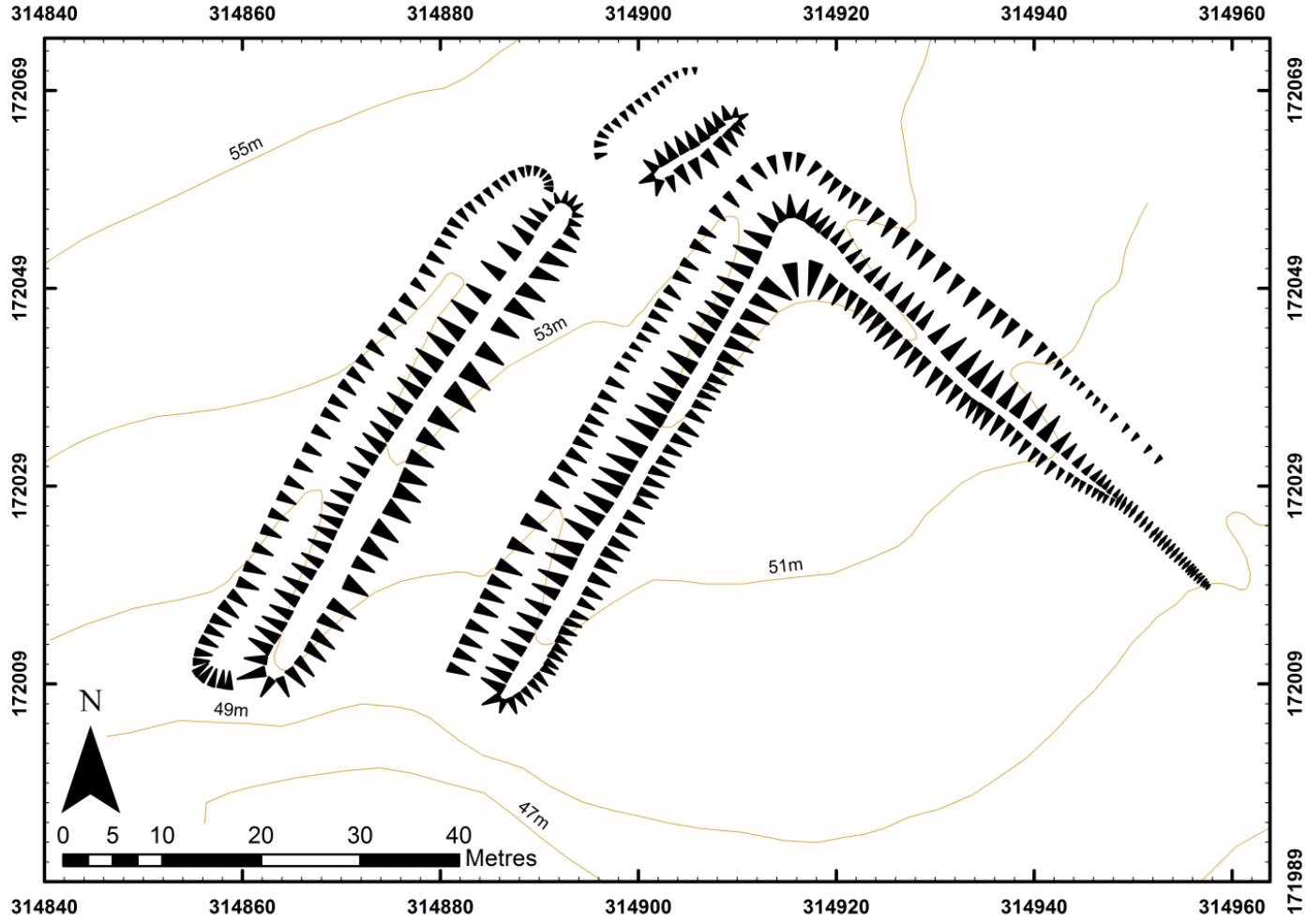


Figure 2: Plan of Tyn y Coed earthworks.

