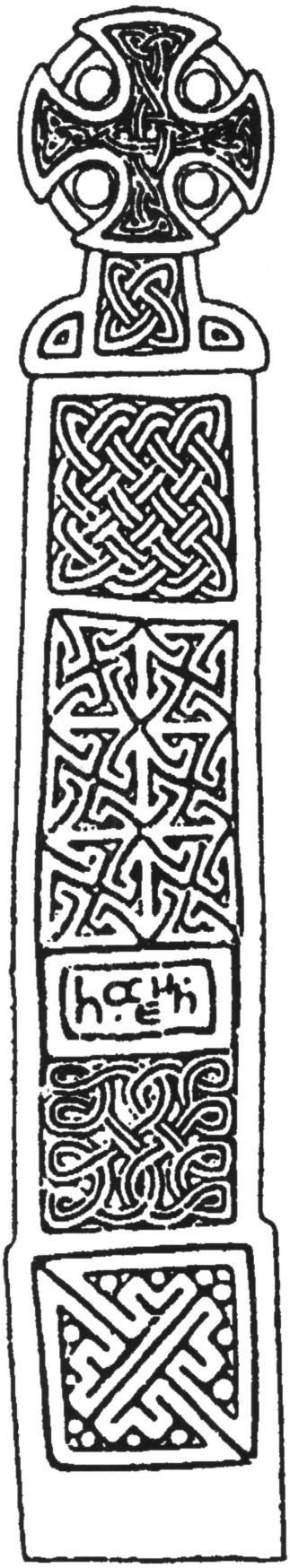

Archaeological Excavation & Earthwork Survey

Ridge Hill Reservoir to Aconbury Water Pipeline Scheme

Aconbury Woods Herefordshire

Laing O'Rourke for
Dŵr Cymru / Welsh Water

NGR SO 50895 33311-SO 51016 32978

SMR No: 46678

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BORDER ARCHAEOLOGY

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1. Non Technical Report

The archaeological programme of works undertaken by Border Archaeology at Aconbury Woods comprised the following specific elements:

1/ A detailed archaeological assessment of the site based on a review of the archaeological and historical evidence, together with an initial measured survey of the existing physical remains

2/ Excavation of trial trenching along the route of the trackway and associated banks to be impacted by the proposed engineering ground works

3/ A specifically targeted (limited) earthwork survey

4/ Limited geoarchaeological investigation

5/ Scientific dating of deposits

This programme of works revealed a series of deposits and features relating to several phases of activity on the site, possibly dating back to the prehistoric era.

- *The earliest evidence of activity identified was a sub-circular feature at the base of Trench 2, which appeared to be of anthropogenic origin, possibly a stake-hole, cut from a buried soil horizon that immediately overlaid the natural bedrock.*

- *This buried soil horizon and stake-hole were overlaid by substantial colluvial (i.e. hillwash) sediments, which formed what has been characterised as a 'plateau-edge deposit'. Similar, though less pronounced colluvial deposits were identified in Trench 1 and Trench 3.*

- *Dating evidence for the formation of the plateau edge deposit was obtained by means of Optically Stimulated Luminescence (OSL) dating of a core sample from the upper level of the colluvial deposit, which yielded a date of AD 525 ± 250.*

- *This implies that this substantial colluvial deposition probably began at some point in the prehistoric era and accumulated over a long period. Moreover, the sub-circular stake-hole feature and associated buried soil horizon in Trench 2 are likely to be of prehistoric date.*

- *The exact cause of the colluvial accumulation is unclear, but it appears to represent a significant destabilisation of the hillside, probably resulting from several major episodes of deforestation, possibly caused (in part) by clearance for, and construction of the nearby Iron Age hillfort of Aconbury Camp.*

- *However, other significant episodes of tree clearance for conversion to arable and pasture are documented within the vicinity of Aconbury Woods during the medieval and early-post medieval periods; these may also have contributed to the build up of this plateau-edge deposit.*

- *The excavations undertaken by Border Archaeology revealed evidence of a routeway established on top of the western slope, roughly parallel with the main*

(lower) trackway. In the case of Trenches 2 & 3, the routeway seems to have utilised the plateau-edge deposit as a convenient platform.

- *In Trench 1, however, it appears that the routeway was formed by hollowing out a gully into the natural bedrock, which appears to have been associated with the formation of a stony bank to re-define a boundary.*

- *This upper routeway appeared to have been used for pedestrian or livestock access, whereas the main (lower) trackway displayed evidence of deep rutting caused largely by horse- or ox-drawn transport over a long period.*

- *OSL dating of a core sample taken from a bank established on the E side of the upper routeway in Trench 2 yielded a date of AD 1300 ± 150, implying that the routeway was already in existence before this bank was established, probably by the nuns of Aconbury who were engaged in woodland clearance and enclosure during the 13th-14th centuries.*

- *Topographical evidence also indicates a likely medieval origin for the lower trackway. The somewhat irregular zigzag alignment of the trackway, the southern half running N-S and then sharply turning NW, before abruptly striking to the NE, suggests that it follows the line of an ancient woodland boundary, probably of medieval origin, delineating the eastern limits of Kings Held Wood, a long established area of woodland within Aconbury forest probably enclosed by the mid 14th century.*

- *The upper routeway fell out of use by the early 19th century, certainly before 1852, as it is not shown on the Aconbury estate map of that date, which shows a clearly defined bank defining the W edge of the main (lower) trackway.*

- *A phase of later activity, probably dating from the mid 19th century, was represented by the widening of the main (lower) trackway and the establishment of a tree-lined bank along its eastern side, which was probably associated with an extensive programme of re-planting in Aconbury Woods undertaken by Guy's Hospital from the 1830s onwards.*

1.1 Summary Chronology

Chronology	Results of Archaeological Investigation
c. 500 BC – Construction of Aconbury Camp, occupied through to the late 1st–early 2nd century AD (based on pottery evidence).	Evidence of possible stake-hole cut into basal soil horizon, underlying deeply stratified colluvial deposits. Construction of hillfort and associated tree clearance & earth movement may have resulted in early phase of colluvial accumulation
7th-8th centuries AD - Aconbury Camp mentioned as 'Caer Rhein' within the northern limits of the early medieval kingdom of Ergyng (Archenfield)	Later phase of colluvial accumulation dated to c.525 ± 250. Environs of Aconbury Camp presumably not densely wooded at this date
c.1200 - Earliest reference to forest of Aconbury, then in the possession of the Crown	Aconbury Camp and environs probably wooded by this date
1216 – Grant to Margaret de Lacy of 3 carucates (360 acres) of land within Aconbury forest to be 'assarted' (cleared and cultivated) for the founding of Aconbury Priory	
1227 - Forest of Aconbury granted to Hubert de Burgh	
1266 – Grant by Henry III of forest of Aconbury and Athelstan's Wood to Aconbury Priory; nuns in full possession of forest.	Bank adjacent to upper routeway in Trench 2 dated to c. AD 1300 ± 150. Upper routeway and lower trackway probably in existence by late medieval period
c. 1340-50 - Documentary references in the accounts of Aconbury Priory to the enclosure of several areas of woodland within the forest of Aconbury.	
1348 – Earliest documented reference to King's Held Wood, parts of which appear to have been cleared for arable cultivation by that date.	
c. 1500 – Documentary references to existence of network of trackways in Aconbury forest and surrounding area.	
1536 – Dissolution of Aconbury Priory.	
1542-1552 – Extensive coppicing/tree felling carried out in Aconbury forest by Hugh ap Harry.	Evidence of later phase of colluvial accumulation as a result of further tree clearance activity in post-medieval period
1573 – Survey of Aconbury forest, mentions that 33 acres of woodland in Kings Held Wood was 'now destroyed by Conies' indicating existence of rabbit warren.	
1642-45 – Aconbury Camp and surrounding area occupied by Royalist and Parliamentarian forces on two separate occasions during the Civil War.	
1731 – Aconbury Woods, together with the rest of the Aconbury Court estate, sold to Guy's Hospital, London.	
1757 – Plan of Aconbury Court estate showing line of existing trackway defining the eastern boundary of King's Held Wood and the Warren.	Evidence of intensive use of lower trackway indicated by heavy rutting
c.1830-40 – Replanting of woodland carried out by Guy's Hospital in the vicinity of Aconbury Camp.	Widening of lower trackway and formation of bank on eastern side of trackway
1852 – Plan of Aconbury Court estate showing King's Held Wood and The Warren heavily planted with trees.	
1888 – Present extent of wooded area established as shown on OS 1st edition map.	

2. Introduction

Border Archaeology was instructed by Mr M. Stokes of Laing O'Rourke to carry out a programme of archaeological work in respect of a section of mains water pipeline extending from Ridge Hill Reservoir to Aconbury Reservoir along a section of trackway running along the E side of Aconbury Woods (from NGR SO 50895 33311 to SO 51016 32978) and approximately 350m E of the eastern extremity of Aconbury Camp Iron Age hillfort (DCWW/LOR scheme map refs W140-03 & 04).

The specific aims of the archaeological programme of works, as detailed in the Written Scheme of Investigation devised by Border Archaeology, were as follows:

- To identify the date, construction method and probable function of the principal bank situated on the SW side of the trackway by means of excavation and the scientific dating of deposits.

- To produce a permanent record of the bank by means of earthwork survey and standard archaeological recording methods, as detailed in Border Archaeology's Field Recording Manual.

- To establish whether the principal bank and the less substantial bank on the NE side of the track are linked by a ditch and, if so, to establish the depth and profile of the ditch.

- To identify, if possible, the relationship between the principal bank and a flight of terraces running upslope from the rear of the bank towards Aconbury Camp.

- To identify, if possible, evidence for potential Iron Age extra-mural activity associated with Aconbury Camp.

This report was completed in August 2008. Copies will be submitted to DCWW, Laing O'Rourke, Herefordshire Council and the Herefordshire Sites and Monuments Record.

2.1 Soil Characteristics & Geology

The predominant soil type in the immediate vicinity of the specific study area consists of typical brown earths of the EARDISTON 1 series (541c), comprising well-drained reddish coarse loamy soils over sandstone, shallow in places with some reddish fine silty soils over shale and siltstone.

The underlying geology consists of Devonian and Permo-Triassic reddish sandstone, silty shale and siltstone.

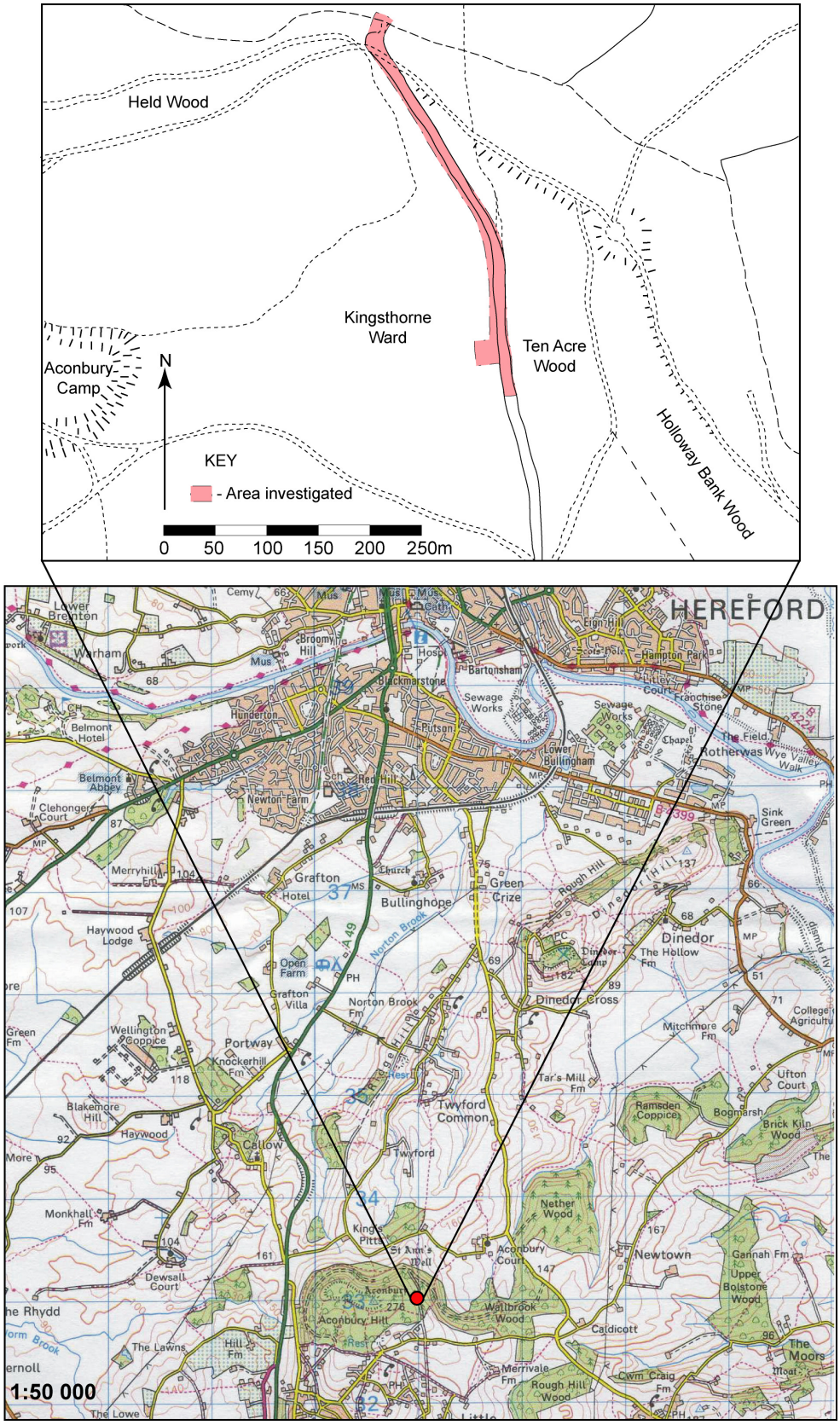


Fig. 1 Map showing location of site

3. Methodology

3.1 Excavation Methodology

Excavation was carried out in accordance with guidelines set out in the Institute of Field Archaeologists *Standard and Guidance for archaeological excavation* (1995, revised 2001). Border Archaeology adhered to the revised IFA *Code of Conduct* (2002) and the revised *Code of Approved Practice for the Regulation of Contractual Arrangements in Field Archaeology* (2002) and to Herefordshire Archaeology's *Standards for Archaeological Projects in Herefordshire (Issue 1)* (Herefordshire Council 2004) at all times during the course of the investigation.

Manual excavation of archaeological deposits was used for the recovery of stratigraphic data, with the extent and character (colour, texture, boundary characteristics etc.) of each archaeological context being defined by trowelling prior to excavation. All artefacts were bagged and labelled with the site code and context number before being removed off-site.

An environmental sampling strategy was employed in accordance with *Environmental Archaeology: A guide to the theory and practice of methods from sampling and recovery to post-excavation* (English Heritage 2002) to identify, characterise and determine the range, quality, mode of preservation and concentration of biological remains.

Analysis of soils and sediments was carried out by the company's appointed external contractor, Dr Mike Allen, in accordance with guidance set out in *Geoarchaeology: Using earth sciences to understand the archaeological record* (English Heritage 2004). Buried soils and sediment sequences were inspected and recorded on site to assess the archaeological relevance and importance of these soils/sediments to an understanding of how deposits were initially laid down and modified through time. Collection of samples for analysis of chemistry, magnetic susceptibility, particle size, micromorphology and/or other techniques was not considered appropriate.

Border Archaeology adhered to guidance from Ms Lisa Moffett, English Heritage Regional Science Advisor, and from Professor Ian Bailiff and Mr Scott Grainger, Archaeological Services University of Durham, in its use of Optically Stimulated Luminescence (OSL) as an appropriate method for dating buried sediment sequences encountered during the excavation.

3.2 Recording Methodology

All archaeological features, structures and deposits located were recorded using separate *pro forma* record sheets in order to fulfil the aims of the project specification and to resolve questions relating to their likely date, nature, extent, condition and relationship to adjacent features.

Plans, sections and elevations were produced at scales of 1:20 or 1:10, as appropriate, and all such plans, elevations and sections contained grid and level data relative to the OS national grid. All drawings were numbered and listed in a drawing register, these drawing numbers being cross-referenced to the written site records.

The written and drawn records were made in accordance with the Institute of Field Archaeologists' *Standard and Guidance for archaeological excavation* (1995, revised 2001) and with Border Archaeology's Fieldwork Site Recording Manual. The MoLas single-context planning system was used and a detailed stratigraphic record compiled using a context numbering system; a Harris matrix was constructed as a means of ordering the stratigraphy and understanding stratigraphic relationships.

A photographic record of all stratigraphic units comprising record views of contexts, samples or artefacts was compiled using a high resolution 10.3 MPX digital camera.

3.3 Summary of Programme of Archaeological Works

Stage 1: Excavation of trenching

The programme of archaeological works was initially intended to involve the archaeological excavation of three substantial trenches across the principal bank on the western side of the trackway, together with three access pits to be excavated across the trackway.

These trenches and access pits were placed in pre-determined locations by Border Archaeology in order to identify the date, construction method and function of the principal bank, to establish whether or not the existing trackway lay within a ditch linking the principal bank and the less substantial bank on the E side, and, if possible, to establish the depth and profile of the ditch. Initial site surveys by LOR indicated a likely depth of 2m.

At an early stage in the programme of works, it became clear that, in fact, the trackway did not lie within a ditch but cut directly into solid bedrock. This prompted a reassessment of the excavation strategy and the access pits were thus modified to provide a continuous record of the deposits and features revealed in the access pits together with those identified within the three trenches excavated through the bank.

For reasons of clarity, therefore, the three trenches and associated access pits were recorded and are described in the report as single entities (Trenches 1-3). The trenching was not extended across the full width of the trackway, as it was necessary to keep part of the trackway open for access purposes.

Following the excavation of the three main trenches, another trench was excavated to investigate the less substantial bank along the eastern side of the trackway (Trench 4). Two further trenches were also excavated, one (Trench 5) located on the route of the pipeline at the point where it intersects with the northern boundary of Kings Held Wood, a tract of ancient woodland, while the other (Trench 6) was placed to investigate earthworks (possibly remains of terracing) identified on the slope immediately to the W of Trench 2.

The dimensions of the trenches were as follows: Trench 1 measured 9m E-W x 6m N-S. Trench 2 measured 7.40m E-W x 10m N-S. Trench 3 measured 9m E-W x 4m N-S. Trench 4 measured 2m E-W × 2m N-S. Trench 5 measured 3.40m NW-SE x 1.80m NE-SW. while Trench 6 measured 8.40m E-W x 1.2m N-S.

Stage 2: Earthwork survey

Herefordshire Archaeology identified the need for at least a limited earthwork survey of the area to be impacted by the proposed groundworks. Consequently, D. Sabin and K. Donaldson (Archaeological Surveys Ltd) were commissioned by Border Archaeology to undertake a topographic survey of an area of land around the pipeline route. The objective of the survey was to create a record of the topography of the site with a particular emphasis on surface variations that may relate to features of archaeological significance. A summary discussion of the results is included in the main report while the detailed results of this survey are contained in Appendix 2.

Stage 3: Reduction of trackway

This stage involved the mechanical strip-back of approximately 400m of trackway under archaeological supervision and the manual excavation of an evaluation pit to determine the nature and extent of archaeological deposits in a specific location towards the southern end of the trackway.

The strip-back was undertaken in order to determine the nature of deposition along the full length of the trackway and to facilitate easier access to the site. The evaluation pit was specifically located to investigate the nature and maximum depth of deposits identified in an adjacent engineering test-hole excavated by Laing O'Rourke prior to archaeological works being carried out.

The methodology employed involved the mechanical excavation of surface deposits up to a maximum depth of 0.50m. This was achieved using a toothless bucket and all works were carried out under archaeological supervision. Four 2m sections of the strip-back area were selected for recording. These areas were manually cleaned, photographed and recorded. Sections were labelled 1 to 4 extending from N to S.

Stage 4: Geoarchaeological site visit

Following discussions with Julian Cotton, Archaeological Advisor, Herefordshire Archaeology, and Lisa Moffett of English Heritage, that the sedimentary sequences revealed in several of the trenches (in particular the well preserved sequence in Trench 2) would be worthy of geoarchaeological investigation, Dr. Mike Allen of Allen Environmental Archaeology was commissioned by Border Archaeology to undertake a field visit to examine the sequences exposed within four of the trenches and to provide a geoarchaeological account of their formation and function. The detailed results of this field visit are contained in Appendix 2 at the end of this report.

Stage 5: Analysis and dating of soil samples

Following discussions between Border Archaeology and Lisa Moffett prior to the commencement of works, it was intended to establish dates for the sequence of deposition revealed in the three main trenches (in particular, the well-preserved depositional sequence in Trench 2), by means of scientific dating, using Optically Stimulated Luminescence (OSL) techniques. Assistance & advice was obtained from Professor Ian Bailiff and Scott Grainger at Durham University

Consequently, a number of core samples were taken from specific deposits regarded as suitable for dating and sent for analysis to University of Durham Archaeological Services (ASUD). The results of this analysis are detailed in Appendix 2 to the end of this report.

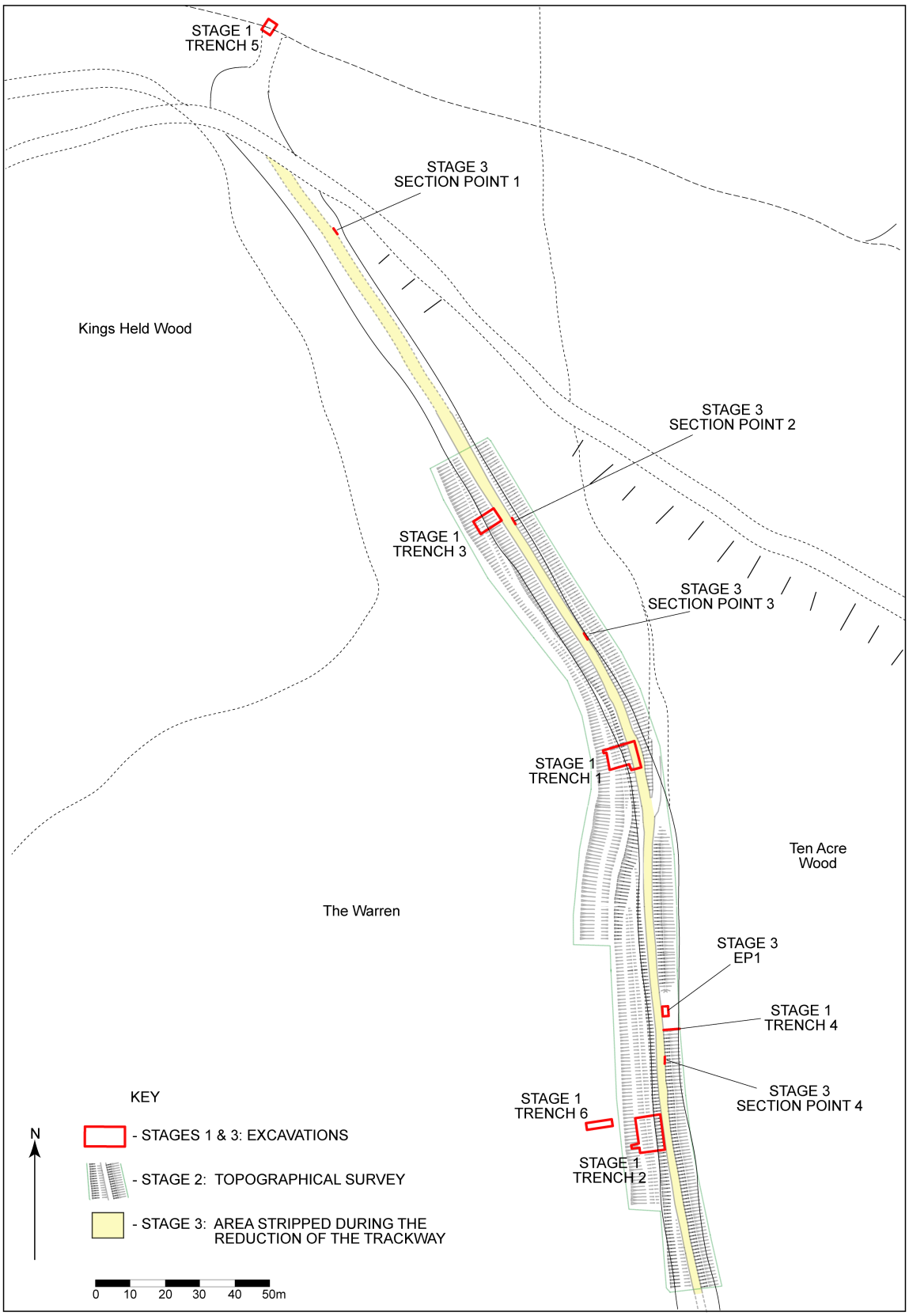


Fig.2 Plan showing location of excavations along trackway at Aconbury Woods

4. Results of Archaeological Programme of Works Stages 1-3

4.1 Stage 1: Excavation of Trenches 1-6

4.3.1 Excavation of Trench 1 and adjacent Access Pit

Trench 1 **(Figs. 3 & 4; Plates 1-4)** measuring approximately 9m E-W x 6m N-S was excavated across the bank and trackway approximately 220m S of the northern end of the trackway. The location of this trench was determined by initial field investigation, which suggested the possibility of a bank of earth and stone construction marking the western edge of this particular section of the trackway.

Trench 1 produced a total of 16 contexts, the uppermost (1001), consisting of a loose to moderately compacted dark brown organic deposit measuring 9.0m E-W, 6.0m N-S and up to 0.05m in thickness. (1001) in turn overlay (1002), a loose dark brown to black sandy silt with evidence of frequent root disturbance, measuring 0.04m in thickness.

Plate 1: View looking SW showing N-facing section of Trench 1

Subsoil (1003) was a loose to moderately compacted greyish-brown sandy silt with frequent root intrusion, moderate charcoal inclusions and very occasional fragments of translucent bottle glass of late post-medieval date. A moderately compacted mid reddish-brown silty sand with occasional charcoal and sandstone fragments (1005) was then revealed and this exhibited evidence of heavy root disturbance throughout. The visible extent of this deposit measured 9.0m E-W, 6.0m N-S and up to 0.52m in

thickness, extending from the western (upslope) end of the trench and continuing eastwards down the slope.

At the edge of the slope, a rounded bank (1014) was identified extending northwards from the N-facing section (**Plate 1**), which consisted of frequent fragmentary sandstone, much of which showed evidence of weathering, contained within a firm light greyish-brown silty sand with patches of dark reddish-brown silt.

