

BRADLEY FEN EXCAVATIONS

Whittlesey, Cambridgeshire 2001-2004



David Gibson & Mark Knight

CAMBRIDGE ARCHAEOLOGICAL UNIT
UNIVERSITY OF CAMBRIDGE



**Bradley Fen Excavations 2001-2004, Whittlesey,
Cambridgeshire**

An Archaeological Assessment Report

David Gibson and Mark Knight

© **Cambridge Archaeological Unit**
University of Cambridge
Department of Archaeology

July 2006

Report No. 733

CONTENTS

INTRODUCTION	1
TOPOGRAPHY	1
ARCHAEOLOGICAL BACKGROUND	2
<i>The Routes of the Fen Causeway</i>	5
EVALUATION RESULTS	5
THE EXCAVATION RESEARCH DESIGN	6
<i>Prehistoric</i>	6
<i>Roman</i>	6
<i>Palaeoenvironmental</i>	8
EXCAVATION STRATEGY	8
Methodology	8
Excavation Results	10
<i>Buried Soil</i>	10
<i>Prehistoric</i>	12
<i>Beaker Pits</i>	12
<i>Collared Urn Structure and Associated Pits</i>	12
<i>Isolated Collared Urn Features</i>	14
<i>The Burnt Mounds and Watering Holes</i>	14
<i>Burnt Mound 1</i>	16
<i>Burnt Mound 2</i>	18
<i>Burnt Mound 3</i>	19
<i>Discussion</i>	20
<i>Mound Composition</i>	20
<i>Fieldsystem</i>	21
<i>Metalwork</i>	26
<i>The Hoard</i>	26
<i>The Mound</i>	28
<i>The Spears</i>	29
<i>Round Houses</i>	29
<i>Round House 1</i>	29
<i>Round House 2</i>	29
<i>Round House 3</i>	30
<i>Round House 4</i>	34
<i>Four-post Structures</i>	34

<i>Pits</i>	35
<i>Pit Cluster 1</i>	36
<i>Pit Cluster 2</i>	36
<i>The 'Boat' Pit</i>	37
<i>Pit Cluster 3</i>	40
<i>'Aurochs' Burial</i>	40
Roman	40
<i>Quarry and Road</i>	40
<i>The Settlement</i>	41
<i>Discussion</i>	43
Saxon	43
BRADLEY FEN 2001 – Silt Lagoon Excavations	44
Methodology	44
Excavation Results	44
<i>Round House 5 and associated Pits and Postholes</i>	44
<i>The Ditch and Bank</i>	48
BRADLEY FEN FARM	49
Methodology	49
Excavation Results	49
<i>Burnt Mound 4</i>	52
<i>In situ Cremation</i>	52
<i>Watering Holes and Hoof Prints</i>	53
<i>Fence-line and Brushwood Spread</i>	55
<i>Bank (F.1291) and Ditch (F.1276)</i>	58
<i>Pit F.1278</i>	59
DISCUSSION	61
<i>Starting at Zero</i>	61
<i>Hearths, Houses and Burnt Stone Mounds</i>	63
<i>Circles, Cremations and Urns</i>	65
<i>Boundaries, Fields and Hoof Prints</i>	66
<i>Burial and disposal of Human Remains</i>	69
<i>Metalwork, Peat and the Flag Fen Basin</i>	70
<i>Inhabiting Enclosure</i>	73
<i>Time, Space and Scale – An Archaeology of the Spaces In-between</i>	74
STATEMENT OF POTENTIAL	78
<i>Publication Structure</i>	78

SPECIALIST STUDIES	81
<i>Lithic Assemblage</i> (M. Edmonds)	81
<i>Prehistoric Pottery</i>	83
<i>Bradley Fen 2001</i>	83
<i>Neolithic and Bronze Age</i> (M. Knight)	83
<i>Silt Lagoon</i>	88
<i>Neolithic and Bronze Age</i> (M. Knight)	88
<i>Bradley Fen Farm</i>	89
<i>Neolithic and Bronze Age</i> (M. Knight)	89
<i>Iron Age Pottery</i> (L. Webley)	90
<i>Roman Pottery</i> (K. Anderson)	93
<i>Early Anglo-Saxon Pottery</i> (J. Tipper)	96
<i>Late Bronze Age Metalwork</i> (G. Appleby)	97
<i>Worked Stone</i> (M. Edmonds)	105
<i>Faunal Analysis</i> (D. Serjeanston & C. Swaysland)	105
<i>Human Bone</i> (N. Dodwell)	110
<i>Environmental Samples</i> (A. de Vareilles)	115
<i>Waterlogged Wood</i> (M. Taylor)	120
<i>Pollen Analysis</i> (R. Scaife)	125
<i>Assessment of the buried soils</i> (C A I French)	130
<i>Bradley Fen –Radiocarbon Dating</i>	133
BIBLIOGRAPHY	134

LIST OF FIGURES

Figure 1.	Site Location	1
Figure 2.	Excavation areas showing all features	7
Figure 3.	Bradley Fen '01: excavated slots and subsoil contour	9
Figure 4.	Prehistoric features	11
Figure 5.	Collared Urn Structure	13
Figure 6.	Burnt Mounds	15
Figure 7.	Sections through Burnt Mound 1	17
Figure 8.	Fieldsystem showing surviving boundaries and potential 'field-blocks'; 'contemporary' features are also located	22
Figure 9.	Hoard and mound, feature number F.948	27
Figure 10.	Roundhouses 1 and 2	31
Figure 11.	Roundhouses 3 and 4	32
Figure 12.	Four-post structures	33
Figure 13.	Earlier Iron Age settlement features	38
Figure 14.	Boat pit	39
Figure 15.	Roman and Post-Medieval	42
Figure 16.	Silt Lagoon; all features	45
Figure 17.	Roundhouse 5 – the Beaker settlement	46
Figure 18.	Auger survey results	50
Figure 19.	Bradley Fen Farm	51
Figure 20.	Watering hole and hoof prints	54
Figure 21.	Fence-line, bank and ditch	56
Figure 22.	Section through bank and ditch	57
Figure 23.	Bradley Fen Farm and Silt Lagoon combined	60
Figure 24.	Bradley Fen profile	62
Figure 25.	Bradley Fen excavations in relation to Flag Fen Basin	68
Figure 26.	Location of human remains	71
Figure 27.	Location of Late Bronze Age metalwork around the Flag Fen Basin	72
Figure 28.	C14 dates for Bradley Fen (includes fieldsystem bracket)	75
Figure 29.	'Phased' Reading Business Park; 1. Middle Bronze Age, 2. Late Bronze Age	76

Acknowledgements

The work was commissioned and funded by Hanson Building Products and particular thanks are due to Rob Donnelly and Ian Willis for their commitment and enthusiasm. Kasia Gdaniec, Simon Kaner and Andy Thomas (Cambridgeshire County Council) oversaw the development control side of the excavation; their interest in the site was always encouraging. Simon Colcutt was the consultant and his input is greatly valued.

Frequent visitors to the site included Charly French, Francis Pryor, Maisie Taylor and Rob Scaife, as well as Paul Middleton and Ben Robinson all of whom helped to make sure that Bradley Fen kept its relationship with the rest of the Flag Fen Basin.

Finds were processed by Sharon Webb, Leonie Hicks, Norma Challands and Gwladys Monteil and the environmental samples processed by Ellen Simmons, Rachel Ballantyne, and Anne de Vareilles. The graphics within this report are principally the work of Jane Matthews but also includes work by Marcus Abbott, Iain Forbes, Michael Court and Andrew Hall. Grahame Appleby helped to edit and compile the report. The Bradley Fen reconstruction frontispiece was created by Andrew Hall.

The vibrancy of the archaeology was very much down to the proficiency of the excavation team who made sure that each and every 'project' was tackled with the same skill and interest as the last.

SITE STAFF

Bradley Fen 2001 & 'Silt Lagoon'

Marcus Abbott
Rachel Ballantyne
Emma Beadsmoore
Dave Beresford-Jones
Dave Brown
Matt Brudenell
Simon Burney
Craig Cessford
Norma Challands
Phil Church
Andy Clarke
Jason Clarke
Chantal Conneller
Bob Davis
Paul 'Don' Donohue
Natasha Dodwell
Andy Fergerson
Duncan Garrow
Su Hakenbek
Andrew Hall
Candy Hatherley
Teresa Hawtin
Charley Kitchen
Mary Leighton
Jane Matthews
Lesley McFadyen
Mary Nugent
Ricky Patten
Richard Purves
Martin Redding
Neil Redfern
Christina Robinson
Beccy Scott
Mark Spalding
Fraser Sturt
Richard Turnbull
Roland Wessling
Steve Williams
Fi Woor

Bradley Fen Watching Brief 2003

Corrina Hatersley

Bradley Fen Farm 2004

Ben Bishop
Emma Beadsmoore
Grahame Appleby
Matthew Collins
Donald Horne
Martin Oakes
Ian Morley
Laura Preston
Tim Vickers
Ellen Simmons
Chris Swaysland

INTRODUCTION

The extraction area is located at Bradley Fen, Whittlesey, Cambridgeshire (centred at NGR TL 235978). The designated extraction is divided into four phases, the last has already been worked for sand and gravel. This assessment report is concerned with Phases 1-3 and an additional area known as the Silt Lagoon which was added to the investigation area during the project. The work was conducted in the main in three parts with Phases 1 and the silt lagoon being excavated in 2001, Phase 2 in 2003 and Phase 3 (Bradley Fen Farm) being excavated in 2004. Limited watching briefs (phase 2) occurred between these two main excavation events but did not reveal archaeology. This area is c. 24 hectares in size and is located on the western margins of Whittlesey island, lies on land which gently slopes away to the west and south, with the lowest areas near the line of the King's Dyke.

TOPOGRAPHY

The 1824 Ordnance Survey maps shows Bradley Fen virtually featureless with the exception of a couple of buildings: one located at the northeast corner ('The Ball', latterly the 'Boat & Anchor'), and one in the area north of the Sewage Works.

Located on the western margins of Whittlesey island, Bradley Fen's geology comprises First River Terrace deposits on its higher eastern side (c. 5-6m OD) and Nordelph peat covering its western side; the March gravels, which form most of Whittlesey Island, do not extend this far west.

The relationship between peat cover and past settlement depends on changing water levels within the fen, which are in broad terms reasonably well-understood. With rising levels from the Mesolithic period (c. 8000-4000 BC), when the whole landscape was dry, by the middle of the Neolithic period (c. 4000-2400 BC) the peat fen is assumed to have lain at the -0.30m contour, although as a reconstruction its line must be seen as an approximation. The Bronze Age (c. 2400-800 BC) fen-edge lay close to Ordnance Datum. Coincidentally, the present day peat, wasting away from its maximum height during the seventeenth century, lies at a similar level, and the present peat boundary provides a useful, if again approximate indication of the Bronze Age fen-edge (Hall 1987). Rising water levels during the Bronze Age (1400-1300BC) saw the lowest areas of the Flag Fen embayment, and the area between Whittlesey and Stanground, becoming seasonally flooded 'flood meadow' (Pryor 1992). As such the landscape of the evaluation area was undergoing changes similar to as those seen in the archaeologically well known Flag Fen/Fengate area.

Water levels rose to the c. 3m contour during the Iron Age (c. 800 BC – 42 AD), falling back to the c. 2m level for much of the Roman period (Hall 1987). However, as an illustration of the approximate nature of such levels, it may be noted that where excavated at Flag Fen, the Roman Fen Causeway was found to lie between c. 1.30 – 1.70m OD (French & Pryor 1992). Certainly Roman (43-410 AD) activity may well be found substantially lower than this notional 2m OD level, depending on local conditions, and the degree of peat shrinkage and erosion.

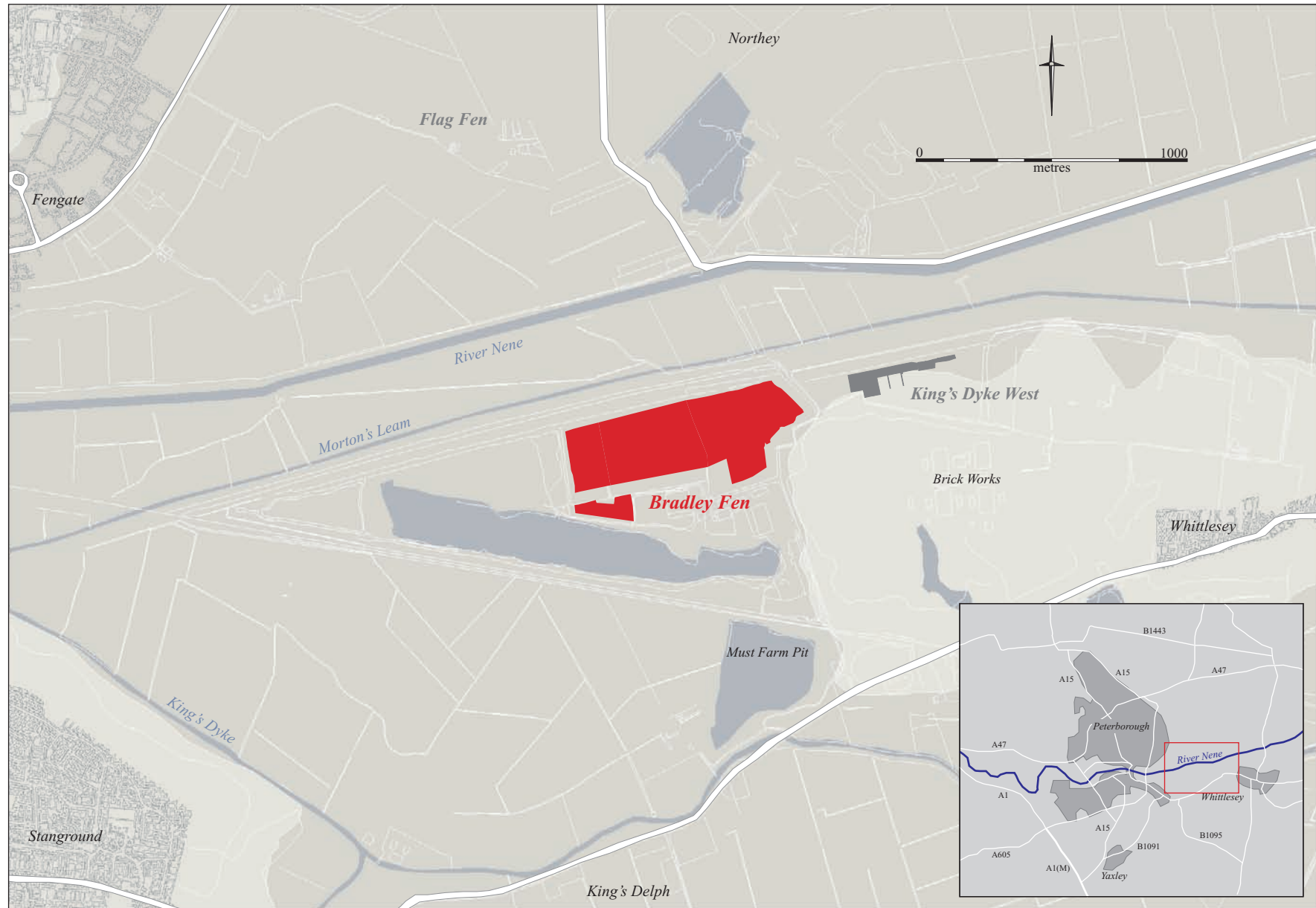


Figure 1. Site location

Rising water levels and flooding in the late and post-Roman periods are well attested across the Fens (Waller 1994). During the Saxon period, continued rise may have placed the fen-edge around 3.50m OD. Simple mono-causal explanations may not be appropriate, but they reflect generally worsening climatic conditions, a breakdown in drainage systems, or the effects of intensified land-use and associated erosion during the Roman period, or a combination of such causes, perhaps in addition to further localised factors (French & Pryor 1992). Their effects have been recorded in the nearby Flag Fen/Fengate area, and some evidence for this was also recently found during fieldwork to the east within the King's Dyke pit where alluvial deposits cover parts of a Roman settlement (Mortimer 1995; Knight 1999 & 2000a, b & c). Relatively high water levels may well have continued into the later Medieval period, until the cutting of Moreton's Leam in the fifteenth century (Darby 1940), and virtually all of the assessment area will have lain within the fen during this period.

It seems reasonably clear that until at least the late Roman period, Northey 'island' should be seen as a peninsula at the north-west end of Whittlesey island. As such, evidence for ancient settlement and land-use patterns from Northey may be directly relevant to areas immediately to the south, particularly in the Bradley Fen area, possibly forming a single landscape.

ARCHAEOLOGICAL BACKGROUND

Recent excavations at Stonald Field, King's Dyke West, immediately to the east of Funtham's Lane, have radically transformed our understanding of prehistoric Whittlesey (Knight 1999 & 2000). Prior to this, evidence for prehistoric occupation was poorly represented (Edwards & Gdaniec 1997). Excavation had always found evidence for extensive Roman activity but little prehistory (Mortimer 1995, 1996; Edwards 1996; Alexander 1997; see also Edwards & Gdaniec 1997).

As previously documented, the occurrence of occasional finds and the distribution of known monuments have always hinted to a onetime prehistoric presence on and around the island (Hall 1987; Mortimer 1995; Edwards & Gdaniec 1997; Knight 1999). Importantly, although some sites have been identified, most notably Flag Fen, the evidence has tended to reflect particular or exceptionally visible aspects of prehistoric material culture, being either single find-spots of special/collectable deposits or permanent/prominent earthworks. The less obvious or robust aspects of prehistory such as settlement evidence have remained elusive; invisible to programs of fieldwalking (Mortimer 1996), aerial reconnaissance (Palmer 1994) and routine geophysical prospection (Martinez & Shiel 1999).

The 1994 aerial photographic survey of Stonald Field had recognised two ring-ditch monuments (Palmer 1994), one of which fell within the 1995 archaeological assessment area (Area A). The trench-based assessment failed to locate the monument but did however, locate a major Roman complex (a complex that was also highlighted by the aerial survey and fieldwalking) complete with Roman road and a 'dark-earth' deposit (Mortimer 1996).

In the winter of 1998 a watching brief was carried out by Marc Berger of the Cambridge Archaeological Unit on an area directly to the east of the Stonald Fields

Roman complex. Located at Callow '98 of the King's Dyke pit, the watching brief and subsequent excavation located a significant density of later prehistoric features. The site consisted of a dispersed, and apparently unenclosed, Late Bronze Age settlement comprising five roundhouses, some four-post structures, multiple pit features and over two hundred sherds of Post Deverel-Rimbury pottery (Knight 1999). Unsurprisingly, the discovery of a major Bronze Age settlement complex changed the emphasis of future work to the extent that a geophysical survey that was intended originally for the Roman complex was duly extended to cover a 'blank' zone between the Roman site and the newly discovered Bronze Age site. The gradiometer survey revealed the expected Roman features, including road and settlement deposits, and as predicted the results showed the intervening 'blank' zone empty of any significant archaeology (Martinez & Shiel 1999).

Unexpectedly, large scale excavation of the same area eventually proved the Roman complex to be superimposed over three prehistoric ring-ditches, a henge and two round barrows, one of which corresponded exactly with the ring-ditch cropmark that had previously eluded detection during evaluation. More significantly however, the 'blank' zone was found to contain five Late Bronze Age roundhouses along with extensive evidence for Early Bronze Age settlement. Pits and postholes containing impressive assemblages of Collared Urn pottery were demonstrated to have a direct relationship with the adjacent henge and barrows (Knight 2000). Matching a pattern recognised elsewhere, the location of burial monuments indicate as much a living presence in the landscape as a dead one. Similarly, monuments would appear to have been nodal to the establishment of both Bronze Age fieldsystems and/or settlement; see Barleycroft Farm, St Ives (Evans & Knight 1998), Nine Bridges, Northborough (Knight 1998) and Fengate, Peterborough (Pryor 1984) for example.

Extensive Bronze Age enclosure has been recorded immediately to the north at Northey as part of the Northey Landscape Project (Palmer pers comm.). Aerial survey identified Bronze Age fieldsystems along the western side of the island immediately adjacent to Flag Fen. In contrast the Stonald Field site demonstrated the Early and Late Bronze Age settlements to be located in open areas outside of the fieldsystems, perhaps suggesting different histories between land enclosure and settlement. Elsewhere Bronze Age settlement is superimposed on fieldsystems, but at Whittlesey the monuments, a henge and at least two round barrows, may have provided the focal point for occupation events.

In July 1999 the footprint of a proposed electricity substation in the southeast corner of the Bradley Fen site was trenched as part of the archaeological assessment (Berger 1999). The trench (25.00m in length) revealed a buried soil horizon (0.15-0.30m in depth) but no features. During the Stonald Field excavations, visits were made to the Bradley Fen site to observe the cutting of an electricity cable trench which skirted the site's north and eastern perimeter. Although the trench only measured 0.50m in width a deep pit feature was recognised at the northern end of the trench's route.

Further to the south at the former Must Farm Pit falling water levels have recently revealed a line of oak uprights previously sealed beneath the peat (Martin Redding pers comm.). Oriented east-west, the line of posts would appear to be remarkably similar to the Flag Fen, Late Bronze Age post-alignment. Spot finds from the same vicinity include a Bronze Age rapier and sword (see Pryor 1978; Hall 1987).

Representing potentially another major alignment its course could also cross the Flag Fen embayment joining the south-western edge of Whittlesey island to the dry land of Stanground (Martin Redding pers comm.).

The Routes Of The Fen Causeway

The 1995 assessment of Stonald Field located a Roman road (Mortimer 1996) which the 1999 excavation proved to date to the 1st century AD (Knight 2000). The Fen Causeway's known route across the ridge of Whittlesey Island from the east, and over the Flag Fen platform to the north-west, placed the excavated section directly in between the two sites.

What happened to the road over the subsequent centuries was the story of the Roman settlement of the site. Marking the time of increasing roadside activity was the gradual decreasing width of the road. Transects across the road's breadth demonstrated that as each new roadside ditch was cut it infringed a little bit more into its width. It is as if the authority or importance of this major route became diminished through time, changing from an important military thoroughfare into a redundant 4th century backroad. Repeatedly, road-side paddocks, enclosures and fields encroached the road's edge, making a patchwork of boundaries along both sides of an increasingly narrow corridor. Within these paddocks and enclosures small structures and industries – a pottery kiln, lead and iron working – were identified, cutting deep wells and quarry pits around the fringes of settlement marking the boundary between its dense core and the more open surrounding fields.

Away from the settlement core and aligned perpendicular to the route of the newly excavated Fen Causeway, earthworks belonging to the Roman fieldsystem have been identified and recorded by the RCHME immediately to the north of Bradley Fen at the Northey Gravel site (Anwen Cooper pers comm.). Recent aerial photographs taken by Ben Robinson of the area directly north of the Stonald Field excavation also show similar earthworks and importantly an earthwork continuation of the Fen Causeway. An alternative route for the Fen Causeway was also identified by the RCHME earthwork survey of the Northey Gravel site. A slightly sunken trackway skirts the eastern side of the standing earthworks and then follows the line of the Northey Road before swinging west across the Cat's Water towards Flag Fen. Whilst the visible 'holloway' almost certainly represents a relatively recent track line, as demonstrated by its relationship to the known Roman earthworks, it is possible that it masks the line of a Roman route. If this is the case then its line would also cross the northeast corner of the Bradley Fen site. No significant later occupation is likely on the peat-covered western part of the site following the post-Roman rise in water levels.

EVALUATION RESULTS

In June and July 2000 trenching evaluation was undertaken over the easternmost 12.7 hectares. The remaining lower lying areas were not evaluated due to problems over the access because of the agricultural tenancy (Knight 2000c). The evaluation revealed archaeology from three broad periods: - Prehistoric (unenclosed Bronze Age settlement), Roman (road and fieldsystem) and Post-Medieval (field boundaries).

The distribution of prehistoric features (as characterised by pits and postholes) was restricted to two main areas: the evaluation trenches located between the 1.50 and 4.0m contours, with the greater density of archaeology occurring within the western half of the easternmost and within Trench 9 which was situated at the 1m contour.

The distribution of Roman features (as characterised by a road, field ditches and quarry pits) was restricted to above the 2.0m OD contour - the Roman road only surviving at the northern end of the easternmost field. The distribution of Post – Medieval features (as characterised by boundary ditches) was low density, but occurred throughout the proposed development area.

THE EXCAVATION RESEARCH DESIGN

Prehistoric

Brown and Murphy (2000) have highlighted the gaps in our knowledge concerning settlement/activity for the Neolithic and Bronze Age periods. The archaeological investigations at this site, which have yielded artefacts of Bronze Age date, have the potential to address these questions.

The composition of the Bronze Age settlement evidence recorded in the evaluation at Bradley Fen consisted of both early and late material. The excavation has the potential to elucidate these differences and help characterise the changing nature of settlement activity through the Bronze Age.

Importantly, Bradley Fen's island edge location has meant, for the first time, that the Bronze Age settlement evidence for Whittlesey could be traced below the 3.0m contour.

Roman

Plouviez and Going (2000) have highlighted the fact that in the rural landscape there is a lack of any classification system for settlement other than the typical 'villa'. The limited evidence for rural settlement layout and economy rarely extends beyond the building plan in the case of villas and settlement enclosures on other sites.

The discovery of a possible Roman road at Bradley Fen presents an interesting problem: the occurrence of two fen Causeways. Excavations at Stonald Field revealed a 1st century AD route that pre-dated both the establishment of the localised, roadside settlement and adjoining fieldsystem. The Bradley Fen route ran parallel to the Stonald Field stretch some 500m to the west, although less substantial in width, it contained the remnants of a metalled agger equal to the impressive Flag Fen section.

The absence of the substantial roadside settlement evidence that came with the Stonald Field section suggests that the Bradley Fen route by-passed the existing settlement foci which was established beside the Stonald Field road. The excavation will hope to confirm this.

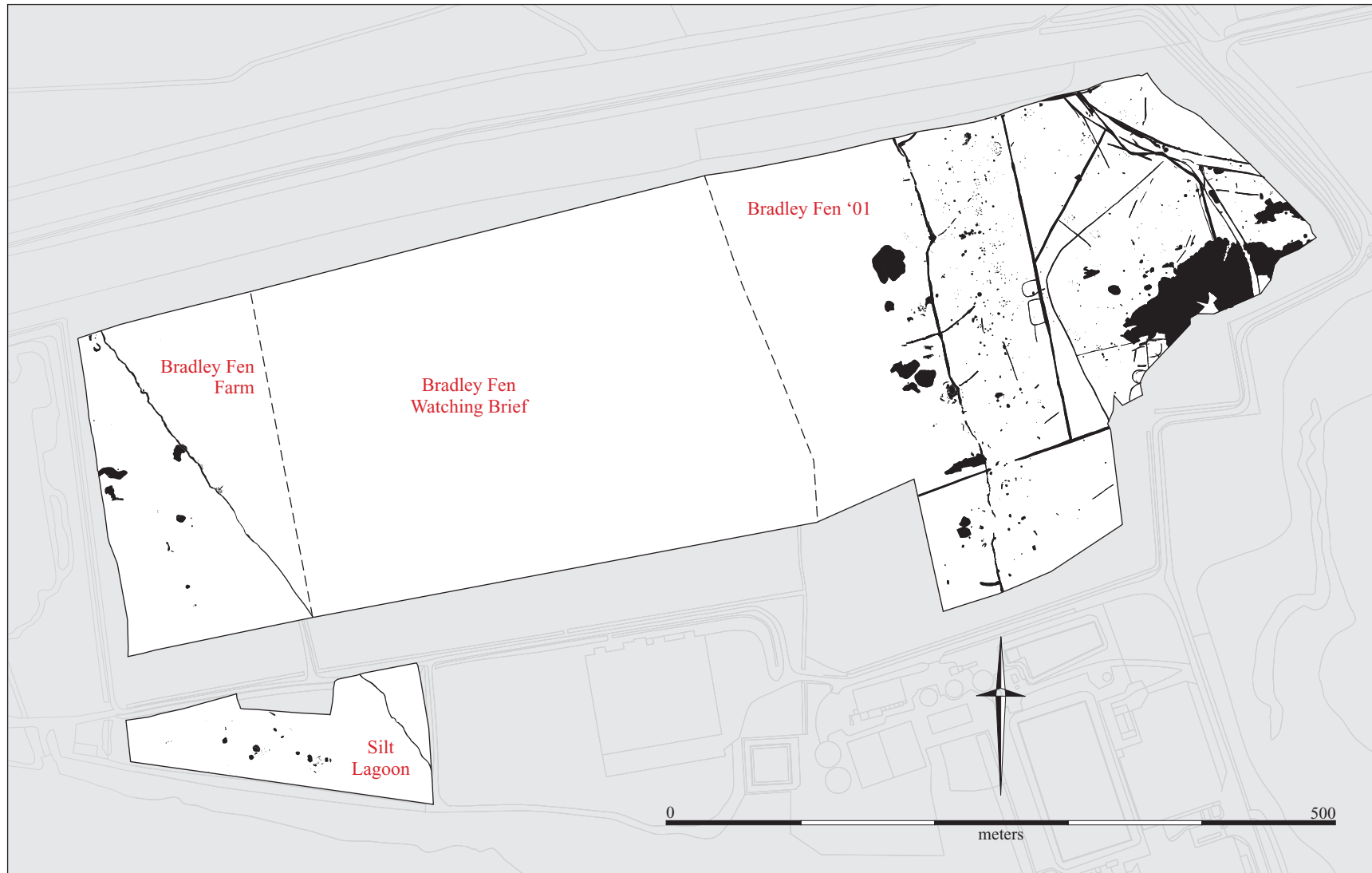


Figure 2. Excavation areas showing all features

Palaeoenvironmental

The development area has the potential for important palaeoenvironmental deposits including palaeochannels, and well-preserved deeply buried waterlogged archaeological remains.

EXCAVATION STRATEGY

Methodology

The methods employed for the excavation were described in detail within the Project Design (Gibson 2002) and was agreed by the Archaeology Section at Cambridgeshire County Council. The excavation was conducted in four phases with Phase 1 and the silt lagoon happening concurrently. The respective areas for the four Phases were as follows: Phase 1- 9.5 hectares, Phase 2 - 9.2 hectares, Phase 3 - 3.2 hectares and Silt Lagoon - 1.4 hectares

The development area measuring 23.3 hectares was opened using a 360°-tracked machine with a toothless ditching bucket, which removed the overburden down to an archaeological level. Augering was conducted in advance of machining in order to augment the Hanson borehole information. The area stripped was then base planned at 1:50. In areas of significant peat coverage the overburden was removed using a two stage process. Firstly, the ploughsoil/alluvial cover was stripped to reveal the peat horizon leaving approximately 0.20-0.25m of the peat deposit in situ. This was done in 15m wide strips. Each exposed area of peat was then intensively metal detected (on a close 0.50m grid) to ensure that all metalwork was recovered prior to the second stage of machining when the peat was removed down to the archaeological level. If a target was identified during the metal detecting process, the spot was marked and a 1 x 1m square was hand excavated down to the object(s). Each object was exposed at its own level and then recorded *in situ*.

All archaeological features were planned and sections drawn at a scale of 1:10. Pertinent features were photographed on black and white, colour slide and digital mediums. The Unit-modified version of the MoLAS recording system was employed throughout with all excavated stratigraphic events assigned feature numbers (F.'s) and all contexts assigned individual numbers. Feature and context numbers were continued from previous phases of excavation. The site was fixed to the OS grid and a contour survey undertaken with an Electronic Distance Measurer (EDM).

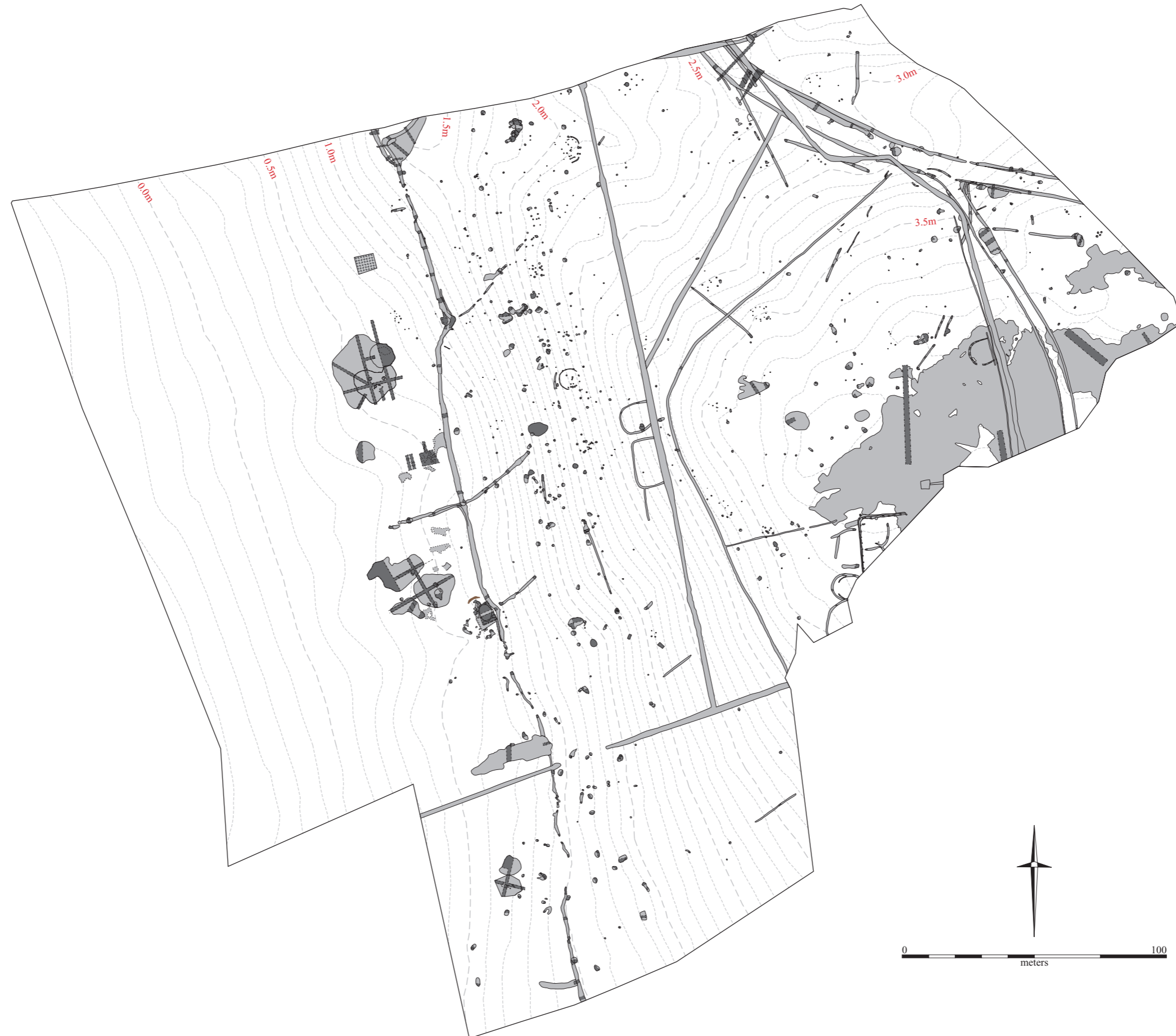


Figure 3. Bradley Fen '01; excavated slots and subsoil contour

Excavation Results

The text below summarises the significant data from the evaluation and excavation phases of fieldwork on the site, including information on natural deposits encountered across the excavation area and on the archaeological features/deposits recorded. The results are discussed in broad chronological periods.

Buried Soil

The pre-peat topography of the development area encompassed two landscapes: the low south-eastern fringes of the Flag Fen basin (down to -0.50m OD and the high western edge of Whittlesey Island (up to 3.90m OD). The basin was a mixture of silty clays with occasional gravel exposures, whereas the island was coarse sandy gravels with the boundary between the two textures corresponding closely to the 1.0m AOD contour.

As well as contrasting textures the basin and island also had contrasting topographies. The basin was deep and broadly flat except towards the extreme western end where the ground rose upwards to reach a maximum elevation of 0.10m OD, whereas the island had a more dramatic profile that included an edge that ascended eastwards from 1.0m to 3.50m OD over a distance of 90m (gradient 1.36 or 2.8%). At the top was a small gentle plateau (as delineated by the 3.50m OD contour) from which the ground gently fell away towards the north (3.50 to 2.60m over a distance of 100m).

Buried soil was found to survive between -0.30m OD and 3.00m OD. Its absence below -0.30m OD left a straightforward profile of peat lying directly over natural. Between the contours the buried soil was patchy but included broad stretches of preservation as well as small islands and knolls. Large features such as the burnt mounds also ensured blocks of preservation along some of the lower contours.

In keeping with the two contrasting landscapes of basin and island there were also two kinds of buried soil preservation. The buried soil within the basin had a complete profile whereas the buried soil up on to the island had lost its organic A horizon (French 2001, 2004). The contrast in preservation had been attributed to an extended period of woodland cover in combination with an earlier saturation/ peat associated with the lower contours (see French appendix).

The presence of numerous tree-throws, tree-bowls and bog oaks within the basin area appeared to confirm the woodland interpretation. Below 0.50m OD the natural was very uneven and consisted of large peat-filled crescents around gravel-rich knolls and this made machining logistically difficult. Preserved root-bowls and large pieces of bog oak were also recovered.

The gradual peat accumulation eventually subsumed all but the higher contours of the island. The very top of the peat horizon produced Roman pottery including the majority of a single Nene Valley colour coated flanged bowl dated to 250-410 AD.

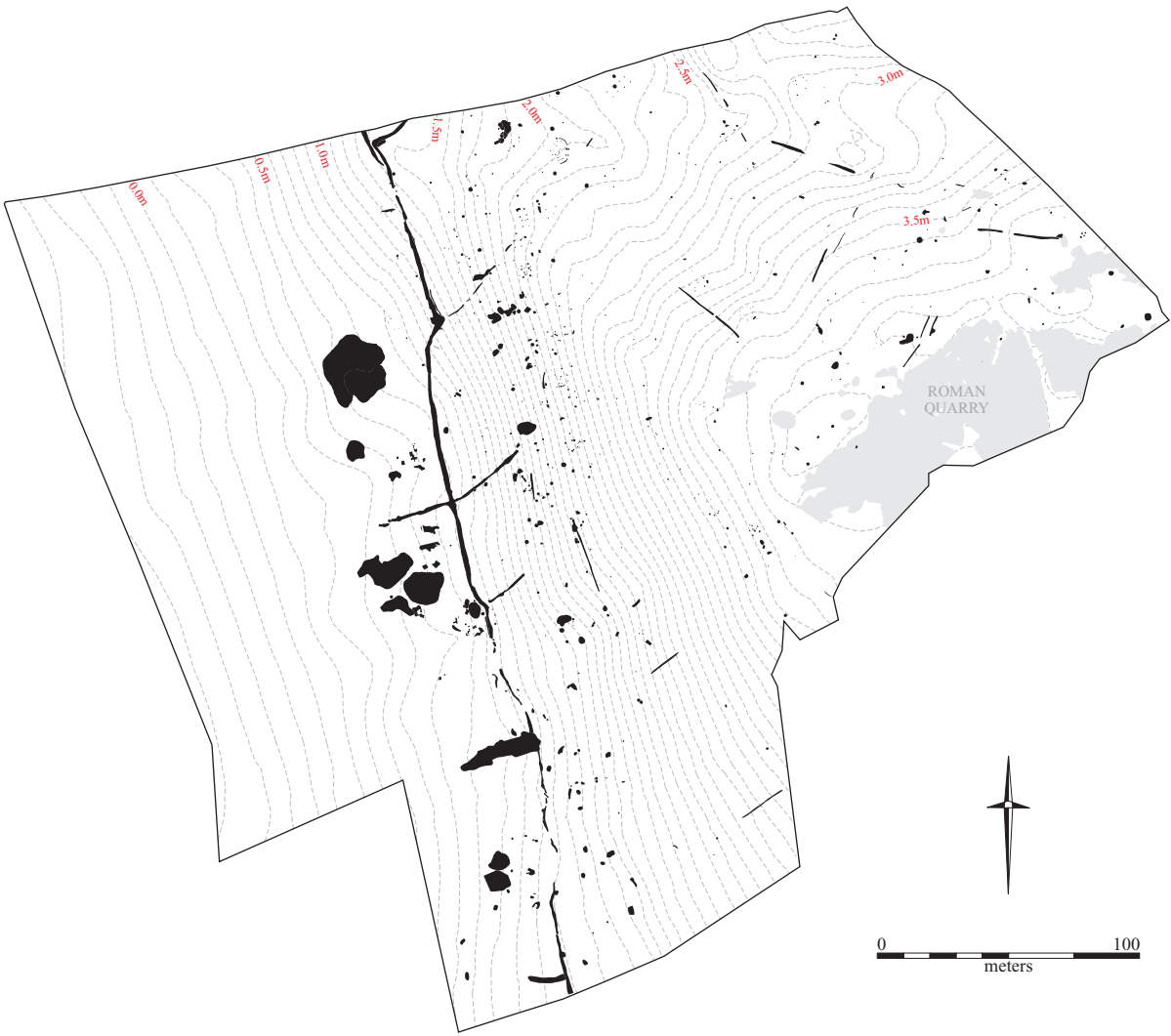


Figure 4. Prehistoric features

Prehistoric

Beaker Pits

Four pits **F.225**, **F.329**, **F.353**, and **F.652**, contained fragments of Beaker pottery and occurred as isolated features across the higher terrace. The first of these, F.225, was a small shallow scoop (0.50 x 0.35m; depth: 0.11m) that held 20 fragments of a single comb-impressed Beaker amongst its pale grey silty clay backfill. F.329 was an irregular-shaped feature that had been disturbed by roots or animal burrows. Originally, the pit measured about 0.55m in diameter and 0.50m deep and was infilled with grey-brown sandy silt that included a single sherd of pottery. The sub-rectangular F.353 (0.82 x 0.65m; depth: 0.40m) also produced a few abraded sherds. At 0.90m diameter and 0.41m in depth, F.652 represented the largest feature of the group. It also produced twelve fragments of Beaker which included both incised ‘fine wares’ and thicker rusticated sherds. The pit’s fill comprised dark grey sandy silt with occasional charcoal, lumps of burnt stone and worked flint.

Collared Urn Structure and Associated Pits

The structure comprised a circle of five postholes **F.632**, **F.633**, **F.634**, **F.635**, **F.636** (diameter 7.5m), that surrounded a central arrangement of five pits/postholes **F.637**, **F.647**, **F.648**, **F.649**, **F.693**. An additional external pit/posthole **F.680** was located 0.50m immediately to the north of the circle.

Pit/Posthole	Dimensions (m)	Depth (m)
<i>Circle:</i> F.632	0.55 x 0.50	0.34
F.633	0.50 x 0.45	0.25
F.634	0.40 x 0.35	0.19
F.635	0.60 x 0.50	0.17
F.636	0.80 x 0.60	0.24
<i>Internal:</i> F.637	0.75 x 0.60	0.10
F.647	0.45 x 0.40	0.60
F.648	0.30 x 0.25	0.20
F.649	0.30 x 0.20	0.22
F.693	0.35 x 0.25	0.07
<i>External:</i> F.680	0.45 x 0.25	0.25

Table 1: Pit/posthole dimensions of structure.

From the surface the structure was made obvious by its grey silty clay fills and occasional darker charcoal rich post-pipes. Postholes F.632, F.633, F.635, F.636, F.647, F.648 and F.649 had discernable post-pipes whereas F.637 was more pit-like in appearance. Accordingly, F.637 produced the greater number of artefacts that included fragments of Collared Urn pottery as well as pieces of burnt clay. Otherwise, the artefact count was low and restricted to singular pieces of worked flint from the various postholes. Posthole F.647 had a very deep V-shaped profile which contrasted with the predominantly steep-sided and flat-based profiles of the rest of the structure features.

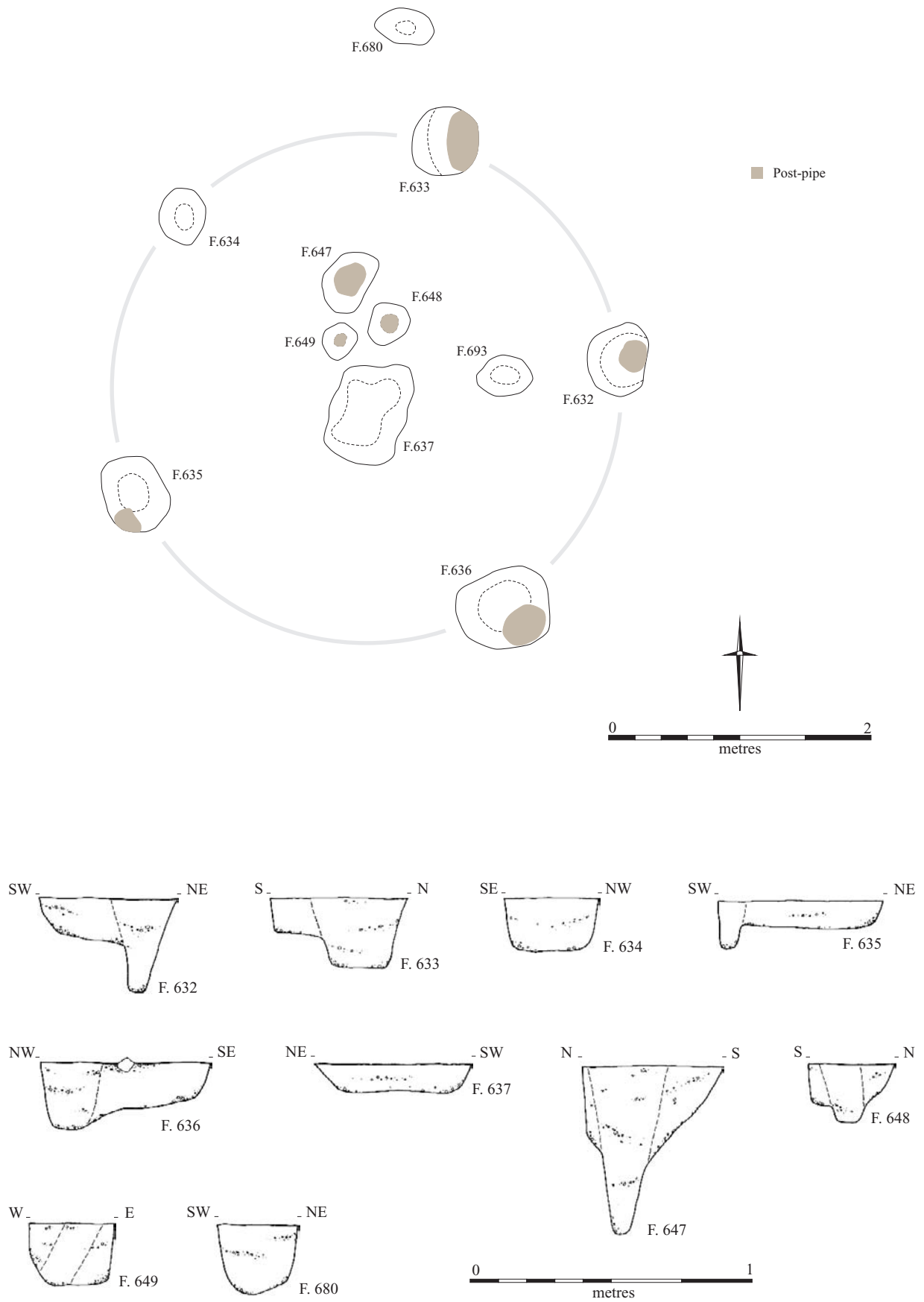


Figure 5. Collared Urn Structure

Fragments of Collared Urn pottery were also recovered from nearby pits such as **F.653**, a large oval-shaped pit (2.00 x 1.40m; depth: 0.55m) located 3 metres to the south of the circle, and **F.671** (1.25 x 1.10m; depth: 0.43m), situated 7metres to the east. Both of these features contained dark charcoal-rich fills equivalent to the post-pipe fills.

F.681, located immediately beside F.653, also produced a piece of Bronze Age pottery and, like F.653, it too had an undercut profile (1.50 x 0.90m; depth: 0.30m) and a dark charcoal stained fill.

Isolated Collared Urn Features

A single elongated oval-shaped feature, **F.619**, produced twelve Collared Urn sherds from what appeared to be a single vessel as well as pieces of worked flint and lumps of burnt clay. Once again, the backfill of the feature included an abundance of charcoal and comprised dark grey /black silty clay. North of F.619 was a small oval-shaped hollow, **F.581**, that was infilled with a much paler fill but produced two rim fragments.

