

EXCAVATIONS ALONG THE M25: PREHISTORIC AND MEDIEVAL SITES IN SOUTH-EAST BUCKINGHAMSHIRE

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This report describes the results of excavations undertaken at five sites (Ponds 2, 3 and 4, Slade Oak Lane and Pelham Widening) along the M25 in Buckinghamshire between Junctions 16 and 17, to the east of Gerrards Cross and Chalfont St Giles. The excavations were undertaken prior to Phase 1 of the construction work by Skanska Balfour Beatty to widen the motorway. Further sites excavated prior to the Phase 1 construction work which lay within Hertfordshire are described in a separate report.

Alongside small quantities of often residual worked flint, the excavations revealed features dating from a wide range of periods. The earliest was an isolated pit associated with Beaker pottery at Pond 2. Small groups of middle Bronze Age features were found in several different areas: pits at Pond 2, Pond 4 and Slade Oak Lane, and also gullies defining three sides of a rectangular structure or small enclosure in a different area at Slade Oak Lane. Later activity is represented by a middle Iron Age enclosure associated with evidence for iron smelting, and a medieval enclosure (11th–13th century) which contained the remains of two structures, at Slade Oak Lane.

INTRODUCTION

This report describes the results of excavations undertaken in Buckinghamshire on land on either side of the M25, to the east of Gerrards Cross and Chalfont St Giles, between Junctions 16 and 17 of the motorway (Fig. 1). Alongside small quantities of often residual worked flint, the excavations revealed features dating from a wide range of periods. The earliest was an isolated pit associated with Beaker pottery. Small groups of middle Bronze Age features – mostly pits, but including also gullies defining three sides of a rectangular structure or small enclosure – were found in several different areas. Later activity is represented by a middle Iron Age enclosure associated with evidence for iron smelting, and a medieval

enclosure (11th–13th century) which contained the remains of two structures.

The excavations were carried out prior to the widening of the M25. They formed part of Section 1 of the widening scheme, which extended from Junctions 16 to 23, running through Buckinghamshire and Hertfordshire. This report describes only the excavations carried out in Buckinghamshire. The results of the other excavations undertaken in relation to this scheme, which lie in Hertfordshire, are described in another report (Poole *et al.* forthcoming).

Excavations were carried out at five sites in Buckinghamshire: Ponds 2, 3 and 4, Slade Oak Lane, and Pelham Widening. These excavations formed the last stage of a wider strategy to mitigate the effects on the widening scheme on the archaeo-

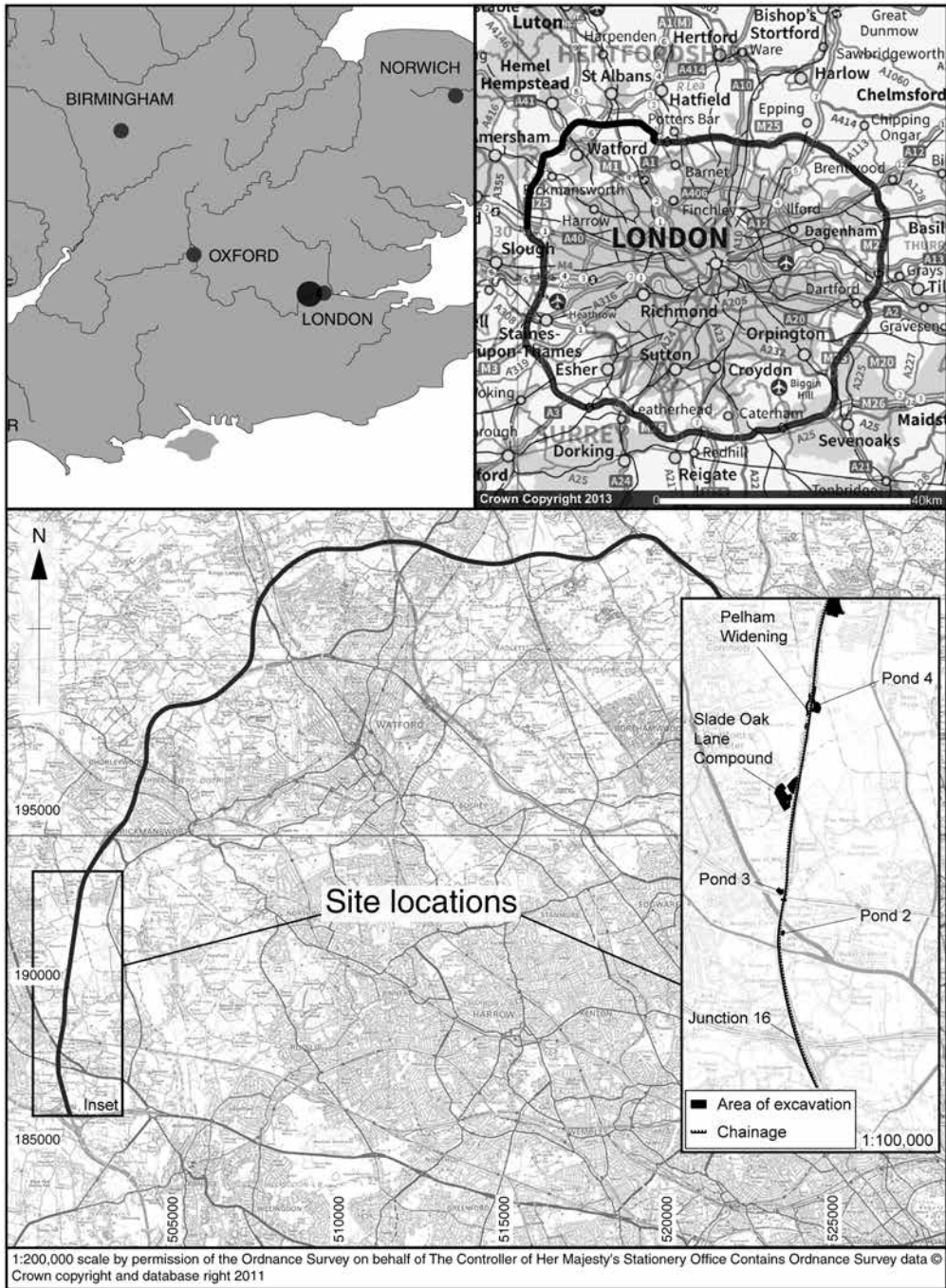


FIGURE 1 Scheme location plan

logical and built heritage. The widening was carried out by Skanska Balfour Beatty who commissioned Atkins to produce 'Heritage Design' documents specifying the mitigation works required along the route, and then, as the work progressed, to provide a written scheme of investigation for each site.

Prior to excavation, investigations included field walking at Pond 3 and in the south-western part of Slade Oak Lane. All the sites, except the Pelham Widening site, were then subject to strip, map and sample excavation. Topsoil and subsoil layers were stripped to the first significant archaeological horizon or to the surface of undisturbed geology (drift or solid) using a mechanical excavator under close archaeological supervision. Where archaeological deposits were exposed, the area was cleaned by hand. The features and deposits were initially planned and excavated to give a preliminary characterisation. More detailed excavation was agreed by means of on-site meetings between Atkins and Planning Authority archaeologists. Specific details of the excavation methodology, relevant to particular sites, are given in the individual site descriptions below, but it is worth noting that the middle Iron Age enclosure at Slade Oak Lane was only partially excavated as it was possible to preserve this area of the site *in situ*. The Pelham Widening site was subject only to a watching brief: no features or finds were revealed at this site

GEOLOGY AND TOPOGRAPHY

The route of the M25 runs north from Junction 16, to the south-east of the Chilterns, roughly parallel to the Colne Valley. It crosses the Misbourne a short distance to the north of Junction 16, and the section which concerns this report stops just short of the point at which the M25 crosses the river Chess. Geographically, the area perhaps belongs more with the Thames Valley and its tributaries to the south than with Buckinghamshire north of the Chilterns, and it is primarily sites in this area which have been looked to in order to place the results of the excavations in a wider context.

The underlying geology varies along this section of the M25 (Highways Agency 2007). At the southern end it runs over London Clay with superficial deposits of Winter Hill Gravel and Upnor and Reading formation clays. To the north, the route runs onto the Seaford and Newhaven chalk forma-

tions which descend from the west to the east. Where the route cuts across the Misbourne, it runs across the quaternary alluvial floodplain deposits associated with the river (Highways Agency 2007).

ARCHAEOLOGICAL BACKGROUND

Although the area immediately around the M25 in Buckinghamshire has not benefitted from large scale excavations, investigations related to the original construction of the M25 provide a record of sites along the route of the motorway itself (Highways Agency 2007). Furthermore, numerous excavations have taken place in the Colne Valley and elsewhere in south Buckinghamshire and adjoining areas, some of which, such as Heathrow Terminal 5 (Framework Archaeology 2010) and Eton Rowing Lake (Allen *et al.* in prep; 2013), have been on a very large scale. Together these sites provide an increasingly rich context into which the results of the M25 excavations can be placed (see also the Solent Thames Research Framework). Unless otherwise indicated, information on the sites discussed here has been obtained from 'Unlocking Buckinghamshire's Past' (<https://ubp.buckscc.gov.uk>, and Highways Agency 2007).

In the wider area around the M25, late Upper Palaeolithic and Mesolithic activity is well represented by sites at Three Ways Wharf, Uxbridge, Greater London (Lewis & Rackham 2011). Slightly closer to the M25, a concentration of Mesolithic sites is also known around Denham (e.g. the Sanderson Factory site and Boyer's Pit). Adjacent to the M25 an *in situ* late Mesolithic flint scatter associated with animal bone has been excavated at the Misbourne Viaduct, which lies close to the Pond 2 and 3 sites (Farley nd). Further evidence of Mesolithic flint working was found a short distance to the north, adjacent to the railway (to the north-west of Pond 3), and in previous investigations on the M25 at the Slade Oak Lane site. Mesolithic flint was also found on the Chalfont St Peter Bypass and to the east of Chalfont St Peter at Marsh Farm.

There is little well-dated evidence for Neolithic and early Bronze Age activity in the vicinity of the M25. Almost the only indication of activity in these periods is provided by flint scatters, most of which cannot be dated very precisely. A number of groups of worked flint dated broadly to the period extending from the early Neolithic to the late

Bronze Age have been identified along the route of the M25, with examples around the interchange with the M40 (Junction 16), close to the Misbourne viaduct, the Pond 2 and 3 sites, and to the south and north of the Slade Oak Lane site. The only features which have been identified as possibly belonging to this period are some ditches at the Misbourne viaduct (dated to the Neolithic or Bronze Age). Although no features can be dated with any confidence to this period, the lithics, however poorly dated, indicate that the area was occupied to some extent in these periods. Even in the wider area around the M25 there is little indication of activity in the Neolithic and early Bronze Age. Worked flint was, however, found on the Chalfont St Peter Bypass to the west, and at Denham Park Farm to the south-east. This part of the M25 falls within an area which is apparently devoid of Neolithic monuments. The nearest potential example is a possible long barrow identified on the basis of a geophysical survey within Bulstrode Camp (in the south of Gerrards Cross). Otherwise, the nearest examples are the Stanway cursus at Heathrow (Framework Archaeology 2010) and smaller monuments there and in Hillingdon (Crockett 2001; Morigi *et al.* 2011). There is similarly little evidence for the existence of round barrows, although an example has been identified at the Lea, Denham, and undated circular ditch at Savay Farm, Denham has been identified as a possible example.

Traces of middle and late Bronze Age activity in the immediate vicinity of the M25 are equally limited, although some of the poorly dated worked flint mentioned above may date from these periods. More widely, however, there is much more evidence from these periods. Around Denham traces of occupation, including hearths, pits, postholes and field boundary ditches dating from the middle and late Bronze Age have been found in several areas. These sites appear to form the northernmost examples of middle and late Bronze Age field systems and settlements distributed (albeit not continuously) along the Colne Valley, and evidenced most clearly at Heathrow (Framework Archaeology 2010). Combined with the results of excavations along the Thames Valley at Wexham, Cippenham, Slough (Ford *et al.* 2003; Preston 2012), and at the Eton Rowing Course (Allen *et al.* in prep.), as well as to the west at Beaconsfield (Preston 2012), the wider area around the M25

now provides a quite rich body of middle and late Bronze Age evidence.

The Iron Age is represented perhaps most significantly by the bivallate hillfort at Bulstrode Camp. Only limited investigations have taken place at the hillfort (Fox and Clarke 1925), and, although possibly early Iron Age pottery has been recovered from the site, its chronology is otherwise not well defined. A geophysical survey within the hillfort suggests the existence of circular and D-shaped enclosures which may well represent Iron Age occupation. Further evidence of Iron Age settlement consisting of pits, postholes and possibly ditched enclosures associated with early and late Iron Age pottery has been found to the south-east at Denham Park Farm. As is the case for the Bronze Age, a number of large scale excavations, at, for example, Cippenham (Ford *et al.* 2003), Wexham (Preston 2012), Heathrow (Framework Archaeology 2010) and the Eton Rowing Course (Allen *et al.* in prep.), discussed in more detail below, now provide a rich context for the M25 excavations.

Although Roman pottery kilns have been identified at Hedgerley and Wapsey's Wood, to the west of Gerrards Cross, and a Roman road runs close to the M25, probably crossing its route to the north of Junction 16 and then again to the north of Pond 4, only a few other indications of Roman activity have been found in the area of the M25. A rectangular crop mark to the east of Pond 4 may, however, mark the location of a late Iron or Roman enclosure. To the south-east, a Roman *bustum* burial and a ditch have been identified at Denham.

No indications of Anglo-Saxon activity have been found around the M25. Later medieval activity is, however, represented by pottery kiln sites around Junction 16 which produced early south Hertfordshire-type coarseware. As is discussed more fully below, pottery of this type was found at the Slade Oak Lane site. A pit, posthole and ditch dated to the 11th to 13th centuries, and thus probably contemporary with the enclosure at Slade Oak Lane, has also been found in an evaluation at Camp Road, Gerrards Cross.

THE SITES

The sites are presented below, insofar as is possible, according to the chronological order of the major finds recovered from them. Thus, the first is Pond 2, where a Beaker pit and middle Bronze Age pits

and postholes were found; the second Pond 4 with more middle Bronze Age pits, and the third is Slade Oak Lane, where a wider range of middle Bronze Age features, middle Iron Age enclosures, and a medieval enclosure were found. The Pelham Widening site, where only relatively modern features were found, and Pond 3, where no significant features were revealed, are briefly discussed at the end. It should be stressed that small quantities of residual or stray earlier prehistoric worked flint were recovered at a number of the sites. This flint is briefly mentioned in the discussion of each site, and is thus not presented in chronological order.

Pond 2 by *Kate Brady*

Pond 2 was located to the east of the M25 on a hillside that sloped from 60m OD in the north to 55m OD in the south (centred on NGR TQ 0162 8753; Fig. 1). At the time of the fieldwork the field was pasture and had a short covering of grass. Eleven features were identified, distributed in two clusters located in the western and northern parts of the site (Fig. 2).

The northern features: a Beaker pit

The northern group of features consisted of three tree-throw holes of unknown date and a small pit (10), which cut one of the tree-throw holes (Fig. 2). The pit was circular in shape with a regular concave profile and measured 0.5m in diameter and 0.22m in depth (Fig. 3). It was filled with firm dark grey black silt with occasional small charcoal fragments. A total of 45 sherds (140g) of Beaker pottery, two pieces of stuck flint, and a small number of fragments of charred hazel nutshell were recovered from the pit. A radiocarbon date of 2490-2290 cal BC (95% probability; SUERC-437023: 3922±29 BP) was obtained from one of the fragments of hazel nutshell.

The western features: middle Bronze Age pits and postholes

The western group of features comprised four pits and three possible postholes (Fig. 2). The pits varied in size between 0.7m and 1.15m in diameter and between 0.14m and 0.22m in depth and were all circular or oval in shape with concave profiles. All were filled with dark grey brown silty clays. Pit 12 was dated by two sherds (45g) of middle Bronze Age pottery and pit 16 by 26 sherds (478g) of the same date.

To the north-west of the pits were three closely spaced postholes (20, 22 and 24). All measured between 0.22m and 0.4m in diameter and between 0.14m and 0.2m in depth. The mid brown silty sand fills did not contain any artefacts so it was not possible to date them, and they formed no obvious structural arrangement. They were, however, very close to the middle Bronze Age pits and therefore may have been contemporaneous.

Pond 4 by *Chris Hayden*

Pond 4 lay to the east of the M25, 1.2km to the east of Chalfont St Peter (centred on NGR TQ 0215 9117; Fig. 1). The site covered an irregular area of 1.65ha, which lay in the bottom of a dry valley, descending from c 70m OD at the north and the south to c 60m OD in base of the valley. An access track extending onto the higher ground to the north of the site was also stripped (Fig. 4). Prior to excavation the site was arable and had been recently ploughed and seeded.

Machine stripping of the modern ploughsoil exposed a mixed natural deposit of Seaford and Newhaven chalk formation overlain by dispersed pockets of clay glacial till, which, in the base of the valley, was overlain by a colluvial deposit (Fig. 4). A series of test pits cut along the western side of the site, following the profile of the hill, showed that the colluvium was up to 0.8m deep (Fig. 4). Since the construction works would make only a slight impact on this deposit, leaving any features below it preserved *in situ*, it was decided not to fully excavate the colluvium.

Earlier prehistoric activity

The only evidence for activity before the middle Bronze Age was provided by 28 worked flints, recovered from the topsoil and subsoil. They consist of 20 flakes, two multiplatform flake cores, two scrapers, a blade, a bladelet, a blade-like flake and a chip, and suggest limited activity on the site which could range in date from the Mesolithic to the middle or late Bronze Age.

Middle Bronze Age pits

The only features revealed by the excavation were ten pits: radiocarbon dating indicates a middle Bronze Age date range for them (Figs 4–5). Some of the pits were covered by the colluvium. Apart from a small number of pieces of worked flint, no artefacts were recovered from the pits, but they

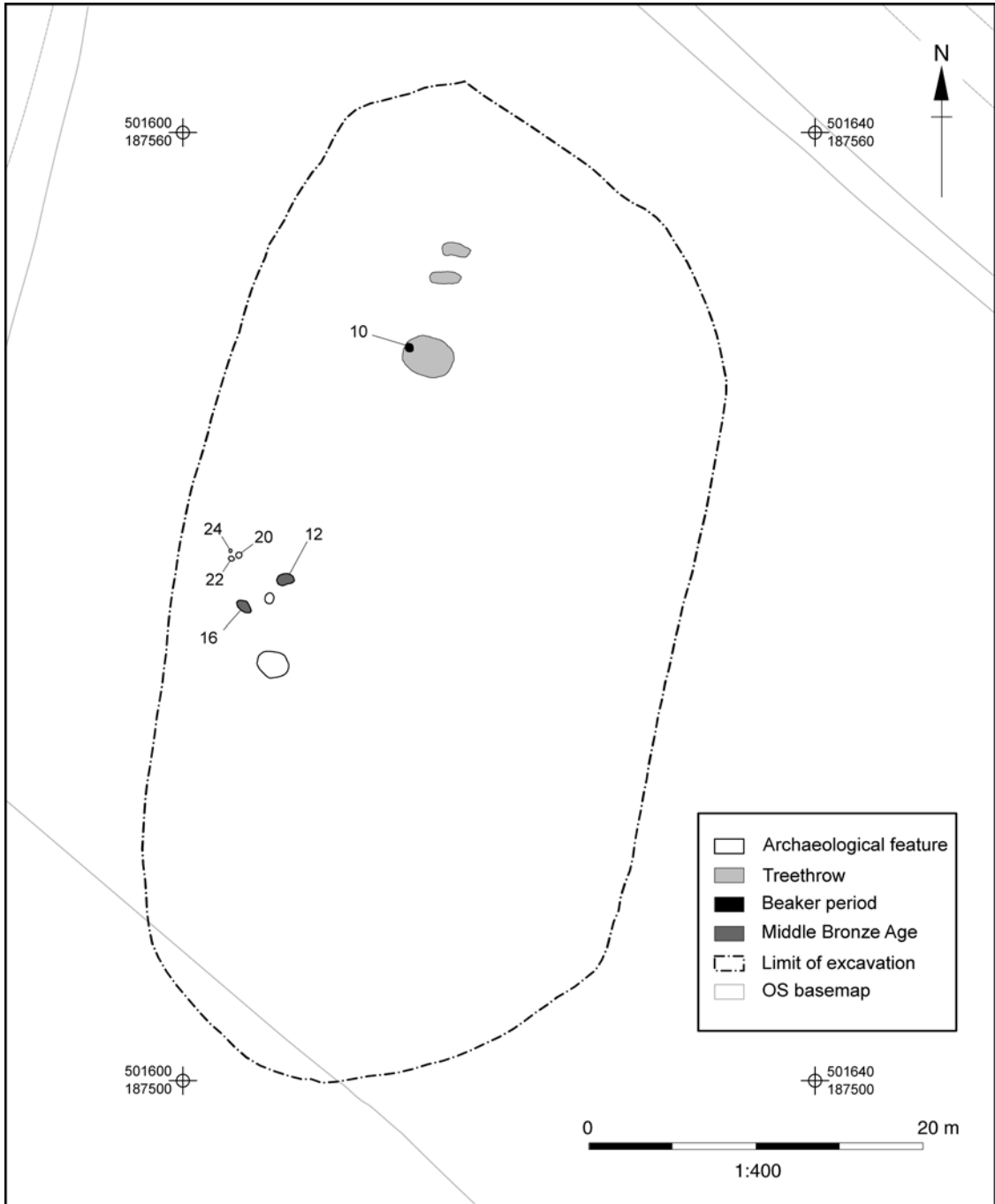


FIGURE 2 Pond 2 – plan

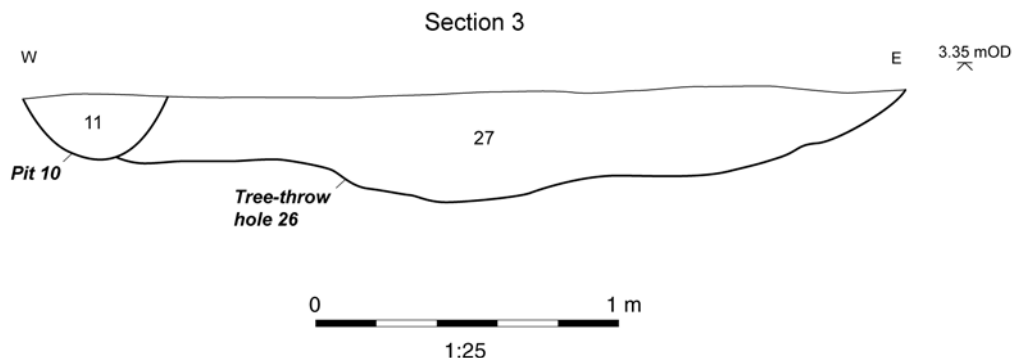


FIGURE 3 Pond 2 – section of Beaker pit 10

share a number of features, such as the presence of charcoal- and stone-rich fills, as well as a number of less frequently occurring idiosyncratic features, such as posthole-like features in their bases, which suggest that they form a coherent group.