This bank appeared to gradually peter out towards the N end of Trench 1, as indicated within the S-facing section (**Plate 2**), which reveals a ridge of degraded and heavily eroded bedrock (1008). The profile of bank (1014) showed clear evidence of having been shaped, indicating a likely anthropogenic origin; it appeared to represent a redefinition of the boundary originally defined by (1008).

Plate 2: View looking S showing N-facing section of Trench 1

Immediately to the W of stony bank (1014), a linear gully feature [1012] was identified, running roughly N-S for approximately 6.0m and measuring 2.15m wide, with a sharp break of slope at the top and base, sharply inclined sides and an irregular, sloping base (**Plate 3**). This feature appeared to be formed over sandstone bedrock (1006), which exhibited limited evidence of erosion and wear partially resulting from quarrying activity associated with the construction of bank (1014). It is possible that [1012] may have represented the formation of a routeway running along the top of the slope, roughly parallel with the lower (main) trackway and was presumably contemporary with the establishment of adjacent bank (1014).

[1012] contained two deposits: a well compacted dark reddish-brown silty sand (1013), its visible extent measuring 1.08m E-W × 6.0m N-S × 0.18m, which, in turn, was overlaid by (1005). (1013) appeared to represent an initial episode of colluvial deposition, accumulating against (1014) / (1008) in the N- and S-facing sections, respectively, one a mound of stones and the other a natural ridge of bedrock, which together constituted a

clearly defined boundary along the edge of the slope (**Plate 3**). (1005) appeared to constitute a later, more substantial phase of colluvial deposition extending E down the slope.

Plate 3: View looking S showing N-S alignment of gully feature [1012] overlaid by colluvial deposits (1013) and (1005) with later depression/trackway feature [1016] overlaid by (1003) at S end of Trench 1

Situated at the W end of the trench, on top of and partially truncating (1005), was a broad depression [1016], with a sharp break of slope at the top, gently sloping sides and an uneven, slightly concave base, its visible extent measuring 2.10m (E-W) × 6.0m (N-S). Depression [1016] was on a roughly identical alignment to [1012] and was interpreted as representing a later phase of routeway use. Filling [1016] was (1003).

Within the access pit excavated at the lower (E) end of Trench 1, extending across part of the lower (main) trackway, the cut for an earlier phase of the trackway was identified. [1010] was aligned N-S and measured 4m N-S × 1.70m E-W × 0.32m, with a sharp break of slope at the top and sharply angled sides, together with a slightly uneven but generally flat base (**Plate 4**). The access pit was extended to further investigate this feature and was recorded as part of Trench 1.

Plate 4: View looking S showing cut for main (lower) trackway [1010]

[1010] contained three fills, the uppermost of which was (1015), a loose to moderately compacted greyish-brown humic sandy silt exhibiting extensive root intrusion, which in turn overlay (1009), a firm greyish-brown silty humic subsoil extending 1.70m up to a maximum thickness of 0.12m and containing occasional post-medieval ceramics and a single large iron nail of post-medieval date. Underlying (1009) was (1011), a moderately compacted to firm reddish-brown silty sand with very occasional iron objects.

Of particular interest were three heavily corroded iron nails visible within the W-facing section of the cut for the trackway, aligned N-S, which appeared to have been embedded into the bedrock. The function of these nails was difficult to determine, the most likely explanation is that metal rods or timbers were attached to these nails as part of a temporary repair to a section of the trackway that had been rendered impassable by heavy rutting. No corresponding nails were identified in the E-facing section of the cut.

Another possibility is that they might have been used to attach plate rails to sleepers, forming part of a horse-drawn wagon-way which might have been established in association with the stone quarries located at either end of the trackway and which are marked as disused on the OS 1st edition map of 1888. However, no extant stone or wooden sleepers were noted in this location or elsewhere along the trackway.

Fig. 3: Section Drawings of Trench 1 (To be inserted as A3)

Fig. 4: Post excavation plan of Trench 1 (To be inserted as A3)

4.3.2 Excavation of Trench 2

Trench 2 (**Figs. 4 & 5; Plates 5-7**) was the southernmost of the three trenches to be excavated, situated approximately 320m S of the northern end of the trackway. The trench was located within a deep natural hollow, within which an extremely well preserved sequence of deposition, much of it consisting of substantial colluvial sediments, had gradually accumulated (**Plate 5**).

A detailed geoarchaeological account of the sequence of deposits identified in Trench 2 was provided by Dr M. Allen (Allen Environmental Archaeology); the following description is indebted to his account (Allen 2008), which is reproduced in full in Appendix 2 of this report.

Within this trench, measuring 7.40m E-W x 10m N-S, a total of 14 contexts were identified, the uppermost of which (2001) consisted of a loose to moderately compacted, dark brown to black stoneless humic deposit measuring up to 0.05m in thickness in places. This overlay (2002), a loose dark reddish-brown sandy silt with extensive root penetration, measuring up to 0.07m in thickness. Underlying (2002) was (2003), a loose to moderately compacted greyish-brown sandy silt with extensive root intrusion, moderate charcoal inclusions and very occasional glass fragments, measuring up to 0.30m in thickness.

Plate 5: View N of S-facing section of Trench 2 showing substantial colluvial deposits

(2003) partially abutted against (2009), a loose to moderately compacted reddish-brown sandy silt with very occasional charcoal flecking and small sub-rounded stones and

evidence of extensive root disturbance. (2009) measured 1.86m (E-W) × 1.30m (N-S) × 0.30m and appeared to represent the establishment of a bank on the edge of the slope. Dating of a core sample taken from (2009), using Optically Stimulated Luminescence (OSL) yielded a date of AD 1300 ± 150 (at a confidence level of 68%).

Underlying (2009) were two thin stony soil lenses, (2013) and (2012). The former (2013) consisted of a firm reddish-brown sandy silt with frequent small stone fragments measuring 0.08m in thickness, underlying which was (2012), a firm reddish-brown sandy silt containing fine yellow mottling, lenses of fine bleached sand and very fine charcoal fragments, with a thin stony lens towards the base of the deposit, 0.06m thick. (2012) in turn overlaid (2010), a friable light pinkish-brown silty sand with occasional Fe objects and very infrequent charcoal flecking. This was interpreted as forming the upper part of a substantial 'plateau-edge' colluvial deposit, the visible extent of which measured 5m (E-W) × 5.6m (N-S) × 0.30m.

Plate 6: Plan view of possible stake-hole feature [2014] cut into buried soil horizon (2005) at bottom of S-facing section of Trench 2

Underlying (2010) was (2004), a moderately compacted light reddish-brown silty sand with very occasional charcoal flecking and evidence of significant bioturbation. (2004) measured 0.60m in thickness and was interpreted as representing the lower part of the colluvial deposit. Two clay pipe bowls were recovered from (2004), which appeared to be of late 17th century date, probably originating from the kilns at Pipe Aston, one bearing a wheel stamp while the other was stamped with the initials 'A E'. OSL dating of a core sample taken from (2004), just below its interface with (2010) produced a date of AD 525 ± 250. Underlying (2004) was (2005), a firm light yellowish-brown silty sand with

occasional small angular sandstone fragments, measuring 7.40m E-W, 1.30m N-S and up to 0.50m in thickness. (2005) was interpreted as a soil horizon which had been partially buried by the accumulation of colluvial deposit (2004). This soil overlay bedrock (2011).

In the NE corner of Trench 2, the cut for a sub-circular feature [2014] was identified (**Plate 6; Fig. 5**), projecting from the S-facing section and cutting into both (2005) and bedrock deposit (2011). [2014] measured 0.70m (E-W) × 0.42m (N-S) × 1.04m, with a sharp break of slope at the top and steeply sloping sides, tapering towards the base, which was slightly concave.

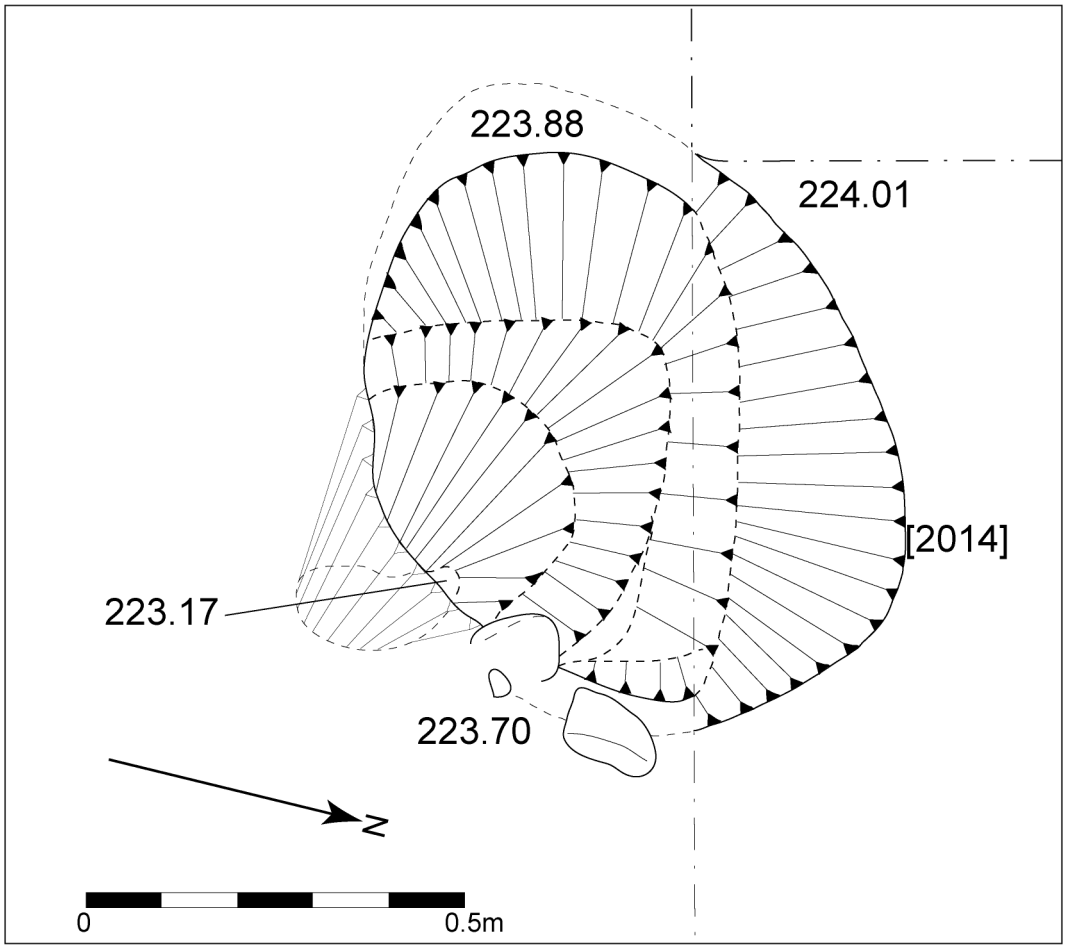


Fig. 5: Post-excavation plan of possible stake-hole feature [2014]

The function of [2014] was difficult to determine; little information could be derived from the fill, which was a moderately compacted light reddish-brown silty sand identical to (2004) but completely devoid of artefactual material or charcoal flecking. The shallowness of the feature seemed to rule out the possibility of an animal burrow, while the possibility of it being a tree-bole similarly appeared unlikely, in view of the regular shape of the feature and the fact that its fill contained no evidence of organic material (i.e. root material or decayed wood). This leads one to consider whether [2014] could, in view of its relatively small size and shallow depth and the fact that it appeared to taper quite sharply towards the base, be a stake-hole, possibly forming part of a fence defining an enclosure or estate boundary.

However, no other features of a similar form or size were identified within the area of the excavation. It is difficult to draw any firmer conclusions, based on the evidence of a

single, isolated feature, although its location at the base of a sequence of deeply stratified deposits suggests that it may well be of an early, possibly prehistoric date.

Plate 7: View N showing linear feature [2006] interpreted as a routeway at the W end of Trench 2

At the W end of the trench, cutting (2010), was a linear feature [2006], oriented roughly N-S, with a sharp break of slope at the top, sharply-angled sides and a flat base gently sloping from N-S (**Plate 7**). This cut appeared to represent a narrow routeway running along the top of the terrace formed by the plateau-edge deposit and parallel to the lower (main) trackway. The narrowness of the trackway and the marked lack of rutting compared to the heavily eroded lower trackway imply its use for pedestrian and livestock access rather than heavy vehicular transport.

Filling [2006] was (2007), a moderately compacted dark reddish-brown silty sand with occasional small to medium angular sandstone fragments, extensive root disturbance and very occasional Fe fragments, which in turn was sealed by subsoil deposit (2003). (2007) appeared to represent a gradual silting-up of the upper routeway feature, reflecting its steady decline and eventual cessation of use.

Fig. 6: Section Drawings of Trench 2 (To be inserted as A3)

Fig. 7: Post Excavation Plan of Trench 2 (To be inserted as A3)

4.3.3 Excavation of Trench 3

The northernmost of the three trenches, Trench 3 (**Plate 8; Figs. 8 & 9**) was located approximately 120m S of the northern end of the trackway and measured 7.40m NE-SW × 4.0m NW-SE. This trench was positioned to investigate a possible routeway seen to be running along the top of the slope above, and roughly parallel to, the existing lower trackway, eventually intersecting with it some 60m further to the NW of Trench 3.

Twelve contexts were identified, the uppermost of which was a loose to moderately compacted dark brown humic deposit extending trench wide and measuring 0.08m in thickness (3001). This material overlay loose dark brown to black sandy silt with extensive root disturbance (3002) measuring up to 0.15m in thickness. (3001) extended across the width of the NW- and SE-facing sections; however, (3002), although visible across the entire width of the NW-facing section, gradually petered out towards the middle of the SE-facing section (**Plate 8**).

Plate 8: View NW showing SE-facing section of Trench 3

At the upper (SW) end of the section, (3002) overlaid (3003), a moderately compacted mid greyish-brown sandy silt with humic material, moderate fragments of charcoal and clinker and frequent root disturbance, its visible extent measuring 1.92m × 4.0m × 0.32m. (3003) in turn overlaid (3004), a moderate to well compacted pinkish silty sand with very occasional small angular sandstone fragments and moderate root disturbance.

Both (3003) and (3004) appeared to have accumulated within [3011], a rectilinear gully feature, its visible extent measuring 4.0m NW-SE × 1.70m SW-NE (maximum width) × 0.25m. [3011] seemed initially to run parallel with the main (lower) trackway (oriented NW-SE) but then began to widen markedly and change orientation (running in a more northerly direction) towards the NW end of the trench. Beyond the trench, the feature continued in a northerly direction, running down across the steep slope and eventually intersecting with the main trackway some 60m further to the N. [3011] was interpreted as probably representing a continuation of the upper routeway which was also visible in Trenches 1 and 2.

Cut by [3011] was (3012), a moderate to well compacted light reddish-brown silty sand with occasional angular sandstone fragments and extensive root intrusion, very similar to

(3004), which extended across the NE-facing section of the trench and was interpreted as colluvial accumulation (**Plate 9**). It would appear that (3004) constituted redeposited material from (3012) that was banked-up on the edge of the slope following the establishment of the routeway represented by [3011]; some material from (3004) appears subsequently to have slumped back into [3011] probably representing a decline in use of the routeway. The eventual cessation of use of the routeway is evidenced by (3003), representing a gradual accumulation of silt within the feature.

Plate 9: View looking SE showing deposits in NE-facing section of Trench 3 cut by linear gully feature [3011]

Accumulating on the NE face of the slope sectioned by Trench 3 and overlying (3004) was (3006), a moderately compacted mid greyish-brown silty clay with occasional small angular sandstone fragments, which measured 2.24m NW-SE × 4m NE-SW × 0.34m.

This deposit extended down to the base of the slope and continued across the main (lower) trackway, partially overlying (3007), a well compacted greyish-brown sandy silt with occasional post-medieval glass and CBM fragments with very occasional charcoal flecking. (3007) in turn overlaid (3010), a moderately compacted reddish-brown silty clay, 0.30m thick, located within two parallel gully features ([3008], [3009]) situated on either side of the trackway; these appeared to represent evidence of rutting within the underlying bedrock caused by heavy wheeled transport and presumably accentuated by natural processes of erosion (**Plate 10**).

Plate 10: View looking SE showing section across trackway forming part of Trench 3, with parallel linear cuts in bedrock caused by heavy rutting

Above and to the W of the excavation area was a rounded earthen bank, heavily obscured by undergrowth and modern tree plantation but still intact, oriented NW-SE and running parallel to the alignment of the upper routeway. Unfortunately, it was not possible to investigate this feature in detail as it lay outside the area of potential impact, but it appeared to represent a park-pale defining the eastern boundary of Kings Held Wood (**Plate 11**).

Plate 11: View of park-pale, looking NW

Fig. 8: N- and S-facing sections of Trench 3 (To be inserted as A3)

Fig. 9: Post Excavation Plan of Trench 3 (To be inserted as A3)

Precisely when this park-pale was created is uncertain; it may have been established by the mid 14th century, when several areas of woodland within Aconbury forest are documented as having been enclosed by the nuns of Aconbury Priory. Another possibility is that it relates to post-medieval forest management; however, it is highly unlikely to be later than c.1850 as the boundary of King's Held Wood is clearly shown on the Aconbury Court estate map of 1852 to be represented by the western edge of the existing (i.e. lower) trackway.

4.3.4 Excavation of Trench 4

Trench 4 (**Fig. 10; Plate 12**) was placed to investigate the nature and extent of deposits within the bank delineating the eastern edge of the trackway. The trench measured 2m E-W x 2m N-S and was located at the southern end of the trackway approximately 50m N of Trench 2.

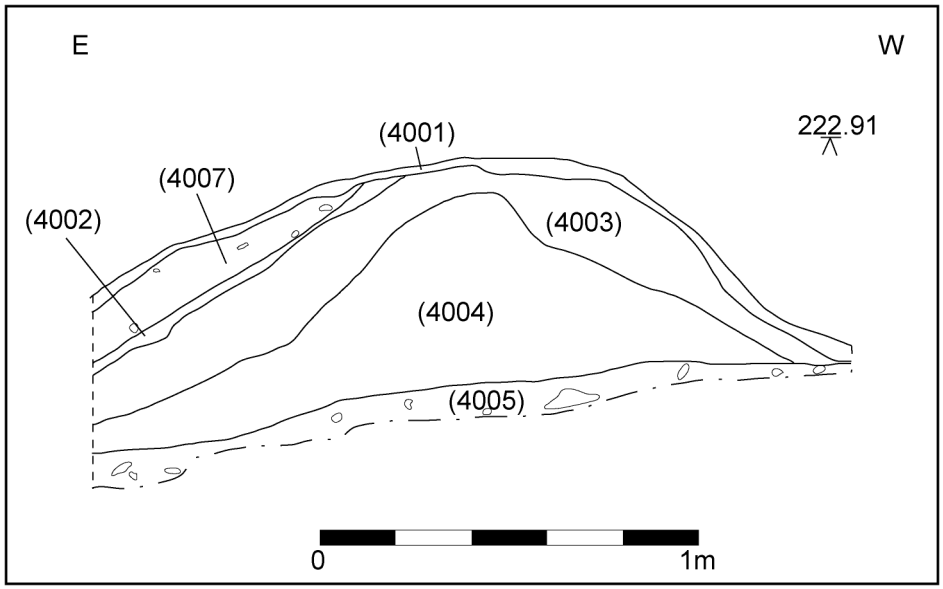


Fig. 10: N-facing Section of Trench 4

A total of seven contexts were recorded in Trench 4, the uppermost being (4001), a loose surface layer of litter and unincorporated humic material, with evidence of significant root disturbance, measuring up to 0.06m in thickness and extending across the excavation area. Underlying (4001) was (4007), a loose to moderately compacted greyish-brown sandy clay with occasional small angular sandstone fragments and extensive root penetration, extending for up to 0.70m E-W across the N-facing section of the trench and interpreted as material deposited to build up the eastern face of the bank (**Plate 12**).

Underlying (4007) was (4002), a thin lens of moderately compacted blackish-brown humic sandy silt with evidence of moderate root disturbance, extending for 0.82m E-W across the N-facing section and presumably representing the uppermost deposit along the eastern face of the bank prior to the deposition of (4007). Underlying (4002) was (4003), a moderately compacted dark brown silty sand with occasional decaying organic material, small angular sandstone fragments and extensive root disturbance, extending across the N-facing section and measuring up to 0.22m in thickness.

(4003) in turn overlaid (4004), a moderately compacted reddish orangey-brown silty sand with occasional small angular stones and extensive root intrusion forming the core deposit of the bank. Underlying (4004) was a loose to moderately compacted, light greyish-brown sandy clay with occasional small angular sandstone fragments and extensive root activity (4005) measuring 0.15m in thickness and forming the interface between the bank deposit and the underlying bedrock (4006).

Plate 12: View showing N-facing section of Trench 4 excavated across eastern bank of trackway

4.3.5 Excavation of Trench 5

Trench 5 (**Fig. 11; Plate 13**) measured 3.40m NW-SE x 1.80m NE-SW and was specifically positioned at the northernmost end of the trackway, at the point where it turned NE and intersected with a field boundary marking the northern limit of Kings Held Wood, a tract of ancient woodland forming a remnant of the medieval forest of Aconbury.

Plate 13: View looking SW showing NE-facing section of Trench 5

A total of five contexts were revealed within the trench, the uppermost of which, (5001), consisted of a thin layer of friable dark brown to black humic topsoil, extending trench-wide to a maximum thickness of 0.08m. Underlying (5001) was upper subsoil deposit (5002), comprising a cohesive mid greyish-brown clayey silt with occasional small angular sandstone fragments extending trench wide and measuring up to 0.32m in thickness.

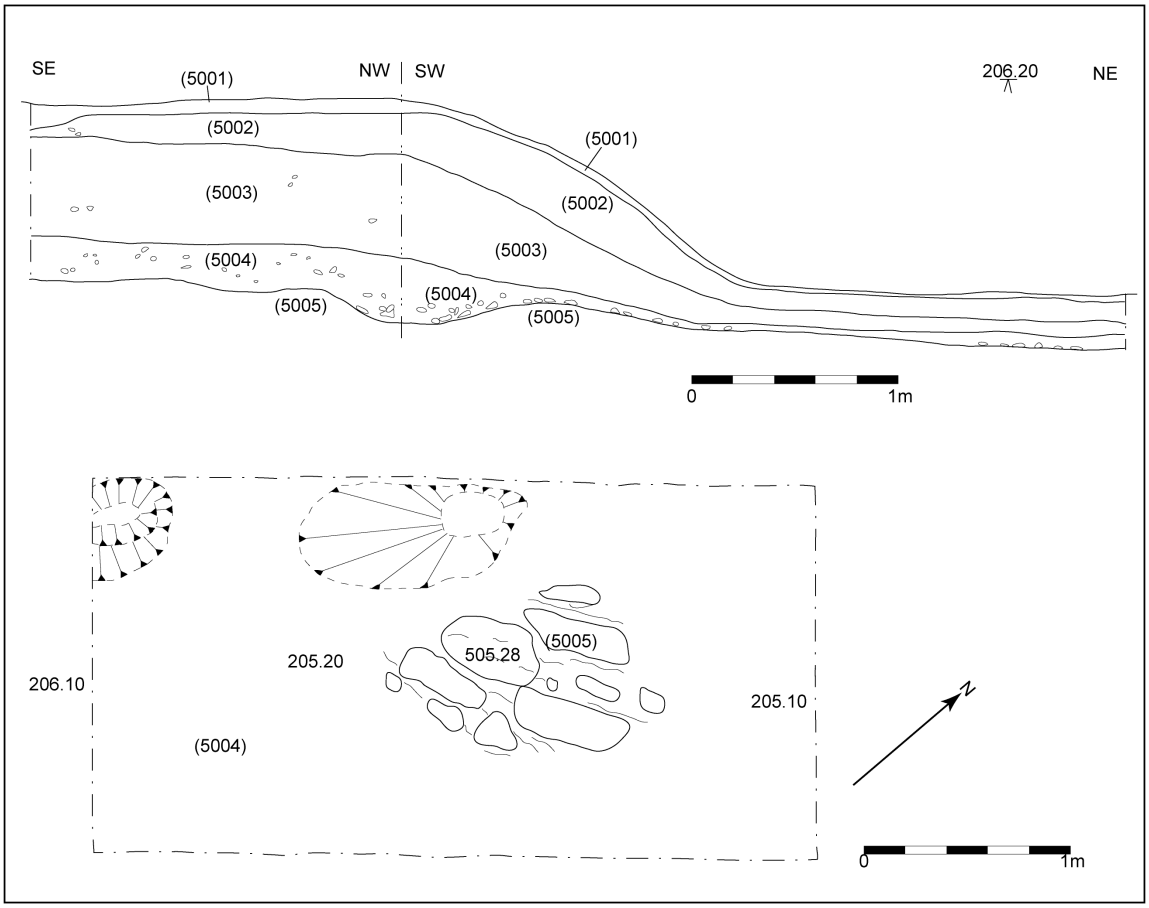


Fig. 11: Plan and sections of Trench 5 excavated at N end of trackway

(5002) in turn overlaid (5003), a cohesive mid pinkish-brown sandy silt with very occasional charcoal flecking and small angular stone fragments, extending trench-wide to a maximum thickness of 0.49m. Underlying this was (5004), a clastic, light greyish-brown silt with frequent angular sandstone fragments and very occasional charcoal flecking with evidence of heavy root disturbance, extending trench wide and measuring up to 0.31m thick, which overlaid bedrock (5005).

4.3.6 Excavation of Trench 6

Trench 6 (**Fig. 12; Plates 14-15**) sectioned a small bank situated above and approximately 10m to the W of Trench 2 and measured 8.40m E-W x 1.2m N-S. Eight contexts were recorded within the trench, the uppermost being (6001), consisting of loose litter and unincorporated organic material, with evidence of extensive root disturbance, extending up to 0.08m in thickness. This litter layer overlaid (6002)=(6006), a cohesive, mid pinkish-brown sandy silt with occasional angular sandstone fragments

and extensive root intrusion, extending trench wide and measuring up to 0.20m thick. (6002)=(6006) was interpreted as a colluvial deposit formed by material washed downslope and overlaid bedrock deposit (6005)

Plate 14: View looking W showing Trench 6

Two shallow linear features, both aligned N-S, were identified cutting into bedrock deposit (6005), one being located roughly within the centre of the trench [6004] while the other [6008] was identified at its western end. [6004] was a rectilinear cut (**Plate 14**), its visible extent measuring >5.20m E-W × 1.2m N-S × 0.40m, with a sharp break of slope at the top and convex sides becoming slightly concave towards the base, which was generally flat.

