

T H A M E S V A L L E Y

ARCHAEOLOGICAL

S E R V I C E S

**Land adjacent to Littlemore Hospital,
Littlemore, Oxford**

Archaeological Recording Action and Watching Brief

by David Sanchez

Site Code: LLO12/12

(SP 5320 0261)

Land adjacent to Littlemore Hospital, Littlemore, Oxford

An Archaeological Recording Action and Watching Brief

For Abbey Developments Ltd

by David Sánchez

Thames Valley Archaeological Services Ltd

Site Code LLO 12/12

August 2019

Summary

Site name: Land adjacent to Littlemore Hospital, Littlemore, Oxford

Grid reference: SP 5320 0261

Site activity: Archaeological Recording Action and Watching Brief

Date and duration of project: 9th April- 10th May 2019

Project coordinator: Tim Dawson

Site supervisor: David Sánchez

Site code: LLO 12/12

Area of site: c. 3.71ha

Summary of results: The recording action and subsequent watching brief on the groundworks in this parcel of land adjacent to Littlemore Hospital revealed a moderate amount of archaeological features completing the results shown by previous geophysical survey and subsequent trial trenching on the site. Two large boundary ditches and two shallow gullies of Late Iron Age/Early Roman date, and four Roman human cremation deposits were uncovered.

Location and reference of archive: The archive is presently held at Thames Valley Archaeological Services, Reading and will be deposited at Oxfordshire County Museum in due course, with accession code OXCMS:2014.42

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by David Sánchez

Report 12/12d

Introduction

This report documents the results of an archaeological watching brief carried out at a plot of land adjacent to Littlemore Hospital, Littlemore, Oxford (SP 5320 0261) (Fig. 1). The work was commissioned by Mr Andrew Josephs of Andrew Josephs Associates, on behalf of Abbey Developments Ltd, Abbey House, 2 Southgate Road, Potters Bar EN6 5DU, Hertfordshire.

Planning permission (17/03050/FUL) has been granted by Oxford City Council for a new housing development on land adjacent to Littlemore Hospital, Littlemore, Oxford (SP 5307 0267). The consent is subject to a condition that requires that a staged programme of archaeological work. This is in accordance with the Department for Communities and Local Government's *National Planning Policy Framework* (NPPF 2012). The fieldwork was to take place in two initial phases (watching brief and targeted recording action) during groundworks as a result of the possibility of damage or destruction of archaeological deposits.

The archaeological works were to take place according to a written scheme of investigation approved by the Oxford City Council Archaeological Officer and based on a brief supplied by him (Radford 2019). Following the first two stages, a review stage would take place and a final stage of mitigation might be required.

The field investigation was carried out to a specification approved by Mr David Radford, Archaeological Officer of Oxford City Council. The fieldwork was undertaken by David Sánchez, Kyle Beaverstock, Cosmo Bacon, Daniel Haddad, Ashley Kruger and Camila Carvalho, between 9th April and 10th May 2019 and the site code is LLO 12/12. The archive is presently held at Thames Valley Archaeological Services, Reading and will be deposited at Oxfordshire County Museum in due course, with accession code OXCMS:2014.42

Location, topography and geology

The site is located on the southern side of Oxford and to the west of Littlemore (Fig. 1). It is currently one large parcel of land, of 3.71ha, bordered by a railway line to the north and the A4074 dual carriageway to the west and the rear clinic buildings of Littlemore Hospital are just beyond the southern boundary of the site. The field has a slight fall of slope towards the road in the west, and a more pronounced slope in the southern corner of the field. A 2m wide open ditch and associated bank lay parallel to the road on its western boundary. The site lies at a

height of *c.*70m above Ordnance Datum and the underlying geology is mapped as Beckley Sand with the Thames floodplain to the west (BGS 1994).

Archaeological background

The archaeological potential of the site has been highlighted in a brief for the project produced by David Radford, the Oxford Archaeological Officer drawing on a desk-based assessment (Ford 2012). In summary, several kiln sites are known relatively close to the study area at Rose Hill, Cowley, Blackbird Leys and Littlemore itself and are a part of a major centre of production in the middle and later parts of the Roman period. Additional potential for evidence of prehistoric and Saxon activity is highlighted due to the topography of the site and finds in the local area. A geophysical (magnetic) survey of the site identified several features that were likely to be of archaeological origin in addition to areas of possible thermoremnance. Of particular note is a probable ‘banjo’ enclosure apparently within another larger square enclosure. There were several patches of possible thermoremnance caused by burning events (Buczek and Dawson 2012). Subsequent evaluation trenching on the site confirmed the presence of the ‘banjo’ enclosure, and that it was of Iron Age date. It also confirmed the presence of linear features, likely to be Iron Age and Roman field boundaries (Ford 2012b).

Objectives and methodology

The aims of the project were to excavate and record any archaeological deposits that would be affected by the groundworks. This involved two main stages of archaeological monitoring, with a possible third phase depending on the results and the recommendation of the Oxford City Council Archaeological Officer. In addition a watching brief of the groundworks of the compound area was required, to ensure that preservation *in-situ* of the archaeological deposits present in this area took place as intended.

The first phase of monitoring comprised a targeted strip and record excavation of a 30m x30m area targeted on the junction of field boundaries (Fig. 2). This area was stripped of overburden, down to the top of the archaeologically relevant level, under constant archaeological supervision. Topsoil and subsoil were removed under continuous archaeological supervision by a 360° type machine fitted with a toothless bucket to expose the uppermost surface of archaeological deposits. Where appropriate and necessary, hand cleaning of the stripped surface was to take place. All archaeological features were planned and sectioned as a minimum objective. Isolated, discrete features such as pits and postholes were fully excavated following half section recording. Sampling of linear features such as ditches and gullies relating to agricultural activity was to a minimum of 10%

of their length and were excavated in 1-3m wide slots. All termini and intersections were examined. Any deposits relating to funerary/ritual activities such as burials and cremation deposits were fully excavated and discrete features such as cremation deposits were 100% sampled for subsequent analysis.

The second phase was to comprise a watching brief during the phase 1 development ground works (road, house footprints and utilities). Here, examination of areas of intrusive groundwork comprised the observation of the removal of topsoil/subsoil, followed by hand-cleaning, excavation and recording as set out above.

Following these two stages, a third stage of mitigation was to be considered but following the completion of the watching brief of the two main roads and associated services, the Archaeological Officer of Oxford City Council advised that no further works were required and therefore no third stage of mitigation was undertaken.

The watching brief in the compound area was still to be monitored. Turf was removed to a depth of 0.10m maintaining the slope and using a 360° type machine fitted with a toothless bucket. No service trenches, drains or soakaways were dug below the stripped surface.

Results

Recording action

The recording action comprised the excavation of an area of 30x30m targeting the possible junction of field boundaries identified during the course of the geophysics survey (Figs 2 and 3). This area was stripped of topsoil and other overburden as intended with a depth of between 0.90m and 1.45m at its western edge and between 0.54m and 0.70m at its eastern edge. The stratigraphy uncovered consisted of 0.26m of topsoil and between 0.28 and 0.36m of subsoil, overlying natural geology. At the western half of the area 0.50m of a mixed deposit (150) of gravel and clay with sand patches and frequent medium size limestone was uncovered below the topsoil overlying a dark brownish grey sandy silt deposit (buried topsoil).

The archaeological investigation in this small area revealed two main boundary ditches, one small pit and two shallow gullies. In addition two heavily rooted deposits of burnt material with frequent charcoal and cremated bone fragments were excavated and considered to be human cremation deposits.

Gully 1000 (Fig. 4)

Gully 1000 was uncovered at the SE quadrant of the area on a NNW-SSE alignment and it was 16.40m long with a width between 0.38–0.62m and a maximum depth of 0.12m. It continued to the SSE beyond the limit of the recording action area and its course beyond that is unknown as it was not visible in the results of the geophysical survey and was not observed in the watching brief of Road 2. This feature was fully excavated for

finds following its recording in three 1m long slots (including its northern terminus), showing it to have concave base and shallow sides, filled with a single deposit of mid reddish brown silty sand with occasional rounded stones. Though the whole of this feature was excavated, it returned no finds of archaeological interest. It was probably marking the same line as gully 1003 further north.