Despite these similarities, the three radiocarbon dates obtained from the pits (Fig. 5; Table 1) suggest that they were cut over a period spanning much of the middle Bronze Age. All the dates were obtained from charcoal. The species dated were different in the case of each pit (Table 1), and whilst *Pomoideae* encompasses a range of short-lived species, the other two species – maple and oak – may have been old when they were burnt and deposited in the pit. However, the latter samples gave the youngest dates, so if they were old at the time of deposition, the length of the period over which the pits were cut would be even longer than the dates suggest. In all cases, the charcoal was obtained from charcoal-rich primary deposits, and thus should provide a reliable date range for the charcoal assemblage as a whole and the date when the pits were cut.

Given that the features form a coherent group, which are assumed to belong to a single phase of activity, an attempt has been made to refine the dates using Bayesian analysis, as it is embodied in OxCal (v4.2; Bronk Ramsey 2009; using the IntCal09 calibration data: Reimer *et al.* 2009). The analysis provides a means of refining the estimated duration of the period over which the pits were cut, and of the range of the dates themselves, which, without the analysis, would tend to be longer and wider than was actually the case. Not surprisingly, given that only three dates are involved, the

analysis does not in fact refine the estimates very much (Table 1; Fig. 5).

The analysis suggests that activity probably began between 1720 and 1500 cal BC (68% probability) and ended between 1410 and 1180 cal BC, and that the pits were cut over a period of between 110 and 240 years (all 68% probability; Table 1).

The radiocarbon dates suggest that there were probably at least short intervals of at least a decade between the dated pits, and probably at least a century between the latest pit and the earlier examples (Table 1; Fig. 5). The total of 10 pits distributed over a period of at least 110 years similarly implies an average of less than one pit being cut every ten years. However, the excavated examples may not encompass the whole group, and it is quite possible that further pits lie beyond the western edge of the excavation.

The ten pits were distributed over an area around 80m by 40m, on the southern side of the valley (Fig. 4). There was little clear indication of order in the distribution of the features, although the largest features (pits 27, 28 and 30) did lie on the eastern side of the group. It is possible that the distribution has some chronological significance. The latest radiocarbon date was obtained from one of the easternmost pits (pit 30). However, whilst the earliest date was obtained from the westernmost of the dated pits (pit 7), the next date was obtained from pit 4 which also lies on the western edge of the site. The three dates do not, therefore, provide conclusive evidence either way for the reality of any horizontal stratigraphy.

Although they were slightly irregular, the pits all had broadly similar shapes in plan, which

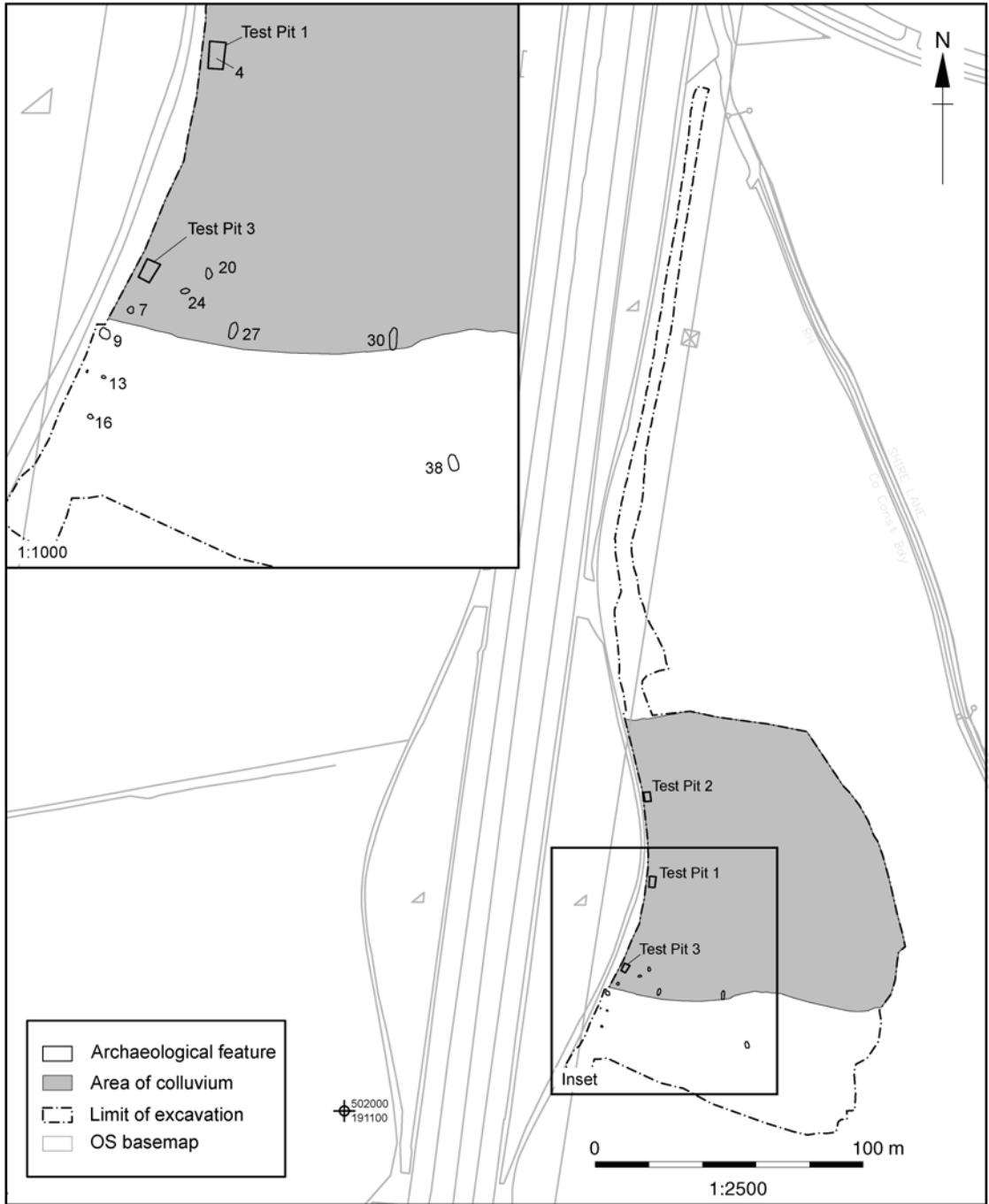


FIGURE 4 Pond 4 – plan

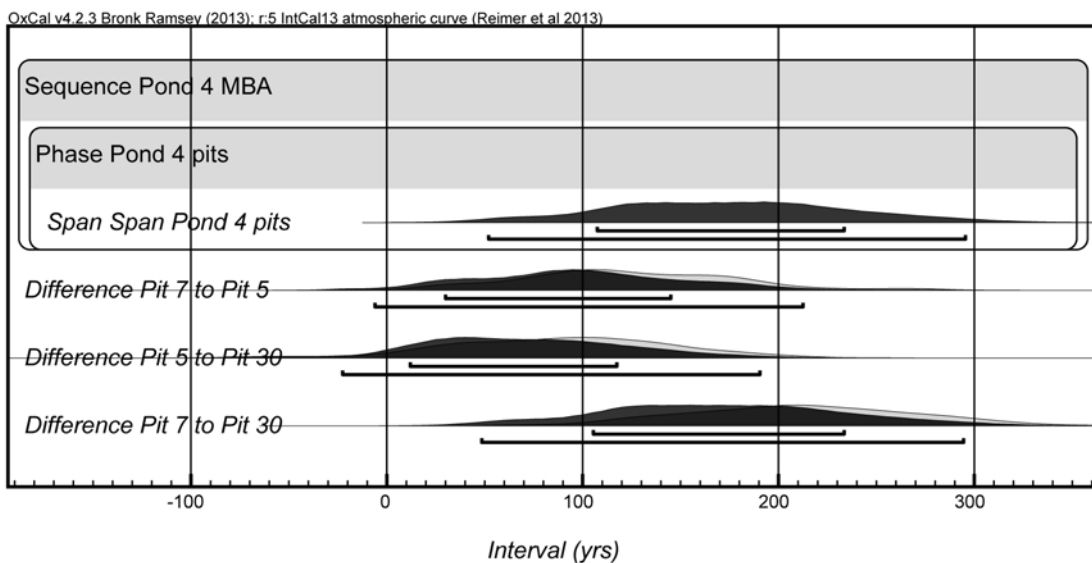
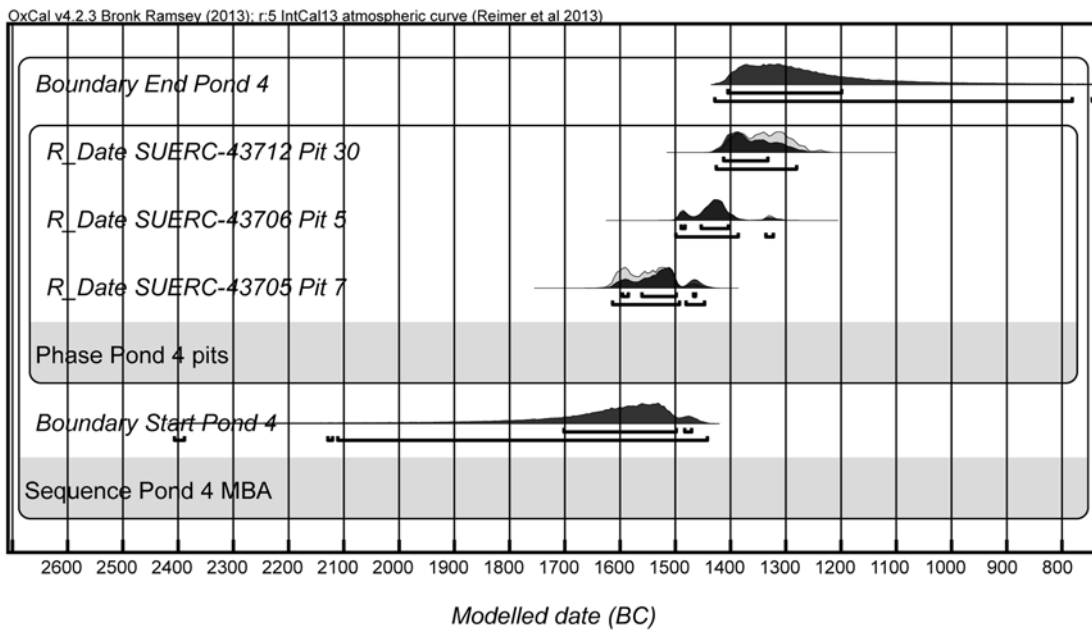


FIGURE 5 Pond 4 – radiocarbon dates from middle Bronze Age pits

TABLE 1 Summary of radiocarbon dates from Pond 4.

Name	Material	Uncal. date BP	$\delta^{13}C$ (‰)	Un- modelled (BC) 68%	Un- modelled (BC) 95%	Modelled (BC) 68%	Modelled (BC) 95%	Indices Amodel 96.7 Aoverall 96.8	A	C
Sequence Pond 4 MBA										
Boundary End Pond 4						1720–1500	2410–1440			95
Phase Pond 4 pits										
R_Date SUERC-43712 Pit 30	<i>Acer</i> charcoal	3077+/-29	-27.1	1400–1290	1420–1260	1420–1330	1430–1270	99		100
R_Date SUERC-43706 Pit 5	<i>Quercus</i> charcoal	3152+/-29	-24.2	1500–1400	1500–1310	1500–1400	1500–1320	102		100
R_Date SUERC-43705 Pit 7	Pomoideae charcoal	3268+/-29	-25.7	1610–1500	1630–1450	1600–1490	1620–1440	94		100
Span Span Pond 4 pits						110–240	50–300			100
Boundary Start Pond 4						1410–1180	1430–440			97
Difference Pit 7 to Pit 5				-190--70	-270--0	-150--30	-220--10			100
Difference Pit 5 to Pit 30				-150--30	-220--30	-120--10	-200--30			100
Difference Pit 7 to Pit 30				-280--140	-330--90	-240--100	-300--50			100

can perhaps be best described as elongated oval (Table 2). They varied quite markedly in size, the smallest being just 0.7m long by 0.4m wide, and the largest 3.4m long by 1.2m wide. Their depth was quite closely related to their length (correlation = 0.92), the smallest pit being 0.2m deep and the largest 0.65m. The close correlation between length and depth is consistent with at least some of the variation in size being related to differing degrees of truncation. There does seem to be some spatial patterning in the distribution of pits of differing sizes, although whether this was related to chronological differences or differing degrees of truncation in different parts of the site is unclear.

In profile the pits varied markedly (Fig. 6; Table 2). The most distinctive were four pits which had

deeper holes similar to postholes in their bases, although there was not clear indication that they had held posts. In three cases these holes lay at one side of the pit, although the side varied, but in the fourth case it lay in the centre of the pit.

Despite this variation in profile, the sequences of fills within the pits were quite consistent (Fig. 6). The most common pattern consisted of a lowermost fill, often quite thin, which contained a very high proportion of charcoal, and an upper fill which contained a high proportion of burnt and unburnt stone (Fig. 7). This pattern occurred in a simple form only in pits 13, 24 and 27, but was noted with slight modifications in almost all of the other pits. The simplest variation was the addition of sandy layers, similar to the substrate

TABLE 2 Summary of the dimensions and shape of the middle Bronze Age pits at Pond 4.

<i>Context</i>	<i>Width (m)</i>	<i>Depth (m)</i>	<i>Form in plan</i>	<i>Profile</i>
4	1.26	0.30	(in section only)	bowl with flat base
7	1.02	0.18	irreg. ovoid	flat base, straight steep sides
9	1.80	0.34	irreg. ovoid	flat base, assym. sides
13	0.70	0.20	irreg. subrect	deeper hole (like posthole) at NE end, flat base to SE, steep sides
16	1.20	0.32	irreg. ovoid	deeper hole (like posthole) at SW, flat base to NE, steep sides
20	1.70	0.27	irreg. ovoid	deeper hole (like posthole) on W, flat base to E, steep sides
24	1.25	0.14	irreg. ovoid	slightly irreg. flattish base, slightly deeper at N (but no distinct deeper hole)
27	2.70	0.50	irreg. ovoid	assym. deeper to W (but no distinct deeper hole), base slopes up gradually to E
30	3.43	0.65	irreg. elongated ovoid	deeper hole (like posthole) in centre, otherwise flattish base with steep sides
38	2.60	0.40	irreg. ovoid	flat base, assym. more or less steep sides

into which the pits were cut (and not characterised by the presence of charcoal or stones), both above and below the sequence of charcoal- and stone-rich layers. In pits 16 and 20 such layers occurred above the charcoal- and stone rich layers; and in pit 9 as a layer of primary fill below the charcoal-rich layer. In pit 38 the stony layer appeared to consist of two components which, however, differed only slightly in colour. Perhaps the most striking variation was found in pit 30, in which the sequence of charcoal- and stone-rich layers was repeated above a silty primary deposit. Pits 4 and 7, both shallow features, contained only single layers of fill, both of which contained mixtures of burnt stone and charcoal.

The charcoal in the charcoal-rich layers was mixed. The samples from pits 7 and 3 were dominated by *Pomoideae*, and that from pit 9 by hazel. A range of other species – cherry/blackthorn, alder/hazel, field maple and oak were represented in much smaller quantities. In the charcoal-rich layers, the charcoal was estimated to have formed between 50% and 90% of the deposit. Although these layers did contain small proportions of sand and silt, they may well originally have consisted of deposits of almost pure charcoal. Stones were estimated as having formed around half of the stone-rich deposits, and in most cases consisted of roughly equal proportions

of burnt and unburnt stone. The stone appeared to be a kind of sandstone, which occurs naturally in the substrate into which the pits were cut. The stones varied considerably in size, including pieces up to 0.35m across, and were subangular.

The only finds recovered from the pits were a bladelet from the lowest fill (10) of pit 9 and a flake from the lowest charcoal-rich fill (32) of pit 30.

Slade Oak Lane by Kate Brady

Slade Oak Lane was located to the west of the M25 carriageway and comprised – a site compound and storage area which were bisected by Slade Oak Lane (centred on NGR TQ 0162 8974; Figs 1 & 8). The south-western area (the compound) was situated on a flat plateau at c 86m OD. From Slade Oak Lane the ground rose slightly to the north-eastern storage area, which was situated on a similar level plateau at c 88m OD.

Mesolithic to late Neolithic/early Bronze Age flint

Prior to excavation of the south-western area, a fieldwalking exercise was undertaken which recovered a small assemblage of both late Mesolithic/early Neolithic and late Neolithic/early Bronze Age flint.

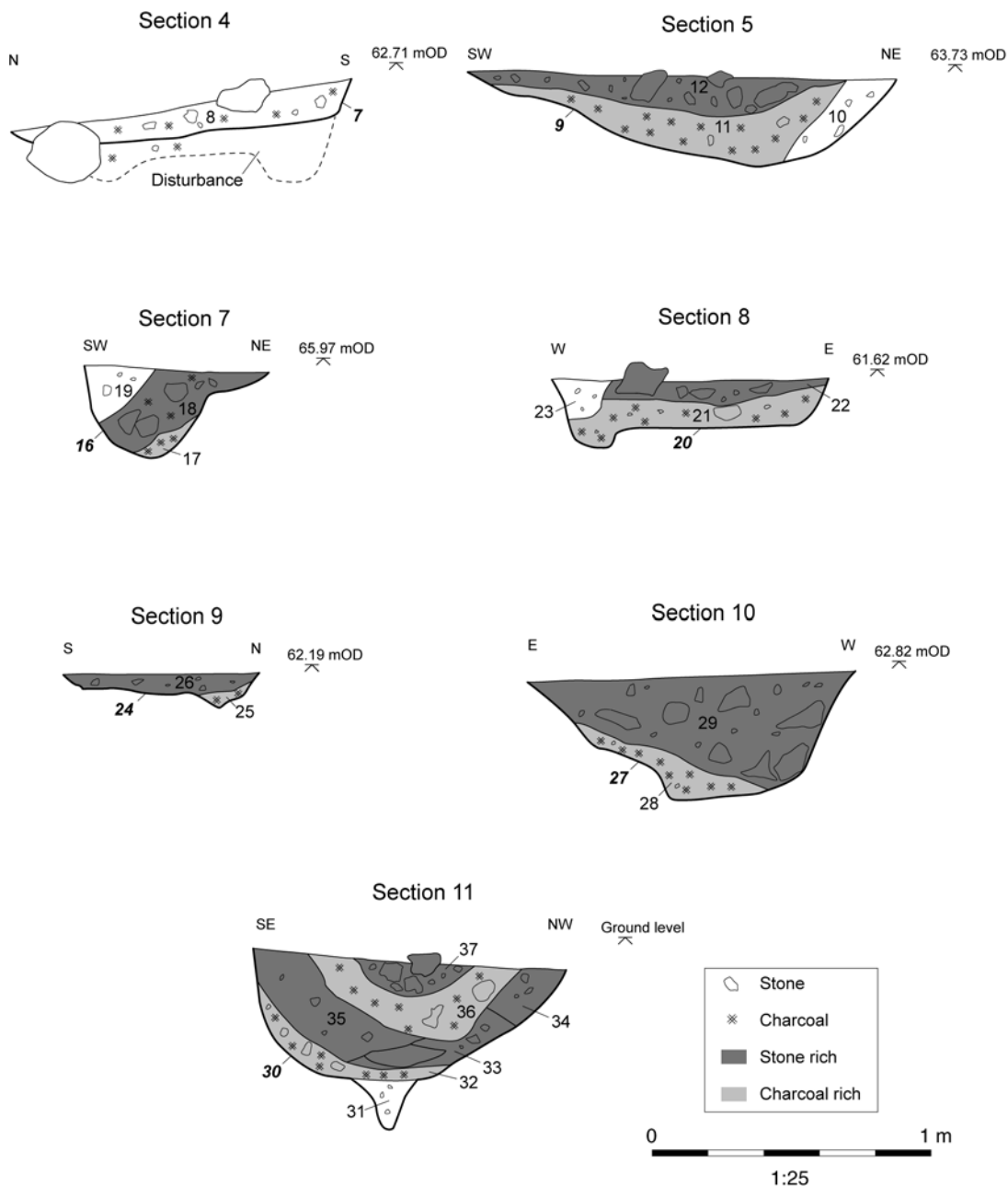


FIGURE 6 Pond 4 – sections of selected middle Bronze Age pits

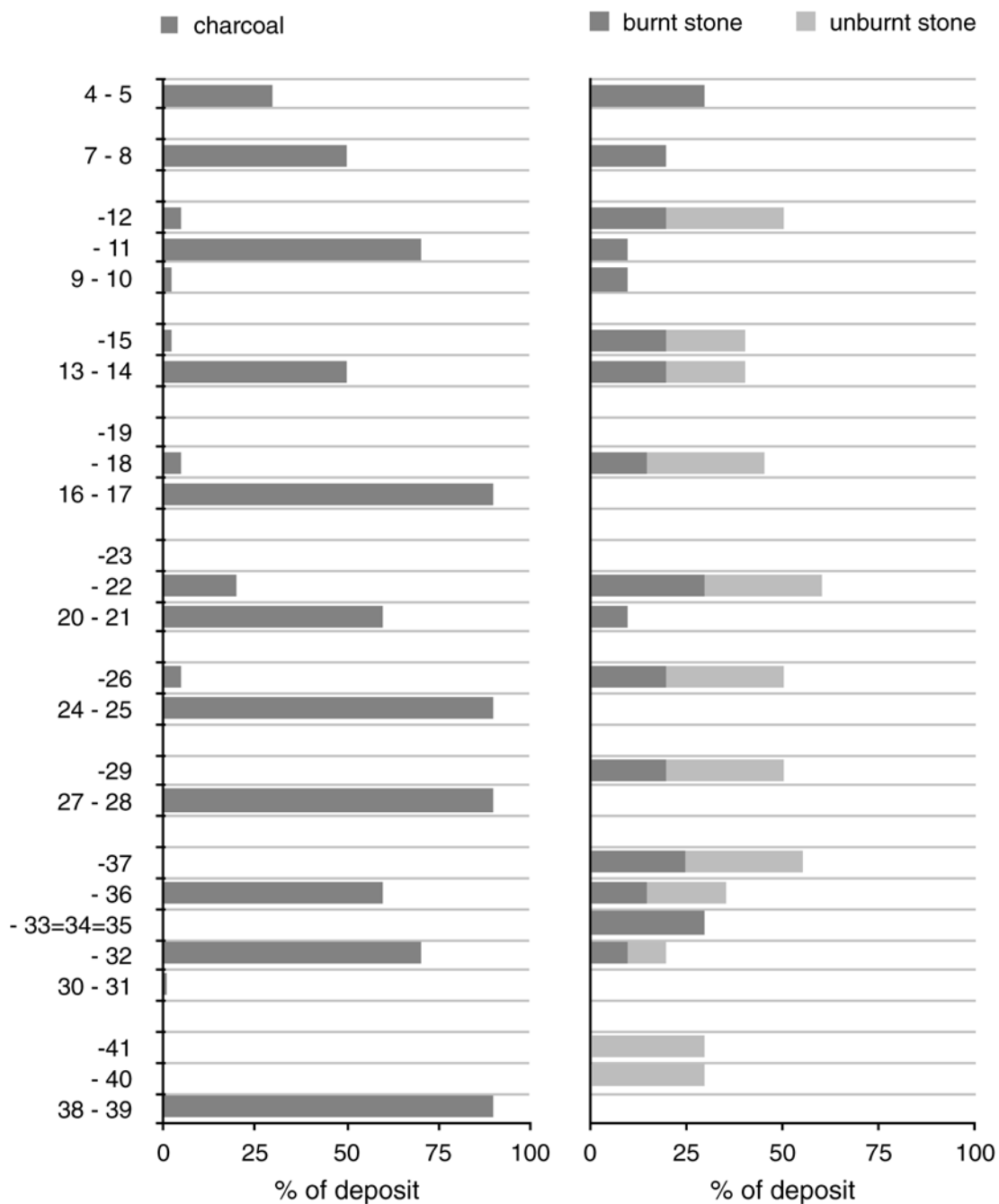


FIGURE 7 Pond 4 – summary of quantities of charcoal and burnt and unburnt stone in middle Bronze Age pits