Filling [6004] was (6003), a denuded, mid greyish-brown sandstone deposit with occasional pockets of humic material and some root intrusion, which was interpreted as a degraded bedrock deposit disturbed by human activity and bioturbation. [6008) was a rectilinear cut with a gradual break of slope at the top and slightly convex sides extending 1.2m N-S to a maximum observed depth of 0.80m; its full width could not be determined as it extended beyond the western end of the trench (**Plate 15**). [6008] was

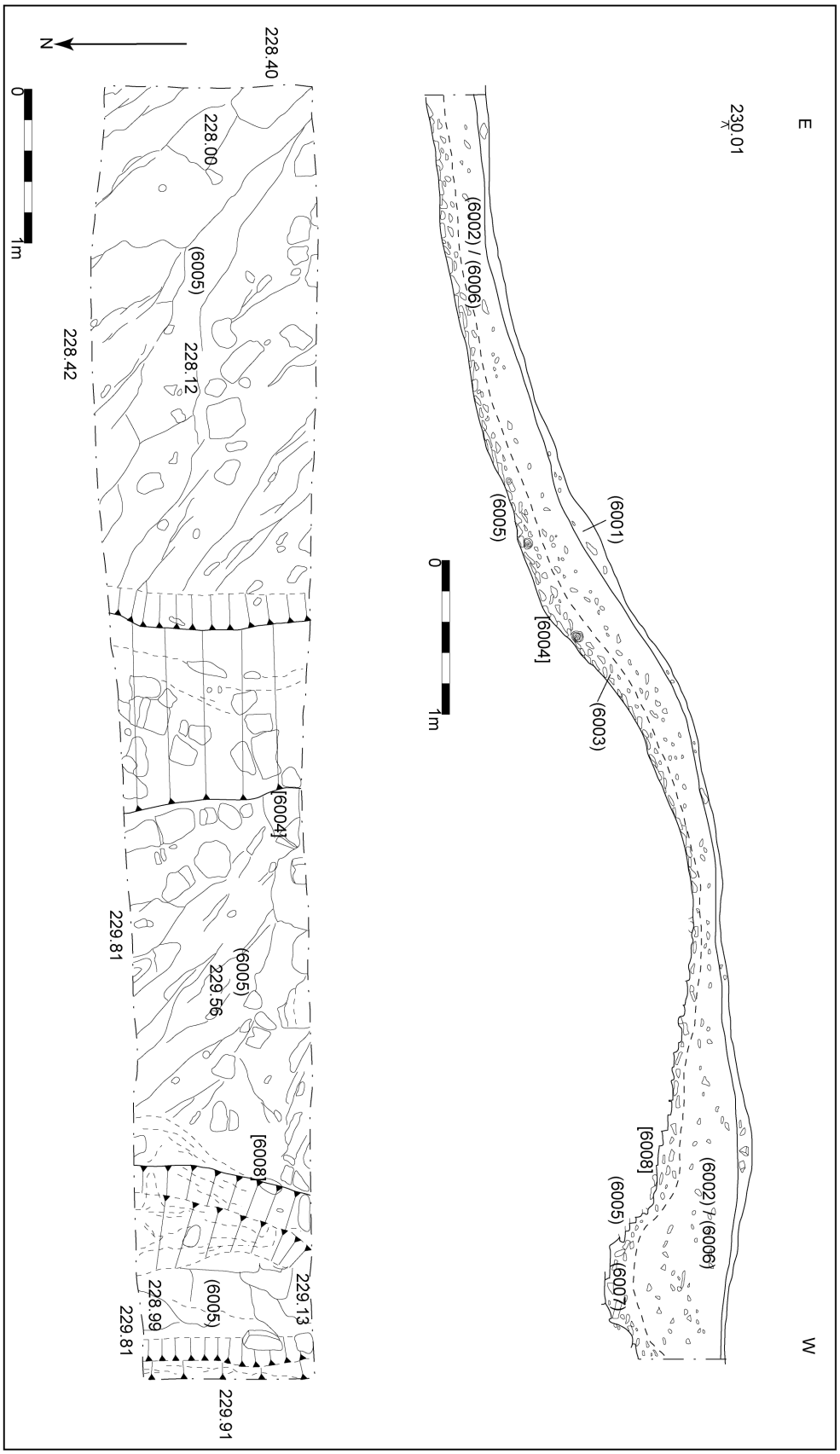
filled by (6007), a denuded mid greyish-brown sandstone deposit with occasional pockets of humic material similar to (6003).

The precise function of these two linear features is uncertain; the relative width of [6004] suggests that it probably served as a trackway providing access upslope, the lack of rutting suggesting that it was used by pedestrians and livestock rather than by wheeled vehicles. [6008] was somewhat narrower than [6004]; it could have represented a trackway but its greater depth suggests that it may instead have functioned as a drainage channel.

It is difficult to assign a date to these two features but the fact that they were sealed by colluvial deposit (6002)=(6006) suggests that they were formed before this part of the wood had been largely cleared of trees and converted to rough pasture. This would imply that [6004] and [6008] probably date from before the extensive programme of tree clearance and coppicing, which began in Aconbury forest from c.1550 onwards and continued up to the 1830s, when the woodland was extensively replanted.

Plate 15: View looking W showing E-facing section of Trench 6 with linear feature [6008] possibly a leat or channel

Fig. 12: Plan and N-facing section of Trench 6



4.4 Stage 2: Topographic Survey

Following a recommendation from Julian Cotton (Herefordshire Archaeology) that an earthwork survey should be undertaken of the specific area to be impacted by the proposed groundworks, a topographical survey was carried out by David Sabin and Kerry Donaldson (Archaeological Surveys Ltd) on behalf of Border Archaeology at Aconbury Woods, approximately 350m to the E of the Iron Age hillfort of Aconbury Camp.

Surface points were collected in order to allow hachuring, contouring and surface modelling of the linear banks and trackways traversing the eastern side of the hill

Trees and ground vegetation created poor conditions for survey and restricted surface observations and measurements. Surface models and contours were considered confusing; however, cross-sections derived from the surface model were plotted along with hachures.

The full survey results are presented in Appendix 2 at the end of this report.

4.5 Stage 3: Trackway Reduction and Excavation of Evaluation Pit

Stage 3 (**Fig. 13; Plates 16 & 17**) involved the mechanical strip-back of approximately 400m of trackway and the manual excavation of an evaluation pit (EP1). The strip-back was undertaken to determine the nature of deposition along the full length of the trackway and to facilitate easier access to the site. The evaluation pit was specifically located to investigate the nature and maximum depth of deposits identified in an adjacent engineering test-hole excavated by Laing O'Rourke prior to archaeological works being carried out.

The methodology employed involved the mechanical excavation of surface deposits up to a maximum depth of 0.50m and the recording of sections at four predetermined points along the trackway to obtain a general representation of the nature and extent of deposition along the length of the trackway. The reduction was carried out using a toothless bucket under archaeological supervision.

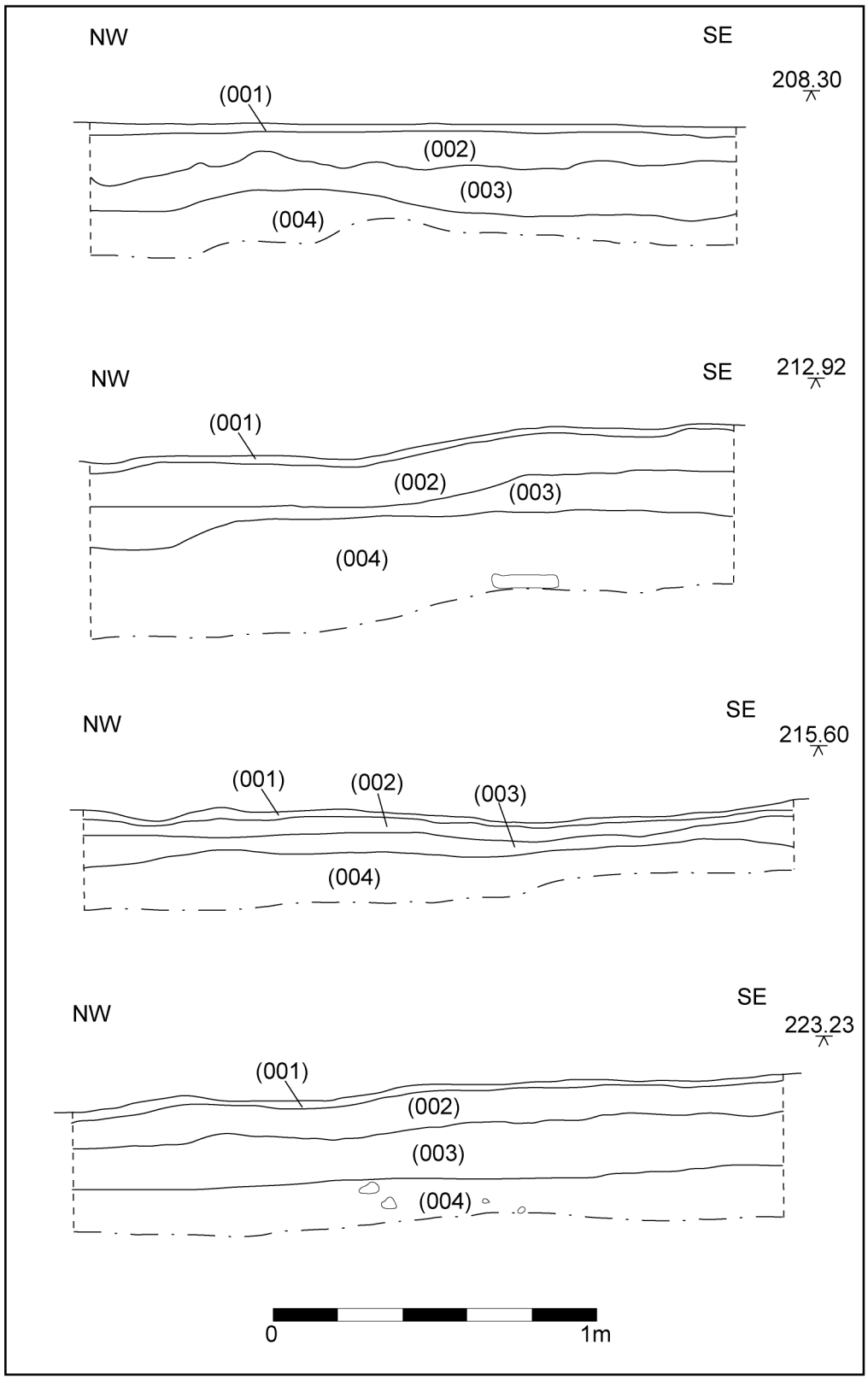
Four contexts were identified, consisting of (001), a loose surface litter layer, displaying extensive root activity, covering the strip-back area and evaluation trench and measuring up to 0.10m in thickness. This material overlaid (002), moderately compacted dark brown to black silty humic deposit with frequent root activity and very occasional charcoal flecking, again extending over the strip-back area and evaluation trench to a maximum thickness of 0.18m.

Plate 16: View looking E showing W-facing section in Section Point 1

Underlying (002) was (003), a moderately to well compacted mid greyish-brown silty sand with extensive root intrusion and very occasional charcoal flecking, extending across the strip-back area and evaluation trench to a maximum thickness of 0.18m. (003) in turn overlaid (004), a firm reddish-brown silty sand, interpreted as a colluvial deposit, which extended across the entire area of the strip-back and evaluation trench; its depth was undetermined as it extended beyond the maximum depth of the trenching (0.50m).

Plate 17: Post-excavation view of EP1 looking S

Fig, 13: Phase 3 showing deposits observed in Section points 1-4 following reduction of trackway



5. Interpretation of Results

Based on the evidence of the stratigraphic sequence revealed in Stages 1 and 3, it is possible to establish a broad chronological phasing (consisting of roughly six phases) for the deposits and features revealed during the programme of archaeological work undertaken at Aconbury Woods.

5.1 Phase 1

This, the earliest phase of activity on the site, was represented by [2014] a sub-circular feature cut into a buried soil horizon (2005) at the base of the substantial plateau-edge deposit formed by colluvial deposits (2010) and (2004).

Dating evidence for the formation of the plateau-edge deposit was obtained by means of Optically Stimulated Luminescence (OSL) dating of a core sample from (2004), taken just below its interface with upper colluvial deposit (2010). This yielded a date of AD 525 ± 250 (at a confidence level of 68%).

Considering that this sample was taken from the uppermost level of (2004), this implies that this process of colluvial deposition probably began at some point in the prehistoric era and continued over a long period. Moreover, this area must have been largely cleared of trees for an extended period for such a substantial colluvial accumulation to occur. It also follows that the sub-circular feature [2014] and the buried soil horizon (2005) are likely to be of prehistoric date, although it is difficult to be more precise in the absence of further dating evidence.

The function of [2014] was difficult to determine as no artefactual material was recovered from the fill, which was devoid of material suitable for sampling. However, the depth and profile of the feature would seem to suggest a stake-hole. No other features of a similar form or size were identified within the excavated area, which means that [2014] remains an isolated anomaly.

Consequently, it is difficult to place [2014] within a broader interpretative context; a possible hypothesis is that it formed part of a boundary fence, possibly defining an enclosure or estate boundary. However, in the absence of any similar features, the alignment of such a boundary remains undetermined; it might have respected the natural contour of the hillside (as does the existing trackway) or could have followed a completely different alignment.

Another possibility is that [2014] could have represented part of a structure built into the bank, such as a charcoal burning platform, however the depth at which the feature occurred clearly indicates that it is too early to be associated with charcoal manufacture during the medieval or post-medieval periods.

5.2 Phase 2

A subsequent phase of activity was represented by the burial of soil horizon (2005) including the stake-hole feature [2014] by the accumulation of substantial colluvial deposits, forming what has been characterised as a ‘plateau-edge deposit’ along the edge of the western slope of the trackway (Allen 2008). This deposit was most clearly visible in Trench 2, where a deep, well-preserved sequence of deposits had

accumulated within a hollow in the natural bedrock and consisted of (2010) and (2004), which buried the existing soil (2005).

The precise cause of this colluvial accumulation is unclear but it appears to represent a significant destabilisation of the hillside that may have resulted from one or (more likely) several major episodes of deforestation. The possibility should be considered that the construction of the nearby Iron Age hillfort of Aconbury Camp, and any tree clearance or earthmoving activity associated with its construction, might well have contributed to this colluvial accumulation (Allen 2008). Assuming that the latter hypothesis is correct, this would imply that the sub-circular feature [2014] is of prehistoric date.

The date range for the formation of the plateau-edge deposit in Trench 2 is probably very broad and difficult to define with precision. In this particular trench, where the sequence of deposits was best preserved, it is clear that it must have occurred over a considerable period and actually represents several phases of colluvial accumulation (indicated by the subtle differences between (2010) and (2004), the upper and lower plateau-edge deposits identified in Trench 2) rather than a single continuous phase of deposition.

The results of the OSL dating from Trench 2 (detailed above in 5.1) indicate that the colluvial build-up represented by (2004) and (2010) probably began at some point during the prehistoric period and may well have been the result of substantial tree clearance and movement of earth. It is reasonable to assume that this large-scale tree clearance and earthmoving activity could have been associated with the construction of nearby Aconbury Camp (c.500 BC).

Other episodes of tree clearance for conversion to arable and pasture are also documented in the vicinity of Aconbury Woods during the medieval period, which may have contributed further to the build up of the plateau-edge deposit. In Trench 2, the upper colluvial deposit (2010) would appear to have built up at some point between AD 525 ± 250 and AD 1300 ± 150, the date produced by the core sample from (2009), an earthen bank which was established immediately to the E of the upper routeway.

However, while the OSL dating has allowed the establishment of a basic chronology for the formation of the plateau-edge deposit in Trench 2, it cannot be assumed that the formation of the plateau-edge deposit occurred consistently and within an identical timescale along the whole length of the western slope of the trackway. The varying profile and height of the bedrock along the western side of the main (lower) trackway clearly had a significant influence on the thickness of the colluvial deposition.

The colluvial deposition was most clearly evidenced in Trench 2 due to the fact that these deposits had accumulated within a deep natural hollow within the bedrock, whereas in Trench 1 and Trench 3 it was considerably less pronounced, due to the fact that the bedrock was much higher, forming a steep ridge. Other factors, such as erosion and human activity, represented by the establishment of routeways along the top of the slope and quarrying activity, may have contributed to the denuded nature of the plateau-edge deposit in these areas.

5.3 Phase 3

A later phase of activity was represented by the establishment and subsequent maintenance of the main (i.e. lower) trackway and a roughly parallel upper routeway running upslope along its western side, making use of the plateau-edge deposit as a convenient platform. Based on the stratigraphic evidence, it is unclear whether the main

trackway or the upper routeway was established first, although it is clear that the two had quite different usages.

The main trackway exhibited evidence of intensive use as a cartway (presumably for horse- or ox-drawn vehicles) over a considerable period, indicated by the deep parallel grooves in the bedrock visible in Trench 3. In marked contrast, the upper routeway displayed no evidence of deep rutting, which indicates that it had not been subjected to use by heavy vehicles and its narrowness also suggests its use for pedestrian and livestock access, presumably by local tenants pasturing their cattle or sheep on the higher slopes of Aconbury Hill.

Both the main trackway and upper routeway exhibited evidence of maintenance and renewal. In Trench 1, there appeared to be evidence of three distinct phases of activity, the earliest represented by stony bank (1014) and gully [1012], possibly associated with quarrying activity, which is well documented in the vicinity of Aconbury during the medieval period. Subsequently, [1012] was filled by colluvial deposits (1013) and (1005), representing a period of non-trackway use, followed by the formation of another, later routeway on the same alignment, represented by [1016].

In Trench 2, evidence was found of periods of maintenance associated with the upper routeway feature [2006], indicated by thin stony lenses (2012) and (2013), which appear to represent minor clearances of material which had accumulated within [2006], followed by a more substantial clearance event represented by sandy silt bank (2009).

It is difficult to establish a conclusive date for the formation of the main trackway and upper routeway, respectively, based solely on the archaeological evidence. The artefactual assemblage from the excavation was extremely limited, consisting largely of iron objects (cart fittings and post nails) and a small amount of clay pipe and translucent bottle glass, all of which appeared to be uniformly of post-medieval date. The value of this limited assemblage for dating purposes was further reduced by the significant evidence for bioturbation observed throughout most of the deposits revealed in the trenching, resulting in a high degree of residuality.

However, the results of the OSL dating for Trench 2 seem to provide a *terminus post quem* for the formation of the upper routeway (represented by [2006]), indicated by the establishment of bank (2009) defining the eastern edge of the routeway, from which a core sample was taken producing a date of AD 1300 ± 150.

Further evidence suggesting a medieval origin for the trackway and routeway may be derived from the extant topography, documentary records and historic mapping. The somewhat irregular, 'zig-zag' alignment of the trackway, the southern half running N-S and then sharply turning NW, before abruptly striking to the NE, indicates that it probably follows the line of an ancient woodland boundary; if it were a post-medieval feature, it would be more likely to follow a straight, linear orientation (Rackham 2001).

Further supporting the antiquity of the trackway is the fact that it delineates the eastern boundary of Kings Held Wood, a long established area of woodland within Aconbury forest, which was probably enclosed in the medieval period. The topographical evidence, therefore, would appear to support a medieval date for the main (lower) trackway and the upper routeway running roughly parallel to it.

This is further corroborated by documentary evidence for the existence of a series of trackways, described as 'common highways', within Aconbury Woods and its immediate surrounding area by the late medieval period. These trackways were used for a variety

of purposes, including livestock and pedestrian access, as well as transporting stone and timber extracted within the vicinity of the forest.

5.4 Phase 4

A fourth phase of activity on the site was represented by an attempt to clear the upper routeway and define its course more clearly, represented in Trench 2 by the establishment of a small bank of loose sandy silt (2009) built up on top of the plateau-edge deposit on the E side of the routeway. Within Trench 3, the formation of the routeway [3011] had truncated colluvial deposit (3012) resulting in redeposited material being banked up along the edge of the routeway, represented by (3004).

In Trench 1, no evidence of a similar bank deposit defining the eastern edge of the upper routeway was noted, due to there being an existing ridge or stony bank against which the plateau-edge deposit (which formed the base of the upper routeway) accumulated. There is evidence for a later redefinition of the upper routeway in Trench 1, represented by [1016], but this appears to be a later feature, established on top of colluvial deposits that were probably deposited in the post-medieval period (Phase 5).

It is difficult to assign a precise date to this phase, due to the lack of associated artefactual evidence. However, luminescence dating of a core sample taken from (2009) yielded a date of c. AD1300 ± 150 and this would appear to indicate that this bank was established at some point during the medieval period. This may have been contemporary with the activities of the nuns of Aconbury, who were engaged in 'assarting' (clearing land for arable and pasture) and enclosing parts of the forest with banks or hedges during the middle decades of the 14th century.

Another possibility is that this clearance and redefinition of the upper routeway was related to forest management activity towards the end of the medieval period. Documentary evidence indicates that many of the trackways in the vicinity of Aconbury Woods were being cleared of trees and undergrowth in the late 15th-early 16th century.

5.5 Phase 5

Following this, there appears to have been a further prolonged episode of colluvial deposition, gradually accumulating within the upper routeway (and probably reflecting its decline and eventual cessation of use) and extending downslope. This phase of activity was represented by (1003), (1005) and (1013) in Trench 1, (2003) and (2007) in Trench 2 and (3003) and (3006) in Trench 3.

Phase 5 appears to have occurred over an extended period and may have been associated with the extensive tree-clearance activity recorded within Aconbury Woods from the 16th century up to the early 19th century.

It is unclear precisely when the upper routeway fell out of use; the silty deposits accumulating within and overlying the routeway feature contained occasional artefacts (chiefly iron objects and occasional glass and clay pipe) that appeared to be of post-medieval date. Significantly, moderate quantities of charcoal, clinker and coke were also found within the colluvial deposits (1003), (2003) and (3003), which would seem to indicate charcoal-burning activity in the immediate vicinity of the trackway, probably dating from the post-medieval period (ASUD 2008). Although no firm documentary evidence of charcoal burning has been identified at Aconbury and no structural

evidence, in terms of charcoal burning platforms or other associated features, has yet been recorded, it is likely that charcoal manufacture was taking place in Aconbury Woods during the post-medieval period, if not earlier.

Recent surveys of nearby areas of woodland in Herefordshire have revealed considerable evidence of intensive charcoal-burning activity in the form of platforms and associated features (Hoverd 2003, 13; Williams 2003) and it is highly likely that evidence of similar features has survived elsewhere within Aconbury Woods, although investigation of these fell outside the scope of this programme of archaeological works.

Based on the cartographic evidence, therefore it seems likely that the upper routeway had ceased to be used before the early 19th century. It certainly must have occurred some time before 1813, as the routeway is not shown on the OS surveyors drawing of that date, nor does it appear on the later estate map of Aconbury dated 1852, which is the first to show a clearly defined bank marking the W edge of the main (lower) trackway.

5.6 Phase 6

Phase 6 was represented by the widening of the main (lower) trackway and the establishment of a tree-lined bank along its eastern side. This phase of activity may be dated approximately to the late post-medieval period and was presumably associated with the extensive programme of replanting in Aconbury Woods undertaken by Guy's Hospital from the 1830s onwards. The bank on the eastern side of the trackway appears to have been established before the 1850s, as it is clearly shown on the Aconbury Court estate map of 1852.

6. Contextual Discussion

6.1 Archaeological evidence for occupation outside Iron Age hillforts

The hillfort at Aconbury Camp consists of a large, irregularly shaped univallate enclosure of approximately 7ha in size, measuring 503m long (E-W) and 137m wide (N-S) and surrounded by a rampart on the S and E sides and a berm (raised bank) on the N and W sides (RCHME 1931, 13-14). It forms one of a group of large univallate hillforts in Herefordshire, including Chase Hill Camp, Credenhill, Sutton Walls and Wall Hills Thornbury, which are generally presumed to be early Iron Age in date (Richardson 1992, 159) (**Fig. 14**).

Relatively little fieldwork has been undertaken at the camp or the immediate surrounding area prior to the programme of excavation undertaken by Border Archaeology. A programme of investigation undertaken in the early 1950s was restricted to 'little more than surface scratching' within the interior of the hillfort. The details of these investigations are unclear, but appear to have involved fieldwalking and limited topsoil removal (Kenyon 1953, 25-6).

No evidence for structures within the hillfort was identified, although the ramparts were examined and were described as incorporating internal revetments. However, a significant number of pottery sherds were found, dating back to the 5th century BC and also including some Roman sherds dating from the late 1st-early 2nd century AD. The

assemblage from Aconbury was described as being similar to material recovered during excavations at the nearby hillforts of Dinedor and Sutton Walls (Kenyon 1953, 26).

Recent archaeological studies in Herefordshire and the Marches generally have focused increasingly on the landscapes surrounding hillforts (Richardson 1989; White 2003; Moore 2006). Aerial reconnaissance has identified a complex pattern of field systems and settlement enclosures surrounding several hillforts, for instance at Wall Hills, Thornbury, where a series of linear banks can be observed for some 2-3km around the hillfort (White 2003).