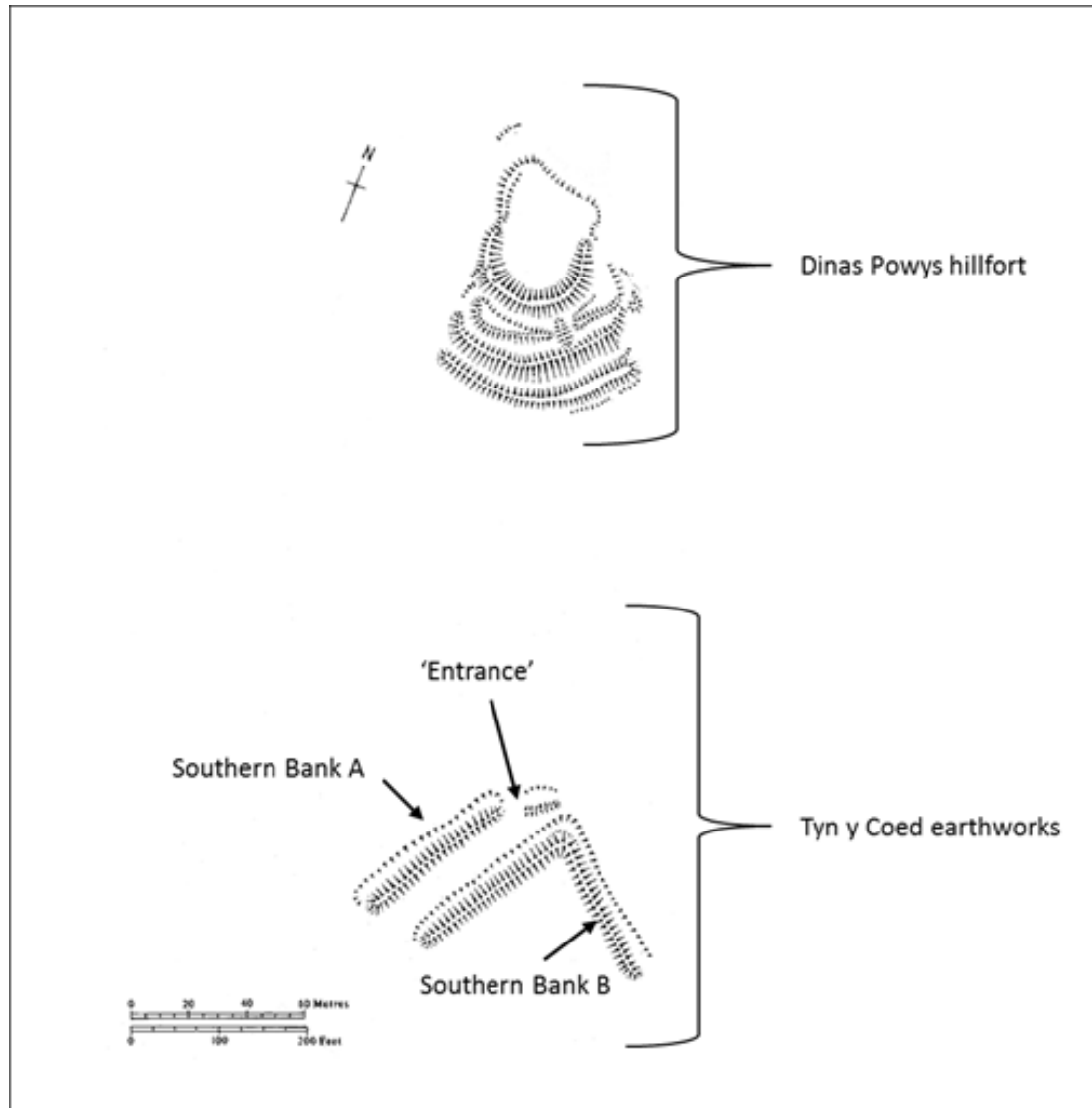


Figure 3: Plan of Dinas Powys and Tyn y Coed earthworks (after RCAHMW 1991).

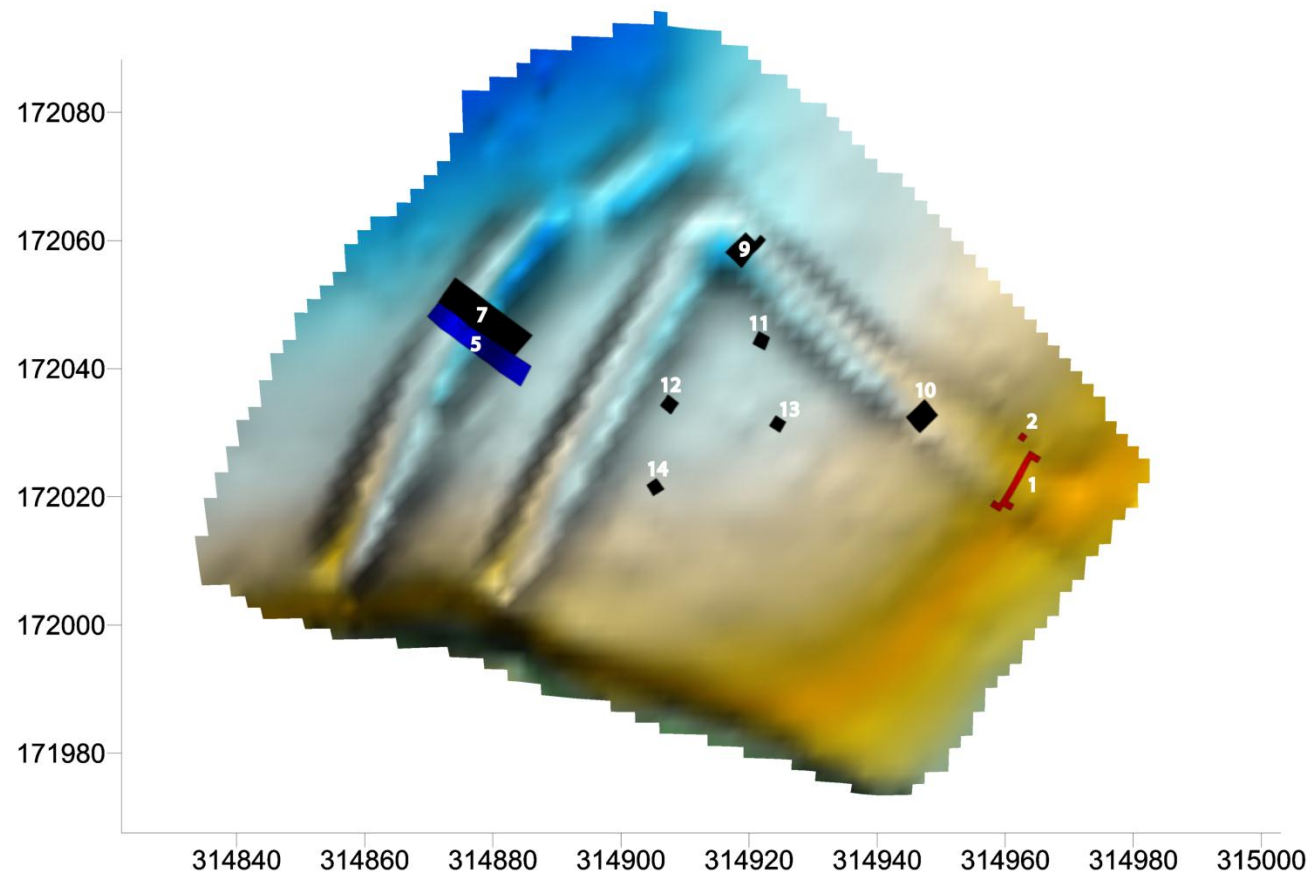


Figure 4: Location of 2011 (red), 2012 (blue) and 2013 (black) trenches.