F.1 was a large ovoid pit with a flat base (dimensions: 0.55m x 0.46m; depth: 0.42m) that held a large upright Collared Urn (the uppermost part of which had been ploughed away leaving a blank pot free of decoration). The urn contained cremated human bone as did the fill surrounding the pot (pale grey sandy silt with occasional flecks of charcoal and rare flecks of calcined bone).

Another possible associated pit was **F.691**.

The Burnt Mounds & Watering Holes

The 0.7m contour was occupied by three burnt stone mounds that were located between 50 and 70 metres apart. All three mounds were accompanied by large watering holes/hollows which were consistently situated around the northern or north-western edges of the burnt stone spreads. Further pits, postholes and hearths were concealed beneath the mounds, as was a reduced buried soil horizon; in turn the mounds were sealed by peat.

All three mounds were excavated in the same manner. North-south and east-west transects were hand excavated across each of the spreads and each transect was divided into 1m squares with 15 litre samples taken from alternate squares. Where and when appropriate, these transects were extended to encompass deposits associated with the adjacent watering holes/hollows. Once the profiles had been recorded the remaining parts of the mounds were then machined off to expose any underlying features or deposits. These associated features (i.e. watering holes, pits, postholes and hearths) were at the very least half-sectioned whilst particularly 'rich' deposits were 100% excavated.

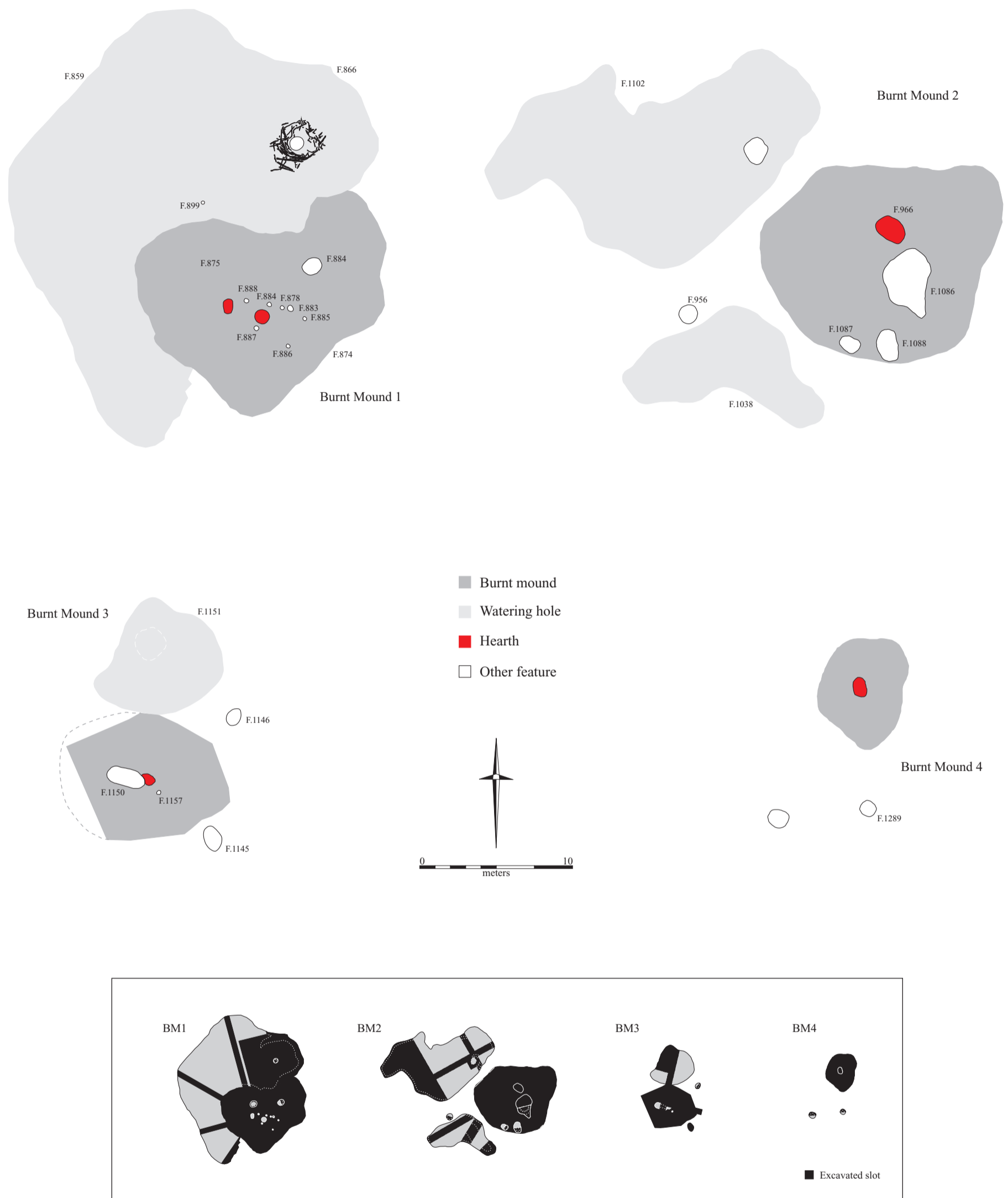


Figure 6. Burnt mounds

Burnt Mound 1

BM 1, **F.874**, was irregular in plan, measured about 15m in length and 13m in width and was up to 0.20m thick. The mound was situated within a slight hollow, as illustrated by a change in thickness of buried soil that measured 0.11m beneath the mound but 0.16m beyond it. The mound material comprised dark grey to black (charcoal rich) sandy silt replete with abundant fragments of burnt stone, flint and gravel as well as some un-burnt gravel.

Located underneath the mound and centrally to this hollow were two hearth features, **F.877** & **F.890**, six postholes, **F.878**, **F.883**, **F.884**, **F.885**, **F.886**, & **F.887**, and two pits, **F.875** & **F.876**. The hearths, F.890 & F.877, measured about 0.90 x 0.80m and stood out as orangey red coloured scoops against the grey buried soil background. The postholes were in-filled with the same matrix as the mound material, had small diameters (0.19-0.29m) and shallow U-shaped profiles (0.06-0.18m). In plan, postholes F.884, F.885, F.886, and F.887 created a neat four-post arrangement that partially encompassed the hearth F.890.

Pit feature F.875 was circular (diameter 1.60m) and had a bell-shaped profile (depth 0.60m) that was in part accentuated by an exaggerated weathering cone indicative of an 'open' feature. Its basal fill included fragments of burnt stone held within a matrix comparable with the mound material, whereas its upper fills were pale sandy silts similar to the adjacent buried soil.

Pit F.876 had a squat profile comprising a flat base with splayed sides. As with the postholes, its infill was the same as the mound matrix.

Encircling the northern and western edges of the mound was a large C-shaped hollow, **F.859**, that encompassed a deeper pit or watering hole, **F.866**, at its easternmost end. The hollow and pit were contiguous and connected by a metalled ramp that led from the hollow down into the base of the pit. At its deepest the pit measured 1.50m and was surrounded on its three remaining sides by near-vertical edges that splayed outwards towards the top into a distinct weathering cone. The deepest part of the hollow was 0.52m and as a feature it consisted of a broad concave-shaped feature lined with a metalled surface.

The basal fills of the watering hole F.866 comprised slow forming silts (brown grey silty loams) interrupted with 'quick' edge erosion deposits (yellowy orange sandy clays). Once this sequence reached about 0.90m a narrow shaft, **F.879**, was cut through these deposits penetrating down into the underlying natural gravels. The shaft was circular in plan, had vertical sides and a rounded base. Its profile was in part maintained by the presence of a wattle fence, **F.892**, which surrounded the mouth of the shaft. The fence work appeared to have stood to a height of about 0.50m and comprised a ring (diameter?) of small uprights with bevelled tops bracing a series of interweaved branches. Much of the wattling had collapsed leaving the area around the uprights strewn with broken wattles. Amongst these broken fragments was a larger diameter piece that turned out to be part of a log ladder.

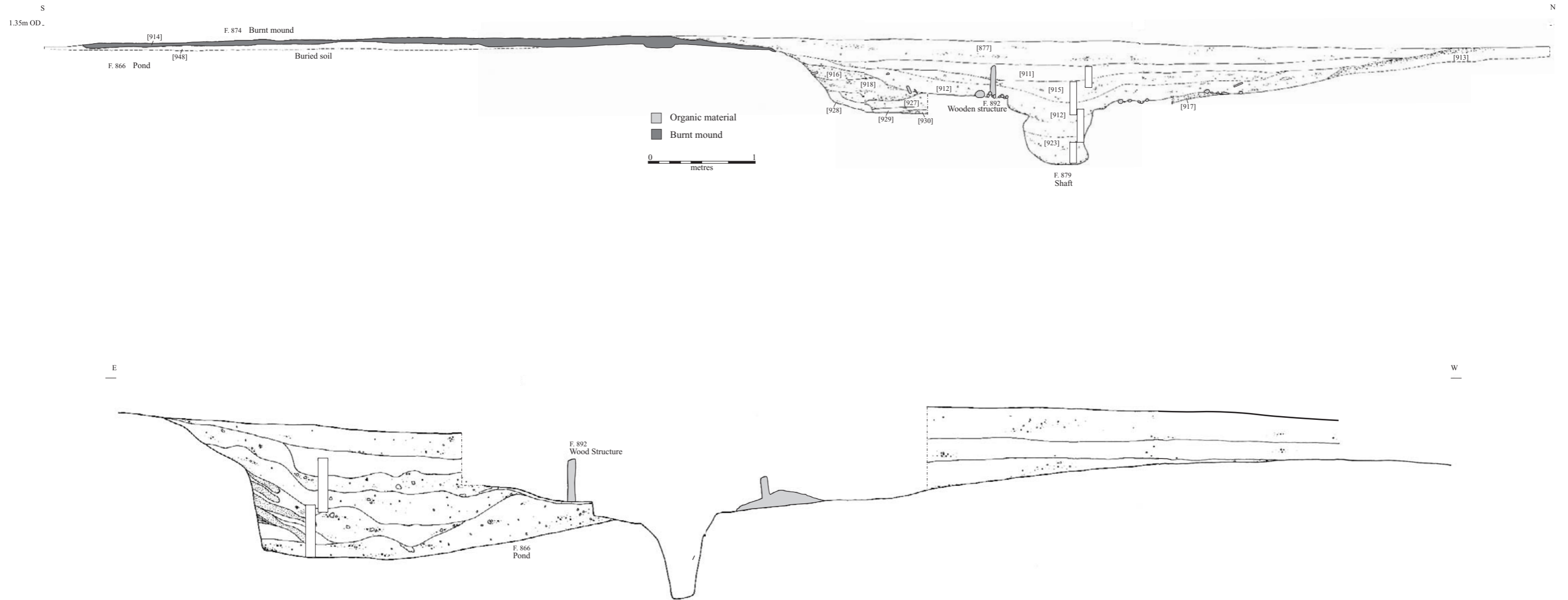


Figure 7. Sections through Burnt Mound 1

Eventually, the shaft and upper profile of the surrounding pit was also allowed to silt (peaty silts) up, in the process burying the wattled fence. At the very top of the last silt deposit survived fragments of a disarticulated human skeleton [901].

Burnt Mound 2

BM 2, **F.1095**, was also irregular in plan and measured 15.5 x 14.0m. At its thickest the mound equalled 0.28m and overlay a thin (0.08m max.) buried soil horizon. The mound material comprised dark brown (almost black) clayey silt with frequent small-medium fragmented stones and occasional yellow-orange sandy silt lenses.

Four pits features were identified as being sealed by the burnt mound: **F.966**, **F.1086**, **F.1087** and **F.1088**. Of these, F.1086 proved to be the deepest and most complex in terms of deposition. The pit was roughly oval in plan (3.40 x 3.00m) and had near-vertical sides and a stepped base (1.52m in depth). It also contained a clear re-cutting episode which had occurred after the primary pit had been completely infilled. What made the re-cut so evident was the stark contrast between the light coloured fills (greys and yellows) of the primary feature and the dark fills (greys and blacks) of the secondary feature.

The basal fills of the primary feature ([1173]h, [1173]i and [1173]k) consisted of grey brown organic silts with fragments of round wood and small pebbles. In amongst the basal deposits were some pieces of worked wood such as the end of a stake and a possible ard-share. Hazelnut shells were also present. Fragments of animal bone instead of wood were recovered from the paler secondary fills ([1173]g and [1173]f).

The lower dark organic silt fills associated with the re-cut produced fragments of bark, moss, hazelnuts shells, worked wood, some animal bone as well as some pieces of burnt stone. In contrast, the capping fill ([1173]a) was continuous with the overlying burnt stone spread.

To the west of F.1086 where two smaller pits, **F.1087** and **F.1088**, both of which were also capped by mound material. F.1087 was an irregular shaped hollow: 1.35 x 1.30m and 0.16m in depth whereas the adjacent F.1088 was 'trough-like' having box-shaped lower profile but eroded upper edges. As well as the mound derived capping fill it also appeared to be lined with mottled grey sandy clay along its two longest sides.

Beyond the confines of the mound were two very large irregular hollows, one to the north (**F.1102**) and one to the west (**F.1038**), very similar in character to the large C-shaped hollow associated with BM 1. F.1038 was L-shaped in plan and included a deeper north-south trench within its plan. The two arms of the L-plan measured about 10m in length, whereas the width averaged about 4m. Its profile varied between being up to 1.00m deep within the line of the trench but only 0.18m elsewhere. Peat capped the top of the feature, concealing a fill sequence made up of slow forming bluish grey silts and slumps of bright orange sands.

F.1102 was roughly kidney-shaped and predominantly shallow (0.30m) except were it was punctuated by a single circular pit (**F.1062**) towards its eastern end. As with F.1038, this hollow was also capped with a layer of peat but its main fill was a bluish

grey silt. The broad flat base of F.1102 also contained patches of metalling, illustrating the former open character of this feature.

The circular pit that punctuated the hollow had a diameter of 1.30m and a depth of 0.95m. Its profile included an undercut base, vertical sides and open or weathered upper edges. The centre of the feature was taken up by an inverted tree stump that occupied most of its circumference, whereas the base of the pit contained a bluish brown silty clay as well as a couple of logs. One of these logs was a fragment of log ladder.

Between the two large hollows was another deep circular pit capped with peat, **F.956**. It was 0.96m deep, had a surface diameter of 1.20m and a basal diameter of 0.35m. The bottom 0.64m of infill comprised silt including dark organic silts towards the base. Two large pieces of wood (one worked stake) were located in the middle third of the pit.

Areas of metalling occurred around the burnt mound and the two large hollows. These surfaces consisted of compacted spreads of gravel that were overlain by deposits of friable peaty silt. Importantly, the metallated areas only occurred in areas where there was no surviving buried soil (and vice versa).

Burnt Mound 3

BM 3, **F.1148**, was oval in plan (12.00 x 8.00m) and up to 0.08m thick. The mound overlaid a buried soil horizon that varied between 0.02 and 0.07m in thickness. As with the other two mounds the burnt mound matrix comprised a dark grey/black silty sand with frequent burnt angular sandstone pebbles, burnt flint, burnt gravel and occasional un-burnt gravel.

Features located beneath the mound included a hearth **F.1150**, a basin-shaped pit **F.1150**, and a small circular depression holding the truncated base of a large bucket urn **F.1157**. The hearth feature **F.1150**, was located centrally to the burnt mound spread and stood out as a scorched (orangey pink) hollow in the surface of the underlying buried soil. Immediately north-west of the hearth was a basin-shaped pit (2.05 x 1.05m) with a U-shaped profile (depth: 0.49m). A small scatter of fragmented burnt stone lay immediately on the base of the pit and these were overlain by a silt deposit that also held some burnt stones. Above this was a continuation of the burnt mound spread which slumped noticeably into the profile of the pit.

The pot base F.1157, was also located centrally to the mound and it was set within a small diameter pit (0.28m) which was lined with pale brown clay. Inside the base of the pot were a sandwich of clays and a deposit of charcoal.

Continuing the pattern of burnt mound and watering hole, BM 3 was also located immediately adjacent to a large pit/hollow, **F.1151**. The hollow was about similar in size to the mound (7 x 7m), roughly oval in plan and was punctuated by a deeper circular pit in its northern quarter. In profile the hollow reached a maximum depth of 0.35m and was infilled with a grey silty sand equivalent to the adjacent buried soil. The pit sat within the hollow, had a diameter of 2.20m and cut nearly 1.40m into the

underlying natural. Its profile comprised a broad flat base with steep sides and weathered upper edge that merged with the broader hollow. Its fills were clay rich silts ranging from deep blues through a top fill of reddish brown. The dominant inclusions were large pieces of wood including once again the base of a tree or large branch.

Smaller, shallower pits with profiles not dissimilar to the basin-shaped pit beneath the mound were also recorded close to the southern and eastern edge of the mound. One, **F.1145**, had a basal fill rich with fragments of burnt stone as well as upper fills equivalent to the burnt mound spread. F.1145 was oval in plan (1.70 x 1.10m) and was steep-sided especially along its shorter axis (0.36m in depth). The other, **F.1146**, contained similar fills once again replete with fragments of burnt stones.

Discussion

Some consistent patterning can be discerned from the three burnt mounds. Mounds accompanied by large hollows and watering holes. The mounds were located consistently on the southern side of these features. Whereas the sub-mound features contain burnt stone fragments in primary contexts, the adjacent watering holes and hollows were burnt stone free. Hearths survived beneath two of the three mounds.

	Sub-mound features			Extra-mound features		
	Hearths	Postholes	Pits	Hollows	Watering holes	Pits
BM 1	<i>Y</i>	<i>Y</i>	<i>Y</i>	<i>Y</i>	<i>Y</i>	<i>N</i>
BM 2	<i>N</i>	<i>N</i>	<i>Y</i>	<i>Y</i>	<i>Y</i>	<i>N</i>
BM 3	<i>Y</i>	<i>N</i>	<i>Y</i>	<i>Y</i>	<i>Y</i>	<i>Y</i>

Table 2: Burnt mounds and related features

Mound Composition

Fifteen-litre samples from the centre of each of the three burnt mounds were wet-sieved in order to retrieve inclusions greater than 5mm (stone, flint, charcoal etc.). Once dried, the extracted material was hand sorted into its three main constituents: burnt stone, burnt gravel and un-burnt gravel and these were tabulated by number and weight (see table). Burnt stone was identified by its cracked character as well as its mottled (bluish pink) appearance. Burnt gravel was coloured red, purple and pink, and its surface was often crazed and was pock marked where small spalls had broken off, whereas the un-burnt gravel was orange brown in colour and its surface intact.

	Burnt Stone		Burnt Gravel		Unburnt Gravel	
	<i>No.</i>	<i>Wgt (g)</i>	<i>No.</i>	<i>Wgt (g)</i>	<i>No.</i>	<i>Wgt (g)</i>
BM 1	360	1241	145	131	165	208
BM 2	966	1459	246	206	104	163
BM 3	455	1622	190	268	190	438

Table 3: Heavy fraction breakdown based upon 1 sample from the centre of each mound.

Within in all three mounds the dominant inclusion was burnt stone with burnt and unburnt gravels representing a small percentage of the overall matrix (see chart).

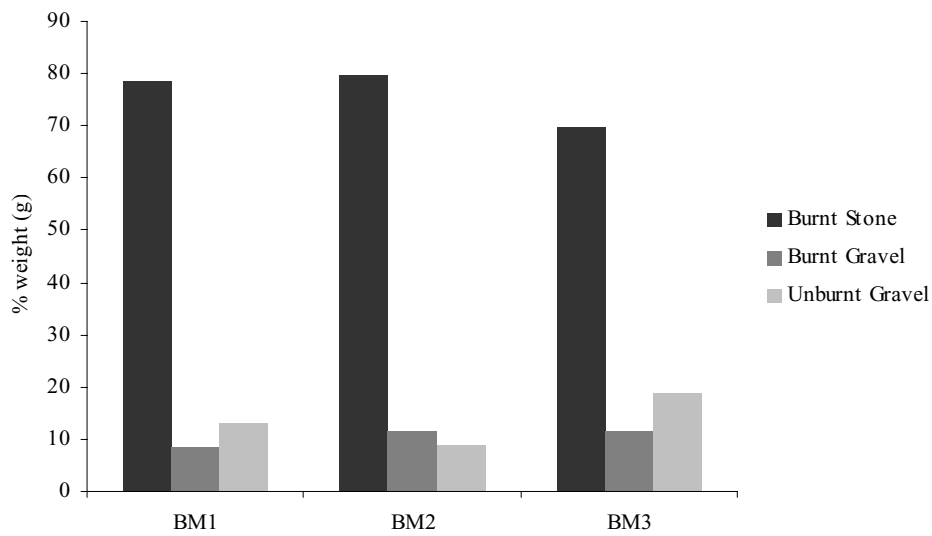


Chart 1: Percentage (by weight) of inclusions per 15L sample.

The consistency of ingredients between the three spatially distinct mounds points towards a consistency of process. That is that the activities occurring at each of the mounds was likely to have been the same (a point already illustrated by the similarities in character and layout between each of the mound complexes).

	Phosphate per 100mg
BM 1	34.7
BM 2	41.5
BM 3	37.0
BM 4	117.5

Table 4: Bradley Fen – *Burnt Mounds* – Phosphate averages

Fieldsystem

The fieldsystem consisted of four major elements, including an island-edge or *terminal boundary* (oriented north-south), a series of *diagonals* (oriented northeast-southwest) that were divided by occasional short *cross-boundaries* (oriented northwest-southeast), and four *fen-ward projections* (oriented east-west). Preservation varied according to the thickness of cover and was at its best along the lower contours where the peat still survived. The boundaries consisted of cut ditches although there was some evidence to suggest that these were once accompanied by up-cast banks. Altogether, 20 different fields were identified and these varied in form and dimension. For example, Field 4 was small and square (36 x 32m), whereas Field 3 was long and rectangular (215 x 52m).



Figure 8. Fieldsystem showing surviving boundaries and potential 'field-blocks'; 'contemporary' features are also located

The intersection between boundaries suggested a cumulative or sequenced construction, with boundaries abutting or stopping short of each other, as opposed to being part of a single continuous 'build' (although it is also possible that some of the gaps between boundaries may also have been due to the presence of banks). Breaks aside, the layout of the fieldsystem appeared remarkably cohesive and it must be assumed that what has been exposed represents only a small part of a much larger 'planned' system. The complex junction between Fields 2, 3 and 17 retained traces of an earlier terminal boundary in the form of two narrow ditches (F.823 and F.826).

Field	E-W (m)	N-S (m)	Area m ²
1	-	-	-
2	115	60	6900
3	215	52	11180
4	32	36	1152
5	98	36	3528
6	70	50	3500
7	-	50	-
8	48	60	2880
9	114	60	6840
10	126	45	5670
11	165	65	10725
12	135	35	4725
13	-	35	
14	-	-	-
15	-	-	-
16	30	-	-
17	30	170	5100
18	30	95	2850
19	30	85	2550
20	-	-	-

Table 5: Field dimensions and area.

The layout of the system appears to have been influenced by two different landscape orientations situated either side of the north-south oriented terminal boundary. To the west of this ditch the boundaries were set at 90⁰ whereas to the east they were set at 45⁰. The terminal ditch was not cut as a single uninterrupted length however, but existed as a meandering boundary with gaps, pronounced diversions and was in places continuous with both the northeast-southwest diagonal boundaries and the east-west fen-ward projections.

The fen-ward projections formed small fen-edge fields that occupied the margin at the base of the terrace. These projected for about 30m and by doing so incorporated the scope of features such as the burnt mounds, the metalled surfaces and most of the metalwork. All had exaggerated weathered profiles and in places had the appearance of small channels as opposed to cut ditches. Nonetheless, the regularity of their respective spacing, especially in relationship to adjacent features, demonstrates that these features had begun as dug features.

Many of the upslope or terrace-top diagonals had been obliterated because of shallow cover and only short fragmentary sections survived. In contrast, the more substantial cross-boundaries did endure and when combined with the vestigial diagonals it was possible to reconstruct an overall plan. Confidence in the reconstruction was

improved by projecting lines off of the better preserved diagonals towards the base of the slope.

	Widths	Ave. width	Depths	Ave. depth
<i>Terminal Boundary</i>	0.40-2.25m	1.08m	0.19-0.58m	0.35m
<i>Diagonals</i>	0.20-1.10m	0.51m	0.13-0.42m	0.26m
<i>Cross boundaries</i>	0.50-1.05m	0.64m	0.06-0.53m	0.24m
<i>Fen-ward projections</i>	0.90-4.50m	2.00m	0.08-0.70m	0.36m

Table 6: Fieldsystem feature dimensions

The location or proximity of later features also helped to reconstruct the original layout. For example, the four-post structures FP 1 and FP 2 shared the same alignment as the upslope diagonals, and as a pair appear to correspond with the position of a boundary that divided Fields 2 and 3.

Although much later in date, the Roman quarrying across the top of the site also seems to have had a relationship to parts of the fieldsystem, albeit when the fieldsystem was little more than an earthwork. In plan, the quarrying looks as if it respects parts of Field 12 and a sharp right-angled edge (oriented northwest-southeast) may in fact be indicating the former position of a cross boundary(?).

Nuances to the fieldsystem included entranceways (see Field 2) and remnants of double-ditched boundaries (see diagonals between Fields 6, 10 and 11). The entranceways measured approximately 4m across. An entranceway through the south-eastern edge of Field 2 was accompanied by a small spread of metallurgy, illustrating a well used point of access.

One particular kink in the main terminal boundary marked the location of the low buried soil mound that produced the weapon hoard.

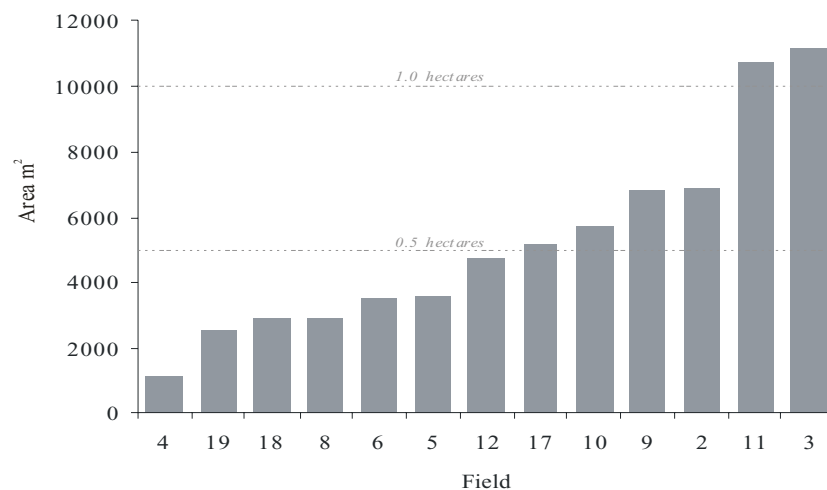


Chart 2: Field size by area (m²).

Cross-boundaries	Width (m)	Depth (m)	Fill
215	1.05	0.53	grey silty clay
272	0.5	0.35	grey silty clay
354	0.76	0.17	light brown silty clay
462	0.47	0.27	grey silty sand
927	0.5	0.06	brown grey silty clay
1000	0.56	0.11	grey silty sand
Average	0.64	0.24	

Table 7: Cross-boundary dimensions

Terminal ditch	Width (m)	Depth (m)	Fill top	Fill middle
799	1.27	0.35	peat	grey silty sand
800	0.85	0.4	peat	grey silty sand
812	2.25	0.55	peat	grey silty sand
817	1	0.3	peat	grey silty sand
823	0.4	0.26	orange silty sand	grey silty clay
826	0.53	0.29	grey silty sand	grey silty clay
867	1.6	0.51	peat	mid grey clay silt
937	0.7	0.34		grey silty sand
967	0.66	0.26		grey silty clay
1061	0.75	0.27		grey silty clay
1069	1.1	0.32		grey silty sand
1073	0.8	0.26	peat	grey sandy clay
1079	0.53	0.21		grey sandy silt
1083	0.66	0.19		grey sandy clay
1089	1.6	0.58	peat	grey silty clay
1090	2.1	0.44	peat	grey silty clay
Average	1.08	0.35		

Table 8: Terminal ditches dimensions

Diagonals	Width (m)	Depth (m)	Fill top	Fill middle
345	0.2	0.13		grey clayey silt
805	0.5	0.16		grey silty sand
368	0.32	0.17		grey silty clay
344	0.4	0.2		grey sandy silt
1178	0.57	0.2		grey clayey silt
394	0.59	0.2		grey brown loam
846	0.67	0.2		light brown silty sand
807	0.33	0.23		grey silty sand
798	0.46	0.23		grey silty sand
367	0.25	0.24		grey silty clay
386	0.5	0.25		grey sandy silt
557	0.66	0.31		grey silty clay
1039	1.1	0.34	peat	grey clayey silt
377	0.4	0.38		dark brown sandy silt
598	0.6	0.38		grey silty clay
816		0.4		grey silty clay
938	0.65	0.42		grey sandy silts
Average	0.51	0.26		

Table 9: Diagonals dimensions

Fen-ward projections	Width (m)	Depth (m)	Fill
837	0.9	0.49	brown sandy clay
1060	1.7	0.7	grey sandy silt
1070	1	0.29	brown sandy clay
1092	1.9	0.08	grey sandy silt
1152	4.5	0.22	grey sandy silt

Table 10: Fen-ward projections dimensions

	Widths	Ave. width	Depths	Ave. depth
<i>Terminal Boundary</i>	0.40-2.25m	1.08m	0.19-0.58m	0.35m
<i>Diagonals</i>	0.20-1.10m	0.51m	0.13-0.42m	0.26m
<i>Cross boundaries</i>	0.50-1.05m	0.64m	0.06-0.53m	0.24m
<i>Fen-ward projections</i>	0.90-4.50m	2.00m	0.08-0.70m	0.36m

Table 11: Fieldsystem maximum and minimum dimensions

Metalwork

In areas of significant peat coverage the overburden was removed by machine in two stages. Firstly the ‘topsoil’ cover was stripped to expose the underlying peat. The desiccated upper part of the peat horizon was removed with the top soil leaving on average between 0.20 – 0.25m of lower peat *in situ*. This process was carried out in strips of about 15m in width and each strip was intensively metal detected using a 0.50m grid. Once detected and cleared of any objects the peat was then machined away down to the archaeological level (i.e. natural).

Objects located by the metal detector were exposed by hand digging a 1 x 1m box around each ‘target’. Once exposed, each object was recorded using a small localised grid and then lifted. Each grid was left *in situ* to allow each find spot to be related to archaeological features exposed once the peat had also been removed.

The metal detector survey located a ‘hoard’ of 20 fragments of bronze weapons and six individual bronze spears.

The Hoard

The metalwork hoard, **F.786**, comprised 20 pieces including three broken swords (surviving as hilts and shoulders), three sword blade fragments, pieces of one or possibly two, long tongue chapes, a ferrule, and nine spears. Located with the hoard was a single fragment of bone (animal/human?). The hoard comprised a ‘tumbled’ palimpsest of pieces situated within a space no larger than 1.60 x 1.30m. It did not appear to have been arranged or placed but had an appearance of being dropped or spilt, although it is possible that its uneven arrangement was the result of subsequent trampling by cattle (see below). The hoard was situated at the southern end of a small oval-shaped mound or knoll (**F.948**) that was partially covered by peat. A 2cm development of peat lay directly beneath the metalwork demonstrating the ground was saturated when the hoard was deposited.

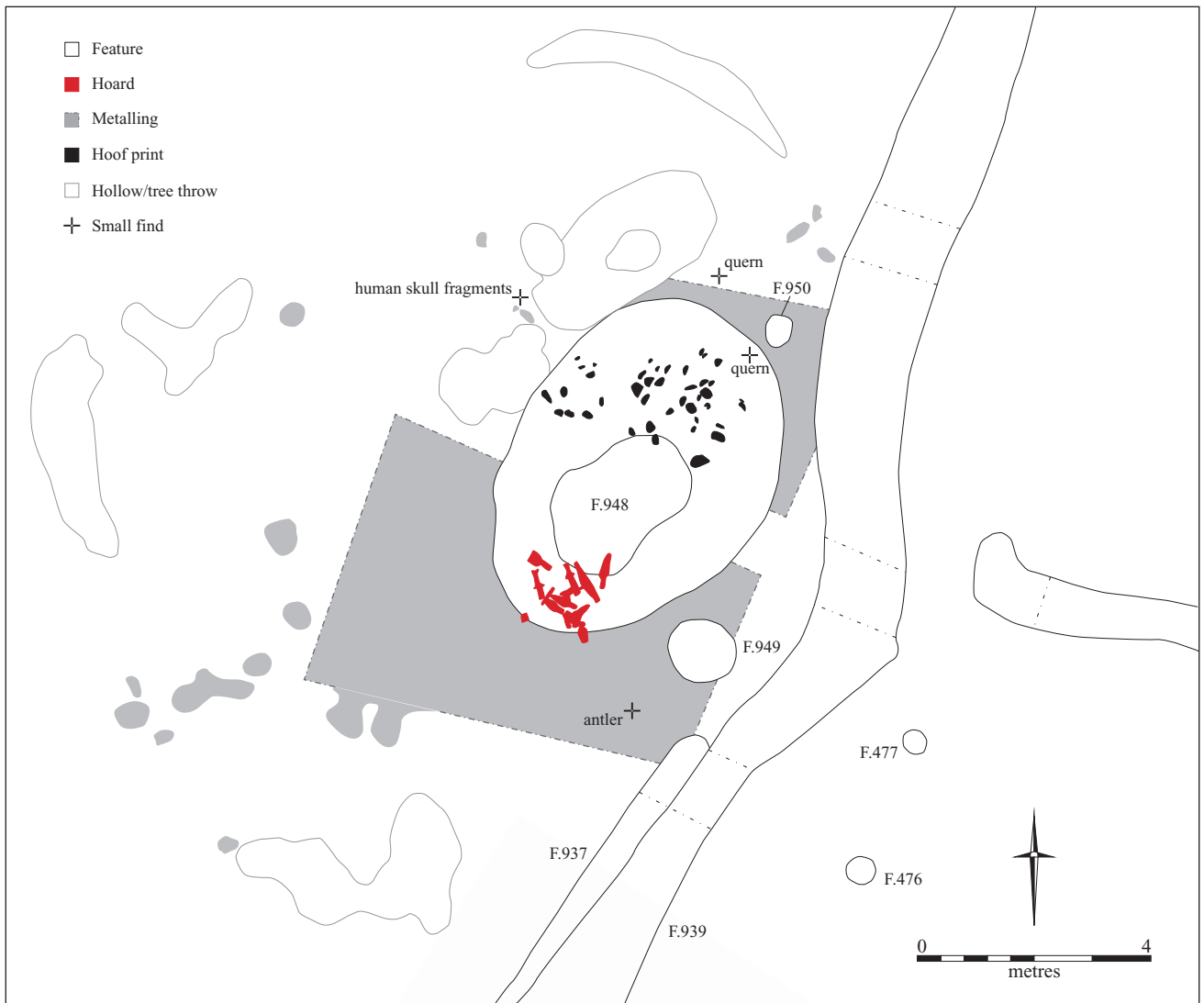


Figure 9. Hoard and Burnt Mound 4 (F.948)

The Mound

F.948 was a small oval-shaped mound of buried soil (6.00 x 4.50m; 0.15m in height) that stood proud within an area where most of the buried soil had been truncated. The mound itself was encircled by a compacted spread of gravel pebbles **F.951** that formed a hard resilient surface which masked the softer underlying clay-rich natural. In fact most of the lower margin that stretched immediately below the main N-S boundary was a patchwork of exposed natural, metalled surfaces and small rises of preserved buried soil.

The metalled surface F.951 that surrounded the mound was patchy in places and sometimes only survived within small irregular hollows. The surface appears to represent an attempt at consolidating the ground around the area of the mound and demonstrating that this space had been subject to erosion.

The surface was cut by primary elements of the main North-South boundary, ditches **F.937** and **F.1138**, and by a pit **F.1032**, an elongated oval-shaped hollow (3.50 x 1.75m; depth: 0.40m). Importantly, all of these features appeared to respect the position of the mound. F.1032 abutted its north-western edge, whereas F.1138 swerved around it and F.937 stopped short of its location. Similarly, when the two boundaries were joined together by a secondary ditch F.939 the position of the mound was emphasised further by an obvious kink in its line. The mound was located at a major junction in the field system where three separate boundaries came together.

Overlying the metalled surface was a thin deposit of grey sand-rich silt that looked very much like buried soil but was much more friable in texture and had a water lain appearance (C. French pers com). As with the metalled surface, the grey sandy silt deposit also encircled the mound lapping up against its lower edges. A large deer antler (SF 71) came from this context.

Eventually the ground around the mound became saturated and with this came the first peat accumulation ([1009]) capping the grey sandy silt deposit, the adjacent boundary and in time, the mound. As the peat consumed the mound new features were cut and new deposits were made. Along with the hoard, fragments of two large saddle querns were deposited on the opposite side of the mound (SF 73 & SF 74) and fragments of human skull were deposited close to its north-western edge (SF 77). Significantly, all of these things were separated from direct contact with the mound by a thin development of peat.

The northern half of the mound was disturbed by numerous small crescent-shaped holes or divots all of which were peat filled and these seemed to have been made by animal hoofs pushing the peat into the underlying buried soil. Other peat filled features included two circular pits **F.949** and **F.950** both of which found the narrow gap between the line of the boundary ditch and the extent of the mound.

The complex history of this small mound of buried soil can be summarised as follows:

Hoof prints (7)
I
Peat (6)
I
Hoard – querns – fragments of human skull (5)
I
Peat (4)
I
Water lain sandy silt (3)
I
Boundary ditch & pit (2)
I
Mound surrounded by metalled surface (1)

The Spears

A total of six spears were located, all of which occurred below the line of the main North-South field boundary. The spears occurred in three groups, as two single isolated pieces (SF 55 & SF 69) and as a 'line' of four (SF 62, SF 63, SF 64 and SF 65). Because SF 55 was found outside of the main detection area it is possible that this piece was not necessarily an isolated deposit. All the spears had a thin deposit of peat beneath them and all occurred between the 0.40-0.70m contour. Spear 62 was found semi-upright as if stuck point-first in the ground.

Round Houses

Round House 1

RH 1 was made up of nine postholes arranged in a circle with a diameter of 4.95m. The postholes, **F.437**, **F.438**, **F.439**, **F.442**, **F.441**, **F.443**, **F.445**, **F.446** and **F.447**, were small (0.20-0.30m in diameter) circular/oval forms with shallow (0.15-0.20m) U-shaped profiles. Their fills were light brownish-grey in colour and consisted of a clayey silt with patches of orange sand, occasional charcoal flecks and gravels. As well as the nine postholes the circle also included three additional satellite postholes of the same type, **F.440**, **F.444**, **F.448**, positioned equidistant around the outside of the main circuit and opposite postholes F.439, F.443 and F.447. Combined, this arrangement gave the structure a symmetrical layout without any obvious entrance setting. Southwards, and close to the posthole settings, was a small rectangular pit, **F.433**, along with another small circular pit/posthole, **F.491**. The rectangular pit (dimension: 0.53 x 0.60m; depth: 0.19m) contained a mid-grey silty sand fill that included a large assemblage of broken pottery as well as some flint. The associated pit/posthole had a diameter of 0.36m and a depth of 0.13m.

Round House 2

RH 2 comprised two short remnants of a circular eaves gully, **F.540** and **F.541**, a substantial porch-post setting, **F.9**, **F.10**, **F.521** and **F.536**, plus a series of small

pits/postholes, **F.12, F.13, F.28, F.29, F.31, F.510, F.511, F.512, F.513, F.515, F.516, F.518, F.519, F.524, F.530, F.531, F.532, F.533, F.534, F.535, F.537**, and small pits, **F.30, F.514, F.542**.

The eaves gullies, F.540 and F.541, survived as narrow curvilinear channels around the front of the structure terminating either side of the projected porch. Their shallow profiles (0.06-0.10m) suggest that both could have once continued eastwards around the whole circuit of the building but they had been subsequently truncated. The two gullies contained the same grey silty clay infill replete with charcoal flecks, the occasional stone, potsherd and animal bone fragment.

In contrast, the four entranceway or porch posts survived as impressive foundations (the two internal posts F.10 and F.536 measured 0.45m in depth, whereas the projected porch posts were between 0.28-0.30m in depth) and included indications of the former post-pipes (diameter 0.40-0.55m). This arrangement produced an east-facing entrance with a threshold measuring 1.75m.

Unlike RH 3, there was no clear indication of the position of a main wall (i.e. post-ring) but as with the eaves gully this may have been truncated. Multiple small pits/postholes were identified within the projected circuit of the eaves gully and these included a clay-lined oval-shaped feature F.542, a central pit/posthole containing butchered sheep bones, F.31, as well as a small circular pit holding some lumps of slag, burnt and un-burnt animal bone within a matrix of grey silty sand F.514. The remaining small pits/postholes were also infilled with grey silty sand and shared similar shallow (truncated?) U-shaped profiles.

Round House 3

The RH 3 ground plan included a 7.50m diameter post-ring, **F.758**, a double post entranceway, **F.755** and **F.756**, an external eaves gully, **F.759**, and a collection of internal pits/postholes, **F.752, F.753, F.754, F.789, F.1094, F.1097, F.1098, F.1099**, together with three clay lined pits, **F.750, F.751** and **F.1096**. Further pit features were located immediately outside of the post-ring **F.761, F.790**, and **F.1036**. A small oval-shaped hollow, **F.787**, was cut by the line of the post-ring, F.758.

As with the previous round house (RH 2), RH 3 was oriented eastwards but with an entranceway made up only of two posts, F.755 and F.756. At 0.32m and 0.34m in depth respectively, these postholes stood as being the most substantial of the posts associated with the structure. The threshold measured 1.80m. By comparison, the post-ring, F.758, was slight (0.15m in width and 0.08m in depth), partially truncated but nevertheless integral to the positioning of the entrance posts.

The eaves gully, F.759, was positioned directly down slope of the rear of RH 3. Cut as a large flat-bottomed ditch (8.15m in length; up to 0.88m in width; 0.55m in depth) the eaves gully mirrored the arc of the post-ring at a distance of about 1.60m. Included in the fill of the gully were two sherds of pottery, seven fragments of animal bone, seven worked flints, four pieces of burnt flint, four pieces of burnt clay and two fragments of slag.

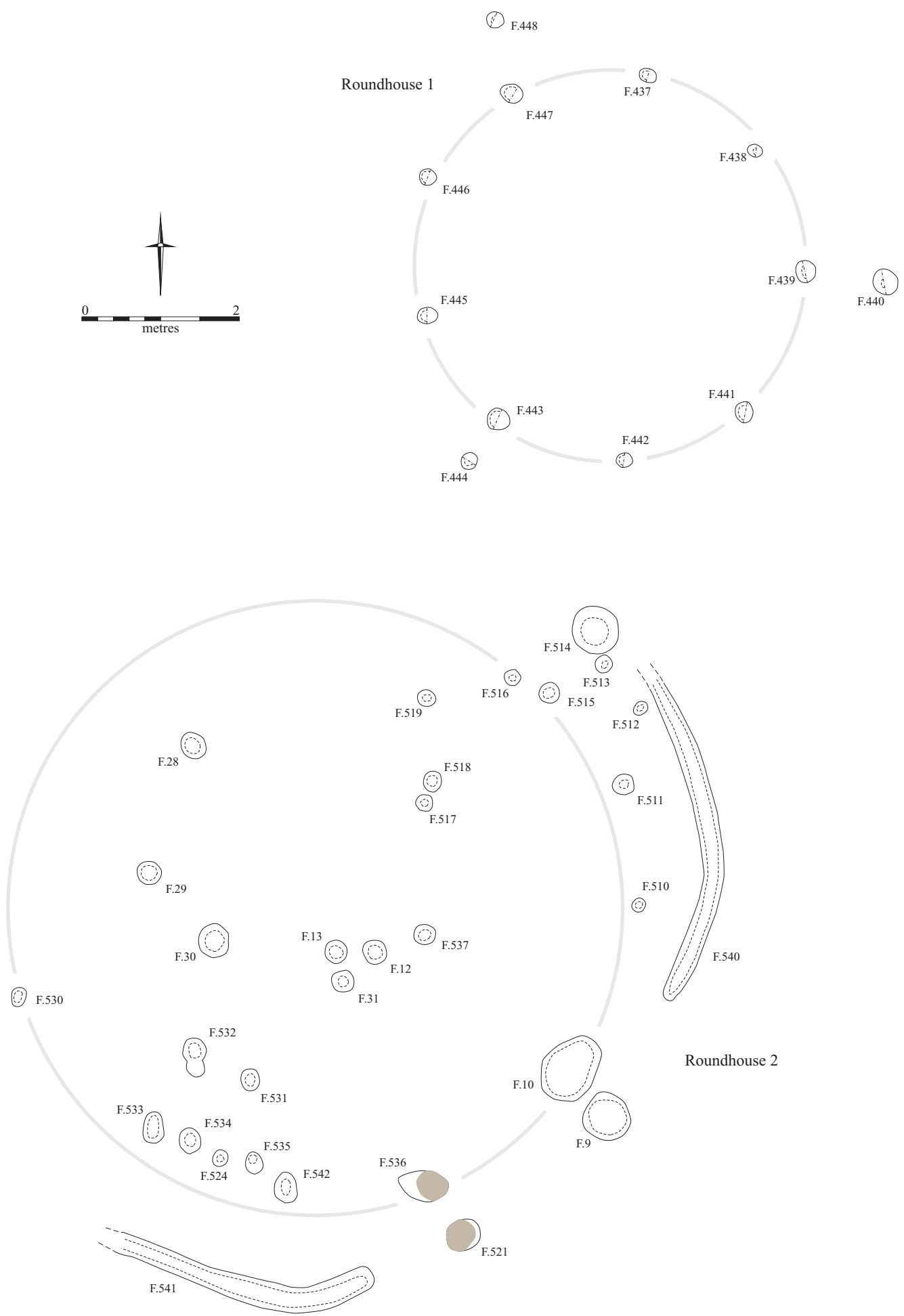


Figure 10. Roundhouses 1 and 2

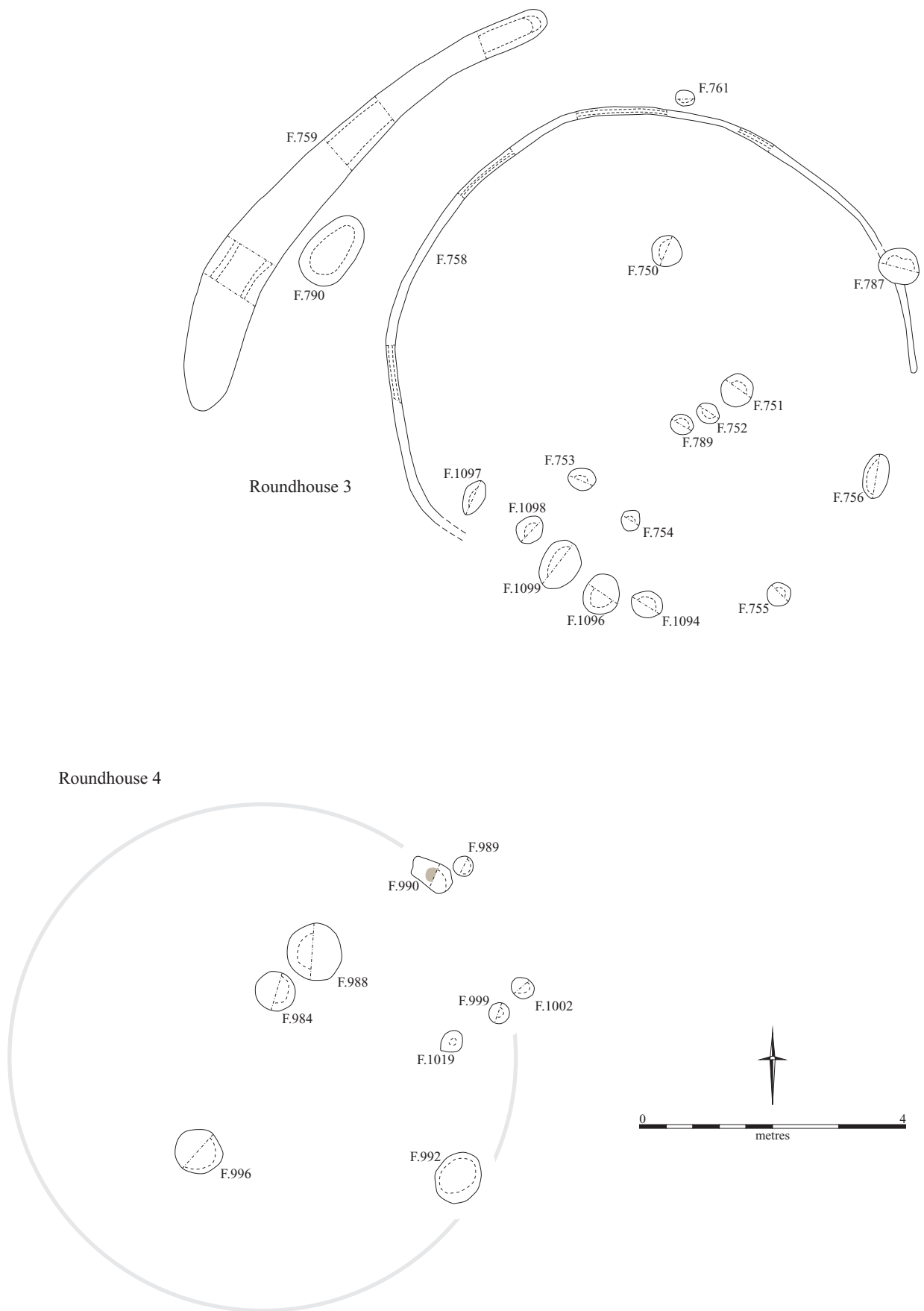


Figure 11. Roundhouses 3 and 4

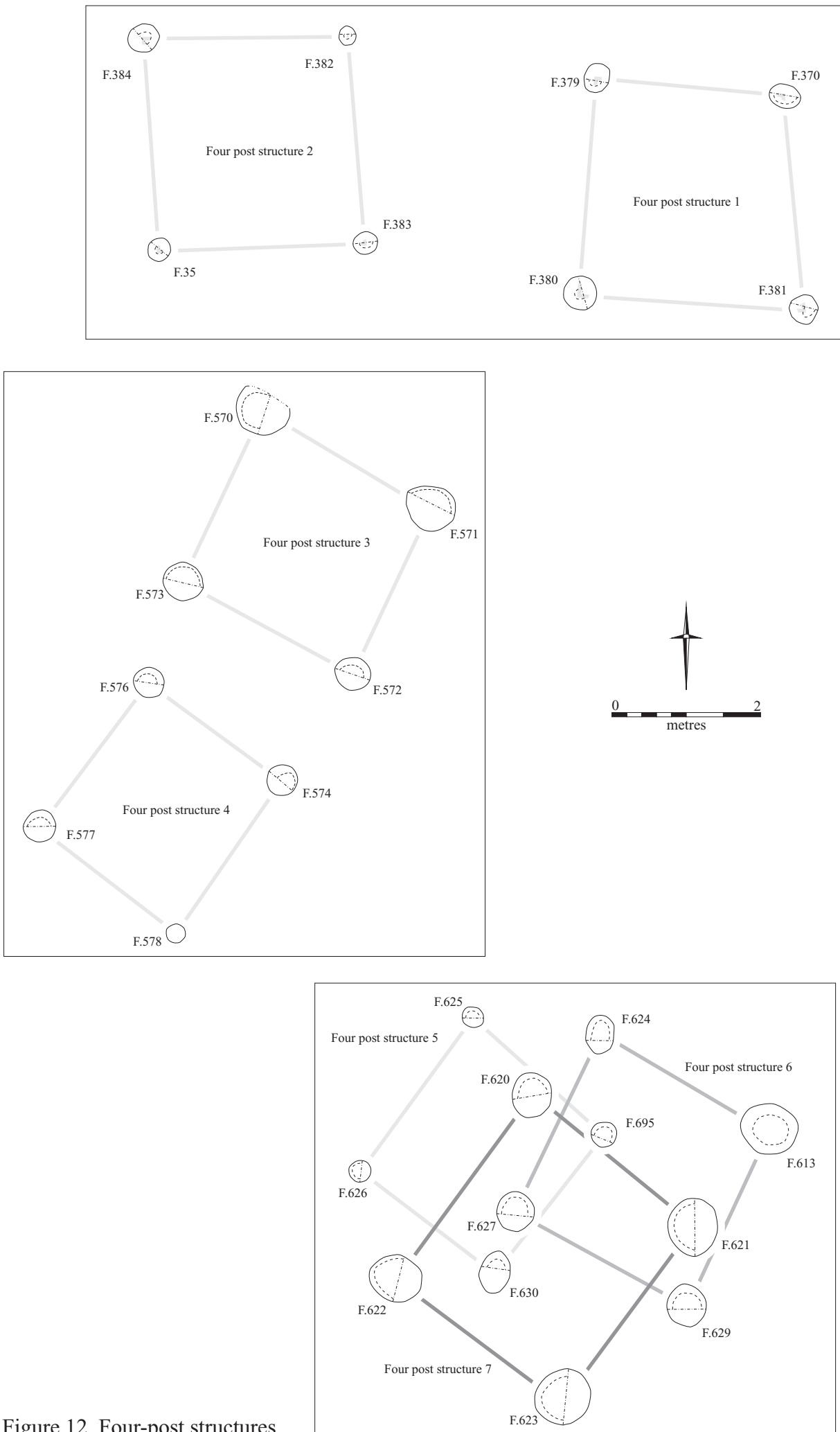


Figure 12. Four-post structures

A medium sized oval-shaped pit, F.790, was located between the eaves gully and the post-ring. It contained an assemblage of five sherds of pottery, 11 fragments of bone, one piece burnt clay, one burnt stone and one slag.