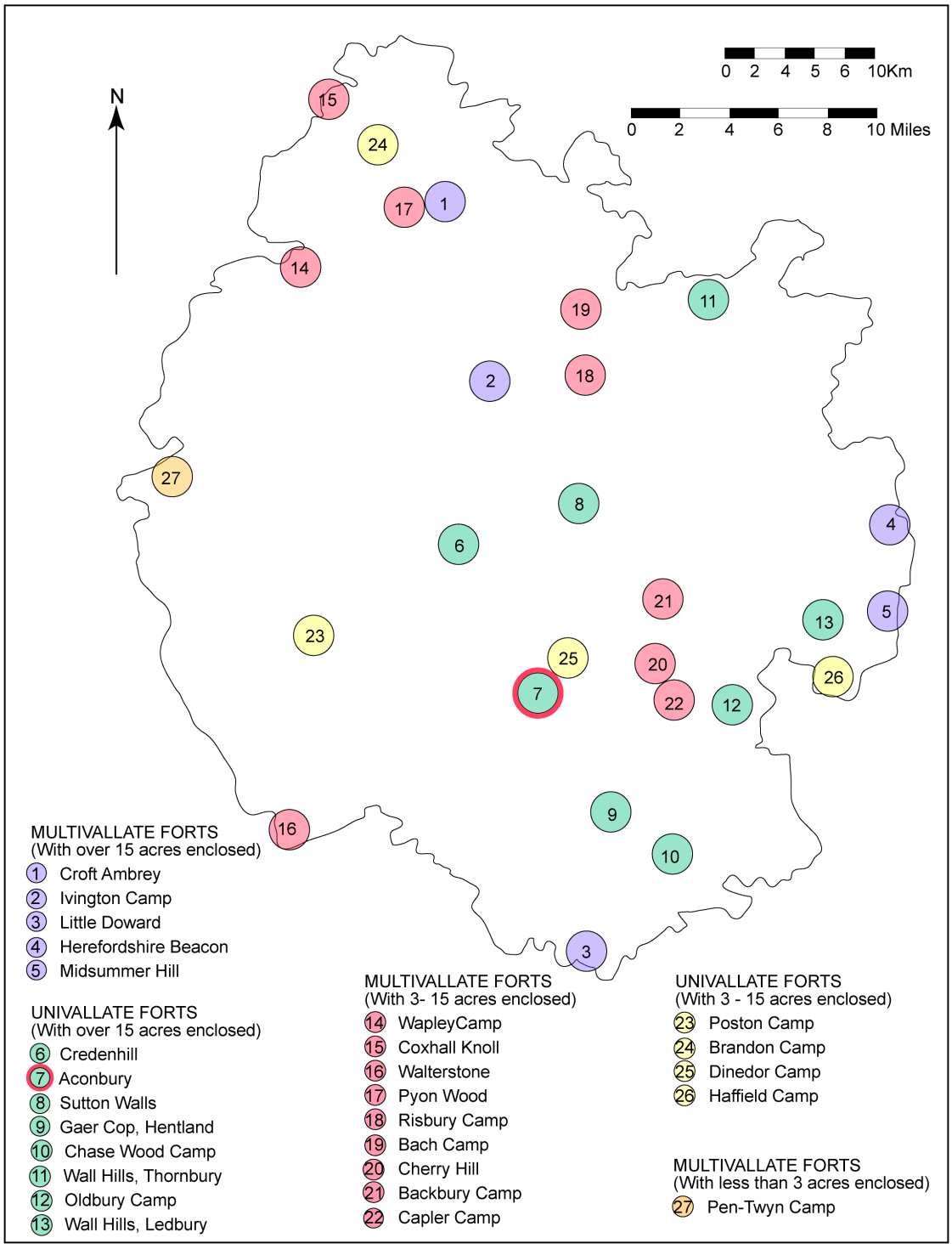


Fig. 14: Map showing location of Aconbury Camp in relation to other Iron Age hillforts in Herefordshire

Meanwhile, substantial field investigations by Border Archaeology have also revealed evidence of settlement activity near hillforts. At Brierley, the site of an extensive Iron Age/Romano-British settlement adjacent to Ivington Camp was excavated in 2004 (Cruse 2004), comprising a cluster of small domestic enclosures (including two substantial grain-drying ovens) probably associated with a high-status farmstead, which remained in occupation until about the 4th century AD. A more modest settlement enclosure of late Iron Age/Romano-British date has recently been excavated at Coughton, situated approximately 0.7km SW of the large multivallate hillfort of Chase Wood Camp (Priestley & Shurety 2006).

To date, no definite archaeological evidence of prehistoric occupation within the immediate environs of Aconbury Camp has been identified; this is due in part to the dense woodland coverage, naturally restricting effective use of aerial photography to identify features, and also reflects the fact that very little systematic fieldwork has been carried out in this particular area. The earliest findspot of prehistoric date recorded within the camp and its environs is represented by a flint scraper of Neolithic date found at King's Thorn (SMR Record No. 6479).

However, there is other evidence to suggest that there may well have been Iron Age or Romano-British settlement activity near the camp. The presence of an abundant water supply, represented by several long-established springs situated on the outlying slopes to the N and S of the camp, would certainly have represented a strong incentive for settlement. The farmland on the outlying slopes beneath Aconbury Camp has been classed by Richardson as being of Grade 2 and 3 quality, which would be suitable chiefly as grazing land with limited arable cultivation (Richardson, 1989, 84).

Place-name evidence also confirms the likelihood of Iron Age or Romano-British settlement in the immediate vicinity of Aconbury Camp, specifically 'Wall Brook', denoting the name of a stream extending NE towards the site of Aconbury Priory and a large tract of woodland to the S of the Priory. It has been convincingly suggested that the place-name element 'wall' was associated with Romano-British occupation, occurring in several places within Herefordshire where archaeological evidence of Roman settlement activity has been found, as at Kenchester, Stretton Grandison, Sutton St Nicholas and Weston under Penyard (Richardson 1992, 148).

Conclusion: Based on the documentary and topographical evidence, and on comparison with other sites in Herefordshire where settlements of Iron Age/Romano-British date have been identified lying in close proximity to hillforts, such as Brierley, Coughton and elsewhere, it is likely that there was a settlement of Iron Age/Romano-British date located somewhere within the environs of Aconbury Camp, possibly to the E or SE (suggested by the place-name 'Wall Brook'). The precise extent and location of this settlement, however, remains undetermined, although the place-name evidence discussed above certainly suggests specific areas that would merit further investigation.

Border Archaeology's investigations identified evidence of a sub-circular feature, possibly a stake-hole cut from a buried soil horizon into bedrock, overlaid by a colluvial accumulation which probably began during the prehistoric period (based on the evidence of OSL dating) and appeared to have resulted from large-scale tree clearance, which may have been associated with the construction of nearby Aconbury Camp.

6.2 Evidence for medieval forest management (woodland husbandry, tree clearance and enclosure)

A considerable body of documentary evidence has survived concerning the management of Aconbury Woods dating back to c.1200, in the form of Crown records, the surviving records of Aconbury Priory (including a sizeable collection of court rolls and manorial accounts covering the 13th-16th centuries) and the estate papers of Guy's Hospital (covering the 18th-19th centuries).

Before c.1200, the history of Aconbury Woods is, not surprisingly, poorly documented. It is not specifically referred to either in Domesday Book (1086) or the Herefordshire Domesday, a revision of the Domesday survey for Herefordshire compiled in about 1160-70. However, both surveys refer to the existence of a large area of royal forest situated within the neighbouring manors of Dinedor and Bullinghope, which can also be presumed to have included Aconbury, certainly in royal lordship by no later than 1200.

The forest of Aconbury first appears in documentary records from the early 13th century onwards. In May 1213, King John made a grant of 33 oaks in the forest for the fortification of Hereford Castle and the construction of hoardings, specifying that no waste or destruction should be caused to the forest (Rot. Litt. Claus. I, 134).

Three years later, on 10th October 1216, John granted three 'carucates '(roughly 360 acres) of land to Margaret de Lacy, 'to be assarted [cleared of woodland and converted to arable] and cultivated in our forest of Aconbury' for the establishment of Aconbury Priory. This was a religious house originally belonging to the military order of the Hospitallers, which was subsequently converted into an Augustinian nunnery (Nicholson, 1999, 629-44; Rot. Litt. Pat., I, 199b).

In 1219, a further grant of 80 felled oaks was made from the same forest to Margaret de Lacy, while in 1221, some 30 tree trunks (*fustis*), consisting of the oldest and best oaks, were supplied from the outskirts of the forest of Aconbury ('*in costera foreste nostre de Acornebir*') in order to construct a limekiln for the building of the town walls of Hereford (Rot, Litt. Claus., I, 469).

In 1227, Henry III granted 'one tenth' of the forest of Aconbury to his justiciar, Hubert de Burgh, earl of Kent, presumably to provide a source of timber for his programme of building works at Grosmont, Skenfrith and White Castle (Matthews 1912, 34). However, following Hubert's rebellion and downfall in 1232, Aconbury again came into royal hands and was granted at 'fee farm' (i.e. in consideration of an annual rent) to the nuns of Aconbury.

A survey of the forest taken in 1244 (NA C145/1/20) distinguished between the land held by the nuns of Aconbury, which produced an return of 60s per annum, while the woodland remaining in the King's hand could produce a annual return of 50s if held at 'fee farm' (**Plate 18**). References to grants of free warren and herbage (wood pasture) to the nuns in 1253 and 1257, respectively, indicate that, while the nuns held considerable rights within the forest, it nevertheless remained royal demesne.

This situation appears to have continued until the mid 1260s, as revealed in a royal inquest taken in 1265 (Cal.Inq.Misc., I, no. 285; printed in Matthews, 1912, 35), when the nuns' landholding within the forest was valued at 6 marks and 2s annually. Following this inquest, Henry III issued a charter confirming the grant of the three carucates made in

1216 and further granting the forest of Aconbury and Athelstan's Wood (so named after an 11th century bishop of Hereford) in free alms to the nuns of Aconbury (Scott 2001).

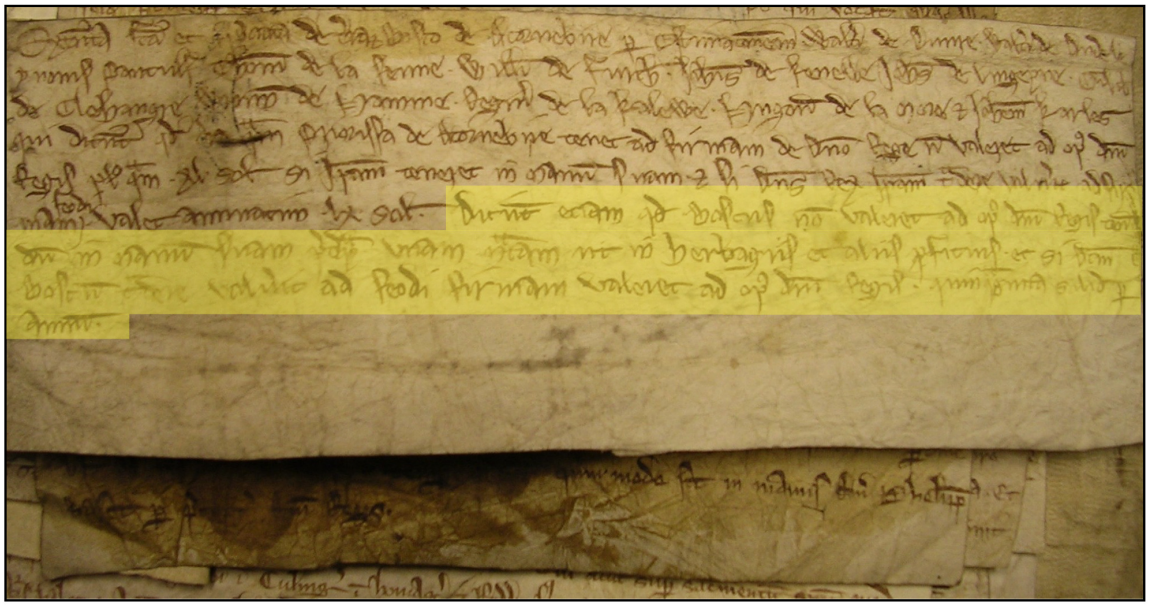


Plate 18: Survey of Aconbury Forest taken in 1244 (NA C145/1/20) stating that 'the wood would not be worth more than one mark (13s 4d) for herbage if kept in his own hand, but to let at fee farm would be worth 50s per annum'
(Reproduced by courtesy of the National Archives)

From 1266, the nuns appear to have been in full possession of the forest of Aconbury and the surviving manorial records provide intermittent references to the management of the forest throughout the late medieval period. The woodland was an important source of income for the nuns, valued at £4 per annum in 1535 (Matthews 1912, 37). Unfortunately, no perambulation of the forest boundaries is contained in the extant medieval records but it is evident that the medieval forest of Aconbury covered a much greater area than at present.

Before 1244, Hugh de Kilpeck, holder of the hereditary office of royal forester in Herefordshire, had granted in perpetuity to the nuns all rights which he enjoyed in respect of the office of forester in those lands which had been granted to Aconbury Priory (Scott 2001, 202). As a result, the nuns were responsible for the enforcement of forest law (Scott 2001, 60-1).

The surviving court rolls for the manor of Aconbury reveal that the nuns vigorously enforced their rights within the forest, as indicated by the frequent references in the court rolls of Aconbury and Caldecott manors to fines imposed for trespass ('*transgressiones*') within the forest. Unfortunately, the court rolls only sparsely record the details of these offences. A tenant named Walter Bewler is recorded in a court roll of 1400 as being fined for splitting timber in the forest without licence while in a later court record of 1500 one John ap Gwilym was fined for taking two loads of withies out of Kings Held Wood without licence from the prioress (NA SC2/176/27).

6.2.1 Evidence for woodland clearance and enclosure at Aconbury

Documentary records show that the establishment of Aconbury Priory in 1216 heralded a lengthy phase of 'assarting' (i.e. woodland clearance and conversion to arable and pasture), which continued at least until the middle of the 14th century. This was followed

by another period of enclosure and clearance, which appears to have begun towards the end of the 15th century and intensified significantly from the mid 16th century onwards.

The initial foundation grant in 1216 of three carucates of land within the forest of Aconbury to be 'assarted' indicates that a substantial tract of woodland surrounding the site of the priory was to be cleared for cultivation or pasture. This process of 'assarting' large areas of woodland is well documented on other monastic and secular estates in Herefordshire from the late 12th century onwards and appears to have continued into the first half of the 14th century (Hallam 1988, 267-8).

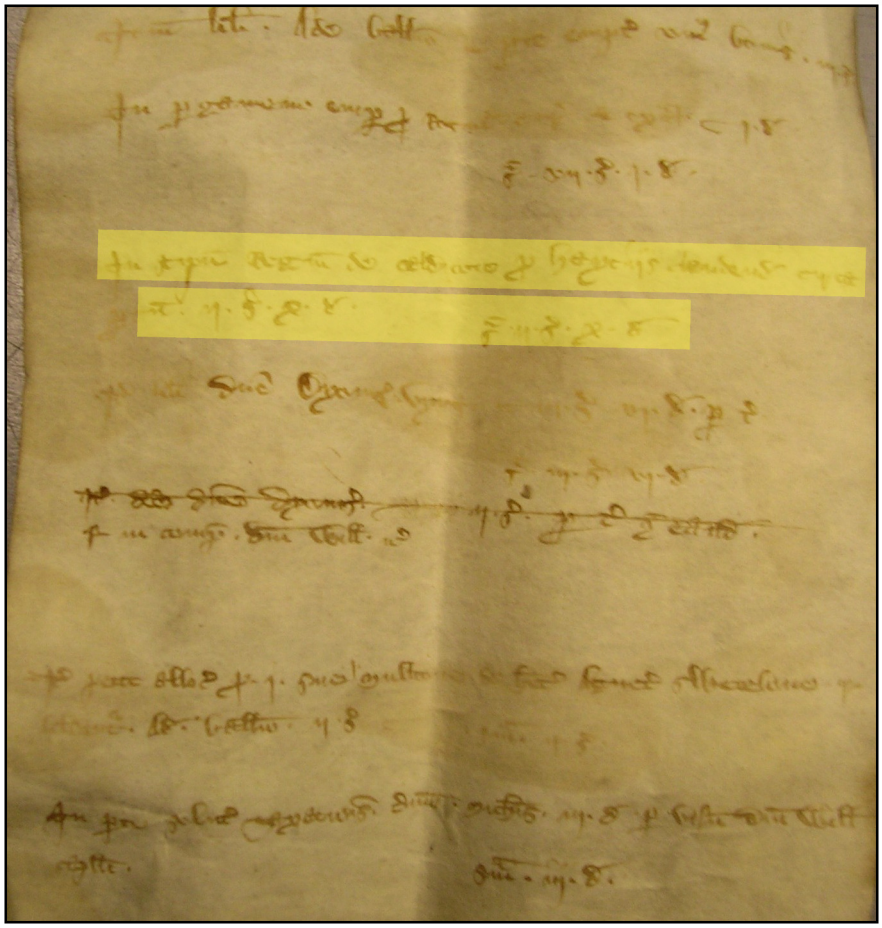


Plate 19: Extract from the account of the bailiff of the manor of Aconbury dated 1340 (NA SC6/860/1) referring to a payment for 'enclosing hedges or banks around the Park' at a cost of 2s 10d
(Reproduced by courtesy of the National Archives)

In the case of Aconbury, it appears that the process of 'assarting' was protracted, continuing until as late as 1340s. The fact that Hubert de Burgh granted the nuns part of his 'assart' in the forest of Aconbury indicates that, from an early date, the nuns sought to encroach upon an increasingly large area within the forest. The surviving accounts for Aconbury manor, dating back to the early 14th century, show that a flourishing demesne economy had been established by that date and extensive tracts of land had been cleared and converted to arable and pasture (Hallam 1988, 415).

Of particular interest is a set of accounts for 1348 listing the fields pertaining to four farms in Aconbury manor within which wheat and oats were sown. This document mentions a field called 'Kings Helde' which had been planted with wheat (NA SC6/860/3). This could refer either to the open fields lying immediately to the N of

present-day King's Held Wood or to an area within the boundaries of the existing wood which had been cleared for cultivation. There is also evidence to indicate that, throughout the first half of the 14th century, the nuns of Aconbury were enclosing specific tracts of land within the forest with boundary banks or hedges, to create discrete, well-defined areas of parkland, woodland and rough pasture, as well as enclosing areas that had been cleared of trees and converted to arable or pasture.

The earliest mention of the creation of a Park at Aconbury occurs in a bailiff's account dated 1340, which refers to the wages of one Reginald de Caldecote for enclosing 'haytis' (translated as hedges or banks) around the Park' (NA SC6/860/1) (**Plate 19**). The Park appears to have been situated to the N of the Priory; its original location is probably represented by the fields marked as Little Park Field and Great Park Field on the Aconbury Court estate map of 1852.

Plate 20: Extract from account dated 1538 describing the hedges enclosing the forest of Aconbury 'which the tenants used to have to repair the same by their custom of old time used' (NA E318/20/1008)
(Reproduced by courtesy of the National Archives)

A later bailiff's account, for 1345, refers to further enclosure work undertaken by Reginald de Caldicote, this time repairing hedges around the wood of Cruxden (NA SC6/860/4). The name 'Cruxden' could possibly refer to Condys Wood, which was situated to the E of what is now Aconbury Woods. Another, perhaps more likely alternative is that 'Cruxden' was located in the vicinity of Cross in Hand Farm and could thus have represented the southern swathe of present-day Aconbury Woods, which is marked as The Warren on 18th-19th century estate maps of Aconbury.

Further 'assarting' and associated enclosure was probably halted by the impact of the Black Death and subsequent plague epidemics from 1348 until the early 1370s and

there is no indication of any significant woodland clearance in the surviving manorial accounts or court rolls from the late 14th century up to the end of the 15th century.

From the late 15th century onwards, manorial accounts for Aconbury contain a growing number of references to tree clearance within the forest and the enclosure of areas for pasture. A court roll of 1488 refers to the grant of 'all the pasture beneath King's Held (Wood) extending in length from Kings Bernes to Polemyston (Pullaston Farm) and in width from the wood called (King's Held) up to the highway between the counties of Hereford and Archenfield' (NA SC2/176/27). The area described above would appear to roughly correspond with a substantial swathe of open land extending to the N of the present boundary of King's Held Wood.

Thus, when Aconbury Priory was dissolved in 1536, it would appear that the various tracts of woodland forming part of the medieval forest of Aconbury had been enclosed for some considerable time and there is also good reason to believe that significant tree clearance and conversion to arable land or rough pasture had already taken place by that date.

This is further corroborated by a royal grant dated 1538 to Sir William Sydney of the manor of Aconbury (**Plate 20**). This records that 'the trees with the underwoods growing about the said lands and tenements pertaining to the said manor and parsonage of Acornebury and Rowlston, and in hedges inclosing the same, will barely suffice to repair the houses standing there and the said hedges which the tenants have used to have to repair the same by their custom of old time used' (NA E318/20/1008).

Conclusion: Documentary evidence shows that the forest was in royal ownership by no later than 1200 and it clearly extended over a much larger area than at present. In 1216, a substantial tract of land within the forest was granted for the foundation of a priory of nuns at Aconbury, which initiated a lengthy process of woodland clearance, enclosure and conversion to arable or pasture continuing from the early 13th century until the late 1340s, when this process was halted by the Black Death and subsequent plague epidemics.

Documentary records indicate that further clearance of woodland began again towards the end of the 15th century, prefiguring the more extensive programme of tree clearance that occurred in the mid 16th century following the dissolution of Aconbury Priory.

The archaeological investigations undertaken by Border Archaeology identified several banks which may have been established as part of the enclosures carried out within the forest by the nuns of Aconbury Priory during the 13th- 14th century, as well as evidence of stratified colluvial deposits which may, in part, have accumulated as a result of extensive tree-clearance activity during the medieval period. OSL dating of a core sample taken from the upper level of colluvial deposit (2004) in Trench 2 produced a date of AD 525 ± 250, while a core sample taken from bank deposit (2009) yielded a date of AD 1300 ± 150.

6.3 Evidence for transport networks (holloways and trackways)

Aconbury Woods and its immediate surrounding area are criss-crossed by a series of trackways, some of which can be traced back to the medieval period while others are post-medieval in date. Documented references to these trackways, usually described as *communa via* or common highways, first appear in 15th-16th century manorial documents of Aconbury Priory (**Fig. 15**).

The earliest documented reference occurs in a court roll of Aconbury dated 1412 which records the grant of 'a field called Meryvalefeld excepting a common highway in the said field to the said Prioress and all others carrying trees, wood and brushwood from the wood called Athelstan's Wood to Hereford' (NA SC2/176/24).

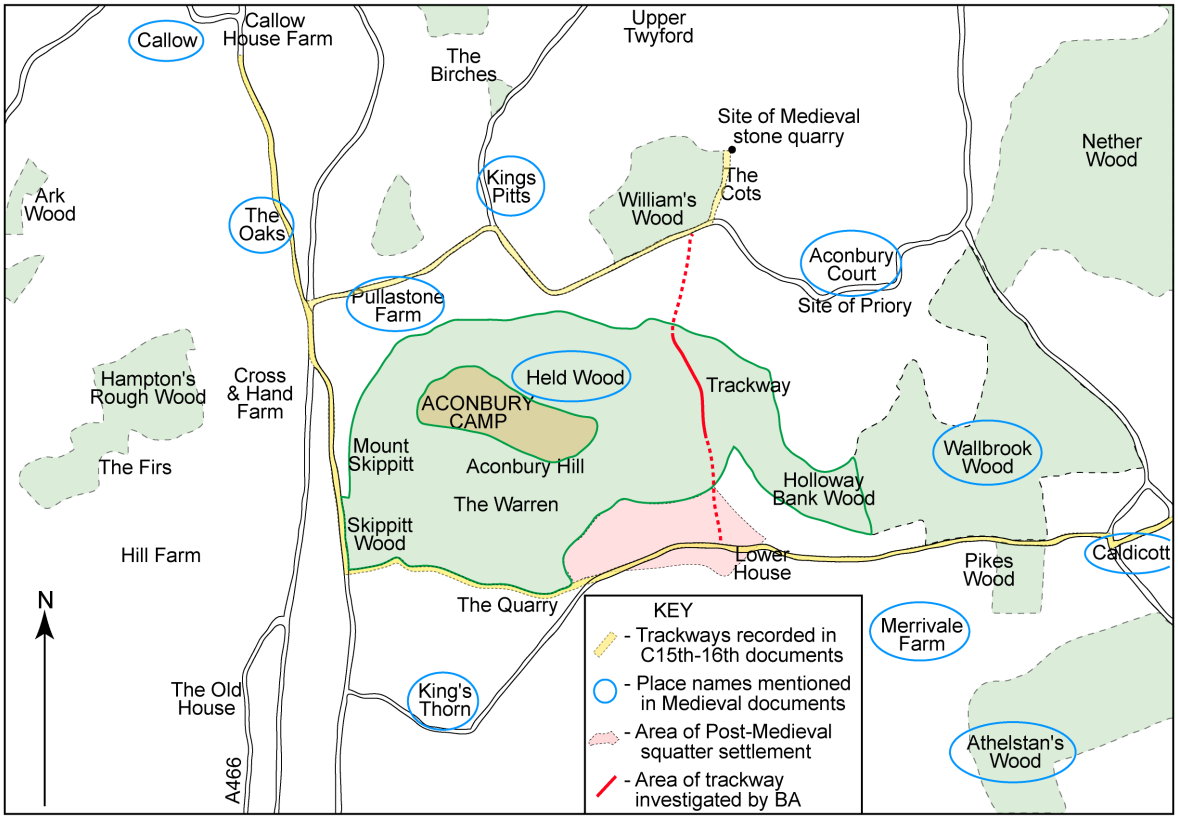


Fig. 15: Map showing place names and trackways near Aconbury Woods mentioned in medieval records
(Copyright: Border Archaeology)

A fuller picture appears in a court roll of 1517, listing repairs to several trackways within the manor of Aconbury, which were to be carried out by the tenants of the prior (NA SC2/176/28). The 1517 court rolls lists four routeways, one of which ran 'between a close called King's Close and the village of Callow', another extended 'from King's Pitts to Pullaston', another ran 'from King's Close towards Hyggyns Meadow' while another extended 'from Caldicot Close towards the Oak [presumably Oaks Farm]' (**Plate 21**).

These trackways appear to have had several functions, which may be summarised as follows:

- To provide access between the various scattered farmsteads within the manor of Aconbury, the majority of which (including Caldicott, King's Pitts, Merrivale, Pullastone, Oak Cottage) can be shown to have been established by no later than 1500.

- To provide access from these farmsteads to areas of woodland and pasture to graze their livestock.

- To provide a means of transporting timber from the forest (which, from documentary evidence, appears to have been heavily exploited from c.1200) and

stone from the several quarries established in the immediate neighbourhood, the oldest of which can be shown by documentary records to date back at least to the early 14th century.