Gully 1003 (Fig. 5)

Gully 1003 was located at the NE quadrant of the area on a similar alignment to gully 1000 suggesting that it may have been originally a continuation to the NNW of the latter. It was 9.10m long with a width of 0.55m and a maximum depth of 0.19m. Its terminus was identified in a relationship slot with boundary ditch 1002 but the relationship between these two features was uncertain as both were filled as a consequence of silting episodes with a very similar deposit of mid yellowish brown sand with very occasional small limestone inclusions. A relationship slot with a previous cut (123) of the same boundary suggest that the terminus of gully 1003 was truncated by this boundary ditch. Its outline to the NW is uncertain as it was not visible in the results of the geophysical survey, while the excavation of Road 1 on the area of its potential continuation did not reach the depth of the archaeological level. An assemblage of 123 sherds of Late Iron Age/Early Roman pottery was recovered from this feature, all from slot 118, but possibly all from just one or two vessels. A sheep/goat tooth was also identified.

Boundary ditch 1001 (Fig. 4; Pls 1 and 2)

One of the two main linear anomalies identified during the course of the geophysics survey was uncovered in the recording action area, consisting of a large ditch on a N-S alignment turning towards the SW at the centre of the investigated area. A total of length of 32m of this feature was uncovered with a width of between 1.30m and 2.70m and a depth between 0.63m and 1.16m. Three full-width slots were dug in this feature showing to have concave base and steep sides with V or U shape profile. In addition a relationship slot was dug on its corner to clarify the relationship with boundary ditch 1002 but other than to confirm the outline of these two features whose corners touch each other, no clear relationship between them was observed as both were filled with very similar deposits of mid greyish or yellowish brown silty sand with very occasional limestone inclusions as consequence of silting episodes. The slot dug on this feature at the SW corner of the site (120-121) showed a recut of the original ditch and provided evidence of a relatively long term use for this feature with the original boundary reopen at least one time after it gradually filled up. The terminus of a previous linear feature (103), mostly truncated by this ditch, was also identified though its outline is not easily definable as its association with any other linear features of the site is uncertain. Ditch 1001 continued beyond the west and north limits of the

excavation where the results of the geophysical survey showed its course before it reached the limits of the investigated area. Just 9 sherds of Late Iron Age/Early Roman pottery were recovered from this feature.

Boundary ditch 1002 (Fig. 4)

Ditch 1002 is the second large anomaly identified during the course of the geophysical survey and uncovered in the recording action area. It consisted of a large ditch with ENE-WSW alignment turning towards the SSE at the centre of the investigated area. A total length of 34.10m of this feature was uncovered with a width from 1.38–3.20m and ranging in depth between 0.40m and 0.90m. Four slots were dug in this feature showing a number of recuts ranging between two and four though most of them seem to terminate close to the corner of the feature with two termini identified in relationship slots with gully 1003 and only one clear cut heading ENE towards the eastern limit of the recording action area. These cuts showed a concave base and steep sides with V or U shape profiles and were typically filled with one single deposit of light yellowish brown silty sand with very occasional small size limestone inclusions. In addition three relationship slots were dug to clarify the relationship of this feature with ditch 1001 (see above) and gully 1003, tentatively showing the terminus of one of the earlier cuts of this boundary cutting gully 1003. A small assemblage of 12 sherds of Late Iron Age/Early Roman pottery were recovered from this feature.

Cremations (Fig. 5)

At two different areas on the NE quarter of the recording action possible human cremation deposits were investigated. Five metres to the east of the junction between the two large boundary ditches described above an irregular shaped cut (122) dug in the limestone and measuring 0.80x0.60m with a maximum depth of 0.25m (Pl. 3) was filled with a dark grey/black silty sand deposit with frequent charcoal inclusions and 52g of human cremated bone. No evidence of the presence of an urn or any other finds were recovered from this deposit.

Seven metres to the NNW of this deposit and cutting gully 1003 two or possibly three cremation deposits were uncovered. This area was heavily disturbed by roots and the original number of cremation deposits is not easy to define. Two clear cuts (126 and 128) were identified filled with dark greyish/black deposits with frequent charcoal inclusions and human cremated bone. Cut 126 had oval shape measuring 0.75x0.70m with a depth of 0.17m and 338g of human cremated bone were recovered from its fill (188). Cut 128 had circular shape measuring 0.57m diameter and a maximum depth of 0.10m. A total of 11.5g of human cremated bone were recovered from its fill (190). The area between these two deposits revealed a very irregular shaped cut (134) filled with one deposit (193) of dark greyish brown silty sand with frequent charcoal inclusions and 208g of human cremated bone. This can either be result of rooting with the deposits of cremations 126 and 128 spread by the roots or a third cremation deposit heavily disturbed by roots. Finally just to the south of these three deposits a

fourth irregular shaped 'cut' (127) was investigated filled with a dark greyish brown silty sand deposit (189) with occasional charcoal inclusions and a small amount of 4.5g of human cremated bone. This is considered to be result of rooting of the cremation deposits immediately to the north spreading the charcoal and cremated bone on a larger area. Five sherds of late Iron Age/Early Roman pottery were recovered from these contexts, one sherd from deposit 189, one from deposit 190 and three from deposit 193 including a grog-tempered jar base which could have been used as a cremation urn, though considering the disturbance caused by roots on these deposits the few sherds of pottery recovered could also have been originally deposited in gully 1003.

In addition during the course of the archaeological evaluation another possible cremation deposit (6) was uncovered in trench 3 (Ford 2013), seven metres to the SW of the cremations described above. Only 5g of cremated bone were recovered from this deposit which could either be pyre-related or traces of a full cremation deposit under subsequent plough depth.

Pit

Only one small pit (100) was uncovered during the course of the recording action, located on the NW quarter of the area and measuring 0.69x0.67m with a slightly oval shape and a depth of 0.20m (Fig. 3). It was fully excavated for finds following half section recording but no other finds than five fragments of animal bone were recovered. It was filled with two deposits (153-154) of light yellowish brown and dark greyish brown silty sand with frequent charcoal inclusions especially in the bottom fill.

Watching brief (Fig. 2)

During the course of the watching brief the groundworks for the construction of the two roads of phase 1 of the development were monitored. The excavation of subsequent service trenches in the roads area were also monitored when the potential archaeological level had not been revealed with the excavation of the roads.

Road 1

Road 1 connected the site with the A4074 just to the north of the recording action area. A total length of 117m of the excavation of this road was monitored until its junction with road 2. Its width ranged between 6.40m and 7.60m and its excavation revealed a simple stratigraphy consisting of between 0.26m and 0.30m of topsoil and between 0.24m and 0.34m of subsoil overlying natural geology. The excavation of the road reached a depth of between 0.58–0.90m with two areas, 26m and 24m long, where the excavation was left at subsoil level not revealing the potential archaeological level. In one of these areas excavation of a service trench and associated man holes was also monitored.

The watching brief of Road 1 revealed two linear features. One linear feature on a WSW-ENE alignment followed the outline shown in the geophysical results for boundary ditch 1002 and is therefore considered to be its continuation to the ENE. The second linear feature (1004) had a NNW-SSE alignment and was uncovered for a length of 10.40m. It met ditch 1002 at a perpendicular angle. Its line to the north of the watching brief area is uncertain as it was not visible in the geophysics. One slot with a original length of 1m and subsequently extended to 2m for finds was dug on ditch 1004 showing this to be 1.50m wide with a depth of 0.70m (Fig. 5; Pls 4 and 5). It had an irregular base and steep sides filled with two different deposits of mid yellowish and greyish brown sand with frequent small size limestone and occasional charcoal inclusions. A relationship slot was dug in the junction between ditches 1002 and 1004 revealing that ditch 1004 was cut by ditch 1002. Ditch 1004 had no continuation to the south and is therefore considered to terminate at its junction with ditch 1002. No other finds than one flint flake and four fragments of animal bone were recovered from ditch 1004, and four fragments of animal bone from ditch 1002 in this area. Following consultation with Mr Radford no further slots were dug in ditch 1002 as this feature had been largely investigated in the recording action area and evaluation.

Road 2

Road 2 was located to the south of Road 1 with a general WSW-ENE alignment turning to the N at its east end. A total length of 158m of this road was monitored with a width ranging between 6.30m and 7.30m and its excavation revealed a simple stratigraphy of between 0.28m and 0.30m of topsoil and between 0.18m and 0.20m of subsoil overlying natural geology. The excavation of the road reached a depth of between 0.25m and 0.90m and at its ENE end it comprised only topsoil stripping not reaching the potential archaeological level.

Only one feature of archaeological interest was uncovered during the excavation of Road 2: a linear feature (135) with a NNW-SSE alignment crossing the excavated area of the road perpendicularly and following the line shown in the geophysical survey for boundary ditch 1002. This is therefore considered to be the continuation to the SSE of this boundary ditch largely investigated in the recording action area and after consultation with Mr. Radford it was recorded in plan and no further slots were excavated.