Of the internal features, F.751, a clay-lined pit, and F.789, a small hollow, produced the most interesting material. Fragments of a broken saddle quern were retrieved from F.751, whereas F.789 was crammed with the remains of butchered lamb bones. As with RH 2, the interior of this structure saw the greatest number of features around the southern edge of the floor space.

Round House 4

RH 4 did not have a surviving eaves gully or post-ring but it did have a porch/entranceway arrangement made up of two pairs of relatively substantial posts, **F.989, F.990, F.999** and **F.1002**, a group of clay-lined pits, **F.984, F.988, F.992, F.996**, as well as a small pit, **F.1019**, replete with ubiquitous butchered lamb bones, similar to the pits excavated at King's Dyke West (Gibson & Knight 2002).

Four-post Structures

Seven four-post structures were identified within the northern half of the site. Of these two (FP 1 and FP 2) were located as a pair that shared a similar orientation to the fieldsystem, whereas the rest, FP 3-7, were part of another group that formed part of the later fen-edge settlement site. Similarly, the fill types between the two sets of four-posters varied between pale silty sands (FP 1 and FP 2) and mid brown silty clays (FP 3 -7). Very few artefacts were recovered from the various postholes, although importantly a posthole belonging to FP 1 produced fragments of Late Bronze Age pottery, whereas a posthole from FP 3 produced Iron Age wares. Other differences between the two sets included the size, with the earlier types (FP 1 & 2) being overall larger than the later types.

	Features	Dimensions (m)	Area m ²	PH dia. (m)	PH depth (m)
FP 1	F.370, F.379, F.380, F.381	3.00 x 2.90	8.7	0.34-0.46	0.17-0.31
FP 2	F.35, F.382, F.383, F.384	2.80 x 2.75	7.7	0.23-0.40	0.12-0.24
FP 3	F.570, F.571, F.572, F.573	2.65 x 2.50	6.6	0.50-0.70	0.24-0.34
FP 4	F.574, F.576, F.577, F.578	2.40 x 2.35	5.6	0.24-0.47	0.20-0.35
FP 5	F.625, F.626, F.630, F.695	2.35 x 2.25	5.3	0.28-0.40	0.16-0.50
FP 6	F.613, F.624, F.627, F.629	2.65 x 2.60	6.9	0.40-0.67	0.30-0.40
FP 7	F.620, F.621, F.622, F.623	2.80 x 2.75	7.7	0.55-0.60	0.34-0.45

Table 12: Dimensions of four-post structures (includes post hole (PH) dimensions).

The four-posters, FP 5, 6 and 7, were found as a palimpsest of structures that occupied the same space. None of the postholes belonging to each of the structures overlapped, suggesting that each four-poster was built in close succession (one replacing the other). Each set of four posts stood out against the next making the palimpsest understandable. Part of the sequence of four-post building was perhaps expressed best within posthole F.613 of FP 6. The top half of backfilled post-pit contained the complete articulated skeleton of a human adult that had been contorted into 'ball' in

order to fit its 'grave'. The excavation of the feature revealed a body on its back with its knees touching its shoulders (left to left and right to right) but its lower legs crossed (right over left). The persons head was tilted forward with their chin pressed firmly into the chest and with the left cheek touching their left shoulder. The left arm was folded across the belly but underneath the contorted legs. The right arm was bent upwards bringing the right hand upwards and onto the right shoulder. Beneath the body, but still within the confines of the backfilled posthole, were lumps of metalworking slag.

Pits

Pit **F.830** was a circular well (diameter: 1.10m; depth: 1.20m) with a profile made up of three parts: a weathering cone, a vertical shaft (diameter: 0.69m), and an eroded/undercut base (diameter 0.87m). It contained six different infilling episodes that began with a slow forming silt deposit (mid grey silt with occasional small stones) which occupied the bottom third of the feature.

Inserted into the basal fill was a fully articulated human skeleton of an adult female that had, judging by its position, been thrown in head first. The lowest parts of the body were the hands and these were clenched with the palms facing upwards. The wrists were crossed (as if bound) and both arms were folded tightly under the body so as to obscure them when the skeleton was viewed from above. The skull faced downwards and had been twisted sideways and was jammed against the northern edge of the hole forcing it hard onto the right shoulder. The spine and rib-cage ran diagonally up the centre of the pit supporting the pelvic bones upwards towards the surface. Both legs were folded with the knees together pointing downwards whilst the lower legs were pressed against the southern edge of the pit. The highest points of the skeleton were the feet and these were turned inwards and pressed against the edge of the pit. The preservation of the skeleton was very good and the bone had a dark brown appearance with occasional patches of iron staining and a small piece of woven fabric was found attached to the skeletons left femur.

Covering the body was a thin spread of organic material (dung or decayed grass?) which had entered the pit from the eastern edge. In turn the 'dung' deposit was capped by a backfill dump of grey-brown silty loam which contained a single cattle bone. The upper most fill of the pit contained an articulated dog skeleton (oriented so its head pointed southwards) which in turn was covered with a 0.18m thick deposit of light grey sandy silt that resembled the adjacent buried soil horizon.

The pits weathered profile and slow forming basal fill demonstrated that the feature had had an extended history as a watering-hole or well prior to the insertion of the body. Similar shaped pits with similar histories occurred across the site often in association with a roundhouse or the four-post structures as part of the repertoire of settlement related features.

Pit **F.1018** was a large sub-oval feature with vertical sides and a broad flat base (dimensions: 2.10 x 1.65m; depth: 1.00m). The bottom of the feature was covered by a dense layer of butchered cattle bone amongst which was a single large fragment of human skull. A dump of 703 animal bones (18,654g) covered the base of the feature

and these appeared to have entered the pit *en masse*. The skull fragment was located slightly off-centre and was not immediately obvious as it occurred as part of the general jumble or assemblage of bones. All of the bones were covered by a matrix of mid grey silty clay which was followed by a seven-fold sequence of backfill deposits which included dumps of re-deposited natural (orangey brown sandy silty clay). The pits sharp un-weathered profile and lack of any other kinds of deposits suggests that it had been dug and backfilled in quick succession and that it had been dug purposely for the burial of the bones. The inclusion of a fragment of human skull would appear to demonstrate that this was not just about the disposal of food waste. The sheer ubiquity of human remains (both articulated and disarticulated) found strewn throughout the settlement could be seen as indicating a different and perhaps less reverential relationship towards the dead than say the more formalised and distinctive earlier Bronze Age burials seen at King's Dyke West for example. Within these contexts bits of (particular?) humans were treated the same as potsherds and cattle ribs.

Pit Cluster 1

Pit Cluster 1 included a tight inter-cutting crescent-shaped complex of irregular hollows (F.483, F.484, F.485, F.486, F.487, F.496, F.501, F.502, F.505, F.506, F.509, F.528 and F.554) and an adjacent small shaft or well F.480. Of these the most exceptional and contrasting features were F.480 and F.528.

Excavation of F.480 proved it to be a deep shaft-like pit not dissimilar to F.830 (the well that contained the inverted skeleton). The pit was 1.03m deep and had a diameter of 1.27m. Its profile was steep and it had a concave and slight undercut (water-eroded?) base. Its basal fills were silt rich and waterlogged and produced the base of a pot whilst its upper fills were very similar to the local buried soil and produced animal bone (57 pieces at 820g), 35 pieces of pottery and a lump of slag (237g).

The hollow F.528 2.20 x 2.00m and up to 0.78m in depth. It had a bowl-shaped profile but with slightly undercut/water-eroded south-western edge. The basal fill was also silt-rich but this was overlain by a large dump of animal bone (432 pieces at 16320g). The bone had entered the feature from the north-eastern end and comprised mainly disarticulated and fragmented pieces except for three articulated vertebrae. No other types of artefacts were present.

Pit Cluster 2

Pit Cluster 2 comprised a quasi-linear arrangement of irregular pits and hollows F.597 (F.706), F.612, F.614, F.757, F.768, F.774, F.775, F.776, F.777, F.778, F.779, F.780, F.784, F.791, F.818, F.819, and F.820. Some of these pits were conjoined whilst others were discrete. One particular attribute that linked a number of of these pits was the presence of slag, burnt clay and crucible fragments. Pits F.597 (F.706), F.614, F.780 and F.784 all contained similar lumps of vitrified burnt clay occasionally with slag adhered. The irregular hollow F.597 (F.706) would appear to have been the closest to the 'source' as it produced 51955g of this material whereas the remainder

had a combined total of 220g. A possible crucible fragment came from F.780. Upslope from the cluster was a furnace feature F.611.

Another shared attribute of this cluster of features was their uneven almost quarry-like profiles. Many of these pits had pitted bases that made the features look like a series of interlinked delvings burrowing into the surrounding gravely clays. None of the pits had profiles indicative of being open for a long time and none seemed deep enough to encounter the water table.

As well as metalworking debris the pits also produced a small amount of pottery and animal bone.

The 'Boat' Pit

Pit **F.1064** was a large oval-shaped hollow (dimensions: 5.80 x 5.00m) that had at its centre a deep oblong-shaped trench (dimensions 2.44 x 1.80m. Depth: 1.50m). The appearance of the hollow was of an exaggerated weathering cone that had been made even more irregular by a sequence of small pits or delvings around its edges (**F.1026**, **F.1116**, and **F.1118**). The sides of the central trench were steep but not vertical (*c.*50°) and also had a slightly eroded or rounded look about them. The base of the trench was occupied by a hefty slab or block of reused wood (2.10 x 0.78 x ??m) that had a hole in its centre through which a small peg or post had been driven. A series of upright planks were fixed around the edges of the block and these formed a lining against the sides of the trench. A total of six planks survived although sockets for at least nine others were found around the base block. The combination of uprights and base formed a large wooden box or tank at the base of the pit and judging by its depth (and its silt-rich fills that eventually subsumed it) the box had been located deliberately within the reach of the local water table.

Its fill sequence was not particularly eventful and comprised a basal layer (0.45m thick) of very dark grey clayey silt above which similar but less organically-rich deposits formed. Artefacts were rare and seemingly unrelated to the operation of the box as they only occurred as inclusions within the general matrix of the fills as opposed to discrete deposits. Objects included a small amount of pottery, a cow skull and horn cores, a piece of burnt clay and a piece of slag and a few fragments of burnt stone. As an assemblage the materials from F.1064 resembled those recovered from numerous other (earlier Iron Age) settlement related pits and hollows. The capping fills of the feature appeared on the surface as a series of concentric rings which included a central plug of light brown alluvium over a plug of desiccated peat. The rings seemed to be a product of the 'organic' basal fills 'collapsing' or compacting over time creating a depression at the centre of the pit.

The large slab or block of reused wood that made up the base of the box had been worked extensively and obviously was once part of dug out boat prior to being incorporated into F.1064.



Figure 13. Earlier Iron Age settlement features

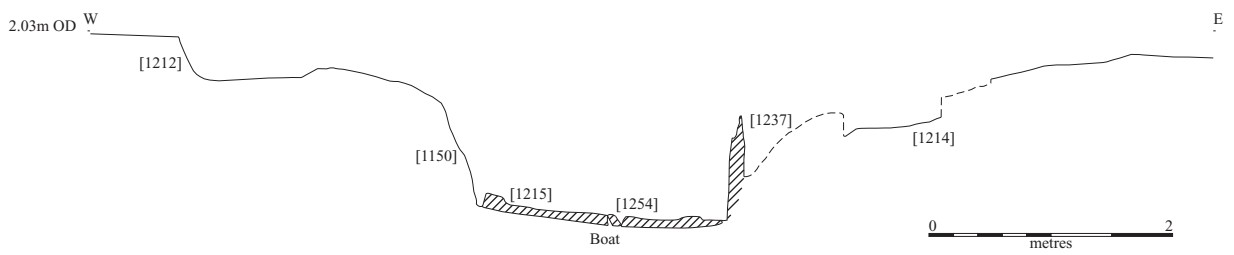
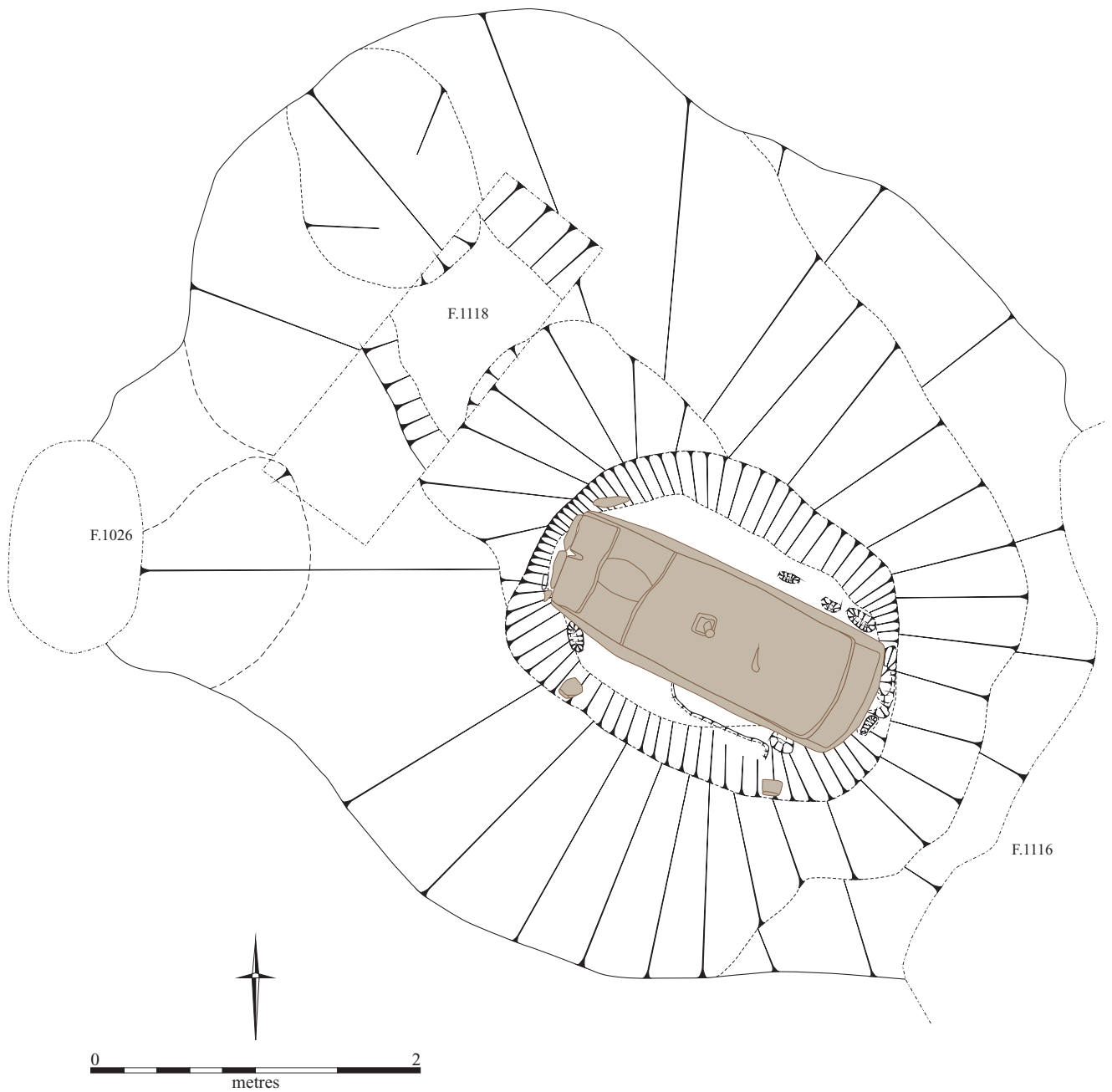


Figure 14. Boat pit

Pit Cluster 3

Pit Cluster 3 also comprised a cluster of inter-cutting or closely associated pits F.905, F.919, F.943, F.944, F.945, F.946, F.947, F.962 and F.974. The main group of five pits F.943, F.944, F.945, F.946 and F.947 were conjoined to the extent that on the surface they had the form of a single large oval-shaped feature. Pit F.945 was the last in the sequence and consequently the least truncated. Circular in plan (diameter: 2.25m; depth: 1.05m), it had a deep rounded profile with a slightly flattened base. Pottery, wood and animal bone caught in a 0.30m deep matrix of dark brownish grey silt made up its primary deposit and this included ten sherds (555g) from a single decorated Early Iron Age jar.

The wood comprised mainly small branches but included a part of a medium sized bough or trunk that had one end worked to a point. The animal bone assemblage equalled 144 pieces (1987g).

'Aurochs' Burial

A large, perfectly rectangular grave-shaped feature (**F.1161**) turned out to contain a fully articulated skeleton of a young cow/aurochs. The skeleton was positioned on its left side with its skull located at the southern end of the pit facing upwards (the horns parallel to the eastern edge), and its legs folded against the western edge. With this posture the skeleton fitted neatly into the cut leaving very little extraneous space. The 'grave' had vertical sides and a flat base making a regular-sided box that measured 2.35 x 1.10 x 0.65m. Its backfill (orange-mid brown (stiff) sandy clay and occasional small pebbles) was very similar to the surrounding subsoil and despite close examination was found not to contain any artefacts. The lack of any diagnostic material from this feature makes dating difficult. If the animal is actually an Aurochs (see Swaysland) it is unlikely to be later than the Bronze Age.

Roman

The Roman archaeology had four main components – quarry, road, fieldsystem and small-scale settlement. The relationship between the quarry and the road appears to have been straightforward with the former supplying the material for the construction of the latter. The fieldsystem abutted the side of the road and the settlement was located at the edge of the quarry. Any complexity to this history was restricted to the road which had more than one phase.

Quarry and Road

The quarry covered an area of 0.45 hectares and was located above the 3.50m contour which coincided with an area of coarse gravel natural. The quarry was not particularly deep but it was regular in its depth (c. 0.70m) and despite its frayed edges and occasional gaps there was also a kind of regularity about its overall shape, especially along its northern and western edges which appeared to respect a pre-existing but now invisible line. A few small quarry pits occurred beyond this line but otherwise the

extraction was limited a roughly rectangular area which extended beyond the southern limit of the development area. The material that filled the quarry was a mix of pale grey sandy loam and gravel which presumably represented a combination of re-deposited 'topsoil' and unwanted 'aggregate'.

The road had several phases and in its origin survived only as a short stretch which lead northwards beyond the edge of the excavation area. It appears that the primary purpose of the earliest road sections were to transport gravel retrieved from the quarry towards Northey and presumably the stretch of the Fen Causeway which crossed the Flag Fen basin (Pryor 2000). The fields immediately north of Bradley Fen and protected within the Nene Washes contained numerous earthworks which included a pronounced hollow-way which matched exactly the line of Roman road.

The first 'road' comprised a single ditch **F.254** that in turn was replaced by parallel ditches **F.212** and **F.216** which shifted the position of the road slightly to the west. Both sets of ditches were located close to the northern edge of the site.

The main section of road comprised a pair of parallel ditches **F.211** and **F.220** that adjoined onto the short established section but also created a new route which entered the development area from the west avoiding the areas of quarrying. This road appeared to have an extended history as the ditches on either side of its line were cut several times as a series of short lengths. A gravel-rich 'agger' survived between the paired ditches close to the northern edge of excavation and at least two metalled surfaces were identified. Further patches of metalling were also recorded in dips in the line of the road. Side boundaries or perpendicular offshoots adjoined the western roadside ditch designating adjacent fields as well as a small T-junction which continued the link between the quarrying activity and the road. The character and direction of the road paralleled a section recorded at the adjacent King's Dyke West excavations which was demonstrated to be of middle 1st Century AD date and was an early phase of the Fen Causeway.

Eventually a smaller side-road (parallel ditches **F.244** and **F.245**) was attached onto the main section forming a small fork or bifurcation which led southwards and which cut across the backfilled quarry. A large ovoid patch of metalling also survived inside the paired ditches of this smaller road (again within a dip). Significantly, this dip contained an infill which produced the sites only Saxon pottery illustrating that this thoroughfare was still in use in the early Medieval period. It is even possible that parts of the road survived even later as a large Post-Medieval boundary mirrored sections of its route.

The Settlement

The settlement features included a post-ring **F.639/F.640** and associated eaves-drip gully **F.638** as well as a set of short curvilinear enclosure ditches **F.893** and **F.896**. It was located within a small bay tight to the western end of the quarry. A small amount of Roman pottery was recovered from its fills.

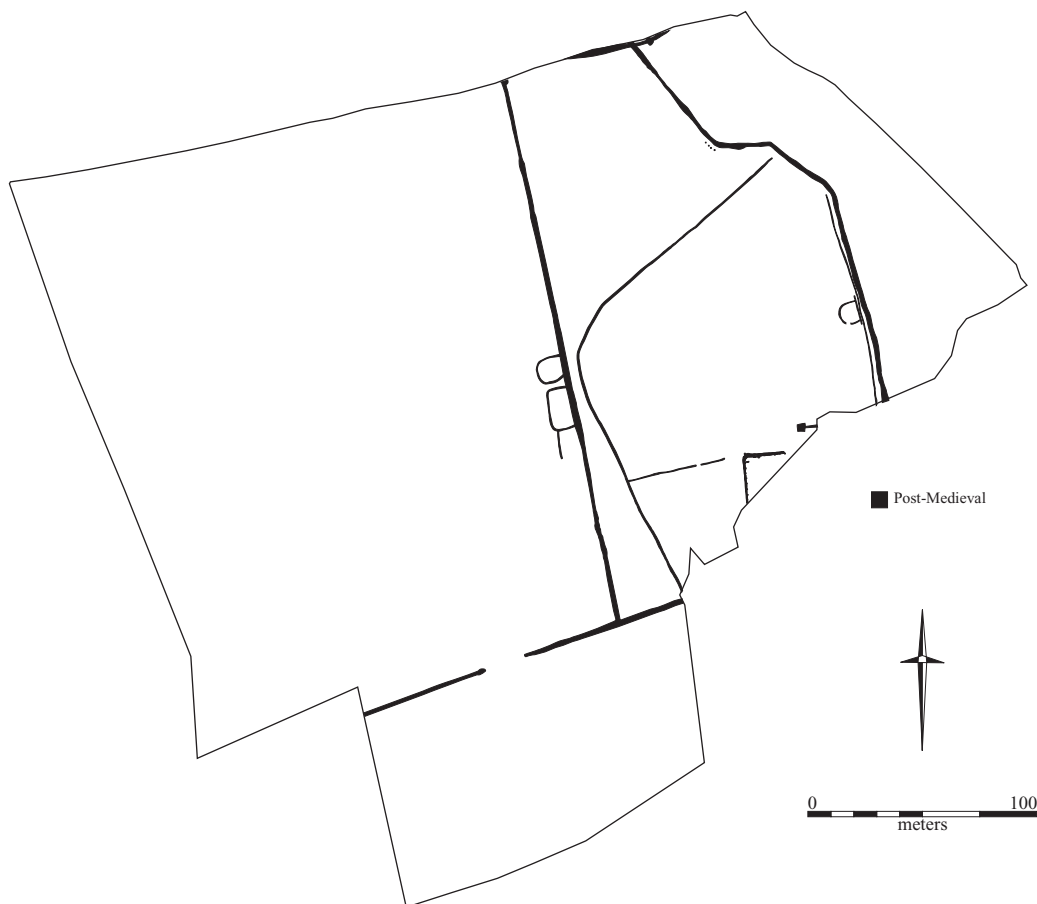
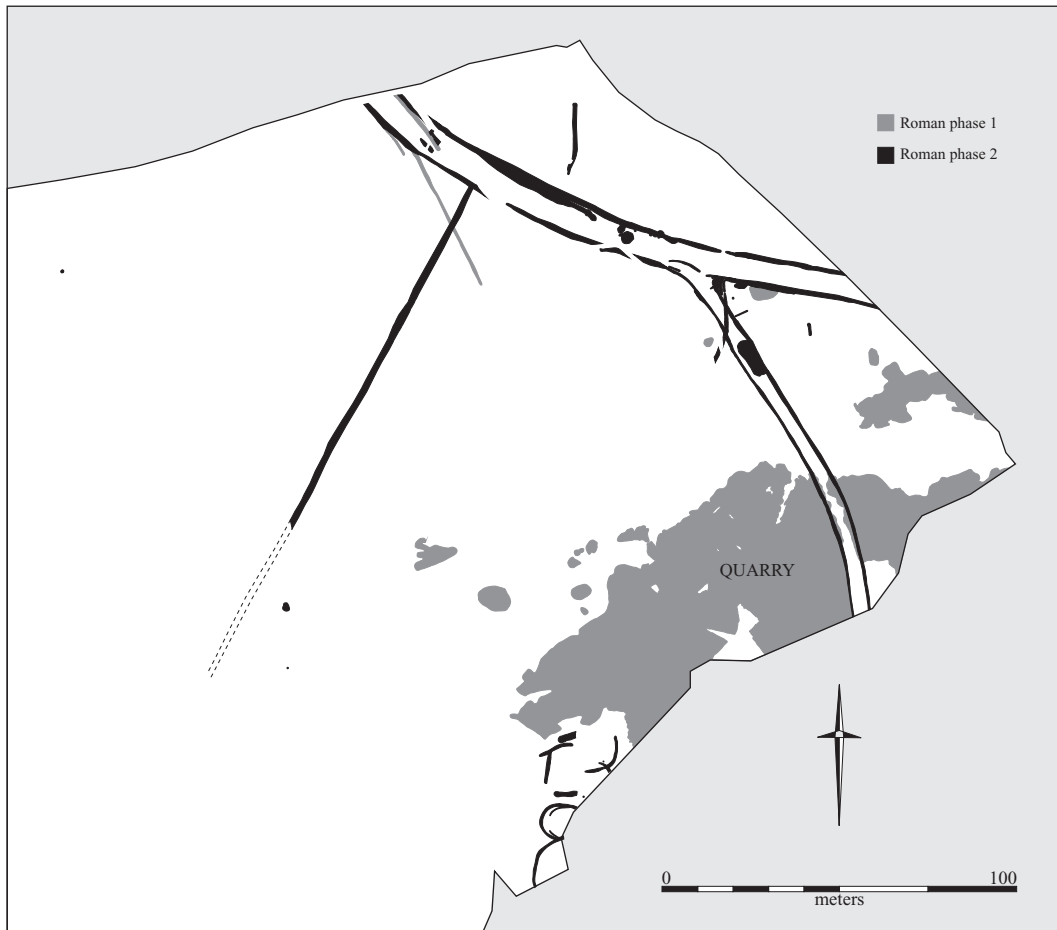


Figure 15. Roman and Post-Medieval

Discussion

Aerial photographs of the Flag Fen Basin show the route of the Fen Causeway as a pale soil mark generated by the light coloured gravels against the dark peat background. Excavation of its line at Flag Fen recorded a large 'agger' (0.20-0.25m thick) composed of an aggregate which had to have come from the adjacent gravel-rich shorelines. It appears that the extensive quarrying identified at Bradley Fen represents one (major) source for the roads construction across the peat-filled embayment. The Bradley Fen and King's Dyke West roads shared parallel routes suggesting one replaced the other. The early date for the Kings Dyke West road and its subsequent roadside development could suggest that the Bradley Fen Road represents a settlement bypass.

Saxon

A large ovoid-shaped hollow (**F.358**) in the surface of the small side route which adjoined the main Roman road produced Saxon pottery. The base of the hollow retained metalling presumably put down to consolidate an eroded section of the thoroughfare. The silty-loam deposit which accumulated above the metalling and within the hollow, produced the sherds and must be seen as evidence for an extended use of this particular route. The hollow was situated close to 3.90m contour elevating the feature above the local peat encroachment.

BRADLEY FEN 2001 - Silt Lagoon Excavations

Methodology

The Silt Lagoon excavations were carried out as part of a watching brief during the construction of a large silt trap. Its construction occurred during the archaeological investigations of the main Bradley Fen 2001 site and as a project began primarily as 'a watch and see' exercise. At the time, the silt lagoon was thought to be in an area too deep to contain significant archaeological deposits (the height of natural being below 0.20m OD). In the main excavation area, no archaeological deposits were found beneath 0.50m OD and the buried soil horizon, another indicator of potential cultural deposits, was little more than vestigial below c. 0.60m OD.

The first levels reached in the machining of the lagoon (eastern end) revealed the natural to be between -0.30 and -0.20m OD and at these levels the buried soil was very thin (up to 5cm). Subsequent visits identified a sinuous ditch that in section could be shown to be sealed beneath the bulk of the peat. Later, and towards the middle of the proposed lagoon, the natural rose to between -0.10 and 0.00m OD and at this point the buried soil horizon became slightly more substantial (up to 15cm). The first artefacts coincided with the identification of this buried soil and comprised worked flints (large Neolithic blades). Soon afterwards, a few small pits/postholes were uncovered and it was at this point that the watching brief (i.e. observation of contractors machining) became a controlled archaeological investigation (i.e. direction of contractors machining).

The central block of the proposed silt lagoon area had an artefact-rich buried soil, rose to above 0.00m OD, and contained a cluster of features. These factors determined that the central block (98 x 41m) was cordoned off from the contractors working area so it could be treated as a full excavation area. Features located outside of the designated block were also investigated but as part of a phased 'retreat' designed to release areas back to the contractors.

The buried soil was sampled for artefacts using the established bucket-sampling strategy (for each point six x 15 litre buckets of buried soil were hand sifted for finds). Twelve test points (TP) were sampled and these produced a total of six flints and one piece of pottery: TP 1 had three flints and one potsherd; TP 5 had two flints; TP 12 had one flint. The distribution of material was restricted to above the ?m contour.

Excavation Results

Round House 5 and associated Pits and Postholes

A detailed contour survey identified a small rise (up to 0.10m OD) within the middle of the exposed area. The centre of the rise was occupied by a round house (RH 5) made up of a circle of posts (**F.1291, F.1292, F.1293, F.1294, F.1295, F.1296, F.1297, F.1298**) with an exaggerated porch (**F.1283, F.1284, F.1285, F.1286**) which was further enhanced by a flanking façade-like device (**F.1287, F.1288, F.1289, F.1290**). A large hearth, **F.1299**, marked the centre of the house and this was accompanied by a small pit, **F.1300**.

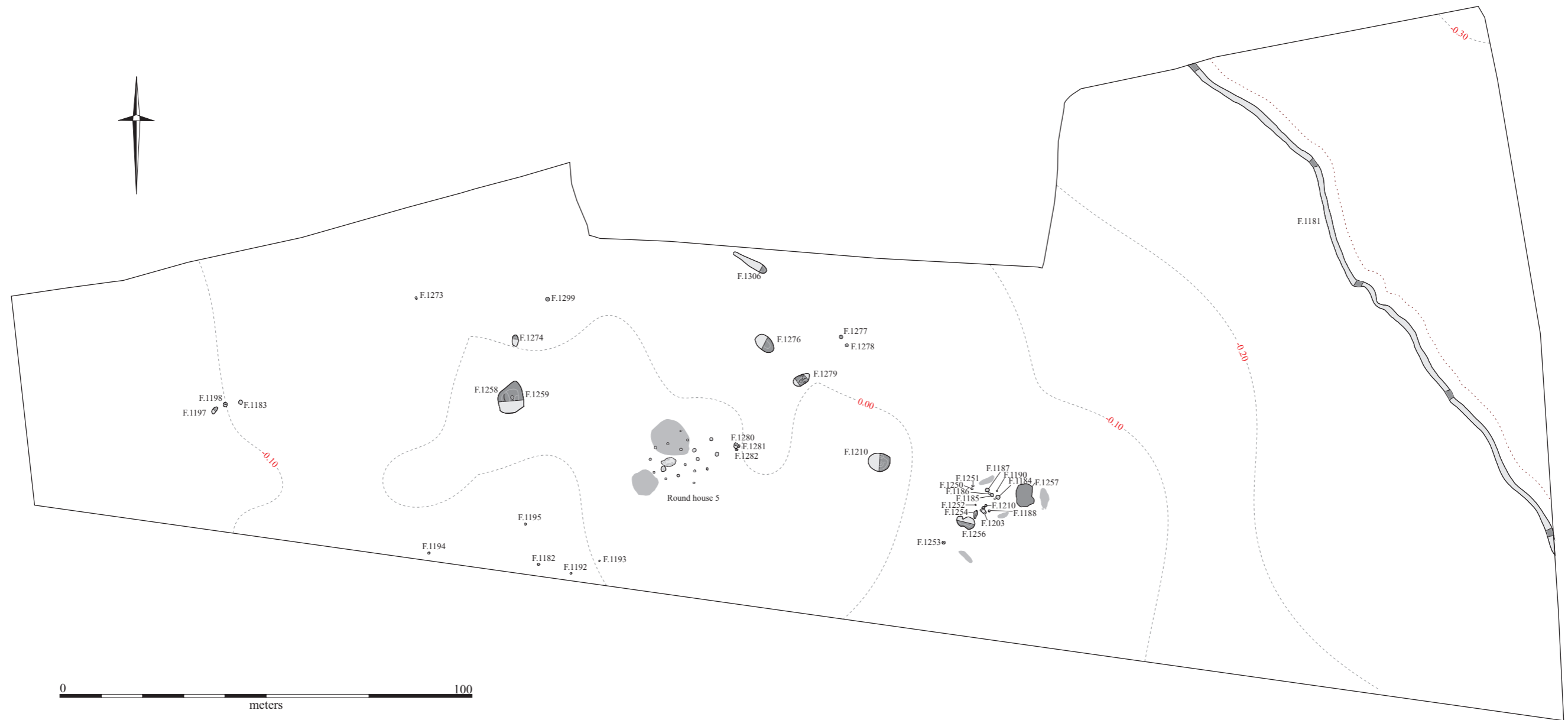


Figure 16. Silt Lagoon; all features

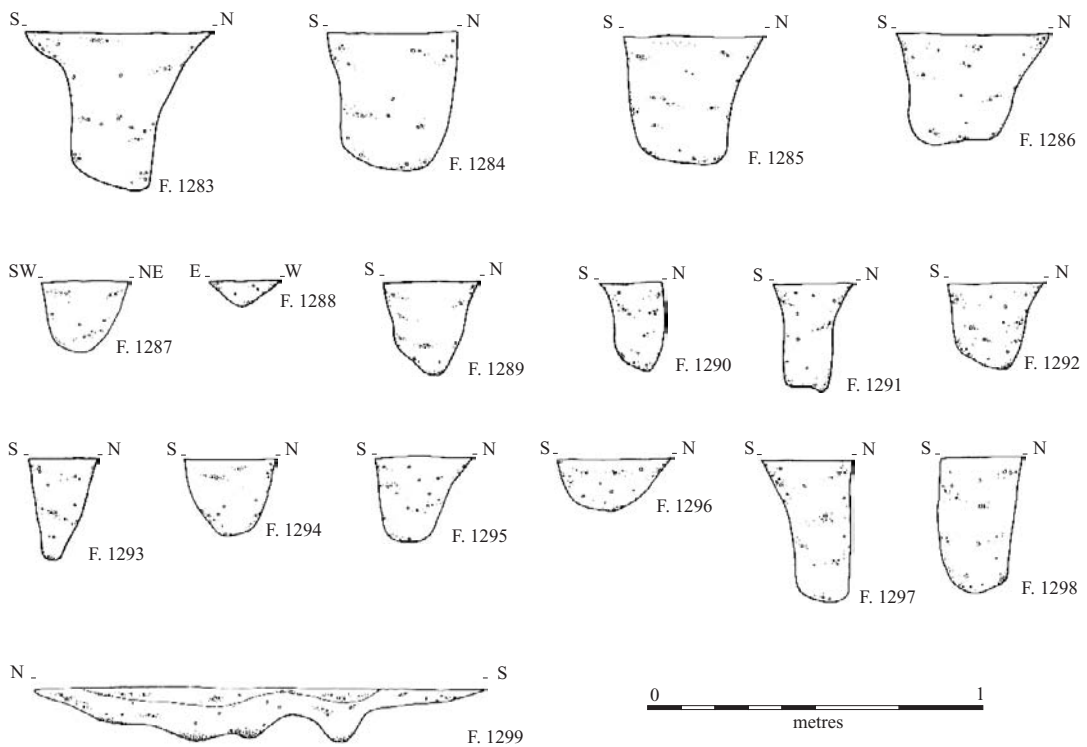
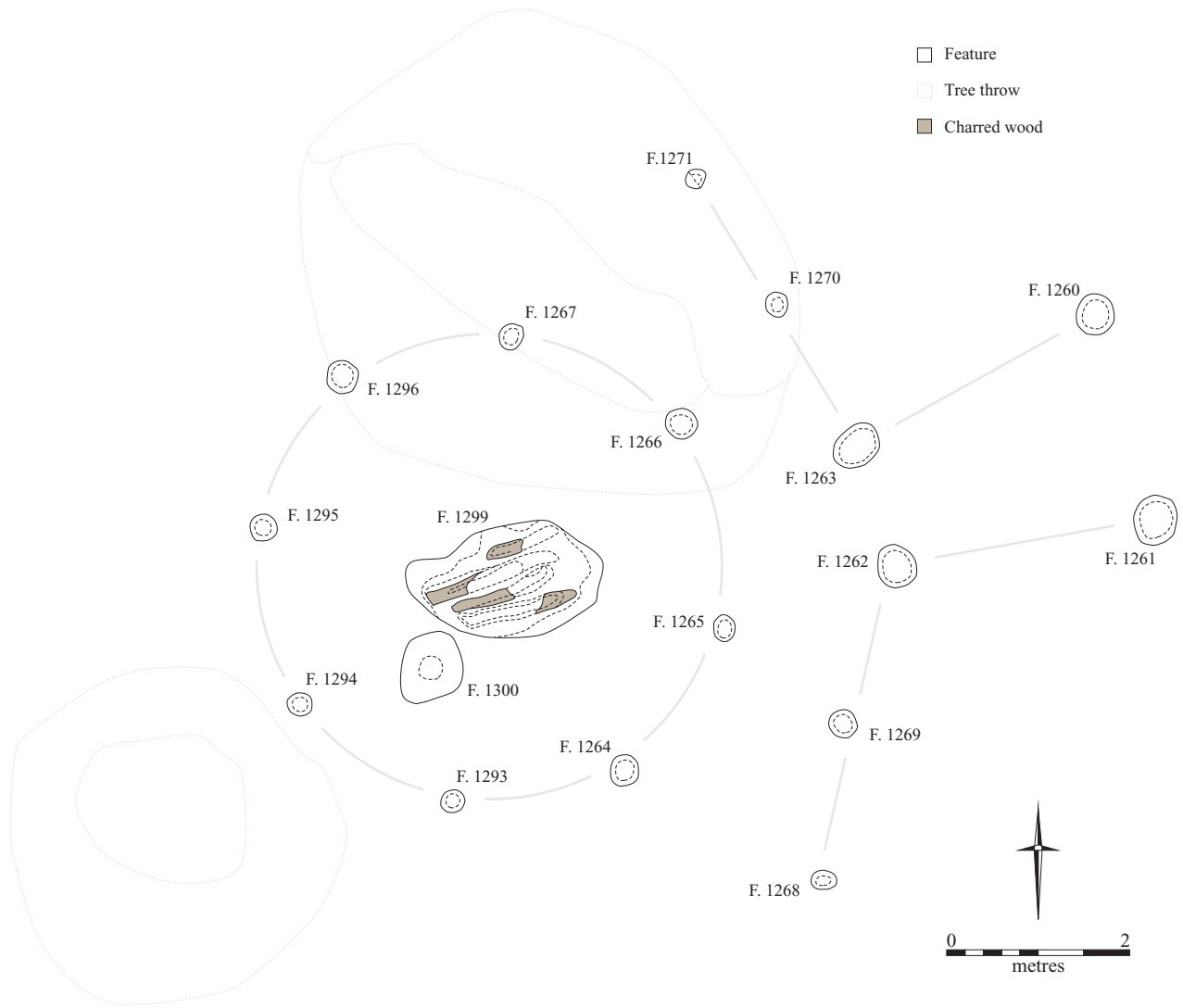


Figure 17. Roundhouse 5 - the Beaker settlement

The main circle had a diameter of 5.15m, was made up of eight small posts (diameter 0.24-0.33m) each spaced approximately 1.75m apart. The porch was oriented towards the east and constructed out of four large posts (diameter: 0.39-0.55m) arranged in a narrow funnel-like plan (3.00m in length; 2.50m wide at the front and 1.50m wide at the back). The façade was made up of four evenly spaced posts (1.75m apart) which formed a line spanning the back of the porch. The hearth (F.1299) comprised a large irregular hollow (2.00 x 1.25m; depth: 0.15m) with a corrugated base that held the remnants of four charred logs laid side by side. The adjacent pit (F.1300) was oval in plan (0.80 x 0.65m; depth: 0.18m) and filled only with mid grey sandy silt with occasional charcoal flecks.

All of the features were sealed by the peat horizon (including the charred logs that made up the hearth). Elements of the structure (postholes F.1287, F.1288, F.1296, F.1297 and F.1298) cut through the fill of a large tree-throw, F.1301.

Few artefacts were found in direct association with the structure (either within features or within the confines of its plan); postholes F.1286 and F.1298 produced single sherds of Beaker. In addition, two fragments from a fine incised Beaker, which matched the sherd recovered from F.1298, were recovered from between postholes F.1291 and F.1298 (SF 198). A small plano-convex knife was located between the hearth and its adjacent pit. A burnt flint and a piece of calcined bone came from the hearth. Worked flint was also found within the two tree-throws, **F.1301** and **F.1307** which pre-dated the round house.

	Posthole	Diameter (m)	Depth (m)
<i>Circle:</i>	F.1291	0.24	0.32
	F.1292	0.28	0.26
	F.1293	0.20	0.30
	F.1294	0.28	0.23
	F.1295	0.28	0.25
	F.1296	0.33	0.16
	F.1297	0.27	0.43
	F.1298	0.24	0.41
<i>Porch:</i>	F.1283	0.55	0.48
	F.1284	0.39	0.41
	F.1285	0.41	0.39
	F.1286	0.45	0.33
<i>Facade:</i>	F.1287	0.26	0.21
	F.1288	0.20	0.08
	F.1289	0.28	0.28
	F.1290	0.19	0.26

Table 12: Posthole dimensions

A small cluster of pits/postholes, **F.1280**, **F.1281** and **F.1282**, occupied a space 2.50m in front of the round house. These had similar fills to the postholes of the structure (light grey silty clay), although F.1280 had an additional peat-rich upper fill.

Away from the round house but sharing the same contour were two large pits, **F.1210** (east) and **F.1258** (west). F.1258 was oblong in plan (dim: 5.45 x 3.89m; depth: 0.41m) and contained a silt-rich fill sequence that was pale grey towards the base but dark brown at the top; in correspondence with the colour change the basal fill was

both abrasive and sandy, whereas the capping fill was peaty. None of the fills produced finds. However, at the base of F.1258 was a small circular pit/posthole **F.1259** (dia: 0.35m; depth: 0.27m), which stood out because of its dark brown silt fill. The feature had vertical sides with a V-shaped base and held within its confines three large slabs of Beaker pottery. F.1210 was smaller and rounder and had a stepped profile. Its fills were peat-rich and devoid of finds. Medium-sized Pits **F.1276** and **F.1279** also contained peaty fills.

Slighter pits/postholes with light grey silty clay fills were scattered between the 0.00 to -0.10m OD contour and included: **F.1183**, which had a pointed profile (dia: 0.32m; depth: 0.30m) and produced 55 sherds Beaker pottery; **F.1182**, which was steep-sided with a flat base (dia: 0.45m; depth: 0.22m) and produced 20 pieces of Food Vessel; **F.1184**, which had a U-shaped profile (dia: 0.59m; depth: 0.25m) and produced 10 abraded sherds of Early Bronze age pottery.