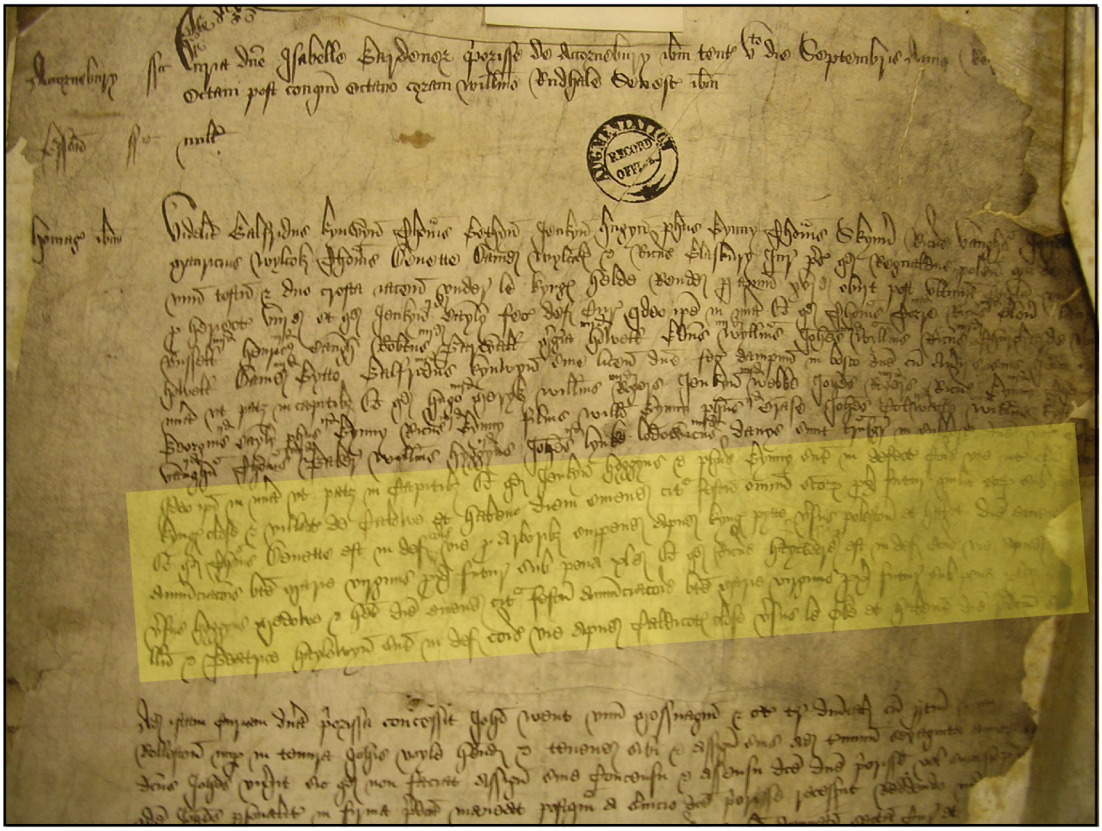


Plate 21: Extract from court roll of Aconbury manor dated 1517 detailing repairs to various common highways in Aconbury (NA SC2/176/28)
(Reproduced by courtesy of the National Archives)

The manorial documents for Aconbury clearly show that the tenants of the manor were under obligation to maintain these trackways in a good state of repair. The documents also show that some of these trackways were being used in the medieval period to carry large quantities of timber and stone for works not only at the priory but also for building works at Hereford.

A court roll of Aconbury manor dated 1412 specifically refers to a common highway (*communa via*) used by the Prioress of Aconbury for carrying trees, wood and brushwood from the wood called Athelstan's Wood to Hereford. Documentary records also refer to the use of ox-drawn vehicles for transporting timber felled within Aconbury Wood (NA SC2/176/24). A court roll dated 1450 records several fines being levied for the carrying of two 'drawes' or drove-loads of withies from Kings Held Wood and another two drove-loads from 'le Bury' (presumably referring to the hillfort) without licence (NA SC2/176/26).

These trackways also appear to have been intensively used for transporting not only timber from the forest but also substantial quantities of stone extracted from the several quarries documented in the vicinity of Aconbury Woods from the 14th century onwards. The earliest reference to a quarry at Aconbury occurs in a bailiff's account of 1340, which contains a payment for 'getting stones in the quarry and mending the bridge of the gate of the court' (NA SC6/860/1).

One of these early quarries was located at Quarry Field, some 150m W of Aconbury Priory, and it is worth noting that the line of the main (lower) trackway as shown on the 1852 estate map of Aconbury appears to have continued NNE of Aconbury Woods towards this particular location. Another quarry site, located at the S end of the trackway, is also marked as disused on the 1852 estate map and the OS 1st edition 25 inch map of 1888. These quarries appear to have remained in use at least until the middle of the 18th century.

Conclusion: Aconbury Woods and its immediate surrounding area are traversed by a series of trackways, ranging in date from the medieval period through to the post-medieval period. Many of these trackways can be shown to have been in existence by the early 16th century, some considerably earlier. Documentary evidence dating back to the 14th century shows that some of these trackways were used for transporting timber from the forest and stone from the several quarries established in the immediate neighbourhood, as well as providing access from the various scattered farmsteads within Aconbury to areas of woodland and pasture for grazing livestock.

The programme of investigation by Border Archaeology identified evidence for an upper routeway running above and parallel to the existing lower trackway, which was probably established in the medieval period and appears to have remained in use into the post-medieval period. OSL dating of a bank established adjacent to (and post-dating) the upper routeway in Trench 2 yielded a date of AD 1300 ± 150, indicating that this feature is likely to be of medieval origin. Evidence of trackway clearance and redefinition was noted within Trench 2, consisting of stony lenses (2012) and (2013) and silty bank (2009), the latter appears to have represented an attempt to formalise the course of the upper routeway.

6.4 Evidence for post-medieval forest management and exploitation of forest resources in Aconbury Wood and its surrounding area

The dissolution of Aconbury Priory in 1536 and the subsequent alienation of its estates by the Crown heralded a lengthy period of intensive exploitation of the forest resources (i.e. coppicing) and increasing encroachment on the woodland at Aconbury by squatter settlement and associated agricultural activity (i.e. clearance and enclosure for grazing pasture and limited arable cultivation), which continued from the mid 16th century until about 1800.

In 1542, following the dissolution of Aconbury Priory six years earlier, the site of the priory, together with the manor of Aconbury (also including Aconbury Woods), were granted to the mayor and burgesses of Gloucester and subsequently came into the possession of a local landowner, Hugh ap Harry (Bull 1883, 305).

Hugh ap Harry appears to have carried out an extensive programme of coppicing and tree-felling within the various woods forming part of the forest of Aconbury between the years 1542 and 1552. In 1573, two royal inquests were held to determine Hugh ap Harry's title to Aconbury and the extent of his activities within the forest (**Plate 22**); the records of these enquiries are of considerable interest as they describe the contemporary state of the woods during the second half of the 16th century (NA E178/964).

The inquests first list the acreage of the various tracts of woodland within Aconbury, namely: 'Athelstan's Wood, containing 140 acres whereof is to be deducted for wastes, wayes and hedges 20 acres and so remaineth 120 acres, Candye and Walbroke Wood containing 117 acres, Netherwood 60 acres whereof is to be deducted for wastes, wayes and hedges 10 acres, Kings Held Wood containing 38 acres whereof is to be deducted for wastes wayes and hedges 5 acres; Caldicote Coppice containing 5 acres, whereof is to be deducted for wastes wayes and hedges one acre and the Parke containing three acres'.

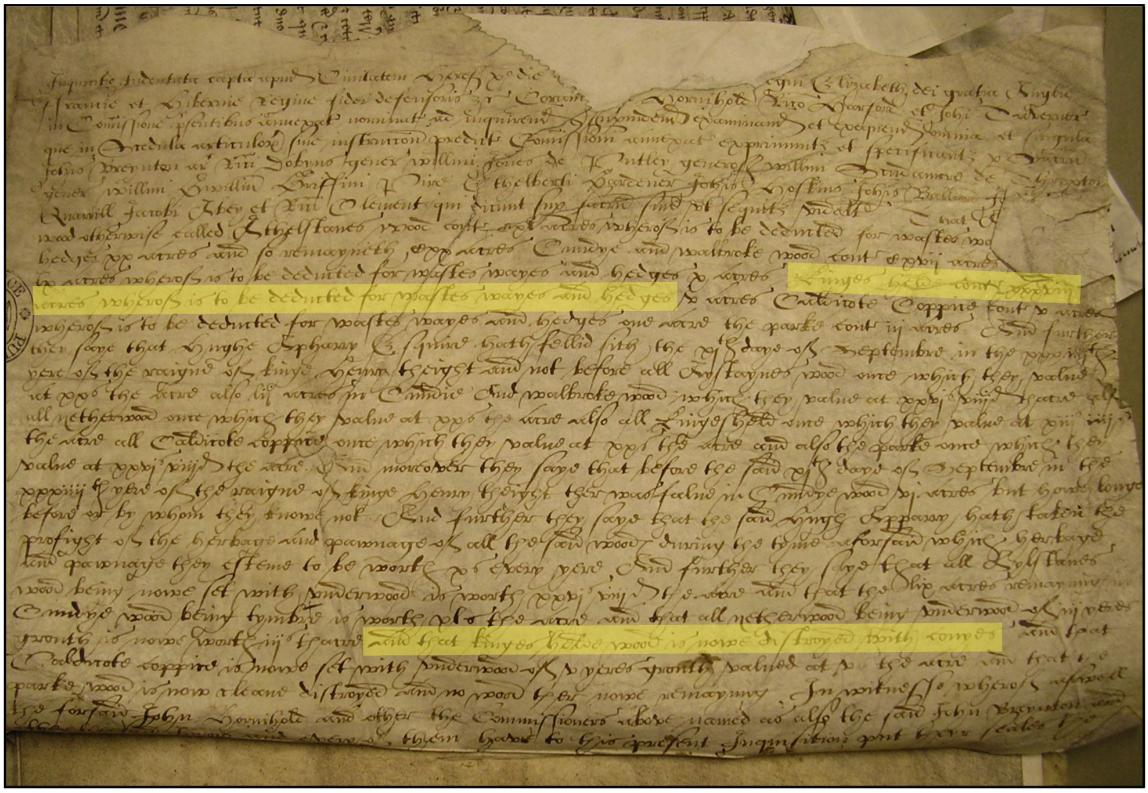


Plate 22: Copy of inquest of 1573 detailing the activities of Hugh ap Harry in Aconbury and referring to Kings Held Wood as 'now destroyed with conies [rabbits]'
(Reproduced by courtesy of the National Archives)

The inquests then describe the considerable extent of Hugh ap Harry's tree-felling activities within the various woods, stating that he 'hath felled since the 12th day of September in the 34th year of the reign of King Henry the Eighth and not before all Athelstans Wood once which they value at 20s the acre also 52 acres in Cundie and Walbroke Wood which they value at 26s 8d the acre also all Netherwood once which they value at 20s the acre also all Kings Held Wood which they value at 13s 4d the acre.

Of particular interest is the statement made in the survey that, whereas the other surrounding woods are described as being set with underwood (i.e. poles produced by cutting coppice stools), Kings Held Wood is described as being 'now destroyed by Conies', indicating the probable existence of an extensive rabbit warren within Aconbury Woods. It is not known precisely when this rabbit warren was established; no references to it have been found in medieval records, which suggest that it was probably established in the mid 16th century following the dissolution of the priory.

Its exact location is also unclear; the fact that Kings Held Wood is described as being 'destroyed by Conies' would seem to suggest that the rabbit warren was situated in the vicinity of Aconbury Camp or immediately to the N of it. Indeed, a later antiquarian

account of the history of Aconbury Camp mentions that the camp was 'surrounded by a wall for a rabbit warren' (Bull 1883, 297). However, 18th-19th century documents and historic maps refer to an extensive swathe of land to the S of Aconbury Camp as 'The Warren', by which time it formed a distinct landholding held as a tenancy of the Aconbury Court estate. Whatever the case, it is evident that the surviving woodland in the vicinity of Aconbury Camp had been significantly reduced by the 1570s.

Documentary evidence also reveals that significant military activity took place in the vicinity of Aconbury Camp during the first half of the 17th century. Accounts survive for the maintenance of a beacon station at Aconbury Camp in 1625 and the hillfort was often referred to as 'Aconbury Beacon' throughout the 17th and 18th centuries (Bull 1883, 295).

During the English Civil War, the camp was occupied on at least two occasions, by Royalist forces in 1642 and subsequently by the Scottish army commanded by the Earl of Leven during the protracted siege of Hereford in 1645 (Bull 1883, 295-6). The camp briefly served as Leven's headquarters in August 1645 and it has been suggested that modifications to the defences were carried out during this period, although precisely what these were and their location remain unclear (RCHME 1931, 14).

In 1641, the manor of Aconbury (including the Woods) became part of the estate of the Bridges family, dukes of Chandos, who subsequently sold their estates in Herefordshire to Guy's Hospital in 1731, although the revenues from these estates remained in the possession of the Marchioness of Carnarvon until her death in 1754. A substantial collection of written documentation and maps relating to the Guy's Hospital estates in Herefordshire has survived which shed considerable light on land use and topography in Aconbury Woods during the 18th and 19th centuries.

A survey of the Herefordshire estates acquired by the hospital, dated 1731, mentions only three areas of woodland in Aconbury: Held Wood (forming the N part of Aconbury Woods), Pikes Wood and Walbrooks. The survey also reveals that 'The Warren' farm estate, which occupied the central and southern parts of present day Aconbury Woods (including the hillfort of Aconbury Camp) was largely cleared of trees and under rough pasture. After the death of the Marchioness of Carnarvon in 1754, a survey of the Herefordshire estates belonging to Guy's Hospital was undertaken, which revealed that much of the extant woodland 'has been greatly reduced and what is left standing has been greatly abused' (HRO Ref. C99/III/235).

The written surveys of 1731 and 1754, together with detailed plans of the Aconbury Court estate dated 1757 and 1852, respectively, (**Plates 23 & 24**) document the increasing growth of post-medieval squatter settlement encroaching upon the southern periphery of Aconbury Woods. This squatter settlement is characterised by dispersed cottages set within a pattern of small, rectilinear field enclosures and linked by an intricate network of small lanes and footpaths.

Similar patterns of post-medieval squatter settlement encroaching on woodland may be observed throughout Herefordshire and the Marches and is often associated with seasonal craft or industrial activity. It is therefore not surprising to discover evidence for a stone-quarrying industry in Aconbury during the 18th-19th centuries, attested by the remains of old quarries marked on the 1852 estate map and the OS 1st edition map of 1888. The 1754 survey also referred to the presence of stone quarries on most of the farms in Aconbury and the surrounding neighbourhood (HRO Ref. C99/III/235).

Documentary evidence indicates that many of the local inhabitants were engaged in trades that made extensive use of the readily available wooded resources; for instance,

the 1754 survey refers to one George Preece, a carpenter occupying a cottage at Pyes Nest (situated just to the S of Aconbury Woods), who is described as having 'a very bad character for having made very free with our timber' (HRO Ref. C99/III/235).

Another activity appearing only infrequently in the documentary record but which has left extensive traces in Aconbury Woods and other areas of woodland throughout Herefordshire is charcoal burning, in the form of platforms and other associated features. A survey of Herefordshire woodland within the Malvern Hills AONB in 2003 identified in excess of 130 charcoal-burning platforms, indicative of a widespread, small-scale industry and presumed to date largely from the post-medieval period (Hoverd 2003, 13). Other recent surveys of Herefordshire woodland have revealed considerable evidence of similar features associated with charcoal manufacture, at nearby Athelstan's Wood and Sned Wood (Aymestry), to name but a few (Rimmington 2007).

Although no structural evidence, in the form of charcoal-burning platforms, was identified during the course of the archaeological investigation at Aconbury Woods, moderate amounts of charcoal and clinker (fuel waste) were recovered indicative of charcoal production in the immediate area (ASUD 2008). This may have been associated with a nearby charcoal-burning platform, although its precise location has yet to be identified.

Plate 23: Extract from 'An exact plan of Aconbury Court with several other adjacent tenements and woods' by Meredith Jones (1757) showing the line of the trackway defining the boundary of the Aconbury Court Estate with The Warren and Held Wood
(Reproduced by courtesy of the Herefordshire Record Office)

Documentary evidence shows that large quantities of timber continued to be felled upon the Herefordshire estates of the hospital (including Aconbury) throughout the second half of the 18th century, mostly sold for shipbuilding. A report by the purveyor of Deptford Naval Dockyard to the Commissioners on the Woods, Forests and Land Revenues of the Crown Estates stated that 'most of the timber which grew on the Estates of Guy's

Hospital, in the county of Hereford, has been cut down within 25 years and a great part sent to His Majesty's Yards' (Lovelace 2001, 37).

The OS surveyors drawing for 1816 shows that the extent of Aconbury Woods was considerably smaller compared to its present size, being restricted to the area immediately N of Aconbury Camp. The area to the S, E and W of Aconbury Camp seems to have been largely clear of trees and utilised as wood pasture during the early 19th century (Lovelace 2001, 37). It is specifically referred to as a 'grazing farm' in a late 19th century antiquarian account of Aconbury Woods (Bull 1883, 298).

Plate 24: Extract from the Aconbury Court estate map of 1852 showing the trackway extending through the eastern part of Aconbury Woods
(Reproduced by courtesy of the Herefordshire Record Office)

From 1830 onwards, the governors of Guy's Hospital determined to replenish the rapidly diminishing stocks of timber on their Herefordshire estates and a programme of extensive plantation in the vicinity of Aconbury Woods took place after that date. This is confirmed by a remark in an account of a Woolhope Club field visit to Aconbury Camp in 1883 that 'the wood which now crowns the summit [of Aconbury Camp] and is obstructive of the view is of modern origin, having been planted about 50 years ago by the owners, the Governors of Guys Hospital – on land formerly occupied as a farm (Bull 1883, 297). A plan of the Aconbury estate dated 1852 (**Plate 24**) shows that Held Wood and The Warren were both heavily wooded at that time (HRO Ref. C99/III/227).

Conclusion: Shortly after the dissolution of Aconbury Priory in 1536, there appears to have been an intensive period of tree-felling activity within Aconbury Woods and its immediate environs, carried out between 1542 and 1552. At about the same time, an extensive rabbit warren appears to have been established in Aconbury Woods (subsequently referred to as 'The Warren').

Further tree-felling activity appears to have taken place throughout the 17th and 18th centuries, which led to a significant retreat in woodland coverage. However, from the 1830s onwards, a programme of extensive tree plantation was carried out by the governors of Guy's Hospital, expanding the wooded area to more or less its present extent by the early 1850s.

Border Archaeology's investigations revealed evidence of post-medieval activity, including significant quantities of charcoal and clinker indicative of charcoal-burning activity in the immediate vicinity of the excavation area. This is of particular interest as the documentary evidence contains surprisingly few references to charcoal burning in Aconbury Woods. This lack of references to charcoal burning may be explained by the fact that it was activity practised on an *ad hoc,* small-scale basis by individual tenants and was therefore not heavily regulated by the landowner (in this case, the governors of Guys Hospital).

Evidence of a prolonged phase of colluvial accumulation was also identified, which may well relate to this episode of post-medieval tree clearance and conversion to rough pasture. No evidence of features was found associated with the post-medieval warren; this is probably due to the warren being situated in the immediate vicinity of Aconbury Camp itself, some 350m to the W of the trackway, although its precise location has yet to be determined by field investigation.

7. Conclusion

The archaeological programme of works undertaken by Border Archaeology at Aconbury Woods revealed the following:

- The earliest phase of activity identified on the site was represented by a sub-circular feature at the base of Trench 2, which appeared to be of anthropogenic origin - most likely a stake-hole - cut from a buried soil horizon immediately overlying the natural bedrock.

- This buried soil horizon and stake-hole in Trench 2 were in turn overlaid by a substantial and well-preserved sequence of colluvial (i.e. hillwash) sediments, visible within the western bank of the trackway, forming what has been characterised, in geoarchaeological terms, as a 'plateau-edge' deposit.

- Dating evidence for the formation of the plateau-edge deposit was obtained by means of Optically Stimulated Luminescence (OSL) dating of a core sample from the upper level of the colluvial deposit, which yielded a date of AD 525 ± 250.

- Based on the evidence of this sample, it would appear that the colluvial accumulation visible in Trench 2 probably began at some point in the prehistoric era and accumulated over a long period. Moreover, this area must have been largely cleared of trees for an extended period for such a substantial colluvial accumulation to occur.

- It also follows that the sub-circular feature [2014] and the basal soil horizon (2005) are likely to be of prehistoric date, although it is difficult to be more precise in the absence of further dating evidence.

- Similar, though less pronounced, deposits were identified in Trenches 1 and 3. The substantial nature of these deposits within Trench 2, accumulated in a deep hollow within the natural bedrock, indicate that they were deposited over a considerable period of time.

- The exact cause of the colluvial accumulation is unclear but it appears to represent a significant destabilisation of the hillside, probably resulting from several major episodes of deforestation. It is possible that this destabilisation was been partially caused by clearance for, and construction of, the nearby Iron Age hillfort of Aconbury Camp.

- Other episodes of tree clearance for conversion to arable and pasture are also documented within the vicinity of Aconbury Woods during the medieval and early post-medieval periods; these may also have contributed to the build up of this plateau-edge deposit.

- The excavations undertaken by Border Archaeology revealed evidence of a routeway established on top of the western slope, roughly parallel with the main (lower) trackway. In the case of Trench 2 and Trench 3, the routeway seems to have utilised the plateau-edge deposit as a convenient platform.

- A slightly different picture was revealed in Trench 1, where it appears that the routeway was formed by hollowing out a gully into the natural bedrock, which appears to have been associated with the deliberate formation of a stony bank to redefine a boundary. This gully was subsequently overlain by colluvium, accumulating against the stony bank, following which another, less well defined, routeway was established on the same alignment.

- This upper routeway appeared to have been used for pedestrian or livestock access, whereas the main (lower) trackway displayed evidence of deep rutting formed largely by horse- or ox-drawn transport over a long period.

- The main trackway was probably associated with several nearby quarries, the earliest of which is documented in the 14th century and which appear to have remained in use until the 18th-early 19th century.

- OSL dating of a core sample taken from a bank established on the E side of the upper routeway in Trench 2 yielded a date of AD 1300 ± 150, implying that the routeway was already in existence before this bank was established, probably by the nuns of Aconbury, who were engaged in woodland clearance and enclosure during the 13th-14th centuries.

- The somewhat irregular, ‘zig-zag’ alignment of the trackway, the southern half running N-S and then sharply turning NW, before abruptly striking to the NE, suggests that it probably follows the line of an ancient woodland boundary.

- The antiquity of the trackway is further corroborated by the fact that it delineates the eastern boundary of Kings Held Wood, a long-established area of woodland within the forest probably enclosed in the medieval period. The topographical evidence thus supports a likely medieval date for the main (lower) trackway.

- It is difficult to determine when the upper routeway was established. It may well be contemporary or perhaps slightly later than the main (lower) trackway; certainly both were in use during the early post-medieval period.

- Both trackways appear to have been overlaid by a later phase of colluvial accumulation, which may relate to extensive tree clearance and conversion to pasture documented during the post-medieval period.

- Moderate quantities of charcoal and clinker were identified within the deposits that accumulated within the upper routeway and lower trackway, which appear to be associated with charcoal burning in the immediate vicinity during the post-medieval period.

- It would appear that the upper routeway fell out of use by the early 19th century, certainly before 1852, as it is not shown on the Aconbury estate map of that date, which shows a clearly defined bank defining the W edge of the main (lower) trackway.

- The latest identifiable phase of activity on the site was represented by the widening of the main (lower) trackway and the establishment of a tree-lined bank along its eastern side.

- This phase may be dated approximately to the late post-medieval period and was presumably associated with the extensive programme of replanting in Aconbury Woods, which was undertaken by Guy's Hospital from the 1830s onwards.

8. Copyright

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10. Cartography

10.1 Estate and Tithe Maps

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1786 - Isaac Taylor Map of Herefordshire (HRO Ref. C99/III/232)

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10.2 Ordnance Survey Maps

1816 – OS surveyors' drawing (2 in to the mile)

1888 – OS 1st edition 25 inch map (Herefordshire 39.16)

1904 – OS 2nd edition 25 inch map (Herefordshire 39.16)

1938 – OS provisional edition 6 inch map (Herefordshire 39 SE)

1953 – OS provisional edition 6 inch map (Herefordshire 39 SE)

11. APPENDIX 1: Context Register

11.1 Phase 1

CONTEXT	DESCRIPTION
Trench 1	
(1001)	Loose surface layer of forest floor consisting of litter and unincorporated humic material, >9.0m E-W, >6.0m N-S & up to 0.05m in thickness. Overlies (1002).
INTERPRETATION:	*Litter layer*
(1002)	Loose partially decomposed organic material, extensive root intrusion, >9.0m E-W, >6.0m N-S & up to 0.04m in thickness. Underlies (1001), overlies (1003), (1007).
INTERPRETATION:	*Fermentation layer*
(1003)	Loose to moderately compacted greyish-brown sandy silt, extensive root intrusion, moderate charcoal flecking, very occasional glass fragments, 6.5m E-W, >6.0m N-S & up to 0.30m in thickness. Underlies (1002), overlies (1004), fills [1016]
INTERPRETATION:	*Forest soil*
(1004)	Friable yellowish-brown silty sand, up to 1m across W-facing section of upper bank and up to 50mm in thickness. Underlies (1003), overlies (1005), (1015).
INTERPRETATION:	*Thin lens relating to construction of upper bank.*
(1005)	Moderately compact to firm reddish-brown silty sand, occasional sandstone fragments, >9.0m E-W, >6.0m N-S & up to 0.52m in thickness. Underlies (1004), overlies (1013), fills [1012], cut by [1016].
INTERPRETATION:	*Deposit forming main core of earthen bank*
(1006)	Indurated bedrock extending > 9.0m E-W x > 6.0m N-S, loose sandy material occurs in places. Underlies (1008), cut by [1010], [1012]
INTERPRETATION:	*Surface possibly adapted during construction of upper bank (1008).*
(1007)	Loose dark brown to black humic sandy silt, extensive root penetration, >8m N-S x 0.80m E-W x 0.10m. Underlies (1002), overlies (1005).
INTERPRETATION:	*Build-up of organic material against eastern face of bank.*
(1008)	Firm reddish-brown silty sand, frequent small to medium angular sandstone fragments, >6m N-S x 3m E-W x 0.72m. Underlies (1014), overlies (1006).
INTERPRETATION:	*Appears to form a bank of redeposited material sitting on bedrock. This deposit may be the same as (1006) and has simply been shaped into a defined bank top.*
(1009)	Firm greyish-brown humic silt, occasional CBM fragments and iron objects, 5% charcoal flecking, 1.70m E-W, >6.0m N-S & up to 0.12m in thickness. Underlies (1015), overlies (1011).
INTERPRETATION:	*Humic subsoil deposit.*

[1010]	Cut, rectilinear in plan, measuring >4m NW-SE × 1.70m NE-SW × 0.32m, sharp break of slope at top, near vertical sides, sharp break of slope at base, base flat (slightly uneven in places). Cuts (1006), filled by (1011), (1009), (1015).
INTERPRETATION:	*Linear cut representing earlier phase of existing lower trackway.*
(1011)	Moderately compacted to firm reddish-brown silty sand, occasional iron objects & ceramic sherds, extends within cut [1010] to a maximum thickness of 0.33m. Underlies (1009), fills [1010].
INTERPRETATION:	*Material representing gradual silting of trackway*
[1012]	Cut, rectilinear in plan, measuring >6m NW-SE × 2.15m NE-SW, sharp break of slope at top, 45˚ sides, sharp break of slope at base, base flat (gently sloping down S-N). Cuts (1006), filled by (1013), (1005).
INTERPRETATION:	*Linear gully/routeway running parallel to main trackway. This feature is replicated in Trench 2 and Trench 3 and seems to form a consistent feature running along the inside face of the bank for the entirety of its length.*
(1013)	Firm dark reddish-brown silty sand, frequent small & medium sub-rounded stones, 1.08m E-W × 6.0m N-S × 0.18m. Underlies (1005), overlies (1014), fills [1012].
INTERPRETATION:	*Colluvial silt accumulating within gully feature [1012] and building up against stony bank (1014)*
(1014)	Bank, rounded in profile, oriented N-S, composed of small to medium sub-rounded stones within a firm light greyish-brown silty sand with frequent dark reddish-brown silty patches. Maximum extent at base 1.9m E-W, maximum extent N-S undetermined, 0.54m thick. Overlies (1008), underlies (1013).
INTERPRETATION	*Rounded bank of probable anthropogenic origin, which appears to have been constructed as a redefinition of the boundary originally defined by the ridge of degraded bedrock (1008).*
(1015)	Loose to moderately compacted greyish-brown sandy silt, slightly humic with evidence of frequent root activity throughout. Visible extent 1.85m E-W, 4.0m N-S & up to 0.38m visible thickness. Underlies (1004), overlies (1009)
INTERPRETATION	*Uppermost deposit within cut for lower trackway [1010]*
[1016]	Rectilinear cut measuring >6m NW-SE × 2.15m NE-SW with a sharp break of slope at the top and gently sloping sides with an uneven, slightly concave base. Cuts (1005), filled by (1003)
INTERPRETATION	*Rectilinear feature representing second phase of routeway usage*
Trench 2	
(2001)	Loose surface layer of forest floor consisting of litter and unincorporated humic material, measuring >7.40m E-W, >10m N-S & up to 80mm in thickness. Overlies (2002).
INTERPRETATION:	*Litter layer*
(2002)	Loose partially decomposed organic material, frequent root activity. Extends >7.40m E-W, >10m N-S & up to 20mm in thickness. Underlies (2001), overlies (2003).
INTERPRETATION:	*Fermentation layer.*
(2003)	Loose to moderately compacted mid greyish-brown sandy silt, frequent root activity, occasional glass fragments. Extends >7.40m E-W, >10m N-S & up to 0.20m in thickness. Underlies (2002), overlies (2007).