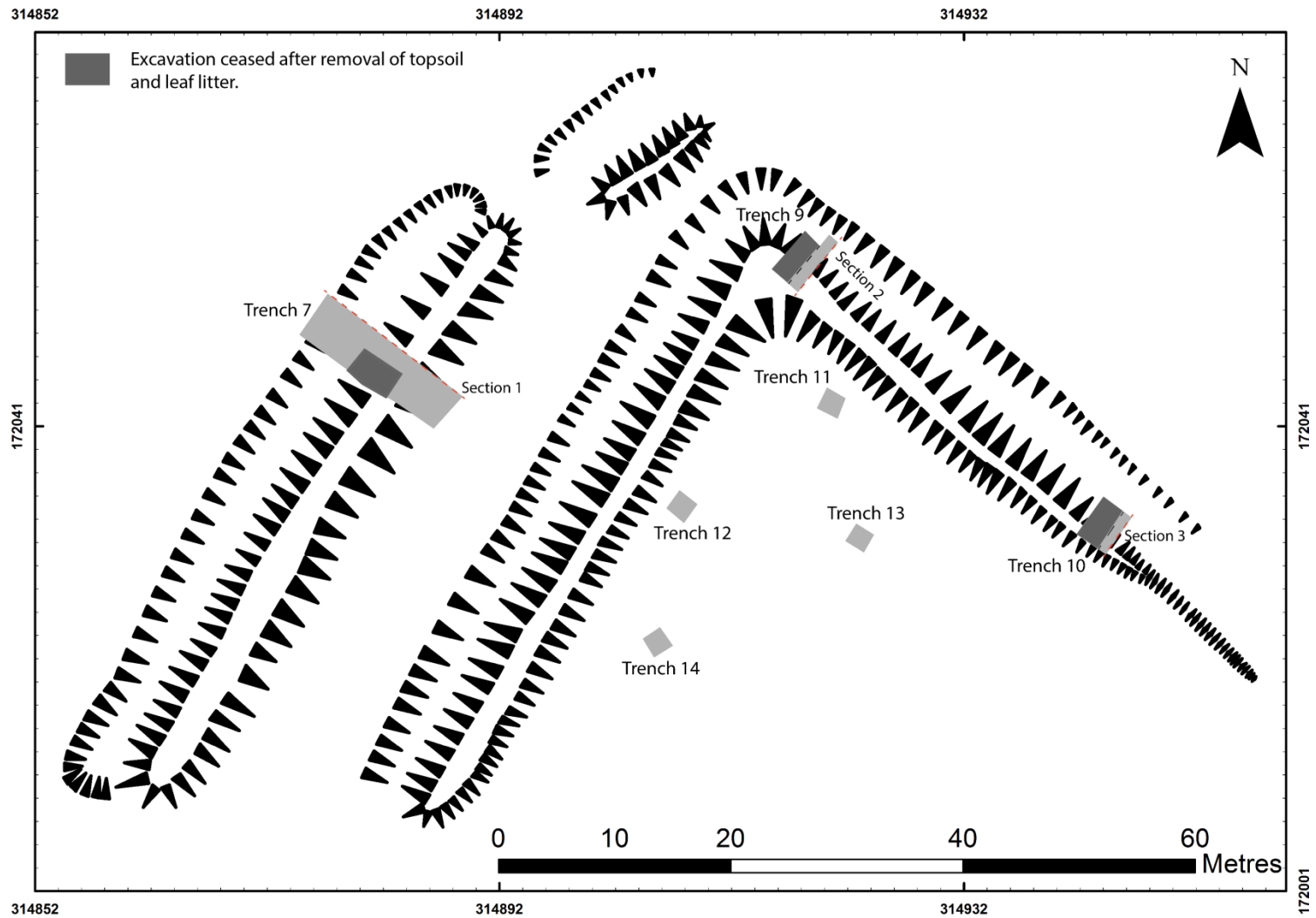


Figure 5: Location of trenches showing slots through trenches 9 and 10 (black line dashed) and section drawings (red line dashed).



Figure 6: Transverse section across Bank A showing buried soil horizon (712), and sequence of bank deposits. (704) and (700) have already been removed (1m and 2m scale).



Figure 7: South-east facing side of bank A showing rubble capping (704) of bank A in background and limestone spread (705) in foreground (2m scale).

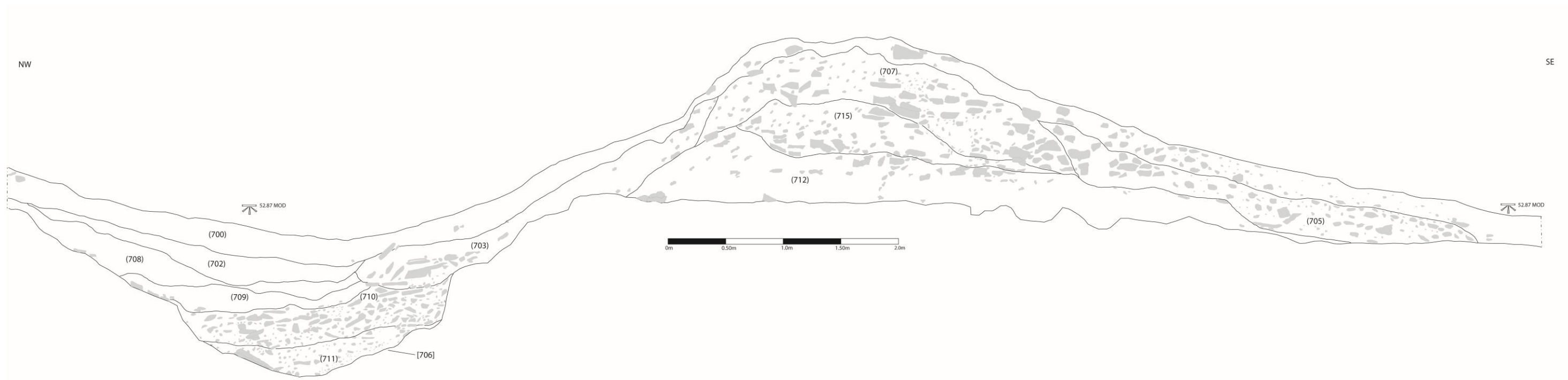


Figure 8: Section 1 across Bank A.



Figure 9: South-west facing section through ditch A (2m scale).



Figure 10: North-east facing side of bank B following removal of topsoil and leaf litter (900), showing rubble capping of bank (901) and upper ditch fill (904). (2m scale).



Figure 11: 1m wide section across bank and ditch B (1m scales).

