

LATE BRONZE AGE SETTLEMENT, ROMANO-BRITISH ENCLOSURES AND INDUSTRIAL ACTIVITY AT DENHAM PARK FARM

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Excavation was carried out at Denham Park Farm, to the east of the M25 motorway between junctions 16 and 17, in compliance with a planning condition. The site lies in an area in which significant evidence of prehistoric activity has been recorded. The excavation revealed a multi-period archaeological landscape with the most extensive activity dating to the late Bronze Age and Romano-British periods. Further, but quite limited, evidence of Neolithic, medieval, post-medieval and modern activity was also recorded.

No Bronze Age activity has previously been recorded in the immediate vicinity of the site and, similarly, very little material associated with human activity during the Roman period has been recorded locally, despite the purported route of a Roman road running nearby. The late Bronze Age archaeology recorded at Denham Park Farm appears to represent activity adjacent to, or on the periphery of, a settlement. The topographical position of the western part of the site may have afforded any settlement located here, or in the immediate vicinity, commanding views of the surrounding landscape and particularly the valley of the river Colne.

The Roman archaeology consisted of a set of boundary ditches representing a field system or set of enclosures and associated pits located in the western part of the site. Further Roman features were sparsely distributed across the eastern part of the site. To the north of the Roman enclosures was a focus of industrial activity associated with iron smelting. This type of industrial activity is not unusual for this area; sites across the Solent-Thames region attest small-scale ironmaking, including the continuation of prehistoric traditions alongside shaft furnaces. The Roman activity here may represent areas appended to a low-status agricultural settlement in the immediate vicinity, but alternatively could represent a small part of a larger estate focussed on the villas and high-status sites known from the Colne valley.

INTRODUCTION

Denham Park Farm lies on the western side of the Colne Valley, with land sloping relatively steeply down to the north-east towards the valley of the river Colne, which lies some 1.70km to the north-east (Fig. 1).

The site is known to lie in an area with potential for Palaeolithic remains from the lower gravel deposits. Palaeolithic flint implements have been found widely in the Colne and Chess valleys of Hertfordshire, suggesting occupation of the area during this period. Significant exca-

vations at Uxbridge have revealed a sequence of hunter-gatherer butchery sites on gravel islands in the floor of the Colne Valley (Lewis 1991, 2000; Lewis *et al* 1992; Murray 1997), left by groups of nomadic human hunters (Rackham & Sidell 2000). Numerous stray finds of struck flint have been made in the Colne valley to the south-west (Lacaille 1961). However, little evidence for Palaeolithic activity has been recorded in the vicinity of the site, in the relatively upland area of wooded, heavy clays and gravels, which may have been less attractive than the flint-rich and well-drained gravelly valleys.