F.1184 was situated amongst a cluster of features including small pits and postholes, tree-throws and small irregular patches of buried soil which had been trapped in the various hollows that characterised the surrounding natural. As well as features, this space also produced large numbers of worked flint, the majority of which came from areas of surviving buried soil. For example **F.1257**, a small rectangular patch, produced 60 fragments of Late Neolithic/Early Bronze Age pottery, 12 pieces of burnt flint and six worked flints. The neighbouring tree-throw **F.1199**, had eight pieces of the same type of pottery.

Amongst the numerous spot-finds recovered from within and around this particular cluster were fragments from polished axes (SF 20 and SF 174), a complete leaf-shaped arrowhead (SF 65), and an 'unfinished' ovoid macehead (SF 49).

The Ditch and Bank

Ditch F.1181 (length: 89.9m) crossed the north-eastern end of the site on a northwest-southeast trajectory roughly following the -0.25m OD contour. In plan, the boundary was sinuous and in places included marked kinks or S-bends as if avoiding obstacles such as trees?. In contrast, the profile of the ditch was constant: steep-vertical sides with a flat base; 0.70-0.95m in width and 0.30-0.35m in depth. Similarly, its fills maintained a consistent sequence of edge/bank erosion material along its eastern edge and dark green-brown organic silts along its western edge. The two fills were clearly visible in plan and gave the ditch a two-tone surface appearance. Round wood twigs and small branches were found throughout its fills but no other artefacts were located. In total, five 1m wide slots (at 20m intervals) were excavated through this feature.

The bank was identified only in section and was situated on the eastern or down-slope side of the ditch. Its construction comprised a 'core' of brushwood (medium sized pieces of roundwood as well as small chips) capped by a thin and denuded dump of re-deposited natural (pale grey-green silty sand). In section, the two components stood out amongst an otherwise uninterrupted accumulation of peat. Importantly, a thin peat horizon had already formed prior to the construction of the bank, illustrating that the boundary was constructed within an already saturated environment. An insubstantial buried soil (0.04-0.12m thick) survived beneath the peat.

BRADLEY FEN FARM

Methodology

An auger survey was carried out prior to excavation to establish the underlying pre-peat topography of the proposed extraction area. Previous work at the Silt Lagoon to the south had identified a small rise or island replete with a preserved buried soil as well as Neolithic and Bronze Age features. The intention of the auger survey was to determine whether similar 'islands' existed to the north. Work at the Silt lagoon had established -0.25m OD contour as a significant archaeological benchmark with areas above this height containing significant archaeological deposits. The survey was carried out on a 100m grid employing a Dutch auger.

The survey proved successful in that it located a significant block above -0.25m OD as well as a potential island at or above sea level. Importantly the auger investigation demonstrated that the westernmost end of the proposed extraction area had the same archaeological potential as the Silt Lagoon.

The schedule of work involved a program of *Watching Brief A* wherever the pre-peat landscape reached above -0.30m OD. Areas below this level were designated as watching brief B zones which meant that the stripping of the overburden was unsupervised but nevertheless monitored on a daily bases.

As part of the overall sampling strategy blocks of buried soil were left *in situ*. These were divided into 1m squares and hand dug for artefacts. Similarly, blocks of peat were also left in situ especially around major features.

Machining of the site proved problematic in that interface between the base of the peat and the archaeological level was very uneven. The surface comprised a series of hollows and humps which marked the former position of fallen trees. In the process of machining 'bog oaks' were occasionally encountered.

Excavation Results

The stripped surface revealed a series of subtle contours of a landscape that dipped gently from west to east; a drop of 30cm over a distance of 150m (-0.10m to -0.40m OD). The subtlety of the contour was emphasised by a small kidney-shaped 'island' that rose above -0.10m and in places equalled sea level. The 'island' was situated towards the centre of the excavation immediately north of a shallow bowl or inlet that dropped below -0.30m.

The archaeology was sparse but nevertheless significant and the most dominant feature was a major Bronze Age boundary that traversed the entire site. More focused Bronze Age activity included a burnt mound, an *in situ* cremation or pit-pyre, and some watering holes. As background to the Bronze Age features both the buried soil and occasional tree-throws contained produced Neolithic material.

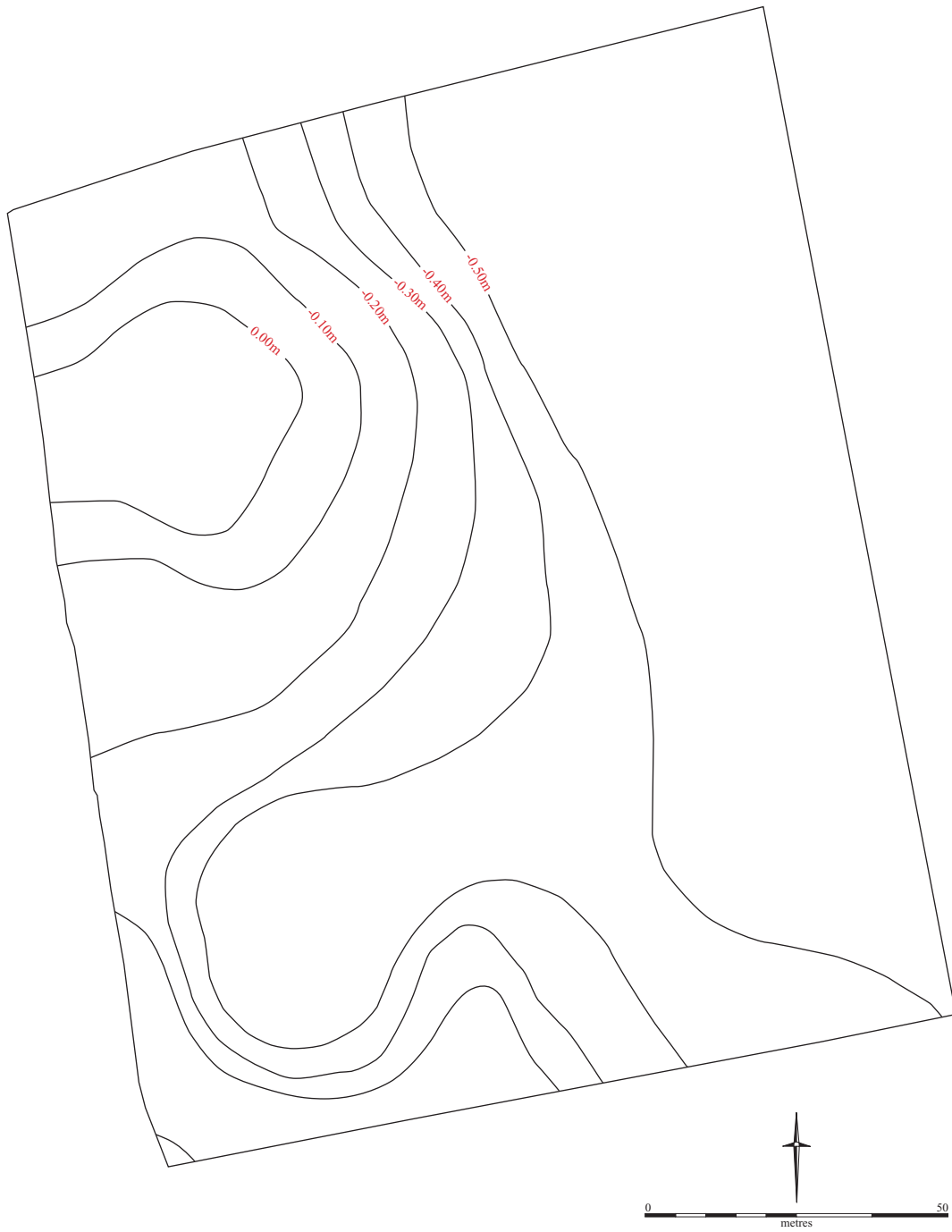


Figure 18. Auger survey results

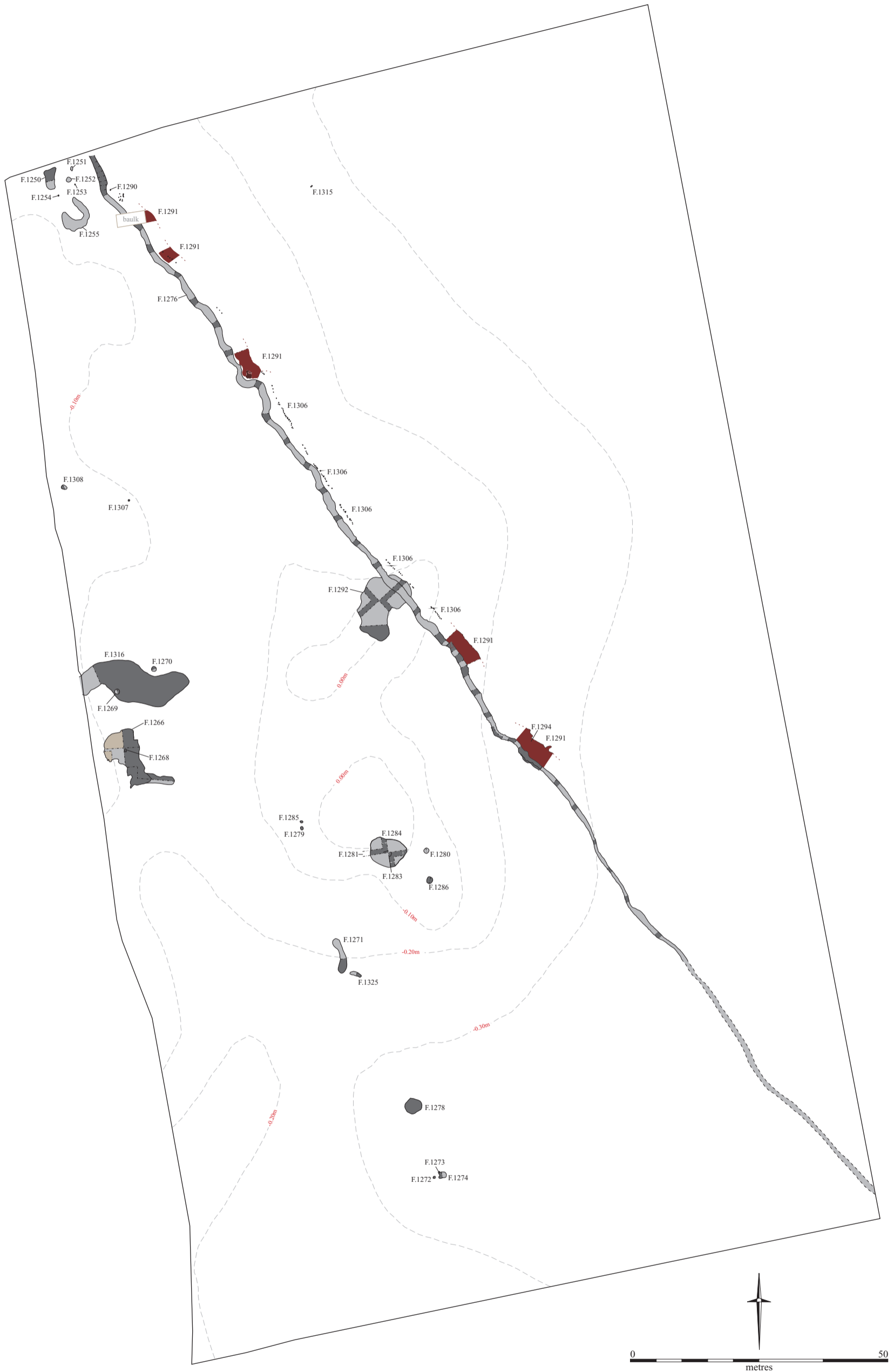


Figure 19. Bradley Fen Farm

Burnt Mound 4

BM 4, **F.1284**, was oval in plan, measured 7.00m in length and 5.50m in width and was up to 0.15m thick. It was situated upon a slight rise and above 0.10m thick buried soil. As with the three burnt mounds situated along the edge of the island, the composition of BM4 was dark grey to black (charcoal rich) sandy silt that included abundant fragments of burnt stone, flint and gravel as well as some un-burnt gravel.

Located beneath the centre of the mound but above the buried soil was a hearth, **F.1283**. It was also oval in plan (1.75 x 1.20m) and survived as a 0.08m deep hollow infilled with a mottled orange-yellow-grey ash deposit. The surface of the hollow was scorched, transforming the underlying buried soil from pale grey to red-orange. Outside of the hearth, the surface of the buried soil beneath the mound was pock-marked with small rounded hollows (*c.* 0.15m in diameter) that held pockets of the burnt mound material. These had the appearance of weathered or compacted hoof prints, perhaps partially obliterated by the creation of the mound.

The western edge of the mound was bordered by a crescent-shaped hollow, **F.1281** (3.75 x 0.95; depth 0.33m), infilled with pale grey sandy silt over a lower fill of sandy gravel that included flecks of charcoal as well as a single fragment of animal bone.

A few metres to the east and south east of the mound were two sub-circular pits, **F.1280** and **F.1286**, both of which were capped with peat. F.1280 was 0.85m in diameter and 0.38m deep, had a basal fill of light grey clayey silt and a U-shaped profile. F.1286 was over three times as deep as F.1280, and had a worn profile indicative of an 'open' feature. A broad weathering cone (1.50m in diameter) marked the top of the feature whilst the bottom was only 0.85m in diameter, had vertical sides and an irregular base. Its primary fill was blue sandy silt and included small twigs, wood chips, some fragments of bark and what appeared to be a small bundle of reeds. Above this deposit was a worked wooden stake which was engulfed by a 0.70m thick deposit of re-deposited natural. The uppermost fills consisted of light grey silt beneath peat.

In Situ Cremation

F.1279 was a small ovoid-shaped pit (0.54 x 0.41m) that stood out because of its dark grey silty sand fill and its heat reddened circumference. Small flecks of white calcined bone and occasional orange-stained (iron pan) lumps of charcoal added to the contrast of colours. At its base the matrix changed to a jumble of sizeable fragments of cremated bone mixed up with thirty-two burnt potsherds and some large pieces of charcoal. There was no obvious indication of articulated bone amongst the bone; many of the larger pieces fragmented further when lifted. The surfaces of the potsherds appeared iridescent and partially vitrified. Refitting demonstrated all 32 sherds belonged to a single, small Collared Urn that had probably been broken up by the cremation process.

The intensity of the pyre had also oxidised the upper profile of the pit making the vertical edges of the feature hard and ceramic-like. However, the flat base of the pit had not been transformed suggesting that the pyre had been located above the feature;

as the fire burned, pieces of expended fuel, calcined bone and vitrified pot dropped to the bottom of the pit. The pit was 0.18m deep.

Close by (*c.* 1m) was another ovoid-shaped pit, **F.1285**, which although similar in size (0.56 x 0.34m) did not have oxidised edges or contain a charcoal-rich backfill. It did contain a few small flecks of calcined bone along with a moderate amount of charcoal, but these inclusions were part of a matrix of dark grey sandy silt. The pit was 0.09m deep.

Watering Holes and Hoof Prints

Two substantial irregular hollows or watering holes (**F.1266** and **F.1292**) were located approximately forty metres to the north of BM 4. Both features were capped with peat and had silty clay fills which obscured compacted gravel surfaces that lined the bottoms of the two hollows.

F.1266 was 11.10m long, 6.80m wide and up to 0.28m deep. In plan, it was made up of a shallow and narrow 'pathway' that led to an elongated 'ramp' which in turn adjoined a large sub-circular hollow (diameter *c.* 6.00m). The pathway (5.25m in length, 1.80m in width and 0.03m in depth), ramp and hollow were all lined with the same compacted gravel surface. The southern end of the ramp which connected the pathway to the main hollow was disturbed by an irregular-shaped pit, **F.1282**, which cut part of the metallised surface. Close to the centre of the main hollow was a deep-set circular posthole, **F.1268** (diameter: 0.35m; depth: 0.58m), which cut through the metallised lining. It contained a fill sequence of grey silty sand under a peaty loam. A smaller companion posthole, **F.1267**, was located along its southern edge, which only had the grey silty sand fill.

The fringes of F.1266 were uneven but generally survived as a series of gentle slopes leading down to the base of the pit. In places, the sides were disturbed by hoof prints. All of the prints were cloven and many had spread into an open V-shape which appeared to reflect the weight of the animal descending down the side of the hollow. Some of the prints were up to 0.13m deep and most were remarkably sharp perhaps as a result of the plasticity of the clay-rich natural as well as the softness of the peat that filled the impressions. The hoof prints appeared to represent more than one kind of animal and included both large (length: 12cm; width: 12cm) and small (length: 4.5cm; width: 5cm) examples. The majority of the prints were longer than they were wide (72%) with the remainder having either an equal length-width (17%) ratio or a greater width to length (17%) ratio (see table). Some prints were identifiable as particular species and included cattle, pig and deer but not sheep. Similarly, walking patterns were also apparent with sets of prints entering and leaving the watering hole. Particular sets included double impressions of hoofs where the animal had stepped in its own prints.



Figure 20. Watering hole and hoof prints

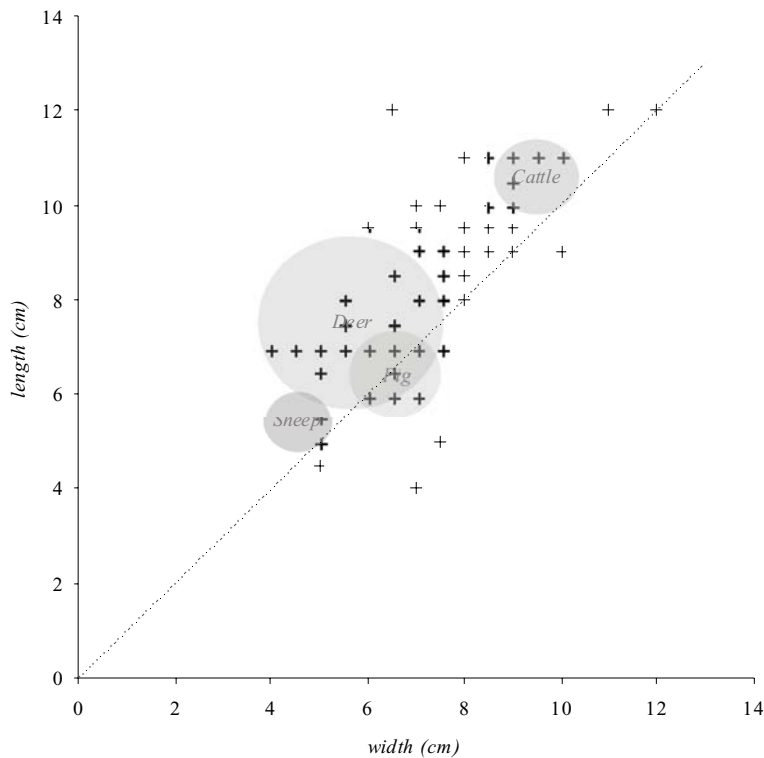


Chart 3: Hoof-print size distribution (based upon Bang and Dahlstrom 2001)

The irregular shape of F.1266 could be indicative of a natural feature although the metallised surface and central post demonstrates that the feature was deliberately maintained. The combination of animal prints (cattle, pigs and deer) and metallising also indicate that the hollow was visited frequently.

The second hollow, F.1296, was very similar in character to F.1266 but did not have quite the same intensity of hoof prints although the geology around F.1296 was hard and gravel-based and therefore less than ideal to retain prints. Importantly, whereas the eastern end of F.1296 appeared to respect, or stop short of the post-alignment **F.1306**, it was cut through by the main boundary ditch F.1296. The thin peat deposit that capped F.1296 had clearly already formed prior to the cutting of the ditch.

Fence-line and Brushwood Spread

Oriented northwest-southeast, **F.1306** was an extended (350m in length) but interrupted line of small posts accompanied by an equally long linear spread of brushwood. The northern half of its line mirrored the -0.15m contour whilst the southern half crossed the deeper inlet following close to the -0.25m contour. Generally the boundary marked a division between the low ground to the east (less than -0.25m OD) and the high ground to the west (greater than -0.25m OD).



Figure 21. Fence-line, bank and ditch

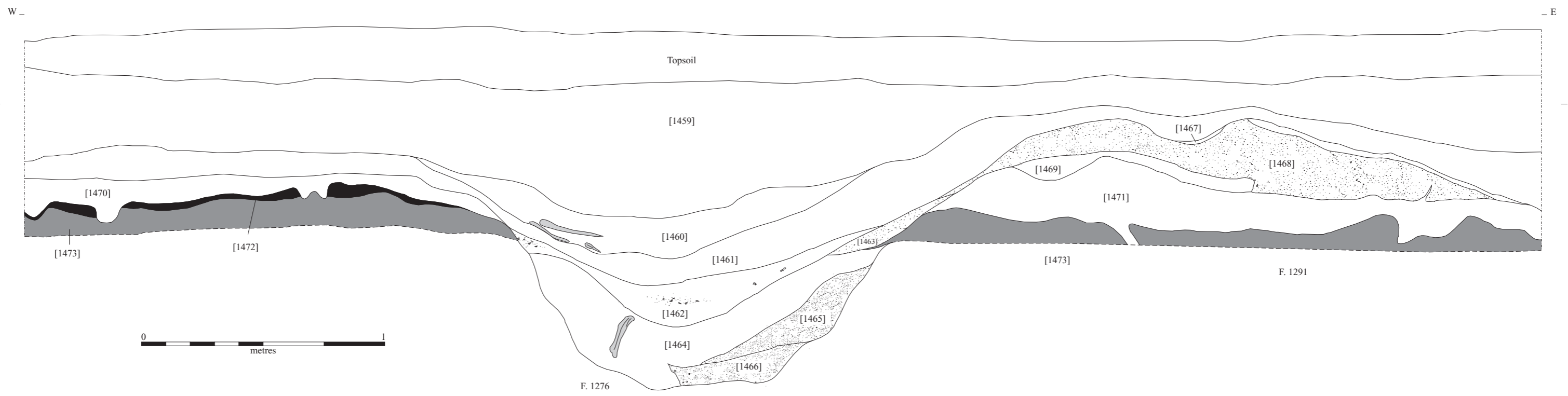


Figure 22. Section through bank and ditch

The alignment consisted of a single line of irregularly spaced posts (minimum 0.09m apart) which survived in short strands of up to 9.96m. The gaps between strands measured anywhere between 2.17m and 13.71m. The many breaks in the post line could be explained by truncation but importantly some of the breaks also occurred within areas of good preservation such as beneath stretches of the subsequent bank.

The posts were round (9-12cm) and many still had their bark. All had simple sharpened points which had been driven into the ground (rather than set within pre-dug postholes) and within the confines of the surviving bank some posts still stood to a height of 0.34m and had been broken off at the top.

The actual line of the fence was less than straight and combined with the interruptions this sinuousness gave the fence line a make-shift appearance. The addition of piles of brushwood along its line only served to enhance this impression with the best preserved stretches existing as a line of irregularly spaced uprights bestrewn with broken branches, pieces of bark and small wood working chippings. Small tree-stumps occasionally added to this 'mess', and Maisie Taylor has suggested that some of the smaller stumps were the result of willow branches re-sprouting.

The relationship between the brushwood and the posts was important because it also helped to demonstrate the relationship between the posts and the first formation of peat. On numerous occasions elements of the brushwood spread could be seen to be caught against or wrapped around the uprights and although the spread was too chaotic or higgledy-piggledy to suggest that the larger branches had once been woven around or between the posts as part of a hurdle or wattle fence it is possible that something less organised may have once existed. As well as abutting the uprights the spread also overlaid a thin (3cm) horizon of peat indicating that the fence had been erected through an area that was at least seasonally saturated.

The extent of the brushwood spread would appear to have been roughly equivalent to the combined width of the subsequent bank and ditch (4.62m). Careful excavation demonstrated that the brushwood scatter did occasionally extend beyond the tail of the bank but more often stopped short, whilst the ditch cut through its western edge and the spread was never observed to extend beyond the ditch.

Bank (F.1291) and Ditch (F.1276)

The fence line and brushwood spread were superseded by the construction of an earthen bank and ditch. The bank and ditch followed approximately the line of the fence although there was enough of a deviation to demonstrate the imposition of one type of boundary construction over another, and if anything, the line of the later boundary was even more sinuous than that of the original boundary.

What was immediately apparent was that the ditch was the source (and only source) of material for the construction of the bank. Every single section through the bank demonstrated it to be a clear inversion of the natural exposed within the edges of the ditch; i.e. where the ditch cut through a clay-rich area the bank was made up of clay and where it encountered gravel then the bank would be gravelly also. Unlike the fence, the bank and ditch boundary was without breaks or gaps.

The ditch had steep-vertical sides and a flat base (0.70-0.95m in width and 0.30-0.35m in depth). In section the bank had a profile very similar to a profile of a wing with the leading edge being on the ditch side. The top had been flattened and compacted and some sections had a single U-shaped runnel or furrow running along its centre which also had a compacted surface.

Some sections of the bank had been heavily disturbed by tree roots and these were machined down to the underlying deposits. Beyond these areas of disturbance, the best sections of the bank were left *in situ*. One of these sections also contained the stump of a tree which appeared to be 'contemporary' with the bank. Its relationship was made obvious by the route of the accompanying ditch which had been dug around the tree. A kink in the line of the ditch could be related to an *in situ* obstacle suggesting that the other twists and turns in the course of this boundary were related to standing trees.

In places, the outer edge of the ditch was heavily disturbed and instead of having a vertical profile it had a trampled or trodden appearance similar to the edges of the nearby watering holes. The steeper profile of the ditch made this 'poaching' appear more exaggerated but nevertheless it seemed obvious that it had been caused by animal hoofs. Very occasionally the inside edge also had hoof prints and the direction of these demonstrated animals trying to climb up the bank from inside the ditch. Elsewhere more prints were recorded along the base of the ditch. It would appear that like the nearby hollows the ditch also served as a water source.

The fill of the ditch maintained a consistent sequence of bank erosion material along its inner eastern edge and dark green-brown organic silts along its western edge. As was recorded in the Silt Lagoon excavations the two fills were also visible in plan giving the ditch surface a two-tone effect. Round wood twigs and small branches were found at the base of its fills but otherwise artefacts were extremely rare. A single bird bone (Mallard) and a flake from a polished greenstone axe represent the finds.

Pit F.1278

The deepest feature **F.1278** was a large circular pit (2.80m in diameter and 1.30m in depth). It had a broad open profile indicative of a feature that had been exposed or weathered. Its base contained black organic silts (0.20m deep) which covered a waterlogged deposit that looked like animal dung. Pieces of bark and wood were also present within the basal fill as was a single piece of Middle Bronze Age pottery and two pieces of burnt flint. Further materials were recovered from a sequence of deposits located against the northern side of the pit and included another fifty-five pieces of animal bone, seven pieces of pottery and four pieces of worked flint. The seven sherds appeared to have come from the same vessel yet came from different contexts within the northern 'slump' making it possible that the northern deposits occurred in close succession prior to the slower build up on the southern side. The capping fill of the pit was close in texture to the peaty capping fill of the pit F.1286 located immediately east of BM 4.

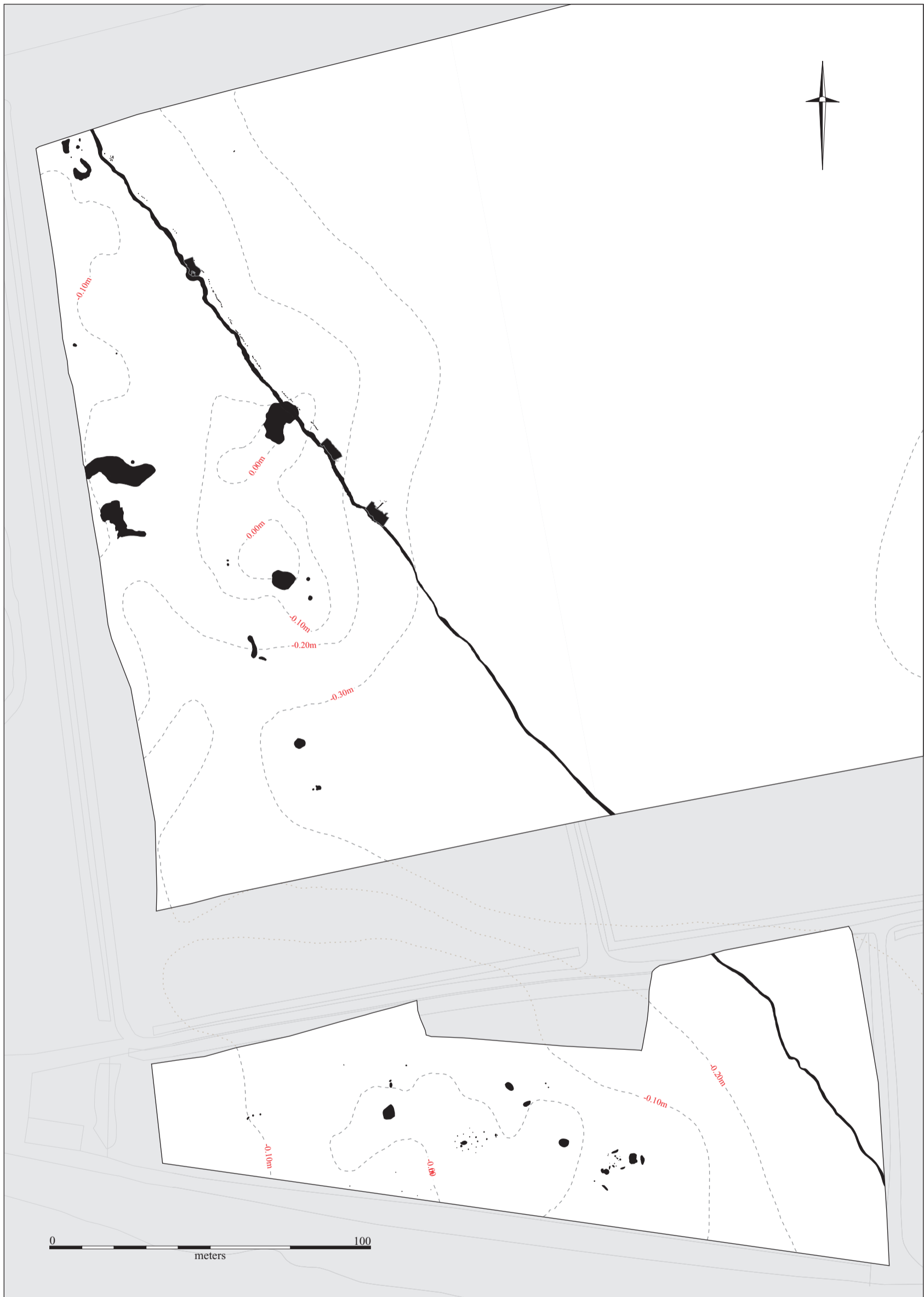


Figure 23. Bradley Fen Farm and Silt Lagoon combined

DISCUSSION

The extensive excavations on the edges of the Flag Fen Basin undertaken over the last 30 years rarely ventured below the 1.20m contour which had been considered to represent the Bronze Age Fen-edge. The later Flag Fen investigations did reach deeper parts of the basin (*c.* 0.00m OD), though this was mostly within the confines of small trenches centred on the ‘forest’ of timbers belonging to the post-alignment. Of the 23.4 hectares uncovered by the Bradley Fen investigations, 17.9 hectares (76%) were located beneath the 1.20m OD contour: nearly 18 hectares of previously un-investigated landscape.

Starting at Zero

The Flag Fen Basin was previously a dry inhabitable plain surrounded by the subtle uplands of Eye to the north, Peterborough and Stanground to the west, King’s Delph to the south, and the island of Whittlesey, and its peninsula Northey, to the east. The lowest parts of the basin are thought to have become waterlogged at the beginning of the Bronze Age (French 2001) and by the end of the Iron Age the basin had been all but subsumed by a thick accumulation of peat.

The temporality of the Bradley Fen landscape can therefore be measured against the accretion of peat. Features can be situated historically by their position relative to this peat horizon, and at the same time they can be located spatially within either dry or wet landscapes. The extent and diachronic character of the peat makes it an important bench mark in understanding the history of this landscape. The transformation of what was once a *dry plain* into *mere* is the story of Bradley Fen.

Bradley Fen’s pre-peat topography was a stepped terrain of *basin* and *island* that combined the south-eastern margins of the Flag Fen Basin and the western edge of Whittlesey Island. These terrains differed in form and in texture, with the basin being essentially a flat silt-rich expanse and the island a steep gravel-rich bank. The step between basin and island was by fen-edge standards quite impressive with the top of the island reaching nearly four metres above sea level, whilst the bottom of the basin went as deep as half a metre below sea level. Within the basin there were subtle contour changes that included a slight incline towards its centre where diminutive islands rose to sea level.

Both terrains retained areas of buried soil, but these had only survived within the highest parts of the basin (above -0.30m OD) or the lowest parts of the island (below 3.00m OD). The buried soil in the basin was thin and survived as an intact brown soil profile (French and Scaife 2004) whilst by comparison the buried soil along the island’s edge was thick, but nevertheless truncated (French 2001). Across both zones the buried soil was always patchy, although much of this patchiness was related to specific areas of erosion, such as that caused by pathways and entrances, or to specific areas of protection such as surviving earthworks. Occasionally, patches of buried soil survived in areas without any obvious protection at all.



Figure 24. Bradley Fen profile

Overall, the Bradley Fen landscape represents a broad transect across the south-eastern shoreline of the Flag Fen embayment and in this sense stands direct comparison with the opposing shoreline otherwise known as Fengate.

In both cases, there is a sense of island edge and basin and with the steady accumulation of peat that eventually subsumed these profiles a sense of a diminishing landscape. The archaeology of these spaces represents a material testimony to the loss of the lower contours accompanied by the inevitable retreat of occupation towards the higher ground.

The idea of a retreating occupation, however, doesn't adequately reflect the material evidence, as at different times there appeared to be a deliberate engagement with the encroaching peat. The actual character of this engagement was rarely consistent, except perhaps when the pace of the inundation slowed down enough to bring a sense of stability. Indeed, the speed of the inundation would not necessarily have seemed consistent as early on, even a small rise in the water table would have consumed large stretches of the lower broadly-spaced contours very quickly, whereas later, a similar rise would have had comparatively little effect on the higher closely-spaced contours. Depending on the interval of contours (widely spaced or close) the process of saturation and subsequent transformation could have appeared at one time very dramatic and at another barely perceptible. The subtlety of the contours of the *basin* demonstrate that large parts of it had the potential to 'disappear' almost before the eyes whilst at the *island* edge the change might have been no more than a couple of centimetres difference in a lifetime (Charly French pers comm.).

Thus, perhaps the best place to start any description or discussion of the Bradley Fen landscape is, like the peat, at the bottom. This way, we too can generate a sense of historical sequence. Of course, the earliest features were not necessarily situated along the lowest contours (indeed there is plenty of evidence for early activity much higher up the contour), but in considering sequence it is important to relate things to the changing character of the landscape.

Hearths, Houses and Burnt Stone Mounds

Within the Bradley Fen transect, the *basin* and *island* were separated by a broad inlet or embayment that dropped to a depth of -0.50m OD and was located between the -0.30m contour. In this gap there was no buried soil and no archaeological deposits.

A buried soil horizon was identified, however, above -0.30m contour and archaeological features and artefacts were located at or above -0.25m OD on the *basin* side of the inlet or embayment. There appeared to be a direct correspondence between areas with buried soil and areas with archaeology.

The buried soil within the basin had a distinctive profile indicative of woodland. It also produced fragments of Neolithic pottery as well as a substantial assemblage of worked flint indicating a 4th/3rd millennia background which occasionally found its way into the many tree-throw features which pock-marked the basin.

In contrast, Late Neolithic/Early Bronze Age (specifically ‘domestic’ Beaker) activity was represented by a small concentration of clear-cut features that included a roundhouse (2200-1940 cal BC; all dates are shown at 95.4% probability) that was also accompanied by a surface scatter. The unequivocal character of the Bradley Fen house makes it quite exceptional both regionally and nationally. The tiny number of published examples of early ‘structures’ found in East Anglia appear to include a probable burnt mound at Hockwold-cum-Wilton (Bamford 1982), a Late Bronze Age ‘type’ building with tentative Beaker associations at Site 11, Fengate (Pryor 1993), and a pre-mound post-ring at Chippenham Barrow 5 (Gibson 1980). A singular comparative example was excavated at Sutton Hoo which, like the Bradley Fen structure, had a symmetrical plan, a central hearth and a strong Beaker association (Hummler 1993). Outside of the region it seems there are even fewer convincing examples (see Bradley 1993). The Hockwold-cum-Wilton example bore a remarkable resemblance to the burnt mound situated *c.* 100m north of the Bradley Fen house (even down to the centrally located hearth).

The two barrows excavated at King’s Dyke West contained Beaker ‘type’ central burials and the largest barrow was constructed close to the entrance of a small henge, which although not firmly dated provided a *terminus ante quem* of the Early Bronze Age by a large assemblage of Collared Urn located within its uppermost fills. Otherwise, the Beaker imprint within the Bradley Fen landscape was thin but nevertheless striking with the distribution of the house and barrows (separated by just over 1km) being indicative of the scale and character of Beaker-related occupation. The opposing shoreline of the basin produced a similar thinness with just occasional domestic/settlement related features being recorded (Pryor 2001).

The early radiocarbon date associated with Burnt Mound 2 (2100-2030 cal BC) situates it potentially within the same time frame as the house and barrow and introduces another facet to the Late Neolithic/Early Bronze Age landscape. Its shoreline or island edge situation also placed it within the catchment of a series of small metalled surfaces above which survived accumulations of both Neolithic and Early Bronze Age flint working debris.

Burnt Mound	Calibrated Radiocarbon Age (95.4% probability)
1	1740-1520 BC
2	2100-2030 BC
3	1740-1520 BC
4	1930-1690 BC

Table 14: Burnt Mound C14.

All of the Bradley Fen burnt mounds were radiocarbon dated to the first half of the second millennium BC (using charcoal from the burnt matrix of each mound). BM 1 and BM 3 produced exactly the same date, which was significantly later than the date obtained for BM 2. Morphologically, however, the three island edge mounds were very alike and shared very similar material histories which included, for instance, the deposition of parts of log ladders (in BM 1 and BM 2), tree-stumps (in BM 2 and BM 3) and disarticulated human bone (in BM 1 and BM 2). Similarly, the mounds were situated in a evenly-spaced chain separated by gaps of between 50-70m and along the same contour (at or about 0.75m OD). The extended radiocarbon time frame perhaps reflects the accumulative character of the mounds themselves and future dating of

shared features such as the central hearths, for example, may help to refine the chronology.

Given the regularity and close spacing of the mounds it is perhaps surprising that others have yet to be discovered around the edges of the Flag Fen basin, although the apparent lack could be accounted for by the limited amount of excavation below the 1.20m contour. The Bradley Fen transect revealed a line of three burnt mounds within the space of 340m, and there is every reason to believe that further burnt mounds of similar spacing existed both north and south of the site. In fact, given the average spacing of 60m between mounds, it is very likely that the 'next' mounds are located either side of the transect.

A survey of 'pot-boiler' or burnt flint spreads along the eastern edge of the Wissey Embayment in Suffolk located over three-hundred features stretched out over a distance of about 19km suggesting an average spacing (63m) directly comparable to Bradley Fen (Silvester 1991). These spreads were located as dispersed/ploughed surface signatures that measured around 28m in diameter, making them at least twice as big as the excavated Bradley Fen examples. Although Silvester suggests that very few were ever actually exaggerated mounds they were still identifiable as discrete but important entities. A significant difference between the eastern fen-edge spreads and the Bradley Fen mounds was the type of material used in their formation, with the former being predominantly burnt flint and the latter burnt stone. This difference could simply be about availability of material with the numerous worked flint scatters associated with the eastern edge providing ample amounts of ready available flint for burning. By comparison, the western edge and the Flag Fen basin in particular have always been 'quiet' in terms of surface scatters (as well as being geographically further away from known flint sources). The few dates associated with the eastern 'pot-boiler sites' indicate a similar period of activity (2340-1910 & 2350-1700 cal BC from Mildenhall, Suffolk; Murphy 1984; 2410-1970 cal BC from Lackford Bridge, Suffolk; Silvester 1991).

Circles, Cremations and Urns

A small circle of postholes located close to the top of Whittlesey Island produced a modest assemblage of Collared Urn pottery. Close by, a group of irregular-shaped pits also contained some fragments, and combined, the circle and pits demonstrated a slight but localised focus. To the south, at a distance of about 75m was a complete Collared Urn, buried upright and containing cremated human bone, and 125m to the north was another pit. The feature contained an assemblage similar to the pits that accompanied the circle. Down in the basin a single *in situ* pit-pyre produced incinerated fragments of a small Collared Urn. The adjacent King's Dyke excavation identified a similar localised focus which included another small circle, as well as a flat cemetery and a significant deposit of occupation related debris caught in the top of the southern arc of an adjacent henge monument. Along the Fengate shoreline the frequency of Early Bronze Age features can at best be described as being dotted or sporadic rather than focused.

The two small circles from Bradley Fen and King's Dyke differed a little in character (the former being almost twice the diameter of the latter for example), but appear to

represent a 'type' as similar circles have been excavated at Charnham Lane Berkshire (Ford 1991) and at Pantymenyn and Yr Allor in Wales (Kirk et al. 2000).

The extended histories of the burnt mounds, and adjacent watering hollows locate these features within the same landscape as the Collared Urn features. Likewise the trampled hollows situated in the basin were probably contemporary and when put together, this assemblage of activities must be seen as an actual expression of both the form and, perhaps more importantly, the scale of earlier Bronze Age occupation around the eastern edge of the Flag Fen Basin. The secondary relationship of the Collared Urn cremation cemetery to the established barrows witnessed at King's Dyke, along with the 'midden' deposit caught in the relic henge, can be read as 'token' deposits inserted into the extended histories of pre-existing landscape features. Similarly, the *in situ* pit-pyre located close to or behind the burnt mound (BM 4) inside the basin could also be seen in the same way. These particular kinds of material relationships express the different temporalities between the 'monumental' (hengings, barrows and burnt mounds) and the 'occupational' (postholes, pits and isolated burials).

Boundaries, Fields and Hoof Prints

In comparison to the Fengate fieldsystem, Bradley Fen's island-edge layout seems far less complicated. Absent are the distinctive droveways, double-ditched boundaries and regular paddocks, but instead the system comprised a simple series of parallel boundaries that faintly delineated long linear field strips aligned diagonally across the edge of the island. Apart from the main island edge boundary the ditches were also much smaller and fragmentary, so much so that parts of the system seemed hardly marked out at all. Part of the fragmentary appearance could be put down to truncation, especially as the system survived at its best beneath areas where the overburden was at its thickest, although there were shallow parts of the site where diminutive posthole structures survived immediately next to supposedly 'truncated' boundaries. Several of the fields were only partially bounded by archaeologically visible boundaries and parts of the fields may have been made visible by changes in texture (i.e. a freshly ploughed strip along side a fallow strip etc.). Occasional short breaks in the system also belonged to recognisable entranceways, as denoted by patches of metallurgy which transgressed the line of the boundary or the location of previously upstanding banks.

The fieldsystem combined two different alignments either side of the main island edge boundary, whilst the Fengate system comprised a single universal orientation. At Fengate the predominant influence on the alignment would appear to have been the fen-edge (and therefore topographical) with all the major axial boundaries being oriented perpendicular to its line.

At Bradley Fen there appeared to be influences other than the fen-edge, and these can be seen primarily in the orientation of a group of monuments situated on the top of the island at King's Dyke West, and consequently by the alignment of the elongated 'ranch' boundary situated out in the basin (both adopted a strong northwest-southeast orientation). Thus, it appears that the layout of the Bradley Fen fields was influenced by two different pre-existing forces, one essentially historical and the other topographical. The historical influence appears to have been the greater, with the

topographical influence only being exerted where the system reached the island/fen-edge.

Dating the Fieldsystem

The visible boundaries of the Bradley Fen fieldsystem were constructed towards the beginning of the Bronze Age (c. 1600 BC). By the Early Iron Age the lowest parts of the system had been subsumed by peat growth whilst much of the rest of the system was ignored as new settlements were being constructed over the line of previous boundaries. The pre-Iron Age chronology of the system can also be demonstrated by a series of crucial relationships that suggest that the ditches and banks had a currency of around 800 years:

- 1) *Major parts of the system post-dated the metalled surfaces that consolidated the ground in and around the burnt mounds, two of which provided dates of 1740-1520 Cal BC.*
- 2) *Excavation of analogous boundaries along the western side of the Northey peninsula showed them to post-date an Early Bronze Age ring-ditch.*
- 3) *The wooden fence-line that immediately predated the ditch and bank belonging to the basin boundary appears to have been erected sometime between 1690-1320 Cal BC.*
- 4) *Metalwork was deposited along the edges of the saturated lower fields sometime between 1390-940 Cal BC.*
- 5) *A small round house that occupied the corner of one of the higher fields produced a date of 900-790 Cal BC.*

Three of the burnt mounds were enclosed by the fieldsystem and two of these were located exactly in the centre of island edge fields (BM 1 in Field 17 and BM 3 in Field 19). This relationship suggests a degree of contemporaneity or at least overlap between the two types of mounds and the fieldsystem. As well as both being centrally situated, these mounds also generated parallel radiocarbon results (1740-1520 cal BC), whilst the noticeably off-centre burnt mound (BM 2 in Field 18) provided a much earlier date (2100-2030 cal BC).

The date of the fence-post located beneath the basin bank and ditch may actually represent the beginning of a fieldsystem as manifested by built boundaries as opposed to a fieldsystem previously manifested by changes in texture.

Perhaps the most significant element of the Bradley Fen fieldsystem was the elongated boundary located in the Flag Fen Basin. Previous excavations around the embayment had posited that the enclosed landscape never reached beyond its edges and that the basin was essentially left open for seasonal pasture (Pryor 2001). The many droveways of the Fengate system were interpreted as animal routes between areas of upland or winter grazing and areas of lowland summer grazing and that the intervening fields were in fact a series of holding paddocks. The 1m contour was thought to correspond closely to the Bronze Age fen-edge because the fields and droveways terminated at or about this line. The existence of a major linear inside the basin represents a different kind of enclosure or landscape division. This feature had at least two phases. It began as a slightly rickety fence, but with the onset of the first peat was reinvented as a substantial bank and ditch. The fence-line was erected in the Middle Bronze Age (a post produced a C14 date of 1690-1320 Cal BC) and its replacement bank and ditch were constructed quite soon afterwards judging by the intervening peat accumulation.

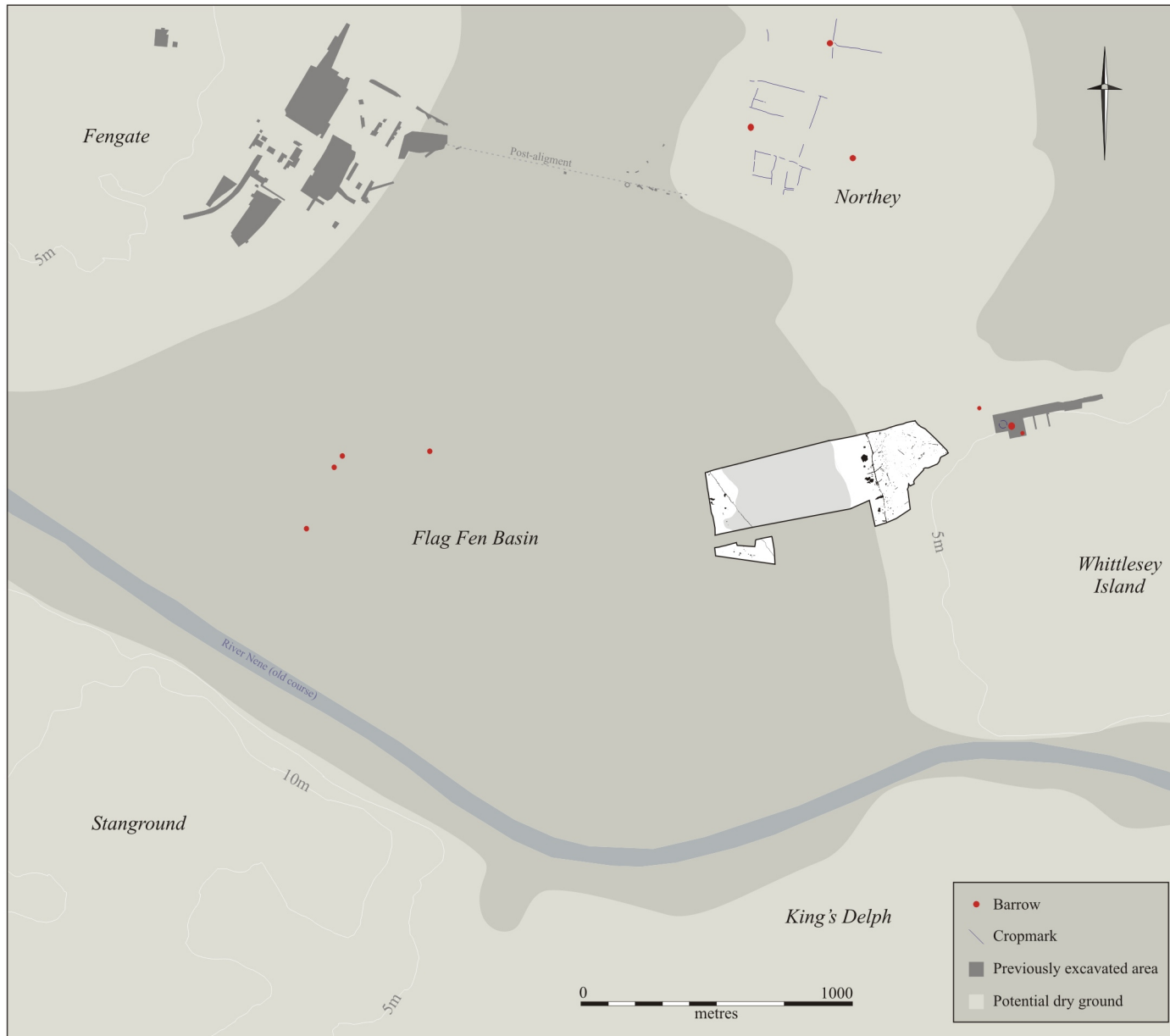


Figure 25. Bradley Fen excavations in relation to Flag Fen Basin

The kinks and bends, especially in the bank and ditch phase of the boundary, mark it out as being different from the uniformly straight Fengate boundaries and sets up an important contrast which can be seen as reflecting the different kinds of landscapes these features were constructed in. As also corroborated by the buried soil profile (French and Scaife 2004), the basin boundary was constructed through woodland - hence its sinuous course, whereas the comparatively arrow-straight Fengate ditches suggest that they were constructed within a landscape that had been cleared of such impediments. It is perhaps worth noting at this point that the main island edge boundary of the Bradley Fen system contained occasional kinks or swerves where the boundary changed course to go around what appeared to be tree-size encumbrances.