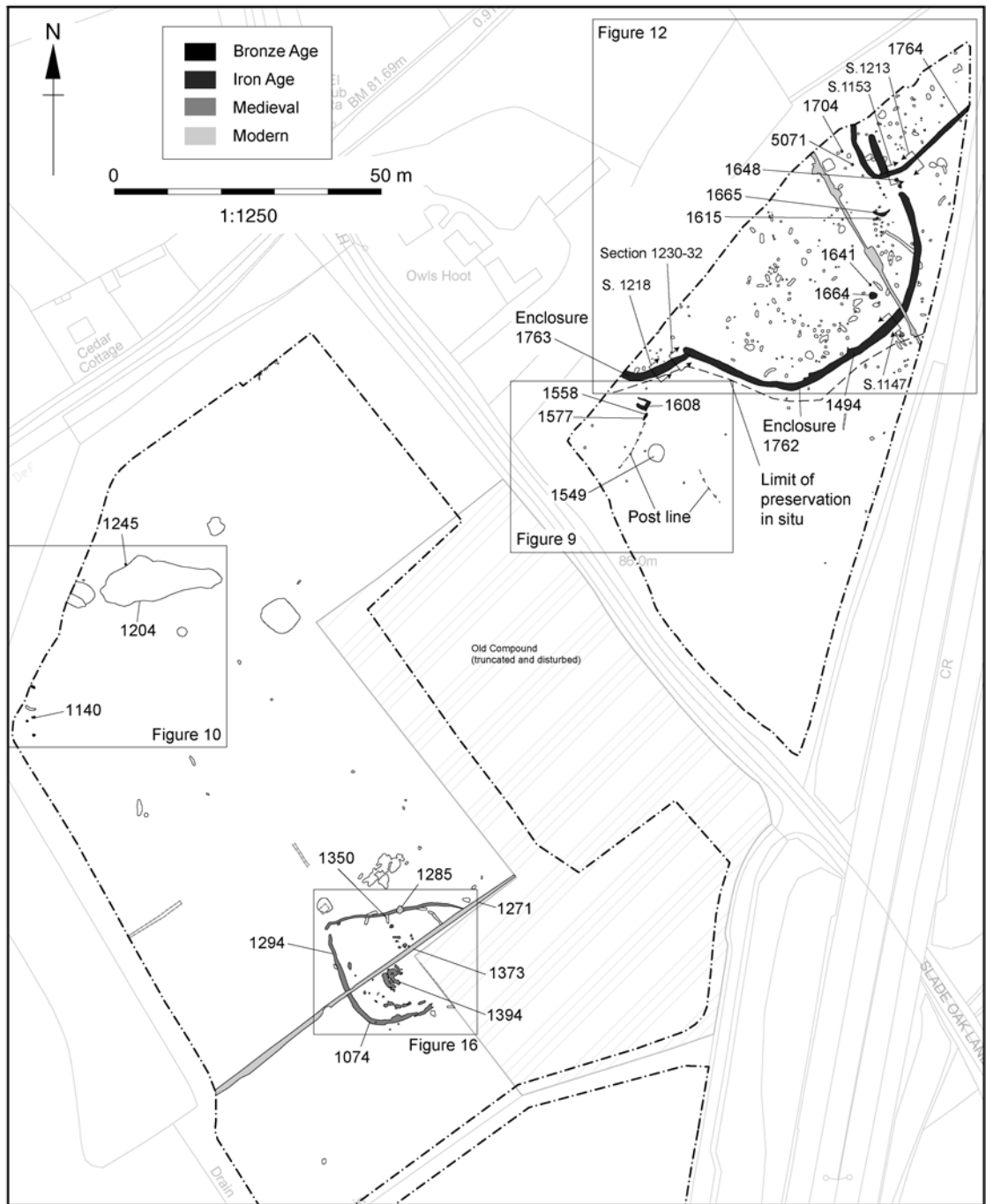


FIGURE 8 Slade Oak Lane – overall site plan

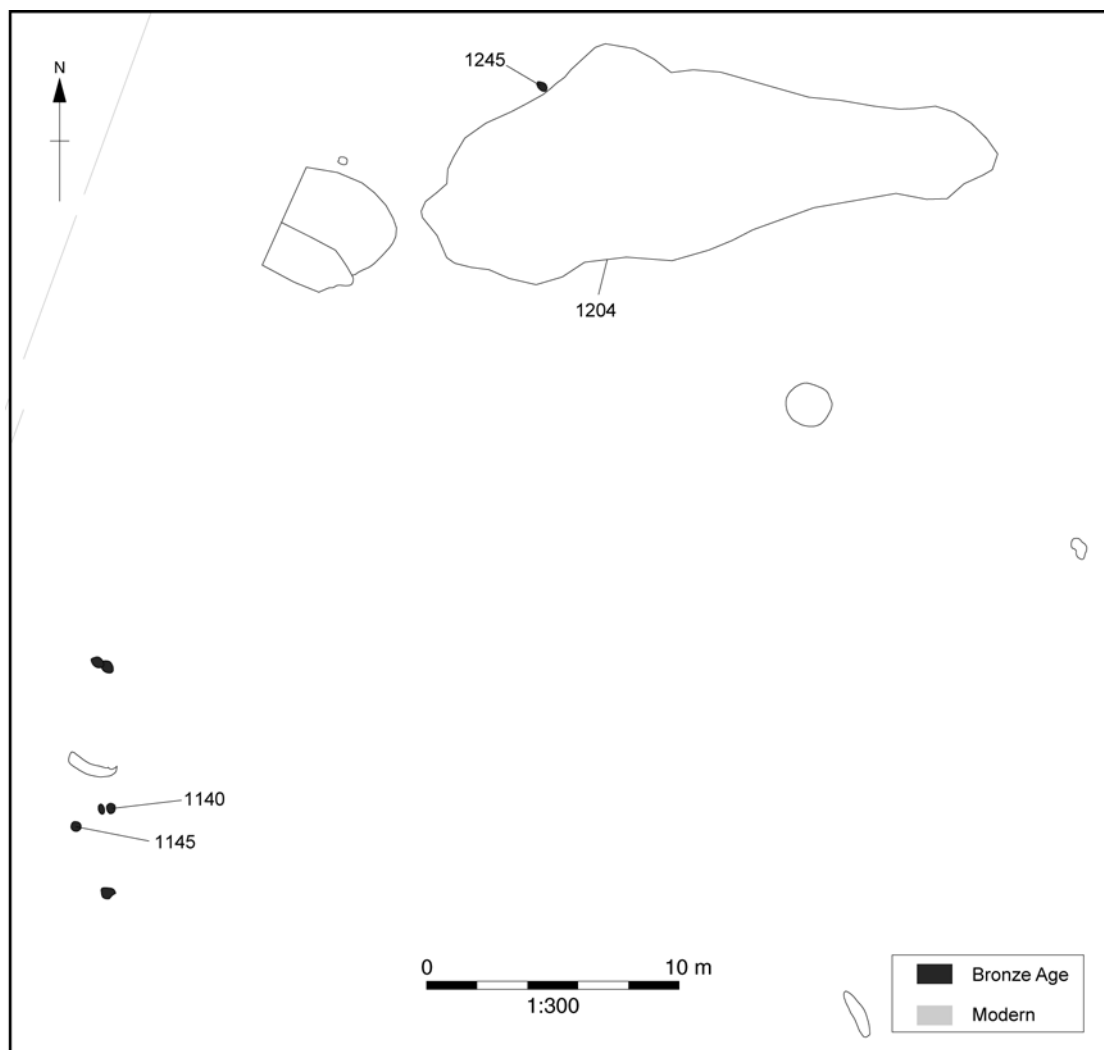


FIGURE 9 Slade Oak Lane – detailed plan of western middle Bronze Age features

The middle Bronze Age

Middle Bronze Age activity was concentrated in two parts of the site which were separated by Slade Oak Lane. Six pits, containing a substantial assemblage of pottery, was located near the western edge of the excavation (Fig. 9). A particularly large quantity of pottery came from pit 1140, which was circular with a concave profile and measured 0.82m in diameter and 0.56m in depth. The pit contained two dark silt fills rich in charcoal, separated by a layer of large pottery sherds that appeared to have been purposefully laid flat on top of the lower fill.

The 47 sherds (7.8kg) recovered from this deposit and the two other fills appear to have derived from a single large vessel. A radiocarbon date of 1420–1260 cal BC (95% probability; SUERC-43693: 3080±29 BP) was obtained from some charred grain from the upper fill (1141) of the pit. The other pits in the vicinity were similar in form to pit 1140 and may have been contemporaneous, although most produced no dating evidence nor significant quantities of charcoal to suggest they were filled as the result of a similar process. One of these other pits (1145), however, contained what

may have been the remains of charred porridge (see below).

Pit 1245 was located c 60m north-east of the group and was also dated to this phase (Fig. 9). It was oval in shape with a concave profile and measured 0.94m in length, 0.62m in width and 0.24m in depth. It contained a single dark greyish brown silt fill, rich in charcoal, and two sherds (25g) of pottery dated to the middle Bronze Age. A large, amorphous hollow (1204) lay adjacent to the pit. It measured just over 13m in diameter but had a depth of only 0.4m and is most likely to have been a natural feature. Its fill was naturally derived grey silt from which 8 sherds (146g) of pottery dated to the middle Bronze Age were recovered.

Another concentration of Bronze Age activity was situated in the north-eastern excavation area and comprised an arrangement of three elongated pits or short gullies forming three sides of a small rectangular enclosure (1608; Fig. 10). The pits/gullies were fairly irregular in profile, measuring up to 1.2m in width but were a shallow 0.4m in depth (Fig. 11). The enclosed space measured c 5m in length and 4m in width. The fills of the pits/gullies gave little clue to the function of the enclosure. Eighteen sherds (46g) of middle Bronze Age pottery were recovered from the pits/gullies (1596 and 1600). Just to the south of the pits/gullies was another possible shallow gully (1577), cut by a pit/posthole (1558). Both features had similar naturally derived silty fills and may have been contemporaneous. A single sherd of pottery recovered from the fill of 1558 dates to the Bronze Age.

An undated line of seven postholes extended south-west from the small enclosure and may have been related. It might represent the entrance and part of the boundary of a fenced corral enclosure or similar agricultural landscape feature. Similarly a line of four undated postholes situated to the south-east of the above features may represent another fenced boundary of Bronze Age date.

The middle to late Iron Age

Middle Iron Age occupation was concentrated entirely in the north-eastern excavation area and comprised parts of three large enclosures (1762, 1763 and 1764) defined by curving ditches that extended beyond the limit of excavation to the north, north-east and west (Fig. 12).

The earliest and largest of these enclosures was

1762, which measured c 100m NE-SW and at least 60m NW-SE, its north-western limit lying beyond the edge of the excavation. The enclosure ditch was constructed on a substantial scale and measured 3m in width and up to 0.8m in depth (Fig. 13). The width of the ditch, however, had probably been exaggerated by the collapse of its upper edges, and originally would probably have been significantly narrower. It was filled with mid yellowish brown silts that appeared to be mostly naturally derived. They contained an assemblage of pottery dating to the mid to late Iron Age, which mostly came from the ditch terminal on the south side of an entrance. A small deposit of Roman pottery was also recovered from the upper fill of section 1494.

The entrance was situated on the north-eastern side of the enclosure and measured c 7.5m in width. Within the entrance were two very large postholes that had presumably supported a gate. Both were slightly oval in shape with steep sides and a concave base, and contained three fills of mid to light grey silty clay (Fig. 14). The northernmost posthole (1648) measured 1.6m in length, 1.58m in width and 0.48m in depth and the southern, 1.3m in length, 1.24m in width and 0.44m in depth. There were no traces of post-pipes. To the south-west were two smaller postholes c 6m apart. Both were circular with steep sides and a slightly concave base and were filled with greyish brown silty clays (Fig. 14). The northernmost measured 0.56m in diameter and 0.35m in depth: the southern, 0.66m in diameter and 0.42m in depth. It is possible that these features formed part of an entrance structure.

On the northern side of the entrance the enclosure ditch continued for a short distance before terminating within the excavated area. It is not clear if this defined another passageway through the ditch.

More than 150 features were identified within the enclosure, varying in size from small postholes to substantial pits. Since this area of the site was preserved *in situ*, only 24 features within the enclosure were excavated, including six that were interpreted as tree-throw holes, and may have been of quite recent date. Some hazel charcoal from one of the excavated postholes (1731) which lay just to the south of the enclosure entrance, gave a radiocarbon date of 350-50 cal BC (95% probability; SUERC-43708: 2127±27 BP). This posthole contained one of the largest groups of pottery recovered from the enclosure. Otherwise, very little artefactual material was recovered.

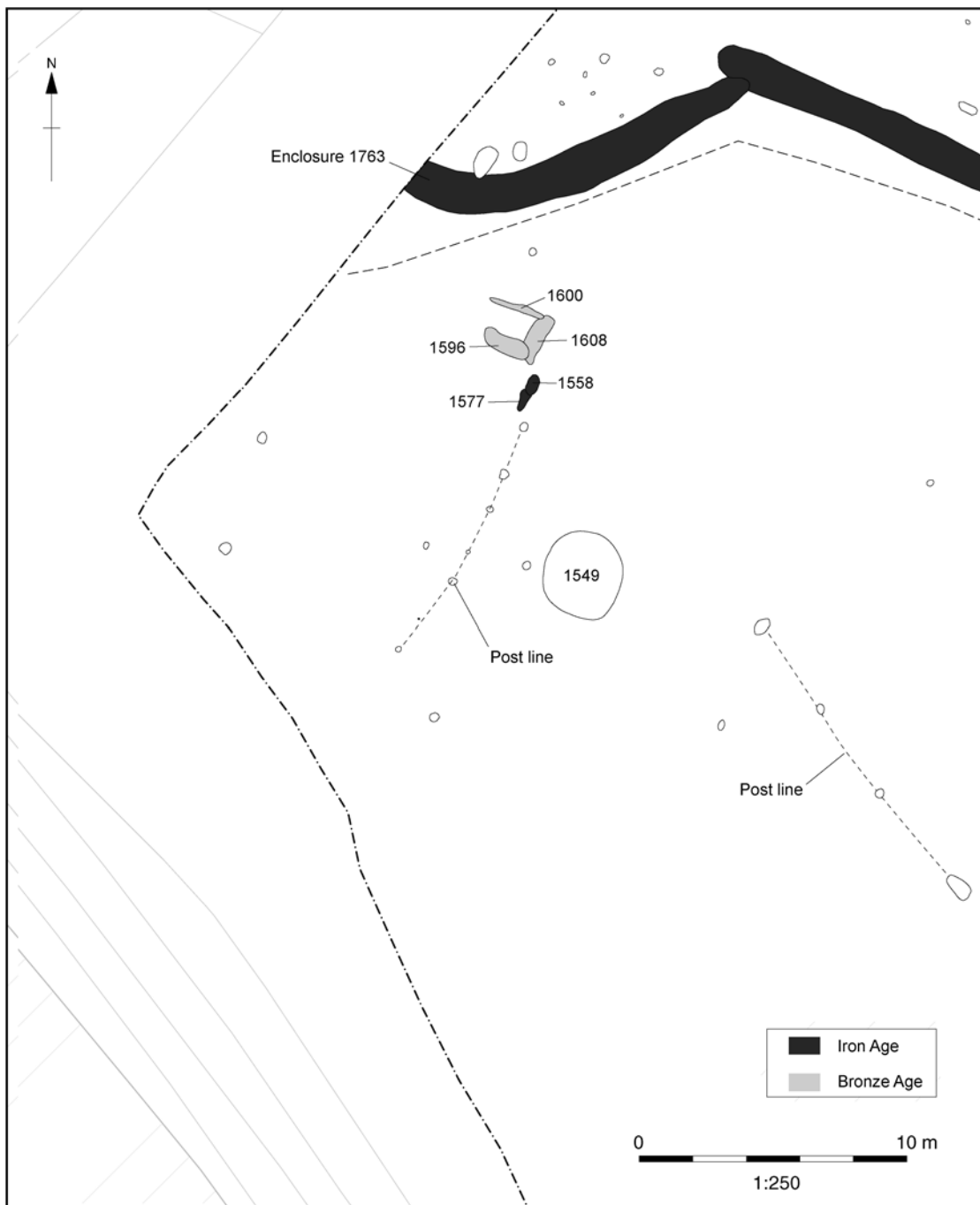


FIGURE 10 Slade Oak Lane – detailed plan of north-eastern middle Bronze Age features

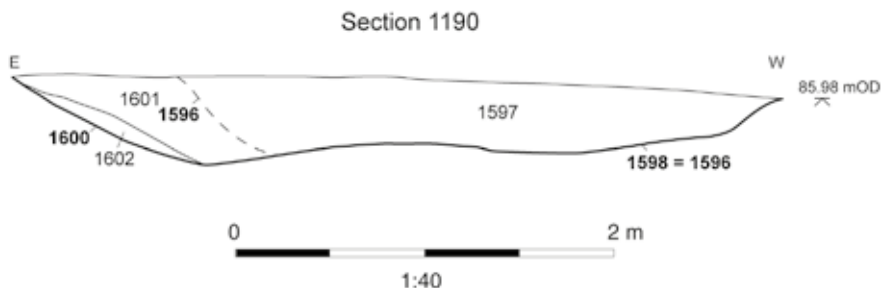


FIGURE 11 Slade Oak Lane – section of middle Bronze Age ditch arrangement 1608

Four pits (1615, 1641, 1700 and 1704) may have been cooking pits. These were all located on the eastern side of the enclosure interior and were a similar size and shape, measuring between 0.7m and 0.9m in diameter and 0.2m and 0.3m in depth. All were lined with a layer of brownish yellow sandy clay, c 0.1m thick (Fig. 15). They had been backfilled with mid to dark brown material containing numbers of burnt cobble-like stones and significant amounts of charcoal. It is likely that these features were cooking pits, the clay lining being used to make them watertight and the stones used to heat water held within them. Although these features were not dated by artefacts, their position within the enclosure suggests that they were middle to late Iron Age in date.

Most of the other pits were relatively insubstantial, with depths of 0.1-0.3m, but a few contained dumps of burnt material. Most significantly, a small quantity of iron smelting slag was recovered from the fill of pit 1664, along with 17 sherds (71g) of pottery dated to the middle Iron Age. This pit was quite large, measuring 2.88m in length, 2.65m in width and 0.41m in depth. It showed no signs of having been subjected to significant heat, so it likely that the slag was deposited from a furnace which lay elsewhere on the site. A possible posthole in the south-west corner of its base suggests that it may have had a specific function prior to being used to dispose of waste, but this is not clear. A radiocarbon date of 210–50 cal BC (95% probability; SUERC-43707: 2113±27 BP) was obtained from some hazel charcoal from the pit.

The distribution of features within the enclosure may suggest evidence for delib-

erate zoning of activities. Two parallel rows of postholes near the north-eastern entrance (Fig. 12), may belong to a rectangular structure. The postholes defining this possible structure were not, however, excavated, and their true function remains uncertain. A group of pits measuring up to 3m across and in some instances quite irregular in shape, was situated along the south-eastern perimeter, and the central area was characterised by scatters of pits and postholes interspersed with areas that may have been open spaces. At least two short lengths of curving gully were also identified. One was near the north-east entrance (1665), and was concave in profile, measuring 1.3m in width and 0.48m in depth. Another curvilinear gully was exposed in the far south of the enclosed area, but was not excavated. These may have been surviving elements of truncated round-house gullies.

Enclosure 1762 was subsequently altered by the construction of enclosures at its north-eastern and south-western ends. The north-eastern side of the enclosure was cut adjacent to the entrance by a ditch (1764) that appeared to define of the southern corner of an enclosure, most of which lay beyond the excavation area. The ditch measured 1.7m in width and 0.5m in depth and was filled with dark greyish brown sandy silt throughout its length, but with a darker brownish black loamy fill with frequent stone inclusions in its northern terminal, very similar to the fills of the clay-lined pits discussed above. The location of the ditch may have been deliberately planned to preserve the entrance to enclosure 1762, suggesting that the earlier enclosure remained in use.

A ditch (1763) that extended from the south-western terminal of ditch 1762 may have been

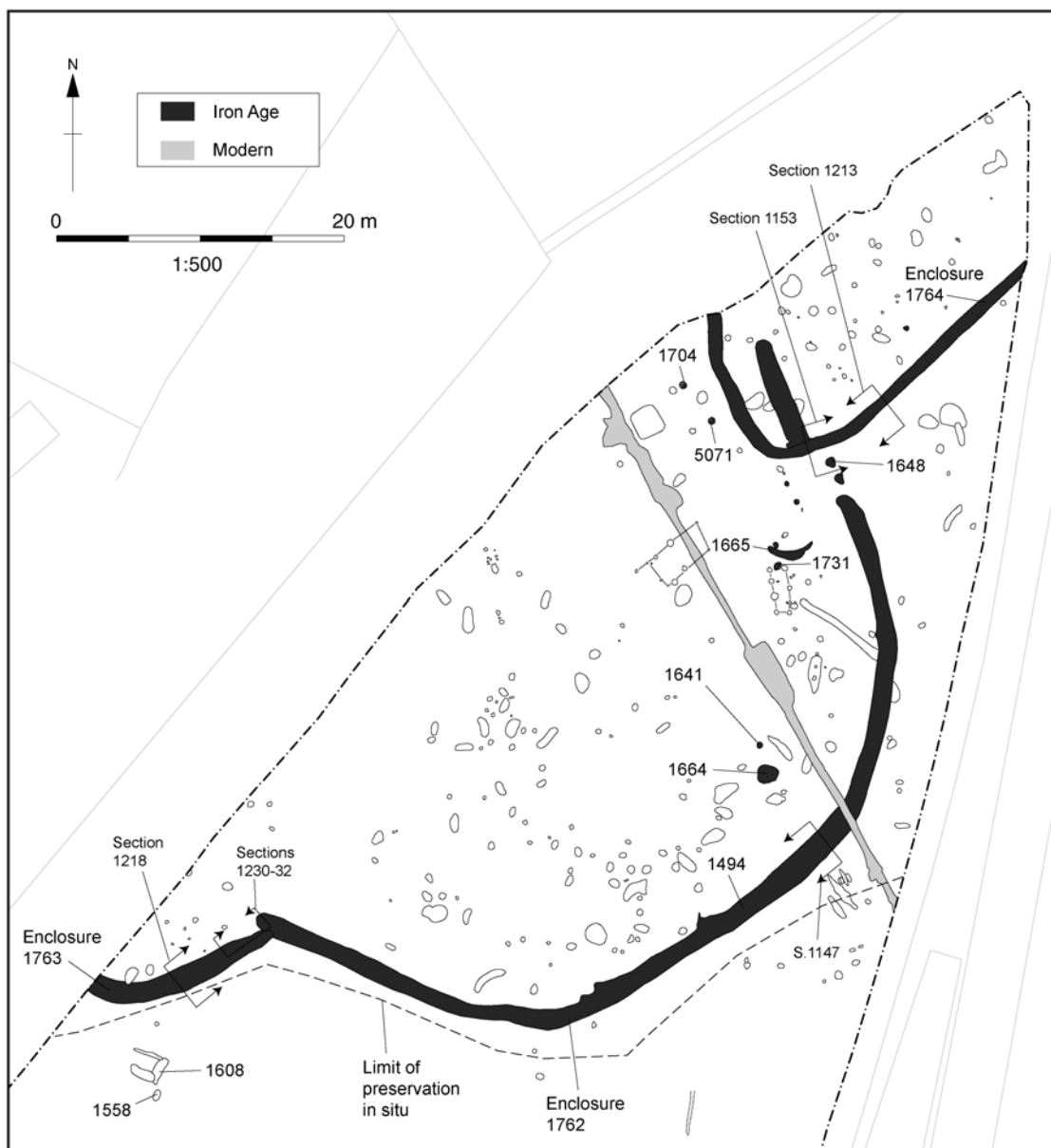


FIGURE 12 Slade Oak Lane – detailed plan of middle to late Iron Age enclosures

an extension to the original enclosure, or part of a new enclosure, similar to Enclosure 1764. The ditch was concave in profile, measured 3.3m in width and 0.47m in depth, and was filled with mid greyish brown sandy silts. No dating evidence was recovered from the fills. Evidence from the ditch fills in sections 1230–1232 (Fig. 12) suggested that

ditch 1762 had been open for some time prior to the construction of ditch 1763 but had not yet entirely silted up.