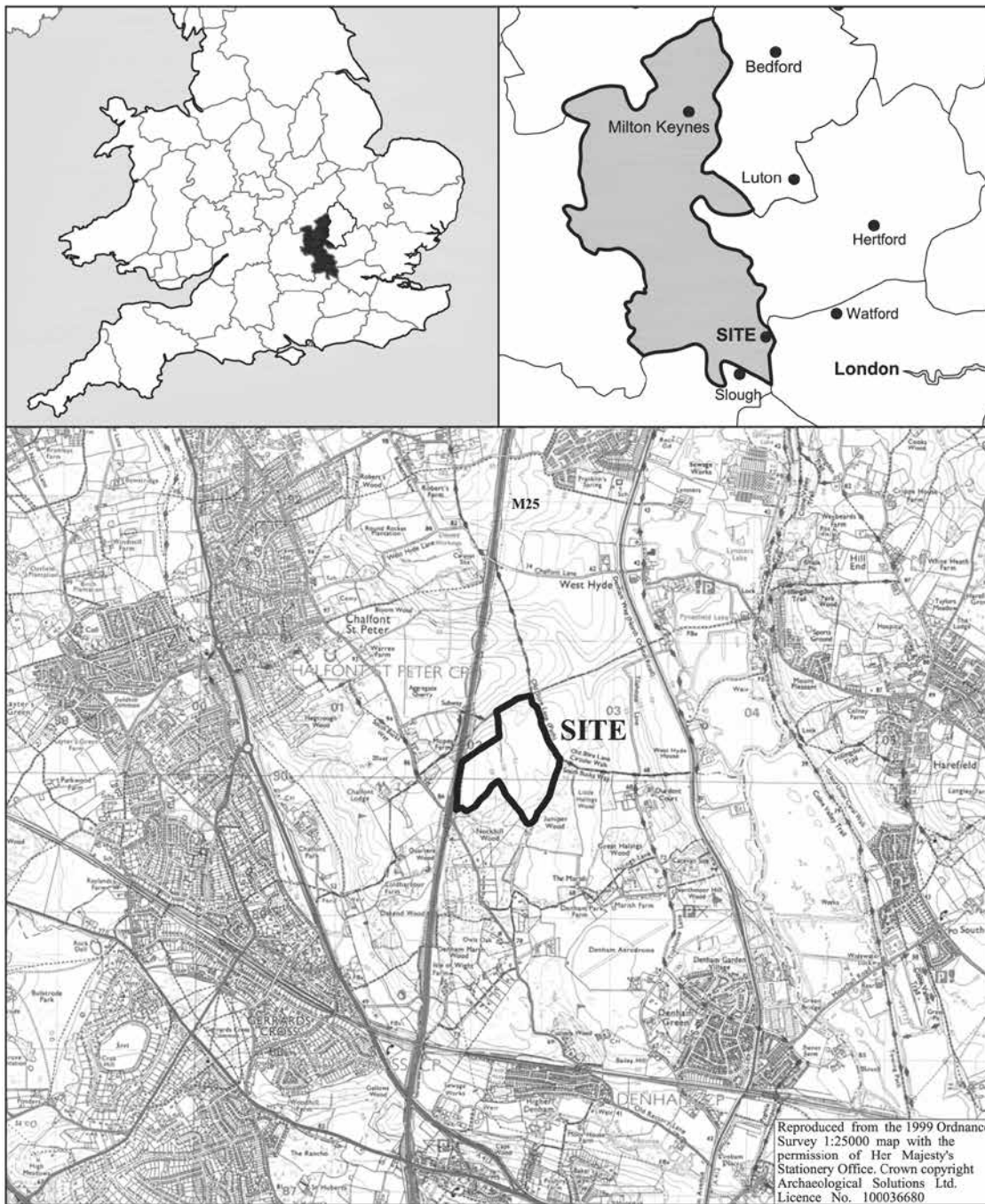


FIGURE 1 Site location plan

A number of worked flints dating from the Mesolithic through to the Bronze Age have been found in the vicinity of Denham Park Farm. The majority of these were recovered during the construction of the M25 immediately to the west of the site and include part of a tranchet axe, a hammerstone and a blade (HER 5085, 5322, 5324, 5325 and 5483). Mesolithic and early Neolithic flints have been recovered at the former Sanderson site on Oxford Road in Denham (Howell & Corcoran 2002) and concentrations of struck flint have been recovered from West Hyde, c.1.5km to the north-east of the site on the western bank of the river Colne, the occupation site of Dewes Farm and the flint-working sites of Dewes Pit and South Harefield (HER 50388) c.3km east-south-east of the Denham Park Farm site (Lacaille 1961). Finds of Mesolithic and Neolithic struck flint are recorded from Colney Farm (HER 50134), Cooks Wood (HER 50423) and St Mary's Church, Harefield (HER 50150). Neolithic flint artefacts have also been recovered to the south-east at Ruislip and Ickenham (HER 50172, 50444, 50974) and features and earthworks of this date have been recorded at Uxbridge (HER 51019, 50163, 50376). Worked flints dating from the Neolithic to the Bronze Age were recorded during work associated with the construction of the M25 (HER 4198, 5814). Four areas of Neolithic flint scatters were recorded during archaeological monitoring at Batchworth Golf Course, although no associated features were identified (McDonald 1995).

Very little Bronze Age activity has been recorded in the immediate vicinity of the site, but to the north-east, at Dawes Farm Road, a ring ditch has been identified (HER 50800) and two Bronze Age pottery vessels were recovered from Dawes Pit (HER 50233). To the south-east, at Uxbridge, ditches and an occupation site have been recorded (HER 52349–50, 56024301, 50243). A number of flint flakes probably dating to the late Neolithic/Bronze Age were found during fieldwalking c.1km to the north-west (HER 4198) and flint of a similar date has been found c.800m to the south (HER 5814).

The closest location at which Iron Age archaeology has been recorded is Uxbridge (HER 50243), where settlement activity has been identified. Similarly, very little evidence for activity during the Roman period has been recorded in the vicinity of the site, despite the Colne valley and its trib-

utary streams having been densely settled in the Romano-British period, with extensive evidence from Hertfordshire and Buckinghamshire. Such remains include villa estates, rural farmsteads and industrial activity. The Viatores (1964) assert that a Roman road (Road 163b) existed on the line of Shire Lane, which forms the eastern boundary of the site, but there is no corroborative evidence to support such a date (HER 4179, see HER 4341 below). Another reputed Roman road that links Chorleywood to Langley Park passes near the site (HER 4362 – following Old Shire Lane and noted by the Viatores) and the remains of a Roman pottery kiln was investigated during the construction of the M25 nearby. A Roman burial in a 'tomb' was found at Breakspear Avenue, Harefield, only 3km to the east (HER 50450) and the remains of Roman buildings have been noted at Uxbridge (HER 50246) and Ruislip (HER 50281, 50282, 50306). The presence of tegula found during field walking close to the Yeading Brook, c.3km north-east of the site, suggests Roman buildings in the vicinity.