Hoof prints were a major feature of the archaeology recorded within the basin. Prints were identified especially around the shallow watering hollows, and along the ditch-side of the ditch and bank, but also occasionally close to the fence-line, as well as beneath the burnt mound. All of the prints belonged to cloven-hoofed animals and the majority were made by large ungulates (probably cattle). Smaller prints belonging to pigs and deer were also recognised. The propensity of cattle corresponds with the faunal remains found within Bronze Age features both within the basin and up on the island with cattle representing 86% of the sampled collection (11.4% pig, 1.6% sheep and 0.8% deer). The placement of the boundary along the western edge of the shallow inlet or embayment that separated the island from the higher contours of the basin could be seen as way of keeping herds within an area of woodland grazing but away from the adjacent and increasingly wet inlet or embayment.

The idea of herds of animals frequenting the basin either permanently or on a seasonal basis fits Pryor's model (1999), although it appears that the animals in question were predominantly cattle not sheep. Indeed, the later Bronze Age faunal record for sites such as Newark Road (Pryor 1980) produced similar percentages of cattle (86%) and sheep (11%) to Bradley Fen. Similar field patterns located along the Ouse Valley also produced similar percentages with the Barleycroft Paddocks site also having 86% cattle against 14% sheep (Evans and Knight 1998).

Burial and Deposal of Human Remains

Human bone was recovered from across the site and included both articulated and disarticulated pieces. Cremated bone was also located but this was restricted to two *in situ* pit-pyres and a single urn burial. The un-calcined bone came mostly from settlement features (postholes, watering holes, rubbish pits etc) although a single 'crouched' burial was found in a grave-shaped feature.

Two of the three cremation contexts were associated with semi-complete Collared Urns and it is very likely that the third was also Early Bronze Age in date. All of these were found as 'isolated' features (i.e. separate from cemeteries or burial mounds) and as such demonstrate that earlier Bronze Age burial practices were not always elaborated upon by the construction of barrows or that they needn't be situated next to existing monuments. The big 'empty' spaces between these features points towards an extensive but nevertheless frequent distribution. Whilst examples of *in situ* pit-pyres elsewhere in the county were found beneath the centre of complex monuments (see Butchers Rise Ring-ditches - Evans & Knight 1998; and Over Barrow I - Evans et al

forthcoming), the lack of embellishment above the Bradley Fen examples introduces an interesting contrast.

Articulated human skeletons included an incredibly contorted individual buried in the abandoned posthole of a four-post structure and an inverted and bound body dumped head-first down a 'disused' well. Skull fragments and other disarticulated pieces were also found in association with the swathe of Early/Middle Iron Age settlement features but also further down the contour on top of the metallised surfaces (scapula), inside the large watering holes which accompanied the burnt mounds (skull fragments and semi-articulated pieces), close to the hoard (skull fragments) or even just out in the basin above a thin accumulation of peat (ulna). The mixing of disarticulated fragments of human bone and occupation deposits is not unusual in later Bronze Age contexts (see Bruck 1999).

Metalwork, Peat and the Flag Fen Basin

The metalwork comprised six individual spears and a single hoard of twenty pieces and all of it was deposited above a thin accumulation of peat (*c.* 2cm) alongside the boundaries of the island-edge fields. A single line of three spears mirrored the line of an existing boundary, suggesting that despite the accumulation the field banks were at least still visible. The spears were complete and seemed to have been deposited singularly; two retained fragments of hafts including one which was found stuck point-first in the ground. The hoard comprised a mix of damaged or incomplete spears, swords, ferrules and chape fragments and was put next to the base of a tree (?) close to a major junction in the fieldsystem. This spot had also attracted the deposition of other objects such as two fragmented saddle querns, three fragments of human skull and an antler.

The metalwork has been attributed to the Wilberton phase and this was confirmed by the C14 dating (Appleby 2005). A sample of peat from beneath the hoard produced a date of (1300-1010 Cal BC) and another from inside one of the hoard spears generated a similar result (1390-1120 Cal BC). A piece of haft from one of the spears was slightly later (1260-940 Cal BC) indicating that the two kinds of deposition may also have been chronologically distinct. Significantly, the radiocarbon bracket 1390-940 cal BC bares a remarkable correspondence with the major phases of construction and subsequent maintenance of the Flag Fen post-alignment where similar acts of metalwork deposition occurred. The number of Late Bronze Age pieces from Bradley Fen (26) matches very closely the number from the Power Station excavations (Pryor 2001).

As well as relating to the to fields, the spears also had a similar spacing as the burnt mounds suggesting, as with the mounds, that more metalwork is located to the north and south of the site. Indeed, a sword and rapier were found during quarrying at the nearby Must Farm pit 750m to the south (Pryor 1978) and another spear and sword were recovered slightly further away during dredging near to Horsey Toll Bridge (Hall 1987 & CBA Group 7 Bulletin 11). The relationship between burnt mounds and metalwork is spatial rather than temporal and a parallel spatial connection has previously been identified along the fen-edge of the Wissey Embayment where mounds and metalwork were found in the same relationship (Silvestor 1991).

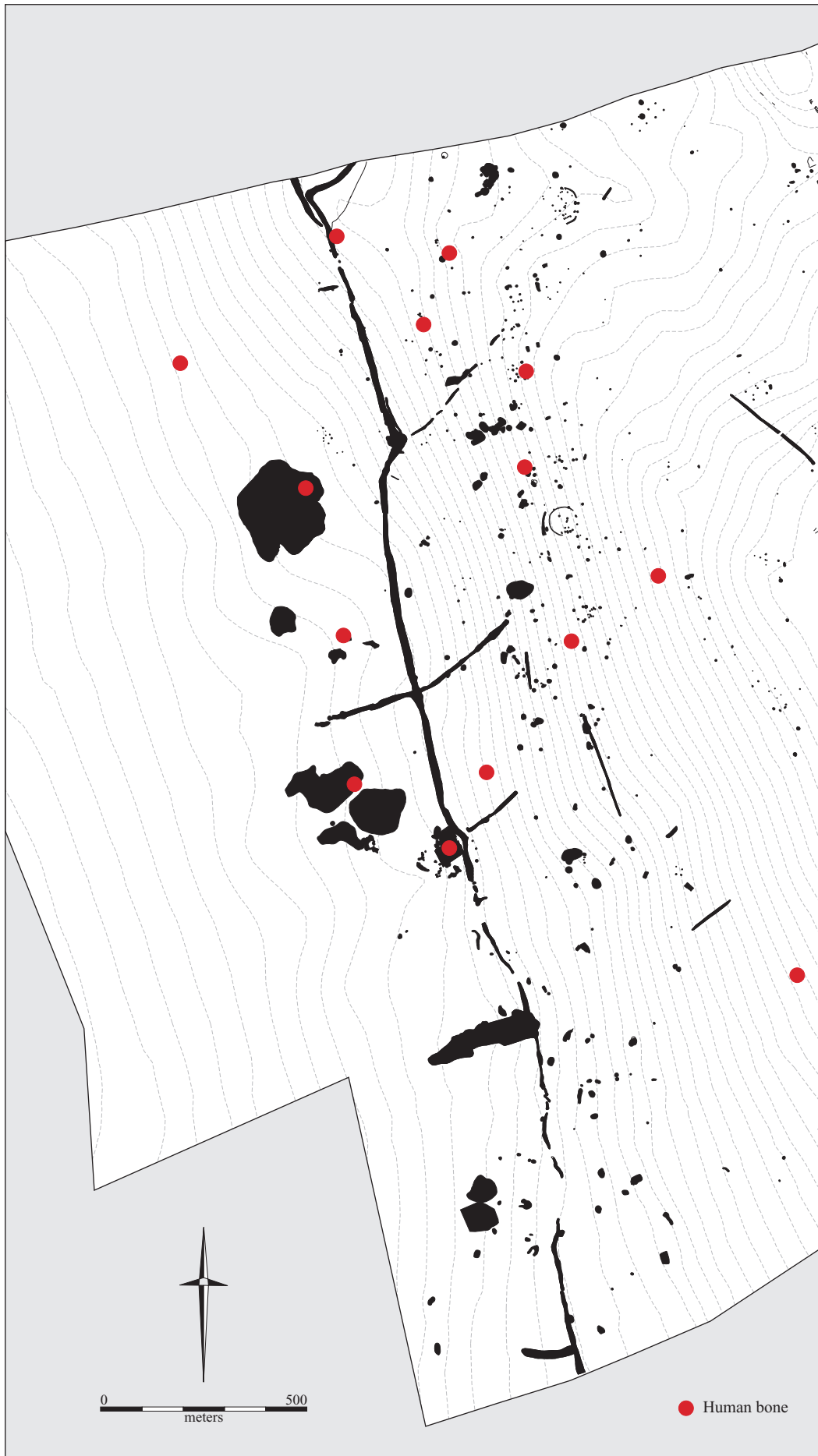


Figure 26. Locations of human remains



Figure 27. Location of Late Bronze Age metalwork around the Flag Fen Basin

The most important attribute of the metalwork was its spatial relationship to the fields expressing a connection between land tenure and weapon deposition. What's more, the distribution would appear to represent individual acts as opposed to communal performances (as was put forward for the Flag Fen post-alignment; Pryor 2001). This interpretation does not necessarily exclude the possibility that these individual acts were still 'public' or conspicuous (Bradley 1998). By contrast, the 'destroyed' collection of weapons contained within the hoard may well represent the result of communal action especially as its location was prominent by comparison.

It is possible, however, that the relationship between the metalwork and the Flag Fen post-alignment may have been slightly exaggerated especially as the excavation focus was directed at the point where the posts met the edge of the fieldsystem. It is possible that if the excavations had expanded its scope away from the timbers further pieces may have been located in close association with Fengate fieldsystem instead.

Bradley Fen and the Power Station excavations represent the only two major exposures of the Late Bronze Age Flag Fen Basin edge and on both occasions numerous pieces of metalwork were found. The 'chance' finds recovered during non-archaeological works at Must Farm and Horsey Toll Bridge represent the only other intrusions into the edge suggesting that the entire circumference of the Flag Fen basin may be subject to similar acts of deposition towards the end of the Bronze Age. If this is right, there remains the possibility that a significant quantity of spears and swords were deposited around its perimeter.

Inhabiting Enclosure

The first settlement architecture unambiguously associated with the fieldsystem comprised a single roundhouse (Structure 1) and possible ancillary structure (comprising an irregular array of posts) situated together at the western end of Field 6. The house was built with a symmetrical arrangement of small posts and accompanied by a small rectangular pit replete with a small assemblage of plain Post-Deverel-Rimbury or Late Bronze Age pottery and a spindle whorl. Charcoal from one of its postholes was dated to 900-790 cal BC, generating a probable *terminus ante quem* for its construction. As a singular 'definitive' roundhouse amongst a block of 'empty' fields it bears a strong resemblance to the Newark Road site in its similar isolation. It is also interesting that within the Bradley Fen transect there was only a single Beaker related house and only one Collared Urn related structure, and perhaps this is telling us something about the scale of occupation, be it pre or post-fieldsystem. By the Late Bronze Age, of the 23.4 ha exposed by the excavations only 5.5ha were above the peat horizon and therefore suitable for occupation. At nearby Eye, a single house was identified within 11.3ha of Bronze age fieldsystem. Further afield, the seemingly roundhouse-rich fields or reaves of the Holne Moor fieldsystems on Dartmoor contained a house every 4ha (Fleming 1988).

Watering holes or wells with Deverel-Rimbury pottery were found dotted around the system as was a possible pair of four-post structures (FP 1 & 2) that unlike the other four-posters did not produce Early Iron Age material. As a pair of features they were also oriented parallel to the edge of Field 2. Otherwise, the fields appeared devoid of substantial occupation. The ditches themselves were artefactually poor and there were

never any discrete deposits to indicate adjacent or ditch-side inhabitation (i.e. burnt stone deposits, charcoal lenses, articulated animal bone etc.).

Settlement which included houses with post-rings, porch structures and internal features such as clay lined pits and sheep burials had a very different relationship to the fieldsystem. The new buildings were accompanied by clusters of pits, multiple four-post structures and as a group these features formed a narrow band that transgressed the existing field boundaries but respected the encroaching fen-edge. By the time these houses were built the lower parts of the fieldsystem had disappeared beneath the peat which now reached the 1.30m OD contour. This relationship was demonstrated by plotting features which contained Early or Middle Iron Age pottery as well as features that shared crucible fragments or slag or just had fills that were closer in texture to peat than to the surrounding buried soil. Once plotted the pits, postholes and gullies created *c.* 40m wide swathe of occupation that not only bordered the limits of the peat but also stayed below the 2.50m OD contour. In places the pits formed slightly linear arrangements which hinted at new boundaries being organised perpendicular to the new fen-edge whilst the four-post structures were oriented parallel to this limit and the houses faced away.

The imposition of earlier Iron Age settlement over the fieldsystem mirrors a relationship previously identified at the Catswater Excavations (Pryor 1984). This association throws up two possible interpretations: 1) that the fields were no longer visible by the beginning of the 1st millennia BC or 2) that the boundaries had lost their 'authority' and were deliberately transgressed. Either way the demise of the fieldsystems was marked initially by 'open' settlement whose economy was no longer dependent on major land division.

Time, Space and Scale – an Archaeology of the Spaces In-between

The 'total' landscape view, offered by the Bradley Fen investigations, provided an opportunity to explore prehistoric process rather than prehistoric palimpsest. Bradley Fen was never a series of phases but it was always a series of relationships where things could transgress, replicate, ignore, respect, slight, acknowledge or even perceive the existence of each other. A key component of this kind of approach is the recognition of the spaces in-between things - that is trying to develop ways of understanding the relationship between different features that make up prehistoric landscapes by also describing the spaces (both spatial and temporal) between them. The excavations at Bradley Fen did not just focus on individual 'sites' (houses, burnt mounds, pit-clusters, watering holes, fieldsystems etc.) but also on the gaps in-between. If a feature is isolated then that is the way to understand its relationship; that is where our description should begin. An archaeology of the spaces in-between should make us think about the material ties between things and how these inform our understanding of the different temporalities of the features we excavate. By adopting this attitude features are allowed a kind of historical currency (however brief or drawn out they might be) and these currencies could overlap with each other.

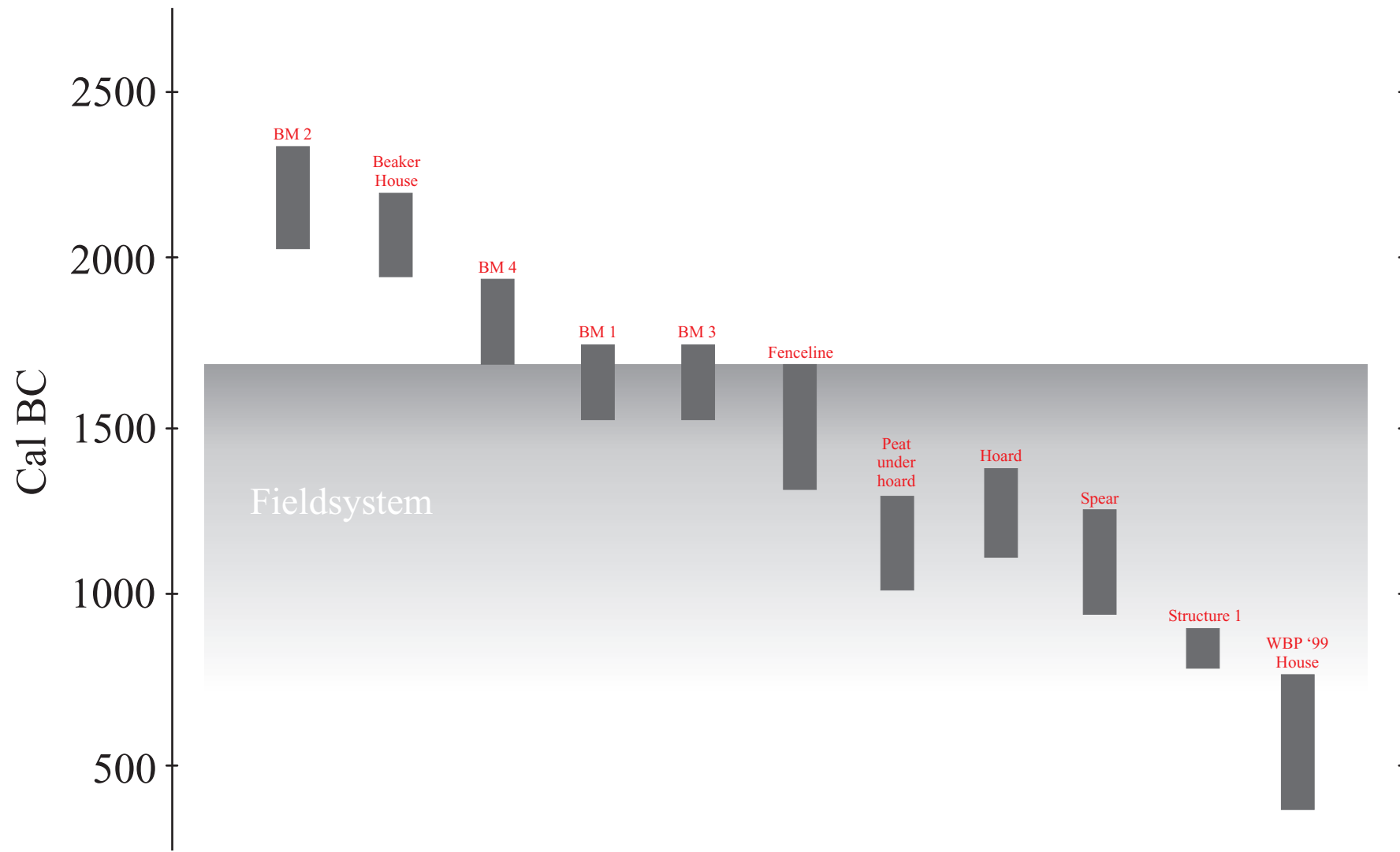


Figure 28. C14 dates for Bradley Fen (includes fieldsystem bracket)

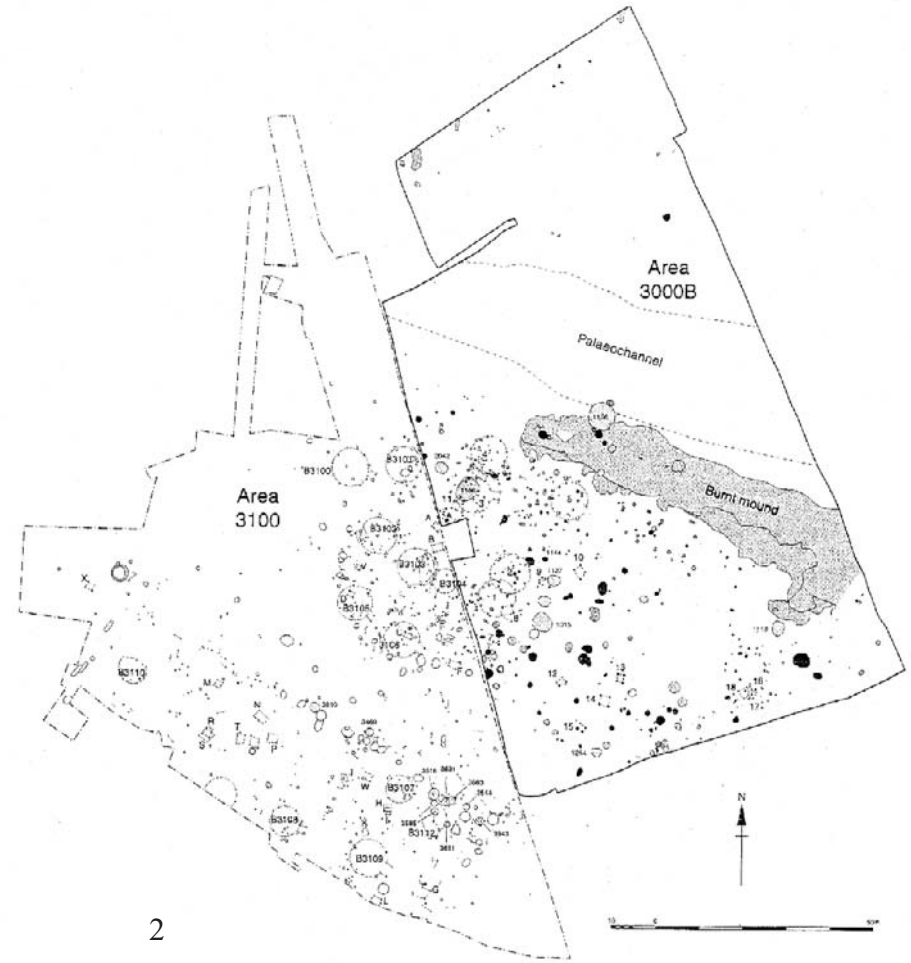
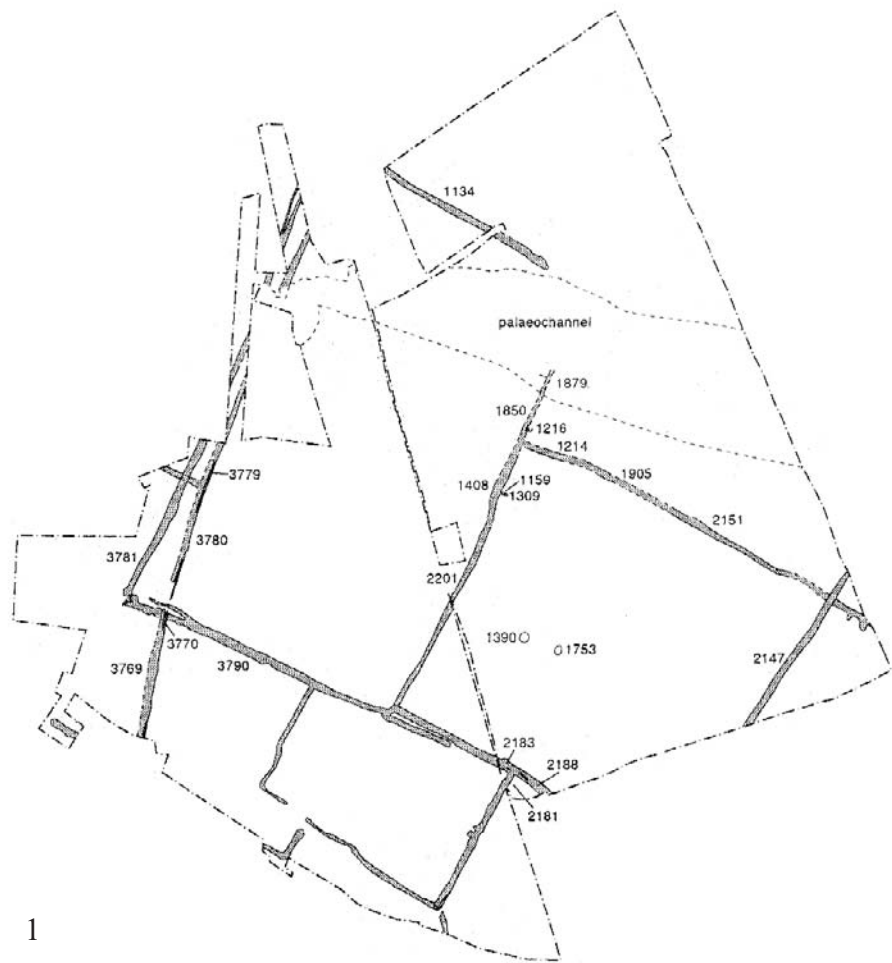


Figure 29. 'Phased' Reading Business Park; 1. Middle Bronze Age, 2. Late Bronze Age

Sites such as Reading Business Park (Brossler 2001) have been represented as a series of phased plans broken down into categories such as Middle and Late Bronze Age. At one time a landscape of fields, whilst at another time, a landscape of houses, pits and burnt mounds. Yet in the plan of the Late Bronze Age you can still 'see' the Middle Bronze Age boundaries, there are groups of features which apparently respect non-existing features. At Bradley Fen we have attempted to accentuate the opposite by privileging process over palimpsest and history over chronology.

As with the peat, the prehistoric fieldsystem uncovered at Bradley Fen represented a landscape scale feature that could be used as a spatial/temporal bench mark. Other features could be situated historically by their relationship *to* the system and things situated in very different parts of the site could be related to each other through their particular relationship with the fieldsystem. The Bradley Fen excavations were about understanding these kinds of relationships and in particular the dynamic between two landscape scale features – the peat and the fields.

STATEMENT OF POTENTIAL

This detailed assessment report has outlined the significance of the Bradley Fen excavations both at regional and national level. The results have demonstrated the potential of the Bradley Fen Excavation, particularly with reference to the Bronze Age through to Early Iron Age periods and the publication will focus on these periods. The recommendations for each artefact and ecofact category are listed within the relevant appendices.

The proposal is to publish prehistoric results of this volume with the earlier excavations at Kings Dyke West (Gibson and Knight 2002). The monograph is provisionally proposed at 145,000 words and is detailed below.

Publication Structure

Chapter 1 Project background, topography and prehistoric settlement themes

Structure

1. Introduction to the area via basic description of view from air
2. Models of Landscape change from 4th -1st millennium BC, specifically contrast between the Neolithic/Early Bronze Age and the Middle Bronze Age/Iron Age
3. Scales of analysis Local -v- Regional – v National
4. Bucket sampling/Augering
5. Evaluations/Geophysics

15,000 words c. 10 drawings + 5 photos

Chapter 2 Neolithic and Early Bronze Age activity

Structure

1. Mesolithic background
2. Neolithic environmental background
Henge
models of landscape occupation
pits
3. EBA Important Beaker structure
Collared Urn settlement activity including Burnt mounds
mortuary activity Barrows description of excavation and EBA phases in detail
Discussion landscape setting of monuments and regional comparison

25,000 words c. 25 drawings + 5 photos

Chapter 3 Middle Bronze Age activity

Structure

1. MBA Fieldsystem

15,000 words c. 10 drawings + 5 photos

Chapter 4 Late Bronze Age activity

Structure Settlement spaces
 Roundhouses
 Ancillary structures
 Metalwork deposition

25,000 words c. 30 drawings + 15 photos

Chapter 5 Early Iron Age activity

Structure Settlement
 Roundhouses
 Ancillary structures
 Pit deposits

15,000 words c. 10 drawings + 5 photos

Chapter 6 Discussion

20,000 words c. 15 drawings + 10 photos

Chapter 7 Appendices

30,000 words c. 30 drawings + 5 photos

Task	Month 1	Month 2	Month 3	Month 4	Month 5	Month 6	Month 7	Month 8	Month 9	Month 10	Month 11	Month 12	Month 13	Month 14	Month 15	Month 16	Month 17	Month 18	Month 19	Month 20	Month 21	Month 22
Phase 1																						
Begin Project																						
Project set up & pre-analysis tasks																						
Phase 2																						
Finds Analysis																						
Palaeo-environmental analysis																						
Radiocarbon																						
Phase 3																						
Prepare synthesis																						
Phase 4																						
Prepare Draft Publication Text																						
Submit draft report for approval (referees)																						
Finalise Publication Text																						
Archive finalisation and deposition																						
Overall management and liaison																						

Table 15 Summary Gantt chart for master programme

Specialists' Reports

Lithic Assemblage (M. Edmonds)

Fieldwork at Bradley Fen resulted in the recovery of 825 pieces of flaked stone, almost all of it flint, together with 898g of burnt flint, much of which showed signs of working prior to exposure to heat. This assessment offers a preliminary characterisation of the nature and likely chronology of the material from different areas identified during fieldwork, describing and discussing each of these in turn. It should be stressed that the assemblages have yet to be studied in full; no quantitative or metrical analyses have been undertaken, nor detailed investigation of patterning at various spatial scales.

The Silt Lagoon

Comprising c.40% of the total assemblage, the flaked stone from the area of the silt lagoon contained material indicative of varied technologies and a broad chronological range. In raw material terms, the overwhelming majority of the worked stone was flint, reflecting the use of stone from both primary (chalk) and secondary (gravels) sources. The only exceptions to this are three flakes of a fine grained volcanic stone, each of which retains evidence for grinding and/or polishing on their dorsal surfaces (SF20, SF43 & SF174). While these have only been characterised macroscopically, all three are likely to be Epidotised Tuff, recognised archaeologically as Group VI, which outcrops in the central Fells of Cumbria (Clough & Cummins 1979; Bradley & Edmonds 1993). The form of these flakes is consistent with their removal from stone axes, which were the principal products of this source.

The character of the formal retouched tools confirms a broad chronology for the material from the silt lagoon. The earliest horizon represented is likely to be the earlier fourth millennium, attested by the presence of a snapped but finely flaked leaf-shaped arrowhead (SF65). Though made across a broad range in the Neolithic, these projectile forms dominate the inventories of Earlier Neolithic assemblages (Green 1980). A similar date may also be inferred for two serrated or micro-denticulated blades/narrow flakes (SF36 & SF51), and for a small number of single platform (A1) cores (e.g. SF34 from F. 338) which have many parallels on earlier Neolithic sites in the region (e.g. Clark *et al* 1960). A presence at this time is also suggested by the character of a significant percentage of the debitage. Secondary and tertiary flakes dominate the assemblage as a whole, and amongst these, there are many which can be characterised as blades or more or less parallel sided narrow flakes which are products of systematic core reduction strategies. There are even two crested blades (e.g. one from F.1184) which are themselves indicative of a controlled and structured approach to flaking. Such pieces are common in later Mesolithic and Earlier Neolithic assemblages, and while some of the material here may date to the former period, the absence of diagnostic tool forms (e.g. microlithis) in the immediate area suggests that the latter is more likely. That said, it is perhaps significant that the assemblage does not include all of the forms that are usually found in earlier fourth millennium assemblages, among them laurel leaves and endscrapers, themselves made on blades or narrow flakes.

Later activity in the immediate area is suggested by the presence of other diagnostic artefacts. These include sub-circular (SF38, SF68) and thumbnail scrapers (SF183) and two plano-convex knives with extensive scalar unifacial flaking on their dorsal surfaces (SF40 & SF201). Such pieces are common in Later and final Neolithic assemblages, commonly associated with Grooved Ware or with Beaker. Also common in such contexts are larger flakes and blades and a wide range of knives with scalar unifacial or bifacial flaking. These are also represented here, made almost exclusively on chalk flint, the majority also showing signs of concerted use (e.g. SF182 and a bifacially flaked 'foliate' knife SF54). The large size of these pieces and the extent of retouching that they exhibit is related, in part at least, to raw materials. It may be that they reflect the use of larger and more homogeneous material derived from primary chalk contexts which becomes a more common feature during the later part of the Neolithic in the region.

A similar date may also be inferred for an ovoid macehead (SF49), which appears to have been abandoned during manufacture. Made on a dense and fine grained sandstone with some inclusions, the piece is heavily leached and stained. However, dense areas of pecking can be seen at either end of the piece and to a more limited extent on the sides, with incomplete 'hourglass' perforations on top and bottom. One of these perforations is significantly deeper than the other and it is interesting that they are not particularly well aligned. Though not strictly diagnostic in themselves, the remainder of the assemblage, comprising irregular secondary and tertiary flakes may well date to a similar horizon. These appear to have been generated during the latter stages of core reduction or tool manufacture; indeed, there is little evidence for primary production on site, suggesting that material may have been brought into the immediate area in a prepared or semi prepared state.

The burnt flint assemblage from the silt lagoon contains a significant quantity of stone that had been worked prior to burning. This includes tools such as scrapers and retouched flakes, along with core fragments and unmodified nodular fragments. Interestingly, many of the burnt tools do not appear to have been subjected to the intense and repeated heating seen on nodular fragments. This suggests that while some of the burnt fraction reflects the use of 'lumps' as pot boilers, other material was burnt in other contexts, perhaps incidentally, before being deposited.

Tree Throw F.424

Associated with significant quantities of Peterborough Ware, this assemblage consists almost entirely of artefacts made from (secondary) gravels flint. Here again, secondary and tertiary flakes dominate, a few more 'blade-like' pieces showing signs of use and/or limited retouch. One of these, a long secondary blade, retains evidence for serration/micro-denticulation on one lateral edge (from [385a]), and there is also a somewhat irregular end and sidescraper and fragments of irregular cores. While the assemblage is relatively small, there is nothing here that would not be expected in a context with these ceramic associations.

Collared Urn Structure

This assemblage of 13 pieces is too small to allow detailed quantitative analysis. It comprises mostly irregular secondary and tertiary flakes of indeterminate technology, together with an irregular core fragment (from F.653) and a large tertiary thinning flake (from F.687). Interestingly, both chalk and gravels flint are represented, offering a parallel to the range seen in the silt lagoon and a contrast to the tree throw contexts.

Metalled Surface

The material collected from the putative metalled surface offers a basis for comparison with the assemblage from the silt lagoon. Here again, chalk and gravels flints are present, as is evidence for a variety in core reduction strategies. A more structured and most likely earlier approach to working is reflected in the frost damaged A1 core from F1052 (SF256). Blades and narrow flakes reflecting a similar approach are also present, albeit in small numbers, and are likely to be Earlier Neolithic in date, as is the leaf shaped arrowhead that appears to have been broken during manufacture (SF100). A somewhat later date is suggested by the more irregular secondary and tertiary flakes, and by a thumbnail scraper.

What is interesting about this assemblage is the character of the bulk of the debitage. This is skewed heavily towards small tertiary flakes, most likely a product of the final stages of tool working or core reduction. Many of these are made on a dark brown, translucent flint, and it is possible that some at least may refit. The small size of these flakes raises the possibility that the structure of the assemblage might be in part a product of (fluvial) size sorting. That said, there are larger pieces, including irregular core fragments, and it is suggested here that close analysis of spatial patterning will be needed to adjudicate on whether or not this assemblage reflects in situ working, dumping or the more protracted accumulation of material.

Cut features across the project area

A review of material recovered from surfaces and cut features across the development area reveals an even longer chronology. The earliest pieces identified include a long, heavily patinated and retouched

blade (from F.1227), which would not look out of place in the Earlier Mesolithic. This seems fairly isolated, and rare by comparison with the Later Mesolithic. This horizon is represented by at least two microliths (from F1041 & 1046) and a number of small and finely prepared tertiary blades, many of them heavily patinated. The Earlier Neolithic is also evident, in the form of a fine leaf shaped arrowhead from F.554, which was found in direct association with a ‘typical’ Earlier Neolithic endscraper. Another arrowhead fragment was also identified (in F480 [433a]). In this case however, the fragment is so small that it may equally be part of a later form. A second endscraper (from F225) and a burnt class A1 core from F320[249] may also date to this time, though it is worth noting that similar cores were also being worked in the later Mesolithic.

Echoing the patterns seen in the silt lagoon, a later or final Neolithic horizon is once again reflected in a significant volume of irregular cores and secondary/tertiary flakes, by the presence of both chalk and gravels flint, and by specific artefact categories. These include plano-convex knives (from F1148[1262b]) and a barbed and tabged arrowhead (SF1) from the surface of the enclosure ditch. Thumbnails scrapers from F1121 and F902 may also date to this horizon, as may many of the more irregular scrapers that are the most common tool category in the assemblage as a whole. Also present are a number of larger flakes (on chalk flint) with blade like proportions and evidence for extensive use along their lateral edges.

Once again, it is also interesting to note what is *not* present in the assemblage. Given the overall chronology/duration of activities in the area, it is significant that there is relatively little in the way of diagnostic flintwork from the Middle/Later Bronze Age. Though stone use certainly continued throughout (and beyond) this time, these phases generally witness a significant decline in the structure of procurement and flaking traditions (Edmonds 1995). This makes recognition difficult and for that reason, we should allow that later second or early first millennium stonework is represented amongst the more irregular waste flakes and shattered core fragments. However, the virtual absence of borers, crude denticulates and other forms suggest that in this immediate area at least, the relative absence of workable raw materials placed constraints upon the extent of stone use. Material ‘kicking around’ and ready to hand, including older discarded artefacts may well have been picked up and re-used. However, there is little evidence to suggest the existence of structured acquisition of stone from further afield at this time.

Prehistoric Pottery: Bradley Fen 2001

The Bradley fen excavations 2001 produced 1662 sherds of pottery. The assemblage comprised 93.6% prehistoric pottery (Neolithic through to Middle Iron Age) and 6.4% historic pottery (Roman and Saxon). The report has been separated into four groups: Neolithic & Bronze Age (Mark Knight), Iron Age (Leo Webley), Roman (Katie Anderson) and Saxon (Jess Tipper).

	No. of sherds	Weight	MSW
Neolithic/Bronze Age	749 (45.0%)	6098g (40.2%)	8.1g
Iron Age	806 (48.5%)	7121g (47.0%)	8.8g
Roman	63 (3.8%)	1356g (8.9%)	21.5g
Saxon	44 (2.6%)	601g (3.9%)	13.6g
<i>Totals:</i>	<i>1662</i>	<i>15176g</i>	<i>9.3g</i>

Table 16: Overall assemblage breakdown

Neolithic and Bronze Age (M. Knight)

The Neolithic and Bronze Age assemblage consisted of 749 sherds (weighing 6098g) recovered from 92 separate contexts. The condition of the material varied between large well preserved pieces replete with surface residues through to small abraded fragments without their original surfaces. On the whole however, the state of the

assemblage can be described as good. Fabric analysis identified 17 different types appropriate to Neolithic and Bronze Age wares (see series), a total of 129 feature sherds were present including 53 rim, 14 shoulder and 8 base fragments. Decoration occurred on 54 pieces.

The assemblage produced diagnostic sherds belonging to Plain bowl Neolithic, Peterborough Ware, Beaker, Collared Urn, Deverel-Rimbury and Post-Deverel-Rimbury wares as well as multiple generic Bronze Age pieces (as identified by fabric).

Neolithic Plain Bowl

Over 140 thick-walled ‘corky’ sherds were recovered from three separate contexts (F.242, F.280 and F.978) and included rim and shoulder fragments but no base angles. The rims comprised simple and out-turned with the former belonging to a slightly flared carinated form and the latter a simple neutral form. The ‘corky’ fabric attested to a dissolved organic opening material (probably shell). Judging by the size and thickness of the sherds the vessels were large (c. 30cm in diameter) and, with the absence of any decorated pieces, plain.

Feature	Context	Number	Weight	Fabric
242	153	15	185	8
280	208	64	511	8
978	1055	68	351	8
<i>Totals:</i>	<i>3</i>	<i>147</i>	<i>1047</i>	<i>1</i>

Table 17: Neolithic plain bowl.

Peterborough Wares

The Peterborough Ware assemblage consisted mostly of small abraded pieces that because of the presence of exaggerated rim forms, deep necks, pronounced shoulders and profuse decoration were reasonably easy to identify. The fabric was variable but more often than not included fragments of calcined flint and or small linear voids (dissolved shell). Feature sherds included 14 rims, 8 shoulders and a total of 29 decorated pieces. The decoration occurred on the rim, upper neck and shoulder and comprised designs executed with combinations of incised lines (F.293) whipped-cord (F.381, F.424), fingernails (F.424), short stabs (F.293, F.982), reed (F.424) or shell impressions (F.381). The designs were carried out in simple rows or as herring-bone.

Feature	Context	Number	Weight	Fabric
200	100	5	12g	5
202	102	5	26g	5
203	103	10	44g	4, 5
220	125	1	12g	5
293	223	3	29g	4
425	375	2	4g	4
381	319	8	48g	1, 2
424	374, 385	66	325g	1, 2 & 11
687	102	2	6g	21
905	966	3	2g	5
982	340	13	91g	4, 5
<i>Totals:</i>	<i>12</i>	<i>118</i>	<i>599g</i>	<i>7</i>

Table 18: Peterborough Ware

Beaker

The Beaker fragments incorporated thin-walled pieces with all-over incised/comb-impressed decoration and thicker pieces with rusticated (crows-foot) designs. Fabric-wise the sherds were predominantly sand and grog rich. Of the 39 identified pieces 5 were rim fragments (simple rounded) and 26 were decorated. F.225 contained fragments of a small thin-walled vessel (*c.* 12cm diameter) decorated with comb-impressed lines forming horizontal bands and chevrons. Abraded fragments from at least two vessels came from F.652 with pieces from a fineware form decorated all-over with incised lines as well as fingertip rusticated sherds. A residual Beaker sherd with ‘crowsfoot’ decoration was located within F.544.

Feature	Context	Number	Weight	Fabric
225	132	20	50g	3
329	258	1	5g	2
338	267	3	15	1
353	284	2	10	1
544	500	1	4	13
652	613	12	76	9
<i>Totals:</i>	<i>7</i>	<i>39</i>	<i>160</i>	<i>5</i>

Table 19: Beaker

Collared Urn

A small number of Collared Urn sherds were recovered from 6 separate contexts. Diagnostic sherds included 7 rims, 3 collars and 2 shoulders; 5 pieces were decorated. Fragments included refitting rims from F.581 replete with a row of short twisted cord-impressions, two large rims with a heavy collar from F.636 with a cord-impressed chevron design, and a further twisted cord rim from F.671. F.653 produced fragments from two vessels, one plain and one decorated (also with a cord-impressed chevron design). In contrast with the heavy collar from F.636, the plain vessel from F.653 had a slack almost vestigial collar although the simple squared rim was in keeping with predominant form. The majority of sherds were thick-walled and grog tempered.

Feature	Context	Number	Weight	Fabric
232	184	1	7	9
434	384A	1	5	13
581	541	2	18	19
636	597	2	135	19
635	614	9	104	11, 19, 20
671	632	2	20	20
<i>Totals:</i>	<i>6</i>	<i>17</i>	<i>289</i>	<i>5</i>

Table 20: Collared Urn

Deverel-Rimbury

A total of 169 identifiable pieces of Deverel-Rimbury pottery were recovered from 15 contexts (or 11 features). The sherds were consistently thick-walled and mostly shell-rich although a vessel from F.604 had grog as its main opening material whereas F.460 contained a large chunk of rim (*c.* 40cm in diameter) made abrasive by an abundance of sharp quartz inclusions. Another common attribute was that the sherds came from large bucket-shaped forms with predominantly rounded or flattened rims (F.1157 produced a single out-turned example).

Decoration comprised fingertip impressions around the lip or along the edge of the rim F.239, F.391, F.544, diagonal incisions or cabling around the lip F.460, fingertip impressions around a raised cordon F.544, F.991. A lug fragment was recovered from F.1157. Perforations occurred on sherds from F.544 and F.604. the perforations in F.544 were made pre-firing and did not fully pierce the the pots walls suggesting that these were another kind of decoration, whereas the holes in F.604 were made after the

pot had been made and did pierce through the pot and were perhaps associated with repair. The grog inclusions within the fabric of the vessel from F.604 were large and in one particular instance survived as a small rim fragment from a previous vessel.

Feature	Context	Number	Weight	Fabric
239	147, 148, 149	9	136g	6, 18
309	238	2	92g	8
322	250	9	82g	8
327	256	4	7g	6
328	257	1	5g	6
391	B/C	3	35g	6, 18
460	411	10	207g	Q
544	500, 503	19	622g	14
604	563	40	505g	27
991	1068A	12	255g	6
1157	1271B	60	624g	6
<i>Totals:</i>	<i>15</i>	<i>169</i>	<i>2570</i>	<i>6</i>

Table 21: Deverel-Rimbury pottery

Late Bronze Age (Post-Deverel-Rimbury)

This part of the assemblage comprised 160 sherds weighing 803g and contained 4 distinctive everted rims (F.335, F.433 and F.712) as well as multiple body sherds from small thin walled vessels. The fabric series was principally shell dominated and the sherds had on the whole a ‘corky’ appearance making them distinct from the equally shell-rich Iron Age wares located elsewhere on the site. A everted rim from F.712 belonged to a burnished or ‘smoothed’ PDR fineware.

Feature	Context	Number	Weight	Fabric
335	264	1	19	10
433	383	61	295	9, 10 & 12
489	443	6	15	16
712	673	39	366	5
935	997	53	108	
<i>Totals:</i>		<i>160</i>	<i>803</i>	<i>31</i>

Table 22: Late Bronze Age

Bronze Age

The category represents a proportion of the assemblage made up of Bronze Age type sherds (as identified mainly by fabric but occasionally by form and decoration) that did not obviously fit one of the above Bronze Age categories. The vast majority of these pieces were small plain body fragments of fabrics associated with Bronze Age forms. This group of material included 6 rims and 4 base fragments as well as 26 diminutive sherds that bore decoration characteristic of Bronze Age vessels. The fabric range was made up predominantly of grog or sand rich types although flint and shell types were also present.

Examples of decoration included a base angle from F.462 marked with a row of short stabs around its foot, diagonal incised lines on a piece from F.550, and three sherds from F.690 all of differing fabrics and each decorated differently (pinched or crows-foot, shell impressed and whipped cord). Individually with a single crows-foot impression on a sherd from F.690.

Feature	Context	Number	Weight	Fabric
299	228	1	2	9
320	245/ 6	16	53	10
367	303	1	9	10
377	315	1	2	3
404	373	1	2	9
435	386	3	2	1
436	387	1	4	2
463	414A	7	17	9, 12
462	424	2	13	3
474	427	1	44	1
546	506	4	21	13
550	510	2	3	3
554	511	1	<1	19
554	514	11	22	17
598?	557	1	4	3
637	598C	3	33	23
681	642B	1	23	3
690	651	3	18	1, 3 & 5
691	652A	3	37	22
691	652C	3	48	22
701	661	1	53	28
704	665	1	15	3
707	668	1	1	20
759	761	1	4	20
810	821	1	8	
846	871	1	2	8
854	879	5	16	3
859	886	2	4	20
859	886	1	3	20
873	910E	2	18	3
916	978/ 979	1	3	20
930	992	5	20	20
1023	1098	1	6	29
1169	1283	1	4	5
034	037	4	55	29
465	416	1	1	3
691	652D	1	54	mixed
<i>Totals:</i>		<i>96</i>	<i>624</i>	

Table23: Bronze Age 'Generic'.

Prehistoric Pottery: Silt Lagoon

The Silt Lagoon produced 251 sherds (1695g; MSW 6.75g) of prehistoric pottery from fifteen feature based contexts and eleven surface based find spots. The material from features consisted of 175 sherds (weighing 1314g; MSW 7.5g) whereas the finds spots produced 76 pieces (weighing 381g; MSW 5.0g). A total of 6 fabric types were identified although two in particular predominated (Fabrics 3 & 5). Feature sherds included 19 rims and a single defined shoulder fragment as well as 10 refitting base pieces from a single vessel. Decoration was recorded on 37 pieces and comprised incised lines, fingernail impressions (crowsfoot), twisted and whipped cord impressions, and circular stabs (reed?). Many of the sherds were covered with mineralised worm/root casts and several sherds were both 'soft' and abraded. Large, diagnostic fragments were also present however, and careful cleaning with a scalpel revealed additional features.