Compound area (Pl. 6)

The last stage of the archaeological works on the site consisted of the stripping of the turf of the area where the geophysical survey and archaeological evaluation had revealed the presence of an Iron Age 'banjo' enclosure. The groundworks of this area were monitored and it comprised excavation of the turf to a maximum depth of 0.10m in order to leave the archaeological features present in the area preserved below subsoil. The depth of stripping in this area was confirmed as not penetrating subsoil, and no further excavation was undertaken.

Finds

Pottery by Rob Perrin

A small assemblage of 150 sherds, weighing 1089g and with an estimated vessel equivalent, based on rims, of 0.66 was recovered from 13 contexts in 13 features (Appendix 2); three different vessels were noted. Eight of the features are ditches, two gullies and three are related to a cremation. Most of the features other than gully 118 contain just a few sherds.

The most common fabric is grog-tempered ware occurring in both dark brown and reddish-yellow colours, all with black-coloured grog. The other fabrics are flint-tempered and sand-tempered grey, reddish-yellow, buff and cream wares (Table A2.3). The grog-tempered ware is the sole fabric in ditches 113 and 114, gullies 118 and 130 and cremation features 127 and 134. The one sherd with small flint-temper is from ditch 101. The grey ware is from ditch 132, where it occurs with a reddish-yellow ware sherd; other sherds in the latter are from ditches 102 and 121 with that from ditch 102 having a white external slip. Cream ware sherds are from ditches 101, 105 and 125 while the buff sherd is from cremation feature 128.

Most of the sherds in gully 118 are from a dark brown grog-tempered jar with dark grey surfaces, which has had a least one hole pierced through the vessel wall. The other grog-tempered vessel is a base, probably from a jar, in a reddish-yellow fabric. The flint-gritted ware sherd has a slightly corrugated surface. Both the cream ware vessels are flagons, that from ditch 105 has a bead rim and an offset neck and that from ditch 125 is represented by a large 3-ribbed handle. Both this handle and that from the ditch 105 vessel are attached to the vessel with tangs which slot into a hole in the wall.

The flint and grog-tempered ware will have been locally produced and is it likely that the former is of mid-Iron Age date and the latter late Iron Age, possibly early Roman. The sand-tempered wares are all products of the local Oxfordshire industry (Young 1977) and are probably mainly of later 1st to 2nd century date; two kilns are known in Littlemore itself.

Discussion

The pottery is very fragmented with a low mean sherd weight of around 7g. The assemblage is too small to draw any definite conclusions, other than that it provides evidence for late Iron Age and early Roman activity or occupation in the vicinity. The cremation contexts are difficult to interpret as they only contain five sherds, of which four, including a probable jar base, are grog-tempered and one a fine buff ware base. It is conceivable, however, that the jar was the cremation urn and the buff ware part of an accessory vessel; whether the two flagons and the other grog-tempered jar were also part of cremations is impossible to say.

Struck flint by Steve Ford

A small collection comprising three struck flints was recovered during the watching brief phase of the project. They comprise two spalls, both patinated, from ditches 1004 and 1001 (116, 174 and 121, 180), and a flake from ditch 1002 (113, 168). None of the pieces is closely datable and only a broad Neolithic or Bronze Age date can be suggested.

Burnt human bone by Ceri Falys

Five features were identified as containing burnt bone (122, 126, 127, 128, and 134) (Appendix 3). Each deposit of bone was whole-earth recovered on site in series of 0.02m thick spits (between 2 and 5 spits). The bone and surrounding soil were floated and wet-sieved to a 2mm mesh size during post-excavation processing, with all burnt bone and other associated residues separated for further analysis.

Root activity in the area of cuts 126, 127 and 128 has led to some uncertainty with regards to the nature of deposit 127. It is likely that the burnt bone present in cut 127 has been the result of root activity disrupting cremation pits 126 and 128, rather than a separate, intentional deposit of burnt bone. Therefore 127 is considered a deposit of disturbed cremation residue from 126 and/or 128.

Prior to osteological analysis the bone from each spit was sorted using a sieve stack comprising 10mm, 5mm, and 2mm mesh sizes. The relative weights from each of the sieves has been recorded, along with information regarding the colour(s) of the burnt bone for each deposit, and the maximum post-excavation fragment size of both cranial and long bone shaft fragments (Tables A3.1 and A3.2).

The amount of bone collected from the four cremation-related deposits (excluding disturbed context 127) varied significantly, ranging from 11.5g (from cut 128) to a maximum of 338g (cut 126). These values are all significantly lower than would be expected from the cremation of a complete (adult) human individual (1001.5g-2442.5g, average 1625.9g based on modern crematoria: McKinley 1993). The reduced quantities of bone may reflect disturbance of the burials after interment, or the practice of burying only some of the calcined bone of the cremated individual, representing a symbolic or token interment (McKinley 2006).

The overall surface preservation of the bone was generally fair, with the majority of fragments demonstrating dense textures. However, a great deal of fragmentation was present (Table A3.2). The three largest deposits of burnt bone contained pieces of cranium (181, 188 and 193), with cranial maximum post-excavation fragment sizes ranging from 14.3mm (193) to 34.0mm (188). Long bone shaft fragments were by far the more frequently preserved skeletal regions in all contexts, with recorded post-excavation fragment values from 21.5mm (189) to 39.9mm (193).

The collected bone displayed a variety of colours within each context. Although the majority of bone was buff or buff-white, a few fragments in each deposit were charred black (cut 122), blue or grey (122, 126, 127, 128, and 134). Variations in colour of burnt bone reflect the degree of oxidation of the organic components within the bone. The level of oxidation of bone relies on factors such as the quantity of fuel used to build the pyre, the temperature attained in various parts of the pyre, length of time over which the cremation was undertaken and the oxidizing/reducing conditions in various parts of the pyre (McKinley 2004, 11). Holden *et al.* (1995a; b) suggest that temperatures above 600°C are required to fully oxidize the organic components and produce buff or white bone, as observed for the majority of bone in these contexts. Charring (i.e. black colouration) requires temperatures *c.* 300°C, and hues of grey and blue indicate incomplete oxidation, resulting from temperatures up to *c.* 600°C (Holden *et al.* 1995a; b).

Osteological Analysis

All pieces of bone have been subjected to osteological analysis following the procedures suggested by McKinley (2000) and Brickley and McKinley (2004). Initial osteological analysis divided fragments into five main areas of the body: cranial, axial, upper limb, lower limb and non-descript long bone (unidentifiable to specific limb). A more detailed identification of fragments to specific skeletal element and side was undertaken, where possible. In addition to portions of long bone shafts, the most frequently preserved fragments in deposits (181, 188 and 193) were pieces of cranial vault, vertebral fragments, and portions of the hands and/or feet. Few long bone shaft fragments were identifiable in disturbed deposit (189), and primarily portions of the pelvis were present in (190).

The lack of element duplication in each deposit suggested the remains of only one individual was present in each context. Assessments of skeletal age and sex were limited by the availability of necessary fragments in each deposit. It was not possible to assess the sex of any of the individuals. The extent of skeletal development and overall appearance and thickness of the cranial vault fragments and portions of long bone shafts suggested the individuals in deposits 181, 188 and 193 were all adult at the time of death (i.e. 20+ years). The age of the person in 188 could be refined to 20–25 years, based on the fact the bodies of the thoracic vertebrae were in the final stages of developing (the vertebral end plate of the body surface undergoing fusion (Albert and Maples 1995).

No pathological observations or non-metric anomalies were observed on the remains. A detailed summary of the osteological findings is provided in the catalogue of contexts containing burnt bone, below:

122 (181)

A total of 53g of bone was recovered from pit 122 (181) in a series of five spits. The colour of bone varied between charred black, blue-grey and buff, indicating that different aspects of the skeleton were subjected to varying temperatures, length of time, and oxygen supply during the cremation process. The maximum post-

excavation fragment sizes were 23.3mm for a piece of cranial vault (spit 5), and 29.5mm for a long bone shaft fragment in spit 2. Identified fragments include portions of cranial vault, the dens process of the second cervical vertebra, superior articular facets of thoracic vertebrae, distal end of proximal phalanx of first finger, and long bone shaft fragments. Only an age-at-death of “adult” could be suggested, based on the overall thickness of the cranial vault and long bone cortical bone thickness.