Shire Lane constitutes the boundary between Buckinghamshire and Hertfordshire (HER 4341). A hedge on the Buckinghamshire side is said to be ancient, although the M25 has now cut through this lane 1.30km north of the site. Shire Lane runs for a total of 7km from Chorleywood Station to West Hyde. It is presumably of late Saxon or slightly later date and it is not certain where the boundary between the two shires was fixed at this time. A number of villages in the area have place-names indicating Anglo-Saxon origins (Doyle & Grassam 2005). However, very little physical evidence has been found in the area surrounding the site to suggest Saxon occupation. A Saxon spearhead was found at Dewes Farm to the south-east of the assessment site (HER 50340). The parish of Denham is documented in the Domesday Survey, indicating the existence of settlement activity in the area from the later Saxon period (Morris 1978). Although only one manor is referred to in the survey, it is thought that over time three manors were established in the parish and one of these, the manor of Brudenells or Bulstrode, lies c.1.2km to the west of the assessment area on the site of the modern Chalfont Park (HER 0851). The remains of a small moat are situated c.800m to the west, and this is probably associated with one of the manors (Scheduled Monument no. 27153). Although Denham is a village, it once had burgage tenure indicative

of a sizeable settlement; it appears, however, to have lacked long-term economic potential as it has remained a small settlement (Reed 1993).

From 2012 to 2017, AS carried out an archaeological ‘strip, map and sample investigation’ at Denham Park Farm in compliance with a planning condition associated with development at the site. In light of the site’s archaeological potential, the primary objectives of the project were to record the location, extent, date and character of any surviving archaeological remains, to preserve any such archaeological evidence by record and to attempt a reconstruction of the history and use of the site.

THE SITE

The site is located on land at Denham Park Farm, which lies *c.*800m to the south-east. The site is bordered to the immediate west by the M25 motorway and to the south by large coverts, Nockhill Wood and Juniper Wood. The Old Shire Lane (path), part of the Old Shire Lane Circular Walk, forms the eastern boundary, and is also the administrative boundary with Hertfordshire (Fig. 1). There is no clear boundary to the north of the site, although the north-western extent is demarcated by an existing field boundary, which lies on a north-east to south-west alignment. An adjoining field boundary, located on a north to south alignment, continues into the northern section of the site, with a small covert on its western side at its southernmost extent (Fig. 2).

Prior to the archaeological investigation, the site was under arable cultivation. It lies on the west side of the Colne valley, which has been subject to extensive mineral extraction in the past, resulting in a landscape of large lakes. The smaller valley of the Misbourne lies some distance to the west and south.

Seven areas have been subject to archaeological excavation since 2012 (Fig. 2). The chronological order in which these areas were excavated does not follow a neat east to west or north to south pattern or any variation thereof (indeed, the areas excavated in 2012 and 2014 are sandwiched between areas excavated in 2015); therefore the locations of individual archaeological features are identified in the following text by grid location.

Archaeological features were recorded across the site (Figs 2-5) but were concentrated in the

westernmost excavation area (Area 6). Towards the east (Areas 1, 2 and 7) features were more sparsely distributed. The central part of the site (Areas 3, 4 and 5) was comparatively archaeologically blank. Two undated features were recorded in these areas (F4003 and F4005). The distribution and alignment of features recorded in Area 6 suggested that they may have continued towards the east into Area 5 and possibly beyond. The absence of late Bronze Age, Roman and other features in this part of the site suggests that it has been significantly affected by agricultural practices such as ploughing which have caused extensive damage to pre-existing archaeological features and deposits.

It is possible that the western part of the site was preferred as a focus of activity, particularly in the later Bronze Age and earlier, as it offered views across the valley of the Colne to the east and much of the surrounding landscape to the west. This position may have made any settlement associated with the prehistoric activity recorded here a prominent feature in the landscape, the wide and sweeping views may have provided plenty of warning of the approach of other groups or individuals travelling through this landscape or to the site, and it would have allowed easy access to grazing sites lower down in the valley (should these areas not have contained other settlements) but at a suitable distance from areas prone to flooding.