The Roman period

The only evidence for Roman activity on the site was a deposit of pottery, probably dating from the

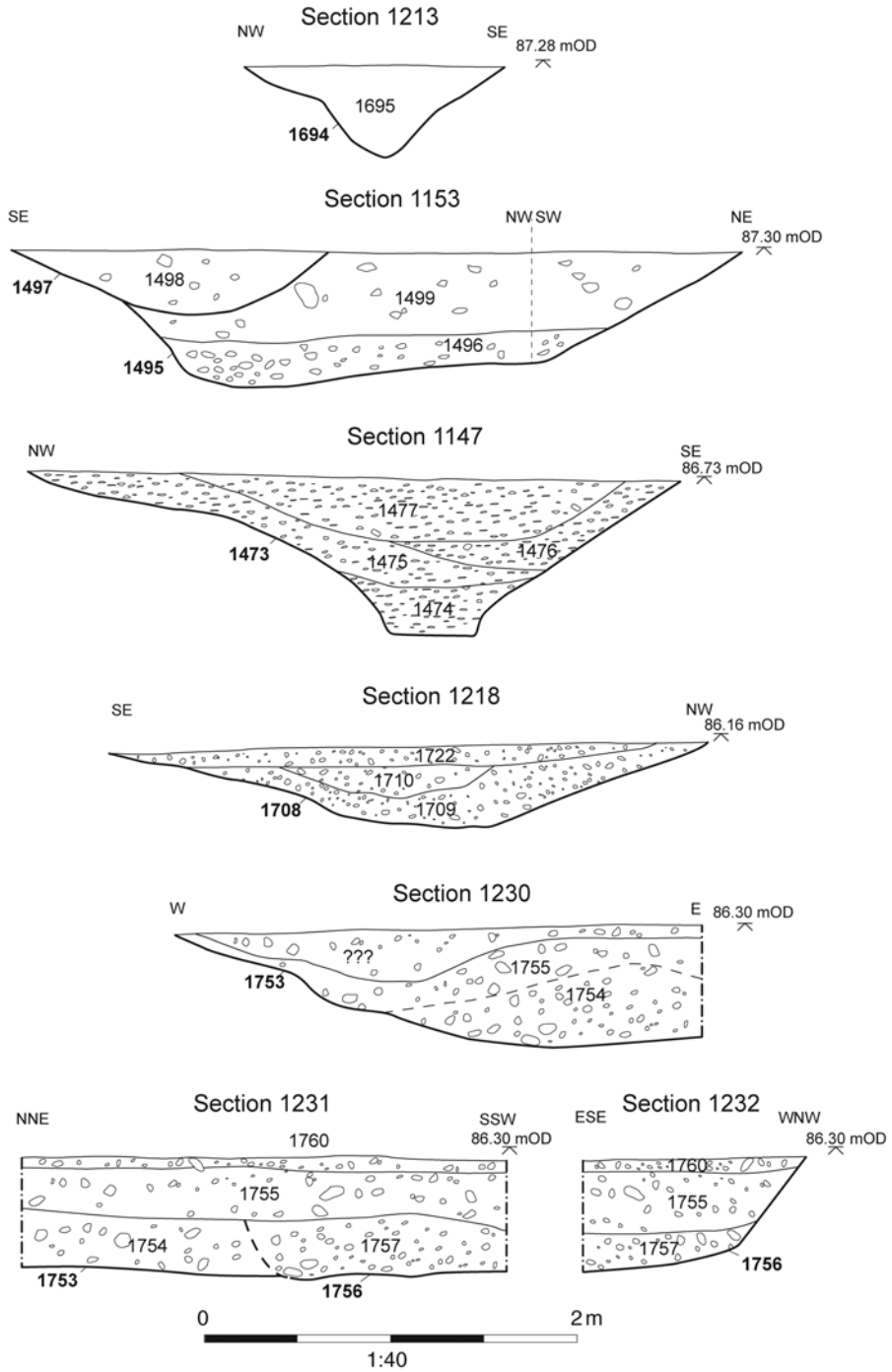


FIGURE 13 Slade Oak Lane selected sections of middle to late Iron Age enclosure ditches

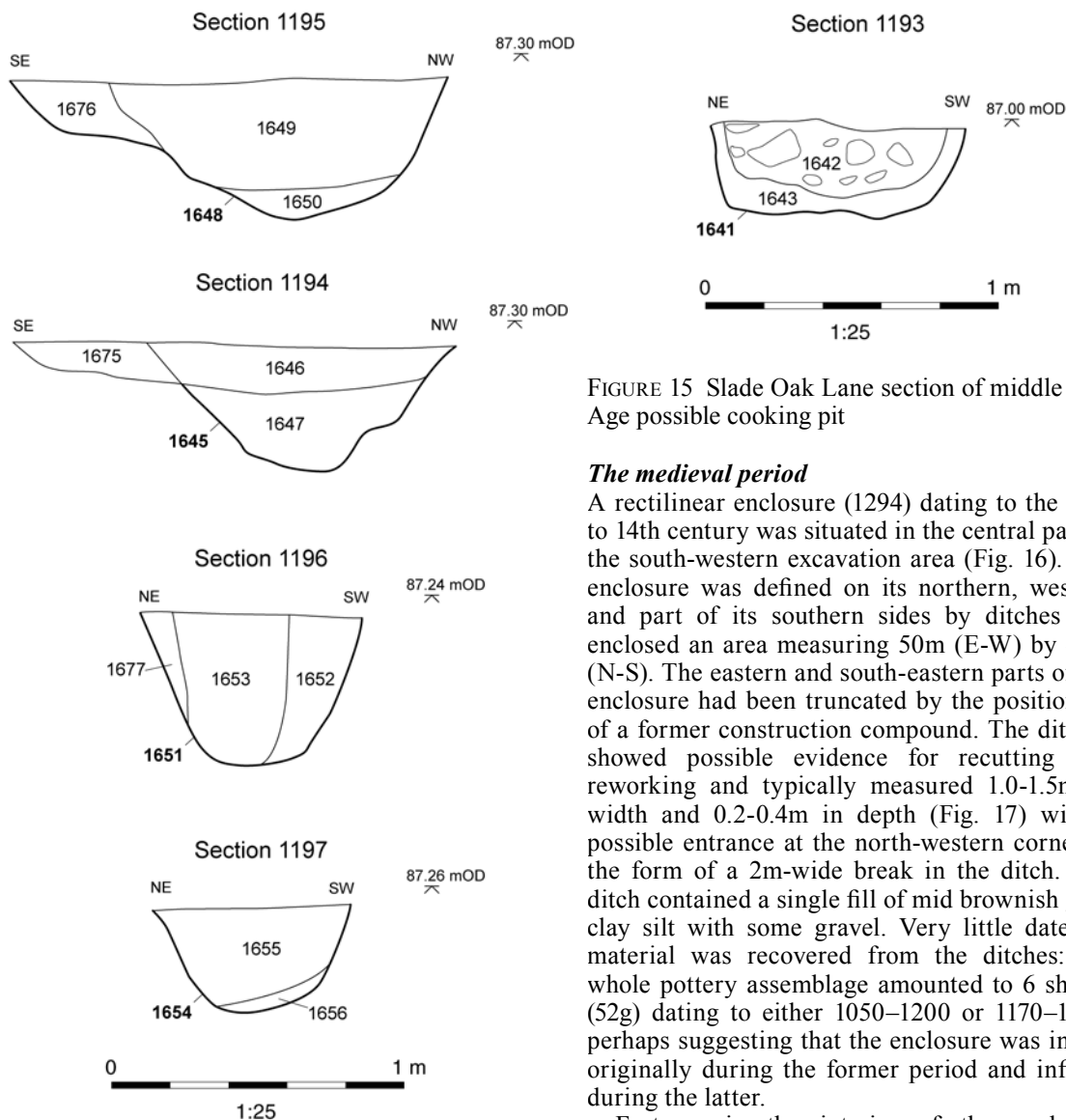


FIGURE 14 Slade Oak Lane sections of postholes of the possible middle Iron Age entrance structure

1st or 2nd century AD, which was recovered from the uppermost surviving fill of the enclosure ditch (1762; in cut 1494; Fig. 12).

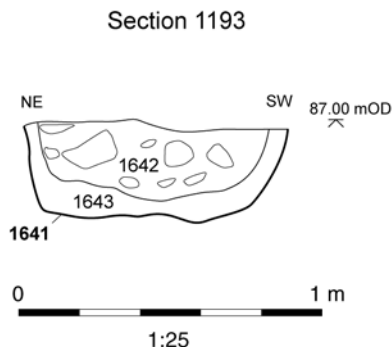


FIGURE 15 Slade Oak Lane section of middle Iron Age possible cooking pit

The medieval period

A rectilinear enclosure (1294) dating to the 12th to 14th century was situated in the central part of the south-western excavation area (Fig. 16). The enclosure was defined on its northern, western and part of its southern sides by ditches and enclosed an area measuring 50m (E-W) by 40m (N-S). The eastern and south-eastern parts of the enclosure had been truncated by the positioning of a former construction compound. The ditches showed possible evidence for recutting and reworking and typically measured 1.0-1.5m in width and 0.2-0.4m in depth (Fig. 17) with a possible entrance at the north-western corner in the form of a 2m-wide break in the ditch. The ditch contained a single fill of mid brownish grey clay silt with some gravel. Very little dateable material was recovered from the ditches: the whole pottery assemblage amounted to 6 sherds (52g) dating to either 1050-1200 or 1170-1350, perhaps suggesting that the enclosure was in use originally during the former period and infilled during the latter.

Features in the interior of the enclosure suggested the presence of at least two buildings, although in neither instance was the form of the structure entirely clear. The first was situated just to the north of the central area (Fig. 16). Pits and postholes 1355, 1371, 1357, 1306, 1369, 1367, 1365, 1359, 1361 and 1363 may have formed part of it, suggesting a rectangular structure measuring 2.1 × 2.4m. Pottery dating to AD 1050-1200 was recovered from five of these features (1371, 1360, 1306, 1365 and 1369). A total of 12 sherds

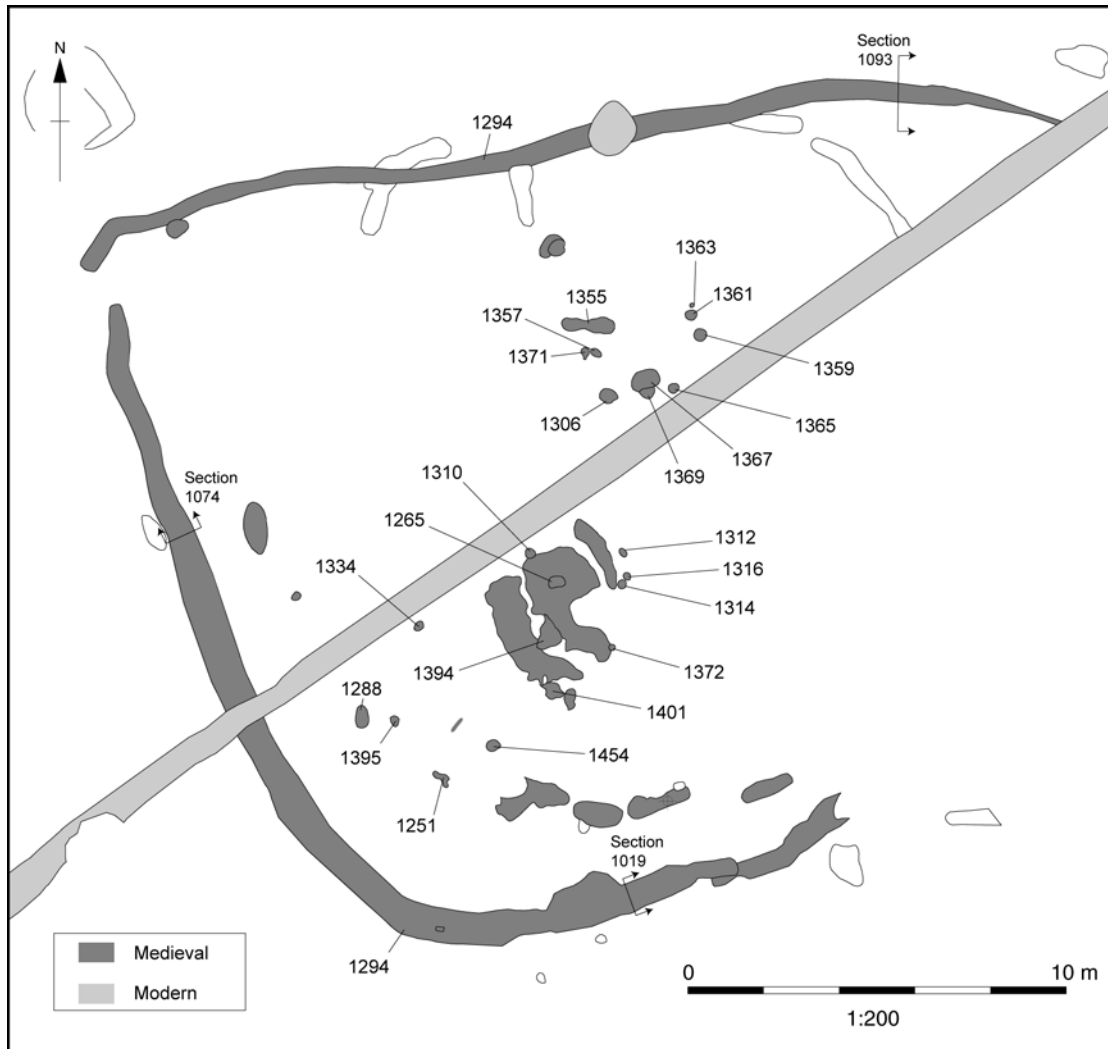


FIGURE 16 Slade Oak Lane detailed plan of medieval enclosure 1294

(128g) were fairly evenly distributed, a few being recovered from each posthole. The fills were fairly homogenous sandy silts ranging from grey to brown in colour, with no evidence of post-pipes or other structural elements. Pit 1367 contained a very poorly preserved group of bones (95 fragments/912g) which could have derived from a horse burial.

A short distance to the south-west, just to the south of the central area, was the remains of a possible floor surface or occupation layer comprised of mid brownish-grey silt with

patches of sand (1394). Around this layer were several postholes which may have supported posts for another rectangular structure, although its form remains unclear. Four postholes (1251, 1254, 1401 and 1272) set in a straight line may have formed the south-eastern side of a building. They varied in size and the two westernmost were fairly irregular in form, possibly having been disturbed by root action. The easternmost posthole (1272) contained one sherd of pottery dated to 1050–1200. Postholes 1395, 1334 and 1310 may have formed parts of the western,

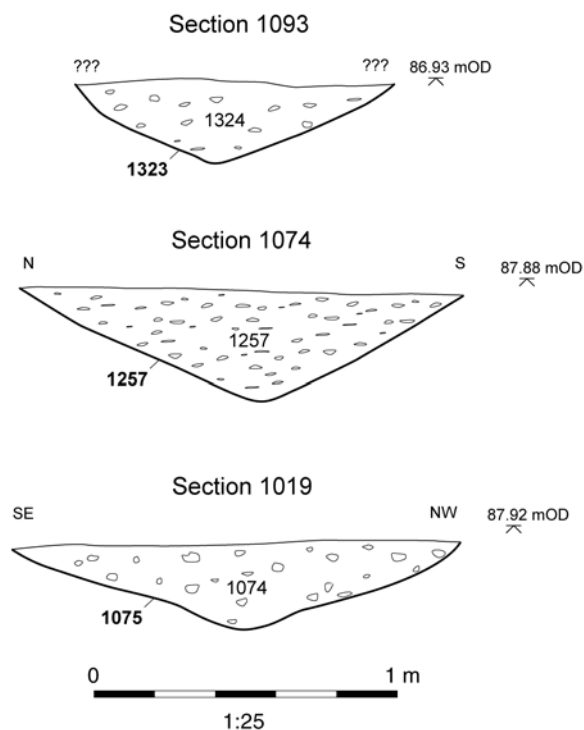


FIGURE 17 Slade Oak Lane selected sections of medieval enclosure 1294

south-western and north-western sides. However, these were also fairly irregular in size and did not contain datable material. Three postholes (1312, 1316 and 1314) towards the north-east may have formed part of an entrance structure. Posthole 1316 contained one sherd of pottery dated to 1050–1200. The internal area of this possible building contained two features, possibly pits (1288 and 1265), also dated to this period. One (1265) contained the complete circumference of a pot (no rim or base) contributing to an assemblage totalling 20 sherds (468g) dated to 1050–1200.

Pond 3 by Paul Booth

Pond 3 was located to the west of the M25 and north of the Birmingham-London Marylebone railway line (centred NGR TQ 0157 8819; Fig. 1). The only finds were a few pieces of Mesolithic or Neolithic flint, recovered from the northern end of the site, and remains of a relatively recent brick building and associated features, shown as a field

barn on the Ordnance Survey map of 1876 (Fig. 18).

The site lay within the south-eastern corner of a large field and sloped gently from 50m OD at the northern limit of the site to 48m OD at the southern. Below the modern ploughsoil and subsoil, Lambeth group clay was exposed at the upper end of the site, with Seaford and Newhaven chalk formation at the lower end, the latter overlain by a sequence of colluvial deposits. It was decided that the colluvial sequence should be preserved *in situ*, as it would not be affected by the works.

The brick structure (7) was exposed in the north-western corner of the site. A ditch (6) that extended across the excavation area on a NW-SE alignment corresponded with a boundary shown on the 1876 map. A large pit (13) with modern building rubble in its fill was located near the building. A chalk structure (4) was recorded to the south of the barn, comprising a single course of chalk blocks up to 0.4m thick. The structure extended for 30m and was 5m wide and corresponded with the outline of a yard depicted on the Ordnance Survey map of 1925.

Pelham Widening by Paul Booth

The Pelham Widening site was located along the western edge of a cutting of the M25, adjacent to the Pond 4 site (centred on NGR TQ 0200 9119; Fig. 1). The site extended across small, steep valleys with heights varying from 65m to 80m OD, and was subject to a watching brief.

A modern ploughsoil and an underlying subsoil horizon with a combined thickness of 0.5m were excavated to reveal glacial till overlying Seaford and Newhaven chalk formations. No archaeological features or finds were encountered.

THE FINDS

Slade Oak Lane contained not only the largest quantities of finds, but also the widest range, including pottery, fired clay, ceramic building material, worked flint, glass, metalwork and slag. The finds at all the other sites were confined to small quantities of pottery and worked flint.

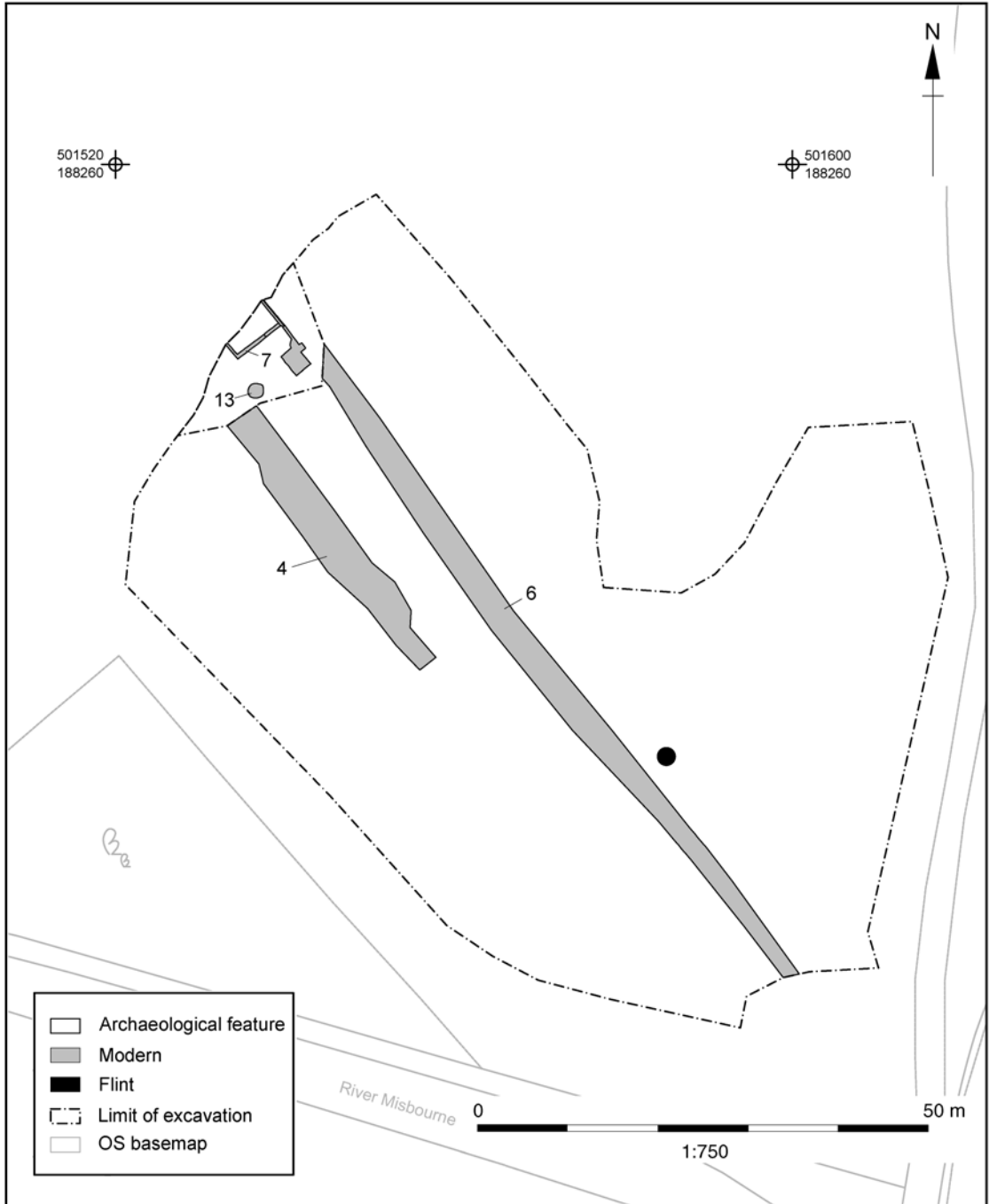


FIGURE 18 Pond 3 – plan

Prehistoric pottery from Pond 2 *by Lisa Brown*

A total of 73 sherds (663g) of prehistoric pottery was recovered from three pits. One contained sherds from at least four Beakers. The other two pits each contained sherds from single Deverel-Rimbury urns.