126 (188)

The greatest quantity of burnt bone was recovered from cremation pit 126 (188). A total of 338g of bone was present for osteological analysis. The bone was not uniform in colour, with hues of blue, grey, and buff all recorded for bone in spit 1. Blue fragments were limited to a mammal proximal phalanx and the shaft of a right metacarpal, suggesting the (?right) hand was not as efficiently burnt as the rest of the skeleton. Grey fragments were small portions of long bone midshafts, possibly of the forearm (radius and/or ulna, unsided).

The maximum post-excavation fragment sizes were amongst the largest recovered, with a cranial fragment (right zygomatic arch/temporal bone in spit 2) measuring 34.0mm. The biggest piece of long bone shaft was present in spit 1, and measured 34.2mm.

Fragments were identified from all skeletal regions, with pieces of the skull (cranial vault, petrous portion of temporal, mandible fragment, tooth crowns and roots) and the upper limb most dominating the identifiable fragments. All regions of vertebrae were also present (dens of C2, superior articular facets and body fragment of thoracic and lumbar vertebrae). A small fragment of thoracic vertebral body was in the final stages of development, with the vertebral end plate of the body surface undergoing fusion, suggesting the individual was aged between 20-25 years at the time of death (Albert and Maples 1995).

127 (189)

It was noted at the time of excavation that the bone from the fill (189) may result from root activity from cremation pits 126 and 128, rather than an intentional deposit of cremated material. A small amount (just 4.5g) of burnt bone was recovered from 127 (189). The fragments varied in colour from grey-white to buff. No cranial fragments were identified. A postcranial fragment measured 21.5mm, but this was certainly the exception from the small assemblage, as 55.5% of fragments measured less than 10mm in size. It was not possible to identify fragments to element of origin, beyond non-descript long bone shaft fragments.

128 (190)

The bone from 128 (190) was excavated in two 0.02m thick spits. Long bone shaft fragments were coloured blue-grey or white. Many of the 11.5g of bone displayed good preservation of trabecular bone, including portions of the innominate (pelvis). Fragments displayed varying hues of blue-grey, buff and white. A maximum

fragment size of 27.7mm was recorded for a piece of innominate. Portions of the pelvis were the most identifiable, including a part of an acetabular rim (no osteophytes present). No pieces of cranial vault were present.

134 (193)

A total of 208g of bone was recovered from 134 (193), with fragments varying in colour between blue-grey, blue-white and buff. Blue-grey and blue-white fragments were primarily observed on manal phalanges (finger bones). Maximum fragment sized varied greatly between the few pieces of cranial vault present compared to long bone shaft fragments, with measurements of 14.3mm (cranial) and 39.9mm (femur shaft) recorded. Identified fragments included only a few small pieces of cranial vault, manal phalanges (intermediate and distal rows), portions of cervical and lumbar vertebrae, femoral head and shaft fragments, patella, metatarsals and pedal phalanges. It was not possible possible to suggest the age or sex of the individual, beyond they were likely adult (i.e. 20+ years) at the time of death.

In summary, five contexts contained burnt human bone: of those, four were likely intentional deposits. The colouring of bone was similar in all five deposits, with the majority of bone displaying hues of buff and white, however, each context also contained bone of blue or grey, suggesting that some of the skeletal remains (most commonly aspects of the hands and forearm) were not subjected to the same conditions as the rest of the body during the cremation process. Osteological analysis has revealed little demographic information, beyond three were probably adult at the time of death. It was not possible to assess the sex of any individual, and no further information could be retrieved from the small assemblages of burnt human bone.

Animal bone by Ceri Falys

A small assemblage of animal bone was recovered from six contexts within the investigated area (Appendix 4). A total of 25 fragments of non-human bone were present for analysis, weighing 296g. The surface preservation of the remains was generally good, however, the degree of fragmentation was significant for many of the pieces. Two fragments of burnt animal bone were also recovered from gully 129 (185) and discussed separately below.

Initial analyses roughly sorted elements into general size categories: horse and cow can be represented by the 'large' size category, sheep/goat, deer and pigs can be represented in the 'medium' size category, and no smaller animal was present. Where possible, a more specific identification to species and side of origin has been made. The majority of fragments were non-descript mid-shaft portions of long bones, unfortunately not able to suggest a species of origin, only general animal size.

The minimum number of animals present in this assemblage has been calculated to be two, one cow and one medium (likely a sheep/goat) sized animal.

The right distal bovine humerus from pit 100 displays a small patch of charring on the superior surface of the medial aspect of the trochlea. Measuring 10.7mm (medial to lateral) by 9.2mm (anterior to posterior), this localized area of brown-black coloured bone indicates that the humerus was subjected to temperatures around 300°C (Holden *et al.* 1995a, b). Two other fragments from pit 100 (unidentified non-descript long bone shaft fragments) also displayed localized areas of charring. The left cow scapula fragment from ditch 106 (161) displays evidence of butchery practices, with a minimum of 10 transverse cut/chop marks across the superior edge of the posterior surface of the scapular spine.

Evidence for the presence of medium-sized animals was identified in ditches 106 (161), 116 (174), 117 (176) and gully 118 (177). The majority of fragments of “medium sized” animals were portions of long bone midshafts, however, rib shafts were collected from ditch 106 and 117, in addition to a left tibial shaft in 117. Only a single fragment was identifiable to species, a small piece of sheep/goat sized tooth from gully 118 (177).

In summary, the small assemblage of animal bone indicated the presence of a minimum of two animal individuals, one large (cow) and one medium-sized animal (likely a sheep/goat). Indications of butchery practices were evident on the posterior surface of a cow scapula in ditch 103 (161), in the form of cut/chop marks transversely aligned across the scapular spine, and localized charring to two long bone shaft fragments and the medial-superior portion of a cow right distal humerus.

Burnt non-human bone

In addition to the animal bone fragments recovered from 106 (161), which displayed small patches of charring, as highlighted above, two fragments of non-human bone displayed evidence of significant burning. The pieces of blue-white coloured bone were collected from gully 129 (185), which weighed a total of 3g (see Appendix 4). The overall preservation of the bones was good, with maximum post-excavation fragment sizes for each piece of bone measuring 15.7mm and 17.1mm. The variation of colour on each piece (i.e. patches of blue and white) indicated the bone fragments were not burned at a constant temperature. The portions of the bone with a blue hue were subjected to temperatures up to 600°C, indicating that the organic components within the bone were incompletely oxidized during the heating process. In contrast, the temperature exceeded 600°C on the surfaces of the bone that were white in colour (i.e. white colouring indicates the organic components have been completely oxidized). It was not possible to identify the element or species of origin for either of the fragments, and no further information was able to be retrieved.

Environmental by Jo Pine

Bulk soil samples ranging between 5L and 20L were processed from a total of 11 deposits. Samples were wet sieved to a 0.25mm grid following flooding and air dried before examination. The flots were examined under a low-power binocular microscope at magnification between x10 and x40. No charred plant macrofossils were present in any of the samples and only small amount of charcoal was present in seven of these deposits (Appendix 5), however this material was of size and structure that does not allow species identification.

Conclusion

The recording action and subsequent watching brief revealed a moderate amount of archaeological features completing the results showed by previous geophysics survey and subsequent trial trenching on the site.

The earliest phase of activity revealed comprises a small collection of struck flints for which a broad Neolithic or Bronze Age date is suggested. These are not likely to be contemporary with the features from where they were recovered.

The two main components of the archaeological investigation consisted of one ‘banjo’ enclosure and a series of linear features revealed by the geophysics survey. The ‘banjo’ enclosure was clearly identified on the results of the geophysics survey and confirmed during the course of the archaeological evaluation, uncovering this feature in two different trenches and recovering a small assemble of Iron Age date pottery. It was preserved *in situ* by the design of the development. The planning and setting of ‘banjo’ enclosures suggest that this specific type of enclosure was designed and used for the collection and corralling of livestock though some of the ‘banjos’ may also have been use as occupation sites, perhaps on a temporary basis (Cunliffe 2005, 246–7). Once thought to be a form of settlement almost exclusively found on the Wessex chalk, aerial photography has revealed a large number of examples on the Cotswolds and Berkshire Downs with some sites showing considerable elaboration leading to different functional interpretations (Lambrick and Robinson 2009, 121)

The other linear features were largely investigated in the recording action area, and their courses confirmed during the course of the watching brief. These comprise two small gullies following a similar alignment and two large boundary ditches recut in several occasions fallowing gradual silting up episodes. No evidence of domestic activity was recovered other than very occasional sherds of pottery and animal bone fragments and no traces of the presence of a nearby settlement were uncovered. The area is therefore considered to have been an open space with large fields divided by boundary ditches, set probably during the Middle to Late Iron Age and in use until

the Early Roman period. The absence of charred plant remains along with the presence of a 'banjo' enclosure may suggest a pastoral basis for the site.