INTERPRETATION:	*Forest soil*
(2004)	Moderately compacted, light reddish-brown silty sand, occasional post-medieval ceramic sherds, c. 2% charcoal flecking. Extends 6.10m E-W, >10m N-S & up to 0.60m in thickness. Underlies (2010), overlies (2005), fills [2014].
INTERPRETATION:	*Soil deposit forming main body of upper bank.*
(2005)	Firm light yellowish-brown silty sand, moderate small angular sandstone fragments. Extends >7.40m E-W, 1.30m N-S & up to 0.50m in thickness. Underlies (2004), overlies (2011), cut by [2014].
INTERPRETATION:	*Base of truncated former brown earth soil*
[2006]	Cut, rectilinear in plan, measures >10m N-S × 1.80m E-W. Sharp break of slope at top, 45˚ sides, sharp break of slope at base, base flat (gently sloping down from S to N). Cuts (2010), filled by (2007).
INTERPRETATION:	*Linear channel/gully running parallel to main bank. This feature is replicated in Trench 1 and Trench 3 and seems to form a consistent feature running along the inside face of the bank for the entirety of its length.*
(2007)	Moderately compact dark reddish-brown silty sand, occasional small-medium angular sandstone fragments, frequent root intrusion. Extends >10m N-S x 1.8m E-W x 0.40m. Underlies (2003), fills [2006].
INTERPRETATION:	*Fill of [2006].*
(2008)	VOID
(2009)	Loose to moderately compacted reddish-brown silty sand, frequent root activity, c.1% charcoal flecking, occasional small rounded and angular stones. Extends 1.86m (E-W), 1.30m (N-S) & up to 0.30m in thickness. Overlies (2013)
INTERPRETATION:	*Soil deposit forming core of upper bank.*
(2010)	Friable light pinkish-brown silty sand, 2% charcoal flecking, occasional Fe objects. Extends >5m (E-W), >5.6m (N-S) & up to 0.30m in thickness. Overlies (2004), cut by [2006].
INTERPRETATION:	*Deposit appears to form the surface of the natural ground level of the bank with all overlying deposits having been deliberately built up.*
(2011)	Indurated greyish-brown sandstone extending across trench. Underlies (2005).
INTERPRETATION:	*Bedrock*
(2012)	Firm reddish-brown sandy silt with some fine mottling and lenses of fine bleached sand, very fine charcoal fragments and very fine yellow mottles. Contains a stony lens towards the base. Extends 1.05m E-W & is up to 0.06m thick. Underlies (2013).
INTERPRETATION:	*Buried soil deposit forming an old land surface.*
(2013)	Firm reddish-brown sandy silt, frequent small stone fragments. Extends 1.0m E-W and is up to 0.08m thick. Underlies (2009), overlies (2012).
INTERPRETATION:	*Stone lens and soil dump.*
[2014]	Cut, sub-circular in plan, measures 0.70m (E-W), 0.42m (N-S) & up to 1.04m deep. Sharp break of slope at top with very steeply sloping sides tapering towards base. Sharp break of slope at base with slightly concave base. Cuts (2005), filled by (2004).

INTEPRETATION	*Cut of possible stake-hole. The shallow depth of the feature seemed to rule out the possibility of an animal burrow, while the possibility of it being a tree-bole similarly appeared unlikely, in view of the regular shape of the feature.*
Trench 3	
(3001)	Loose surface layer of forest floor consisting of litter and unincorporated humic material, measuring >7.40m E-W, 4.0 m NS & up to 80mm in thickness. Overlies (3002).
INTERPRETATION:	*Litter layer.*
(3002)	Loose partially decomposed organic material, frequent root activity. Deposit measured >7.40m E-W, 4.0 m N-S & up to 0.15m in thickness. Underlies (3001), overlies (3003), (3006).
INTERPRETATION:	*Fermentation layer*
(3003)	Moderately compacted mid greyish-brown sandy silt, frequent root activity. Deposit measured 1.92m E-W, >4m N-S & up to 0.32m in thickness. Underlies (3002), overlies (3004).
INTERPRETATION:	*Slightly humic deposit representing gradual silting along the western face of the bank. Deposit also fills gully [3011].*
(3004)	Moderately compacted to firm pinkish silty clay with occasional small angular sandstone fragments and moderate root activity. Deposit measured >4.78m E-W, >4m N-S & up to 0.78m in thickness. Underlies (3003), overlies [3011].
INTERPRETATION:	*This deposit forming the main soil core of the bank.*
(3005)	Indurated greyish-brown sandstone extending >7.40m E-W x >4.0m N-S. Underlies (3012).
INTERPRETATION:	*Bedrock.*
(3006)	Moderately compact mid brown silty clay with moderate small angular sandstone fragments and frequent root activity. Deposit measured >4.22m E-W, >4m N-S & 0.57m in thickness. Underlies (3002), overlies (3007).
INTERPRETATION:	*Build up of silty material along eastern face of bank.*
(3007)	Friable greyish-brown sandy silt, occasional post-medieval glass and CBM fragments & 2% charcoal flecking. Deposit measured 2.24m E-W, >4m N-S & up to 0.34m in thickness. Underlies (3006), overlies (3010).
INTERPRETATION:	*Build-up of silty organic material forming a deposit across the trackway.*
[3008]	Cut, linear in plan, measuring >3.90m NW-SE × 0.90m SW-NE x >0.20m. Sharp break of slope at top, slightly irregular v-shaped sides, sharp break of slope to tapering base. Cuts (3012), filled by (3010), same as [3009].
INTERPRETATION:	*Narrow channel in the rock surface running parallel to [3009], suggesting that they are related. It seems likely that they form part of an earlier trackway running on a very similar alignment to the extant trackway or that it simply represents the first phase of the extant trackway. In either case these 'ruts' are likely to have been formed by continual use as a cart track.*
[3009]	Cut, rectilinear in plan, measuring >3.90m NW-SE × 0.70m SW-NE x >0.28m. Sharp break of slope at top, slightly irregular v-shaped sides, sharp break of slope to tapering base. Cuts (3012), filled by (3010), same as [3008].
INTERPRETATION:	*Narrow channel parallel to [3008]*

(3010)	Moderately compact reddish-brown silty clay measuring >3.90m NW-SE, 2.0m SW-NE & up to 0.30m in thickness. Underlies (3007), fills [3008], [3009].
INTERPRETATION:	*Silty clay deposit filling ruts [3008] and [3009]. This deposit had been formed by a wash of materials off the E face of the bank, which had gradually silted over the trackway.*
[3011]	Cut, rectilinear in plan, measuring >4m NW-SE × 1.70m SW-NE x 0.25m. Sharp break of slope at top, 45˚ sides, sharp (moderate in places) break of slope at base, base flat (gently sloping from S to N). Cuts (3012), filled by (3004).
INTERPRETATION:	*Linear channel/gully running parallel to main bank. This feature was replicated in Trench 1 and Trench 2 and seemed to form a consistent feature running along the inside face of the bank for the entirety of its length.*
(3012)	Moderately compacted to firm light reddish-brown sandy silt clay with occasional angular sandstone fragments and frequent root activity measuring 4.5m NW-SE × 1.10m SW-NE × 0.25m. Cut by [3008], [3009] & [3011], overlies (3005).
INTERPRETATION	*Plateau-edge deposit visible in E-facing section of Trench 3*
Trench 4	
(4001)	Loose surface layer of forest floor consisting of litter and unincorporated humic material, frequent root intrusion. Deposit measured up to 60mm in thickness and extended over the entire area of the excavation. Overlies (4007).
INTERPRETATION:	*Litter layer*
(4002)	Moderately compacted, dark brown to black humic sandy silt with moderate root intrusion. Deposit measures >0.82m E-W & up to 50mm in thickness. Underlies (4007), overlies (4003).
INTERPRETATION:	*Humic lens representing the top of the bank prior to the deposition of (4007).*
(4003)	Moderately compacted, dark brown silty sand containing partially decomposed organic material, very occasional small angular sandstone fragments and frequent root activity. Deposit extends across visible section (2m E-W) up to a thickness of 0.22m. Underlies (4002), overlies (4004).
INTERPRETATION:	*Upper bank deposit, very similar to underlying deposit (4004) only with more organic material having been broken down into it.*
(4004)	Moderately compacted, reddish orangey-brown silty sand with occasional small angular stones and frequent root intrusion extending across visible section (2m E-W) up to 0.50m in thickness. Overlies (4005), underlies (4003).
INTERPRETATION:	*Soil deposit forming the main core of the bank.*
(4005)	Firm yellowish-grey silty sand with moderate to frequent angular sandstone fragments and occasional root activity. Deposit extends across visible section (2m E-W) up to 0.10m in thickness. Underlies (4004), overlies (4006).
INTERPRETATION:	*Deposit forms the interface between the soil bank and bedrock deposit.*
(4006)	Indurated greyish-brown sandstone. Underlies (4005).
INTERPRETATION:	*Bedrock.*

(4007)	Loose to moderately compacted, light greyish-brown sandy clay with occasional small angular sandstone fragments and frequent root activity. Deposit measures >0.70m (EW) and up to 0.15m in thickness. Underlies (4001), overlies (4002).
INTERPRETATION:	*(4007) represents a later deposition of material along the eastern face of the bank.*
Trench 5	
(5001)	Friable, dark brown to black humic deposit containing decomposing organic matter measuring >1.80m E-W x >3.40m N-S & up to 80mm in thickness. Overlies (5002).
INTERPRETATION:	*Humic topsoil deposit.*
(5002)	Cohesive, mid greyish-brown clayey silt with occasional small angular sandstone fragments measuring >1.80m E-W, >3.40m N-S & up to a 0.32m in thickness. Deposit underlies (5001), overlies (5003).
INTERPRETATION:	*Upper subsoil deposit.*
(5003)	Cohesive, mid pinkish-brown sandy silt with 2% charcoal flecking and very occasional small angular sandstone fragments. Deposit measured >1.80m E-W, >3.40m N-S & up to 0.49m in thickness. Underlies (5002), overlies (5004).
INTERPRETATION:	*Lower subsoil deposit, appearing to have been laid down gradually as indicated by uniformity of deposit.*
(5004)	Clastic, light greyish-brown silt with frequent angular sandstone fragments and 2% charcoal flecking measuring >1.80m E-W, >3.40m NS & up to 0.31m in thickness. Deposit underlies (5003) and overlies (5004).
INTERPRETATION:	*Bioturbated 'pseudo-natural'. This deposit has been heavily disturbed through root action as evidenced by possible tree-bole in SW corner of trench.*
(5005)	Indurated greyish-brown sandstone extending >1.80m E-W x >3.40m N-S. Underlies (5004).
INTERPRETATION:	*Bedrock.*
Trench 6	
(6001)	Loose surface layer of forest floor consisting of litter and unincorporated humic material, frequent root intrusion. Deposit measured >8.40m E-W, >1.20m N-S & up to 80mm in thickness. Overlies (6002).
INTERPRETATION:	*Litter layer*
(6002)	Cohesive, mid pinkish-brown sandy silt with occasional small to medium angular sandstone fragments and frequent root intrusion. Deposit measured >8.40m E-W, >1.20m N-S & up to 0.20m in thickness. Underlies (6001), overlies (6003), same as (6006).
INTERPRETATION:	*Colluvium formed by materials washed down the side of the slope.*
(6003)	Denuded, mid greyish-brown sandstone with occasional pockets of humic material (worm casts). Deposit measured 5.20m E-W, >1.20m N-S & up to 0.18m in thickness. Underlies (6002), fills [6004], same as (6007).
INTERPRETATION:	*Bedrock horizon exposed by cut [6004] and fragmented and disturbed by bioturbation*

[6004]	Cut, rectilinear in plan, measures >5.20m E-W × 0.54m N-S. Sharp break of slope at top, sides convex at top becoming slightly concave towards base, sharp (moderate in places) break of slope at base, base flat. Cut orientated N-S. Cuts (6005), filled by (6003).
INTERPRETATION:	*Linear channel/gully running parallel to main bank. Possible cut of holloway or drainage leat.*
(6005)	Indurated greyish-brown sandstone. Underlies (6003), cut by [6004], [6008].
INTERPRETATION:	*Bedrock.*
(6006)	Same as (6002).
INTERPRETATION:	*Colluvial deposit formed by materials washed down the side of the slope.*
(6007)	Same as (6003).
INTERPRETATION:	*Bedrock horizon exposed by cut [6008] and fragmented and disturbed by bioturbation*
[6008]	Cut, rectilinear in plan, extent undefined, maximum depth 0.80m. Moderate break of slope at top, sides convex, sharp (moderate in places) break of slope at base, base flat but slightly irregular. Cut orientated N-S. Cuts (6005), filled by (6007).
INTERPRETATION:	*Owing to narrow width and deep profile, it is possible that this cut functioned as a leat/drainage channel, possibly associated with adjacent cut [6004], itself a possible holloway.*

11.2 Phase 3 Reduction of Trackway

CONTEXT	**DESCRIPTION**
Trench 1	
(001)	Loose surface layer covering strip-back area (200m N-S, 2m E-W & up to 0.10m in thickness) consisting of litter and unincorporated humic material. Overlies (002).
INTERPRETATION:	*Litter layer*
(002)	Moderately compacted, dark brown to black silty humic deposit containing decomposing organic matter, very occasional charcoal flecking and frequent root activity. Extends throughout strip-back area to a thickness 0.18m. Underlies (001), overlies (003).
INTERPRETATION:	*Fermentation layer*
(003)	Moderate to well compacted, mid-greyish brown silty sand with frequent root intrusion and very occasional (1%) charcoal flecking. Deposit extends across strip back area (200m NS x 2m EW) up to a max thickness of 0.18m. Underlies (002), overlies (1013), (3007).
INTERPRETATION:	*Post-medieval build-up of silty material.*
(004)	Firm reddish-brown silty sand. Thickness and extent undefined. Underlies (003).
INTERPRETATION:	*Colluvial deposition.*

12. APPENDIX 2: Specialist Reports

12.1 Geoarchaeology site visit report

Report of site visit on 19th March 2008
Michael J. Allen

12.1.1 Introduction

The site was visited on 19th March 2008, and archaeology and project described by George Children (Border Archaeology). Sections exposed in four trenches were examined and noted and, where necessary, full profiles described following standard pedological notation (Hodgson 1976). No sampling was deemed necessary.

12.1.2 Requirements

To investigate the sedimentary sequences exposed in a series of sections through banks on the eastern slope of Aconbury hill and provide a geoarchaeological account of their formation and function and if possible any indication of their antiquity. Describe, sample (if and as appropriate) and provide a history of formation and use.

12.1.3 Geology, soils and topography

Aconbury hill is an outcrop of Devonian lithology and overlooks low-lying land of the Welsh Marches. The hilltop supports typical argillic brown earths over Devonian silty shale and soft siltstones and occasionally coarse loamy soils over sandstone of the Bromyard Association (Findlay *et al.* 1984) under planted ancient woodland and ancient semi-natural woodland.

12.1.4 Topographical and archaeological features

Four trenches (Trenches 1,2, 3 and 6) provided exposures of sections of the banks / terraces and of accumulations of sediments and stones. All were located on the W of the trackway.

Site topography
The trackway running southwards and gradually ascending Aconbury lay at the foot of a steep portion of the hillslope. Upslope a series of large stepped terraces / lynchets broke the natural slope and were topped by a small well-defined bank, possibly a post-medieval park-pale.

The natural Devonian bedrock, where exposed in the trenches, was soft, sandy and clearly well bedded and dipping, the steep slope providing a series of natural steps in this formation.

Trackway
The hillside provided the western side of the (lower) trackway while on the eastern downslope side, the incision of the trackway into the hillside marked the eastern side and was possibly heightened by the addition of a small bank. Examination of the trackway, especially where exposed in Trench 1, showed two clear parallel grooves in the Devonian lithology, one on either side the track, which are probably a result of wheeled transport, accentuated by rain water gully-erosion.

Main 'Bank'
The main 'bank' was sectioned by three trenches (from S-N Trenches 2, 1 & 3). A smaller bank further upslope was sectioned by a smaller sondage (Trench 6).

Trench 2: The W-E profile clearly shows a plateau-edge deposit (cf. Bell 1981, fig. 5.1) on the lip of the slope underlain by dipping Devonian strata. The nature of this plateau-edge deposit is described below and given in 12.1.7.

A flat level area lay behind (i.e. W) of the plateau-edge deposit, which comprised only thin deposits over the Devonian lithology. The bedrock here was clearly worn. Further upslope (westwards) the land rose again, largely following the stepped nature of the underlying rock, but accentuated by deposits (exposed in Trench 6).

The main plateau-edge deposit (2004) was a stone-free, massive colluvial accumulation occurring on the break of slope and sealing the base of a truncated former brown earth soil (bB) (2005). The western side of the plateau-edge deposit had, however, been cut into down to bedrock. A buried soil (2010) occurred at the top of the plateau-edge deposit; within the soil and on its surface were thin bands of small and very small rounded and sub-rounded stones (2012, 2013). The plateau-edge deposit was topped by a loose bank (2009) that preserved the buried soil. This bank soil now supports a line of trees.

Trench 1: Similar but less pronounced deposits to those seen in Trench 2 are present. The plateau-edge deposit identified within Trench 1 consisted of two discrete deposits representing two different episodes of deposition. Deposit (1013) was ramped and colluviated against bank (1008)/(1014), creating a diagonal/almost horizontal plateau-edge deposit. (1005) formed an asymmetrical deposit above this and underlying (1003).

The routeway exhibits two distinct, discontinuous use phases. The first phase of the trackway [1012] seems to run over the natural, which has limited evidence of localised erosion. A phase of non-routeway use is indicated by the deposition of the plateau-edge deposit (1013), and the subsequent overlying colluvium (1005). The latest phase of the routeway [1016] lies over (1005), and has eroded/truncated its upper surface, and has resulted in compaction and some physical turbation.

Trench 3: A less pronounced plateau-edge deposit (3012) was present and colluvial soils (3003) and (3006) mantled the edge and steep slope. No bank was present over this deposit as the trackway at this point cuts down and across the slope. The western edge is marked by a clear park-pale

The minor terraces / park-pale
The park-pale was a clear rounded bank.

Trench 6: This lay to the W of Trench 2 and section a small bank comprised almost entirely by a natural rock ledge. The flat ledge provided an opportunistic small trackway and access higher upslope.

Formation history of the lynchet features

- An extensive plateau-edge colluvial deposit accumulated on the slope-edge, its deposition truncating the existing soil, but burying its lower portion (bB). We can postulate that this erosion was related to destabilisation of the hillside by clearance for, and construction of, Aconbury Camp and accumulated during the Iron Age and Romano-British periods.

- The plateau-edge deposit created a lynchet-platform providing a routeway up slope. In some locations (Trench 1), the eastern edge was marked by a natural rock bank; in other locations (Trench 2), stones and soil cleared from the road created a small bank.

- The creation of this routeway resulted in the cessation of soil erosion onto the plateau-edge deposit (with most soil washing down the track) and of the formation of a soil on the surface of the plateau-edge deposit. In some places, rocks may have been cut to smooth the path and banked up beside the route (Trench 3).

- The establishment, maintenance and use of this routeway cut into the plateau-edge deposit and created wear on the rock. The width, steepness and lack of rutting suggest that this was pedestrian and animal, rather than vehicular access.

- Maintenance of the routeway resulted in the dumping of some sand and stones on the side of the trackway, which later became incorporated into the soil.

- Trees started to grow alongside the routeway (as evidenced by the lower horizon or root holes in Trench 2)

- The roadside bank was formally enhanced by the creation of a small bank of loose sand and trees subsequently grew or were planted on it (evidence in the higher level of root disturbance in the plateau-edge deposits). This may relate to formalisation of the estate and construction of the adjacent park-pale.

12.1.5 Conclusions

The natural break of slope created by dipping and stepped Devonian strata was accentuated by the natural accumulation of soil creating a plateau-edge (lynchet) deposit as a result of activities probably relating to the construction and use of Aconbury Camp. This ledge, and a series of other natural ledges in the Devonian strata, was exploited and modified as an access routeway. The rock surface was modified, the path maintained and a wide track up to Aconbury used probably in the medieval and post-medieval periods. Its path was modified by cutting some of the rock to smooth the surface and depositing the stones as a small bank. Clearing of stones and sand from the path is evidenced by the dumps of fine sand and stones on the soil by the side of the route. In its last phase, a formal loose soil bank was constructed by the route and trees grew, or were planted, along it, probably as a part of estate management in the post-medieval period.

Other opportunistic routeways exploited other natural ledges up the hillside, in so doing accentuating the ledges and creating small banks. Another smaller ledge behind the main plateau-edge deposit provides gentle access up to Aconbury.

The main (lower) trackway, down which the pipeline is to be routed, clearly shows wear and evidence of wheeled vehicular transport in the form of horse- or bovine-drawn carts.

Acknowledgements
Thanks are due to George Children for explaining the sequences and patiently waiting for me to describe profiles and address my questions and queries.

12.1.6 References

Bell, M.G., 1981, 'Valley sediments and environmental change', in M. Jones &. G.W. Dimbleby (eds.) *Environment of Man: the Iron Age to the Anglo-Saxon period*. Oxford: British Archaeological Reports, British Series 87, 75-91.

Hodgson, J.M., 1976, *Soil Survey Field Handbook,* Harpenden: Soil Survey Tech. Mono. 5

12.1.7 Field geoarchaeological descriptions

Description of sediments exposed in Trench 2

Trench: 2	***Topographical comments:***		
Depth (cm)	***Deposit***	***Unit***	***Descriptions***
0- 5	Ao		Very dark grey – black (5YR 3/1 – 2.5/1) stone-free humic sandy silt, abrupt boundary. Thin forest soils, Ao
5- 12	B		Dark reddish-brown (5YR 3/3) stone-free silty sand silt, common medium fleshy and woody roots, rare medium stones. B horizon
12- 35	Bank		Reddish-brown (5YR 4/4) homogenous stone-free loose, soft unconsolidated sand silt with common medium rotted roots, rare very small sub-rounded stones, rare flecks of very small charcoal, some weak large patches of greyish silty silt (dump/incorporated material), clear boundary
35- 43	Stone lens and soil dump		Compact sand silt with common small stones pieces
43- 49	Buried soil 1		Reddish-brown (5YR 4/4) firm compact apedal old land surface with some fine mottling and lenses of fine bleached sand, very fine charcoal fragments, very fine yellow mottles. Contains a second stone lens, clear – gradual boundary
49- 70	Upper plateau-edge deposit		Structureless fine sand silt, occasional large (9mm) macropores, rare very small charcoal fragments, zones of large infilled roots voids, gradual boundary.
70-120	Lower plateau-edge deposit		Reddish-brown (5YR 4/3) As above, but less firm, clear patches of biotic reworking – another zones of large infilled roots voids, gradual boundary.
120-140	Eroded soil		As above, with some pedological activity. Eroded soil
142-165	bA/B2		Yellowish-brown (10YR 5/4) but with slight greenish hue, firm fine sand, rare stones sharp boundary. Buried soil
165+	C		Rock

12.2 Topographic Survey

David Sabin & Kerry Donaldson, Archaeological Surveys Ltd
Survey date: February/March 2008

12.2.1 Summary

A topographic survey was carried out at Aconbury Hill in Herefordshire to the E of Aconbury Camp Iron Age hillfort. The survey area contained a number of linear banks and ditches that traverse the eastern side of Aconbury Hill and surface points were collected to allow hachuring, contouring and surface modelling. Trees and ground vegetation created poor conditions for survey and restricted surface observations and measurements. Surface models and contours were considered confusing and did not adequately represent the earthworks within the survey area; however, cross-sections derived from the surface model have been plotted, along with hachures. The earthworks may be consistent with the development of holloways formed by traffic traversing the hillside but may also relate to former land boundaries.