The Late Neolithic-early Bronze Age

The fill (11) of pit 10 produced 45 abraded sherds (120g) belonging to at least four vessels, all in grog-tempered wares, and all probably fragments of late Neolithic/early Bronze Age Beakers. The evidence suggests that, as was the case at Bricket Wood, these fragments went into the fill as broken and partial pots rather than as complete vessels.

Four sherds (20g) are fairly crudely finished, with a 'lumpy' surface and no surviving trace of decoration. The external surfaces are fired to a fairly pale orange colour. Quite distinct from the latter is a collection of six sherds (15g) in a more vesicular grog-tempered fabric, with a brownish-grey outer surface, and no surviving trace of decoration.

Six sherds (35g) are in a fine, slightly sandy, less soapy, grog-tempered fabric, fired to dark grey ranging to dark brown. The inner surfaces are well-smoothed and the outer surface is decorated with close horizontal lines of twisted cord (Fig. 19.1). Although the vessel is too fragmentary to be certain, this may be an All-Over-Corded Beaker. The form of the Beaker is uncertain.

The fourth vessel is also a Beaker, represented by a single sherd (29g). Again, it is not possible to determine the form of the Beaker. The fabric is sandier than the rest of the group, quite well-fired with an oxidised outer surface. The sherd is decorated with closely spaced incised chevrons but it is unclear whether the decoration covered the entire vessel (Fig. 19.2). The remaining sherds from this context are crumb-sized and cannot be attributed to any of the three vessels.

The Middle Bronze Age

Two pits (12 and 16) contained sherds of middle Bronze Age vessels in the Deverel-Rimbury tradition. Fill 13 of pit 12 contained 32 sherds (409g), probably all belonging to a single Middle Bronze Age Barrel Urn (Fig. 19.3). The fabric is fairly hard-fired, lightly sanded and slightly micaceous, incorporating abundant, relatively

well-sorted white and grey flint inclusions 1-3mm in size. The firing is variable: the upper part of the vessel is brownish-grey and other sherds from lower down the wall have fired to dark orange. The rim is flattened and expanded and there is a cordon with fingernail-impressed decoration part way down the vessel wall. The surface of this upper section is well-smoothed, almost to a burnish in places. Carbonised organic residue adheres to the upper part of the urn, above the cordon, so it was apparently used for cooking.

Fill 17 of pit 16 produced 57 sherds (578g), of which 56 also belonged to a middle Bronze Age Deverel-Rimbury urn, in this case only fragments of the lower part, including the basal angle. The flint-tempered fabric is similar to that used to produce the vessel from pit 12, and is completely oxidised. It is possible that the sherds from the two pits belong to the same vessel, which would have had a well-smoothed upper part and unfinished, oxidised lower part, possibly the result of being fired rim downwards. However, there were insufficient joins to be certain that the sherds came from a single vessel. The remaining sherd (2g) from pit 16 is from a thinner walled vessel in a lightly sanded clay with sparse white flint inclusions. The sherd is so small and abraded that it cannot be further classified.

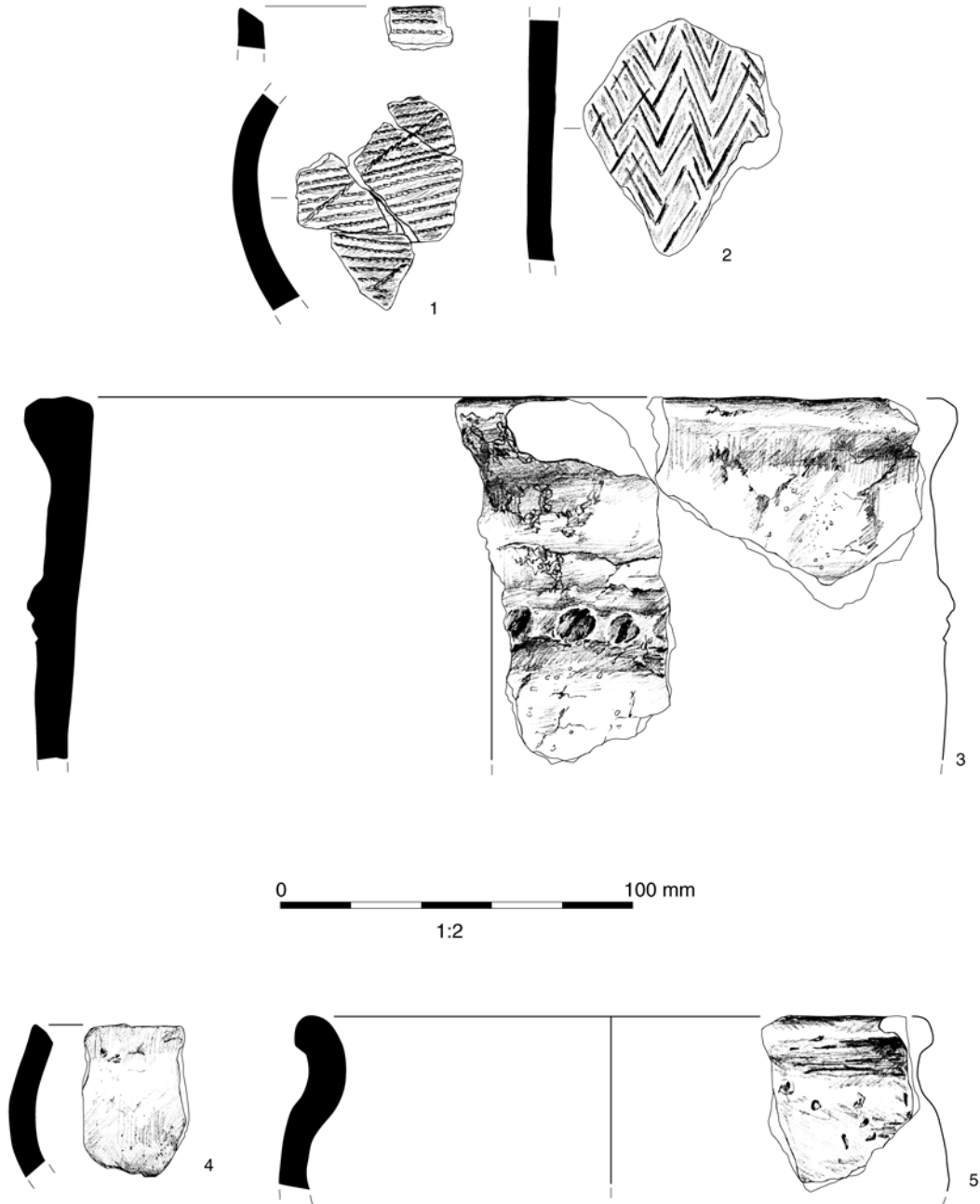
Prehistoric pottery from Slade Oak Lane

by Lisa Brown

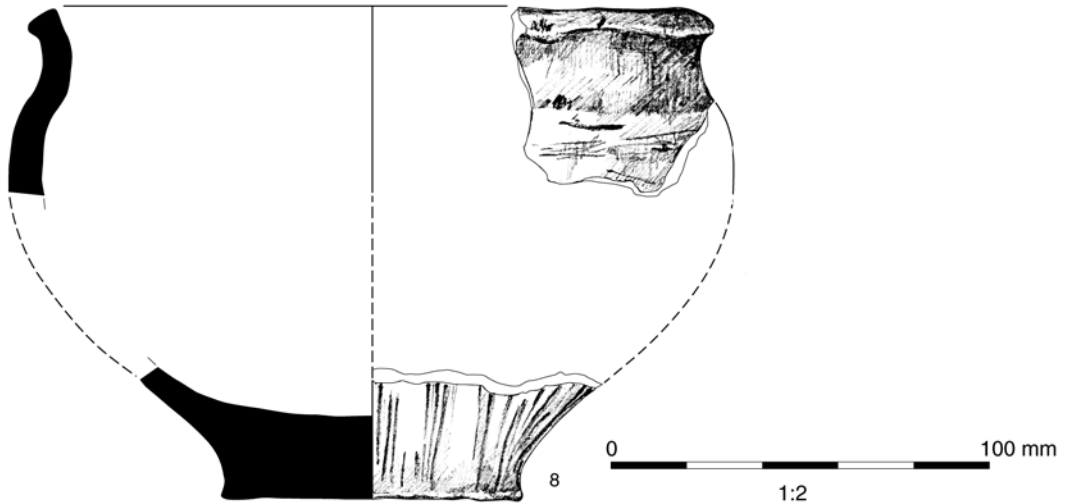
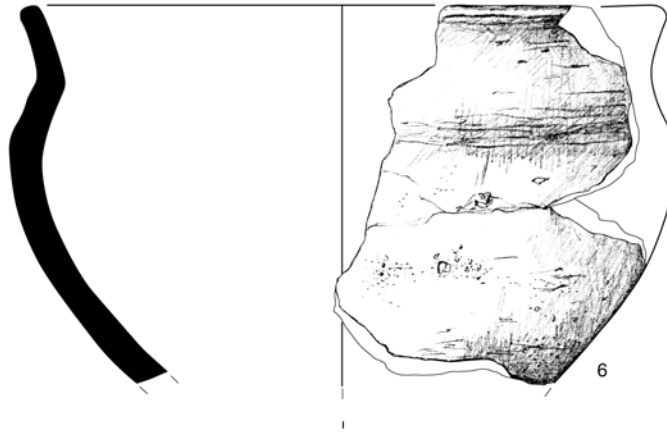
Some 192 sherds (9043g) of prehistoric pottery was recovered from Slade Oak Lane. This material spans the Beaker period to the late Iron Age, but most of the pottery is middle Bronze Age and middle Iron Age. Features and deposits typically yielded only a few abraded sherds but a middle Bronze Age pit (1140) and a middle Iron Age posthole/pit (1731) produced more substantial assemblages. The pottery range exhibits the typical trend for southern English prehistoric pottery of a progression from the common use of flint tempering agents to a preference for sandy fabrics, the latter reaching a peak in the middle-late Iron Age.

The middle Bronze Age

The fill (1246) of pit 1245 produced two body sherds (25g) of pottery in a coarse lightly sanded, slightly micaceous fabric incorporating a moderate frequency of ill-assorted flint pieces 1-5mm in



FIGURES 19a & 19b Selected prehistoric pottery from Pond 2 (1–2 Beaker sherds; 3 middle Bronze Age Barrel Urn) and (4–8) Slade Oak Lane (middle Iron Age vessels)



size. One of the sherds is oxidised throughout and its thick walls indicate that it belonged to a large middle Bronze Age Deverel-Rimbury-type urn. The other sherd is of similar date, but very rolled and abraded. Pit 1572 (1558) yielded only a single highly abraded sherd (6g) in a similar fabric with flint inclusions of slightly finer grade (1-3mm).

A large hollow (1204), probably a natural feature, produced eight body sherds (146g) in coarse flint-tempered ware. In all cases the lightly sanded clay incorporated very coarse flint pieces but variations in its size and abundance suggests that the sherds derive from three vessels. In the coarsest variety (four sherds) the common flint pieces are ill-assorted and measure up to 6mm in size. Four fragments contains much sparser flint <2mm, one of which is a small fragment of a thick, flattened rim, probably from a Bucket Urn. A single sherd contains well-sorted flint 1-3mm in size. The fabrics are consistent with middle Bronze Age pottery recovered elsewhere along the scheme.

Ditch 1600 (fill 1601), which formed part of the small rectangular enclosure (1608), yielded 16 highly fragmented body sherds (31g) representing a single vessel in coarse flint-tempered ware, clearly in the same middle Bronze Age tradition as the material from pit 1245 and hollow 1204. Ditch 1596 (fill 1597), which formed part of the same enclosure, contained a single sherd (9g) in a similar fabric.

A particularly large assemblage of pottery came from pit 1140. The pit contained two charcoal-rich fills separated by a layer of large pottery fragments which had been deliberately laid on top of the lower fill (1142). The 47 sherds (7755g) belonged to the lower section of a large vessel, including part of a flat base. Although the upper section was missing the vessel could be identified as a Deverel Rimbury urn of uncertain form, in very coarse flint-tempered fabric. The wall of the vessel was perforated, post-firing, by three small holes. A radiocarbon date of 1420–1260 cal BC was obtained on charred grain from the upper fill (1141) of the pit.

The early to late Iron Age

Several fills of ditches making up enclosure 1762 produced very small amounts of pottery. Fill 1475 (middle fill of cut 1475) yielded three crumb-sized sherds (2g) in a fine black glauconitic sandy ware, likely to be of middle-late Iron Age date. An 11g sherd from fill 1511 of ditch cut 1508 in a similar

black glauconitic sandy ware can also be dated to this period, as can 16 fragments from a vessel (8g) from fill 1513 of ditch cut 1512. In contrast, seven sherds (30g) from fill 1525 of ditch cut 1522 are in a relatively coarse sandy ware with rare chips of flint. They belong to a vessel with an inturned, pointed rim, not dissimilar to late Bronze Age/earlier Iron Age plainware jars (Fig. 19.4; Barrett 1980), but the rim is also a feature of rather indistinct forms that date to the middle Iron Age in the region. Two body sherds (17g) in a similar fabric recovered from fill 1526 of the same ditch may have belonged to the same vessel. The attrition suffered by this group of sherds suggests that they are not likely to have been contemporary with the date of the infilling of the ditch, and could lie anywhere in the early to middle Iron Age range.

Four sherds (12g) of ceramic material came from context 1499 (fill of ditch cut 1495). This material is slightly micaceous, finely sanded and contains rare small lumps of powdery red ferrous matter. However, only one surface survives, so it is not possible to deduce whether it is pottery or fired clay of another type. It is very light, though not porous, and does not have the weight of sand-tempered pottery. Some 42 sherds (46g) of similar material were found in fill 1503 (fill of ditch cut 1494). This material may be fired clay from a broken up oven or hearth. As such, it is undateable. Roman pottery was found in the upper fills of this enclosure ditch (see below).

The stratigraphic evidence indicates that enclosure 1762 was modified by the addition of ditches at the northern and southern ends (1759). The later enclosure produced pottery typical of the East Midland Scored Ware tradition, otherwise known as Trent Valley A Ware (Knight 1984; Elsdon 1992). Sherds belonging to two large jars in a very fresh condition were recovered from fill 1761 (in ditch cut 1759). Some 22 sherds (205g) are in a glauconitic fabric, and the outer surface is light brown, with faint vertical streaks running up the wall. The second vessel (6 sherds/120g) is in a near identical fabric, but fired to dark grey. The surface is roughened with distinct vertical scoring typical of this tradition. The style was widespread, covering the area between the rivers Trent, Nene and Welland, and is found as far east as the Chilterns and south to the middle Thames. It was also long-lived and is difficult to date as a result. The tradition started as early as the fifth

century BC and endured in some areas as late as the first century BC.

Pit 1660 (fill 1663) contained a single body sherd (6g) in glauconitic sandy ware. The sherd is thin walled and well-fired with a smoothed surface, but somewhat abraded. It cannot be dated more closely than middle-late Iron Age.

Pit 1664 yielded 20 sherds (72g) of pottery of early-middle Iron Age date, but no sherds diagnostic of form were recovered. The group represents at least four vessels, all in reduced sand dominated fabrics typical of the middle Iron Age tradition in the region. One sherd is in a sandy fabric with rare flint chips comparable to a vessel found in ditch 1522 (see above). Another sherd is in a glauconitic sandy ware that additionally includes powdery red ferrous lumps. Three sherds are in a simple sandy glauconitic fabric: the remaining 15 sherds, from one vessel, are in a glauconitic variant that has a much finer sand filler and no other visible inclusions. The surfaces of this vessel had been well-smoothed. A radiocarbon date of 210–50 cal BC from hazel charcoal recovered from the pit fill confirms a middle Iron Age date for the filling of this feature.

An irregular hollow (1714), possibly a tree root hole, contained two body sherds (23g) from the same vessel in a relatively coarse sandy ware with rare small flint pieces 1.2mm in size. The external surface is oxidised and there is no trace of special finishing. The sherds are likely to date to the early-middle Iron Age.

A posthole (1731) located just inside the entrance to the enclosure produced 34 sherds of pottery (530g) representing at least four middle Iron Age vessels in sandy fabrics. Two small sherds (9g) of abraded flint-tempered ware are residual Bronze Age fragments. Another two sherds (6g) of highly vesicular, oxidised fabric are likely to be briquetage. Substantial parts of the profiles of three of the middle Iron Age vessels, and a large rim sherd of the fourth, were present (Fig. 19, 5–8). The rim belongs to a jar or large bowl with everted rim and rounded body (Fig. 19.5), made in a fine glauconitic sandy ware incorporating very rare small chips of white flint. It is fired to dark greyish-brown and the outer surface is roughly burnished. Another well-finished vessel, found in nine sherds, is a bowl with upright rim and rounded shoulder (Fig. 19.6) made in a similar fabric to no. 1, but with marginally more flint. The vessel is differ-

entially fired with a colour range between dark greyish-brown and dark reddish brown. The upper part of the bowl is roughly burnished while the lower is only wiped.

A much more crudely made necked bowl with a rounded shoulder (Fig. 19.7) is in a coarser sandy, slightly micaceous clay incorporating rare pieces of corticated flint and quartzite up to 4mm in size. It is fired to a dark orange and the surface is roughly wiped. The vessel is somewhat distorted, as though it began to collapse before firing, and may have been an apprentice piece. The fourth vessel, another necked bowl with rounded shoulder, is represented by rim and basal sherds (Fig. 19.8). The rim is slightly out-turned and flattened. The area above the base shows vertical scoring, apparently in the same East Midlands tradition as the sherds from the later ditch of enclosure 1762. The fabric is a fine glauconitic sandy ware incorporating rare rounded flint and quartzite pieces up to 5mm in a variety of colours, which were probably natural inclusions in the clay, along with small white flint chips.

Hazel charcoal from the fill (1735) of this feature provided a radiocarbon date of 350–50 cal BC, a date that can easily accommodate the style of the pottery. Although the pottery is unlikely to have been post-packing, the presence of a clear post-pipe within the centre of the feature shows clearly that it was a posthole. Given that it was a posthole, what was clearly a deliberate deposit of substantial fragments of vessels requires explanation. Although the specific explanation for this deposit is uncertain, the Iron Age practice of placing pottery in boundary features is, nonetheless, well-attested (Gwilt 1997).

Roman pottery from Slade Oak Lane

by Edward Biddulph

A small assemblage of Roman pottery (39 sherds, 436g) was recovered during excavation at Slade Oak Lane compound from an upper fill (1507) of enclosure ditch 1762. The pottery was quantified by sherd count and weight in grammes, and any forms identified from rims were additionally quantified by estimated vessel equivalents (EVE). Forms and fabrics were assigned standard Oxford Archaeology codes for late Iron Age and Roman pottery (Booth, nd). The data are summarised in Table 3.

The group largely comprised sand-tempered

TABLE 3 Summary of Roman pottery by fabric group.

<i>Fabric</i>	<i>Count</i>	<i>Weight (g)</i>	<i>EVE</i>		<i>Vessels</i>
O10 Fine oxidised ware	2	11			
R10 Fine grey ware	10	79			
R20 Sandy reduced ware	5	58	0.1		C (jar)
R30 Medium sandy reduced ware	14	98	0.5		CD (jar) 0.15; HA (carinated bowl) 0.35
R60 Organic-tempered reduced ware	1	32	0.18		CD (medium-mouthed jar)
R90 Very coarse reduced ware	6	137			
W21 Verulamium-region white ware	1	11	0.04		HA (carinated bowl)
Totals	39	436	0.82		

TABLE 4 Slade Oak Lane – summary of post-Roman pottery types.

<i>Fabric</i>	<i>Name</i>	<i>Date</i>	<i>No. sherds</i>	<i>Weight (g)</i>	<i>ENV</i>	<i>EVEs</i>
MISC M	Misc unsourced medieval pottery	c 900-1500	3	17	3	0
EMCH	Early medieval chalk-tempered ware	c 1050-1150	1	3	1	0
ESHER	Early S Herts-type coarseware	c 1050-1200	60	912	22	0
SHER	South Herts-type greyware	c 1170-1350	2	17	2	0.06
PMR	Post-medieval red earthenware	c 1550-1900	4	105	4	0
TOTAL			70	1054	32	0.06

grey wares. A relatively wide-mouthed jar was identified in a sandier or granular fabric (R20), while a carinated bowl and a medium-mouthed jar in a moderately sandy fabric (R30) was present. No forms were recognised in fine grey ware (R10). Another medium-mouthed jar was seen in an organic-tempered reduced fabric (R60), and fragments of a very coarse-tempered fabric (R90) may represent the remains of one or more storage jars. Two sherds of fine oxidised ware (O10), one containing very fine sand, were recorded, and a carinated bowl was present in Verulamium-region white ware (W21). The date of the group is uncertain, but the Verulamium-region white ware potentially places deposition within the late 1st century AD or the first half of the 2nd century.

The medieval and post-medieval pottery from

Slade Oak Lane by John Cotter

Introduction

Slade Oak Lane produced a total of 70 sherds of pottery weighing 1054g, representing about 32 vessels. Additional methods of quantification are given in Table 4 and are described below. Most of the post-Roman pottery came from deposits associated with a subrectangular medieval enclosure and associated features located in the centre of the south-western area of the Slade Oak Lane site. These comprised ditch, pit and posthole backfills. The medieval pottery dates from the late 11th or 12th century and probably into the first half of the 13th century. A few sherds of 19th-century flowerpot (PMR) were also recovered.

All the pottery was examined, spot-dated and fully catalogued. For each context and fabric the total pottery sherd count and weight were recorded.

Vessel form, if identifiable, was also recorded together with ENV (minimum vessel count) and EVEs (rim circumference length) if present (medieval wares only). Vessel part, decorative details, condition and traces of use were also recorded. The medieval pottery types present are typical both of south Buckinghamshire and also to a large extent the London area and have therefore been catalogued in accordance with the standards of the Museum of London Archaeology Service (MoLAS), using the system of post-Roman pottery fabric codes developed in London over several decades (LAARC 2007). As most of the local pottery types present are well-known, and their condition is generally poor, a single item only has been illustrated.

The date and nature of the assemblage

The assemblage is in a generally poor and fragmentary condition, comprising a mixture of large and small sherds including fresh and worn examples of both. The average sherd weight is 15g. Remarkably, only a single rim was recovered (in SHER), all other sherds being body and base sherds. This suggests the site may have suffered from plough damage. The greatest quantity of pottery from a single context is the 20 sherds (461g) from a single crushed ESHER vessel in context 1266 (fill of pit 1265) which is described below. This comprises 59% of all post-Roman sherds from the site (or 44% of the weight). All the medieval sherds appear to be from coarse domestic pottery; there are no glazed wares. A summary of the pottery assemblage is presented below in roughly chronological order.