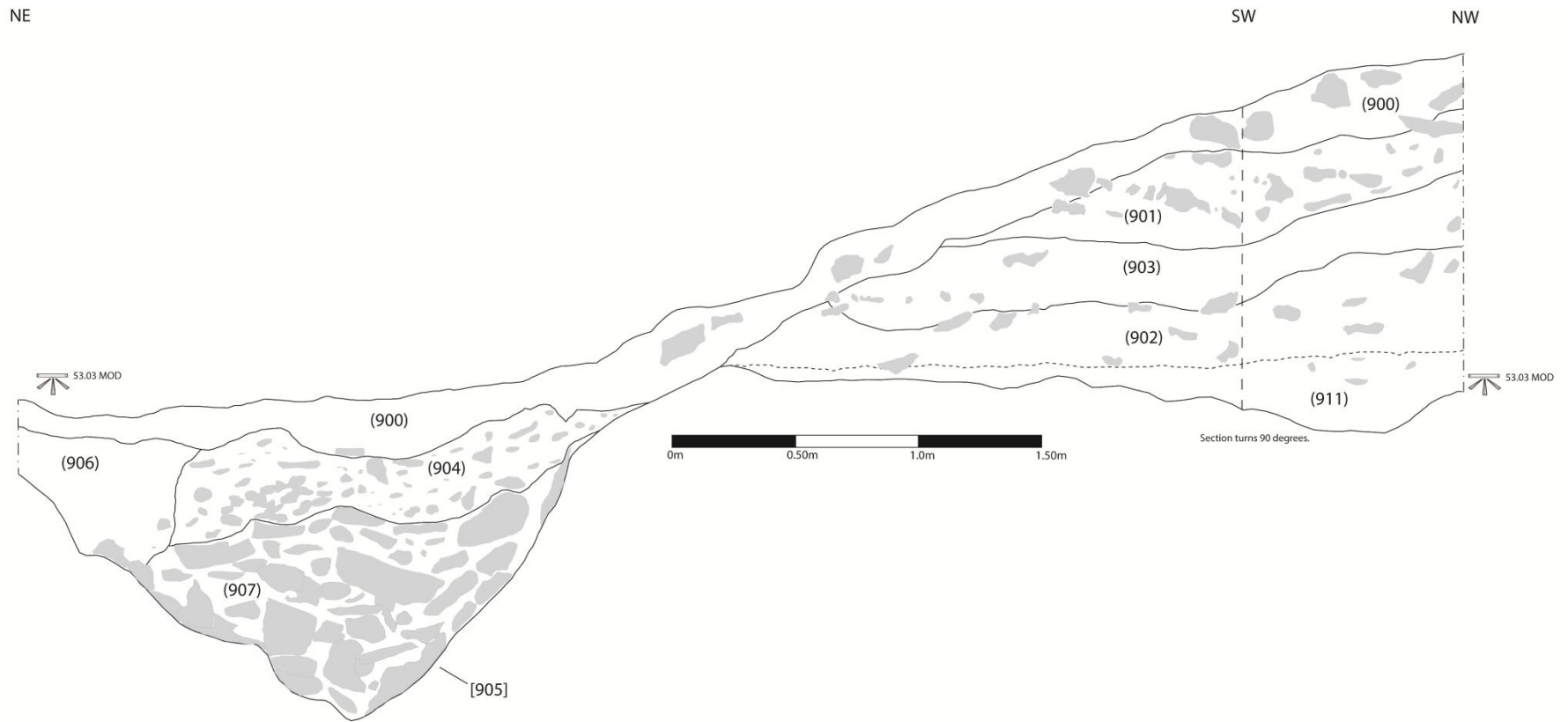


Figure 12: Section 2, north-west facing section of trench 9.



Figure 13: Collapsed revetment (907) lying above the cut of ditch B. The topsoil (900) has been removed from the left side of the photograph (1m scale).

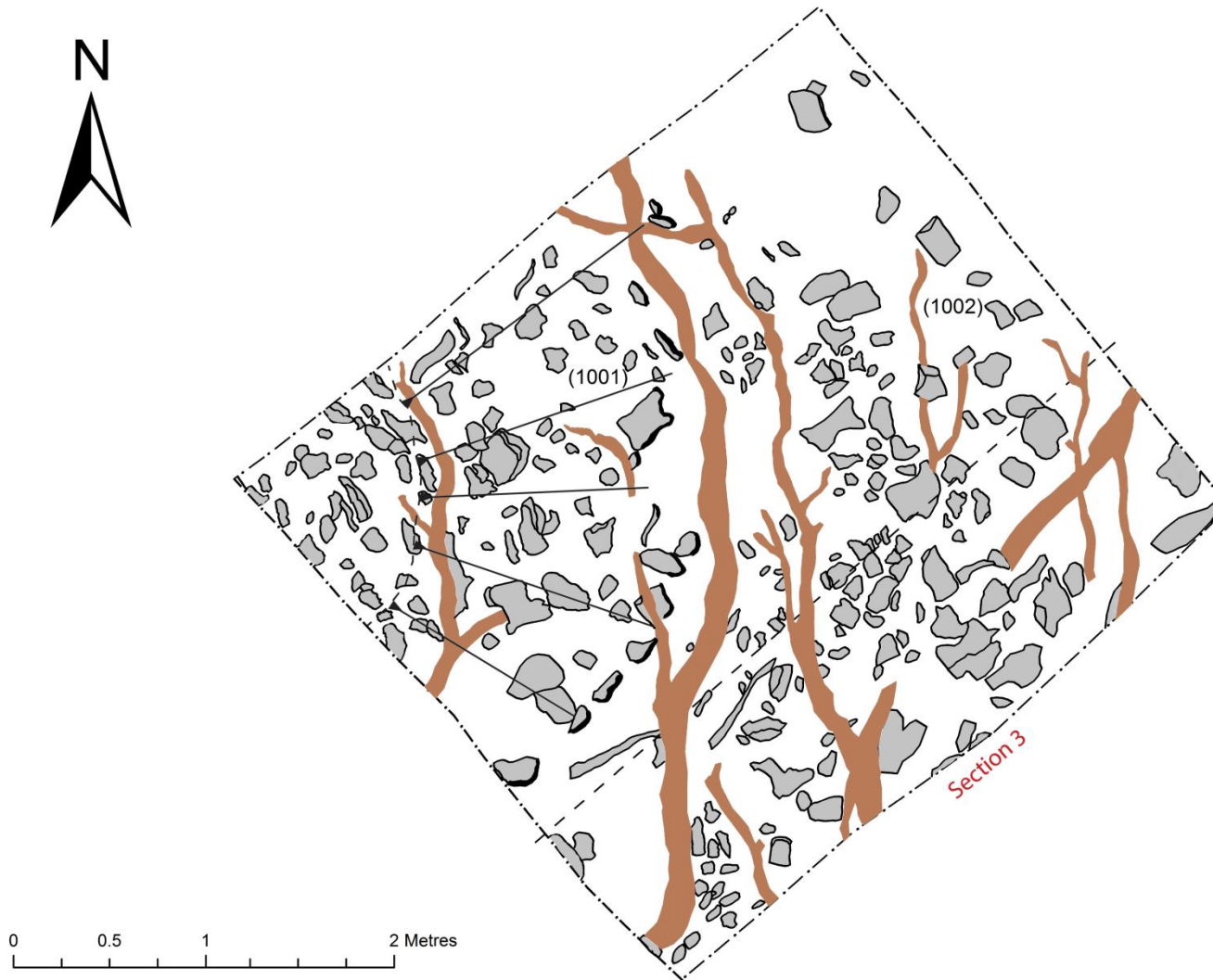


Figure 14: Plan of trench 10 following removal of top soil and leaf litter (1000) (tree roots in brown, stones in grey).