12.2.2 Survey background

Archaeological Surveys Ltd was commissioned by Border Archaeology to undertake a topographic survey of an area of land at Aconbury Hill, Aconbury Herefordshire. Aconbury Camp, an Iron Age hillfort, is located to the W of the survey area.

The survey formed part of an archaeological assessment of the site prior to ground disturbance association with the laying of a new water main by Dŵr Cymru/Welsh Water (DCWW). Several linear earthworks formed by banks and ditches were present at the site. The earthworks had unknown archaeological potential; however, the survey was commissioned due to the relatively close proximity of Aconbury Camp.

12.2.3 Survey objectives

The objective of the survey was to create a record of the topography of the site with a particular emphasis on surface variations that may relate to features of archaeological significance.

To achieve the objective of the survey, the site was to be recorded with as much detail as necessary to accurately portray the surface in a number of useful formats including contours and coloured surface modelling. In addition, hachuring was used to emphasise surface variation with an anthropogenic origin where this was readily visible (see methodology below).

12.2.4 Site location

The site is located at Aconbury Hill, Aconbury, Herefordshire, (Ordnance Survey grid reference SO 5099 3313).

12.2.5 Site description

The survey area is approximately 350m long running in a N-S direction and approximately 25m wide from E-W. The site lies along the eastern side of Aconbury Hill and falls from approximately 231m ODN at the southern end to 205m ODN in the N.

Within the survey area, there are a number of linear banks and ditches; a trackway and public footpath forms the course of the proposed pipeline. The track also allows access for surveying adjacent earthworks. Recent widening of the track has necessitated the dumping of fresh soil along some sections immediately adjacent to its course. Four separate areas were undergoing excavation by Border Archaeology during the survey period.

The survey area is located in mixed woodland of variable density with ground cover consisting of a variety of natural woodland vegetation and decaying wood. Access for surveying and surface observations were restricted by the density of vegetation (**Plate 01**).

Plate 01: Aconbury Hill - northern end of survey area looking S

12.2.6 Site history and archaeological potential

Aconbury Camp is a univallate Iron Age hillfort of irregular shape enclosing approximately 7ha. Excavation was carried out from 1948 to 1951 when large amounts of Iron Age pottery were discovered (Herefordshire SMR 910). The archaeological potential of the survey area is considered as enhanced by the close proximity of the monument.

12.2.7 Approach

The following approach was adopted after assessing the site and considering the objectives of the survey:

- concentrate survey within accessible areas adjacent to and between sections cut by archaeological excavation
- avoid zones of recent soil dumping associated with track widening operations
- combine current topographic features with surface modelling and contouring
- hachure features based on site observations and recorded survey

Generally the survey will follow specification produced by the Royal Commision for the Historical Monuments of England (RCHME) – *Recording Archaeological Field Monuments, A Descriptive Specification* (RCHME, 1999).

12.2.8 Surveying details

Survey data were collected in three dimensions using a Topcon GTS802A robotic total station and Husky data logger. Specifications are included in the appendix – the instrument was use in 'fine mode' with prism type A2/A3.

Measurements were recorded as coordinates based on the Ordnance Survey National Grid (OSGB36) with heights based on Ordnance Datum Newlyn (ODN).

Eastings and northings were provided in OSGB36 format by a Penmap RTK GPS using Leica's Smartnet service. The system is capable of 10-20mm accuracies and was used to provide survey control within an open area to the N of the site. A resection was carried out within the total station software based on the GPS control points.

Data were collected by the total station in a systematic manner working from N to S. Additional control points were established at suitable points within the survey area to allow further resection calculation as the survey progressed.

12.2.9 Data processing and presentation

Data points downloaded from the Husky data logger were imported into MapInfo Professional v9 with Vertical Mapper and AutoCAD 2007 for analysis and display. Topographic detail was digitised as vectors and points within AutoCAD based on point information codes collected in the field. Vertical Mapper was used to provide a fifth order polynomial interpolation of the data based on a triangular irregular network (TIN) formed from each data point. The interpolated surface is used to produce model surfaces and contours.

The fifth order polynomial interpolation used by Vertical Mapper is a slope-bending algorithm that produces a smoother, more representative surface when compared to a simple linear solution. The polynomial is influenced by five properties relating to the

triangular geometry between the collected data points and their values: (a) triangle centroid location, (b) triangle area, (c) triangle aspect ratio, (d) angle versus slope of the triangle and (e) statistically derived slope of a triangle vertex.

Using a TIN results in an interpolated surface that honours all of the original data points collected in the field and produces a very small degree of 'overshoot' and 'undershoot' which can be advantageous when modelling features such as land surfaces.

The surface model can be represented graphically using colours or by contours that are produced by a process of 'threaded vectors' based on the model grid values and the user defined requirements.

Hachures were drawn in AutoCAD using a suitable LISP routine and were based on a combination of field notes, digitised boundaries and contour information (**Figs. 01-03**). However, only surface variation clearly visible within the surface area that is related to anthropogenic activity has been hachured.

12.2.10 Archive

A digital archive of data has been prepared and includes an ASCII text file of all grid points referenced to OSGB36 National Grid and ODN; the file format is listed as easting, northing and height.

MapInfo tables have been archived in version 6. In addition, version 12 DXF files and AutoCAD 2000 DWG files have been archived for mapping and hachuring.

This report has been archived as an Open Office Writer 2.3 odt file, a Microsoft Word 2000 doc file and in PDF format. All plots have also been archived as PDFs. All archived digital data has been issued on CD-ROM.

12.2.11 Results

The surface model and contours produced by Vertical Mapper were considered uninformative and have not been plotted for the purposes of recording the site. The linear and sloping nature of the survey area combined with the restriction to the number of data points collected due to vegetative cover has resulted in an inadequate distribution of useful data. Surface models were not considered representative and contained artefacts resulting from the interpolation process. Contour plots were complex partly due to the natural slope of the site but also related to the variable distribution and density of survey data.

Hachuring is considered as the most informative graphical representation of the site. Hachured plots have been supplemented by two cross sections created from the interpolated model using Vertical Mapper.

Earthworks are represented by hachures within Figures 01-03 with cross sections included in Figures 01 and 02. A dominant ditch and bank are depicted by the hachures and cross sections, the ditch contains the current track way and footpath. Immediately adjacent along the western side are more minor banks and ditches that appear discontinuous or extend beyond the limit of the surveyed area.

12.2.12 Conclusion

Topographic survey, terrain modelling and hachuring has clearly indicated the presence of linear earthworks and ditches within the survey area. These features would be consistent with the development of holloways associated with tracks but may also be related to the formation of land boundaries.

12.2.13 References

RCHME, 1999, *Recording Archaeological Field Monuments – A Descriptive Specification*, Royal Commission on the Historical Monuments of England, Swindon

Appendix – Topcon GTS802A Specification

- **Telescope**

Length:	166mm
Objective lens:	50mm (EDM: 50mm)
Magnification:	30×
Image:	Erect
Field of view:	1°30'
Resolving power:	3"
Minimum focus:	1.4m
GTS-802A/802:	1 speed way

- **Automatic Tracking (GTS-800A series)**

Maximum Automatic Tracking speed:	5°/sec
Automatic Collimation Range:	±1°

Automatic Tracking range *1

Prism type 2, with 1 prism	8 ~ 700 m (26 ~ 2,300ft)
Prism type 2, with 3 prisms *2	30 ~ 850 m (98 ~ 2,789ft)
Prism Unit Type A2/A3 (Prism type 3, 6 in all direction)	15 ~ 350 m (49 ~ 1,148ft)

Automatic Collimation / Tracking accuracy:	±4mm / within 100m *3
Search pattern:	Pattern 1 / Pattern 2
Search range:	Any value can be set, able to set (1° step)
Safety standard for Laser Beam:	Class 2 (IEC Publication 825)
	Class II (FDA/BRH 21 CFR 1040)

*1 Condition: Normal (Visibility about 20km), except high humidity time.
*2 In case using 9 prism holder fixing type 2.
*3 The air condition is stable.

- **Distance measurement**

Measurement accuracy

Fine measurement mode:	±(2mm + 2ppm) m.s.e.
Coarse measurement mode:	±(10mm + 2ppm) m.s.e.
Least Count in Measurement	
Fine measurement mode:	1mm (0.005ft.) / 0.2mm (0.001ft)
Coarse (1mm) measurement mode:	1mm (0.005ft.)
Coarse (10mm) measurement mode:	10mm (0.02ft.)
Measurement Display:	10digit max display ±999999.9999m
Measurement Time	
Fine measurement mode:	1mm: 2.0sec. (Initial 5 sec.) 0.2mm: 3.0sec. (Initial 6 sec.)
Coarse (10mm) measurement mode:	0.4sec. (Initial 3 sec.)
Coarse (1mm) measurement mode:	0.7sec. (Initial 3 sec.)

- **Tilt Correction**

Method:	Automatic vertical and Horizontal index Liquid type
Compensating Range:	±3'
Correction unit	1"(0.1mgon)

Fig. 01: Hachure plan northern section

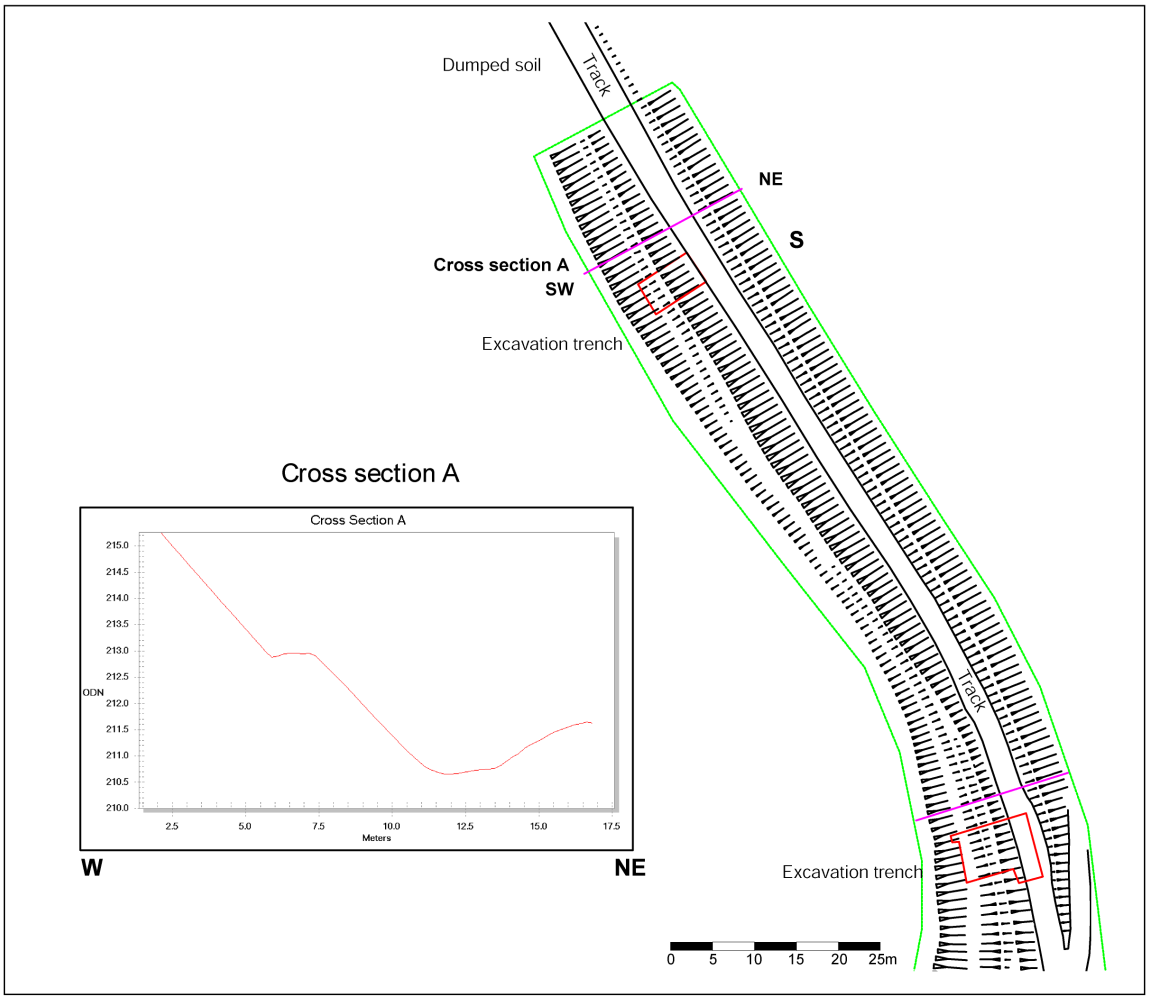


Fig. 02: Hachure plan central section

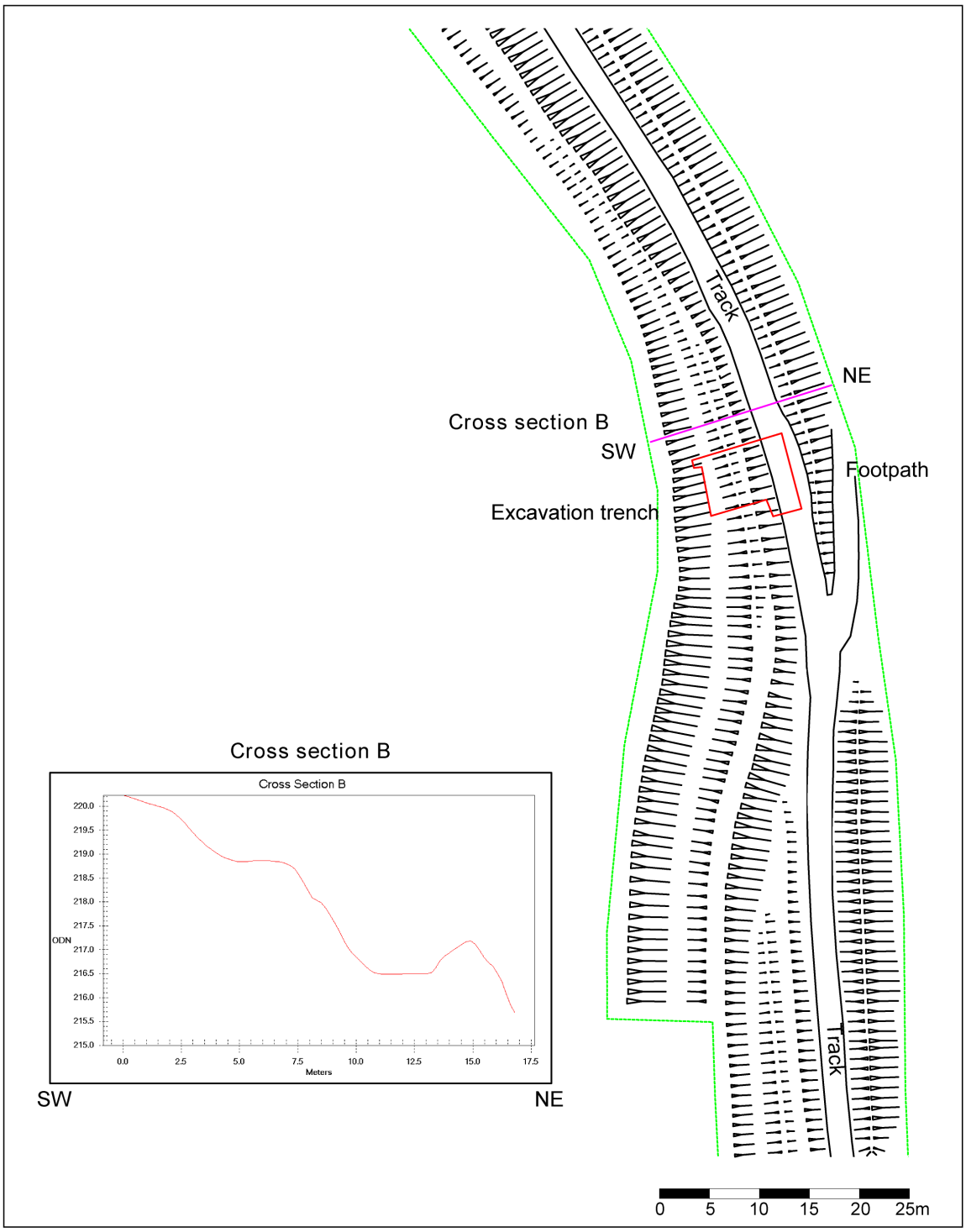
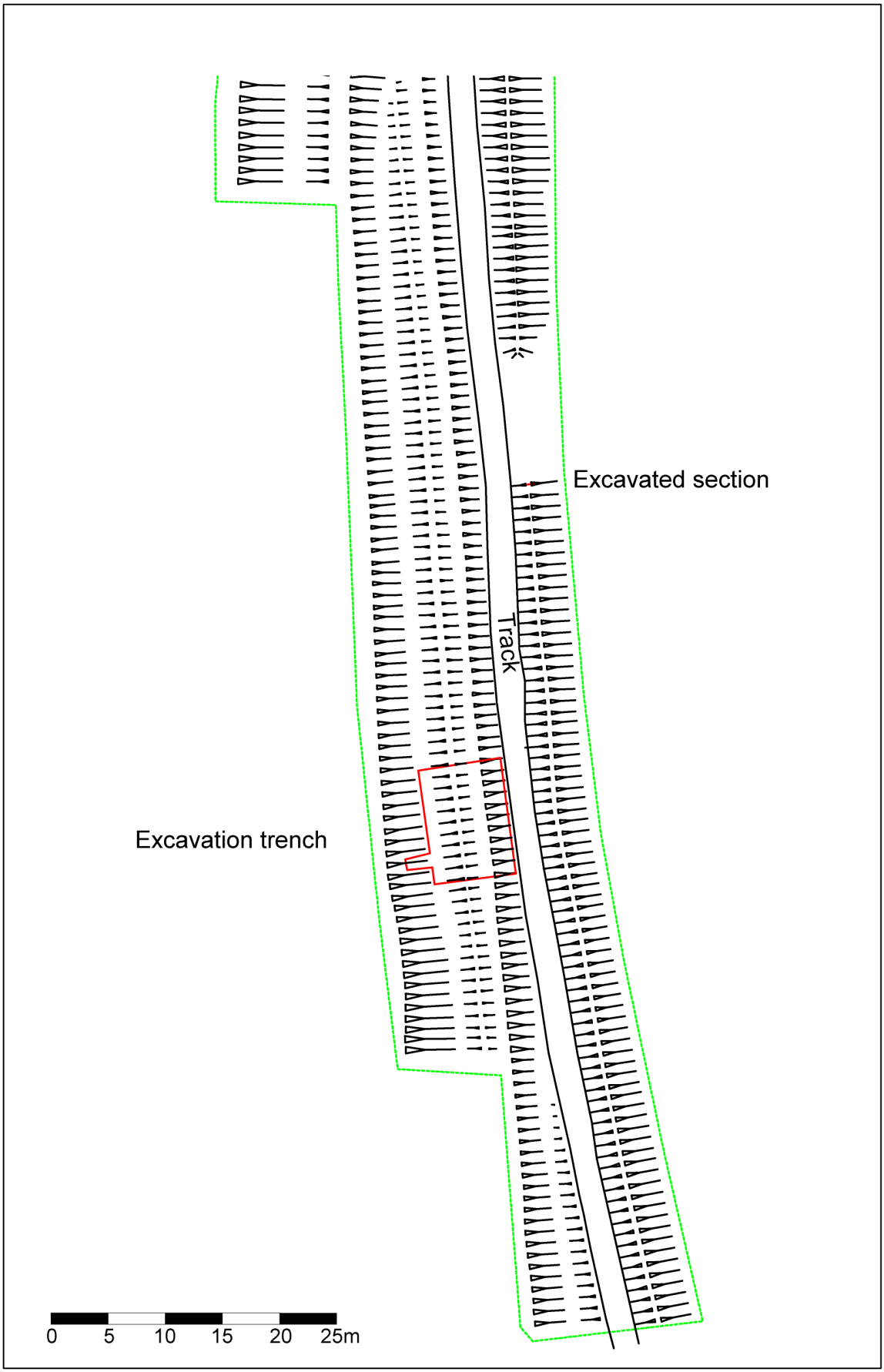


Fig. 03: Hachure plan southern section



12.3 Plant macrofossil assessment

Dr. Helen Ranner & Mr Bryan Atkinson
Archaeological Services University of Durham
February 2008

12.3.1 Summary

The project
This report presents the results of plant macrofossil assessment of bulk samples taken during an excavation near the Iron Age fort at Aconbury, Herefordshire, by Border Archaeology.

Results
A few charred plant macrofossils were recorded in three of the contexts; these derived from tree and herb taxa. Two hazel nutshell fragments may indicate that nuts were gathered as a food source, while the other plant remains may have been accidental casualties of domestic fires or woodland clearance activity.

12.3.2 Project background

Location and background
Excavations were conducted by Border Archaeology near the Iron Age hill fort at Aconbury, Herefordshire. The site was formerly woodland, but was cleared and enclosed for arable use, before being replanted in the 1830s. The work has revealed two trackways. Plant macrofossil assessment was carried out on 12 bulk samples taken during this excavation.

Objective
The objective was to assess the plant macrofossil evidence in the bulk samples, and to recover material suitable for radiocarbon dating.

Dates
Assessment and report writing were carried out between February 4th and 22nd 2008.

Personnel
Assessment and report preparation were conducted by Dr. Helen Ranner. Processing was carried out by Mr Bryan Atkinson.

Archive
The site code is AC07. The flots are retained in the Environmental Laboratory at Archaeological Services Durham University, for collection.

12.3.3 Method

The full volume of each bulk sample was manually floated and sieved through a 500μm mesh. The residues were described and scanned using a magnet for ferrous fragments. The flots were dried slowly and examined at $\times$ 40 magnification. The soil from this site is of a free-draining nature and only carbonised plant material is thus likely to have been

preserved; any uncharred plant remains would be later intrusive material and have not been included in this assessment. Identification of the charred plant remains was undertaken by comparison with modern reference material held in the Environmental Laboratory at Archaeological Services Durham University. Plant taxonomic nomenclature follows Stace (1997).

12.3.4 Results

The bulk samples consisted principally of woodland litter. Charcoal was present in all contexts with occasional coal, clinker and semi-vitrified fuel waste. A single piece of charred heather stem was recorded in (1009) and a sheep-sized long bone fragment was present in (3003). Identifiable charred plant remains were limited to three contexts: hazel nutshell fragments in (2004), pine fruits and a bramble fruit stone in (1009) and a violet seed in (2010). The results are presented in Table 1.

12.3.5 Discussion

The few charred plant macrofossils that were recorded in three of the contexts derived from tree and herb taxa. The two hazel nutshell fragments in context (2004) may indicate that nuts were being gathered as a food source while the other charred plant remains may have been accidental casualties of domestic fires. However, all of the charred remains, charcoal and fire waste may derive from fires associated with woodland clearance activity undertaken between *c.* 1500 - 1800.

The contexts were aerobic and half were recorded with root intrusion, suggesting that the woodland litter that was characteristic of all the samples is most likely to be modern material introduced, for example, through bioturbation.

12.3.6 Sources

Stace, C., 1997, *New Flora of the British Isles*, 2nd Edition, Cambridge

Table 1: Data from plant macrofossil assessment

Context		1002	1003	1005	1008	2003	2004	1009	3003	2007	2002	2010	3007
Sample		1	2	3	4	5	6	7	8	9	10	11	31
		×	✓	✓	×	✓	✓	✓	✓	×	✓	✓	×
Radiocarbon dating material	non-oak charcoal (mg)	-	13	27	-	10	-	42	132	-	18	62	-
	charred hazel nutshell (mg)	-	-	-	-	-	10/13	-	-	-	-	-	-
Volume processed (l)		20	20	10	20	10	20	10	20	5	10	10	10
Volume of flot (ml)		2000	400	100	150	150	100	350	400	50	900	50	25
Volume of flot assessed (ml)		2000	400	100	150	150	100	350	400	50	550	50	25
Residue contents (relative abundance)													
Bone (burnt) >2cm	sheep-sized long bone fragment	-	-	-	-	-	-	-	1	-	-	-	-
Wood		4	-	4	-	-	-	4	-	-	-	-	-
Flot matrix (relative abundance)													
Charcoal / charcoal dust		2	3	2	2	3	3	3	3	2	2	3	3
Clinker		-	1	1	1	-	1	1	1	-	-	1	1
Coal		2	1	3	1	2	-	2	1	2	1	-	1
Heather stems (charred)		-	-	-	-	-	-	1	-	-	-	-	-
Insecta		-	1	1	1	2	-	3	1	-	1	1	-
Mollusca shell (terrestrial)		1	-	-	-	-	-	-	1	-	1	-	-
Roots (modern)		4	4	4	2	4	3	2	3	2	3	2	2
Semi-vitrified fuel waste		-	-	-	-	-	-	1	-	-	-	-	1
Vegetative material	miscellaneous	5	4	4	3	4	3	4	4	3	4	3	4
Vegetative material (charred)	miscellaneous	-	-	-	-	-	-	3	-	-	-	-	1
Wood		-	-	-	-	-	-	4	-	-	-	-	1
Charred remains (total counts)													
(t) *Corylus avellana* (Hazel)	nut shell fragment	-	-	-	-	-	2	-	-	-	-	-	-
(t) Pinaceae (Pine family)	fruit	-	-	-	-	-	-	2	-	-	-	-	-
(t) *Rubus fruticosus* agg. (Bramble)	fruitstone	-	-	-	-	-	-	1	-	-	-	-	-
(x) *Viola* spp (Violet)	seed	-	-	-	-	-	-	-	-	-	-	1	-

(t-tree; x-wide niche). Relative abundance is based on a scale from 1 (lowest) to 5 (highest).

12.4 Optically Stimulated Luminescence (OSL)

Mr S. Grainger
Luminescence Dating Laboratory
Department of Archaeology
University of Durham
6th June 2008

12.4.1 Results

Lab. Reference	Site Reference	Luminescence date [1]
Dur07OSLQi 358-3	C3 TBE2	AD 1300 ± 150
Dur07OSLQi 358-4	C4 TBE2	AD 525 ± 250

[1] The uncertainties associated with each date are given at the 68% level of confidence.