Miscellaneous unsourced medieval pottery (MISC M, c 900–1500)

Three small body sherds from different contexts. Two of them might be medieval orange sandy wares, possibly from fairly local sources. One of these (context 1550, fill of pit 1549) is bright orange and possibly of late medieval date, or alternatively a misidentified Roman piece. Another worn hard grey sandy sherd has traces of crude horizontal burnishing or smoothing externally, and might be possibly of late Saxon date or alternatively a misidentified Iron Age piece (context 1507, fill of cut 1494 across Iron Age enclosure 1762).

Early medieval chalk-tempered ware (EMCH, c 1050–1150)

This is fairly common from sites in the Chiltern area. Small amounts also occur in London where the type is described (Vince & Jenner 1991, 70–72). A single small tightly curved body sherd was recovered from context 1640 (the fill of an otherwise undated tree-throw hole (1637) which lay just to the south of Iron Age enclosure 1763). The chalk inclusions have all dissolved out leaving a corky texture. It bears the scar of an applied feature, possibly a handle.

Early south Hertfordshire-type coarseware (ESHER, c 1050–1200)

This has only quite recently been defined as a tradition or fabric type (Blackmore & Pearce 2010, 114–118). Formerly known as ‘M40 ware’, amongst other things, it has a widespread distribution in south Buckinghamshire, south Hertfordshire and Middlesex. Production sites include Rush Green, Denham (Buckinghamshire) – only a couple of miles south of Slade Oak Lane – where production may have continued into the early 13th century (*ibid*; Farley & Leach 1988) and, for the late phase of production, Uxbridge (north-west Middlesex). The earlier production sites have yet to be discovered. ESHER vessels generally have a softer coarser fabric than south Hertfordshire-type greyware (SHER) and were handmade, although the rims were sometimes finished on a turntable (Blackmore & Pearce 2010).

This is easily the most abundant medieval pottery type from the site, all other fabrics being represented by just one or two sherds each. As stated above, no rims were recovered, just body sherds and a few base sherds. As far as can be deduced the only vessel type present is the jar/cooking pot with a globular body and a sagging base. Several sherds show evidence of external sooting from use as cooking vessels, and a few sherds also exhibit internal sooting. Several sherds are decorated and may therefore be from jugs as well as jars, although there is no definite evidence for the presence of jugs. Probably the most interesting ESHER vessel is the 20 sherds from context 1266 which derived from a vessel which was buried in pit (1265) in floor (1394). The vessel was seen intact (with base and rim missing) before fragmenting upon removal. The pot appeared to have been placed in the corner of a rectangular pit

(1265), near the centre of a possible structure. The surviving portion comprises large and small body sherds from the lower wall of a jar or cookpot. One or two sherds have traces of the inner basal angle – the external angle does not survive. Some sherds exhibit external sooting. The vessel is handmade and has a low-fired grey-brown very sandy fabric with sparse-moderate coarse angular flint grits up to 3mm across and sparse-moderate organic inclusions. A few sherds show traces of decoration in the form of widely-spaced incised (single) horizontal lines. The rim may once have been flush with the ground surface but plough damage, or other truncation, has removed all trace of the upper half of the pot. The many and various reasons for burying medieval pots in or under the floor have been discussed at length by Moorhouse (1986, 115–17) and include simple storage as well as industrial functions or burial for superstitious reasons.

A few other sherds from the site show the same type of spaced horizontal line decoration, including sherds from context 1216 (the fill of an isolated tree-throw hole (1215) to the north of the medieval enclosure), which may be from the same vessel as the buried pot. A separate vessel from context 1360 (fill of posthole 1359) has the same type of decoration. Although incised horizontal line decoration does not appear to be a feature of jars/cooking pots at the Denham kilns, it does occur on some jugs there (Farley & Leach 1988, fig. 13.6; fig. 14.4). Given the relatively small sample of ESHER sherds recovered (60 sherds), a surprisingly high proportion (c 66%) bear some form of incised or combed decoration – including the buried pot. Aside from the latter, the majority of body sherds which bear decoration are decorated with a fairly crude surface wiping or scratching which has a mainly horizontal direction but is sometimes a combination of horizontal and diagonal wiping (12 sherds from 8 contexts). This is sometimes known as ‘scratch-marked’ decoration: it is a common feature of handmade jars/cooking pots from the Denham kilns, and is considered there to be characteristic of the early phase of production, tentatively dated to the 12th century (*ibid.* 76, fig. 17.1–2; Blackmore & Pearce 2010, 118). A second phase of production at Denham is probably represented by jars/cooking pots with close-set combing or scoring and possibly dates to the 12th or very early 13th century (Farley & Leach 1988, fig. 17.10–12,

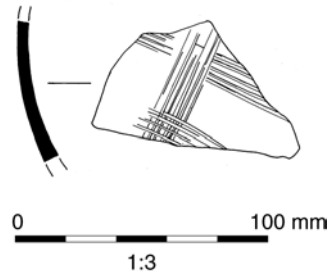


FIGURE 20 Early south Hertfordshire-type coarseware from Slade Oak Lane

fig. 18.1–3). A single fairly large fresh jar sherd from context 1273 (fill of posthole 1272) is the only definite example of this type of decoration, in this case with neat horizontal scoring. The final phase of production at Denham, probably in the first half of the 13th century, saw the widespread adoption on jars of thumbled applied strip decoration in place of combing. This last type is absent from Slade Oak Lane, possibly because significant occupation here had ceased by then. A single ESHER jar body sherd from the site (context 1362, fill of posthole 1361) is decorated with a combed lattice pattern (Fig. 20). Although the latter appears to have no exact parallel at Denham, a number of sherds there have fairly similar combed decoration (*ibid.* fig. 16, 3, 12–13).

South Hertfordshire-type greyware (SHER, c 1170–1350)

This has a harder more consistently grey reduced fabric than ESHER, and vessels were usually wheel-thrown. Several production sites are known, mainly in south Hertfordshire, but also in south Buckinghamshire (including Denham) and north-west Middlesex. It is very common from excavations in London (Blackmore & Pearce 2010). The two sherds present, both from context 1258 (fill of cut 1257 across the medieval enclosure ditch), comprise a small body sherd and a rim sherd, probably from two separate vessels. The rim is the only one from the excavation, in any fabric. This is from a jar with a sub-squared or thickened flat-topped rim with broad thumbled decoration on the lip of the rim. It appears to have been made on a turntable rather than a wheel and is probably an early product of this industry, but the fabric is just a harder/denser version of the ESHER fabric.

An oxidised body sherd of MISC M in the same context has traces of incised line decoration and is also consistent with a 13th- or 14th-century date.

Fired clay and ceramic building material from Slade Oak Lane *by Paul Booth*

Twelve fragments of fired clay (52g) were recovered from one context (1526, the uppermost fill of enclosure ditch 1762, cut 1522) at Slade Oak Lane, where they were associated with a small quantity of Iron Age pottery. This material was formed of poorly mixed clay with few sand inclusions, generally oxidised and fairly hard fired. Two fragments had one flattish surface. A further 44 minute fragments (26g) were recovered from sieved samples from 9 further contexts. These were completely undiagnostic.

Ceramic building material was recovered from 12 contexts, and was probably entirely post-medieval in date in sandy fabrics. It comprised fragments of brick, floor tile and roof tile, the latter including peg tiles and two curving (ridge or pan tile) fragments, one with a nib. The bricks included three incomplete but unusually narrow pieces, with dimensions of 250+ × 75 × 54mm, 231+ × 77 × 52mm and 154+ × 79 × 54mm, this last piece having one bevelled face. Patches of ash glaze on the second of these three pieces were consistent with being stacked in a kiln, possibly as a bar or spacer. These pieces were from the fill of an amorphous cut feature (1417), which lay adjacent to the medieval enclosure (1294). Most of the other post-medieval ceramic building material derived from upper ditch fills and small quantities from a pit (1285) which cut the medieval enclosure ditch (1294). One small ceramic building material fragment (12g) in a sand-free fabric from one of the fills of this pit (1285) may have been of Roman date. There is no indication that any of the ceramic building material was related to specific activities on the site and it seems to represent material dumped from elsewhere.

The flint *by Michael Donnelly*

Four very small assemblages of flint, ranging from just two flakes from Pond 2 to 76 flints at Slade Oak Lane, were recovered (Table 5). The artefacts were catalogued according to OA's standard system of broad artefact/debitage type, general condition noted, hammer type and presence/degree of platform preparation/abrasion noted, and

dating was attempted where possible. The lithic assemblage has been quantified and characterised typologically. During the initial analysis additional information on condition (rolled, abraded, fresh and degree of cortication), and the state of the artefacts (burnt, broken, or visibly utilised) was also recorded. Retouched pieces were classified according to standard morphological descriptions (e.g. Bamford 1985, 72–77; Healy 1988, 48–9; Bradley 1999). Unworked burnt flint was quantified by weight and number.

Slade Oak Lane

The Slade Oak Lane site yielded material from both fieldwalking and excavation. The fieldwalking assemblage was biased towards larger pieces and it is likely that only the more obvious pieces were identified in amongst numerous pieces of natural, plough-struck material. Irregular waste flakes and any finer fraction are absent. The excavated assemblage contains a more balanced, wider range of objects, the bulk of which probably relates to mid-late Bronze Age activity alongside a smaller residual earlier prehistoric element dating to the Mesolithic-early Neolithic.

Twenty-two of the pieces, consisting of 14 flakes, a blade, some waste and three cores, originated from the fill (1205) of a natural hollow (1204) which also contained a small quantity of middle Bronze Age pottery. One of the cores and the blade were distinctly early in appearance, but the remainder of the assemblage was undiagnostic. The fill (1018) of an otherwise undated tree-throw hole (1014) contained a small assemblage of three flakes and two cores that were all very typical of later prehistoric flint knapping. One of the upper fills (1219) of a deep feature (1174), possibly a sink hole, near natural hollow (1204) contained four pieces of mixed date and include a flake with faceted platform of probable late Neolithic date and two pieces that are more typical of mid-late Bronze age knapping: a scraper on a thermal fracture and a crude multi-platform flake core. The majority of the remaining contexts containing flints produced two or less flints each.

Pond 2

This site yielded just two flakes, one of which was a double ventral 'janus' flake from the Beaker associated pit (10) while the fill (17) of one of the middle Bronze Age pits contained a broken flake.

TABLE 5 The flint assemblages.

CATEGORY TYPE	Slade Oak Lane	Pond 2	Pond 3	Pond 4
Flake	39	2	2	20
Blade forms	11		1	3
Blade index	11/50 (22%)	0	1/3 (33.33%)	3/23 (13.04%)
Irregular waste	8		1	2
Sieved chips 10-4mm				1
Blade cores/fragments	2			1
Flake cores/fragments	7			1
Scrapers	6		1	
Notch			1	
Micro/denticulates	2			
Retouched flake	1			
Grand Total	76	2	6	28
Burnt unworked flint no./g	13/264g		1/10g	12/130g
No. burnt (exc. chips) (%)	4/76 (5.26%)			2/28 (7.14%)
No. broken (exc. chips) (%)	7/76 (9.21%)	1/2 (50%)	1/6 (16.67%)	2/28 (7.14%)
No. retouched (exc. chips) (%)	9/76 (11.84%)		2/6 (33.33%)	2/28 (7.14%)

Pond 3

This site contained 6 pieces, all from the subsoil layer, consisting of two flakes, a piece of irregular waste, a blade, a side scraper and a notch with a faceted platform of late Neolithic date. The proximal blade segment is likely to date to the Mesolithic to early Neolithic periods. The remainder of the assemblage including the side scraper is undiagnostic.

Pond 4

This site contained a small assemblage of 28 pieces, mostly flakes (20) but also 2 multi-platform cores (one each focusing on flakes or blades), three blade forms, a sieved chip and two scrapers. Additionally, 12 pieces of burnt unworked flint was also recovered. Twenty-five of the pieces came from the topsoil while single pieces were also recovered from two of the middle Bronze Age pits (10 and 32).

The assemblage is typical of disturbed topsoil/subsoil material with numerous larger, rolled pieces. It includes two multi-platformed cores. One is typical of the cubic examples known from the early Neolithic, although here any potential blade

scars have been truncated by a later flake-producing platform. The second core is a very crude, typical later prehistoric example. The flakes from the assemblage are also mostly typical of later prehistoric, mid-later Bronze Age knapping with hard hammer struck, squat examples displaying unprepared broad platforms. Two of the flakes display platform faceting more typical of the late Neolithic-early Bronze Age. Finally, the blade, bladelet and blade-like flake are all classic examples that almost certainly date to the Mesolithic to early Neolithic periods.

Retouch was limited to two scrapers. One side scraper was quite heavily rolled but the other side and end example was in better condition with well executed retouch. Neither example is diagnostic.

Conclusion

The flint assemblages form a remarkably sparse resource for a major infrastructure scheme in south-east England (*cf* Stansbie *et al.* 2012). The M25 scheme as a whole produced only two significant medium sized assemblages, both of which lay outside Buckinghamshire (Poole *et al.* 2014).

At Slade Oak Lane, the fieldwalking assemblage is biased towards larger pieces, and it is likely that only the more obvious flints were identified amongst numerous natural, plough-struck material. Less distinctive flakes, irregular waste and the finer fraction are absent. The fieldwalking assemblage is dominated by this early phase that was also quite prevalent amongst the material recovered during the initial phase of M25 construction and is well known from the Gerrards Cross/Denham/Misbourne region (Farley 2008). In contrast, much of the excavated assemblage appears to be of Bronze Age date.

The assemblage from Pond 3 appears to represent a mix of Mesolithic and Neolithic pieces. However, the very small size of the sample should prevent reading too much into this. Mesolithic activity is known from nearby (Farley 2008) and has also been found at Pond 4.

The assemblage from Pond 4 also appears to represent a palimpsest of flint knapping activity ranging in date from the Mesolithic through to the mid-late Bronze Age. The main focus of the material is, however, the later periods. Flints were recovered from nearby during the M25 construction at the Misbourne Railway Viaduct site and have been seen as having a significant early prehistoric component, although there is no mention of any later activity (Farley 2008).

Overall the assemblages recovered appear to indicate low levels of activity in early prehistory with small clusters of contemporary later prehistoric activity associated with pits, probably representing expedient tool creation and use, utilising naturally occurring flint nodules and thermal fragments. Concentrations of finds or tools that might indicate settlement activity were absent.

Metal finds from Slade Oak Lane by Ian Scott

The excavation at Slade Oak Lane recovered a total of 6 iron objects (11 fragments), 10 unidentified small flat fragments from subrectangular pit (1214), and 2 encrusted and laminated fragments from gully (1348), which lay within medieval enclosure (1294).

The identified finds include the cast iron tip of a plough share dating from the later 19th century or later from ditch (1125), which also contained post-medieval pottery and ceramic building material; two nails, one from an otherwise undated tree-throw hole (1201) and the other from

a stakehole (1363) within the medieval enclosure (1294), and three objects of uncertain identification, from (1201) and from pit (1549) which also contained post-medieval ceramic building material. The two objects from three-throw hole 1201 may be pieces of farm machinery.

Slag from Slade Oak Lane by Paul Booth and Lynne Keys

A small assemblage, comprising 11 fragments (660g) of iron slag, was recovered from Slade Oak Lane. Most (8 fragments, 626g) was recovered from pit (1664), which lay within the central Iron Age enclosure (1762). The pit also contained middle Iron Age pottery and charcoal, from which a radiocarbon date of 210–50 cal BC (95% probability; SUERC-43707: 2113 + 27 BP) was obtained. The slag is of a type known as furnace slag, and would have been produced during smelting in a pit furnace, which would originally have had a clay and wattle superstructure over it. This type of furnace and slag is typical of the Iron Age. Pit 1664, however, shows no evidence of having been affected by fire, and the slag assemblage comprises only small fragmentary pieces. It is therefore unlikely that this is the furnace pit itself, but is just a pit that has been used to deposit slag from iron production that is taking place elsewhere.

The remaining slag consisted of small quantities from a tree-throw hole (1350; 19g) which cut the medieval enclosure ditch 1294 but which is otherwise undated, and from a pit (1549; 15g) which lay to the south of the Iron Age enclosures, but which contained post-medieval ceramic building material.

THE ANIMAL AND PLANT REMAINS

The animal bone from Slade Oak Lane

by Lena Strid

The only site from which animal bone was recovered was Slade Oak Lane. The assemblage consisted of 21 unidentifiable burnt fragments (<1g) from a sieved soil sample from a middle Iron Age posthole (1731), and a very poorly preserved group of bones (95 fragments/912g) which may derive from a horse burial in a medieval pit (1367). The bones from the pit include 28 fragments of horse teeth (both permanent and deciduous), a

TABLE 6 Summary of charred plant remains from Slade Oak Lane

				Sample no.	1015	1016	1017
				Context no.	1141	1142	1146
				Feature No/ type	pit1140	pit1140	pit1145
				Phase	Bronze Age 3080±29 (1420–1269 cal BC)	Bronze Age	Bronze Age
TAXA	COMMON NAME	COMPONENT	HABITAT				
<i>Triticum</i> sp.	wheat nfi	grain	Cultivated	1			
cf. <i>Triticum</i> sp.	possible wheat	grain	Cultivated	3			
<i>Hordeum</i> sp.	barley	grain	Cultivated	176	398	14	
<i>Hordeum vulgare</i> L.	barley, six row side grains	grain(twisted)	Cultivated	32(2)	44	5	
cf. <i>Hordeum</i> sp	possible barley	grain (sprouted)	Cultivated	149	133(1)	17	
cf. <i>Secale cereale</i>	rye type	grain	Cultivated				
cereal NFI	Unidentified cereal	grain fragments (Charred)	Cultivated	300+	500+	5	
<i>Triticum dicoccum</i>	emmer	spikelet fork	Cultivated	2	4		
<i>Triticum dicoccum</i>	emmer	glume base	Cultivated	5			
<i>Triticum</i> cf. <i>dicoccum</i>	possible emmer	spikelet fork	Cultivated		2		
<i>Triticum spelta</i>	spelt	glume base	Cultivated	5			
<i>Triticum spelta/dicoccum</i>	spelt/emmer	spikelet fork	Cultivated	2	4		
<i>Triticum spelta/dicoccum</i>	spelt/emmer	glume base	Cultivated		4	2	
<i>Hordeum</i> sp.	barley	rachis fragment	Cultivated	4	4		
cereal NFI	unidentified cereal	lemma /palea fragments	Cultivated	*			
cereal NFI	unidentified cereal	detached coleoptile	Cultivated				5
cereal NFI	unidentified cereal	straw culm node	Cultivated	1			1
<i>Vicia/Lathyrus</i> sp. (2mm)	vetch/pea	seed	Disturbed arable, Cultivated		2		

<i>Linum catharticum L.</i>	fairy flax	seed	dry calcareous or sandy soils			1	
<i>Persicaria maculosa Gray/ lapathifolia (L.) Delarbre</i>	redshank/pale persicaria	achene (frags)	Disturbed arable		2		
<i>Fallopia convolvulus (L.) Love.</i>	black bindweed.	achene	Disturbed arable		6	3	1
cf. <i>Fallopia convolvulus</i>	possible black bindweed.	achene	Disturbed arable			1	
cf. <i>Rumex sp.</i>	dock type	achene					1
<i>Chenopodium album L.</i>	fat hen	seed	Disturbed arable, nitrogen rich soils	11	1		
<i>Atriplex sp.</i>	orache	seed	nitrogen rich soils		1		
<i>Chenopodium sp.</i>	goosefoots	seed	nitrogen rich soils				
<i>Montia fontana ssp chondroserma L.</i>	blinks	seed	Damp places		6		
<i>Euphrasia / Odontites L.</i>	Eyebright/ Bartsia	seed	Disturbed arable grassland				
<i>Galium aperine L.</i>	Cleavers	nutlet	Disturbed arable hedgerow	1	1	2	
Unident		seed				4	
Unident		rhizome/ tuber fragments			9		

petrous portion of the temporal bone, and a further 66 long bone fragments.

Charred plant remains from Slade Oak Lane and Pond 2 by Sandra Bonsall, Denise Druce and Kath Hunter

A total of 49 samples from Slade Oak Lane, and 4 from Pond 2, were processed for the recovery of charred plant remains and charcoal. This was carried out by the flotation method using a modified Siraf-type tank. The resultant flots and residues were collected on 250µm and 500µm meshes respectively. Both the flot and residue were air-dried. During the assessment stage the heavy residues (>2mm) were hand sorted for charcoal and other plant remains and the resultant material was assessed with the flots. The assessment was carried out by Druce & Bonsall (2012).

It was recommended that three samples from Slade Oak Lane were fully analysed (Table 6), including one from pit 1145 which contained what may be the charred remains of a form of porridge. These three samples were analysed using a MTL10 stereo microscope, and the identifiable plant remains were extracted and identified using modern comparative reference material and standard reference texts (Jacomet 2010; Beijerinck 1947; Schoch *et al.* 1988; Berggren 1981; Cappers *et al.* 2006; Ross-Craig 1969). None of the samples from Pond 2 warranted further analysis, but a note on the results of the assessment is included below. These samples were analysed in a similar way to those from Slade Oak Lane, but were quantified on a scale of abundance of + to +++++, where + is rare (up to 5 items) and +++++ is abundant (>100 items).

The nomenclature for the identification of the plant remains follows Stace (2010). The term 'seed' in this text may refer to achene, nutlet etc.

Slade Oak Lane by Kath Hunter

Of the three samples from Slade Oak Lane which were fully analysed (Table 6), two (samples 1015 and 1016) were from middle Bronze Age pit 1140. Hulled barley (*Hordeum vulgare*) grains from sample 1015 produced a middle Bronze Age radiocarbon date (1420–1260 cal BC; SUERC-43693: 3080±29). The final sample (1017) was from pit 1145.

Cleaned barley from middle Bronze Age pit 1140

Both samples from pit 1140 were rich in cereal remains, though much of it consisted of uniden-

tifiable cereal grain fragments. Almost all of the identifiable grain appears to be of a hulled barley. The presence of small, and in some cases twisted, grains in the assemblages suggest that this is a deposit of a six-row type. Only eight barley rachis fragments were recovered from among over 800 grains, suggesting that these were deposits of cleaned grain, rather than deposits of crop processing waste. A few examples of emmer and spelt wheat chaff provide evidence of other cereal crops that were important at that time. However, their inclusion might be purely accidental within these deposits. The weed seeds from both samples consist of species associated with disturbed arable ground which might become incorporated in the assemblages in the same way as the chaff. Fat hen (*Chenopodium album*) is often associated with the nitrogen-rich soils associated with human activity.

Charred porridge and other remains from Pit 1145

The assemblage from pit 1145 (sample 1017), which probably dates from the middle Bronze Age, also contained hulled barley grains. There was no identifiable barley chaff, but two glume-type wheat glume bases (*Triticum dicoccum/spelta*) were present. Fairy flax (*Linum catharticum*) in sample 1017 suggests a light free draining soil. The sample also produced a mass of charred concretions, which appear to consist mainly of fragments of charred grain and possibly seeds within a matrix of amorphous charred material. This suggests that it was at least semi-liquid when it was burnt. It is reminiscent of a burnt porridge and may be the remains of a ritual food deposit or simply the remains of a spoilt meal. Burnt food residue is often mentioned in association with Bronze Age pottery (Woodward 2008), but deposits of prepared food outside containers seem to be less commonly identified.