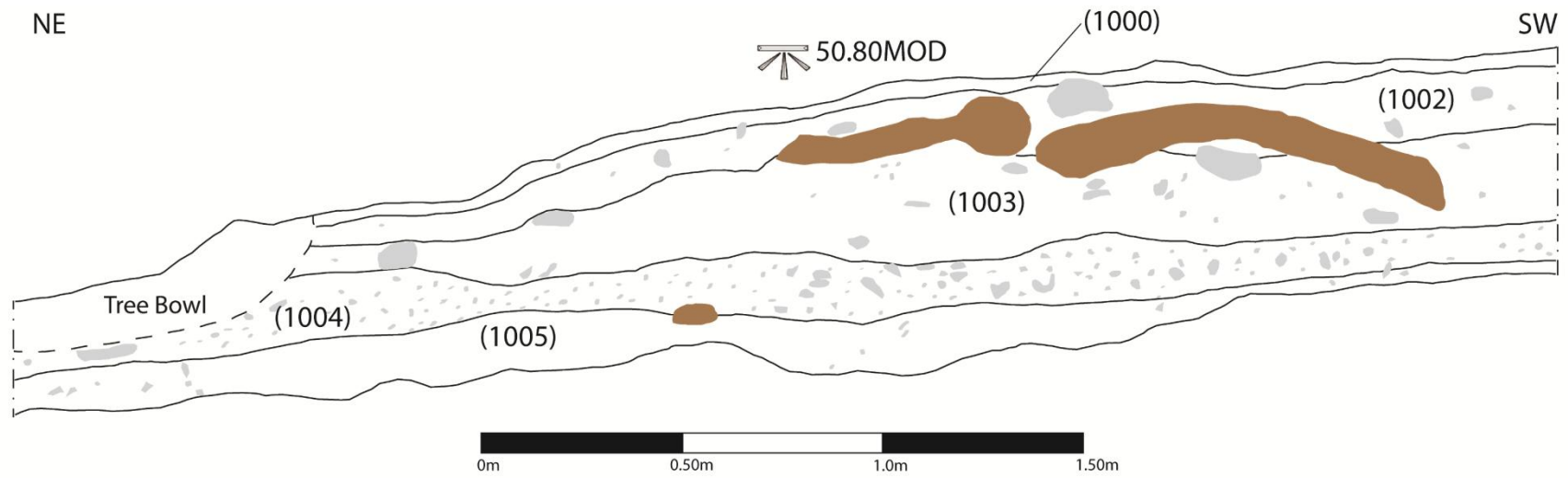


Figure 15: Section 3, north-east section of trench 10 (tree roots in brown, stone in grey).



Figure 16: Limestone bedrock in the base of trench 11 (2m scale).



Figure 17: Limestone bedrock in the base of trench 12 (2m scale).



Figure 18: Limestone bedrock at the base of trench 13 (2m scale).



Figure 19: Limestone bedrock at the base of trench 14 (2m scale).

Appendix 2, Copper Alloy Bracelet

Evan Chapman, NMGW

Curved, slightly tapered, copper alloy strip with raised edges. The wider end appears to be a properly finished edge, but the other is broken. Fairly crudely decorated with short, slightly curved, incisions, in three parallel lines along its length. The central line splits near the wider end to form a V-shape. Length 38 mm [broken]; maximum width 11 mm, tapering to 9 mm; thickness 2 mm.

Reminiscent of Roman penannular strip bracelets but a close parallel is difficult to find. The best so far, in terms of overall feel, is one in the Bancroft site (Hylton & Zeepvat 1994, 306 no.57).

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Figure 20: Fragment of a copper alloy bracelet, possibly Romano-British.

Appendix 3, Samian Ware

Peter Webster, NMGW

Six joining fragments of Central Gaulish samian, Form 37, probably from a freestyle design. The ovolo is missing, but the bead row which lay immediately beneath it is present. Below are fragments of four animals of which a lion and a dog (O.1979) are recognisable. Below the dog is the upper part of a row of small circles. The lion approximates to O.1497K but is more probably the variant ascribed by S&S to X-6, Doccalus/Docilis and X-5, (S&S, 150, Pl.75, 21 & Pl.95, 24). X-6 used all the details. Rogers (1999, 315-321) has analysed the work of this mould maker, or more probably makers; our types appear in the work of his X-6A and B.

Date: c.A.D.125-150.

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Figure 21: Samian ware sherds from trench 9.

Appendix 4, Charcoal Identifications

Lisa Gray

Introduction and Methodology

Twelve samples of charcoal fragments were presented for identification prior to AMS dating. All of these fragments were small, $<4\text{mm}^2$, so fragments larger than 2mm^2 were examined in case anything survived that could be used to make an identification. Those smaller than 2mm^2 were not examined because the anatomical features required for identification under conventional microscopy were unlikely to be visible. Ideally fragments of about 4mm^2 or larger would be available but not in the samples available. Larger fragments are easier to break to reveal the cross-sections necessary for identification and would present diagnostic features not present in smaller fragments (Smart and Hoffman, 1988, 178-179).

Charcoal identifications were made using modern reference slides (author's own) and anatomical guides Hather 2000, Schoch *et al.* 2004). There are limits to which some wood types can be identified microscopically. For example, *Quercus* can only be identified to genus so it is assumed here that the wood found is native *Q. robur/petraea* (Hather 2000, 12). Each fragment was numbered and temporarily stored in a gelatin capsule before being wrapped in tin foil.

Results (see Table 5)

All of the wood fragments were too small to determine whether or not they were stem, branch, roundwood or twig and too small to allow for confident species identification under conventional microscopy.

However, it was possible to establish which woods were hard or softwoods and which are likely to have come from short or long lived trees. This is important for AMS dating and fragments likely to be datable are marked with an asterisk (*) in the table.

Where identifications have been made many are 'cf' because the fragments were too small to reveal all the necessary identification criteria to make a secure identification. In many cases these 'cf' identifications were based purely on similarity in one section with another better preserved fragment where a more confident identification was possible.

Fragments identified as possible hazel (*Corylus avellana* L.) were revealed perforation plates with 5 to 10 bars, fine spiral thickening, diffuse pore distribution and hetero- and homogenous rays with uni- bi- tri- and multi-seriate ray widths. Fragments identified as possible dogwood (*Cornus sanguinea* L.) had diffuse pore distribution, no spiral thickening, scleriform plates with more than 20 bars and heterogeneous rays with uni- bi- tri- and multi-seriate widths. Not all of these features were present in each fragment given these identifications. The number of bars in the scleriform plates plus presence or absence of spiral thickening helped distinguish between the taxa.

Some fragments have been identified as possible oak (*Quercus* sp.) because of the ring porous vessel distribution and simple perforation plates.

Conclusions

Twelve samples produced fragments of charcoal identifiable to a tentative degree due to their small size. All but fragment 25 came from hardwoods and 25 of the 66 fragments came from short-lived woods suitable for AMS dating.