The four (or more) cremation deposits uncovered near the intersection of the two main field boundary ditches are considered to be part of the same phase of activity though the small pottery assemblage recovered from three of them could be consequence of rooting activity. The location of these deposits by the corner of the large field division but respecting their outlines suggest that these boundaries were still in use with only the margins of the field being use for funerary proposes. From the mid 1st to early 3rd century AD, cremation was the dominant burial form in Roman Britain with inhumations being more frequent from the late 3rd or early 4th century AD (although there were always local variations on this broad outline). Human cremation deposits are frequently uncovered as single or small groups of burials in association with boundary features (Pearce 1999, 152–3) considered to be 'liminal' locations. Unfortunately the remains here were too fragmentary for much demographic analysis.

Although pottery kilns of Roman date are known in the proximity of the site, with three of these features excavated near the A4142, north-east of the site, one only 200m to the south-east and possible kiln sites identified in Kennington, on the west side of the Thames (Ford 2012), no evidence of pottery production or any other industrial activity of Roman date were uncovered during the course of this archaeological investigation.

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Appendix 1. Feature details.

<i>Area</i>	<i>Cut</i>	<i>Deposit</i>	<i>Group</i>	<i>Type</i>	<i>Date</i>	<i>Dating evidence</i>
Tr.6	1	52	-	Pit	Iron Age	Pottery
Tr.5	2	53,54	-	Ditch	Iron Age	Pottery
Tr.5	3	55-57	-	Ditch	Iron Age	Pottery
Tr.5	4	58,60,61	-	Ditch	Iron Age	Pottery
Tr.3	5	59	1002	Ditch	Medieval? (intrusive pottery?)	Pottery
Tr.8	6	62	-	Possible cremation	Roman	Pottery
Tr.17	7		-	Ditch (unexcavated)	Iron Age	Association
RA	-	150	-	Made ground	Modern	Pottery, CBM
RA	-	151	-	Buried soil	Undated	-
RA	-	152	-	Buried soil	Undated	-
RA	100	153,154	-	Pit	Undated	-
RA	101	155,156	1001	Ditch	Late Iron Age/Early Roman	Pottery
RA	102	157	1001	Ditch	Late Iron Age/Early Roman	Pottery
RA	103	158	-	Gully terminus	Late Iron Age/Early Roman or earlier	Stratigraphy
RA	104	159	1002	Ditch	Late Iron Age/Early Roman	Association
RA	105	160	1002	Ditch	Late Iron Age/Early Roman	Pottery
RA	106	161	1002	Ditch	Late Iron Age/Early Roman	Association
RA	107	162	1002	Ditch	Late Iron Age/Early Roman	Association
RA	108	163	1000	Gully	Undated	-
RA	109	164	1000	Gully	Undated	-
RA	110	165	1002	Ditch	Late Iron Age/Early Roman	Association
RA	111	166	1002	Ditch	Late Iron Age/Early Roman	Association
RA	112	167	1002	Ditch	Late Iron Age/Early Roman	Association
RA	113	168	1002	Ditch	Late Iron Age/Early Roman	Pottery
RA	114	169-171	1002	Ditch	Late Iron Age/Early Roman	Pottery
WB	115	172,173	1004	Ditch	Late Iron Age/Early Roman or earlier	Stratigraphy
WB	116	174,175	1004	Ditch	Late Iron Age/Early Roman or earlier	Stratigraphy
WB	117	176	1002	Ditch	Late Iron Age/Early Roman	Association
RA	118	177	1003	Gully	Late Iron Age/Early Roman	Pottery
RA	119	178	1000	Gully terminus	Undated	-
RA	120	179	1001	Ditch	Late Iron Age/Early Roman	Association
RA	121	180	1001	Ditch	Late Iron Age/Early Roman	Pottery
RA	122	181	-	Cremation	Undated	-
RA	123	182	1002	Ditch	Late Iron Age/Early Roman	Association
RA	124	183	1003	Gully	Late Iron Age/Early Roman	Association
RA	125	184	1001	Ditch	Late Iron Age/Early Roman	Pottery
RA	126	188	-	Cremation	Undated	-
RA	127	189	-	Cremation	Late Iron Age/Early Roman	Pottery
RA	128	190	-	Cremation	Late Iron Age/Early Roman	Pottery
RA	129	185	1003	Gully	Late Iron Age/Early Roman	Association
RA	130	186	1002	Gully terminus	Late Iron Age/Early Roman	Pottery
RA	131	187	1002	Ditch	Late Iron Age/Early Roman	Association
RA	132	191	1002	Ditch	Late Iron Age/Early Roman	Pottery
RA	133	192	1002	Ditch	Late Iron Age/Early Roman	Association
RA	134	193	-	Cremation	Late Iron Age/Early Roman	Pottery
WB	135	194	1002	Ditch (unexcavated)	Late Iron Age/Early Roman	Association

Appendix 2. Pottery.

Table A2.1. Pottery catalogue

<i>Group</i>	<i>Cut</i>	<i>Fill</i>	<i>Ftype</i>	<i>Fabric</i>	<i>No</i>	<i>Wt (g)</i>	<i>Rim EVE</i>	<i>Form</i>
1001	101	155	Ditch	Flint, dark brown	1	11		
1001	101	155	Ditch	Grog, dark brown, black grog	2	56		
1001	101	155	Ditch	Cream	2	7		
1001	102	157	Ditch	Reddish-yellow	1	13		
1002	105	160	Ditch	Cream, fine	6	32	0.26	F
1002	113	168	Ditch	Grog, dark brown, black grog	1	2		
1002	114	169	Ditch	Grog, dark brown, black grog	1	15		
1003	118	177	Gully	Grog, dark brown, black grog, dark grey surfaces	123	764	0.40	J
1001	121	180	Ditch	Reddish-yellow, grey core	1	17		
1001	125	184	Ditch	Cream	2	62		F
1002	130	186	Gully	Grog, dark brown, black grog	1	2		
	127	189	Cremation	Grog, dark brown, black grog	1	2		
	128	190	Cremation	Buff, fine	1	6		
1002	132	191	Ditch	Reddish-yellow	1	3		
1002	132	191	Ditch	Grey	3	17		
	134	193	Cremation	Grog, dark brown, black grog	1	5		
	134	193	Cremation	Grog, reddish-yellow, black grog	2	75		J
Totals					150	1089	0.66	

Table A2.2. Pottery quantification by feature.

<i>Feature</i>	<i>No</i>	<i>Wt (g)</i>	<i>Rim EVE</i>	<i>Vessels</i>
Ditch 101	5	74		
Ditch 102	1	13		
Ditch 105	6	32	0.26	1
Ditch 113	1	2		
Ditch 114	1	15		
Gully 118	123	764	0.4	1
Ditch 121	1	17		
Ditch 125	2	62		1
Cremation 127	1	2		
Cremation 128	1	6		
Gully 130	1	2		
Ditch 132	4	20		
Cremation 134	3	80		1
Total	150	1089	0.66	
Feature Type				
Cremation	5	88		
Ditch	21	235	0.26	
Gully	124	766	0.4	
Total	150	1089	0.66	3

Table A2.3. Pottery sherds by fabric

<i>Fabric</i>	<i>No</i>	<i>Wt (g)</i>	<i>Rim EVE</i>	<i>Vessels</i>
Flint, dark brown	1	11		
Grog, black grog	132	921	0.4	2
Grey	3	17		
Reddish-yellow	3	33		
Buff, fine	1	6		
Cream	4	69		1
Cream, fine	6	32	0.26	1
Total	150	1089	0.66	3

Appendix 3. Burnt human bone.