Charred cereals have been identified from other sites in Buckinghamshire. Emmer and spelt grains and chaff were recovered from Bronze Age deposits at Broughton (Carruthers 2014) and two sites at Taplow (Robinson 2009). Hulled barley was also identified at Taplow. Unlike the assemblage at Slade Oak Lane, the plant remains at Taplow contained significant amounts of cereal processing waste mixed with the grain.

Pond 2 by Denise Druce and Sandra Bonsall

A total of four samples from Pond 2 were processed for the recovery of charred plant remains and charcoal. They derive from a pit (10) associated with Beaker pottery, two pits (12 and 16) associated with middle Bronze Age pottery, and a posthole (20) which may have been contemporaneous with the middle Bronze Age pits (see above).

Charred plant remains were sparse (Table 7). The Beaker pit (10) contained one or two *Corylus avellana* (hazel) nutshell fragments, and one of the middle Bronze Age pits (16) contained a few charred weed seeds. The possibly middle Bronze Age posthole (20) contained rare *Triticum* sp. (wheat) and *Hordeum vulgare* (barley) grains, and a single charred *Persicaria lapathifolia* (pale persicaria) seed.

Three of the features from Pond 2 contained rare to abundant charcoal fragments. In the case of the middle Bronze Age features (pit 12 and posthole 20), the charcoal appeared to be dominated by *Quercus* sp. The charcoal in the posthole (20) was very hard and vitrified.

Wood charcoal from Slade Oak Lane and Pond 4 by Sheila Boardman**Slade Oak Lane**

Forty nine bulk soil samples were assessed for wood charcoal, of which ten were selected for detailed analysis (Druce & Bonsall 2012). These came from nine pits of middle Bronze Age, middle Iron Age (plus one prehistoric) and Medieval date. The samples varied in volume from 10 to 40 litres. Pit 1140 was one of six pits located near the western edge of the excavations and it had a deposit of middle Bronze Age pottery placed on a lower charcoal-rich layer. Pit 1245, c 60m north east of pit 1140, also contained Bronze Age pottery. Two middle Iron Age features included a possible cooking pit (1641) and a pit with smelting debris (1664). Pit 1157, though undated, is believed to be of broadly prehistoric date. Samples from four medieval pits (1139, 1130, 1288 and 1272) were also investigated. The aims of the charcoal analysis were to investigate the nature and possible functions of the pits, differences in fuels used in domestic and industrial features, and to retrieve evidence for the wider landscape and its use from the Bronze Age to the medieval period.

The samples were processed as described for the charred plant remains (see above). The flots and residues were dry sieved at 4 and 2mm, and charcoal fragments from both size fractions were randomly selected for identification. The fragments were fractured by hand and sorted into groups based on features observed in transverse section, using a low power binocular microscope at magnifications of $\times 10$ to $\times 40$. Subsamples of these were then fractured longitudinally, along their radial and tangential planes, and examined at magnifications of up to $\times 250$ using a Biolam Metam metallurgical microscope. Identifications of wood charcoal were made with reference to Schweingruber (1990), Hather (2000) and Gale & Cutler (2000). Plant nomenclature follows Stace (2010).

Charcoal identifications are presented as fragment counts in Table 8. The material was well preserved. At least eleven taxa groups were identified, including oak (*Quercus*), beech (*Fagus sylvatica*), ash (*Fraxinus excelsior*), plum/blackthorn type (*Prunus domestica/spinosa* type), bird/wild cherry type (*Prunus avium/padus* type), blackthorn/cherry (*Prunus* sp.), birch (*Betula*), hazel (*Corylus avellana*), alder/hazel (*Alnus/Corylus*), maple (*Acer campestre*), yew (*Taxus baccata*) and hawthorn type (Pomoideae). The last includes hawthorn (*Crataegus*), rowan/whitebeam/service (*Sorbus*), crab-apple (*Malus*) and pear (*Pyrus*).

Pit 1140 (samples 1015, 1016)

A radiocarbon date of 1420–1260 cal BC (95% probability; SUERC-43693: 3080 \pm 29 BP) was obtained from charred cereal grain in Sample 1015, indicating that this pit was in use in the middle Bronze Age. Sample 1015 contained mostly ash with a little oak charcoal (both included sapwood and roundwood). Sample 1016 was again dominated by ash (including heartwood), and there was a greater quantity of oak (heartwood, sapwood and roundwood). Ash and seasoned oak make excellent firewood. Both were important sources of structural timbers in the past.

Pit 1245 (sample 1022)

Here, the dominant taxon is oak (heartwood and sapwood). There were smaller quantities of hawthorn type (Pomoideae) charcoal, and some yew, hazel and field maple. Yew can be explosive when burned unless seasoned for at least two years (Porter, in Gale & Cutler 2002, 398).

TABLE 7 Summary of charred plant remains and charcoal from Pond 2 (recorded on a scale of + to +++++, where + is rare (up to 5 items) and +++++ is abundant (>100 items), havm = heat affected vesicular material).

Sample no.	1	2	3	4
Context	11	17	13	21
Cut	10	16	12	20
Feature type	Pit	Pit	Pit	Posthole
Date	Beaker	MBA	MBA	MBA?
Flot vol. (ml)	<5	<5	<5	50
Matrix	havm+	Modern roots ++ insects + uncharred seeds +	Modern roots ++	Modern roots + havm +
Charred grain	-	-	-	+ <i>Triticum</i> and <i>Hordeum</i>
Charred chaff	-	-	-	-
Charred weed seeds	-	+ <i>Galium</i> , <i>Rubus</i> , cf <i>Viola</i> , unknown	-	+ <i>Persicaria</i> <i>lapatholia</i>
Charred other	+ <i>Corylus</i> nut fragments	-	-	-
Charcoal	>2mm+	-	>2mm ++ <i>Quercus</i>	>2mm +++++, very hard, cf <i>Quercus</i>

Iron Age samples: pit 1641 (sample 1035) and pit 1664 (sample 1037)

The largest taxa group in sample 1035 (Pit 1641) was blackthorn/cherry (*Prunus* sp.), probably largely blackthorn (*P. spinosa*), and this material included many roundwood fragments. Oak charcoal included heartwood and sapwood. The other taxa were bird/wild cherry (*Prunus avium/padus*) type, field maple and hazel.

A radiocarbon date of 210–50 cal BC (95% probability; SUERC-43707: 2113±27 BP) was obtained from hazel charcoal in sample 1037 (Pit 1664). With the exception of two field maple fragments, the charcoal was entirely oak, including heartwood and sapwood.

Prehistoric pit 1157 (sample 1011)

This sample produced largely oak (heartwood, sapwood and roundwood), with some hawthorn type and hazel charcoal. This resembles material from the Bronze and Iron Age samples.

Medieval pits 1130 (sample 1010), 1139 (sample 1009), 1288 (1023) and 1272 (1029)

In contrast to the prehistoric samples, all the

medieval pit samples were dominated by beech charcoal, suggesting that this species had become a major fuel wood by this time. A large proportion of the beech charcoal came from medium-sized roundwood fragments (8–14mm in diameter, with 6–17 plus growth years). The other remains were birch and hazel roundwood, and oak, with a small amount of probable blackthorn (including roundwood).

Discussion and Conclusions

Most of the Slade Oak Lane samples had one to three charcoal taxa, but three samples were more mixed with five or six different taxa groups. Of these, one sample (1022) was from a middle Bronze Age pit (1245), one (1035) was from the middle Iron Age cooking pit (1641) and one (1009) was from a medieval pit (1139). The more mixed samples may indicate the use of the features on several occasions, or the dumping of fuel waste from a number of sources. Unsurprisingly, the Iron Age cooking pit was more mixed in charcoal remains. However, the Iron Age pit with slag debris (1664) had a narrow range of taxa. This was very largely oak (heartwood and sapwood), with

a couple of fragments of hazel and field maple. This suggests oak wood was the main fuel used, rather than prepared charcoal from small diameter roundwood.

Ash charcoal was only recovered from two middle Bronze Age samples. More open woodland conditions by this time may have favoured this light demanding species, or some woodland regeneration may have been taking place. Oak charcoal, with hawthorn and/or blackthorn/cherry, plus some hazel and field maple charcoal, are the main species in the Iron Age/other prehistoric samples, and probably reflect some of the main woodland, scrub and hedgerow species available locally. Beech and birch charcoal were not present prior to the medieval period at Slade Oak Lane, although small quantities of prehistoric beech were recovered at Perry Oaks (Challinor 2006) and Heathrow Terminal 5 (Challinor 2010).

Among the four beech dominated samples from Slade Oak Lane, two produced beech with birch and two had beech with oak. This may indicate woodland growing in different areas, and possibly different types of beech woodland or woodland pasture. Birch, a common tree of northern Britain, is a rapid coloniser of bare ground everywhere, but is quickly replaced by other species as woodland shade increases (Hooke 2013, 258). Birch and beech both prefer light soils, although the latter is more tolerant of poor acidic conditions. A concentration regionally of birch place names (e.g. Berkhamsted, Berkenden Green, Barkway) broadly correlates with areas of chalk overlain by boulder clays, pebbly clays, sands or clays with flints, and with valley gravels (Hooke 2013, 459ff). The combination of birch and beech may therefore point to use of wood from very light, open woodland or woodland pasture in such areas. Beech and oaks are highly versatile trees which can be pollarded or coppiced. They are less attractive to grazing animals and quicker to recover than many other trees (Hooke 2013; Rackham 1990). These characteristics, together with their multitude of uses, make them important trees of woodland pasture. Beech is also shade-resistant with a large dense canopy. It can grow up through an oak wood and take this over (Rackham 1990), a feature which may in part account for its dominance in medieval charcoal assemblages.

Pond 4

Three soil samples (5–20 litres in volume) from separate pit features from Pond 4 were assessed for wood charcoal, and all were recommended for full analysis (Druce & Bonsall 2012). The pits were part of a larger group of ten pits, which had similar sequences of fills, consisting of dumps of charcoal followed by large dumps of burnt stone. The pits produced almost no artefactual material. The main aims of the charcoal analysis were to investigate the nature and possible functions of these features, which were initially thought to be the remnants of early medieval charcoal clamps (Booth *et al.* 2012, 14; Druce & Bonsall 2012, 86). Radiocarbon dating has, however, shown that they date from the middle Bronze Age. The samples were processed in the manner described for the charred plant remains.

The charcoal identifications are presented as fragment counts in Table 9. Most of the material was reasonably well preserved. Six taxa groups were identified. These included hawthorn type (Pomoideae), which incorporates rowan/whitebeam/service (*Sorbus*) species, crab-apple (*Malus*) and pear (*Pyrus*), as well as hawthorn (*Crataegus*). The other taxa were oak (*Quercus*), hazel (*Corylus avellana*), alder/hazel (*Alnus/Corylus*), field maple (*Acer campestre*), and possible blackthorn/cherry (*cf Prunus* sp.).

Pit 7 (sample 1)

A radiocarbon date of 1620–1440 cal BC (modelled; SUERC-43705: 3268±29 BP) was obtained from a fragment of hawthorn-type charcoal. This feature appears to have been in use in the middle Bronze Age. Most of the charcoal was identified as hawthorn type (including roundwood). This group includes trees and shrubs which are found in woodland, woodland edges, scrub and hedgerows (see above). The other remains were a few fragments of hazel (roundwood) and field maple.

Pit 5 (sample 2)

A radiocarbon date of 1500–1320 cal BC (modelled; SUERC-43706: 3152±29 BP) was obtained from a fragment of oak sapwood. Hazel was the dominant taxon followed by alder/hazel. Many hazel fragments had gently curved growth rings, indicating immature timber or branch wood. Smaller roundwood fragments were not seen.

TABLE 9 Summary of charcoal from Pond 4 ((MBA – Middle Bronze Age. s – sapwood; r – roundwood. *Pomoideae (syn. Maloideae) inc: *Crataegus* (hawthorn), *Sorbus* (rowan, service, whitebeam), *Pyrus* (pear) and *Malus* (apple)).

Sample No.	1	2	3
Context No.	8	10	32
Feature No.	7	9	30
Feature type	Pit	Pit	Pit
Period	MBA	MBA	MBA
Phase			
Sample vol. (litres)	8	5	20
Rosaceae			
cf. <i>Prunus</i> sp.		cf. cherry/blackthorn	1
Pomoideae* (see key below)		hawthorn type	99r
cf. Pomoideae		cf. hawthorn type	1
Fagaceae			
<i>Quercus</i>	oak		15s
			5sr
Betulaceae			
<i>Corylus avellana</i>	hazel	4r	66
<i>Alnus/Corylus</i>	alder/hazel		20
Sapindaceae			
<i>Acer campestre</i>	field maple	4	12
cf. <i>Acer campestre</i>	cf. field maple		1
Indet. charcoal fragments	0	6	5
Total charcoal fragments	108	119	103

The oak charcoal also appears to be largely from immature timber. The other species was field maple.

Pit 30 (sample 3)

A radiocarbon date of 1430–1270 cal BC (modelled; SUERC-43712: 3077±29 BP) from a field maple fragment was slightly younger than the dates obtained from samples 2 (Pit 5) and 1 (Pit 7) above. As in sample 1, the dominant taxon was hawthorn type, with a few fragments of oak, field maple and possible blackthorn/cherry charcoal.

Discussion and Conclusions

The narrow range of charcoal taxa in individual samples is consistent with single or few episodes of burning rather than larger accumulations of fuel waste. The quantities and sizes of fragments were not large (mostly <10 mm) but their condition was generally good, suggesting fairly rapid burial. The association of charcoal and burnt stones may point to redeposited burnt mound material. The predominantly middle Bronze Age dates are consistent with the broad chronology for burnt mounds (English Heritage 2011). Other possibilities include

debris from cooking using heated stones or some unknown ritual activity. Use of these features seems to have taken place over an extended period of time.

A number of multi-period sites in the region have now been extensively sampled for wood charcoal, including Perry Oaks (Challinor 2006), Heathrow Terminal 5 (Challinor 2010), the Olympic Park/Lea Valley sites (Challinor 2012), and the M25: Section 1, at Bricket Wood Bund (Boardman, in prep.), and Section 4, at Hobbs Hole, Pond 1791 and Passingford Bridge Bund (Boardman, in press). A similar range of woody taxa to that from Slade Oak Lane and Pond 4 can be seen in deposits at the above sites, dating from the Bronze Age until the mid/late Roman periods. There were variations in the relative quantities of oak, ash, field maple and hazel, and in the other taxa present at different sites. Pine (*Pinus*) and yew (*Taxus baccata*) were only occasionally present, and beech dominated samples were confined to medieval deposits. Lime (*Tilia*) was generally absent from these assemblages, presumably in part due to preservation biases. There was also variation in the damp ground component at different sites, represented by willow/poplar (*Salix/Populus*) and alder (*Alnus*), taxa which were largely absent from the Slade Oak Lane and Pond 4 assemblages.

Unfortunately, charcoal data from the pit features at Pond 4 and Slade Oak Lane do not shed much light on the possible functions of the individual features, other than as refuse locations for fuel debris. In the cooking pit and possible smelting pit from Slade Oak Lane the main fuels appear to have been oak and blackthorn/cherry, and oak, respectively. The narrow range of charcoal taxa from the Pond 4 pits and some Slade Oak Lane pits suggest they were used few times.

DISCUSSION

Mesolithic activity

Very little evidence was found for activity in the Mesolithic, the only finds being a few pieces of worked flint from Ponds 3 and 4. Whilst it must be recalled that the project involves only a narrow transect through the landscape, and thus the absence of evidence for activity in any particular period cannot be regarded as necessarily significant, the significance of the paucity of evidence for

Mesolithic activity is perhaps worth noting. There is now a quite rich body of evidence for Mesolithic (and late Upper Palaeolithic) activity in the Colne Valley (Farley nd). Excavations at the Misbourne Viaduct suggest that this activity extends into the Misbourne Valley as well (*ibid.*). This may be significant in terms of the overall distribution of Mesolithic activity. Along the Thames Valley, areas rich in Mesolithic sites appear to be concentrated in a few regions, most noticeably in valley locations in the Kennet and Colne Valleys (Morigi *et al.* 2012, chap. 10). At the Eton Rowing Lake, lake collections of Mesolithic flint were also found in river-side contexts (Allen *et al.* 2013). The concentration of sites in these areas contrasts with the paucity of the evidence in much of the rest of the Thames Valley. Indeed, further up the Thames, the largest concentrations of Mesolithic flint work have often been found in ‘upland’ locations (including sites in the Chilterns, e.g. at Bolter End, Buckinghamshire (Millard 1965), Tubney (Bradley & Hey 1993) and Nettlebed, Oxfordshire (Boismier & Mephram 1995)). The paucity of evidence, even for residual lithics, at sites along the M25, appears to highlight the significance of valley bottom locations in the Mesolithic in the Middle Thames. Given that this is an argument from an absence of evidence, a more detailed consideration of this pattern is beyond the scope of this discussion. The concentration of lithics in valley locations in the middle Thames, however, would be consistent with these areas being associated with probably seasonal aggregation sites, whilst the sparse lithics recovered from the excavations along the M25 might reflect the exploitation of these areas by smaller, mobile groups at other times of the year.

The Beaker pit at Pond 2

The earliest feature identified in the excavations was the pit at Pond 2 which contained Beaker pottery from at least four vessels, two flint flakes, and charred hazel nutshells. The radiocarbon date obtained from this pit – 2490–2290 cal BC (95% probability; SUERC-437023: 3922±29 BP) – places it in the early part of the Beaker period (Needham 2005). This date is consistent with the suggestion that one of the Beakers had all-over corded decoration.

In a broad context, such a feature is not unusual. Numerous examples of pits associated with Beaker pottery have been found, for example, in

the Upper Thames Valley, for example Gravelly Guy (Lambrick & Allen 2004) and Yarnton (Hey in prep.), and recent excavations along the CTRL and at other sites in Kent revealed a number of examples (Garwood in Booth *et al.* 2011), although even in this case the number of Beaker associated pits was smaller than that from earlier phases of the Neolithic. In a more local context, however, the find is more unusual (Lamdin-Whymark 2008). At Heathrow, for example, evidence for activity in the Beaker period was noticeably sparse (Framework Archaeology 2010), and at the Eton Rowing Lake, although a number of flint scatters were found which could be broadly dated to the late Neolithic or early Bronze Age, and a few pits could be assigned to the same period, the pits contained few finds other than worked flint, and there were no pits with comparably rich ceramic assemblages (Allen *et al.* 2013). Round barrows, too, are rare in the surrounding area, although an example has been excavated at The Lea, Denham (Coleman *et al.* 2004).

Therefore, although in many areas there are fewer pits associated with Beaker pottery than there are from earlier periods, evidence for activity in the Beaker period in the area around the M25 sites is particularly sparse. The pit at Pond 2 provides a significant local indication that this area was not as devoid of activity in this period as it might have appeared. It is worth noting that a further pit, associated with a single All-Over-Corded Beaker was found in the excavations along the M25 at Bricket Wood Bund in Hertfordshire (see Poole *et al.* forthcoming)

Defining the character of this activity, however, is more problematical. Given the paucity of local evidence, and the fact that the find consists of a single pit, any attempt to define patterns must rely on comparison with pits in other areas.

There is considerable variation in the contents of pits that can be dated to the Beaker period. The small, shallow pits at the Eton Rowing Lake lie at one extreme, whilst at the other could perhaps be placed a group of large, rich Beaker pits, many of which contain large groups of pottery, as well as other finds, which Garwood (in Morigi *et al.* 2011, 119–22) has identified. Although the Pond 2 pit is smaller than the examples cited by Garwood, the relatively large quantity of pottery contained in the pit, albeit again smaller than some of the examples cited by Garwood, could provide a point of

comparison for this pit. Whilst the large quantities of pottery contained in these pits suggests that they are the product of more than the deposition of random assortments of rubbish, as at Pond 2, the sherds are often abraded and thus appear to have been deposited elsewhere (in a ‘pre-pit context’; Anderson-Whymark & Thomas 2012) before being put into the pit. The finds at Pond 2 thus appear to fall into a middle ground, between deposits which appear to be nothing more than random assortments of domestic waste and others which appear to contain deliberately selected and sometimes carefully placed items.

Although worked flint, mostly poorly dated, has been collected at sites nearby, there is little residual flint from the Pond 2 site itself (not surprisingly given the small number of features) to suggest that the site was the location of more extensive Beaker period activity. Nonetheless, the contents of the pit imply the original existence of other material. Even if the fact that the sherds do not make up complete pots could be explained by truncation, it seems likely that the small number of hazel nutshells originally formed part of a wider assemblage, just as the two flint flakes probably did, although it is possible that the remainder of the flint was not deposited on the site.

Given that the pottery and other finds derive from pre-pit contexts, and were not filled directly with the waste generated by a specific related activity, one way of understanding the contents of this and other pits would be to view the contents of the pits as a sample of the contents of the pre-pit context. Variation in the contents of such pits could then reflect either variation in the composition of the finds assemblage in the pre-pit context or deliberate selection from that context. From this perspective, assemblages dominated by pottery could reflect either the fact that the pits were filled in locations where much pottery was deposited, or that pottery was deliberately selected from a mixed pre-pit assemblage: it is also possible, of course, that such assemblages could arise by chance, as the result of random selection from a varied pre-pit context.

There is no easy way to distinguish between these possibilities. A comparison with the late Neolithic/early Bronze Age artefact scatters at the Eton Rowing Lake, however, suggests that pits such as that at Pond 2, were filled from deposits which were particularly rich in pottery, thus implying that

variation in the composition of the pre-pit context was a significant factor, rather than just selection of pottery. Numerous artefact scatters dated broadly to the late Neolithic/early Bronze Age were found on Gravel Island X at the Rowing Lake, as well as in Area 3 (Allen *et al.* 2013). The artefacts from the layers containing these scatters were often mixed, and contained both earlier Neolithic material as well as later, Bronze and Iron Age and Roman finds, but the majority of the lithics appear to date from the late Neolithic/early Bronze Age. What is significant here is that the finds on Gravel Island X and in Area 3 were dominated by worked flint (Gravel Island X: 783 pieces from artefact scatters and a further 825 pieces from the layer containing them) whilst only small quantities of late Neolithic/early Bronze Age pottery were recovered (Gravel Island X: 50 sherds/224 g in total). The composition of the finds assemblage from Gravel Island X is thus the inverse of that from the Pond 2 pit.

It is impossible to exclude the possibility that pottery at the Rowing Lake was simply not preserved as well as that in the pit at Pond 2, and thus that part of the contrast between the two finds assemblages derives from differences in preservation. Small numbers of late Neolithic/early Bronze Age sherds, as well as earlier and later pottery did, however, survive on Gravel Island X, and it thus seems likely that the contrast cannot be entirely explained in that way.