Neolithic and Bronze Age (M. Knight)

Grooved Ware?

The find spot SF197 generated 49 sherds, 23 of which were decorated and 10 of which were base fragments. On 21 of the 23 decorated sherds the decoration comprised all-over, horizontally incised grooves punctuated with rows of small oval stabs. This decoration was associated with a plain internally bevelled rim and the various body sherds indicated a splayed or slightly fluted overall form. The fabric was medium hard with frequent small sand, common grog and occasional small voids. Found alongside these fragments were 2 other decorated sherds, one decorated with lines of twisted cord and another with thin parallel incised lines, that shared a similar fabric type.

Beaker

F.1183 produced 55 fragments of a very large, high shouldered Beaker decorated with spaced, lightly plastic finger pinches. Aside from crumbs, every sherd showed signs of the finger pinch decoration (c. 40 pieces) suggesting an all-over design. The fabric contained frequent grog and occasional small calcined flint. Non-plastic, widely spaced finger pinching was present on 3 large sherds from F.1259 as well as a single sherd from SF 48.

An elaborately incised fineware Beaker sherd located within F.1266 matched 2 pieces from SF 198. All three pieces revealed a decoration made up of filled lozenges. The rim of the vessel consisted of tapered profile with a flattened top that was impressed with a single line of short stabs. The front of the rim had horizontal lines bordering a incised zig-zag. Unlike the rusticated sherds these pieces were thin walled and belonged possibly to a long-necked beaker form.

Features F.1184 and F.1256 contained upright, flattened rims from relatively thin-walled vessels whereas F.1257 contained the same rim form but from a thick-walled vessel.

Food Vessel

F.1272 produced a single rim/shoulder fragment with a flat topped internally bevelled rim. The sherd was decorated with short loosely wound twisted cord impressions along the top of the rim and in rows immediately above and below the fragments slack shoulder. The fabric of the piece was compact and grog filled.

Another possible Food Vessel fragment in the form of a heavily abraded rim came from find spot SF 45. The rim was slightly out-turned with an internal bevel decorated with small vertical incisions.

Externally, and below the rim the sherd was covered in horizontal and lightly plastic fingernail impressions.

Deverel-Rimbury

A cordon impressed with irregular fingertip impressions came from find spot SF 41. The sherd belonged to a large diameter (c. 28cm), straight sided bucket-shaped vessel made with a hard, crushed quartz and possible grog filled fabric. In form the sherd has direct parallels with the multiple shoulder cordons found at Grimes Graves (Longworth et al. 1988).

Prehistoric Pottery: Bradley Fen Farm

The assemblage comprised 138 sherds weighing 1053g. Much of the material was small but in good condition. A total of four features produced pottery with the remainder of the assemblage being derived from buried soil contexts. Five fabrics were identified. Feature sherds included a decorated cordon, three rim fragments and the majority of a small Collared Urn that had been burnt.

Feature	Context	Num.	Wt(g)	Fabric
1250	1350	12	66	11
1271	1374	76	412	3
1277	1385	1	3	3
1278	1392	4	11	6
1278	1393	3	26	6
1278	1398	1	13	6
1279	1402	32	508	15
	HR7	1	2	3
	SQ25	7	10	4
	SQ41	1	2	3
<i>Totals:</i>		<i>138</i>	<i>1053</i>	

Table 24: Assemblage Breakdown

Mildenhall

Buried Soil Square 25 of the Burnt Mound (BM 4) produced a single rim sherd. The rim was externally thickened and decorated across its top with a series of diagonal incised lines. The sherd appeared to have an applied slip and the main opening material was crushed calcined flint.

Peterborough Ware?

A few small abraded sherds were retrieved from tree-throw F.1250 including two decorated pieces one of which was a slightly out-turned and rounded rim. Both sherds contained small rounded stabs or reed impressions and the rim also had short vertical incisions. Crushed calcined formed the opening material for these sherds.

Beaker?

Feature F.1277 contained a simple upright rim in a fabric (Fabric 3) comparable with the rusticated Beaker fragments recovered from the adjacent Silt Lagoon excavations

Collared Urn

The cremation pit F.1279 had 32 sherds (508g) from a single small Collared Urn. These 32 can be refitted to make up at least 95% of the vessel leaving only a few small gaps. All of the sherds had been burnt post-firing turning the pieces variously black, grey, pinkish, pale yellow and in some cases a 'gold' iridescent colour. Occasionally small lumps of light coloured grog could be seen breaking the pots surface. To touch the sherds felt 'dry' or 'pumice-like'. None of the pieces were significantly distorted by the secondary firing and refitting proved relatively straightforward.

The reconstructed vessel consisted of a 20cm tall and 11.5cm in diameter vessel with a pinched-out collar and pronounced shoulder. The rim was also pinched-out making the band between the rim and collar concave. This space was filled with short round-toothed comb impressions forming small diagonal lines. There was no decoration on or around the shoulder.

Deverel-Rimbury

F.1278 contained a fragment of a faint cordon that was decorated with a series of diagonally incised 'slashes'. The opening material present within the sherds fabric was crushed shell which compared with the plain body sherds found elsewhere within the same feature.

Fabric series

Fabric	Description
1	Medium with frequent small rounded SAND and common-frequent VOIDS
2	Medium with regular small, medium and large GROG and occasional FLINT
3	Medium with frequent small-medium GROG
4	Medium with frequent small FLINT
5	Medium 'soapy' with abundant small VOIDS (and possible GROG)
6	Soft-medium with abundant rounded small-medium SHELL
7	Very hard with frequent small-medium (fossil) SHELL
8	Soft-medium with regular small, medium and large VOIDS (dissolved SHELL)
9	Medium (compact) with common SAND
10	Hard (compact) with frequent very small SAND (sparkling) and rare GROG?
11	Hard with abundant small, medium and large (sharp) FLINT
12	Hard with abundant small, medium and large angular QUARTZ and common SAND
13	Medium (compact) with frequent small rounded SAND and common small GROG
14	Hard with common small-very small (fossil?) SHELL
15	Medium hard with frequent-abundant small-medium GROG
16	Medium with abundant very small SHELL and rare SAND
17	Medium with abundant very small SHELL and occasional small GROG
18	Medium hard with profuse small-very large SHELL (or VOIDS)
19	Very hard (compact) with frequent small-medium GROG
20	Medium hard (compact) with frequent small-medium GROG and common SAND
21	Hard with abundant very small, small and medium angular (sharp) QUARTZ
22	Medium hard with regular medium-large GROG and common small (soft) SHELL
23	Medium 'soapy' with common large angular GROG
24	Medium hard 'soapy' with abundant small-very small (red) GROG
25	Medium hard with frequent small SHELL and common medium large SANDSTONE
26	Medium with common small SHELL and possible common GROG?
27	Medium hard with frequent medium-large GROG and common small VOIDS
28	Hard with profuse small, medium and large GROG and occasional gravel FLINT
29	Medium with frequent QUARTZ and GROG
30	Medium with frequent small-medium FLINT, QUARTZ (& other grits)

Iron Age Pottery (L. Webley)

The Iron Age assemblage comprised 734 sherds weighing 6948g (MSW 9.5g). The material was recovered from 74 different contexts and the majority of the sherds were in very good condition and included many large fragments with good surface detail and surviving burnishes. There was some variation in fabric, with a total of 14 different types identified, although the dominant inclusion was shell and most sherds were medium-hard to hard. Decoration and surface treatments included diagonal slashes, hatched triangles, fingertip impressions as well as light and heavy scoring.

Both early (800-400BC) and middle (400-50BC) Iron Age wares were present although the bulk of the assemblage belonged to the latter category (c. 70% of the total number and 65% of the overall weight). The report is separated into early and middle sections and contains descriptions of representative contexts.

Feature	Context	No	Weight	Fabric	Type	Feature	Context	No	Weight	Fabric	Type
039		8	35	IA	MIA	825	840A	2	3	10	MIA
480	433C	5	203	7	EIA	831	855	3	158	7, 9 & 20	MIA
480	433B	30	76	9	EIA	867	902	1	2	IA	?
480	433E	8	108	14	EIA	897	958	1	1	IA	?
481	434	3	2	9	?	933	995	2	4	IA	MIA
535	490	1	7	16	MIA	945	1004H	10	555		EIA
536	491	1	7	IA	MIA	947	1006E	1	28	12	EIA
540	495	2	13	17	MIA	974	1050	23	39	17	EIA
541	496	3	19	15	EIA	977	1054	2	21	IA	MIA
571	531	2	20	18	MIA	983	1060	16	113	15, 17 & 23	MIA
596	556	9	77	16, 17	MIA	984	1061	3	8	IA	MIA
597	568A+B	3	61	15	EIA	986	1063	7	22	IA	MIA
597	568	16	149		MIA	988	1065	3	4	IA	MIA
597	568	8	22	15	MIA	989	1066	7	33	?	MIA
597	568C	3	17	15	MIA	990	1067	46	206		MIA
599	558	5	14	9	MIA	992	1069	27	180	IA	MIA
601	560	3	4	17	EIA	993	1070	12	138	14, 25	MIA
602	561	90	1032	10, 25	EIA	994	1071	1	8	IA	MIA
607	566	23	88	10, 16	EIA	995	1072A, B, C,	11	166	IA	MIA
612	572A	3	12	9, 10	MIA	997	1074	20	205	14, 25	MIA
614	574	2	14	14	MIA	999	1076	1	6	24	MIA
696	656	8	65	18	MIA	1011	1088	9	334	26	MIA
700	660	20	94	18	MIA	1013	1090	4	34	IA	MIA
710	671	5	46	10	EIA	1017	1095	3	20	14	MIA
756	756	1	2	IA	MIA	1018	1096B	1	13	IA	MIA
758	763A	1	5	12	MIA	1019	1097	1	3	IA	MIA
759	762	1	28	18	MIA	1022	1100C	21	249	7	MIA
762	765	3	13	IA	MIA	1022	1101H	9	95	IA	MIA
763	764	2	17	IA	MIA	1025	1105	3	51		MIA
765	767	1	1	10	MIA	1035	1116	11	28	15	MIA
766	768A	60	321	18, 25	MIA	1046	1129	3	40	IA	MIA
766	768B	4	12	IA	MIA	1054	1139B	2	5	IA	MIA
771	773	3	14	IA	MIA	1064	1150A	3	73	IA	MIA
778	781A,B,C	16	192	7	EIA	1064	1150F/G	12	303	IA	MIA
779	782	1	3	18?	EIA	1094	1187A	36	154	IA	MIA
780	792	2	7	IA	MIA	1096	1188	11	192	IA	MIA
781	785	10	70	25	MIA	1098	1190	1	81	8, 27	MIA
784	788	17	162	25	MIA	1099	1191	11	136	IA	MIA
790	796	5	29	IA & 11	MIA	1118	1214	11	181	IA	MIA

Table 25: Iron Age Pottery breakdown

Early Iron Age

F.480 [433] C – Fine burnished bowl with rounded flaring profile, marked shoulder and irregular beaded rim.

F.541 [496] – Slack shouldered jar(?) with slightly everted flat-topped rim. Decorated with closely-spaced diagonal slashes along rim top.

F.945 [1004] – High angular shouldered bowl with diagonal slashes on shoulder and fingertip impressions on front of rim.

F.602 [561] – Plain ‘stunted’ upright bowl with angular profile and a plain S-profiled vessel with marked shoulder and everted rounded rim.

F.778 [781] – Shallow omphalos base with burnished surface decorated with hatched triangles plus other burnished sherds from separate vessels.

In summary, the early material was made up of angular as opposed to ‘slack’ forms and had no deep scoring. Decoration occurred on rims and shoulders in the form of slashes or fingertip impressions or as hatched filled triangles (an attribute comparable with the Fengate Cromer series). The early assemblage also included fragments from large un-diagnostic coarse wares.

Middle Iron Age

F.596 [556] - Miscellaneous scored body fragments.

F.597 [568] – Slack shouldered jar with ‘long’ neck and flat topped rim (pinched out internally). Decoration: fingertip impressions on rim top.

F.696 [656] - Miscellaneous scored body fragments.

F.766 [768] – Slack shouldered vessel with flat-topped rim. Includes miscellaneous scored body fragments.

F.784 [788] – Fingertip impressed ‘Flat’ topped rim with unusual raised lip. Includes scored body sherds.

F.831 [855] – Complete foot-rim base.

F.983 [1060] – Miscellaneous scored body fragments plus unusual rounded-slightly everted rim with internal fingernail impressions.

F.989 [1066] – Flattened rim with fingernail ‘cabling’ from slack shouldered vessel and multiple scored body sherds.

F.992 [1069] – Small rounded body of slack shouldered bowl with flat topped rim and scored decoration/surface treatment. Includes burnished and scored body sherds.

F.993 [1070] – Pinched out base and lower wall from slack shouldered jar (missing rim).

F.995 [1072] – Partial profile of a plain slack shouldered vessel (straight sided) with flat topped rim. Includes burnished and scored body sherds.

F.997 [1074] – Same pinched out base and lower wall as F.993 and miscellaneous scored body sherds and a single flat topped pinched out rim.

F.1011 [1088] – Heavily scored high shouldered bowl with slightly flaring profile and everted rim. Unusually scoring continues across neck. Fingertip impressions along rim top.

F.1022 [1100] – Pinched out base of plain vessel plus miscellaneous scored body fragments.

F.1046 [1129] – Small plain slack shouldered bowl with upright rounded rim.

F.1064 [1150] – Long necked vessel with diagonal fingernail impressions on externally thickened rim top. Includes scored body sherds.

F.1094 [1187] – Partial profile of plain, burnished slack shouldered vessel with flaring profile (no rim). Also, thin rounded everted rim and body fragments with shallow scoring.

F.1096 [1188] – Closed jar with slightly inverted rim (Vessel Type B1; after Hill) with fingertip impressions along rim and scored decoration.

F.1099 [1191] – Slack shouldered bowl (Vessel Type A1; after Hill) with a flat topped rim and faint scoring.

In summary, the assemblage was made up of slack-shouldered vessels with no later barrel jar forms placing the material firmly in the middle Iron Age. A high proportion of the sherds were scored (*c.* 40% weight) making the assemblage comparable with Cat's Water, Padholme Road, Fengate (Pryor 1980) and Eastrea Road, Whittlesey (Williams 2004).

Roman Pottery (K. Anderson)

A total of 63 sherds of Roman pottery (1364g) were recovered from 18 different features on the site, including seven sherds found on the surface. All of the pottery was examined and details of fabric, form, date and estimated Vessel Equivalent (EVE), where possible, were recorded.

Assemblage Composition

The pottery in this assemblage was generally small and abraded, with a mean weight of 21.7g and only 3.16 Eves represented. There are a few exceptions to this which are discussed in more detail below.

Fabric	No.	Wt(g)
Black slipped ware	3	24
Eastern Gaulish Samian	3	7
Grog-tempered ware	15	63
Nene Valley GW	20	397
Nene Valley colour coat	2	103
Oxidised sandy ware	5	111
Reduced Sandy ware	4	67
Sandy greyware	2	53
Shell-tempered	7	525
Whiteware	2	14
TOTAL	63	1364

Table 26: Showing all pottery by fabric

The most commonly occurring fabric was Nene Valley greyware, consisting of 20 sherds and representing 32% of the total assemblage. This is not unexpected due to the sites close proximity to the Nene Valley production area at Water Newton, although only five Nene Valley colour coated sherds were found. These wares are a good chronological indicator giving a broad date range of mid 2nd-4th century AD. There were a few examples which could be more specifically dated, including an imitation of a Samian Dragendorff 36 from Feature 245, dating to the 3rd century AD.

One complete vessel was recovered from Feature 243. This was a miniature globular shaped beaker with a narrow rim. The fabric is unsourced; however similar vessel forms are present in the Nene Valley repertoire, suggesting a 2nd-3rd century AD date for this beaker.

Grog-tempered wares were also found in a relatively large quantity, with 15 sherds in total, weighing 63g. Only two of these sherds were diagnostic, consisting of two jar or beaker rims. The exact source of these wares is unknown, but it is likely that they were produced relatively locally. Because the forms were generic and the source is unknown, it is difficult to date these sherds any more specifically than Romano-British. However, their presence in Feature 316/17 along with four Nene Valley greywares suggests a mid 2nd-4th century AD date.

Seven shell tempered wares were recovered, including one large base sherd and one rim from a beaded flanged bowl. These wares are likely to have been produced locally and similar wares have been collected from other sites in the area, including sites at Whittlesey (Monteil 2000)

The only confirmed non-local wares consisted of three Eastern Gaulish Samian sherds, from Features 338 and 229/244. Only one of these was diagnostic and was identified as a Dragendorff 33, dating to the 3rd century AD.

The Roman features containing pottery were on the whole related to the roads, more specifically in roadside ditches. Feature 305, which was a ditch located next to the main road and contained one sandy greyware sherd, which was non-diagnostic and therefore could only be dated 2nd-4th century AD. Feature 248 was also associated with the main road and contained one oxidised sandy ware, which was also non-diagnostic, but could be dated mid 1st-3rd century AD.

The pottery from the features 244 and 245, also located on a roadside, could be more specifically dated. Two sherds from an Eastern Gaulish Dragendorff 33, dating to the 3rd century AD were recovered from feature 244. Eight sherds from an imitation Dr36, dating to the 3rd century AD were recovered from Feature 245.

Feature 218 was also located along a side road and contained three sherds from a black slipped shallow dish. This vessel dates 2nd-4th century AD. The pottery collected from around the roads supports a view that the roads were not constructed until the later Roman period (3rd century AD).

Feature 639, a Roman eaves gully, was one of the few features that contained Roman pottery but was not associated with the roads. This feature contained one Nene Valley colour coated sherd with roulette decoration, dating mid 2nd-4th century AD.

One sherd of Roman pottery, an oxidised sandy ware sherd, was recovered from Feature 689, which is part of an enclosure. This sherd could date 2nd-4th century AD.

Three Features; 321, 325 and 338 were located within close proximity of one another and contain pottery of a similar date. Feature 325 contained two grog-tempered sherds, including one rim. Feature 338 contained one non-diagnostic Eastern Gaulish Samian sherd, dating to the 3rd century AD. A small number of residual Bronze Age sherds were also found in this feature.

Feature 249 contained four Nene Valley greyware sherds, all of which were from a single vessel. This was a necked jar with a small beaded rim, dating mid 2nd-4th century AD.

Seven sherds were collected from the surface, including three refitting pieces from a Nene Valley greyware pedestal base and one jar rim from a sandy greyware. The pottery from the surface finds was comparable in date with the excavated material, dating 2nd-4th century AD.

The relatively late date of the assemblage is a possible explanation for the lack of imported wares found, as is the quantity of material recovered, although the function of the site during the Roman period is perhaps a more relevant explanation. The small quantity of Nene Valley colour coated wares, which would be expected from a site so close to the production area, again highlights that this was not a site where functions requiring tablewares took place.

This pottery assemblage is comparable to the material excavated from Kings Dyke, Whittlesey (Monteil 2000), located within 3km of Bradley Fen. The Roman pottery assemblage was much larger, with nearly 6500 sherds in total. The pottery ranged in date from the immediate post-conquest period to the middle of the 4th century AD however, the Roman settlement appears to have peaked during the 2nd-3rd century AD and therefore overlaps with the evidence from Bradley Fen.

In terms of the types of vessels present, the 2nd-4th century AD pottery from Kings Dyke is comparable to the pottery from Whittlesey, consisting largely of products from the Nene valley kilns. This is again unsurprising due to the close proximity of the site to the production centre. However, the significantly larger and more diverse quantity of pottery recovered from the Kings Dyke site shows that it had a different function from Bradley Fen and that although the sites are comparable in terms of date, the nature of the two is very different.

The quantity of Roman pottery implies this area was not utilized in the Roman period as a settlement, as if this were the case, a larger quantity of pottery would be expected. The majority of the pottery is instead, associated with the Roman roads, suggesting the pottery found at this site is more likely to be related to passing trade rather than from household waste etc. This is supported by the relative small mean weight of the sherds and the level of abrasion, which suggests, with a few exceptions, that re-deposition is likely to have taken place.

The pottery evidence is useful in implying a post 2nd century AD date for the construction of the roads.

Overall, the quantity and types of pottery recovered from the site are not unexpected given the location and likely nature of the site and although this area does not appear to have been used to a great extent in the Roman period, it is a useful example of an assemblage related to roadside activity rather than settlement.

Early Anglo-Saxon Pottery (J. Tipper)

Thirty-seven handmade early Anglo-Saxon sherds weighing 579g, and representing a maximum of 15 vessels, have been recorded from the excavation by Cambridge Archaeological Unit at Bradley Fen (BAD01). There was no decorated pottery in the assemblage. This pottery is considered to date between the fifth and early eighth

centuries AD based on similarities of form and fabric with other assemblages dating to this period.

All the sherds were recovered from the fill [287] or surface of hollow F355 within the remains of an earlier Roman road. The sherds were in an average to good condition, which is indicated by the quite high mean sherd weight of 15.6g.

Most of the sherds had been smoothed and several had a light burnished lustre; none had a high burnished gloss. The pottery has been fired in a bonfire- or clamp-type kiln, resulting in the characteristic (reduced) dark grey-brown - black colour. Some of the sherds have orange-brown oxidised outer surfaces, indicating variations in the conditions of firing. Two base sherds (50g) had carbonised organic residues adhering to their inner surfaces.

There were five rim-sherds in total, weighing 82g, from four vessels. These form a total of 0.46 rim eves. Two sherds (56g) were vertical constricted rims from a straight-sided ovoid-shaped vessel with a sandstone sand fabric. These had a rim diameter of ?16mm and a total rim percentage of 18%. There were two everted rims. One (16g) was tempered with quartz and had a possible diameter of 20mm and a rim percentage of 7%. The other (9g) was tempered with sandstone sand, calcareous and occasional organic inclusions, and had a similar diameter of 20mm and a rim percentage of 6%. There was also one small flat-topped everted rim (4g), possibly from a bowl, in a sandstone sand fabric. This had a rim diameter of ?16mm and rim percentage of 5%.

There were also four base-sherds (81g), from three different vessels. One (27g) had a calcareous (possibly oolitic limestone) fabric and had internal carbonised organic residue, the others (30g), from one vessel, had an organic-tempered fabric. Both these base-sherds had flat-rounded profiles. There was also one curved base sherd (23g), with a quartz-tempered fabric. This sherd also had carbonised organic residue adhering to the inner surface.

At least eight different fabrics were represented in the assemblage based on a rapid visual examination, which need to be confirmed by further detailed analysis:

Calcareous shell?

There were six sherds (50g) from a single vessel, with frequent leached calcareous inclusions, which are probably the remains of shell fragments. The vessel had an oxidised outer surface.

Calcareous oolitic limestone?

There was a single (base-) sherd (27g) with moderate to frequent leached spheroid calcareous voids that are probably the remains of oolitic limestone.

Organic

There were four sherds (67g), from three vessels, containing frequent organic inclusions, either as carbonised organic matter or most frequently as organic voids. This fabric also contained occasional to moderate quartz inclusions.

Quartz

There was a single sherd (14g) containing frequent medium to coarse rounded and sub-angular quartz inclusions <1.3mm in size.

Coarse quartz

Seven sherds (187g), from a single vessel, had a coarse quartz-tempered fabric containing coarse sub-angular quartz fragments <4mm in size with also sparse to moderate organic inclusions/voids and an occasional ironstone inclusion.

Sandstone sand

Six sherds (87g), from three different vessels, were of a sandstone sand-tempered fabric, containing frequent fine to medium sandstone sand inclusions.

Sandstone sand, calcareous and occasional organic

There seven sherds (66g), possibly from three different vessels, of a sandstone sand-tempered fabric which also contained sparse to moderate leached calcareous inclusions and also occasional organic inclusions/voids.

Millstone Grit-type sandstone

Five sherds (81g), from three different vessels, were identified with possible coarse-grained Millstone Grit-type sandstone sand with also fine to medium rounded and sub-angular quartz. There were also occasional organic inclusions, either as carbonised organic matter or most frequently as organic voids, and also occasional ironstone inclusions.

The early Anglo-Saxon pottery assemblage from BAD01 is small but nevertheless important, given the scarcity of excavated and stratified domestic assemblages in this area, and it requires further study and comparative analysis. In the context of the site it would appear to demonstrate the continued use of an earlier Roman road during the post-Roman period. It also raises an important question about the origins of the assemblage which is on the whole well-preserved, and this perhaps indicates Anglo-Saxon occupation in the close vicinity.

Late Bronze Age Metalwork (G. Appleby)

Twenty seven pieces of copper alloy metalwork were recovered during the excavations at Bradley Fen. Seven pieces of metalwork were distributed along the fen edge, consisting of six spearheads and one unidentified piece. Twenty pieces were recovered from a single feature [786], context [790], constituting a large hoard. In addition, three human cranial fragments and two quern stone fragments were found adjacent to the hoard. The metalwork was examined after cleaning and stabilisation, prior to conservation.

The Hoard:

<1206> (No 1)¹ Sword fragment

Description: The fragment has a pale brown-green patina with darker green patches towards the terminal. Both blade edges have very minor dents and very small nicks. The blade portion of the fragment is bent. The majority of the blade is missing with a clean transverse break 50mm below the ricasso. Both the shoulder and ricasso appear undamaged with four rivets in situ. On one side, the shoulder, rivets and hilt are severely concreted, with recent copper mineralisation. The bottom edge of this concretion is convex and even, indicating a high possibility for preservation of an organic hilt. The hilt is flanged with a rivet slot, hilt ribs on one side, and 'fish-tail' terminal. The preservation condition is very good.

Dimensions: Length 179mm; terminal 31mm; hilt maximum width 24mm; shoulder 56mm; ricasso 30mm; maximum blade width 32.7mm; weight 205g

Classification: This sword displays affinity to the Wilburton complex swords as classified by Burgess & Colquhoun (1988). The hilt slot, concave shoulders, four rivets, small ricasso and fish-tail terminal suggest this example is a Wilburton class B sword (*ibid*: 43).

¹ This number relates to the recorded position of the piece in the hoard or its Small Finds (SF) number.

<1207> (No 2) Spearhead

Description: The spearhead has a pale brown-green patina. Both wings are severely notched, with evident metal loss, with distortion and ‘curling’ of the metal, forming burrs. The tip of the spearhead is missing and the spear is distorted along its central axis about three-quarters along its length. On one side there are several rectangular-like indentations on the central mid-rib towards the tip. There are minor concretions, peat and mud on both sides with slight bronze disease at the break. Overall preservation is good.

Dimensions: Maximum width 48mm; maximum length 195mm; weight 227g

Classification: This is a leaf-shaped peg-socketed spearhead. In cross-section the socket is circular, whilst the mid-rib is hexagonal. Both blades are bevelled and sharp where undamaged. The socket is perforated with two rivet holes. There are no apparent casting seams on the socket or at the base of the blades. This suggests the spear was completed to a high standard prior to use and final deposition. It is contemporaneous to material recovered from the Wilburton Hoard (Evans 1884).

<1208> (No 3) Spearhead

Description: The spearhead has a brown-green patina with patches of sandy-yellow, especially on the more damaged side. The socket and mid-rib is severely dented and distorted. The socket is perforated, which may extend along the mid-rib, forming a distinct longitudinal gash. The tip is missing with an uneven transverse break. The mid-rib is perforated 28mm below this break with a further perforation in one wing, 65mm above the base. All these perforations occur on the same side. The blade edges are severely dented and notched, with evident metal loss, rolling of the metal and distortion, forming large burrs. The preservation condition is good, although the overall appearance is of a crushed object.

Dimensions: Maximum width 51mm; maximum length 254mm; weight 295g

Classification: This is a large hollow-blade narrow leaf-shaped spearhead with bevelled blades. The damage sustained by the blades prevents any assessment of the degree of sharpening, but there are no casting seams or flashes observed on the socket, indicative of finishing prior to use. Traces of the haft may be preserved in the socket, along with the possible survival of rivets. This form is characteristic of the Wilburton phase.

<1209> (No 4) Sword fragment

Description: The sword has an orange-brown patina with green and white patches. Both sides are heavily concreted with iron oxide clearly evident². Some copper mineralisation has occurred, particularly on one side towards the ricasso. Both blade edges are severely notched with clear deformation of the metal away from the longitudinal axis of the blade, creating a ‘gill’ like appearance. A substantial portion of the blade is missing, with an irregular transverse break approximately 120mm below the ricasso. The blade is bowed towards the break. The hilt and shoulder appear undamaged with no traces of casting flashes or sprues. Three rivets remain in situ, two in the shoulder (one loose), one in the hilt slot (loose); this rivet has enlarged the slot slightly. Additionally, the concretions present on either side of the hilt may preserve elements of an organic hilt. The preservation state of the fragment is reasonable.

Dimensions: Length 224mm; terminal 33mm; hilt maximum width 23mm; shoulder 58mm; ricasso 32mm; maximum blade width 39mm; weight 275g

Classification: Similar in appearance to <1206> this sword differs notably in the number of rivets used for the attachment of an organic handle, the ricasso and angle of the shoulders. The angle of the shoulders and ricasso are indicative of a Wilburton variant A type sword, although the blade cross-section may suggest a date towards the end of the Wilburton phase (Burgess & Colquhoun 1988: 43).

<1210> (No 5) & <1222> (no 17) Spearhead

Description: One side of the spearhead has a brown-green patina with some concretion and iron oxide deposits. The top fragment has a slight silvery shiny appearance on one wing. The other side has a brown to pale brown-green patina with green patches, iron oxide deposits and copper mineralisation. The socket is broken, friable at the edges of the break and covered with concretions (peat remains and

² The iron oxide is a likely product of the oxidation of residual peat.

mud). Remains of a wooden haft were found in situ. Both blades are severely damaged and notched with numerous burrs, deformation and evident metal loss. The mid-rib is dented in several locations with a clearly defined deep circular depression on one side and transverse cut marks. The top section of the spearhead is missing. The break between these two portions is irregular and the precise mechanism of breakage is unclear. The preservation condition is good.

Dimensions: (from re-fitted fragments) Maximum width 59mm; maximum length 230mm; weight 264g

Classification: This is a hollow-blade leaf-shaped spearhead with a lozenge-shaped cross-section lacking a distinct mid-rib. There are slight channels towards the edge of the blades, creating a bevelled appearance. These are part of the original casting and not the result of finishing and sharpening. It is characteristic of the Wilburton phase. A similar example from the Wilburton Hoard has been dated to 1260-980 cal BC (OxA5036 2900±45) (Needham *et al* 1997).

<1211> (No 6) Sword blade fragment

Description: The blade fragment has a brown patina with green tinges in places. Iron oxide deposits exist on both sides of the fragment. Both blade edges are severely damaged and notched, with evident metal loss, distortion and 'curling' of the metal, forming burrs. Both transverse breaks exhibit sharp breaks, revealing in cross section a lozenge-shaped profile. A possible chisel mark is preserved at the stepped transverse break. Along the central axis there is some distortion leading to a slightly bowed appearance. There is some minor pitting along the central rib of the fragment, minor corrosion and residual concretions. The preservation condition is good.

Dimensions: Maximum width 34mm; maximum length 66mm; maximum thickness 7.3mm; weight 59g

Classification: The blade fragment is narrow in width, with no obvious taper, and lozenge-shaped in cross-section. Some evidence for bevelling or sharpening of the blade edges survives. There are no casting flashes or sprues, suggesting the sword was finished before deposition. Unclassified fragment.

<1212> (No 7) Ferrule

Description: The ferrule has a pale brown-green patina. Towards the top, there are three small transverse indentations, one with a sharp crescent-shape appearance. The top of the ferrule appears to be missing as the surface is uneven and pitted. There are concretions on the surface with some minor pitting observable. The overall preservation condition is good.

Dimensions: Maximum width 16mm; minimum width 12mm; maximum length 121mm; weight 50g

Classification: This is a slightly tapering incomplete tubular circular ferrule. Although the top is missing the base is intact. Ferrules of this variety span the MBA and LBA, and are interpreted as spear-shaft attachments (Savory 1980: 57).

<1213> (No 8) Spearhead

Description: The spearhead has a brown-green patina with occasional concretions and some copper mineralisation. The socket is complete with two rivet holes with possible haft in situ. The blades are bevelled and sharp, with occasional small nicks. The wings are asymmetrical. The tip is missing with a slightly irregular transverse break revealing a distinct circular mid-rib in cross-section. The preservation condition is very good.

Dimensions: Maximum width 38mm; maximum length 132mm; weight 155g

Classification: A substantially complete leaf-shaped pegged-socketed spearhead similar to <1215>, <1227>, <1228> and <1232>. The finishing is to a high standard, evident by the sharpness of the surviving parts of the blades and lack of casting seams on the socket. The asymmetry of the blades may indicate differential sharpening or a flaw in the original casting process. It is generic in form, thus possibly pre-dating the Wilburton phase.

<1214> (No 9) Copper alloy tube

Description: The tube has an orange-brown patina, cream coloured patches, concretions and iron oxide deposits. One end of the tube is crushed and distorted with the metal pushed outwards with an irregular break. There is some minor copper mineralization towards this end. At the undamaged end, solidified metal droplets are present. It is unclear whether these originated from the object, but clearly demonstrate the tube was exposed to or near to a high heat source. One of these droplets has a silver-tin appearance following the careful removal of residual mud. There is no evidence of casting seams or rivet holes. The interior of the tube is coated in a layer of iron oxide, presumably from residual peat. The overall preservation condition is good.

Dimensions: Maximum diameter 19mm; maximum length 47mm; weight 43g

Classification: This fragment was found in association with the hoard. It is heavy for its size and despite the damage to one end does not have an obvious taper. The function or purpose of this piece is unknown, although it may be a fragment of socketed gouge.

<1215> (No 10) Spearhead

Description: The spearhead has a brown-green patina with white sandy patches, and concretions creating a rough surface. The socket is complete with casting seams and two rivet holes. The socket is circular in cross-section whilst the mid-rib is hexagonal. The spearhead is bent giving it a curved appearance in profile. The blades are bevelled and sharp, with occasional nicks and dents. A narrow vertical 'slice' is missing on one blade, extending about 12mm from the tip. The preservation condition is good.

Dimensions: Maximum width 34mm; maximum length 121mm; weight 97g

Classification: This is a complete leaf-shaped pegged-socketed spearhead similar in form and date to <1213>, <1227>, <1228> and <1232>.

<1216> (No 11) & <1217> (No 12a & 12b) Long-tongue chape fragments

Description: The chape fragments have a brown patina, green patches, significant concretions and iron oxide deposits. Traces of peat and plant matter are present on the interior surfaces of the larger fragments. Several smaller fragments remain encased in this matrix. The surviving refitted pieces form a lozenge-shaped cross-section, median ribs and flat edges. The breaks are irregular, but re-fitting the fragments enables the profile to be reconstructed. The preservation condition is good to poor.

Dimensions: (from re-fitted fragments) Maximum width 70mm; minimum width 30mm; maximum length 178mm; weight 83g

Classification: The re-fitted fragments reveal that the majority of the chape is present, although the lower portion is missing. Classified as a long-tongue chape, this type dates to the Wilburton phase of the LBA.

<1218> (No 13) Spearhead fragment

Description: The fragment has a brown patina with green patches and concretions on both sides with occasional iron oxide deposits. Both transverse breaks exhibit regular sharp breaks, revealing in cross-section a lozenge-shaped profile. There is a possible chisel mark towards the wider end of the fragment, whereas the break at the narrower end is clean. This break may represent a brittle-zone fracture, although there is very slight deflection seen in the transverse plane. There are minor dents in the blade edges, but no other significant damage to the fragment. The preservation condition is good.

Dimensions: Maximum width 46mm; minimum width 29mm; maximum length 67mm; weight 74g

Classification: The fragment tapers with straight parallel sides from 46mm to 29mm. In cross-section, the fragment reveals the spearhead to be hollow-cast and lozenge-shaped lacking a distinct mid-rib. The blade edges are bevelled and sharp. Classified as a leaf-shaped hollow-blade spearhead similar to <1210>, it is contemporaneous to the Wilburton phase of the LBA.

<1219> (No 14) Spearhead fragment

Description: The spearhead has a pale-brown to green patina with white patches and some copper mineralisation. The socket is broken, with an irregular break, crushed and slightly distorted to one side. Residual peat and soil is present in the socket, possibly preserving elements of a haft. A large solidified metal droplet is present on the exterior rim of the socket, indicating the spearhead was close to a high heat source. The mid-rib is severely dented on one side, possibly caused by a chisel-like implement. There is a transverse cut mark on one side of the spearhead extending from the blade edge to the mid-rib. Both blades are severely damaged with two large notches and burrs on one edge. The opposing blade is dented and rolled with a vertical 'slice' missing towards the top of the spearhead. There is an irregular transverse break at the top of the fragment, revealing a hollow-cast lozenge-shaped cross-section with a distinct rounded mid-rib. Despite the obvious damage the preservation condition is good.

Dimensions: Maximum width 39mm; maximum length 130mm; weight 138g

Classification: This spearhead is similar in form and date to <1210>, but with a more distinct mid-rib. It has bevelled sharp edges, and where there is little damage there are no observable casting seams or flashes, indicating the spearhead was originally finished to a high standard.

<1220> (No 15) Spearhead fragment

Description: The fragment has brown patina with minor concretions and some copper mineralisation. The surface has some residual peat and mud present and occasional iron oxide deposits. This is an incomplete spearhead fragment missing the socket and extreme tip. The mid-rib and wing bodies are largely undamaged, with occasional dents. The mid-rib is emphasised by the presence of small ribs that extend along the entire length of the fragment. The blades are bevelled and sharp, but are severely nicked with curling, burrs and evident metal loss. The transverse break towards the base of the fragment is irregular and pushed in one direction with the adjacent mid-rib flattened. The transverse break at the tip is slightly distorted and irregular. The overall preservation condition is very good.

Dimensions: Maximum width 36mm; maximum length 179mm; weight 235g

Classification: This is a substantial fragment of a large channel hollow-blade spearhead with added ribs enhancing the mid-rib. There is no evidence of pointillé decoration, such as seen on a similar example from the Blackmoor Hoard. However, three similar examples form part of the Wilburton Hoard (CUMAA 1919.6.61 (Burgess & Colquhoun 1988: 42 & Plate 146). Using these examples as a guide this specimen is would measure between 220-300mm. It dates to the Wilburton phase, although the form may have originated in the Penard phase of the MBA.

<1221> (No 16) Spearhead

Description: The spearhead has a mid-brown patina with some concretions and copper mineralisation. The surface has some residual peat and mud present and iron oxide deposits. The socket is undamaged with two rivet holes, although there is a casting flaw in the rim itself. Apart from the concretions, there is no observable damage on the main body of the spear. There is no distinct mid-rib, but the wings are stepped and the edges bevelled. The blades have regular deep notches and burrs with evident metal loss. The overall preservation condition is very good.

Dimensions: Maximum width 42mm; maximum length 173mm; weight 160g

Classification: Similar to <1226>, this complete example is smaller than the other hollow-blade spearheads found at Bradley Fen. Although the socket is circular in profile, the spearhead has an overall rounded lozenge-shaped cross-section. There are no traces of the casting process, indicative of a high standard of finishing. The form dates to the Wilburton phase (Needham *et al* 1997: 91; Burgess & Colquhoun 1988: 42).

<1223> (No 18) Sword blade fragment

Description: The blade fragment has a mid-brown patina with concretions, largely on one side, residual mud and some copper mineralisation. Both edges are nicked and dented with curling and formation of burrs. The fragment is severely distorted and bent where it tapers toward the tip. The extreme tip is

missing with a regular transverse break, revealing a rounded lozenge-shaped cross-section. Evidence for bevelling and sharpening of the blade edges survive. The preservation condition is very good.

Dimensions: Maximum width 34mm; minimum width 14; maximum length 80mm; maximum thickness 6mm; weight 47g

Classification: The blade fragment tapers from a maximum width of 34mm to 14mm, with parallel straight edges. Similar to <1211> and <1225>, the fragment is unclassified.

<1224> (No 19) Sword fragment

Description: The sword has a brown to dark brown patina with green and white patches. Both sides of the hilt and blade are heavily concreted, with residual peat and iron oxide deposits clearly evident. Some copper mineralisation has occurred. There are four rivet holes in the shoulder with one retaining a rivet and one loose rivet in the hilt slot. The ricasso notch has a slight concavity. Although the blade edges are partially obscured, they are clearly bevelled, with occasional notches and dents and evident metal loss, but not to the same extent as <1209>. A substantial portion of the blade is missing, with an irregular transverse break approximately 100mm below the ricasso. The blade is severely distorted approximately 28mm above the break. The break is irregular and obscured by corrosion products, concretions and iron oxide deposits. The hilt is flanged, possesses a fish-tail terminal, and appears undamaged with no traces of casting flashes or sprues, although the rivet slot retains part of the casting sprue. Towards the terminal is a cast rectangular perforation. Flashing is present on the interior surface of this perforation. The preservation state, despite the concretions, is good.

Dimensions: Length 225mm; terminal 35mm; hilt maximum width 23mm; shoulder 55mm; ricasso 35mm; maximum blade width 32mm; weight 268g

Classification: Similar to <1206> this sword differs in the number of rivets used for the attachment of an organic handle, the ricasso and angle of the shoulders. The angle of the shoulders and ricasso are indicative of a Wilburton variant D type sword (Burgess & Colquhoun 1988: 48).

<1225> (No 20) Sword blade fragment

Description: The blade fragment (Fig A.18) has a green-brown patina with iron oxide and concretion on one side. Both edges are nicked and dented with partial curling and formation of burrs. The fragment is slightly bowed along the blade's longitudinal axis. Evidence for bevelling and sharpening of the blade edges survives. The transverse breaks are irregular, revealing a lozenge-shaped cross-section similar to <1211>. Both breaks have a small stepped cut mark, possibly indicating the use of a chisel like object to break up the sword. The preservation condition is good.

Dimensions: Maximum width 33.5mm; maximum length 65mm; maximum thickness 8.8mm; weight 84g

Classification: The blade fragment is narrow in width, with a slight taper, and lozenge-shaped in cross-section as with <1211> and <1223>. Unclassified fragment.

Fen Edge

<1226> (SF No 66) Spearhead

Description: The spearhead has a green to brown patina with some copper mineralisation. The surface has residual peat and mud present and traces of leaf patterns. The socket is undamaged with possible rivets in situ, and a substantial piece of wooden haft, protruding up to 14mm beyond the socket (Plate 5). The mid-rib, wings and blades are relatively undamaged with several minor nicks and one large 'scoop' on one edge. The blades are sharp with very little corrosion. The tip is missing, with an irregular angled transverse break, with the end distorted in profile. The overall preservation condition is very good.

Dimensions: Maximum width 45mm; maximum length 188mm; weight 168g

Classification: Similar to other hollow-blade spearheads found at Bradley Fen this is an almost complete example of this variety. Although the socket is circular in profile the spearhead has an overall

lozenge-shape cross-section. The spearhead shows no traces of the casting process, indicative of a high standard of finishing. A similar example from the Wilburton hoard has been dated to 1260-930 cal BC (OxA5035 2890±45 BP) (Needham *et al* 1997: 72).

<1227> (SF No 64) Spearhead and socket fragments

Description: The spearhead and fragments have a brown-green patina with occasional white specks and some copper mineralisation. There are concretions on the base of the wings and socket fragments. The spearhead is broken transversely above the socket resulting in partial loss of the base to one wing (the socket fragmented during recovery due to its preservation state). A rivet appears to be in situ in one of the larger socket pieces. The blades are sharp with one significant nick on one side. The preservation condition is poor to reasonable.

Dimensions: Maximum width 39mm; maximum length 132mm (including socket); weight 55g

Classification: This is a substantially complete leaf-shaped pegged-socketed spearhead similar in form and date to <1213>, <1215>, <1228> and <1232>. The finishing appears to have been to a high standard as evident by the sharpness of the surviving parts of the blades.

<1228> (SF No 62) Spearhead

Description: The spearhead has a brown-green patina with occasional white and bright green specks. The surface has major concretions and mineralised plant matter attached. The socket metal thickness is greater compared to the other spearheads from the site, and possibly contains mineralised remains of a haft. Casting seams are present on the socket with possibly one rivet in situ. There is an even layer of corrosion on one blade towards the socket. Where the blades are exposed these are bevelled and sharp, with minor loss of metal due to corrosion. The spearhead is slightly bowed along its longitudinal axis. The overall preservation state is good.

Classification: A complete leaf-shaped pegged-socketed spearhead with bevelled blades and circular cross-section. The blades have been finished to a high standard, but less attention has been applied to the socket. There is a slight asymmetry in plan view, but this does not appear to be the result of differential sharpening. Similar in form and date to <1213>, <1215>, <1227> and <1232>.

Dimensions: Maximum width 39mm; maximum length 146mm; weight 113g

<1230> (SF No 63) Spearhead

Description: The spearhead has a brown patina with occasional copper mineralisation. The surface has some minor concretion on the main body, but this is more prominent on the socket. The socket is robust and of a similar thickness to <1228>. A substantial portion of an Ash wood haft was preserved in situ with surviving evidence of a rivet hole (Plate 6). The blades are bevelled and sharpened, with small nicks and dents. There is no clear break between the mid-rib and the wings of the spearhead. The preservation condition is very good.

Dimensions: Maximum width 43mm; maximum length 175mm; weight 145g

Classification: A complete hollow-blade leaf-shaped pegged-socketed spearhead. Unlike the other examples described here, the cross-section is even and the blades are squared at the base, where they join the socket. It has been suggested this form is the forerunner to the Broadward Complex barbed spearheads (c.900-700 BC (Burgess *et al* 1972)), and represents an intermediate stage between these later forms and hollow-blade varieties such as <1210>. No rivets were found in situ, despite the presence of the haft. Finishing was to a high standard with no evidence of casting seams observed on the socket. However, part of the casting process evidently failed due to the presence of a casting sprue/flash in the corner of one wing at the blade-socket junction. This example dates to the Wilburton phase (*ibid.*).

<1231> (SF No 69) Spearhead

Description: The spearhead has a mid-brown patina with occasional white and green specks. The surface has residual peat and mud present with concretions, creating a rough surface. The socket is undamaged with two rivet holes with one rivet in situ. A casting seam is clearly visible on one side of

the socket. The mid-rib is obscured by the concretions, but the wings are relatively undamaged. The blades have several nicks and dents with some burrs. The overall preservation condition is good.

Dimensions: Maximum width 34mm; maximum length 101mm; weight 71g

Classification: This is a small complete leaf-shaped pegged-socketed spearhead. Classified as a 'dumpy' type, due to its 'squat' appearance, it is contemporaneous to the Wilburton-Ewart Park phases of the LBA.

Spearhead <1232> (SF No 55)

Description: The spearhead has a brown-green patina with occasional white and bright green specks. The surface has minor concretions and pitting. The socket has very minor damage, with two rivet holes; one blocked. The extreme tip is missing, probably due to corrosion. One blade edge is 'rolled,' with the other edge slightly dented. The blades are sharp. The preservation condition is very good.

Dimensions: Maximum width 32mm; maximum length 114mm; weight 55g

Classification: This is a complete leaf-shaped pegged-socketed spearhead similar in form and date to <1213>, <1215>, <1227> and <1228>. The finishing was to a high standard with no evidence of casting seams observed on the socket. The blades do not appear to have been bevelled.

Miscellaneous

<1229> (Area 1 BC) Copper alloy tube

Description: The tube has a green to brown patina. Casting seams are visible on each side of this thin-walled tube. Both ends are damaged with the wider end split along the casting seam. There are several small perforations at the wider end of the tube, which appear to have been pressed through. The overall preservation condition is good.

Dimensions: Maximum width 16mm; minimum width 9mm; weight 2g

Classification: This small tapering thin object was cast in a two-part mould with the perforations added later. Two narrow bands are present near the wider end, although it is unclear if these were incised. Its form and function are unclear, although it may have been a strap or cord terminal. It is unclassified.

¹⁴C dates obtained from organic material associated with the metalwork from Bradley Fen dates it to the earlier part of the Wilburton phase of the British Bronze Age, c.1200 – 960 BC. The ¹⁴C analysis of the surviving spear haft from spear SF 66 and peat recovered from a spear in the hoard provide date ranges of 1190-930 cal BC (2880±40 BP) and 1310-1040 cal BC (2970±40 BP), respectively. Peat from immediately below the hoard was dated to 1280-1010 cal BC (2940± 40 BP) (Appendix D). This suggests the spearheads found along the fen edge were deposited after the hoard, giving a potential span of repeated deposition events of between 110 and 190 years.