Table A3.1: Inventory of burnt bone. Key: lbsf = long bone shaft fragment

Context	Bone colour(s)	Total wt (g)	Max frag size (mm)		Age (years)	Sex	Fragments present
			cranial	lbsf			
122 (181)	charred, blue-grey, buff	53	23.3	29.5	20+	I	cranial vault, dens of C2, superior articular facets of thoracic vertebrae, distal end of proximal phalanx of first finger, long bone shaft fragments
126 (188)	blue, grey, buff	338	34.0	34.2	20-25	I	cranial vault, petrous portion of temporal, mandible fragment, tooth crowns and roots, dens of C2, superior articular facets and body fragment of thoracic and lumbar vertebrae, MC1 shaft, manal proximal phalanx. Thoracic vertebral ring beginning fusion
127 (189)	grey-white, buff	4.5	-	21.5	I	I	deposit of burnt bone possibly the result of root activity. Small fragment size, non-descript long bone shaft fragments
128 (190)	blue-grey, buff, white	11.5	-	27.7	I	I	fragments of pelvis (acetabulum), good trabecular bone preservation
134 (193)	blue-grey, blue-white, buff	208	14.3	39.9	20+	I	few pieces of cranial vault. Manal phalanges (intermediate and distal), cervical and lumbar vertebrae, femoral head and shaft fragments, patella, metatarsals and pedal phalanges.

Table A3.2: Summary of post-excavation fragmentation of burnt human bone.

Context			10mm		5mm		2mm		Total (g)
Cut	Deposit	Spit	(g)	(%)	(g)	(%)	(g)	(%)	
122	181	1	14	53.8	6	23.1	6	23.1	26
122	181	2	9	64.3	1	7.1	4	28.6	14
122	181	3	2	33.3	2	33.3	2	33.3	6
122	181	4	1	40.0	1	40.0	0.5	20.0	2.5
122	181	5	3	66.7	0.5	11.1	1	22.2	4.5
122	181	Total	29	54.7	10.5	19.8	13.5	25.5	53
126	188	1	96	46.4	48	23.2	63	30.4	207
126	188	2	24	27.2	25	28.4	39	44.3	88
126	188	3	11	25.6	16	37.2	16	37.2	43
126	188	Total	131	38.8	89	26.3	118	34.9	338
127	189	1	2	57.1	1	28.6	0.5	14.3	3.5
127	189	2	0	0	0.5	50.0	0.5	50.0	1
127	189	Total	2	44.4	1.5	33.3	1	22.2	4.5
128	190	1	7	70	1	10	2	20	10
128	190	2	0.5	33.3	0.5	33.3	0.5	33.3	1.5
128	190	Total	7.5	65.2	1.5	13.0	2.5	21.7	11.5
134	193	1	65	63.1	22	21.4	16	15.5	103
134	193	2	32	42.7	24	32.0	19	25.3	75
134	193	3	12	40.0	9	30.0	9	30.0	30
134	193	Total	109	52.4	55	26.4	44	21.2	208

Table A3.2: Summary of post-excavation fragmentation of burnt human bone.

Appendix 4. Animal bone.

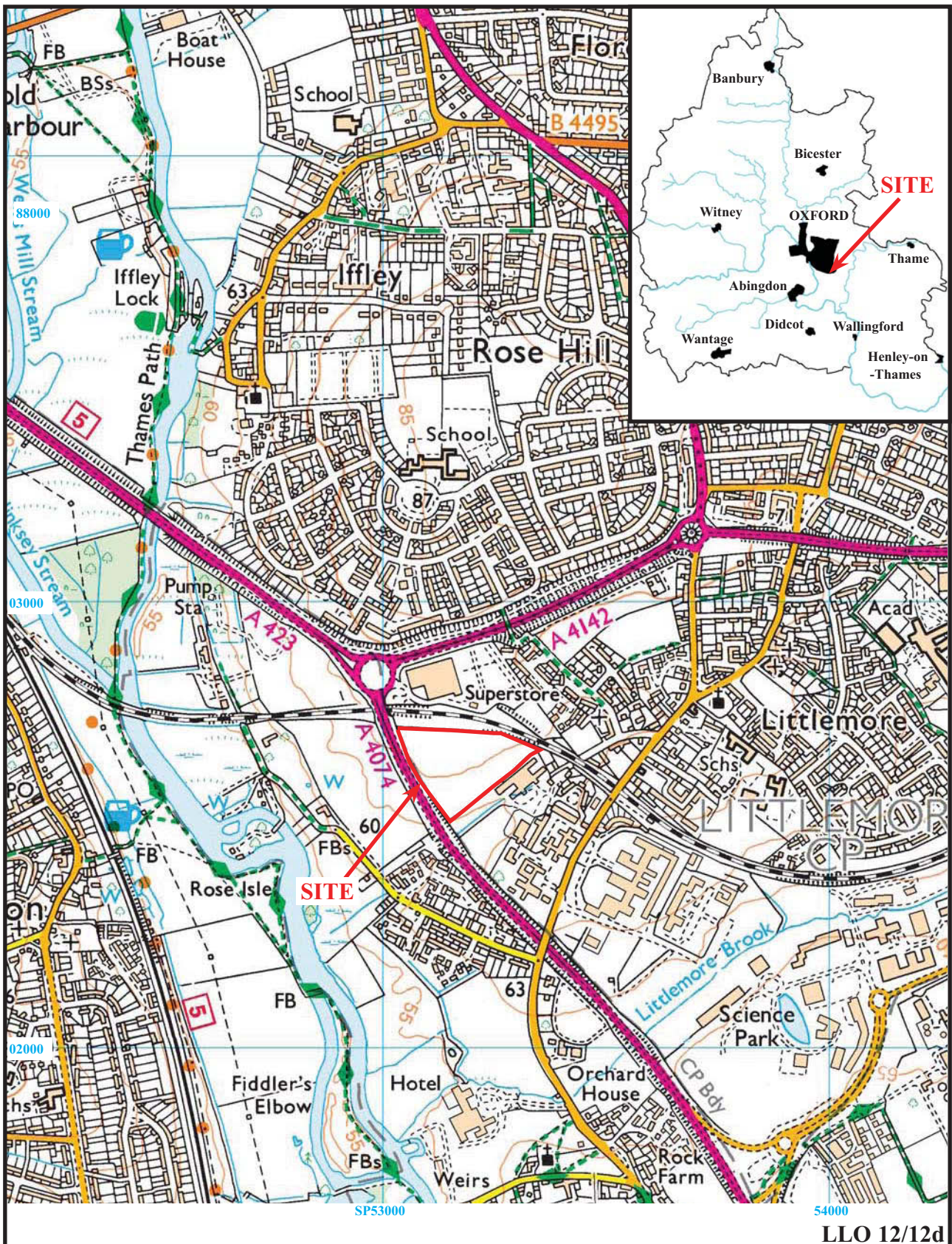
<i>Cut</i>	<i>Deposit</i>	<i>No frags</i>	<i>Wt (g)</i>	<i>Cow</i>	<i>Sheep/Goat</i>	<i>Medium</i>	<i>Comments</i>
100	153	5	181	5	-	-	right distal humerus (cow) with charring, 4 large-size long bone shaft fragments (2 with charring)
106	161	9	66	1	-	2	6 unidentified fragments (poor preservation). Identified: left cow scapula with cut marks, medium-sized rib shafts
115	172	1	2	-	-	-	1 unidentified (long bone shaft fragment)
116	174	3	10	-	-	3	long bone shaft fragments
117	176	4	32	-	-	4	not identified to species, left tibia shaft, 3 rib shafts
118	177	3	2	-	1	-	2 unidentified fragments. Identified: sheep/goat sized tooth fragment
*129	185	2	3	-	-	-	unidentifiable burnt bones (blue-white in colour)
Total/MNI	25	296	1	1	-	-	

* the burnt bone from 129 (185) has not been included in the calculations of total number of fragments present and the total weight.

Appendix 5. Charcoal.