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Table 5: Identifications (samples submitted for radiocarbon dating are underlined)

Sample Number	Context	Trench	Identification
2	709	7	4 - not wood?
2	709	7	5 - cf. <i>Cornus</i> sp.*
2	709	7	6 - cf. <i>Cornus</i> sp. *
2	709	7	7 - Indeterminate hardwood
2	709	7	8 - Indeterminate hardwood
2	709	7	9 - not wood?
2	709	7	10- indeterminate, too small to identify
2	709	7	11 - not wood?
2	709	7	12 - cf. <i>Corylus avellana</i> L.*
2	709	7	13 -indeterminate hardwood
2	709	7	14-cf. <i>Corylus avellana</i> L.*
2	709	7	15-cf. <i>Corylus avellana</i> L.*
4	712	7	45- capsule of fragments too small to identify

4	712	7	46 – cf. <i>Cornus</i> sp.*
4	712	7	47 – cf. <i>Cornus</i> sp.*
4	712	7	48- not wood?
4	712	7	49 – cf. <i>Quercus</i> sp.
4	712	7	50 - cf. <i>Quercus</i> sp
4	712	7	51 - cf. <i>Quercus</i> sp
4	712	7	52 – cf. <i>Corylus avellana</i> / <i>Cornus</i> sp.*
4	712	7	53 - cf. <i>Corylus avellana</i> / <i>Cornus</i> sp.*
4	712	7	54 - cf. <i>Quercus</i> sp
4	712	7	55- not wood?
4	712	7	56 – cf. <i>Corylus avellana</i> L.*
4	712	7	57 – cf. <i>Corylus avellana</i> L.*
4	712	7	58 – indeterminate hardwood
4	712	7	59 – cf. <i>Corylus avellana</i> L.*
4	712	7	60 – indeterminate hardwood
4	712	7	61 - cf. <i>Corylus avellana</i> L.*
4	712	7	62 - cf. <i>Corylus avellana</i> L.*
3	709	7	67- capsule of fragments too small to identify
3	709	7	68 - not wood?
5	711	7	63 - capsule of fragments too small to identify
5	711	7	64 – not wood?
5	711	7	65 - capsule of fragments too small to identify
6	711	7	All fragments too small to identify
7	711	7	All fragments too small to identify

8	911	9	37- capsule of wood too small to identify
8	911	9	38- indeterminate hardwood
<u>8</u>	<u>911</u>	<u>9</u>	<u>39 – cf. <i>Corylus avellana</i> L.*</u>
<u>8</u>	<u>911</u>	<u>9</u>	<u>40 - cf. <i>Corylus avellana</i> L.*</u>
8	911	9	41- not wood?
8	911	9	42 - cf. <i>Corylus avellana</i> L.*
8	911	9	43-cf. <i>Corylus avellana</i> L.*
8	911	9	44- indeterminate hardwood
2	709	7	66 - not wood?
4	712	7	16- not wood?
4	712	7	17- indeterminate hardwood (large vessels, ? <i>Quercus</i> sp or <i>Ulmus</i> sp.
4	712	7	18-indeterminate hardwood
4	712	7	19- cf. <i>Corylus avellana</i> L.*
4	712	7	20- cf. <i>Quercus</i> sp.
4	712	7	21- cf. <i>Quercus</i> sp.
4	712	7	22-Indeterminate hardwood
4	712	7	23- cf. <i>Cornus</i> sp.*
4	712	7	24-indeterminate hardwood
4	712	7	25- softwood?
4	712	7	26 – cf. <i>Cornus</i> sp.*
4	712	7	27 - indeterminate hardwood
4	712	7	28- indeterminate hardwood
4	712	7	29- capsule of fragments too small to identify

4	712	7	30 - cf. <i>Corylus avellana</i> L.*
4	712	7	31- indeterminate hardwood
8	911	9	32-not wood?
8	911	9	33-not wood?
8	911	9	34 – indeterminate hardwood
<u>6</u>	<u>711</u>	<u>7</u>	<u>35- <i>Corylus avellana</i> L.*</u>
<u>6</u>	<u>711</u>	<u>7</u>	<u>36 – cf. <i>Corylus avellana</i> L.*</u>
5	711	7	1 -cf. <i>Corylus avellana</i> L.*
5	711	7	2 -not wood?
5	711	7	3 - not wood?

Appendix 5, Trench Summaries

Trench: 7	Type: Hand excavated	Grid Reference: ST 14882 72046		
Max dimensions (m): 12.80 x 3.70m. 52.52m ²	Max Depth (m): 1.40m			
Context	Description/Interpretation	Depth (m)	Type	 Finds
700	Humic topsoil/leaf litter	0.30m	Deposit	Copper alloy objects, iron objects, glass, slate, pottery, ceramic tile/pipe, flint.
702	Mid reddish-brown clayey silt with rare well sorted limestone grit and small pebbles and occasional larger limestone rubble. Very little organic content, but some evidence for root disturbance. Upper fill of the ditch which had silted from the north-west. Same as TYC12 (502) and Alcock (2).	0.25m	Ditch fill	Pottery, flint, vitrified material, iron objects, copper alloy objects.
703	Mid orangey-brown clay with loam with very frequent medium to large (0.10-0.50m) limestone blocks with occasional charcoal flecks. Collapse from a tree-throw on adjacent bank to south-east.	0.35m	Ditch fill	Animal bone.
708	Light reddish-brown silty clay with slight organic content. Occasional small (<0.10m) limestone fragments and charcoal flecks. Similar to (702) and likely to have formed through the same processes.	0.31m	Ditch fill	
709	Dark brown silty clay with occasional small (<0.05m) limestone fragments. Silted from the north-west. Similar	0.24m	Ditch fill	

	to (708).			
710	Rubble and silty clay layer. Very frequent medium to large limestone blocks and smaller fragments. Accumulated from the south-east very quickly. Collapse of rampart material from the adjacent bank. Same as TYC12 (506) and Alcock (3).	0.36m	Ditch fill	
711	Mid reddish brown clayey silt, with frequent limestone fragments (<0.05m), and occasional limestone blocks (0.05-0.15m). Lying immediately above limestone bedrock. Primary fill of ditch [706]. Same as TYC12 (510). Shown on Alcock's section, but not given a number.	0.25m	Ditch fill	Stone object.
706	Cut of ditch, U-shaped profile with convex sides and rounded base. 5m wide by 1.21m deep. Cut into limestone bedrock. Same as TYC [506].		Cut of ditch	
704	Patches of limestone rubble and blocks (0.10-0.30m) set in greyish brown silty clay. Heavily bioturbated with some areas removed by tree bowls. Seen in plan but not section. Rubble capping of bank? Probably the same as (705), but not preserved on steeper sides of the bank where it has rolled down slope.		Bank deposit	
705	Spread of limestone rubble and blocks (0.03-0.20m) on the lower slope and south side of the bank. Set in greyish brown clayey silt with some organic matter. Some of this material may represent tumble from (704), and this layer may have been continuous with it. Possible laid surface or metalling. Same as TYC12 (504).		Bank deposit	