As noted elsewhere (Anon. nd), pits such as that at Pond 2 and the artefact scatters at the Rowing Lake appear to reflect different components of the Beaker-period settlement system. The flint scatters at the Rowing Lake were classified as knapping scatters, deposits of utilised material, and activity areas, which include both knapping debris and utilised material. The lithics thus variously provide evidence for the manufacture of flint tools and their use for a range of tasks, including preparing hides and plant materials. It was presumably these tasks which often provided the primary activities characterising the sites. The distribution of the flint in scatters of varying sizes suggests that the occupation consisted of small-scale repeated visits, both in terms of number of people and duration, to the same broad area. The contents of the Pond 2 pit, in contrast, lack evidence for such activities, and, given the presence of Beakers and the few hazel nutshells, may have been linked instead to consumption. Again, the scale of the activity

appears to have been limited, although it is worth remembering that the finds from the pit probably provide only a partial representation of the finds assemblage in the pre-pit context. Presumably both of these components formed part of a wider settlement system. This system appears to have involved some element of mobility, involving at least strategic trips to exploit particular resources, and possibly a wider, seasonal element.

Middle Bronze Age features at Ponds 2 and 4, and at Slade Oak Lane

As Kidd's (nd) resource assessment of the later Bronze Age and Iron Age archaeology of Buckinghamshire notes, there was very little middle Bronze Age settlement evidence in Buckinghamshire. However, a number of recent excavations in Buckinghamshire and surrounding counties, largely along the Thames Valley, have revealed a wide range of evidence for middle Bronze Age activity. Although the excavations along the M25 have not revealed any clearly identifiable settlements (defined, for example, by the presence of roundhouses), they have uncovered a range of middle Bronze Age features which complements the evidence from these other sites. Combined, this evidence now provides a quite rich picture of the way in which the landscape was exploited in that period.

The evidence from the M25 consists of a range of features. At Slade Oak Lane, three gullies formed a rectangular arrangement, around 5m by 4m across. The function of this arrangement – and whether it was related to a building or just a small enclosure – is unclear. The only associated finds were a few small pot sherds. The arrangement may have been related to two alignments of postholes, albeit undated, and perhaps another nearby gully and posthole. It is difficult to imagine what function these features might have fulfilled. The possible fence lines and the small size of the enclosure could be seen as having been used to manage and isolate animals, but it is far from being an arrangement which might be regarded as being typical of such activity (*cf* Pryor 1996), and there is no particular evidence to support such a suggestion, nor to exclude a quite different use.

The remaining features consist of pits. Of these, perhaps the most striking were those at Pond 4. The ten pits at this site were associated with consistent deposition sequences, in which charcoal-rich fills

were covered by layers of burnt and unburnt stone. The function of the pits remains obscure. Before radiocarbon dates showed that they dated from the middle Bronze Age, they were interpreted as charcoal clamps on the basis of comparison with early medieval features at Parnwell Way, Peterborough and Bradley Stoke (A Symmonds pers. comm.). Aside from the great difference in date, the most significant argument against this interpretation is the lack of evidence of heat having affected the sides of the pits. It seems, then, that the charcoal and stones were burnt elsewhere before being dumped into the pits. Burnt stones occur in a wide range of contexts on middle Bronze Age sites: as burnt mounds or smaller spreads of material, in pits and postholes. The reasons for the production of burnt stone in these other contexts is also, however, obscure, and does not, therefore, shed much light on the function of the pits at Pond 4. A range of functions, ranging from their use in cooking to a role as ritual saunas (Buckley & Condit 1990; Barfield & Hodder 1990), has been proposed for burnt mounds, for example, but as yet the available evidence does not allow any one of these suggestions to be refuted or confirmed. A comparison with burnt mounds is not, in any case, particularly apt here, since unlike burnt mounds, the Pond 4 site is not closely associated with a source of water, being located in a dry valley. Although the activities to which the Pond 4 pits were related thus remain obscure, the distinctive sequences of fills do mark them out as probably having been related to a particular function.

That all of the Pond 4 pits appear to have been related to this activity is particularly striking, since the radiocarbon dates obtained from them suggest that the group formed over a quite long period, probably of between 110 and 240 years in the middle Bronze Age (within the period from 1720–1500 cal BC to 1410–1180 cal BC).

Further pits were found at Slade Oak Lane and at Pond 2. There is some variation in the size and contents of these pits which suggests that they may have been used in differing ways. The pits at Pond 2 were shallow features which contained few finds, although some pottery was recovered. A few postholes nearby may have been of similar date, but were not directly dated themselves, and they did not form any recognisable structures. The pits at Slade Oak Lane were also small, but were slightly deeper than those at Pond 2. One isolated

pit at Slade Oak Lane contained a charcoal-rich fill as well as a little pottery: further middle Bronze Age pottery was recovered from a nearby natural hollow. The remaining six pits formed a group. One of these pits also contained a charcoal-rich fill from which charred barley, probably from cleaned grain was recovered, upon which a large group of sherds had been placed. The other pits contained no finds and little charcoal. The discovery of a lump of charred material which may be the remains of a burnt porridge-like concoction in one of the other pits is, however, worth noting. Again, the precise character of the activity which occurred at these sites is obscure, and the presence of charred grain and burnt porridge is not sufficient, on its own, to show anything other than temporary occupation.

Although the precise character of the sites remains unclear, they do provide evidence for the dispersal of activities across the landscape. This is a characteristic of middle Bronze Age landscapes which has been noted elsewhere. In the Upper Thames Valley, for example, a wide range of features – roundhouses, oval structures, enclosures of various kinds, waterholes, burnt mounds, groups of pits, and burials – have been found. Whilst these features sometimes occur apparently in association with each other, they also all occur in isolation (Hayden *et al.* in prep.). In north Kent, following excavations along the A2 (Allen *et al.* 2012), the CTRL (Booth *et al.* 2012) and at other sites, it was noted that whilst apparent foci of domestic occupation, marked by enclosures and roundhouses, could be identified, the largest deposits of artefacts were associated with small groups of features which were not directly associated with these foci. It was therefore suggested that many activities were dispersed across the landscape, rather than being focused at the domestic foci (Allen *et al.* 2012).

The features on the M25 sites provide further evidence of such a landscape of dispersed activities. Overall, the excavations in the region around the M25, largely to the south in the Colne and Thames Valleys, and also to the north in Buckinghamshire, now provide evidence for a reasonably wide range of middle Bronze Age sites. Field systems have been found at the Eton Rowing Lake and on sites along the Maidenhead to Windsor Flood alleviation channel (Allen *et al.* in prep.). They are, however, perhaps most clearly evidenced at Heathrow (Framework Archaeology 2010).

Further examples are also known further up the Colne Valley, extending up to Denham (Yates 2007). At these sites, the field systems were often associated with waterholes and wells, as well as a range of pits – some containing burnt flint and charcoal, which could be compared to the pits at Pond 4 – and occasionally burnt mound deposits. Although ‘settlements’ were identified within the Heathrow field systems, clear evidence for the existence of roundhouses was noticeably not found, though scatters of postholes were identified in some areas.

The M25 sites fall into an area to the north-west of the Colne which does not appear to have been characterised by field systems (Yates 2007). This area could be seen as extending to the north of the Chilterns, where a number of middle Bronze Age sites, notably in and around Aylesbury (Dalwood *et al.* 1989; Ford *et al.* 2003), have been excavated but do not appear to have been associated with field systems. Field systems are, however, known to the west along the Thames in Oxfordshire, below Abingdon (Yates 2007). There thus appears to have been a marked contrast between the way in which the land around the M25 sites and further north in Buckinghamshire, and areas along the Thames to the south and west was used.

A quite wide range of different sites has now been excavated in the area without field systems. More or less isolated roundhouses have been found at Springfield Quarry, Beaconsfield, associated with a pit containing burnt flint and charcoal (Preston 2012); possibly at Cippenham (where, however, they lack clear dating evidence; *ibid.*), and more distantly, at Walton Lodge/Walton Street, Aylesbury (Dalwood *et al.* 1989; Ford *et al.* 2003). On the Aston Clinton bypass, Aylesbury, scatters of postholes amongst which no clear structures could be defined, were dated to the middle Bronze Age on the basis of their proximity to the middle Bronze Age cremation burials (Masfield 2008). At All Souls Farm Quarry, Wexham a large circular enclosure which appears to date from the middle Bronze Age was associated with only a sparse scatter of other features (Preston 2012).

In the area around the M25, which lie beyond the distribution of field systems, the roundhouses occur as relatively isolated structures, not associated with a wide range of other features. Instead of being centred upon these domestic foci, it seems that many activities were dispersed across

the landscape. Although the nature of these activities often remains obscure, the variety of the features – including the possible gully structure and fence lines at Slade Oak Lane, charcoal and burnt stone associated pits at Pond 4, pits with differing contents at Slade Oak Lane, and the enclosure, pits and postholes mentioned above at other sites – suggests that the activities also varied.

The relative isolation of many of these features, and the absence of the enduring spatial framework which field systems may have imposed, may give the impression that this dispersed pattern was the product of a relatively mobile settlement system (*cf* Brück 1999). The radiocarbon dates from the pits at Pond 4, showing that the pit group formed over a period of more than a century, and possibly as much as two centuries, however, show that even in this area, certain locations were utilised in consistent ways over quite long periods.

As Lambrick has noted, it is generally assumed that settlement in the Thames Valley remained quite mobile until the middle Bronze Age (Lambrick & Robinson 2009, 91). He went on to suggest that the question of how permanent farming settlements emerged was best approached from the perspective of ‘why, when, where and how a largely mobile pattern of farming and domestic life declined relative to the emergence of more permanent intensive forms of landuse and settlement’. The dispersed pattern of activity evidenced by the M25 sites and others in the surrounding region could be seen as a step in this process. The more widespread appearance of houses in the middle Bronze Age compared to earlier periods may well mark an increasingly sedentary way of life, but the dispersed distribution of other kinds of sites suggests that rather than resources being brought back to this central location for processing and consumption, people moved to the relevant resources and carried out related activities at appropriate locations throughout the landscape, perhaps in a way that was still reminiscent of the patterns of earlier periods.

The middle-late Iron Age enclosure at Slade Oak Lane

No evidence for activity in the late Bronze Age or early Iron Age was recovered on the M25 excavations. This mirrors the local context of the M25, and the evidence at other sites in the region around the M25, such as Heathrow (Framework Archae-

ology 2010), where relatively little evidence for early Iron Age activity was found. A detailed consideration of the wider significance of this apparent decline in levels of activity is beyond the scope of this discussion, and, of course, the absence of evidence for a particular period from a narrow transect cannot itself necessarily be regarded as significant. It is, however, perhaps worth noting that the pattern along the M25 is consistent with the wider evidence.

The middle Iron Age enclosure (1762) at Slade Oak Lane is also consistent with wider evidence, although in this case it can be paralleled more or less closely by a number of similar sites. Since it was possible to preserve the enclosure *in situ*, it was excavated only to a limited extent, and as a result, the artefactual and environmental evidence is also limited. The enclosure itself also lay only partly within the excavation area, and whilst evidence from other sites suggests that it would have been roughly circular, and thus that about half of it probably lay within the excavation, without more definite evidence it is impossible to be certain of its overall size. Nonetheless, some of the evidence recovered from it, especially that relating to iron smelting, is of particular interest.

The enclosure is paralleled more or less closely by a number of sites along the Thames Valley. The closest of these are examples at Cippenham and Wexham (Preston 2012 and Ford *et al.* 2003), but further examples are known at the Eton Rowing Course (Allen *et al.* in prep.) and at Thames Valley Park, Reading (Barnes *et al.* 1997), as well as at more distant sites.

Lambrick has summarised the characteristics of these enclosures as ranging from 0.25 to 0.5ha in area and as having ditches were of about 1.0 to 1.5m deep, which do not appear to have been intended for defence (Lambrick & Robinson 2009, 127). If around half of the Slade Oak Lane enclosure did lie within the excavation it would have covered an area in the order of 1ha, and thus have been larger than most of the other examples. There is, however, more variation in the size of these sites than the range cited by Lambrick suggests. As he notes, the enclosure at Wood Lane, Cippenham (Ford *et al.* 2003), covered an area of 3.5ha. The ditch of the Slade Oak Lane enclosure, although only 0.8m deep, is of roughly similar size to the other sites (at Wexham, for example, the ditch was, in fact, 0.6 to 0.9m deep and 1.3 to 2.3m wide; Preston 2012).

The width of the ditch at Slade Oak Lane, which reaches 3m, is likely to have been significantly exaggerated by the collapse of its upper edges (Bell *et al.* 1996).

Although Lambrick's classification of Iron Age settlements makes a distinction between open and enclosed settlements, he stresses the limitations of the distinction (Lambrick & Robinson 2009). Here, it is worth noting, in particular, that there is considerable variation not only in the size, but also in the internal features associated with these enclosures. The relatively low density of features within the Slade Oak Lane enclosure is matched at some of the other sites. The Wood Lane enclosure (Ford *et al.* 2003) contained very few features, and the Wexham (Preston 2012), Eton Rowing Course (Allen *et al.* in prep.) and Thames Valley Park (Barnes *et al.* 1997) examples also contained relatively low densities of features. This variation suggests that there may have been significant differences in the way in which the enclosures were used. The fact that a large enclosure, possibly comparable in size to that at Slade Oak Lane was added to the unenclosed middle Iron Age settlement at Heathrow, adds a further element of variation (Framework Archaeology 2010).

Where there are features within the enclosure, it is also common for there to be few recognisable structures. The short lengths of curved gully at Slade Oak Lane are matched by similar features at the Eton Rowing Course, where it has also been suggested that they might correspond to gullies around roundhouses (Allen *et al.* in prep.). Such gullies, usually penannular when they are more completely preserved, provide the most common evidence on middle Iron Age sites for the presence of roundhouses (direct evidence of which, however, is often missing; Lambrick & Robinson 2009). The possible rectangular structures could perhaps also be paralleled by a six-post rectangular structure which was found within the Eton Rowing Lake enclosure, where a four-poster surrounded by a ring gully was also found (Allen *et al.* in prep.).

At Wexham, it was suggested that a group of postholes which lay just within the entrance was related to a roundhouse (Preston 2012). The plan is, however, rather irregular, and it is possible that the pair of large postholes which lie just within the entrance, which was defined by inturned ditches, were in fact related to some kind of entrance structure which might parallel that at Slade Oak

Lane. No comparable evidence was found at the other enclosure mentioned above. The very large size of the outer entrance structure postholes at Slade Oak Lane, up to 1.6m wide and 0.5m deep, suggest the existence of an imposing entrance structure (Fig. 21).

The potential size of this entrance structure raises the question of the status of the settlement. Both the presence of an imposing entrance, and the possibly relatively large size of the enclosure compared to some of the other enclosures, suggest either that the Slade Oak Lane enclosure was of relatively high status or, perhaps, that it housed a relatively large, perhaps quite prosperous, social group. Before considering this further, however, it is worth noting one significant feature of the enclosure: the presence of evidence for iron smelting.

Although evidence for iron smelting occurs quite frequently on Iron Age sites, evidence for smelting is quite rare (Lambrick & Robinson 2009, 218; Preston 2013). The nearest middle and late Iron Age sites with evidence for smelting are Thorpe Lea Nurseries (Hayman *et al.* 2012) and Brooklands, near Weybridge (Hanworth & Tomalin 1977) to the south, and Berkhamsted, Hertfordshire, to the north (Thompson & Holland 1976; see also Preston 2013). Whilst the evidence for smelting at Slade Oak Lane is limited in quantity, the process appears to have taken place in another part of the site, the slag being dumped in an unrelated pit. It is possible, then, that more extensive excavation would reveal a greater quantity of waste. Whatever the case, the presence of this debris marks out the site from the other enclosures cited above. The scarcity of evidence for iron smelting implies

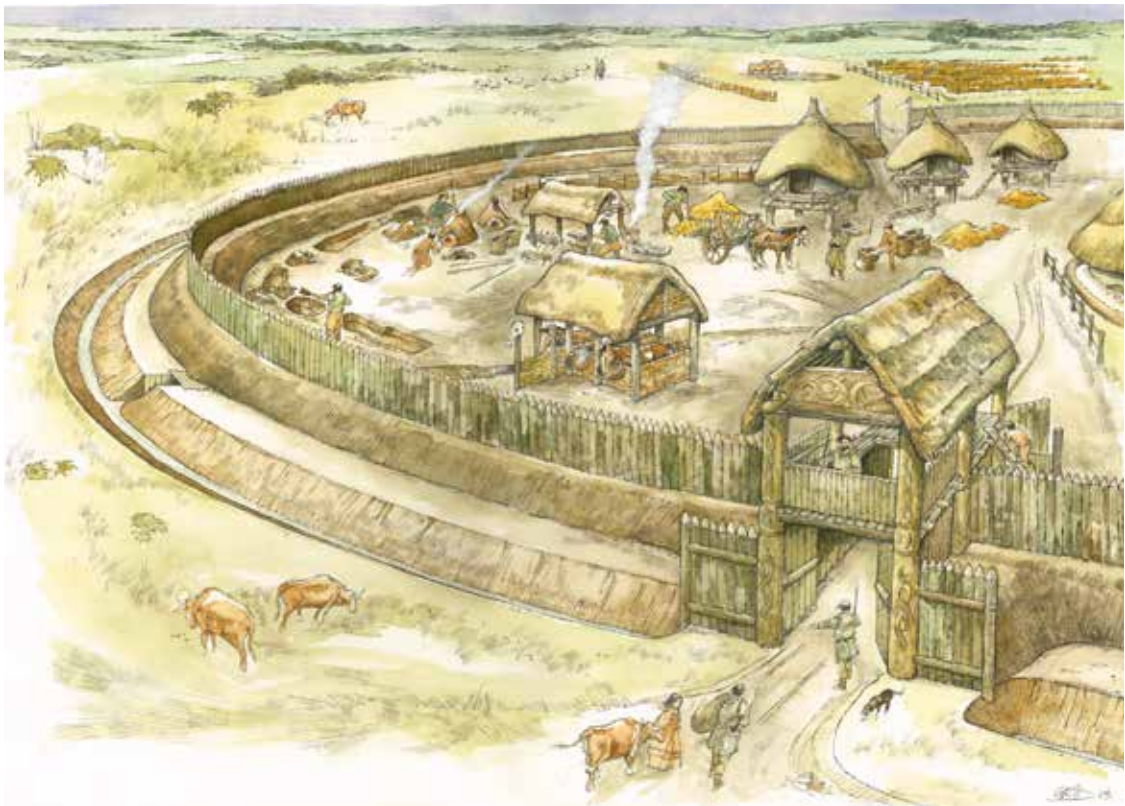


FIGURE 21 Speculative artist's reconstruction of the Slade Oak Lane middle Iron Age enclosure (by Mark Gridley; © The Highways Agency)

a certain degree of economic complementarity between settlements. Variation in settlements might, then, not be just a question of differences in status and population size, but also in economic, and presumably therefore also social, roles.

Some of the variation in enclosed sites has already been discussed. The variation in settlements also, however, includes other forms of settlements. At Heathrow, for example, an unenclosed settlement belonging to Lambrick's category of 'house, pen and paddock settlements' developed (Lambrick & Robinson 2009). It is possible too, that some kind of relationship existed between the Slade Oak Lane enclosure and the Bulstrode Camp hillfort (Fox and Clake 1925). The chronology of the hillfort is, unfortunately, poorly known. Some pottery, described as early Iron Age, has been recovered, but comparison with the Taplow hillfort (Allen *et al.* 2009) suggests that it could have remained in use in the middle Iron Age. Geophysical survey at Bulstrode Camp revealed circular and D-shaped enclosures, some of which could have been related to roundhouses.

It is possible to see the relationships between these differing kinds of sites as having been hierarchical, with the hillfort at the top of the hierarchy, above the larger, richer enclosures, and the unenclosed settlements at the bottom. It seems likely, however, that there were also other forms of economic – and hence social – differentiation between different kinds of sites. The limited evidence from Slade Oak Lane, unfortunately, provides little basis for investigating this possibility further, beyond the evidence already noted for iron smelting. The presence of East Midland Scored Ware and briquetage also, however, provide further indications of wider social and economic relations. Whilst it is not appropriate here to attempt to define the possible relationships more precisely, it is worth noting the contrasts between this situation, consisting of clear settlement foci, possibly characterised by some degree of social and economic differentiation, and that which has been described for the middle Bronze Age, characterised by dispersed patterns of activity, lacking clearly defined foci.

As well as hinting at possibly complex forms of social differentiation, however, what slight evidence there is at Slade Oak Lane also underlines the fact that despite possible differentiation, most of the sites, at least, continued to be involved

in subsistence farming. It is thus not surprising that there are a number of common elements, such as the possible ring gullies, four-posters and other rectangular structures, and a range of pits, which characterise all of them.

The medieval enclosure at Slade Oak Lane

Apart from the isolated deposit of Roman pottery in the enclosure ditch at Slade Oak Lane, no evidence for Roman or Anglo-Saxon activity was found along the scheme. Again, this is consistent with the evidence from the area around the route of the M25 in which very little evidence for these periods had been found.

The medieval enclosure found at Slade Oak Lane appears to have been first constructed in the 11th or 12 centuries, but to have remained in use into the 13th century. Although the south-eastern part of the enclosure had been truncated by previous work on the M25, enough survived to be fairly certain that the enclosure originally measured around 50m by 40m. The enclosure itself was defined by relatively slight ditches which seem, nonetheless, to have been maintained and recut over the course of its use.

The closest parallels for this enclosure are perhaps provided by a group of earthwork enclosures on the Buckinghamshire Chilterns discussed by Pike (1995). Although the enclosures discussed by Pike included rough square or rectangular components comparable to the enclosure at Slade Oak Lane, sometimes forming parts of wider complexes, there are a number of differences between them and the Slade Oak Lane enclosure.

The Chiltern enclosures are slightly larger than that at Slade Oak Lane, measuring on average 150m by 75m, and all lie at heights of over 155m in woodland in the Chilterns (whilst the Slade Oak Lane enclosure is situated rather differently, at around 86m OD on the southern edge of the Chilterns). It is possible that the bank and ditch of the Slade Oak Lane enclosure was significantly smaller than those of the Chiltern enclosures. None of the examples discussed by Pike has, however, been extensively excavated, and it is thus difficult to evaluate how significant these differences may have been. It is also difficult to assess whether they were contemporaneous with the Slade Oak Lane enclosure, although fieldwork at some of the Chiltern enclosures has recovered medieval pottery.

The excavations at Slade Oak Lane provide little

evidence with which it might be possible to clarify the function of the enclosure. Very few finds were recovered from it. The largest group consisted of pottery, all of which consisted of coarse domestic wares, largely consisting of jars or cooking pots. Sooting was noted on some of the sherds, probably reflecting the use of the pots for cooking, and thus at least suggests that the enclosure was occupied, rather than having had a specialised agricultural or industrial purpose, for example.

The remains of two possible structures could also be taken as signs that the enclosure was occupied. In both cases, the arrangement of postholes was rather irregular, and in neither case does the evidence give a very clear picture of what the related structures were like, beyond perhaps suggesting that they were quite crudely built. Such crude constructions are, however, consistent with the coarse pottery in suggesting that the site was of quite low status.

Iron slag has been recovered from some of the Chiltern enclosures. A very small quantity was also recovered from a tree-throw hole which cut the medieval enclosure at Slade Oak Lane, but, whilst it could derive from the enclosure, its association with the enclosure is uncertain.

The only other potentially relevant evidence is the fragmentary horse bone recovered from a pit within the enclosure, which could derive from a very poorly preserved horse burial.

Pike suggests that the Chiltern enclosures may have been related to hunting, either as hunting lodges or as the homes of game-keepers. The latter interpretation would be consistent with the evidence from Slade Oak Lane. There is, however, nothing specific to suggest game-keeping. A more appropriate conclusion, perhaps, is that the enclosure represents a low status rural site.

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