<i>Cut</i>	<i>Deposit</i>	<i>Sample.</i>	<i>Feature</i>	<i>Quantity*</i>
100	154	10	Pit	XX
115	172	13	Ditch slot	X
122	181	16	Cremation pit	XX
126	188	17	Cremation pit	XX
127	189	18	Cremation pit	XX
128	190	19	Cremation pit	XX
134	193	20	Cremation pit	XX

*X= present; XX= some; (XXX= much)



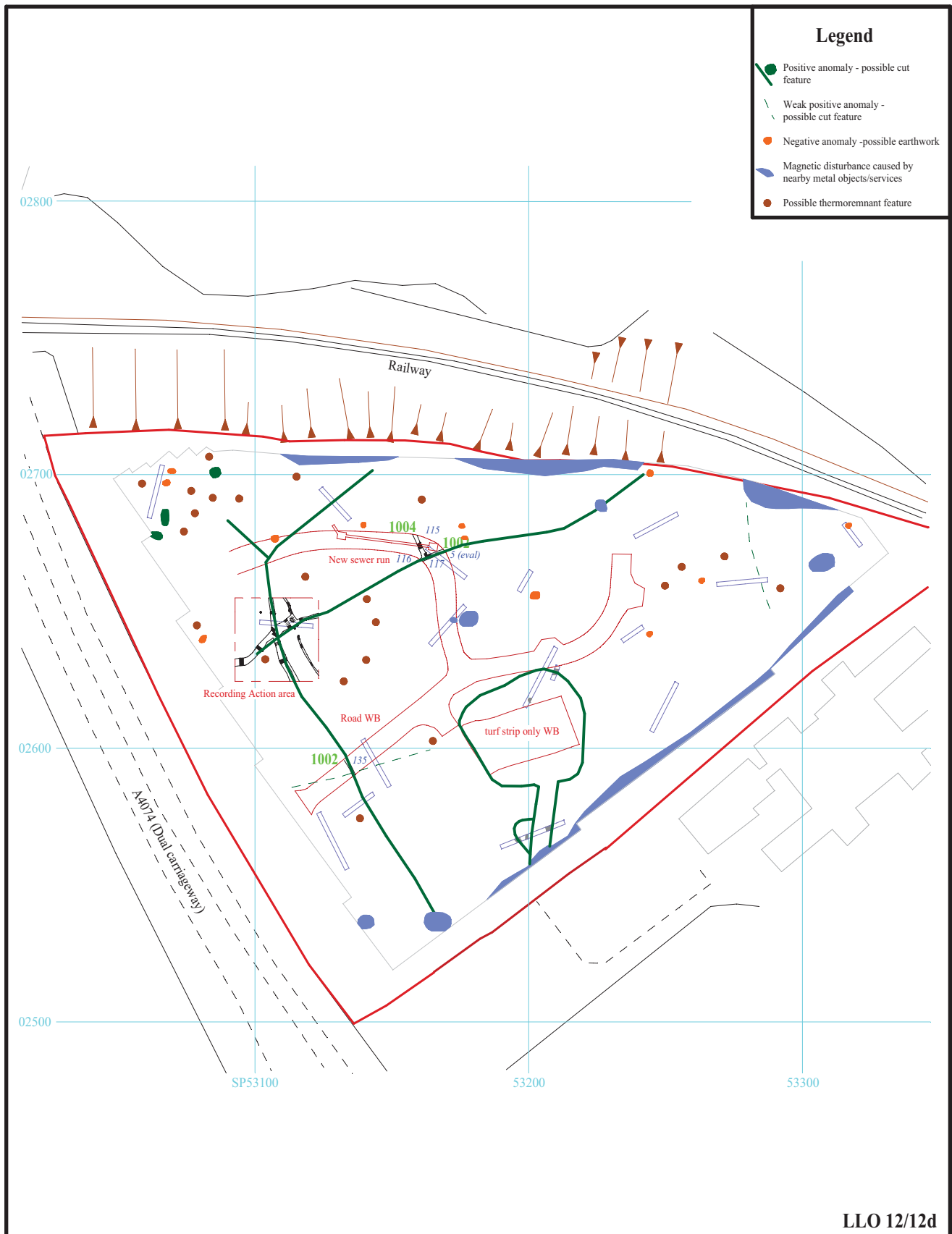
**Land adjacent to Littlemore Hospital,
Littlemore, Oxford, 2019**

**Archaeological Recording Action and Watching Brief
Figure 1. Location of site within Littlemore, in relation to
Oxford and Oxfordshire.**

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Legend

- Positive anomaly - possible cut feature
- - - Weak positive anomaly - possible cut feature
- Negative anomaly - possible earthwork
- Magnetic disturbance caused by nearby metal objects/services
- Possible thermomnant feature

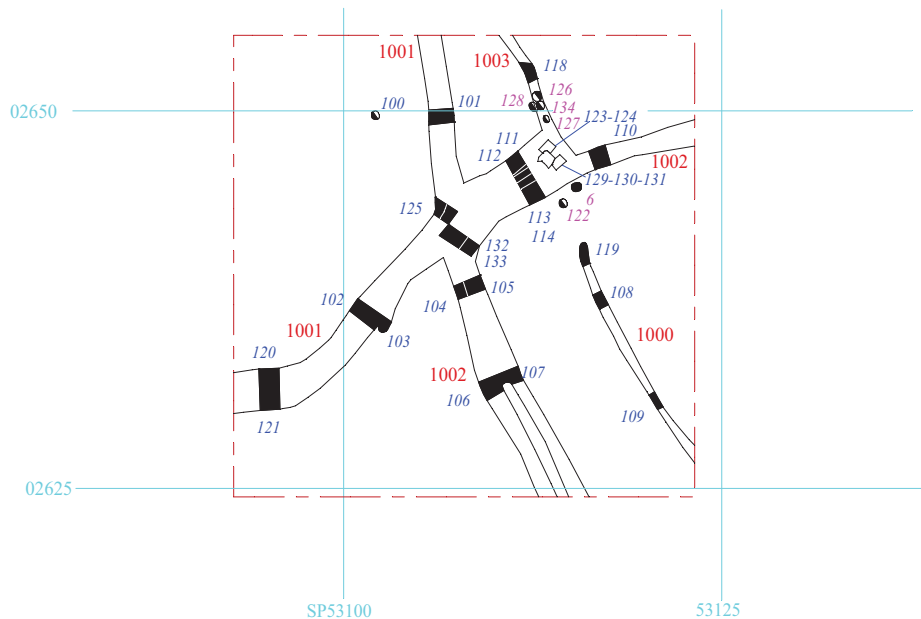
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Figure 2. Excavation and watching brief areas showing geophysical survey results



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Cremations

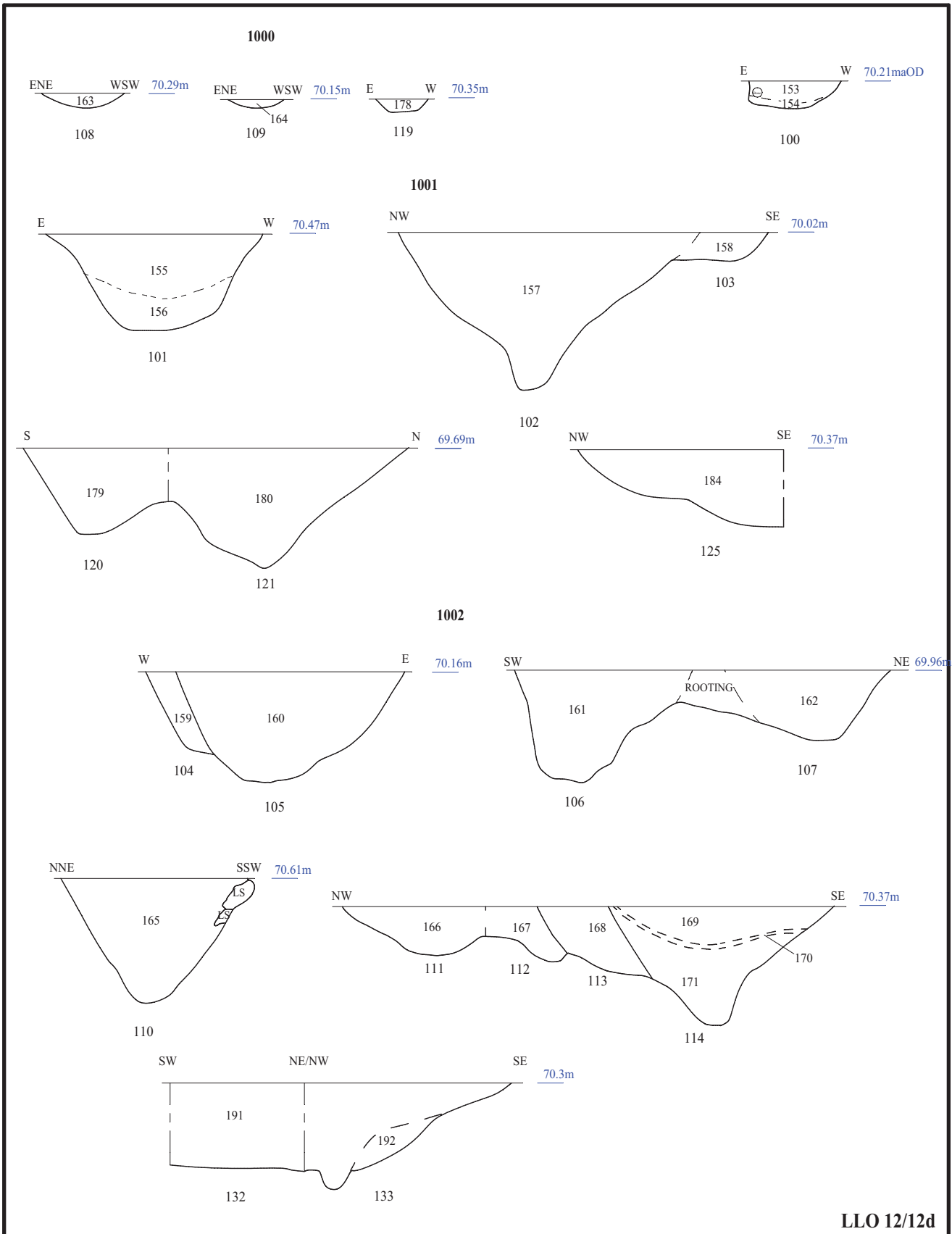
LLO 12/12d



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Figure 3. Recording Action area.