Further examination and stabilisation of the metalwork is required involving the following (J. Jones, Department of Archaeology, University of Durham):

- visual and X16 examination to assess condition
- examination, definition, recording and identification where possible of mineralised organics
- removal of surface soil/peat/concretions where possible, using hand tools or mechanical means
- identification of wooden haft remains as far as possible (may require sampling)
- chemical stabilisation using Benzotriazole (a vapour phase inhibitor for copper)

- surface consolidation using Incralac (an ethyl methacrylate copolymer containing Benzotriazole)
- refitting fragments as far as possible using Paraloid B72 adhesive
- preparation of conservation report

Worked-Stone (M. Edmonds)

Twenty pieces of worked-stone, weighing 19343g, was recovered during the excavation. The majority of the worked (non-flint) stone recovered from Bradley Fen takes the form of modified cobbles of fine-grained sandstone or quartzite. Most pieces in this small assemblage also show signs of having been burnt. This is a common feature on many later prehistoric sites, and appears to reflect the retention of stone rubbers, pounders and even quern fragments for use as potboilers (etc) after their initial phases of use.

The majority of the pieces recorded here take the form of burnt and fragmentary rubbers and pounders. There is also one near complete rubber with pronounced opposed facets (from F.250), and fragments of quern (also burnt) from F.762. An additional quern fragment was identified on the surface (SF.11).

The most unusual piece is a fine-grained quartzite pebble with pronounced facets that are likely to be a result of both pecking and grinding. At first glance, the piece looks remarkably like the butt of a broad stone axe. However, close inspection reveals a basic asymmetry and a variety in the angles of the ground surfaces making it more likely that the piece is a form of rubber – curated and extensively used, but a rubber nonetheless.

Faunal Analysis (D. Serjeantson & C. Swaysland)

Analysis of the faunal remains from Bradley Fen was undertaken in conjunction with Dr Serjeantson, Department of Archaeology, University of Southampton, following the protocols of Management of Archaeological Projects (MAP2) (English Heritage 1991). The aim of the assessment was quickly to scan the material, to *quantify* it in more detail than the finds lists provide, and to give a notion of the *quality* and *nature* of the material. It will highlight important features and make recommendations which will allow the analysis and report to be focused appropriately, and will give some idea of the time needed for the eventual analysis, indicate some relevant methods of recording and the aims of the report. The initial assessment concentrated on the cattle skeleton and the material from some of the main bone-rich features following a preliminary examination and probable identification of an aurochs from the site.

The assessment has focused on those features that have a secure pottery date and contain a large number of fragments. Some large, undated features have also been analysed. The total number of fragments considered for this assessment is 4300 from a total of 6517.

The animal bones

The method used in the assessment was to count by context identifiable bone fragments, including measurable fragments, and jaws and teeth which could be assigned to age. The state of preservation of each context was also recorded, as follows:

Red deer	0	2	1	3
-----------------	---	---	---	---

Table 28: Bronze Age species proportions

Species	EBA	MBA	MBA %	Bronze Age	Bronze Age %	Totale	Total %
Cattle	1	245	84.8	63	94.0	309	86.1
Pig	0	38	13.1	3	4.5	41	11.4
Sheep	2	4	1.4	0	0	6	1.7
Red deer	0	2	0.7	1	1.5	3	0.8
Total	3	289	-	67	-	359	-

Table 29: Bronze Age species proportions

The Early Bronze Age category is too small to be useful. The Middle Bronze Age and Bronze Age groups are similar; both are dominated by cattle with a lesser amount of pig. Sheep and Red Deer are present in small amounts; all the Red Deer elements are antler.

Iron Age

Material dating to the Iron Age was considered in two groups: Early Iron Age (EIA) and Middle Iron Age (MIA) (Table 29).

Species	Early Iron Age (NISP)	Middle Iron Age (NISP)	Total Iron Age (NISP)
Cattle	14	155	169
Pig	26	7	33
Sheep	9	7 (37)*	16
Horse	2	0	2
Dog	5	0	5

Table 30: Iron Age species proportions *(37) fragments from one feature.

	EIA	EIA %	MIA	MIA %	Total IA	Tot. IA %
Cattle	14	25.0	155	91.7	169	75.1
Pig	26	46.4	7	4.1	33	14.7
Sheep	9	16.1	7 (37)*	4.1	16	7.1
Horse	2	3.6	0	0	2	0.9
Dog	5	8.9	0	0	5	2.2

Table 31: Iron Age species proportions *(37) fragments from one feature.

The species proportions between the Early and the Middle Iron Age are somewhat different. In the EIA, pig are the dominant species with cattle of lesser importance. A total of 9 sheep, 2 horse and 5 dog bones were recovered from EIA features. The situation is different in the MIA where cattle are of much greater importance and pig and sheep are of secondary importance. A total of 44 sheep bones were recovered from MIA deposits however 37 of these bones are from one feature F.1094; these bones have been considered separately (cf. special deposits below). The EIA sample size is much smaller than in the MIA sample which potentially makes the EIA sample less reliable. Despite its smaller size the EIA sample shows a greater species diversity; horse and dog are present in small numbers whereas they are completely absent from the MIA sample.

Undated

Several large bone groups were analysed that had no pottery dating evidence. It is recommended that bone from some of the larger or more important contexts be submitted for C14 dating.

Special Deposits

Some deposits were considered 'special'; these are considered below by period.

Middle Bronze Age

F. 544

This large deposit (693 bones) contained a majority of cattle bones (87.3%) with many large elements including ribs and vertebrae as well as limb bones. Again many bones have little butchery. Pig is represented by 10 bones, sheep by one bone and red deer by 2 fragments of antler.

F.991

This was a large pit deposit of 651 bones. The majority of the bones are from cattle (85.4%) though pig (14.0%) and sheep (<1%) were also represented. Cattle are represented by many large elements, ribs and vertebrae. Cattle long bones are present either as small fragments or as large pieces.

Early Iron Age

F.945

This pit feature included the very well preserved remains of a pig skull and the articulating front legs of a pig. No record was made of these bones being found in articulation however the front legs are from the left and the right sides and they are of an extremely similar size; it is very probable that they come from the same animal. Only half of the pit was excavated so it is possible that more bones may have been in the pit.

In addition to the pig there were also the remains of adult and juvenile sheep and juvenile cattle. There was also a number pig/sheep sized vertebrae that had been split down the sagittal plane dividing the carcass into a left and right side. This butchery technique is generally considered to be a post 16th century practise however it is also seen on rare occasions in prehistory notably at the nearby site of King's Dyke West where it was observed on a sheep burial (Higbee 1999).

Middle Iron Age

F.1018

This pit contained a large deposit of 703 bones. The vast majority of the bones are from cattle (94.3%), many large meat bearing bones are present in large pieces there are a particularly high of distal humerii and also many ribs. In addition to cattle there were 7 are a significant number of pig bones; scapulae are well represented. Only one sheep bone, a metatarsal, was identified. This deposit also contained one human bone.

F.1094

This deposit was recovered from a pit in the interior of house structure 2. The deposit consisted of the partial remains of at least two sub-adult sheep. The bones are in good condition and show signs of having been filleted and dismembered but there are no signs of intensive processing of the bones to extract marrow. This deposit has clear parallels with the lamb and sheep remains recovered from pits within house structures at the nearby sites at King's Dyke West (Higbee 1999), (Clarke 2000). These deposits would seem to be more than simple disposal and are likely to represent votive deposits.

Undated Features

Pottery dating evidence was not available for the following features. It is recommended that these features be dated by C14.

F. 528

This large feature yielded a total of 431 bones and included some well preserved bones and some heavily concreted. Very few have been gnawed by dogs or other carnivores. The majority of the bones are from cattle (78.0%); some elements are rather large, perhaps from a bull. The bones are in large pieces, apparently deposited in this state. There are few ribs, vertebrae and unidentified limb bone splinters. A surprising number of the bones have not been chopped, and some have been butchered with a chop through shaft, but not further fragmented. Pig is well represented in the pit (17.4%), some of the pig bones appear quite large, and may be wild. A pig zygomatic bone can be checked with the illustrations of wild and domestic pigs illustrated by Clutton-Brock (1981, 72). Sheep is represented by 2 bones and red deer by 3 fragments of antler.

F. 1161

An articulate cattle skeleton was found in a rectangular pit. The study of the sex and size of the skeleton which has already been carried out suggests strongly that the skeleton is a female aurochs.

No Feature Number [1009] <591>

This context contained a complete antler. The antler is from a red deer aged at least 5 years old. All the tines were complete and this antler had not been utilised in any way. Antlers are shed naturally after the rut and this may be a 'natural' deposit. However, antlers were a highly valued resource in prehistory and it was deliberately deposited it can be classified as a special deposit.

Articulate cattle skeleton

A large cattle skeleton was recovered from a rectangular, straight sided pit. The animal is not fully mature and may be a female aurochs. It has perforations in the occipital region of the skull (cf Baxter 2002). One of the bones should be submitted for radiocarbon dating, as the date of the burial is of interest. The latest date in the British Isles for an aurochs is about 1100 BC (Levitan 1989, Weinstock in prep), and if this skeleton is associated with the later occupation of the site, this could be one of the last of the wild aurochs in Britain. The pit from which the skeleton was recovered was rectangular which is unusual for a prehistoric feature however a similar deposit has recently been recovered by Wessex Archaeology from a Bronze Age site in Wiltshire. A very young aurochs that had probably been skinned was found in a rectangular pit (Knight pers. comm.).

Human Remains

Isolated human remains were noted in two contexts [824] and [1096] that also contained animal bones.

Special bone deposits

A number of studies have been published in the past twenty years in which the possible significance of special deposits of animal bones has been discussed. The relative completeness of the bones from the special deposits, together with the minimal butchery and the almost total absence of traces of processing for marrow, supports the special nature. The virtual absence of gnawing confirms that these deposits do not comprise normal domestic waste but have been deposited deliberately. Possible reasons for this are that they have been deposited following an episode or

episodes of feasting, and / or the deposition has some symbolic importance. The features with special deposits should each be described separately.

These deposits merit detailed recording and analysis, with the aim of identifying their significance. Many Iron Age sites have deposits of animal bones which have been identified as 'special' in certain respects (Grant 1984, Wait 1985, Hill 1996). They are regarded as 'special' by several criteria, such as the presence of complete or almost complete skulls, part skeletons and articulated bones. The location of deposits can also render them 'special'. The lamb/sheep deposits recovered from pit F.1094 from the interior of house structure 2 can be considered in this category. Animal bone deposits from pits within house structures have been noted in close proximity to Bradley Fen at King's Dyke West (Higbee 1999, Clarke 2000) and further away at Earith (Regan 1998) and Haddenham (Serjeantson forthcoming).

Recording

Two main options are available for recording the assemblage:

1. Record everything that has a secure date (either by pottery or C14) using the methodology of Serjeantson (1991, 1996)
2. Record everything that has a secure date (either by pottery or C14) using the more rapid methodology of Davis (1992) but focus on 'special deposits' and record these in more detail using the methodology of Serjeantson (1991, 1996).

The option chosen will depend greatly upon the time that is available for the analysis.

If it is necessary to record the majority of the dated assemblage using the method of Davis (1992) the following modifications are suggested:

1. Recording maxillary teeth in addition to mandibular teeth
2. Recording the main elements of the skull to establish an MNE of skull and gain an idea of the degree of fragmentation of the skulls.
3. Record preservation including presence/absence of dog gnawing.

The aurochs skeleton might be a suitable candidate for a museum display somewhere. It would also be an appropriate subject for a research paper, which would discuss the identification, size, sex, age and pathology as well as the cultural significance of the find.

Human Bone (N. Dodwell)

This assessment looks in detail at the human remains recovered from excavations at Bradley Fen in 2001 and 2004 (BAD01 and BAD04). Five inhumations were identified; one squashed into a large post hole (F.613), one head first down a well (F.830), one in a pond or watering hole, (F.859) and two which were seemingly isolated (F.698 and F. 781). In addition, two isolated deposits of cremated bone (F.1024 and F.1279), both of which showed evidence of in-situ burning were identified. A third deposit of cremated bone contained within a collared urn (F.48) was recovered from the evaluation phase (BAD00) has been reported on previously

(Knight 2000). Disarticulated skeletal elements were recovered from ten features. With the exception of F.781, which is early Iron Age, the inhumations are thought to be Bronze Age, as are the deposits of cremated bone. The features containing disarticulated material have yet to be dated but are believed to be Bronze Age or early Iron Age.

Methodology

The nature of the deposit of cremated bone in F.1279 – a large cut with burnt edges and large, identifiable fragments of bone - led the excavator to allocate almost 100 separate numbers to different skeletal elements and small clusters of bone as they were planned and lifted. Cremated material from the second deposit, F.1024 was 100% sampled on site and was later wet-sieved and bone >2mm extracted for examination.

General methods used in the osteological evaluation of all the human skeletal material are those of Bass (1992), Buikstra and Ubelaker (1994) and Steele and Bramblett (1988). An assessment of age was based on the stages of dental development and eruption (Ubelaker 1989) and epiphyseal union, on the degree of dental attrition (Brothwell, 1981) and where possible on changes to the pubic symphysis and auricular surfaces (Brooks and Suchey, 1990 and Lovejoy *et al.* 1985). The age categories used in this report are:

infant	0-4 years
juvenile	5-12 years
sub-adult	13-18 years
young adult	19-25 years
middle adult	26-44 years
mature adult	45 years +

There may be overlaps between categories or a broad category, such as adult, where insufficient evidence was present. This is particularly true as regards the cremated material.

The sex of the individual was ascertained where possible from sexually dimorphic traits on the pelvis and the skull and from metrical data.

The dentition was recorded using the conventions in Brickley and McKinley (2004) with an additional convention; R = a rotten tooth. The estimated living stature was recorded, where possible using the combined femur and tibia lengths and the regression formulae devised by Trotter and Gleser (1958).

Results

A detailed inventory of the inhumations is presented below. This includes the position and alignment of the body, the condition of the bone and any pathological changes and non-metric traits observed. The deposits of cremated bone are described. These results, together with information regarding the disarticulated bone, are then presented in tabular form. Recording sheets for all of the human material are held in the archive.

The Inhumations

Skeleton [573] F.613

Mature adult male, ht. 1.72m (5'8'')

The body had been squashed tightly into a small pit (one of a 4 post structure). The skeleton was tightly crouched, with the spine following the curve of the pit, the legs were tightly flexed, right over left, the knees were by the shoulders, the left arm flexed over the stomach with the hand 'clutching' the femur, the right arm flexed so that the hand was beside the mouth. None of the long bones are complete, most of the articulating surfaces/joints are damaged or missing and the cortical bone is very abraded. The nasal area and maxilla are missing, the vertebrae survive as scraps and most of the bodies are missing. Changes characteristic of osteoarthritis were recorded in the right shoulder, wrist and upper spine. An increase in porosity and eburnation were recorded in on the right clavicle at the acromioclavicular joint and porosity and marginal osteophytes were recorded on right trapezium where it articulates with the trapezoid & scaphoid. The surviving cervical vertebrae exhibit marginal osteophytes and porosity on the bodies and there are similar changes, including patches of eburnation on the articulating facets of the upper thoracic vertebrae. Striated new bone, characteristic of a non-specific infection was recorded on the distal left fibula at insertion for interosseous ligament. Three wormian/sutural bones were observed along the left lamboid suture.

-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
x	x	x	x	x	x	\	\	\	\	3	4	r	x	x	x	x

A loose maxillary 2nd premolar was recovered. All of the surviving teeth are heavily worn.

Skeleton [658] F.698

Adult ?male, ht.1.72m (5'8'') if male

This skeleton has been severely truncated by a large, prehistoric pit, F.691 (disarticulated bone, presumably from this burial was recovered from the pit and is described in the below). Only the lower legs and feet survive in-situ, the right lying directly on top of the left. This suggests that the body would have been placed in a crouched position on its left side, orientated either east - west or southeast-northwest depending on how crouched or flexed the rest of the body was.

The lowest fill of the pit which cut the skeleton, [652d] contained a large quantity of human bone (rib fragments, 15 vertebrae, a left humerus and clavicle, left ischium, right ulna, and 4 right metacarpals) which although not articulated, the excavator thought had been deliberately placed. There were recent and old post-mortem breaks and concretions of iron panning on many of the bones. A well-healed transverse fracture, marked by a smooth callous was recorded on the mid shaft of the left ulna. Schmorl's nodes were recoded on the surviving lumbar and lower thoracic vertebrae and eburnation and osteophytes were observed on the articulating facets of the cervical vertebrae. A near complete vessel and a flint tool were also recovered in this pit fill. Human bone, more carelessly deposited was recovered from a subsequent pit fill, [652d]. The elements included fragments of rib, right scapula, a very small fragment of left mandible, a fragment of parietal and the left maxilla with all 8 teeth lost post-mortem. An external draining abscess, measuring 10mm, was recorded above the 2nd premolar.

Skeleton [785] F.781

Mature adult male, ht. 1.66m(5'5'')

The skeleton lay in a shallow grave with his upper body prone and his legs flexed to his right. The head was at the west of the grave, the right arm was extended, and the left arm was flexed below the body with the hand touching the right upper arm. The bone is in good condition although all of the long bones have post-mortem breaks and many of the joint surfaces have either broken off, are damaged or missing. There is also some rodent damage to the cortical bone. Changes characteristic of osteoarthritis were recorded on the articulating facets of several cervical vertebrae and on the bodies of the lower thoracic and lumbar vertebrae. A smooth, raised callous around the distal shaft of the left ulna, c. 40mm from the head is evidence of a well-healed fracture.

8	x	x	5	\	\	2	1	1	2	3	4	5	6	x	x
8	7	x	5	4	3	\	1	\	2	3	4	5	x	7	8

Slight deposits of calculus were recorded on the surviving dentition and the anterior dentition is heavily worn.

Skeleton [853] F.830

Older middle adult female, ht. 1.63m (5'4'')

The skeleton was head first down a pit\well and the position of her hands and feet suggest that they may have been tied. The bones are in excellent condition although they are stained a dark brown\black colour and there are grey concretions on some of the surfaces. Slight marginal lipping was recorded around the joints of the distal femora, the right humerus head and the right proximal ulna. Changes characteristic of osteoarthritis were observed on right articulating processes of T3-5 and on L5 and the sacral body. Striated new bone, characteristic of a non-specific infection was recorded on the proximal third of the right fibula shaft. Deep pits (15x15x7mm deep) were recorded on the ventral aspect of the bodies of each pubis. These and the pronounced pubic tubercles are possible indicators of parity status. A non-metric trait was recorded in the spine; non-union of the left transverse process and the posterior arch of the atlas (i.e. an open transverse foramen).

8	7	6	5	4	3	2	1		1	2	3	4	5	6	7	8
np	\	6	5	4	\	\	1		1	2	3	4	5	6	7	np

The dentine is exposed on the anterior dentition.

A piece of possible textile (a loose, open weave) was identified on the anterior of the proximal 1/3rd of the left femur.

Skeleton [901] F.859

Middle adult female

This individual is represented by disarticulated elements, which lay in the upper fill of a pond in an area c. 1.50 x 0.50m. None of the long bones are complete, many are split and most of the articulating facets are missing. The cortical bone is abraded. The body is represented by the following elements; left femur (proximal shaft flattened anterior-posterior), right femur, left radius, left mandible (and 3 molars), rib shafts, ?right clavicle, left glenoid cavity, right talus, ?right humerus, right tibia, scraps of vertebral bodies.

-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-
-	-	-	-	-	\	\	\	\		\	\	\	\	6	7	8

It is likely that the body entered the pond articulated with scattering being post depositional, probably the result of scavenging and water action. There is also some later plough damage and disturbance.

The Cremation Burials

Cremation Burial F1024

Older subadult/young adult

The cremated bone had been deposited in a small sub-rectangular pit (0.52 x 0.40 x 0.38m) whose upper 0.15m was scorched red. The main deposit of bone (525g) had been placed at the base of the pit and was mixed in a black charcoal stained silt with large fragments of burnt wood (0.10m) and occasional small fragments (50mm) of burnt silt. The largest bone fragment was 69mm but most were far smaller and the fragments were generally buff white in colour with some blue/black elements (patella and femur and humerus shaft). This was capped by a buried soil mixed with occasional fragments of charcoal and small fragments of calcined bone (58g). Unburnt and burnt animal bone was identified.

Cremation Burial F.1279 [1402]

Adult ?female

The cremated bone was contained within a small oval pit, with near vertical sides and a flat base (0.54x0.42x0.18m). The edges of the cut were scorched red at the surface, especially in the northern half of the pit, but not at the base. The fill at the base of the pit was predominantly large fragments of wood charcoal and, above this well-preserved calcined bone (1225g) was recovered mixed with a dark grey silty sand with ash and fragments of charcoal. Most of the fragments, once excavated were c. 40-50mm and the bone was predominantly buff white in colour although fragments of the femur shaft and patella were dark blue/black. A small, charred fragment of sheep-sized rib and a burnt flint flake were identified. A large quantity of refitting collared urn sherds were recovered with the burnt bone. These represent a complete vessel, which appears to have been burnt on the pyre with the body.

Summary tables

Feature	Age	Sex	Stature (m)	Pathology	Body position	Orientation	Location
F.613 [573]	Mature adult	M	1.72	OA in r. shoulder, r. wrist, spine, NSPI, AMTL	tightly crouched	-	Posthole/small pit (1 of 4 post structure)
F.698 [658]	adult	?M	1.72	Fractured l. ulna, OA in spine, abscess (all pathologies found on elements recovered from the pit)	Flexed or crouched	E-W or SE-NW	Truncated by large pit F.691 which contained bones from the burial
F.781 [785]	Mature adult	M	1.66	Fractured r. ulna, OA in spine, AMTL, calculus	Prone, flexed	W-E	Isolated (Iron Age)
F.830 [853]	Older middle adult	F	1.63	OA in spine, NSPI	Head first	-	Head first in a well with ?hands & feet tied
F.859 [901]	Younger middle adult	F	?	None observed	disturbed	-	Pond/ watering hole

Table 32: Summary table of Inhumations (all from site BAD01)

Feature	Context	Age	Sex	Weight (g)	Comments	Deposit type	Site
F.48		9-12 years	?	398		urned	BAD00
F.1024	[1104]	Older subadult/ young adult	?	58g	Upper fill	unurned	BAD01
	[1103]			525g	Main fill		
F.1279	[1402]	adult	?F	1255		unurned - in-situ	BAD04

Table 33: Summary table of Bronze Age Cremation Burials

Bradley Fen lies approximately 250m to the west of the Bronze Age Round Barrows identified during the excavations at Kings Dyke West (Gibson and Knight 2000). There, the dead (both inhumations and the deposits of cremated bone) were recovered in a formal, monumental landscape. On the lower land, close to the fen edge, the dead were identified in diverse contexts, several of which had direct associations with watery features or with the closure of features or their final phases of use. Whilst the number of dead is small, the inhumations on the higher ground, associated with the monuments are young (a sub-adult, a young adult and a younger middle adult) and those closer to the Fen edge are more mature adults. More detailed discussion of the inhumations and the types of features they are associated with should be made once they have been phased.

Feature	Context	Small	Feature type	Element (s)	Age	Sex	Comments
---------	---------	-------	--------------	-------------	-----	-----	----------

		find no.					
F.691	[652]d		Pit (truncates grave F.698 [658])	Ribs, vertebrae (2C, 10T,3L), 1 humerus, clavicle, ischium, r. ulna, 4 metacarpals	adult	?M	Carefully deposited. Well healed fracture of ulna, OA in spine. A near complete vessel & flint tool
	[652]c			Rib, skull frags, r. scapula, l. maxilla & mandible	adult	?	AMTL, abscess
F.675	[636]		Small pit/posthole	1 st mandibular molar	adult	?	blackened
F.785	[802]		Small pit/posthole	l. parietal	adult	?	Porotic hyperostosis
F.812-5	[824]		Peat layer over pits & ditches	r.femur shaft	adult	?	
		68	Surface find	2 nd mandibular molar	adult	?	
F.948	[1010]	77	In mound feature, contemporary with bronze hoard	3 x frags. of parietal	adult	?	
F.1018	[1096]h		Large pit	Fused r & l parietal,	Middle /mature adult	?M	Lesion on l. parietal Lots of butchered cattle in pit
[1192]			In peat over metallated surface	r.clavicle	adult	?	gracile
F.1102	[1197]	245	Burnt mound pond	l. temporal bone & 2x refitting frags. of r. parietal	adult	?	Found with 2x animal bones
		246		l. ulna shaft	adult	?	

Table 34: Summary table of disarticulated human bone

The deposits of cremated bone are seemingly isolated. None appear to be truncated and it is probable that the bone collected represents the original quantity of bone deposited. Of particular interest is F. 1279 from Bradley Fen Farm whose scorched red edges, the large quantity of fuel at the base of the feature and the spatial arrangement of the skeletal elements suggest that the cremation occurred in-situ i.e. that the body was placed on a pyre built over the small pit, into which it collapsed as the cremation progressed. The spatial patterning of the elements suggests that the body was placed in a tightly crouched position on the pyre, possibly on her left side with her head in the north. A similar in-situ cremation burial was identified at the Bronze Age ring ditch at Barley Croft (Evans and Knight 1998) and other examples should be sought in the literature. The bone from samples 4 and 5 needs to be found and analysed.

Other than the lesion recorded on the skull from pit F.1018, which may represent a healed projectile injury, the disarticulated bone is of interest in terms of its depositional context more than the bone itself. The disarticulated bone should be commented on more fully once the features have been dated and other material associated with them has been reported on. The possible textile attached to the left femur of skeleton [853] should be examined by a specialist.

Environmental Samples (A. de Vareilles)

Methodology

A selection of thirty-five non-waterlogged samples were examined from one hundred and seventeen samples, using bucket flotation. The flots appear to have been collected in a 500µm mesh, and the remaining heavy residue washed over a 1mm mesh. Flots were dried indoors and scanned for the presence of charred plant

remains, molluscs and charcoal by the author in July 2005. The two waterlogged samples were processed in the Pitt-Rivers Laboratory, Department of Archaeology, University of Cambridge. Sorting and identification of ecofacts was carried out under a low power binocular microscope. Identifications were made using the reference collection of the Pitt-Rivers Laboratory. Nomenclature follows Stace (1997) for plants and Beedham (1972) for snails. All environmental remains are listed in full in Table 34.

Preservation

Whilst varying quantities of charcoal are present in all samples, including the two waterlogged ones, charred plant macro-remains are on the whole sparse and very variable between samples. None of the charred samples are particularly well preserved; most of the cereal grains are heavily puffed and distorted, and some of the wild plant seeds are too damaged to be identified. A similar pattern in variation but not in quality of charred plant macro-remains was noted in a preliminary assessment (Ballantyne 2000b). Ballantyne notes that the general lack of charred plant macro-remains seems to be a result of factors other than poor preservation. Such a statement cannot be confirmed for all of the current samples however, due to the overall poor physical conditions of the cereal grains.

From the Bronze Age samples, F.634 (sample 57) appears to have the best preservation with its single spelt wheat (*Triticum spelta*) glume base and twenty small black nightshade (*Solanum nigrum*) seeds.

Sample from F.597 and that from the eaves-drip gully F. 759 are the best preserved Iron Age samples. The eaves-drip gully sample contains only one wheat grain (*Triticum* sp.) but a wide variety of wild plant seeds as well as grass stem fragments. [568] has a much larger proportion of cereal chaff than grains, suggesting that the lack of cereal grains is probably not a result of intensive burning. Interestingly, [568] also contains a relatively large quantity of vitrified charcoal, which is usually a sign of intensive burning, not conducive to the survival of chaff (cf. Boardman and Jones, 1990). It would therefore appear that the vitrified charcoal and cereal chaff represent separate depositional events.

A low level of modern contamination is present in most samples in the form uncharred seeds of fat-hen (*Chenopodium album*) and marsh-stitchwort (*Stellaria palustris*). Whereas the fat-hen seeds in the waterlogged samples may also be intrusive, the marsh-stitchwort is not necessarily so, as it does also occur charred in samples from F.755 and F.759.

Variations in the water-table level is indicated by iron III oxide staining on some of the charcoal, though none of the charred samples showed any signs of having been waterlogged for any prolonged period of time (eg. the presence of robust seeds such as elder and fresh water snails). This phenomena was also noticed in samples from Whittlesey Brick Pits (Ballantyne 2000a). The snail assemblage here is too insignificant to be discussed, though types and their habitats are recorded in Tables 33 and 34.

The only waterlogged samples came from pits F. 866 and F.879, both associated with burnt mound I.

Results

Collared Urn 'Structure' pits

c.[593] F.632; c.[594]; c.[595] F. 634; c.[596]? F.635; c.[597] F.636; c.[598] F.637; [608] F.647; c.[609] F.648; c.[610] F.649; [614]D F.653 and c.[641] F.680.

From the eleven samples only one spelt wheat glume base and one wheat or barley grain were identified. Cuts [594], [609] and [641] have very little charcoal and no plant macro-remains. [608] and c.[610] are also devoid of wild plant seeds and cereals, though their charcoal concentration is quite high. A single hazelnut shell (*Corylus avellana*) fragment was found in c.[597], indicating the presence of scrub or fen-edge woodland. The few seeds of knotgrass (*Polygonum aviculare*), clustered dock (*Rumex conglomeratus*) and musk mallow (*Malva moschata*) are associated with open, grassy areas of rich, damp soils. Black nightshade (*S. nigrum*) is the most common taxa, with twenty-five seeds from four different samples. This poisonous plant was a common Neolithic weed crop (Bakels 2000) in small plots of non-intensive cultivation (e.g. hoe or garden cultivation). Unfortunately, these seeds are not associated with significant cereal remains in these samples, and so cannot be confidently described as crop weeds.

EBA. Pit, spits C and D from [652] F.691

Spit C, unlike spit D, has a high quantity of large (greater than four millimetres) charcoal, suggesting that smaller plant macro-remains may have moved down profile; layers C and D might not be discrete. Thirteen hazelnut shell fragments were retrieved from spit C as well as good evidence for cereal cultivation, notably barley grains and perhaps also spelt wheat grains. Within spits C and D there are twenty-eight cereal grains but no chaff, hazelnut shell fragments and only three wild plant seeds. This composition is fitting with accidental charring during cooking and eating activities. The two wild plant seeds of clustered dock and sedge agree with the damp, grassy environment described for the collared urn 'structure' above.

LBA. Structure pits

[383] F.433; [388] F.437; [389] F.438; [390] F.439; [391] F.440; [392] F.441; [394] F.443; [395] F.444; [396] F.445; [397] F.446; [398] F.447; [399] F.448 and [411] F.460.

In total, only two cereal grains, both wheat or barley, and one spelt wheat glume base were extracted from the thirteen samples. All, except for sample 10, have very little quantities of charcoal. This may be a reflection of the sample volumes: all are below three litres except for [383] F.433 which is eight litres.

Field System Ditch; sample RMB 4 (see Table 33)

This sample contains relatively low quantities of charcoal and no other plant remains of any kind.

Furnace; [571] F.611

[571] contains lots of charcoal, though none vitrified, but no cereal remains or other plants. No suggestions can be made towards the use and function of the furnace.

South and North Post-holes of Iron Age House; F. 755 and F.756

The south post-hole (F.755) contains moderate quantities and the north post-hole (F. 756) high quantities of charcoal. Despite this, no cereal remains and only a few wild plant seeds were recovered. The three marsh stitchwort (*Stellaria palustris*) seeds in F. 755 point to a fen environment. The grass

seed and stem node, as well as the goosefoot and knotgrass seeds from F. 756, indicate that the open, damp, grassy surroundings of the Bronze Age site appear to have survived into the Iron Age.

Clay-fired Pit within the Iron Age House; F. 750

Only one litre was processed from this pit, from which charcoal was the only ecofact present.

Eaves-drip gully by the Iron Age House; F.759

This sample is the richest in wild plant seeds and the only one with charred grass stem bases. The charred stem bases either represent in situ burning, or the uprooting of plants or turf. The lack of cereal chaff and of any significant quantities of grain, suggest the grass stems and wild plant seeds are not from crop processing waste. The small seeds indicate a damp, open area.

Metal-Works Pit; [568] F.597

This sample is the only one with a dominant quantity of wheat and barley chaff. As in the E.B.A. pit F.691, barley and spelt wheat appear to be the main, if not only, cereals cultivated. The barley chaff shows that both 2-row and 6-row barley was grown. The much larger quantity of spelt wheat chaff suggests this sample consists mainly of spelt wheat processing waste. The proportion of cereal grains to chaff and the absence of small weed seeds point to the final stages of crop processing, where remaining chaff, grain-sized weed seeds and diseased or infected grains are sieved and then picked out by hand (Hillman 1981). Waste was then discarded into the metal-works pit, possibly as fuel. The small circular, shiny carbon blobs discovered in [568] appear to indicate very intensive burning in reduced conditions, though their identification must remain enigmatic until shown to a metal expert.

Pit with Copper; [580] F.619

A high proportion of charcoal, including vitrified pieces, and two clustered dock seeds were found in [580].

Grave; [573] F.613

[573], from under the skeleton, contains a moderate amount of charcoal, including one or two vitrified fragments. Apart from the single common spike-rush (*Eleocharis palustris*) seed, one wheat or barley grain, one wheat glume base and one spelt wheat glume base were extracted. An awn fragment and grass stem node are also present.

Waterlogged Samples by Burnt Mound I; [930]D F. 866 and [923] F. 879

Features 866 and 879 are close to each other and both associated with burnt mound I. Their plant composition differs little, and fresh water taxa as well as open waste or cultivated ground species are represented in both contexts. [930]D contains an almost equal amount of fresh water loving species and those that grow well on open, disturbed ground. The number of seeds however, exceeds in the water loving species. [930]D has a higher total count of seeds than [923]. The specimens present in [930]D but not in [923] are oraches (*Atriplex* sp.), knotgrass, great willowherb (*Epilobium hirsutum*), upright hedge-parsley (*Torilis japonica*), elder (*Sambucus nigra*), prickly sow-thistle (*Sonchus asper*) and a few indeterminate wild plant seeds. Those present in both contexts occur in different quantities. Crowfoot (*Ranunculus* subgen. *BATRACHIUM*) for example is only present as one or two seeds in [930]D whereas more than fifty seeds are visible in [923]. Such differences in numbers may suggest that the plant was growing in or closer to one feature than the other. [923] contains ten water loving species and only around four open or cultivated ground loving taxa. The species only present in [923] are narrow-fruited water-cress (*Rorripa microphyla*), an agrimonies seed head (*Agrimonia* sp.), fool's water-cress (*Apium nodiflorum*), mint (*Mentha* sp.) and a sedge (*trilete carex* sp.).

Two main types of environments are represented by the plant taxa from these features. Species associated with wet, shady habitats include crowfoot, mint, fool's water-cress and gypsywort (*Lycopus europaeus*). These plants must have grown within the negative features and reflect their wet and shady environments. The presence of water-flee egg cases in both samples points to still stagnant water. The other environment is that of the field surrounding the pits. Knotgrass (*P. aviculare*), smooth and prickly sow-thistles (*S. oleraceus* and *S. asper* – these species often occur together), fat-hen (*C. album*)

and upright hedge parsley all grow on open, cultivated or waste ground. Goosefoot (*Chenopodium* sp.) and knotgrass are common Bronze Age crop weeds (Greig 1991), whilst the other specimens also thrived within the field or on the grassy margins.

Due to the overall low sample volumes, the data amassed should not be viewed as fully representative of features sampled.

The Bronze Age

The only conclusive evidence for cereal cultivation in the Bronze Age comes from pit F.691. Hazel nut shell fragments were found in spit C of F.691 and F.636. The information gathered here is fitting with current data known for the Bronze Age economy of the British Isles. Hulled barley, spelt and emmer wheat (not identified here) were the main crops of the Bronze Age (Greig 1991). Agriculture was by no means intensive, and gatherings of wild fruits and nuts (such as hazelnut and blackberries) remained an important contribution to the diet (*ibid*, Jones 2000).

The pits from the collared urn 'structure' revealed very little, which suggests they were not used for grain and nut storage or as holes in which to discard ash from cooking fires.

The post-holes from the L.B.A structure contained even fewer archaeobotanical remains. Unlike the previously sorted sample from the L.B.A. porch posthole [16] F.9 (Ballantyne 2000b), no cereal chaff or grains were found in any of the post-holes. From the few wild plant seeds recovered, a tentative landscape of open-ground with small weeds and grasses growing on damp soils can be drawn around the Bronze Age features. Woodland and scrub presumably survived nearby, where hazelnuts and other food plants could have been gathered.

The waterlogged samples from near Burnt Mound I, within the field system, contained no direct evidence for the cultivation of cereals nearby. They do suggest, however, that the land was kept free from scrub and is likely to have been tilled or heavily trampled.

The Iron Age

Whereas little evidence for crop processing activities was found in the post holes and clay-fired pit F. 750 of the Iron Age round house, the metal-works pit F.597 revealed interesting information on possible agricultural activities. Spelt wheat and barley continued to be the main crops, whilst the absence of hazelnut may indicate a heavier reliance on cultivated foods. As the metal-works pit is the only feature with possible evidence for crop processing activities, further samples from within that area should be examined. The occurrence of crop processing activities around that area could explain the charred cereal remains retrieved from grave F. 613. The settlement landscape seems to have changed little from the Bronze Age, with the same setting of damp, grassy fields.

It is interesting to note that earlier samples from Bradley Fen contained more emmer than spelt wheat and no barley (Ballantyne 2000b), whereas no emmer and more spelt than barley were found from the samples analysed here. Further samples should be scanned in order to identify other cereal remains and maximise spatial patterning. Any

apparent spatial patterning in the types of crops and crop processing stages should then be analysed in combination with artefactual evidence, bearing in mind spatial and social distinctions between crop types and processing activities.

Further, waterlogged samples should be processed for a greater understanding of the settlement landscape and eventual effects of woodland clearance and cultivation upon the fens. There is good potential within these contexts for entomological remains, which would enrich our understanding of the areas human and natural ecology. Heavy residues from structures should be sorted to clarify if there is any spatial patterning of small artefactual remains.

Waterlogged Wood (M. Taylor)

Over 70 pieces of wood and timber were retrieved from the site. All the material came from deeper features on site.

Range and variation

The material represents an usually large range of artefacts and other material., including felled trees, log ladders, woodworking debris and a large section of a prehistoric boat.

Condition of material

Almost without exception, the wood is in very fine condition, with fine detail and tool-marks preserved. Using the table developed by the Humber Wetlands Project (Van de Noort, Ellis, Taylor & Weir 1995: Table 15.1) the wood from Bradley Fen scores 4 or 5.

	MUSEUM CONSERVATION	TECHNOLOGY ANALYSIS	WOODLAND MANAGEMENT	DENDRO- CHRONOLOGY	SPECIES IDENTIFICATION
5	+	+	+	+	+
4	-	+	+	+	+
3	-	+/-	+	+	+
2	-	+/-	+/-	+/-	+
1	-	-	-	-	+/-
0	-	-	-	-	-

Table 35: ‘Scored’ condition of wood from Bradley Fen

Statement of potential

Partly because of the quantity and range of material there is scope for expanding our understanding of Bronze Age woodworking. The site is close to Flag Fen, which has produced huge quantities of worked Bronze Age wood over the years. The wood from Bradley Fen, however, represents a completely different type of industry, and as such has enormous potential to add to our understanding of smaller woodworking and woodland techniques.

Table 36: Plants remains and Mollusca

Sample number		<55>	<56>	<57>	<58>	<59>	<60>	<61>	<62>	<63>	<67>	<69>	RMB 4	<52>
Context		c.[593]	c.[594]	c.[595]	c.[596]?	c.[597]	c.[598]	[608]	c.[609]	c.[610]	[614]D	c.[641]		[571]
Feature		632		634	635	636	637	647	648	649	653	680		611
Feature type		Pit CO	Pit LL	Pit AR	Pit ED	Pit	Pit URN	Pit	Pit STR	Pit UC	Pit TU	Pit RE	Ditch, field system	Furnace
Phase/Date		EBA	EBA	EBA	EBA	EBA	EBA	EBA	EBA	EBA	EBA	EBA		
Sample volume - litres		16	24	7	10	30	26	25	5	6	15	4		2
Flot fraction examined		1/1	1/1	1/1	1/1	1/1	1/1	1/2	1/1	1/1	1/4	1/1	1/1	1/1
<i>Triticum/Hordeum</i>	Wheat/Barley grain					1								
<i>T. spelta glume base</i>	Spelt glume base			1										
<i>Corylus avellana fragments</i>	Hazelnut shell fragments					1								
<i>Polygonum aviculare</i>	Knotgrass	3												
<i>Rumex conglomeratus</i>	Clustered Dock			2							1			
<i>Malva cf. moschata</i>	Musk-Mallow			4	1									
<i>Small Fabaceae</i>	Pea family						1.5							
<i>Epilobium cf. hirsutum</i>	Great Willowherb			1										
<i>Solanum nigrum</i>	Black Nightshade	3		20	1	1								
<i>Cladium mariscus</i>	Great Fen-sedge			1										
Indet seed-coat fragment							2							
Indet wild plant seeds		1		4										
Charcoal fragments														
> 4mm		+	-	+	-	+	++	++		++	+++		-	+++
2 – 4mm		++	-	++	+	+	+++	+++	+	+++	+++		++	+++
< 2mm		++	++	+++	+	+++	+++	+++	++	+++	+++	+	++	+++
Vitrified					-	-	-				-			
Mollusca	Habitat													
<i>Carychium tridentatum /minimum</i>	Damp areas, in leaves, moss									-				
<i>Vallonia excentrica / pulchella</i>	Dry areas, in grass and leaves		-											
<i>Cepea sp</i>	Woods, hedges							-						
<i>cf. Punctum pygmaeum</i>	Damp sites, moss, marshes, leaves			-		-				-				
<i>Oxychilus cf. helveticus</i>	Woods, hedges							-						
<i>Aegopinella cf. pura</i>	Damp, shady areas							-						

Table 36: continued

Sample number		<75>	<76>	<10>	<11>	<12>	<13>	<14>	<15>	<17>	<18>	<19>	<20>	<21>	<22>	<23>
Context		[652]	[652]	[383]	[388]	[389]	[390]	[391]	[392]	[394]	[395]	[396]	[397]	[398]	[399]	[411]
Feature		691	691	433	437	438	439	440	441	443	444	445	446	447	448	460
Feature type		Layer C	Layer D													
Phase/Date		EBA	EBA	LBA	LBA	LBA	LBA	LBA	LBA	LBA	LBA	LBA	LBA	LBA	LBA	LBA
Sample volume - litres		14	16	8	1.5	1.5	1.5	1	1.5	1	1	1	1	1	1	3
Flot fraction examined		1/2	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
<i>Hordeum sp.</i>	Barley grain	1	1													
<i>Hordeum sp. tail grain</i>	Barley tail grain	1														
<i>Triticum cf. spelta</i>	Possible spelt wheat grain		1													
<i>Triticum/Hordeum</i>	Wheat/Barley grain	8	6	1												
<i>Indet cereal grain</i>		10								1						
<i>T. spelta glume base</i>	Spelt glume base													1		
<i>Triticum sp. glume base</i>	Wheat glume base															
<i>Corylus avellana frags.</i>	Hazelnut shell fragments	13														
<i>Rumex conglomeratus</i>	Clustered Dock	1														
<i>Eleocharis/Carex seed-coat fragment</i>		1														
Indet wild plant seed		1														
Charcoal fragments																
> 4mm		+++	-	++												
2 – 4mm		+++	++	++		-	-									+
< 2mm		+++	+++	++	++	++	++	+	+	++	-	+	++	+	+	++
Vitrified		+														
Mollusca	Habitat	-														
<i>Vallonia excentrica/pulchella</i>	In dry grass and leaves	+++	+++													
<i>Ceciloides acicula</i>	Burrowing snail		+													
<i>Aegopinella cf. pura</i>	Damp and shady															

Table 36: continued

Sample number						<89>	<65>	<66>
Context					[758]	[568]	[580]	[573]
Feature		755	756	750	759	597	619	613
Feature type		S. post hole	N. post hole	Clay fired pit	Eaves-drip gully	Metal works	Pit with copper	Grave, under skeleton
Phase/Date		I.A. house	I.A. house	I.A. house	I.A. house	I.A.		
Sample volume - litres		6	2	1	7	12	12	14
Flot fraction examined		1/1	1/1	1/1	1/1	1/2	1/2	1/1
<i>Hordeum sp.</i>	Barley grain					2		
<i>Triticum sp.</i>	Wheat grain				1			
<i>Triticum/Hordeum</i>	Wheat/Barley grain					2		1
<i>H. vulgare sensu lato internode</i>	2-row barley internode					3		
<i>H. vulgare sl. internode</i>	6-row barley internode					1		
<i>T. spelta glume base</i>	Spelt glume base					74		1
<i>Triticum sp. glume base</i>	Wheat glume base					33		1
<i>cf. Thalictrum flavum</i>	Common Meadow-rue				1			
<i>Chenopodium sp.</i>	Goosefoots		1					
<i>Stellaria cf. palustris</i>	Marsh Stitchwort	3			2			
<i>Polygonum aviculare</i>	Knotgrass		1		6			
<i>Rumex conglomeratus</i>	Clustered Dock						2	
<i>Epibolium cf. hirsutum</i>	Great Willowherb				1			
<i>Crepis sp.</i>	Hawk's beard				2			
<i>Eleocharis palustris</i>	Common Spike-rush							1
<i>medium trilete Carex sp.</i>	Sedge				1			
<i>medium Poaceae indet</i>	medium grass family					1		
<i>large Poaceae indet</i>	large grass family	1			1	8		
<i>Poaceae culm node</i>	Grass stem node	1			2			1
<i>Poaceae culm internode</i>	Grass stem internode				1			
<i>Basal culm</i>	Stem base				4			
Indet seed-coat fragment					2	1		
Indet wild plant seeds			1		5			
Awn fragment								1
Charcoal fragments								
>4mm		+	++	+	+	+++	++	+
2 – 4mm		++	+++	++	++	+++	+++	++
<2mm		+++	+++	++	+++	+++	+++	+++
Vitrified						+	+	-
Small circular shiny carbon 'blobs'						++		
Mollusca	Habitat							
<i>cf. Punctum pygmaeum</i>	Damp sites, moss, marshes, leaves						-	
<i>Vitrina sp.</i>	Almost ubiquitous							-

Key: '-' 1 or 2 items, '+' < 10 items, '++' 10 - 50 items, '+++> > 50 items

Felled trees

There are at least three felled trees from the site, all of which carry clear evidence of the tools and methods used in the felling. This is probably the largest number of felled trees found on any one Bronze Age site. Even more unusually, there is amongst the woodworking debris, some material which may have been created by tree felling, and a tree stump with large numbers of toolmarks on it.

Boat

A large section of a 'dug-out' boat was re-used in a pit on site. This boat section is very well preserved and has completely preserved depth gauges and constructional detail. The section found in the pit was cut down from the original boat at a later date. It is in two pieces.

Artefacts

There is a probable 'beetle' or mallet head which is unusual and very well preserved. Two log ladders, one extremely well preserved with four steps, still carry detailed toolmarks and construction details.

At least one of the bronze spearheads still contains the wood of its shaft in the socket (see Appleby, above).

Roundwood and coppicing

Quantities of roundwood has been preserved. Much of it shows evidence for coppicing and working. Some of it is debris from working the roundwood and some is derived from wattle work structures.

Woodworking debris

Woodworking debris from small and large timber working as well as from tree felling has all survived in this assemblage.

Tool-marks

There is evidence for the use of at least 13 axes being used for woodworking. The tree felling is particularly well represented.

Research questions and potential of data

The importance of the wood assemblage lies in its completeness, variety and good standard of preservation. The toolmarks and roundwood/coppicing material are all worthy of study. The felled trees are particularly important

Conservation, further examination, and full illustration of the wood are required involving the following:

- A full catalogue of the wood needs to be compiled before there is any more deterioration in the stored material. This is largely completed.
- The boat and one of the log ladders should probably be conserved. The boat section and one of the log ladders would make fine museum displays for a local museum. If it is the intention to offer these objects for display it will be necessary for them to be conserved as soon as possible. A final home for the conserved objects should be identified before proceeding. Preliminary drawings of the boat and at least one log ladder should be made as soon as possible. This has been largely completed.
- If any material is to be conserved then work on pre-treatment should begin as soon as possible and before there is too much deterioration in the quality of preservation.
- To complete urgent work and leave the assemblage in a state where it could wait some time for the final report. This would leave some species ID and the final write-up still to be done. This work needs to be done regardless of whether or not there is any conservation.
- Conservation of the two large objects if they are taken by local museums for display.