12.4.2 Technical summary

The quartz inclusion technique (Aitken, 1985; 1998) was applied to determine the luminescence age of the sediment samples discussed in this paper. The age, A, is calculated by determining experimentally the values of the palaeodose estimate, D_e, and the total dose rate, $\dot{D}_{tot}$, to enable the age equation to be evaluated:

$$A = \frac{D_e}{\dot{D}_{tot}} \pm \sigma_A ; \pm \sigma_B \quad (1)$$

where $\dot{D}_{tot} = a\dot{D}_{\alpha} + b\dot{D}_{\beta} + g\dot{D}_{\gamma} + \dot{D}_{cos}$.

$\dot{D}_{\alpha}$ is the alpha dose rate due to alpha emitters within the interior of the quartz grains; a is the *a* value (Aitken, 1985) that accounts for the lower yield of luminescence per unit of absorbed dose; $\dot{D}_{\beta}$ and $\dot{D}_{\gamma}$ are the point-absorber infinite medium β and γ dose rates respectively; b is a lumped correction factor related to the attenuation of β radiation by quartz grains, taking into account the reduction in grain size due to HF etching, and differences in the absorption coefficient between ceramic and water; g is a lumped correction factor related the geometry of the sources of γ radiation and to differences in the absorption coefficient between ceramic and water; $\dot{D}_{cos}$ is the cosmic ray dose rate calculated using the formula of Prescott and Hutton (1988). The process of HF etching quartz grains is assumed to reduce the dose rate contribution from external sources of alpha particles to a negligible level.

The age is given with two error terms based on the specification by Aitken (1985). The first error term, σ_A, is a type A standard uncertainty (ISO, 1993) obtained by an analysis of repeated observations and the second error term, σ_B, is a type B standard uncertainty based on an assessment of uncertainty associated with all the quantities employed in the calculation of the age, including those of type A, and is equivalent to the overall error described by Aitken (1985). Expressions for both terms are derived from an analysis of the propagation of errors (see Aitken, 1985) when calculating the age using measured and calculated values, and hitherto this approach has been generally considered to be sufficiently robust. Unless stated otherwise, all the uncertainties discussed in this report are given as $\pm 1\sigma$ and the type B error is given with the ages calculated for this report.

12.4.3 Sampling

Samples were provided by Border Archaeology; the laboratory references for these samples are quoted on the previous page. Rigid plastic tubing (30cm x 45mm diameter) was inserted into the sediment and labelled to indicate the surface end. The tubes were then wrapped in lightproof black plastic and delivered by hand to the laboratory. Due to site access limitations, the use of aluminium oxide (Al_2O_3: C; Landauer Inc., USA) gamma dosemeters was not possible and sampling locations were chosen to simplify the calculation of the gamma dose rate.

12.4.4 Experimental procedures

12.4.4.1 Preparation of Samples

All sample preparation was performed under subdued red lighting conditions. A general assessment of the composition of the sediment fabric was made using a low power stereo microscope by examining a small sub sample to examine for heterogeneity of the fabric due to rock fragments or agglomerations.

Quartz inclusions in the grain size range 90-150 μm were extracted for luminescence measurements by following a procedure based on that developed for the quartz inclusion technique (Aitken, 1985). A sub-sample of material was extracted from the inner part of the core and dried at 50 C before being mechanically crushed and sieved to isolate the grain size fractions in the ranges <90 μm, 90-150 μm and 150-355 μm. The 90-150 μm fraction is preferred in this laboratory because it corresponds to the grain size range used in the primary β source calibration.

Following a test for the presence of carbonates, the sieved fraction was etched in HF (40%, for 45 mins), immersed in HCl for 45 mins to remove precipitates, and finally re-sieved, with appropriate washing procedures applied at each stage. The quality of the etched material was assessed by visual examination of one or more aliquots under a low power microscope. The presence of feldspars in the etched material was tested by measuring the response of aliquots to infra-red stimulation following the application of a laboratory β dose and pre-heat treatment – no significant infra-red stimulated luminescence (IRSL) was detected for the samples discussed in this report. On the basis of visual inspection of randomly selected aliquots under a microscope and the results of IRSL tests (see below), heavy liquid separation was considered not to be necessary for the samples under test.

12.4.4.2 Instrumentation

Luminescence measurements were performed using a TL-DA-12 semi-automated reader (Risø National Laboratory, Denmark). The optically stimulated luminescence (OSL) is detected after passing through a Hoya U340 filter (7.5 mm), and OSL decay curves were recorded using either blue diode (470 nm; ~50 mW cm^{-2}) or filtered tungsten-halogen (450-550 nm; ~30 mW cm^{-2}) stimulation sources. As part of the initial testing procedure, the TL signal from quartz inclusions were also measured using a heating rate of 5˚C s^{-1} (no optical filter was inserted in the detection system). Laboratory β doses were administered to luminescence samples using a $^{90}Sr/^{90}Y$ β source mounted on the reader that has been calibrated against a secondary standard ^{60}Co source (Göksu *et al.*, 1995).

The β dose rate due to lithogenic radionuclides in the sediment was determined using the technique of β-TLD (Bailiff, 1982; Aitken, 1985). The system employs a 10 mm dia. calcium fluoride dosemeter to measure externally the β dose rate close to the surface of the sample and interposed between which is a mylar screen to absorb alpha particles.

The average concentrations of ^{238}U, ^{232}Th and ^{40}K in the sediment matrix were measured using a high-resolution γ ray spectrometer configured with shielding for low background (Canberra high purity germanium coaxial detector type GR2018 of 20% efficiency and with a Be window). The spectrometer was calibrated using silica rich sands containing lithogenic radionuclides of certified concentrations (New Brunswick Laboratories, USA and NCS DC73374 standard supplied by LGC Promochem). The alpha activity of

pulverised sediment samples was determined using thick source alpha counting (TSAC), as described in Aitken (1985), with prefabricated ZnS scintillator screens of 42 mm diameter (Daybreak Nuclear Ltd, USA). The apparatus was calibrated using SiO_2 sands of certified U and Th concentrations (as above).

12.4.4.3 Luminescence measurement procedures: quartz inclusions

Sample aliquots of typically 1 mg of quartz were deposited as a near monolayer onto stainless steel discs that previously had been coated with a thin layer of silicone oil and spread within a diameter of 3-4 mm. Initial tests were performed to establish the basic OSL characteristics of each sample. The OSL decay curve was measured for 50-100 s depending on the characteristics of the particular sample; the sample temperature was held at 125ºC during stimulation. The preheat (PH) was performed by heating the aliquot (5˚C s^{-1}) to a maximum temperature selected in the range 200-260 ˚C and holding the sample at that temperature for 10s.

The estimated absorbed dose, D_e, to quartz grains was determined using a single aliquot OSL regenerative procedure that is given in Table A1-1. It is similar to the SAR procedure described by Murray and Wintle, 2000; 2003, but handles corrections for sensitization effects and thermal transfer differently. A second OSL decay curve is recorded at each stage of the regenerative procedure (steps 3, 5, 7, 11) to monitor the OSL signal due to thermal transfer, referred to as a pre-heat monitor, and this is used to define the background signal. The preheat treatment, comprising a 10s hold at the selected temperature, T_P, is applied for temperatures between 200 and 260 ˚C to establish the form of the palaeodose-preheat characteristic (P vs T_P). The pattern of sensitivity change with cumulative dose is measured by repeating a series of regeneration cycles using the same dose and pre-heat temperature. The same procedure is applied to separate aliquots using a different preheat temperature. The β doses administered in regeneration measurements typically ranges from 0.8 to 1.2 of the estimated cumulative dose (P), and this range is extended if further investigation of the growth characteristic is required. Steps 21 and 22 are used to check for the presence of feldspar contaminants by measurement of the IRSL response.

12.4.4.4 2.4 Dose rate assessment

The components of the total dose rate, $\dot{D}_{tot}$, were determined by direct measurement of the contemporary dose rate in pulverised sediment samples (β radiation) and by the use of indirect methods based on the measurement of activity using high resolution γ spectrometry and thick source alpha counting (TSAC).β-TLD measurements were performed with several aliquots (~ 2 cm^3) of a pulverised portion of the sediment sub-sample.

Thick source alpha counting (TSAC) was performed with pulverised sediment samples (~5 g), in an unsealed state (α_0) and during the first 24 h following sealing (α_1). HF etched quartz samples were analysed for average U, Th and K content using standard analytical techniques (ICP-MS and AAS).

A larger quantity (25 g) of pulverised material (obtained from the section adjacent to that used to extract quartz) wais used to determine the activities of the ^{232}Th and ^{238}U decay series and ^{40}K using a high resolution γ ray spectrometer. The specific activities of the ^{232}Th and ^{238}U decay series were determined by measurement of the γ ray emissions by ^{228}Ac, ^{212}Bi, ^{212}Pb and ^{206}Tl (^{232}Th series), and ^{226}Ra, ^{214}Pb, ^{214}Bi and ^{210}Pb (^{238}U series).

A measure of the moisture content of the raw sediment was performed by drying pre-weighed aliquots of material until constant weight was achieved.

12.4.5 Results

12.4.5.1 3.1 Sediment

Microscopic examination of the sediment samples revealed significant quantities of crystalline material and confirmed an absence of agglomerations of crystalline minerals.

12.4.5.2 Luminescence measurements

Initial tests were performed using extracted HF etched quartz from each sample to determine the basic luminescence characteristics. Results from these tests indicated that samples 358-2, 358-3 and 358-4 had suitable luminescence characteristics, but that sample 358-1 displayed a luminescence signal that had been only partially zeroed before burial and no further tests were performed on this sample.

Note
After dissemination of the initial results to Mr. Surety, it was decided that due to the presence of underlying rock near the point of sampling for sediment 358-2, and accessibility problems associated with the emplacement of a gamma dosemeter, that only samples 358-3 and 358-4 would be selected for continued investigation.

To obtain signals of adequate strength the stimulation source was adjusted to 90% of maximum power to allow the OSL signal to be resolved. A high proportion of the OSL decayed within several seconds and the decay curves were dominated by components (Bailey, 2001) judged to be 'fast'/'medium'; the 'slow' component was either absent or not resolved above the background signal.

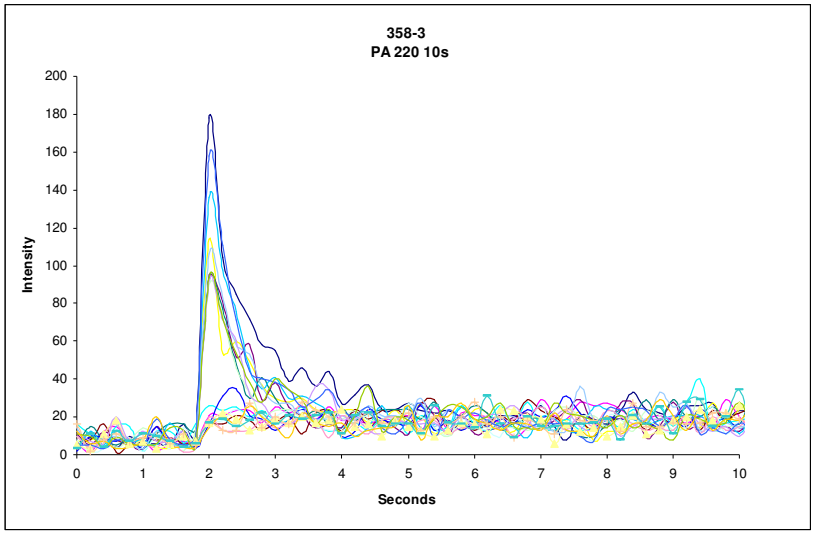


Fig 1.a Typical OSL decay curve for sample 358-3

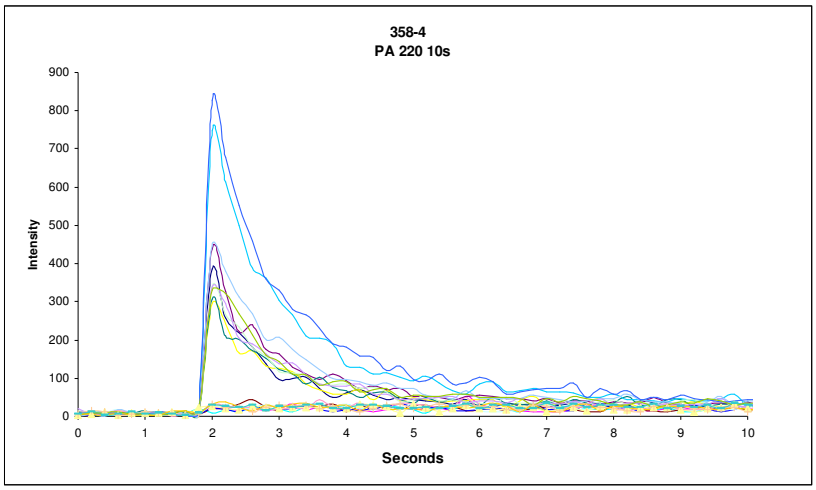


Fig 1.b Typical OSL decay curve for sample 358-4

The relative strength of the natural OSL signal for each sample is indicated by the signal-to-background ratio, R_{SB}, the values of which are given in Table A1-2. Fluctuations in the value of P due to poor signal statistics are expected to arise if R_{SB} = ~0.5 – 1 or less

The OSL signal was obtained by integrating the photon counts recorded during the first few seconds of stimulation (typically 5s), which was sufficient to account for at least 80% of the emission associated with the 'fast'/'medium' components. Once selected, the same period of integration was used for all measurements performed with one sample. The OSL data were used to generate a growth characteristic, providing there was no significant change in the form of the decay curve within the integration range throughout the series of regeneration measurements (results obtained with aliquots that fail to meet this requirement are excluded). In the case of samples 358-3 and 358-4, none of the aliquots measured were excluded from the calculation of D_e due to either change in the form of the decay curve, poor reproducibility in the growth characteristic data or large statistical fluctuations in the signal after subtraction of the background signal.

The estimate of D_e for each aliquot was obtained using the interpolation procedure applied in the standard regenerative technique and included corrections for changes in sensitivity during the repeated measurement cycles using two procedures. The change in sensitivity per unit dose was examined by plotting OSL signal vs cumulative dose and, where there was a consistent pattern of change, a coefficient of sensitization was calculated and applied as a cumulative correction factor to the measured OSL signal at each measured point in the procedure. A second correction procedure followed that described by Murray and Wintle (2003), except that the 'test' dose was comparable to the size of D_e (Table A1-1). The growth characteristics plotted with the sensitivity corrected values were found to be linear and with indication of negligible supralinear growth at low doses.

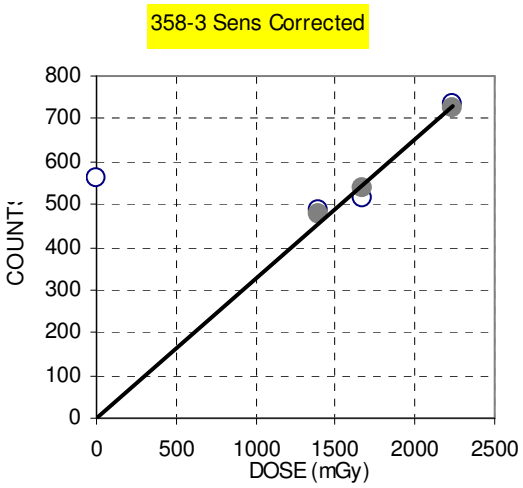


Fig.2.a 358-3 Regenerative growth characteristics

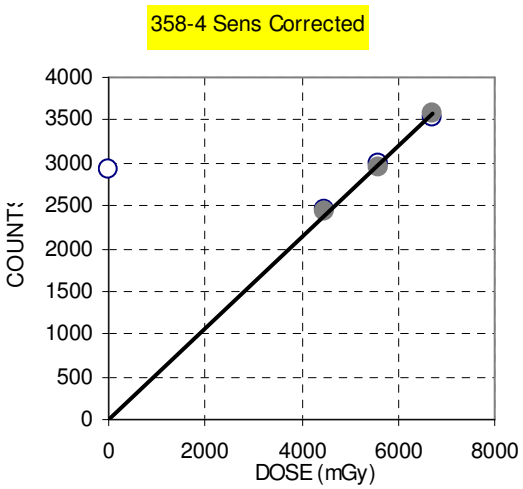


Fig.2.b 358-4 Regenerative growth characteristics

The best estimate of the dose accrued since the zeroing event/phase, D_e , was obtained by analysis of a histogram of all the D_e values using a procedure based on the leading edge methodology described by Lepper and McKeever (2002). A histogram of all the D_e values was produced and a single component Gaussian curve was fitted to the distribution with the values of the parameters (mean, D_m and standard deviation, σ) adjusted such that the model value approximately corresponded to the maximum of the first maximum in the histogram distribution. The estimate of D_e used in the calculation of the time elapsed since the burial event, the luminescence age, was taken to correspond to (D_m-σ/2), with standard error given by σ/2.

12.4.5.3 Dose rate assessment

The dose rates given in the first two cols of Table A1.3 are the experimentally determined values to which corrections for moisture content (β dose rate) and attenuation (β and γ dose rates) have been applied. Details of the attenuation factors incorporated in the lumped correction factors b and g in Eqn. 1 are given below; the external alpha dose contribution is assumed to be negligible.

The values of the point absorber β dose rate within the tested material, as measured using β-TLD, were reduced by 7% (90-150 μm grains) to account for the effects of attenuation due to the finite size of the quartz grains using data derived from our own radiation transport simulations and which are similar to those obtained by Brennan (2003).

Where dose rates have been calculated from radionuclide concentration values, conversion factors published by Adamiec and Aitken (1998) were used, with the exception of ^{40}K, which are based on our own calculated conversion factors.

12.4.5.4 Age calculation

The luminescence age was calculated using Eqn 1. The uncertainty in the age was calculated by taking into account the propagation of errors associated with experimental measurements and takes into account those errors associated with the calibration and conversion factors (Aitken, 1985). After subtraction of the test year (2007) from the luminescence age, the luminescence date is given with two associated uncertainties calculated at the 68% level of confidence and based on the specification originally proposed by Aitken (1985):

$$\text{Luminescence Date} \pm \sigma_B$$

The term, σ_B, is a type B standard uncertainty based on an assessment of uncertainty associated with all the quantities employed in the calculation of the age, including those of type A standard uncertainty obtained by an analysis of repeated observations (i.e. random and systematic errors). This method of error assessment is derived from an analysis of the propagation of errors and, providing the distribution of errors is normal, the approach appears to be sufficiently robust.

12.4.6 References

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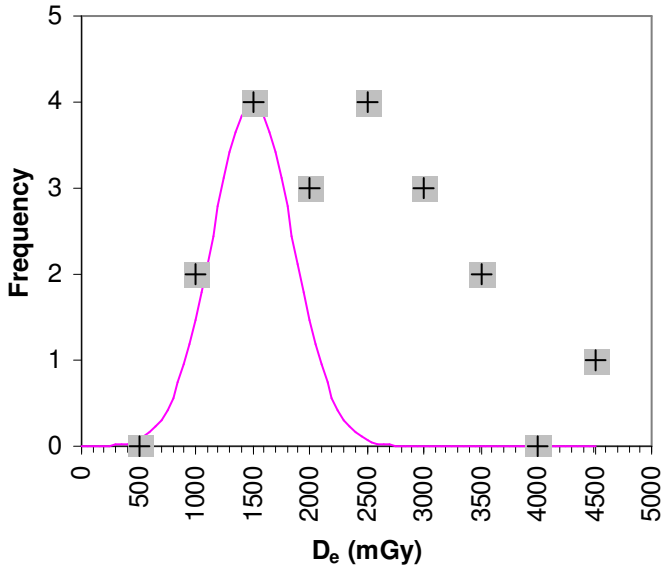

Fig. 3.a. Sample 358-3: distribution of experimentally determined values of D_e, plotted as a histogram (values shown by cross symbols; bin width = 500 mGy) and the Gaussian distribution centred on the first peak in the histogram.

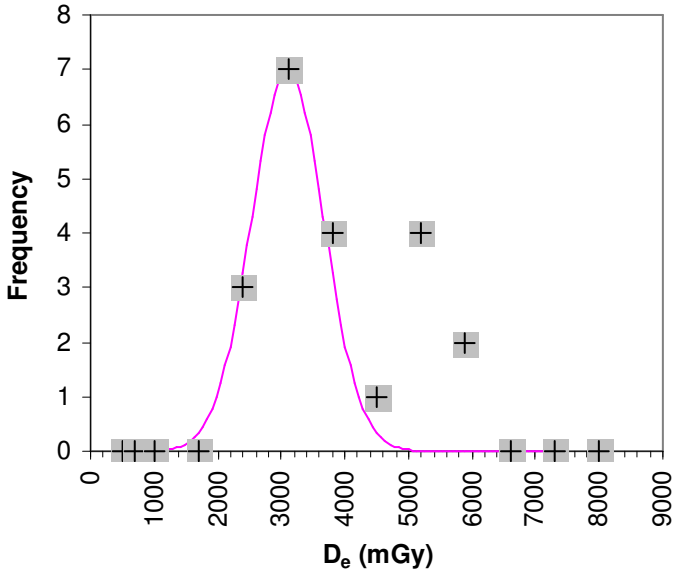

Fig. 3.b. Sample 358-4: distribution of experimentally determined values of D_e, plotted as a histogram (values shown by cross symbols; bin width = 800 mGy) and the Gaussian distribution centred on the first peak in the histogram.

Table A-1

	Proc. B	Measurement
1	PH; OSL	Pre heat using a selected temperature within the range 200-260 ℃; measure OSL.
2	PH; OSL	Pre-heat monitor (PHM)
3	+ 0.8 ß; PH; OSL	1st dose point / Sensitivity Monitor
4	PH; OSL	PHM
5	+ ß; PH; OSL	2nd dose point
6	PH; OSL	PHM
7	+ 0.8 ß; PH; OSL	Sensitivity Monitor
8	PH; OSL	PHM
9	+ 1.2 ß; PH; OSL	3rd dose point
10	PH; OSL	PHM
11-19		Repeat Steps 3-10
20	+ 0.8 ß; PH; OSL	Sensitivity Monitor
21	+ ß; PH; IRSL	Test for feldspar contamination
22	+ ß; IRSL	Test for feldspar contamination

Notes
The symbol ß indicates the administration of a laboratory β dose corresponding to the value of the estimated palaeodose, D_e.

Table A1-2

Lab. ref.	R_{SB} ± s.d.	Sensitivity change ± s.d.	D_e eval. PhT range (℃)	D_e ± s.e. (Gy)	n*
358-3	4.2	1.2±0.4	220-240	1.25±0.25	21
358-4	9.6	1.1±0.1	220-240	2.7±0.4	22

Notes

1. R_{SB} is the average ratio of the natural OSL to background signals.
2. The sensitivity change corresponds to the ratio of the OSL signals measured at point 9 to that measured at point 3 in the procedure given in Table A1-1.
3. The value of D_e was calculated by determining the location of the leading edge of the histogram distribution of D_e values, as described in the main text. The number of determinations of D_e, n, shown in col. 7 corresponds to all the determinations used to construct the histogram.

Table A1-3

Lab. ref.	TLD		γ Spectrometer				
	$b\dot{D}_{\beta}$	$g\dot{D}_{\gamma}+\dot{D}_{cos}$	Th	U	K	Ratio $^{210}Pb/^{226}Ra$	H_20 sat.
	mGy a^{-1}	mGy a^{-1}	Bq kg^{-1}				% dry weight
358-3	0.94	0.84	27.7	18.1	450	0.78	20
358-4	1.07	0.75	22.8	16.5	365	0.69	20

Table A1-4

Lab. Ref.	$\dot{D}_{tot}$ ± s.e.	P ±s.e.	Date $\pm\sigma_B$
Dur07 OSLqi-	mGy a^{-1}	mGy	A.D.
358-3	1.79±0.04	1.25±0.25	1300±150
358-4	1.82±0.04	2.7±0.4	525±250

13. Site Summary

Report Name & Title	Aconbury to Ridge Hill Reservoir Water Pipeline Scheme Archaeological Excavation & Earthwork Survey
Contractor's Name and Address	Border Archaeology PO Box 36 Leominster Herefordshire HR6 OYQ
Site Name	Aconbury Woods
Grid Reference	NGR SO 50895 33311to SO 51016 32978
SMR number/s of site	46678
Date of Field Work	November 2007 to March 2008
Date of Report	July 2008
NUMBER AND TYPE OF FINDS	
Pottery **Other**	*Period:* Post-medieval *Number of sherds*: 6 *Period*: Post-medieval *Quantity*: 33 x Fe 4 x CBM 8 x glass 2 x clay pipe bowls 1 x pewter disc
NUMBER AND TYPE OF SAMPLES COLLECTED	
Sieving for charred plant remains	*No of features sampled*: 16 *No of buckets*: 27
C^{14}/scientific dates	*No and type*: 2 x OSL dates *Result*: 1. AD 1300 $\pm$ 150, 2. AD 525 $\pm$ 250
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 *Period:* N/A
Other	*Type and specialist*: N/A

Summary

The earliest evidence of activity identified was a sub-circular feature, possibly a stake-hole, at the base of Trench 2, which was cut from a buried soil horizon immediately overlying bedrock. This appears to be an early feature, as an OSL date of AD 525 ± 250 was obtained from a core sample taken from the upper level of a substantial colluvial deposit overlying this buried soil. This colluvium appears to represent a significant destabilisation of the hillside, possibly caused by tree clearance for construction of the nearby Iron Age hillfort of Aconbury Camp and subsequently by medieval and early-post medieval clearances.

The excavations revealed evidence of an upper routeway running roughly parallel with a main (lower) trackway, which appears to have been used for pedestrian or livestock access, whereas the main trackway displayed evidence of deep rutting caused largely by horse- or ox-drawn transport over a long period.

OSL results suggest that the upper routeway was in existence by the 13th-14th centuries while topographical evidence indicates a likely medieval origin for the lower trackway, its somewhat irregular zig-zag alignment suggesting that it follows an ancient boundary delineating the eastern limits of the long established Kings Held Wood.

The upper routeway fell out of use before 1852, as it is not shown on the Aconbury estate map of that date, which shows a clearly defined bank defining the W edge of the main (lower) trackway. A phase of later activity, probably dating from the mid 19th century, was represented by the widening of the main (lower) trackway and the establishment of a tree-lined bank along its eastern side, which was probably associated with an extensive programme of re-planting in Aconbury Woods undertaken by Guy's Hospital from the 1830s onwards.

Document Control

Job title	Aconbury to Ridge Hill Reservoir Water Pipeline Scheme Archaeological Excavation & Earthwork Survey	**Job No**	BA0711LORAW
Report written by	*Stephen Priestley MA*		
Report edited by	*George Children MA*		
Issue No	**Status**	**Date**	**Approved for issue**
1	Final	August 2008	*Neil Shurety*