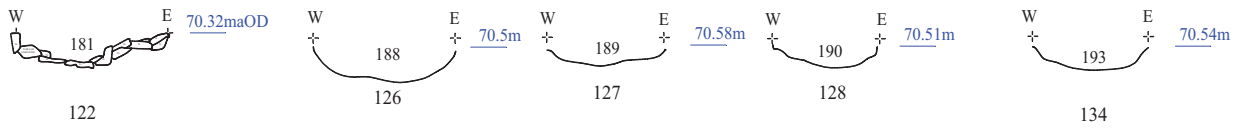
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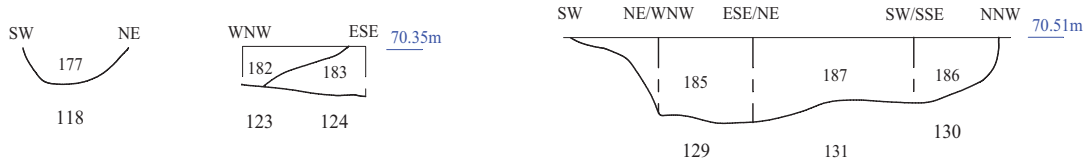
Figure 4. Sections.



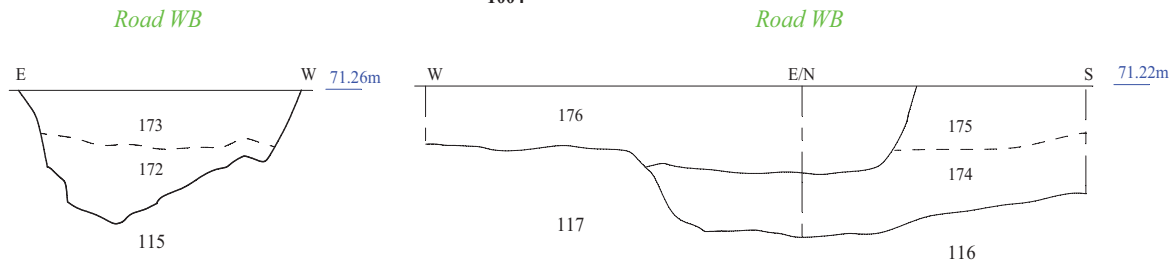
Cremations



1003



1004



LLO 12/12d

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Figure 5. Sections.



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Plate 1. Ditch 1001 and gully terminus 103, looking N, Scales: 2m, 1m and 0.1m.



Plate 2. Ditch 1001 looking SSE, Scales: 1m and 0.5m.

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Plates 1 and 2.

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Plate 3. Cremation pit 122 (pre-excitation), looking NNE, Scales: 0.5m, 0.3m and 0.1m.



Plate 4. Ditch 1004 looking N, Scales: 1m and 0.3m.

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Plates 3 and 4.

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Plate 5. Road WB area, Ditches 1002 (cut 115) and 1004 (cuts 116-117) under excavation, looking SE.



Plate 6. Recording action area under excavation, looking SW.

LLO12/12d

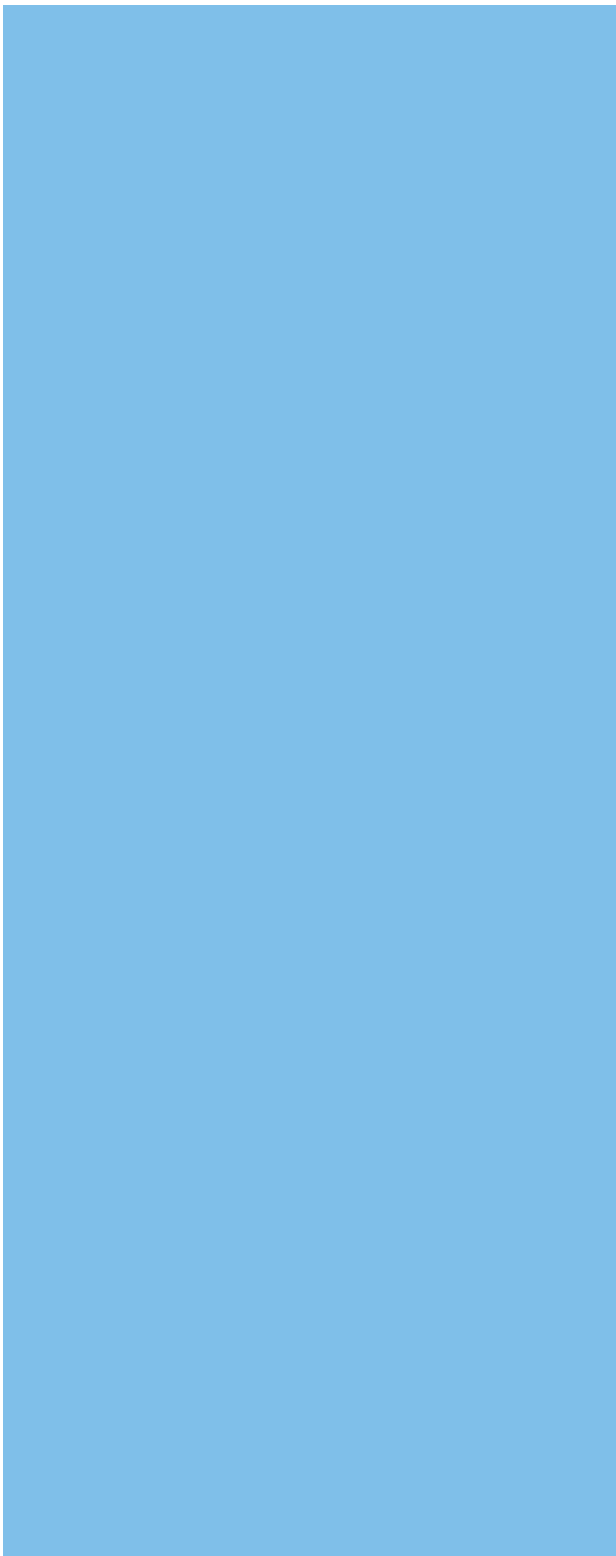
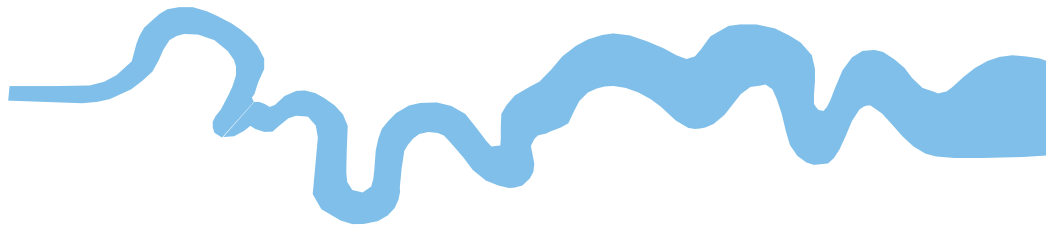
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Plates 5 and 6.**

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TIME CHART

	Calendar Years
Modern _____	AD 1901
Victorian _____	AD 1837
Post Medieval _____	AD 1500
Medieval _____	AD 1066
Saxon _____	AD 410
Roman _____	AD 43 AD 0 BC
Iron Age _____	750 BC
Bronze Age: Late _____	1300 BC
Bronze Age: Middle _____	1700 BC
Bronze Age: Early _____	2100 BC
Neolithic: Late	3300 BC
Neolithic: Early	4300 BC
Mesolithic: Late	6000 BC
Mesolithic: Early	10000 BC
Palaeolithic: Upper	30000 BC
Palaeolithic: Middle	70000 BC
Palaeolithic: Lower	2,000,000 BC





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