Pollen Analysis (R. Scaife)

A series of sediment sample columns was obtained for pollen analysis during the excavations of 2004. These were taken from the principal stratigraphical and archaeological features observed on the site. A preliminary examination of the sub-fossil pollen and spores has been carried out with the following principal aims:

- a) To ascertain if sub-fossil pollen grains and spores are present in the sediments, with quality of preservation and in sufficient numbers to allow a preliminary evaluation to be carried out.
- b) If pollen and spores were present, to provide a preliminary view of the vegetation types present and the environment which existed during the time-span of sediment deposition (thought to be largely Neolithic and Bronze Age).
- c) To compare the pollen data with other information obtained from the adjacent Flag Fen Complex (Scaife 2001) and Must Fen (Scaife 2005).
- d) To define the potential of these sequences for fuller pollen analyses which would produce a detailed vegetation and environmental history of the site relevant to the archaeology.
- e) It is expected that data obtained will ultimately be integrated with the results of other palaeo-environmental studies of the sediment stratigraphy, diatoms, plant macrofossils (seeds and wood) and radiocarbon dating to provide a detailed reconstruction of the palaeo-landscape, changes through time and space.

Results

Pollen was recovered from the profiles examined and preliminary pollen diagrams have been constructed for four sections. The results of this analysis are presented here.

2.ii.) Pollen Procedures

Samples of 1-2ml volume were processed using standard techniques for the extraction of the sub-fossil pollen and spores (Moore and Webb 1978; Moore et al. 1992). Micromesh sieving (10 μ) was also used to aid with removal of the clay fraction in the mineral sediments. The sub-fossil pollen and spores were identified and counted using an Olympus biological research microscope fitted with Leitz optics. Total pollen counts of up to 500 grains of dry land taxa per level was counted. All spores and pollen of marsh taxa (largely Cyperaceae), fern spores and miscellaneous were counted for each of the samples analysed. Preliminary pollen diagrams have been plotted using Tilia and Tilia Graph (figures 1-4). Percentages have been calculated in as follows:

Sum =	% total dry land pollen (tdlp).
Marsh/aquatic =	% tdlp + sum of marsh/aquatics (incl. Alnus and Salix)
Spores =	% tdlp + sum of spores.
Misc. =	% tdlp + sum of misc. taxa.

Alnus has been excluded from the pollen sum because of its high pollen productivity (its consequent abundance) and its on, or near site growth which tends to distort the percentage representation of other taxa within the pollen sum (Janssen 1969). Consequently the percentages of alder have been incorporated within the fen/marsh group for which it is botanically a part of. Because Salix (willow) may be associated with this fen carr taxon/habitat, this was also been included in this calculation. Taxonomy, in general, follows that of Moore and Webb (1978) modified according to Bennett et al. (1994) for pollen types and Stace (1997) for plant descriptions. These procedures were carried out in the Palaeoecology Laboratory of the Department of Geography, University of Southampton.

3.) The Pollen Data

Four profiles have been examined which include the sediments underlying the trackway (P3), through the organic fills of the ditch (P2) and adjacent buried soil (P1) and through the buried soil (P4) away from the archaeology but which is generally present throughout the area of the site. For locations of these see figure ** (section **).

3.a.) The Ditch and Adjacent Soil Profile

3.a.i.) Profile P1: This section span the detrital fen peat (0-21cm) which overlies a thin, grey, poorly developed leached podzolic soil (21-27cm) which forms the prehistoric old land surface. Below this is a buff coloured subsoil overlying Pleistocene gravel.

This profile is in very close proximity and to the ditch profile (P2) but was, however, taken outside of any obvious disturbance caused by the former. The contained pollen and spores clearly show the character of the vegetation prior to woodland clearance and agriculture and the subsequent inundation of fen and accretion of peat. At present, two principal pollen zones can be recognised which reflect these environmental changes.

Zone P1:1 (24-18cm): The old land surface and buried soil is distinguished by Tilia (lime/linden; to 27%) which is absent in subsequent levels. This is associated with other trees including Quercus (oak; 15-20%) and Corylus avellana type (hazel but may include sweet gale in appropriate acid habitats), especially in the lowest level (27%). There are few herbs with only Poaceae (grasses) of note (increasing from 20-35%). Alnus glutinosa (alder) with some Typha angustifolia type (bur reed and reed mace) and Cyperaceae (sedges) dominate the fen/marsh taxa. There are very substantial numbers of monoete (Dryopteris type) fern spores.

Zone P1:2 (18-0cm): Tilia of the lowest levels is absent in these more organic peat/sediments. Quercus (36%) and Alnus glutinosa (57%) initially expand to their highest values and subsequently decline whilst Poaceae (to 80%), Salix (willow; to 10%), Typha angustifolia type (58%) and Cyperaceae (become more important. There is a general increase in the diversity of herb types that include Plantago lanceolata (ribwort plantain) and Cereal type. In the upper peat there are occasional aquatic taxa.

3.a.ii.) Profile P2: This field boundary ditch contains a substantial thickness of humic sediment which accumulated due to the wet conditions. Two overlapping column profiles were obtained. There is a total of 0.5m of black detrital fen peat containing silt that overlies a lower humic sand and the

underlying Pleistocene gravels. A total of ten samples has been analysed which extend to the top of the lower minerogenic layers.

From the palynology, two principal zones can be recognised. These are characterised from the base of the ditch fill upwards as follows.

P2:1 (64-28cm): This is differentiated by greater numbers of *Alnus glutinosa* (40%) than in the overlying levels. Other trees and shrubs are dominated by *Quercus* (30-35%) with *Corylus avellana* type (to 37%). Of note are the slightly higher (6%) values of *Tilia* in the lowest, minerogenic, layer. Poaceae (40-45%) dominates herbs along with Apiaceae (umbellifers; 5-6%), *Plantago lanceolata* (5-6%) and other types. Fen taxa include Cyperaceae (c.20%), *Typha angustifolia* type (to 47%), *Sagittaria* and *Alisma* type.

P2:2 (28-0cm): Alder of zone 1 is markedly reduced. Poaceae become more important (to 70%) along with a very substantial peak in monolet fern spores. Trees and shrubs remain *Quercus* and *Corylus avellana* although the small numbers of *Tilia* in the lower zone are absent. Fen/marsh taxa remain dominant with Cyperaceae (10-15%) and *Typha angustifolia* type (48%) remaining important. *Salix* (willow) is consistently present.

3.b.) Profile P3: A monolith of 30cm was taken from the sediments underlying the trackway (for location see **). The broad stratigraphy comprises 0-8cm of detrital peat/trackway underlain by grey/black (detrital organic) humic sand overlying the basal Pleistocene yellow sandy gravel.

Four pollen samples have been examined which span the upper peat and underlying humic sand of the old land surface. There are some evident stratigraphical changes in the palynology. These largely relate to the change from mineral sediment to the overlying detrital/organic peat and associated changes in on-site vegetation and pollen taphonomy. Two tentative pollen zones have been recognised and are characterised as follows.

P3:1 (12-6cm); The lower humic sand/old land surface. Trees and shrubs are dominated by *Quercus* (peak to 45%) with *Corylus avellana* and *Alnus glutinosa* (to 60%). There are also small, but slightly greater numbers of *Tilia* in this zone. Fern spores (*Dryopteris* type) are abundant (75%) in the lowest level examined.

P3:2 96-0cm); In this upper zone, *Quercus*, *Corylus avellana* type and *Alnus glutinosa* remain largely unchanged. *Tilia* is, however, reduced. Herbs remain dominated by Poaceae but with expansions of *Plantago lanceolata* (18%), Apiaceae (umbellifers; 6%), cereal type and other herb taxa that occur more sporadically. Marsh/fen herb types become more important with *Typha angustifolia* type and occasional *Sagittaria sagittifolia* (arrow head), *Alisma* type (water plantain) and *Potamogeton* type (pond weed). *Salix* (willow) is consistently present. The high values of monolet fern spores in the lower land surface are progressively reduced to relatively low levels.

3.c.) Section P4: This section was taken from the Western perimeter of the site where the prehistoric land surface (underlying the peat) was well developed and preserved (see figure ** for location). Here the typical sequence of detrital fen peat (0-16cm) overlies a poorly developed, dark grey podzolic soil (16-23cm) developed in a yellow/grey gleyed sub-soil (23-29cm).

Four pollen samples were examined to establish the vegetation characteristics of the old land surface and subsequent changes brought about by water-logging and the creation of fen peat. These changes are reflected in the pollen assemblages and three distinct zones may be delimited (NB. these require additional pollen levels to verify).

Zone P4:1 (24-18cm). This single sample from the old land surface is characterised by high values of (but degraded) *Tilia* (38%). Other trees and shrubs comprise small numbers of *Quercus* (6%) and *Corylus avellana* type (7%). *Alnus glutinosa* is present (23%). Herbs (43% of total) include Poaceae (23%), Lactucoideae (dandelion types; 4%) and *Plantago lanceolata* (3%). Monolet fern spores are significant (55%) and along with Lactucoideae and unidentified/degraded grains are indicative of differential preservation in favour of more robust types.

Zone P4:2 (18-4cm). Detrital fen peat. Tilia of the preceding zone declines to only small values (2-3%) whilst Quercus (38%) and Alnus glutinosa (to 70%) become important. Herbs also become more diverse with expansion of Poaceae (to 45%). Plantago lanceolata (to 8%) and occasional cereal pollen are present.

Zone P4:3 (4-0cm). The upper peat. In this single upper-most sample, there is a marked expansion of Typha angustifolia/Sparganium type (58%) which is also associated with other fen taxa which include Calitriche (water starwort), Alisma type (water plantain), Iris and Typha latifolia (greater reed mace). Salix also slightly expands.

Vegetation and environmental changes

Pollen analysis of the four columns, although only to assessment levels does, however, provide an insight into the changing character of the vegetation and environment of the region of Must Fen. These range from evidence of the character of the woodland that existed prior to (? Neolithic) clearance, the pattern of agriculture and changes to a wet fen habitat, the latter which was a consequence of regionally rising water-tables caused by positive eustatic change. These results may be compared with other data obtained from the Finland's as a whole (Waller 1994) and more locally from the adjacent embayment of Flag Fen and Fengate (Scaife 2003) where radiocarbon dated sequences have been obtained. Rather than provide individual vegetation histories for each of the profiles described above, the broad patterns of environmental change already noted are outlined.

4.a.) The old land surface: This represents the prehistoric, Neolithic land surface which is found sealed below peat over most of this site and as such is the level on which prehistoric activity took place (cattle footprints). The nature of pollen in soils is different from that of peat with the former becoming incorporated downwards into a developing soil rather than a stratigraphical accretion in the latter. Thus, interpretation of the data requires a different approach, especially where the complications of differential preservation pertain. One factor of significance is that the pollen recovered from such soils usually reflects the vegetation growing on or at most closely adjacent to the sample site. Here, this is evident with the occurrence of pollen of lime/linden (*Tilia cf. cordata*). This is seen in the soils/basal mineral sediments of all of the profiles and especially in profiles P1 (4.a.i.) and P4 (4.c. above). This is a clear indication that the dominant on-site woodland prior to human clearance was lime dominated. This is not unexpected since in recent years there has been a growing corpus of evidence showing that this was the case for most of southern and eastern England (for example; Birks *et al.* 1974, Birks 1989; Moore 1977; Greig 1982; Scaife 1980; 1988; 2000). Locally this has also been evidence from similar buried soils at Flag Fen (Scaife 2003), Crowtree Fen (Scaife 1993) and Deeping St. James (Scaife 1994). Lime became important from during the middle Holocene (Flandrian Chronozone II; the Atlantic). The pollen is markedly under represented in pollen spectra (Andersen 1970, 1973) but is, however, robust and undoubtedly has been preserved from this earlier (late Mesolithic) period into the Neolithic while other contemporaneous tree taxa may have been destroyed. It is noted that most of the *Tilia* pollen identified was poorly preserved thus indicating a long residence in the soil. Traces of better preserved tree pollen indicate that oak and hazel were the principal remaining woodland types within the region while alder formed a locally important, and expanding wetland element. During this period it was probably important along the banks of rivers, streams and ditches (as in ditch section P2).

It is likely that this woodland was either cleared or died out caused by a rise in the local water table. It is not clear which was responsible for the demise of the lime woodland although the importance of pastoral agriculture evidence by the cattle hoof prints may be an indication of the former. Pollen of grasses, plantain and other taxa within the soil attest to the open pastoral vegetation character of the soil during the period of archaeological activity. It also appears that forest clearance initiated soil deterioration with leaching and formation of a poorly developed podzolic soil.

4.b.) The onset of wetness:

Peat overlying the old land surface attests to the effects of sea-level change in the North Sea and the progressive, regional rise in water tables as the base level similarly rose. This caused water-logging of the Fenland Basins and the asynchronous formation of peat at differing altitudes. This event was in general, a negative hydrosere, that is, progressive change from carr woodland through to wetter and

even open water habitats. There is evidence that this occurred in Bradley Fen. During the period of activity on the old land surface, there is evidence that alder existed, and as noted, was probably growing along the banks of the river and wetter field boundary ditches. From this source, it was able to expand into alder carr woodland which fringed areas of developing grass/sedge fen. This occurred asynchronously at higher OD through time. This has been demonstrated through radiocarbon dating of the Bronze Age Flag Fen and Fengate Power Station sites (Scaife in Pryor 2003). At Bradley Fen, this expansion can be seen in all of the sections where an increase in alder pollen values occurs above the old land surface and is seen most clearly in sections P1, P2 and P4.

Subsequent to the expansion of alder there is evidence of further, increasing wetness with a progressive change to sedge fen/reed swamp. This is suggested by the expansions especially of sedge and lesser and greater reed-mace, bur-reed and other fen taxa seen in section P1 and P3 and upper level of P4.

Pollen has been recovered and examined from all of the samples taken from the individual profiles. Although this study is only preliminary, some useful data regarding the changing late prehistoric environment of the site has been obtained. The principal points are summarised as follows.

- * The old land surface (palaeosol) which is present throughout the site has produced evidence that lime woodland was probably the dominant woodland on the site prior to (Neolithic) clearance. Other woodland taxa included largely oak and hazel with alder in wetter zones.
- * With forest clearance the environment became grassland/pasture. Although there are traces of cereal pollen (P2) it is probably not of immediate local origin.
- * Increasing regional wetness through positive eustatic changes saw the initial and asynchronous encroachment of alder carr, floodplain type woodland over this old land surface.
- * Continued increase in local ground water table caused the development of grass/sedge fen.
- * It was probably in response to this water-logging that the trackway at Bradley Fen was constructed to traverse the area.

It is clear that the sediments at this site have excellent potential for reconstructing in more detail the local vegetation and environment which can be related to the different phases of human activity identified.

A fuller analysis could include analysis in more detail of (i.) the ditch profile P2 and associated column P1 and (ii.) study of the old land surface and sequence immediately underlying the trackway itself (P3).

Pollen counts of 500 grains per sample at a sampling interval of 4cm for these sections. This would be required for publication.

Radiocarbon dating of the peat/sediment and old land surface interfaces is required to assess the degree of asynchronicity of the wetland expansion.

Assessment of the buried soils (C A I French)

Introduction

The development area lies on the extreme northwestern edge of Whittlesey Island. The fen basin adjacent is effectively the southern side of the Flag Fen Basin, now cut off by the modern canalized River Nene, its counter drain and Moreton's Leam.

The area immediately to the north of the site has seen much archaeological and palaeoenvironmental attention over the past 30 years by various projects of Francis Pryor such as Fengate, Flag Fen, Northey and South-west Fen Dyke Survey (with a selection of references including Pryor 1980, 1984, 1992, 2001; French and Pryor 1993; Gurney 1980; Hall 1987). Associated with these projects, the Flag Fen Basin and its western, northern and eastern hinterlands has seen many investigations of the palaeoenvironmental history of the basin through a combination of numerous palynological (Scaife in Pryor 1992; 2001) and soil micromorphological analyses (French 1992 a & b; French in Pryor 2001) of palaesol and peat/alluvium sedimentary sequences. The southern side of the basin has yet to witness such attention.

Observations (29/3/2001)

At the Bradley Fen site, the March Gravels dip northwestwards, and below the 1.25m contour, a minerogenic detrital peat has developed on the buried soil. This peat is overlain by oxidized silty clay loam alluvium overbank flood deposits and then an oxidized alluvial ploughsoil, the whole sequence being of <1m thickness. This sequence will undoubtedly thicken northwards as the island dips into the Flag Fen Basin, and will be investigated in the second phase of works at this development site.

Correlation by level with the Northey-Flag Fen-Fengate sequences suggests that the peat developed on the buried soil could have begun to form as early as *c.* 1350-1000BC (ie. At Northey : 3130+/- 60BP; at Fengate : 2840+/-50BP), but this is more probably mainly post-700BC (that is after the abandonment of the Flag Fen platform), especially on the upper parts of this marginal site (after French in Pryor 2000). This correlates nicely with the peat often acting as the tertiary fill of some of the later Bronze Age features on the site, especially around the 1.5m OD mark, whereas later Neolithic and Early-Middle Bronze Age features are infilled with dryland-derived, non-waterlogged, inorganic material, similar to the buried soil/subsoil material. By way of corroboration, Bronze Age pit features discovered on the extreme the southwestern edge of 'Northey Island' in this writer's dyke survey immediately to the north of the Bradley fen site had similar peat fills which were dated to 2800+/-100BP or 1290-800 cal BC (Har-8511) (French and Pryor 1993). This first phase of peat formation appears to have ceased in the later Iron Age, with dates of 2180+/-60BP for the top of the peat at Northey Island and 2290+/-50BP at Fengate.

The Roman road or 1st Century Fen Causeway crosses the easternmost part of the site. At its northernmost location in the development area, the gravel road make-up is preserved sufficiently to seal the pre-Roman buried soil. It is an oxidized sandy loam which appears to be missing its upper organic A horizon, the turf and /or topsoil apparently having first been stripped off along the line of the Roman road prior to its

construction. The main part of the development area above the 2m OD contour preserves a thin 'skim' of buried soil (ie. <10cm thick). Features define in this and at its base, but the soil profile has largely been disturbed and mixed by recent ploughing.

Observations (4/8/2004)

A site visit revealed a well preserved buried soil that was present across the whole excavation area. It was preserved both beneath the sinuous middle-late Bronze Age bank and under the fen sequence of deposits to either side. Rather unusually, the whole soil profile was preserved *in situ*, buried by detrital wood/reed peats and silty clay alluvium over a depth of about 66cm, and developed on a March Gravels substrate (Booth 1982).

The buried soil profile exhibited three horizons:

- an Al/h horizon composed of black, organic silt loam, with included fine charcoal, suggestive of a forest floor organic horizon with some anthropogenic activity, and occasional irregular patches of horizon material from below suggesting some subsequent mixing and disturbance of this horizon
- a Eb (a depleted or eluviated horizon) composed of a pinkish brown silt loam
- a B horizon composed of pale greyish brown silt loam with frequent amorphous iron mottling, which is probably an iron and clay-enriched argillic (or Bw) horizon

This field profile would suggest that the palaeosol in this part of Bradley Fen is a brown forest soil or argillic brown earth. It is better developed than the buried brown earth soils observed previously higher up the island to the east in the same quarry (Pierre 2003).

Potential

This is the modal soil type developed on gravel terrace substrates in this part of Cambridgeshire, and specifically the associated fen-edge and lower river valleys emptying into the fens (French and Pryor 1993; French 2003). Examples have been specifically identified and analysed through soil micromorphological and palynological techniques at the Flag Fen Pumping Station, Crowtree Farm and Oakhurst Farm in Borough/Newborough Fen immediately to the north, all at about the same +/-0 metre OD contour (French and Pryor 1993; Scaife 1993), and in less well preserved form at several Third and Fourth Drove Fengate sites (French 1998, 2001; Scaife 1998a & b, 2001).

Thus, the palaeosol at Bradley Fen in association with the middle-late Bronze Age trackway and ditch/bank system is well preserved and complete, although somewhat compressed. Moreover, in the immediate sub-region it is associated with good palynological evidence for a Mesolithic mixed lime/oak deciduous woodland (Scaife 1993; Waller 1994).

Significance for the site

Why is this soil so well developed as compared to the other palaeosols previously observed at Bradley Fen and around the northern fringes of the Flag Fen basin? I would suggest that this is to do with the longer existence of woodland cover which gradually becomes subsumed by a rising groundwater table and associated peat formation, and a lesser time for human activities and disturbance to take place prior to its submergence by groundwater and peat growth.

Perhaps, the route of the wooden 'trackway' and later, sinuous ditch and bank system was demarcated by a belt of surviving woodland, which on the other (northern) side of the basin was over-exploited and had disappeared and given way to reed swamp in the middle-later Bronze Age (eg. at the Fourth Drove Power Station and Flag Fen Avenue and platform sites) (Scaife 2001). Obviously, forthcoming pollen evidence is crucial here.

It is also possible that the sinuous bank and ditch took a route between selectively felled trees, weaving between remaining trees, which defined a south-north route across this landward fen embayment margin. This could be plotted with respect to the existing tree-throw holes to either side of this linear feature. Both this place and alignment must have had additional significances in the past, and the soil micromorphological analyses and associated pollen analyses can only contribute to this discussion.

Sampling

Three buried soil profiles were sampled for micromorphological analysis, as follows: one profile to the west side of the ditch and bank, one beneath the trackway and bank, and one on the southwestern margin of the site. The same sample locations will be duplicated for pollen analysis. It is recommended that all three profiles be subject to full micromorphological (and pollen) analysis.

The analysis would aim to address:

- 1) the nature of development of the woodland soil type
 - 2) evidence for clearance, disturbance and anthropogenic activities
- the palaeoenvironmental and anthropogenic relationships with the contemporary pollen data.

Bradley Fen –Radiocarbon Dating

Sample Number	Site	Description	Feature	Context	Sample	Cal BC
BAD '01 R.1	<i>Bradley Fen 2001</i>	Burnt Mound 1	F.859	SQ 35	Charcoal	<i>1740-1530 BC</i>
BAD '01 R.2	<i>Bradley Fen 2001</i>	Wooden haft from single spear.	SF 66	(21)	Wood	<i>1190-930 BC</i>
BAD '01 R.3	<i>Bradley Fen 2001</i>	Peat from inside hoard spear.	F.786	(3)	Peat	<i>1310-1040 BC</i>
BAD '01 R.4	<i>Bradley Fen 2001</i>	Context from beneath hoard.	F.786	[790]	Wood	<i>1280-1010 BC</i>
BAD '01 R.5	<i>Bradley Fen 2001</i>	Middle Iron Age House – lamb bones in internal pit.	F.1094	[1187]	Bone	<i>Failed</i>
BAD '01 R.6	<i>Bradley Fen 2001</i>	LBA Post-built Roundhouse.	F.442	[393]	Charcoal	<i>900-800 BC</i>
BAD '01 R.7	<i>Bradley Fen 2001</i>	Early Bronze Age Roundhouse – hearth (charred logs).	F.1299	[1405]	Charcoal	<i>2200-1950 BC</i>
BAD '04 R.8	<i>Bradley Fen Farm 2004</i>	Burnt Mound 4.	F.1288	SQ 3	Charcoal	<i>1910-1700 BC</i>
WBP '99 R.9	<i>King's Dyke West 1999</i>	Early Iron Age roundhouse (Structure 5).	F.495	[540]d	Charred seed	<i>520-380 BC</i>
BAD '01 R.10	<i>Bradley Fen 2001</i>	Burnt Mound 2	F.1095	SQ 1	Charcoal	<i>2300-2120 BC</i>
BAD '01 R.11	<i>Bradley Fen 2001</i>	Burnt Mound 3	F.1148	SQ 2	Charcoal	<i>1690-1510 BC</i>
BAD1306F1265	<i>Bradley Fen Farm 2004</i>	Post from Fenceline	F.1306	[1265]	Wood	<i>1620-1390BC</i>

Bibliography

- Alexander, M. 1997. *Excavations at King's Dyke (Area A), Whittlesey, Cambridgeshire*. Cambridge Archaeological Unit Report No. 204
- Andersen, S.T. 1970. The relative pollen productivity and pollen representation of north European trees and correction factors for tree pollen spectra. In *Danmarks Geologiske Undersogelse* R.II. 96: 1-99
- Andersen, S.Th. 1973. The differential pollen productivity of trees and its significance for the interpretation of a pollen diagram from a forested region. In H.J.B Birks and R.G. West, *Quaternary Plant Ecology*. Oxford: Blackwell: 109-115
- Bakels, C. 2000. The Neolithization of the Netherlands. In A. Fairbairn (ed.), *Plants in Neolithic Britain and beyond*. Oxford: Oxbow books: 101-106
- Ballantyne, R. 2000a. *Preliminary assessment of the bulk samples from Whittlesey Brick Pits*. Cambridge Archaeological Unit
- Ballantyne, R. 2000b. *The Environmental Bulk Samples from Bradley Fen, Whittlesey*. Cambridge Archaeological Unit
- Bamford, H.M. 1982. *Beaker Domestic Sites in the Fen Edge and East Anglia*. East Anglian Arch Rep 16. Norfolk: Norfolk Archaeological Unit
- Bass, W.M. 1987. *Human Osteology*. Columbia: Missouri Archaeology Society
- Baxter, I.A. 2002. Occipital perforations in a Late Neolithic probable aurochs (*Bos primigenius* Bojanus) cranium from Letchworth, Hertfordshire, UK. In *International Journal of Osteoarchaeology* 12: 142-143
- Beedham, G.E. 1972. *Identification of the British Mollusca*. Bath: Pitman Press
- Berger, M. 1999 *Archaeology Evaluation at Whittlesey Substation Number 1*. Cambridge Archaeological Unit Report No. 325
- Birks, H.J.B. 1989. Holocene isochrone maps and patterns of tree spreading in the British Isles. In *Journal of Biogeography* 16: 503-540
- Birks, H.J.B., Deacon, J. and Peglar, S. 1975. Pollen maps for the British Isles 5000 years ago. In *Proceedings of the Royal Society* B189: 87-105
- Boardman, S., Jones, G. 1990. Experiments on the effects of charring on cereal plant components. In *Journal of Archaeological Science* 17: 1 - 11
- Booth, S. J. 1982. The sand and gravel resources of the country around Whittlesey, Cambridgeshire: description of 1:2500 sheets TF20 and TL29. *Miner. Assess. Rep. Inst. Geol. Sci.* 93.
- Bradley, R. 1993. Where is East Anglia? Themes in Regional Prehistory. In J. Gardiner (ed.), *Flatlands and Wetlands: Current Themes in East Anglian Archaeology*. EAA Report No. 50. Norwich
- Bradley, R. 1998. Bradley, R. 1998. *The Passage of Arms: An archaeological analysis of prehistoric hoard and votive deposits*. 2nd Edition. Oxford: Oxbow Books
- Brickley, M., Mckinley, J.I. (eds.). 2004. *Guidelines to the Standards for Recording Human Remains I*. London: IFA Paper No. 7

- Brooks, S., Suchey, J. 1990. Skeletal Age Determination Based on the Os Pubis: A Comparison of the Acsádi-Nemeskéri and Suchey-Brooks Methods. In *Human Evolution* 5: 227-238
- Brossler, A. 2001. Reading Business Park: the results of phases 1 and 2. In J. Bruck (ed.) *Bronze Age Landscapes: Tradition and Transformation*. Oxbow.
- Brothwell, D. 1981. *Digging Up Bones*. London: British Museum (Natural History)
- Brown, N., Murphy, P. (eds.) 2000. Research and archaeology: a framework for the eastern counties, 2. Research agenda and strategy. Norwich: The Scole Archaeological Committee for East Anglia
- Brück, J. 1995. A place for the dead: the role of human remains in Late Bronze Age Britain. In *Proceedings of the Prehistoric Society* 61: 245-77
- Brück, J. 2000 *Early-Middle Bronze Age Transition*. In *Oxford Journal of Archaeology*
- Buikstra, J. E. and Ubelaker, D. H. (eds). 1994. *Standards for the collection from human skeletal remains* Arkansas Archaeological Survey. Research Series No. 44. Fayetteville: Arkansas Archaeological Survey
- Burgess, C.B. & Colquhoun, I. 1988. *The Swords of Britain*. Prähistorische Bronzefunde IV (5). Munich: C.H. Beck
- Burgess, C.B., Coombs, D. & Davies, D. G. 1972. The Broadward Complex and Barbed Spears. In F. Lynch & C. Burgess (eds.) *Prehistoric Man in Wales and the West*. Bath: Adams & Dart: 211-279
- Clark, J.G.D., Higgs, E., Longworth, I., 1960. Excavations at the Neolithic site at Hurst Fen, Mildenhall, Suffolk (1954, 1957 and 1958). In *Proceedings of the Prehistoric Society*. 26: 202-45
- Clarke, A. 2000. Animal Bones. In D. Gibson and M. Knight, *Prehistoric and Roman Archaeology at Stonald Field, King's Dyke West, Whittlesey*. Cambridge Archaeological Report No.393
- Clutton-Brock, J. 1981. *Domesticated Animals from Early Times*. London, Heinemann & British Museum (Natural History)
- Davis, S. J. M. 1992. *A rapid method for recording information about mammal bones from archaeological sites*. English Heritage: Ancient Monuments Laboratory
- Edmonds, M. 1995 *Stone Tools and Society*. London: Batsford
- Edwards, D.N. 1996. *Further Excavations at King's Dyke (Area A, 'Topsoil '95'), Whittlesey*, Cambridgeshire. Cambridge Archaeological Unit Report No. 204
- Edwards, D.N., Gdaniec, K. 1997. *Whittlesey Pits – The Bradley Fen And Must Farm Sites: An Archaeological Desk-Based Assessment*. Cambridge Archaeological Unit Report No.225
- English Heritage. 1991. *Management of archaeological projects*. London: English Heritage
- Evans, C., Knight, M. 1998. *Butcher's Rise Ring Ditches, Barleycroft*. Cambridge Archaeological Report No.283

- Evans, J. 1884. On a hoard of bronze objects found near Wilburton Fen near Ely. In *Archaeologia* 48: 106-114
- Fleming, A. 1988. *The Dartmoor Reaves – investigating prehistoric land divisions*. London: Batsford
- Ford, S. 1991. An Early Bronze Age pit circle from Charnham Lane, Hungerford, Berkshire. In *Proceedings of the Prehistoric Society* 57
- French, C 1992a Fengate to Flag Fen : summary of the soil and sediment analyses, *Antiquity* 66.
- French, C 1992b Alluviated fen-edge prehistoric landscapes in Cambridgeshire, England, in M Bernardi (ed) *Archaeologia Del Paesaggio*, Firenze, pp 709-731.
- French, C. 1998. Land off Third Drove, Fengate, Peterborough: the micromorphological analysis, in Cutler, R. *Land off Third Drove, Fengate, Peterborough: an archaeological evaluation 1998, preliminary report*, pp. 24-7, Project No. 515, unpublished report. BUFAU, University of Birmingham.
- French, C. 2000 The development of the Flag Fen and Fengate prehistoric landscape, in Pryor, F *Archaeology and Environment in the Flag Fen Basin*, English Heritage Archaeological Report, London.
- French, C. 2001. Soils and sediments: the Flag Fen environs; The development of the prehistoric landscape in the Flag Fen basin. *The Flag Fen Basin: Archaeology and environment of a Fenland landscape*, pp 382-3; 400-404. Archaeological Reports. London: English Heritage
- French, C. 2003. *Geoarchaeology in Action: Studies in soil micromorphology and landscape evolution*, see pp. 97-112. London: Routledge.
- French, C. & Pryor, F. 1993 *The South-West Fen Dyke Survey Project 1982-86*. East Anglian Archaeology 59. Norwich
- French, C. 2001. Soils and sediments: the Flag Fen environs survey. In F. Pryor, *The Flag Fen Basin: archaeology and environment of a Fenland landscape*. London: English Heritage
- French, C., Pryor, F. 1985 *Archaeology and Environment in the Lower Welland Valley*. East Anglian Archaeology 27. Norwich
- Gibson, A. 1980. A reinterpretation of Chippenham Barrow 5, with a discussion of the Beaker-associated pottery. In *Proceedings of the Cambridge Antiquarian Society* 70
- Gibson, D., Knight, M. 2000. *Prehistoric and Roman Archaeology at Stonald Field, King's Dyke West, Whittlesey*. Cambridge Archaeological Report No.393
- Grant, A. 1984. Animal husbandry. In B. Cunliffe (ed.), *Danebury: Vol 2*. London: Council for British Archaeology Research Report 2: 496-548
- Green, H.S. 1980 The flint arrowheads of the British Isles. *British Archaeological Reports (British Series)* 7.
- Green, M. 2000 *A Landscape Revealed: 10,000 Years on a Chalkland Farm*. Tempus.
- Greig, J. 1991 The British Isles in Van Zeist et al. *Progress in Old World Palaeoethnobotany*. Rotterdam: Balkema

- Greig, J.R. 1991. The British Isles. In W. Van Zest, K. Wasylikowa and K-E. Behre (eds.), *Progress in Old World Palaeoethnobotany*. Brookfield and Rotterdam: A.A. Balkema: 299-334
- Gurney, D. A. 1980, Evidence of Bronze Age salt production at Northey, Peterborough, Northamptonshire Archaeology 15.
- Hall, D. 1987 *The Fenland Project No. 2: Fenland Landscapes and Settlement between Peterborough and March*. East Anglian Archaeology Report 35. Cambridge: Cambridgeshire Archaeological Committee.
- Hall, D. 1992 *The Fenland Project No 6: The South-western Cambridgeshire Fens*. East Anglian Archaeology Report 56. Cambridge: Cambridgeshire Archaeological Committee.
- Higbee, L. 1999. Faunal Remains. In M. Knight, *Prehistoric excavations at King's Dyke, West Whittlesey, Cambridgeshire*. Cambridge Archaeological Unit Report No.301
- Hill, J. D. 1996. The identification of ritual deposits of animal bones. A general perspective from a specific study of 'special animal deposits' from the southern English Iron Age. In S. Anderson and K. Boyle (eds.), *Ritual Treatment of Human and Animal Remains*. Oxford: Oxbow Books for the Osteoarchaeological Research Group: 17-32
- Hillman, G. 1981. Reconstructing crop husbandry practices from charred remains of crops. In R. Mercer, (ed.), *Farming Practice in British Prehistory*. Edinburgh: Edinburgh University Press: 123-162
- Hummler, M., 1993. The Prehistoric Settlement: An Interim Report. In *the Bulletin of the Sutton Hoo Research Committee* 8
- Janssen, C.R. 1969. *Alnus* as a disturbing factor in pollen diagrams. In *Acta Bot. Neere*. 8: 55-58
- Jones, G. 2000. Evaluating the importance of cultivation and collecting in Neolithic Britain. In A. Fairbairn, (ed.), *Plants in Neolithic Britain and beyond*. Oxford: Oxbow books: 79-84
- Knight, M. 1998 The archaeological investigation of the Anglian Water Northborough to Etton Watermain & Excavation of a terminal Bronze Age settlement at Nine Bridges. CAU Report No. 287
- Knight, M. 1999 Prehistoric Excavations at King's Dyke West, Whittlesey , Cambridgeshire – A Terminal Bronze Age Settlement near Moreton's Leam. CAU Report 301
- Knight, M. 2000a. Henge to house – Post-circles in a Neolithic and Bronze Age landscape at King's Dyke West, Whittlesey, Cambridgeshire. In *PAST – The newsletter of the Prehistoric Society* 34
- Knight, M. 2000b New Prison at Former Rockwell and APV Works Westfield Road, Peterborough – An Archaeological Evaluation. CAU Report No. 369
- Knight, M. 2000c. *Whittlesey Pits – The Bradley Fen Site, An Archaeological Evaluation. Phase 1*. Cambridge Archaeological Report No.389

- Levitan, B. M. and P. L. Smart. 1989. Charterhouse Warren Farm Swallet, Mendip, Somerset: Radiocarbon dating evidence. In *Proceedings of the Bristol University Speleological Society* 18: 171-239
- Lovejoy, C. O., Meindl, R. S., Pryzbeck, T. R. and Mensforth, R.P. 1985. Chronological Metamorphosis of the Auricular Surface of the Ilium: A New method for the Determination of Age at Death. In *American Journal of Physical Anthropology* 68: 15-28
- Martinez, C. & Sheil, D. 1999 King's Dyke Pit: Geophysical Survey. (GSB Propection).
- Monteil, G. 2000. In Gibson, D and Knight, M., *Prehistoric and Roman Archaeology at Stonald Field, Kings Dyke West, Whittlesey*. Cambridge Archaeological Unit Report No.393
- Moore, P.D. 1977. Ancient distribution of lime trees in Britain. In *Nature* 268: 13-14
- Moore, P.D., Webb, J.A. 1978. *An illustrated guide to pollen analysis*. London: Hodder and Stoughton
- Moore, P.D., Webb, J.A., Collinson, M.E. 1991. *Pollen analysis* Second edition. Oxford: Blackwell Scientific
- Mortimer, R. 1995. *Archaeological Investigations at King's Dyke Pit, Whittlesey, Cambridgeshire*. Cambridge: Cambridge Archaeological Report No. 122
- Mortimer, R. 1996. *An Achaeological Evaluation at King's Dyke Pit, Whittlesey (Area A)*, Cambridgeshire. Cambridge Archaeological Unit Report No.162
- Murphy, P. 1984. Environmental Archaeology in East Anglia In H.C.M. Keeley (ed), *Environmental Archaeology : a Regional Review*. London: Historic Buildings and Monuments Commission
- Needham, S.P., Ramsey, D., Coombs, D., Cartwright, C. & Pettitt, P. 1997. An Independent Chronology for British Bronze Age Metalwork: The results of the Oxford Radiocarbon Accelerator Programme. In *The Archaeological Journal*: 154: 55-107
- Palmer, R. 1994. *Whittlesey Brick Pits, Area TL 24 97, Cambridgeshire. Aerial Photographic Assessment*. Air Photo Services
- Pierre, T. 2003. 'Soil micromorphological analysis of the Bradley Fen site, Whittlesey, Flag Fen Basin.' Unpublished report, McBurney Geoarchaeology Laboratory, Dept of Archaeology, University of Camnbridge.
- Plouviez, J., Going, C. 2000. In N. Brown and P. Murphy (eds.) *Research and archaeology: a framework for the eastern counties, 2. Research agenda and strategy*. East Anglian Archaeology Occasional Papers 8. Norwich: The Scole Archaeological Committee for East Anglia
- Pryor, F. 1978. Buried sites in the Peterborough Fens [dyke survey summary]. In *Durobrivae* 6:14-16
- Pryor, F. 1980. Excavation at Fengate, Peterborough, England: the third report, Northamptonshire Archaeology Monograph 1/Royal Ontario Museum Archaeology Monograph 6, Northampton/Toronto.

- Pryor, F. 1984. Buried sites in the Peterborough Fens [dyke survey summary]. In *Durobrivae* 9:10-11
- Pryor, F. 1984b. Excavation at Fengate, Peterborough, England: The Fourth Report. Northamptonshire Archaeological Society Monograph 2/ Royal Ontario Museum Archaeology Monograph 7.
- Pryor, F. 1992. The Fengate/Northey Landscape. In *Antiquity* 66: 518-31
- Pryor, F. 1993. Excavations at Site 11, Fengate, Peterborough, 1969. In W.G. Simpson, D.A. Gurney, J. Neve, and F. Pryor, *The Fenland Project No 7: excavations in Peterborough and the lower Welland Valley, 1960-1969*. East Anglian Archaeology 61. Norwich
- Pryor, F. 2001 *The Flag Fen Basin: Archaeology and environment of a Fenland landscape*. London: English Heritage
- Savory, H.N. 1980. *National Museum of Wales Guide: Catalogue of the Bronze Age Collection*. Cardiff: National Museum of Wales
- Scaife, R.G. 1992. Flag Fen: the vegetation environment, *Antiquity* 66.
- Scaife, R.G. 1980. *Late Devensian and Flandrian palaeoecological studies in the Isle of Wight*. Unpubl. Ph.D. thesis. London: University of London, King's College, Department. of Geography
- Scaife, R.G. 1993. Pollen analysis at Crowtree Farm and Pollen analysis at Oakhurst Farm. in C.A.I. French and F.M.M. Pryor (eds.), *The South-West Fen Dyke Survey Project 1982-1986*. East Anglian Archaeology Report No.59. Peterborough: Fenland Archaeological Trust: 8-51 & 54-57
- Scaife, R.G. 1994. The pollen analysis. In C.A.I. French, *Excavation of the Deeping St. Nicholas barrow complex, South Lincolnshire*. Lincolnshire Archaeology and Heritage Series; No.1. Sleaford: Heritage Trust for Lincolnshire/Fenland Management Project Committee: 81-88
- Scaife, R. 1998a. Assessment of soil pollen. In Gdaniec, K. *An archaeological investigation at the proposed material reprocessing facility, Third Drove, Fengate, Peterborough, Cambridgeshire*, pp. 5-8; CAU, University of Cambridge.
- Scaife, R. 1998b. Land off Third Drove, Fengate, Peterborough: the charred remains, in Cutler, R. *Land off Third Drove, Fengate, Peterborough: an archaeological evaluation 1998*, preliminary report, pp. 27-8, Project No. 515, unpublished report. BUFAU, University of Birmingham.
- Scaife, R.G. 2000. In J. Sidell, K. Wilkinson and N. Cameron, *The Holocene Evolution of the London Thames*. Museum of London Monograph 5. London: Museum of London Archaeology Service: 144
- Scaife, R.G. 2000. Palynology and Palaeoenvironment. in S.P Needham,. *The Passage of the Thames. Holocene Environment and Settlement at Runnymede*. Runnymede Bridge Research Excavations, Volume 1. London: British Museum Press: 168-187
- Scaife, R.G. 2001. Flag Fen, the vegetation and environment. In F, Pryor, *The Flag Fen Basin. Archaeology and excavation of a Fenland landscape*. Swindon: English Heritage Archaeological Reports: 351-381

- Scaife, R.G. 2005. Must Fen: A Preliminary Pollen Analysis of the buried soil, peat and alluvial sediments. Report to Cambridge Archaeological Unit
- Schwartz, JH 1995 *Skeleton Keys: An Introduction to Human Skeletal Morphology, Development and Analysis*. Oxford University Press.
- Serjeantson, D. 1991. Rid Grasse of Bones: a taphonomic study of the bones from midden deposits at the Neolithic and Bronze Age site of Runnymede, Surrey, England. In *International Journal of Osteoarchaeology* 1: 73 - 89
- Serjeantson, D. 1996. The animal bones. In S. Needham and T. Spence, *Runnymede Bridge Research Excavations, Volume 2 Refuse and Disposal at Area 16 East, Runnymede*. London: British Museum: 194-223
- Silvester, R.J. 1991a. *The Fenland Project Number 4: The Wissey Embayment and the Fen Causeway, Norfolk*. East Anglian Archaeology Report No. 52. Norwich
- Silvester, R.J. 1991b. The addition of more-or-less undifferentiated dots to a distribution map? The Fenland Project in retrospect. *East Anglian Archaeology* 50. Norwich
- Stace, C. 1997 *New Flora of the British Isles*. Cambridge: Cambridge University Press. 2nd Edition.
- Steele, D.G., Bramblett, C.A.1988. *The Anatomy and Biology of the Human Skeleton*. College Station: Texas A & M University Press
- Stevens, C. 1996. The Plant Remains from Whittlesey. In *An Archaeological Evaluation at King's Dyke Pit, Whittlesey (Area A)*, Cambridgeshire. Cambridge Archaeological Unit Report No.162
- Trotter, M., Gleser, G. C. 1958. A re-evaluation of estimation based on measurements of stature taken during life and of long bones after death. In *American Journal of Physical Anthropology* 16: 79-123
- Ubelaker, D.H. 1989 *Human Skeletal Remains: Excavation, Analysis, and Interpretation* Taraxacum Press, Washington, D.C
- Van de Noort, R., Ellis, S., Taylor, M., Weir, D. 1995. Preservation of archaeological sites. In R. Van de Noort, and S. Ellis, *Wetland Heritage of Holderness – an archaeological survey*. Humber Wetlands Project. Kingston-upon-Hull: University of Hull
- Wait, G. A. 1985. *Ritual and religion in Iron Age Britain*. British Archaeological Reports British Series No.149. Oxford: British Archaeological Reports
- Waller, M. 1994. *The Fenland Project, number 9: Flandrian environmental change in Fenland*. East Anglian Archaeology Report No.70. Norwich: East Anglian Archaeology
- Williams, S. 2004. *An Archaeological Evaluation of Burdett Nurseries, Whittlesey*. Cambridge Archaeological Unit



Plate 1. Watering Hole F.866 and Wattle Lining F.892



Plate 2. Spear 64, the 'Hoard' and Spears 62 & 63 *in situ*.



Plate 3. Settlement Burials - Watering Hole F.866, Posthole F.613 and Well F.830



Plate 4. 'Boat' Pit (F.1064)

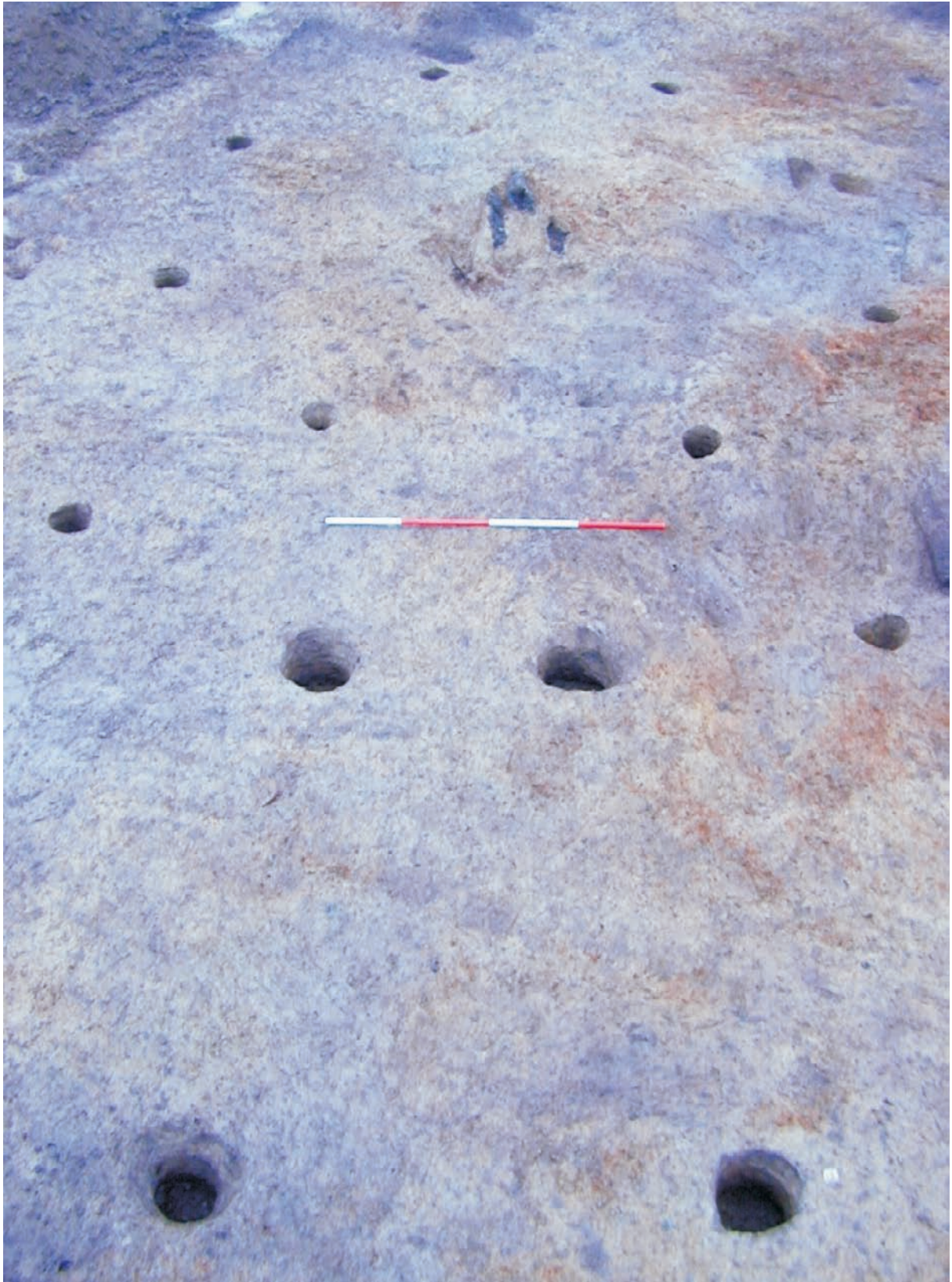


Plate 5. 'Beaker' House (Roundhouse 5)



Plate 6. Hoof Prints (F.1266)



Plate 7. Bradley Fen Farm 'Ditch & Bank' (F.1276 & F.1291)



Plate 8. *In Situ* Pit-pyre (F.1279) and reconstructed urn.