713	Mid to dark reddish brown silty clay with frequent degraded limestone fragments and occasional larger sub-angular limestone blocks. Re-deposited topsoil, most probably from the area of the ditch, which has been used as bank make-up material. Possibly the same as TYC12 (512) and Alcock (18a).	0.65m	Bank deposit	
714	Deep layer of large (0.15-0.40m) sub-angular, freshly quarried, limestone blocks. Some voids between rocks. Mid- to light-reddish brown clayey silt between rocks is likely to derive from layers above and below. Rubble make-up of bank, derived from quarried bedrock in the adjacent ditch. Differences within the deposit may derive from variations in the bedrock.	1.15m	Bank deposit	
707	Light-pinkish brown silty clay with frequent degraded limestone fragments and occasional larger sub-angular limestone blocks (<0.30m). Rubble make-up of bank. Re-deposited natural.	0.57m	Bank deposit	
715	Mid-greyish brown clayey silt with frequent degraded limestone fragments, and occasional small to large (<0.25m) sub-angular limestone blocks. Make-up of bank. Re-deposited topsoil and natural.	0.45m	Bank deposit	
712	Very heterogeneous mid- to dark-reddish brown clayey silt with organic content and occasional charcoal flecking. Original soil horizon below bank. Same as TYC12 (513) and Alcock (18b).	0.35m	Original soil horizon	Flint
Natural	Limestone bedrock			

Trench: 9	Type: Hand excavated	Grid Reference: ST 14918 72055		
Max dimensions (m): 3m x 5.45m. 13.2m ²	Max Depth (m): 1.30m			
Context	Description/Interpretation	Depth (m)	Type	Finds
900	Humic topsoil/leaf litter.	0.21m	Deposit	
906	Mid reddish brown clayie silt with rare (<5%) irregular limestone inclusions (0.02-0.10m). The full extent of this deposit was not excavated, but it can be interpreted as the upper ditch fill which has accumulated from the north-east after the rampart had collapsed.	0.50m	Ditch fill	
904	Stiff mid reddish brown clayie silt with frequent (>20%) small to large limestone rubble (0.05-0.30m). Accumulated from south-west. Collapse of rampart material from the adjacent bank. Similar to Alcock (27).	0.40m	Ditch fill	Six joining fragments of Central Gaulish samian ware.
907	Limestone rubble (>50%) and clayie silt layer. Some very large stones/boulders with large voids in between. Accumulated rapidly from south-west. Collapsed revetment from adjacent bank. Similar to Alcock (28).	0.85m	Ditch fill	
905	Cut of ditch, not fully excavated on north-east side. V-shaped profile with slightly concave side to south-west and irregular lower side to north east. Pointed base. Cut into limestone bedrock. 1.30m deep by 2.35m wide (not full extent).		Cut of ditch	
901	Firm mid-brown silty clay with frequent (>20%) sub-angular medium to large (0.03-0.20m) limestone rocks. Redeposited clay	0.40m	Bank deposit	

	and bedrock. Make up layer of bank. Similar to Alcock (38).			
903	Firm mid reddish-brown silty clay with occasional small to medium (0.02-0.15m) limestone inclusions. Redeposited clay. Make up layer of bank.	0.31m	Bank deposit	
902	Firm mid reddish-brown silty clay with occasional small to medium (0.02-0.15m) limestone inclusions. Possible redeposited soil horizon. Make up layer of bank.	0.32m	Bank deposit	Pebble, flint.
911	Stiff dark reddish brown silty clay with rare small limestone fragments. Possibly the original soil horizon below the bank. Similar to Alcock (39).	0.32m	Original soil horizon	
Natural	Limestone bedrock			

Trench: 10	Type: Hand excavated	Grid Reference: ST 14944 72032		
Max dimensions (m): 3.83m x 3m. 11.82m ²	Max Depth (m): 0.74m	Height of ground level (m OD): 50.65		
Context	Description/Interpretation	Depth (m)	Type	Finds
1000	Humic topsoil/leaf litter.	0.06m	Deposit	Iron object
1001	Limestone rubble and sandy silt layer. Frequent small to large (0.03 - 0.30m) limestone rubble. Heavily bioturbated. Make-up of bank terminal.	Seen in plan but not excavated.	Bank deposit.	
1002	Coarse reddish brown silty clay with frequent small to large limestone rubble (0.03-0.32m). Heavily bioturbated with extensive root disturbance. Spread of material, possibly a field bank or boundary.	0.18m	Deposit	

1003	Compact mid-reddish brown silty clay with occasional small limestone fragments (0.02-0.05m). Less bioturbated but possibly continuous with (1002). Spread of material, possibly a field bank or boundary.	0.31m	Deposit	
1004	Stiff mid reddish brown clayie silt with frequent small (0.05-0.07m) limestone inclusions.	0.16m	Deposit	
1005	Compact light reddish brown silty clay with occasional small (0.02-0.07m) limestone inclusions. Possible subsoil lying over bedrock.	0.13m	Deposit	
Natural	Limestone bedrock			

Trench: 11	Type: Hand excavated	Grid Reference: ST 14921 72042		
Max dimensions (m): 2x2m, 4m ²	Max Depth (m): 0.20m	Height of ground level (m OD): 52.37		
Context	Description/Interpretation	Depth (m)	Type	Finds
800	Mid reddish brown silty clay with frequent small to medium (>0.10m) limestone inclusions. Heavily bioturbated. Topsoil. Same as (801), (802), and (803).	0.20m	Deposit	Pottery
Natural	Limestone bedrock			

Trench: 12	Type: Hand excavated	Grid Reference: ST 14908 72033		
Max dimensions (m): 2x2m, 4m ²	Max Depth (m): 0.22m	Height of ground level (m OD): 52.35		
Context	Description/Interpretation	Depth (m)	Type	Finds
801	Mid reddish brown silty clay with frequent small to medium (>0.10m) limestone inclusions. Heavily bioturbated. Topsoil. Same as (800),	0.22m	Deposit	Glass, pottery

	(802), and (803).			
Natural	Limestone bedrock			

Trench: 13	Type: Hand excavated	Grid Reference: ST 14923 72031		
Max dimensions (m): 2x2m, 4m ²	Max Depth (m): 0.20m	Height of ground level (m OD): 51.50		
Context	Description/Interpretation	Depth (m)	Type	Findings
802	Mid reddish brown silty clay with frequent small to medium (>0.10m) limestone inclusions. Heavily bioturbated. Topsoil. Same as (800), (801), and (803).	0.20m	Deposit	Pottery
Natural	Limestone bedrock			

Trench: 14	Type: Hand excavated	Grid Reference: ST 14905 72031		
Max dimensions (m): 2x2m, 4m ²	Max Depth (m): 0.20m	Height of ground level (m OD): 51.03		
Context	Description/Interpretation	Depth (m)	Type	Findings
803	Mid reddish brown silty clay with frequent small to medium (>0.10m) limestone inclusions. Heavily bioturbated. Topsoil. Same as (800), (801), and (802).	0.20m	Deposit	Pottery
Natural	Limestone bedrock			

Appendix 6, Trench Matrixes

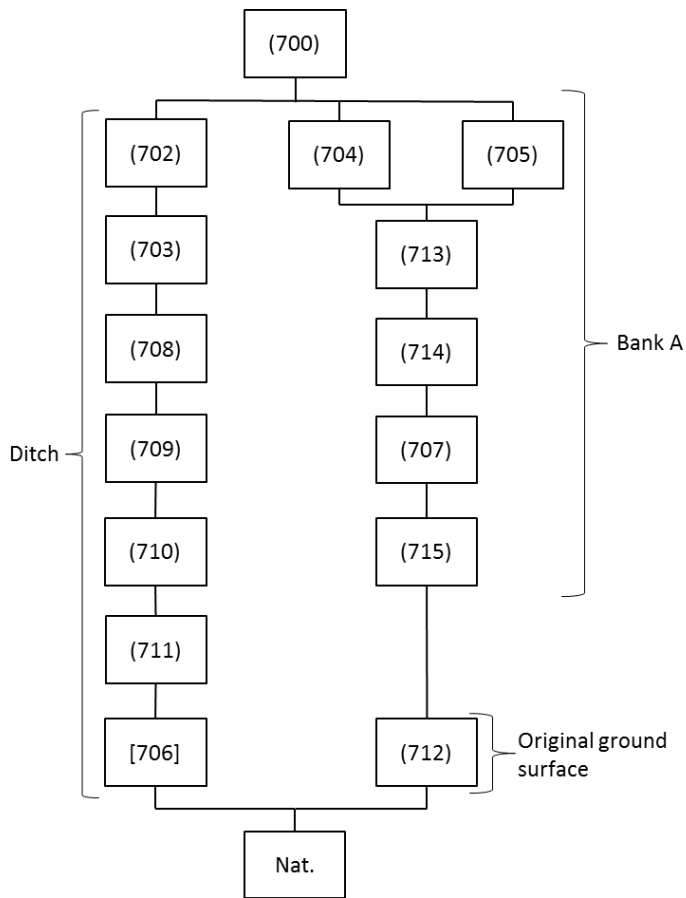


Figure 22: Trench 7 matrix.

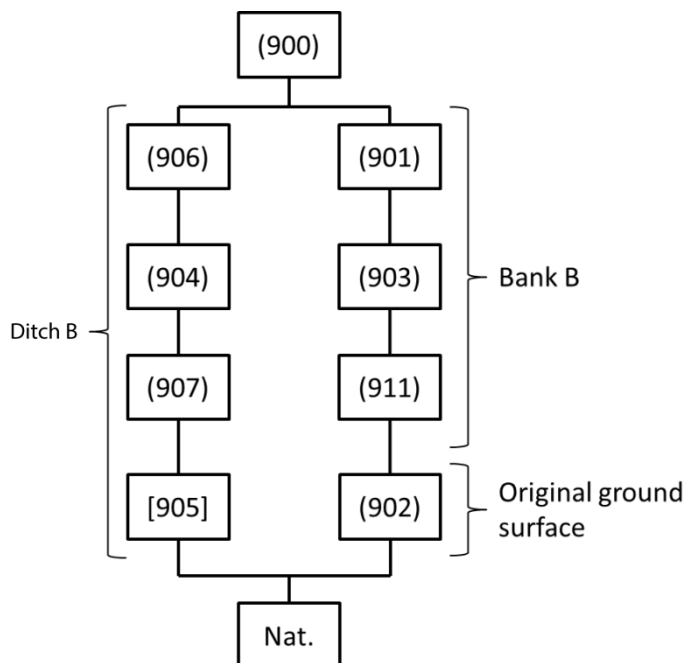


Figure 23: Trench 9 matrix.

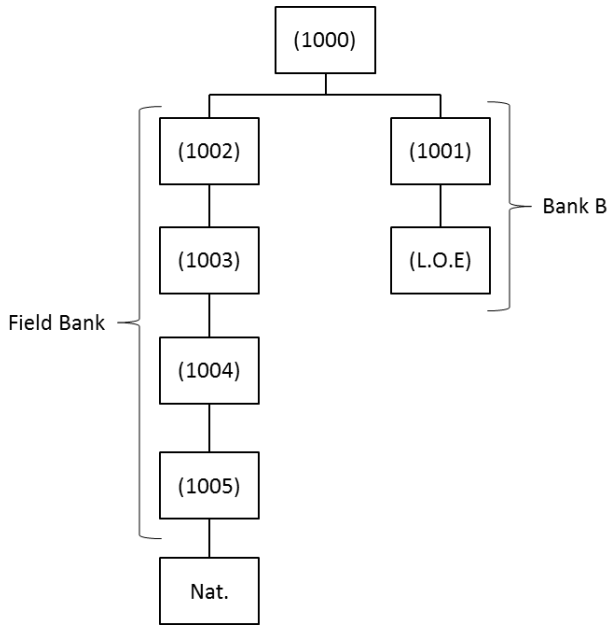


Figure 24: Trench 10 matrix.

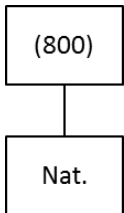


Figure 26: Trench 11 matrix.

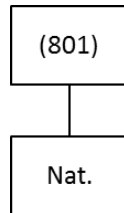


Figure 25: Trench 12 matrix.

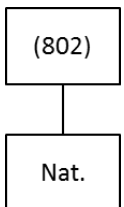


Figure 28: Trench 13 matrix.

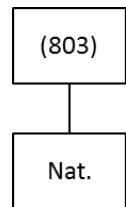


Figure 27: Trench 14 matrix.