PHASING

Six phases of archaeological activity were identified, based on artefact typologies and stratigraphic and spatial relationships (Table 1). In contrast to what the known archaeological background to the site suggested, the most significant activity was dated to the late Bronze Age and the early Romano-British periods; the archaeology of these dates is described below.

The earliest securely dateable feature, Pit F6449, was identified as being of late Neolithic origin. This feature was located on the eastern side of Area 6 (GS D8; Figs 2 & 5) and contained eight sherds of a Durrington Walls sub-style of late Neolithic Grooved ware with a vertical cordon, which has a currency of *c.*3000/2900–2100/2000BC. F6449 cut F6447, which has been classified as a posthole, indicating that this smaller feature must be of late Neolithic date or earlier.

This next phase consisted of a concentration of

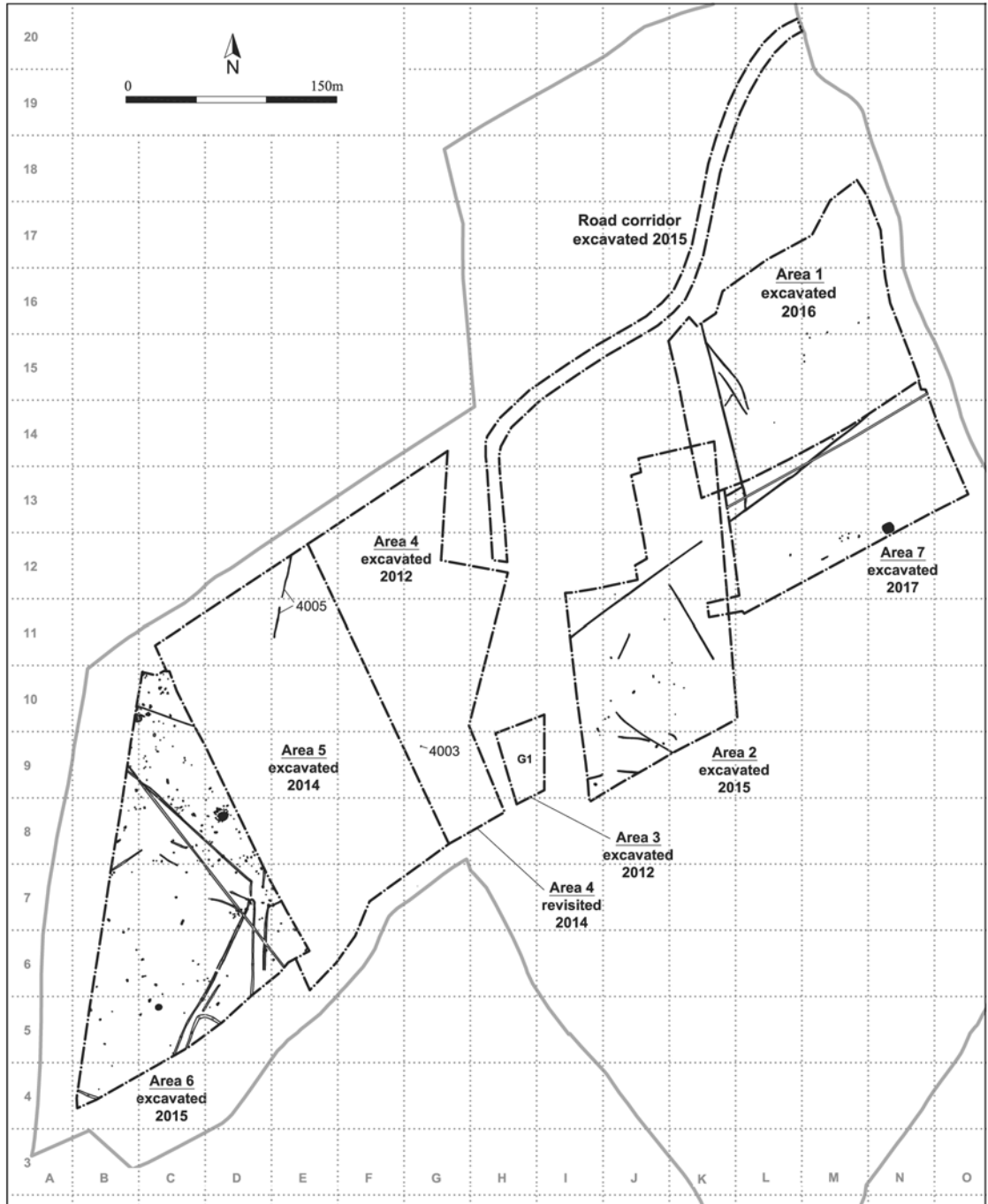


FIGURE 2 Detailed site location plan

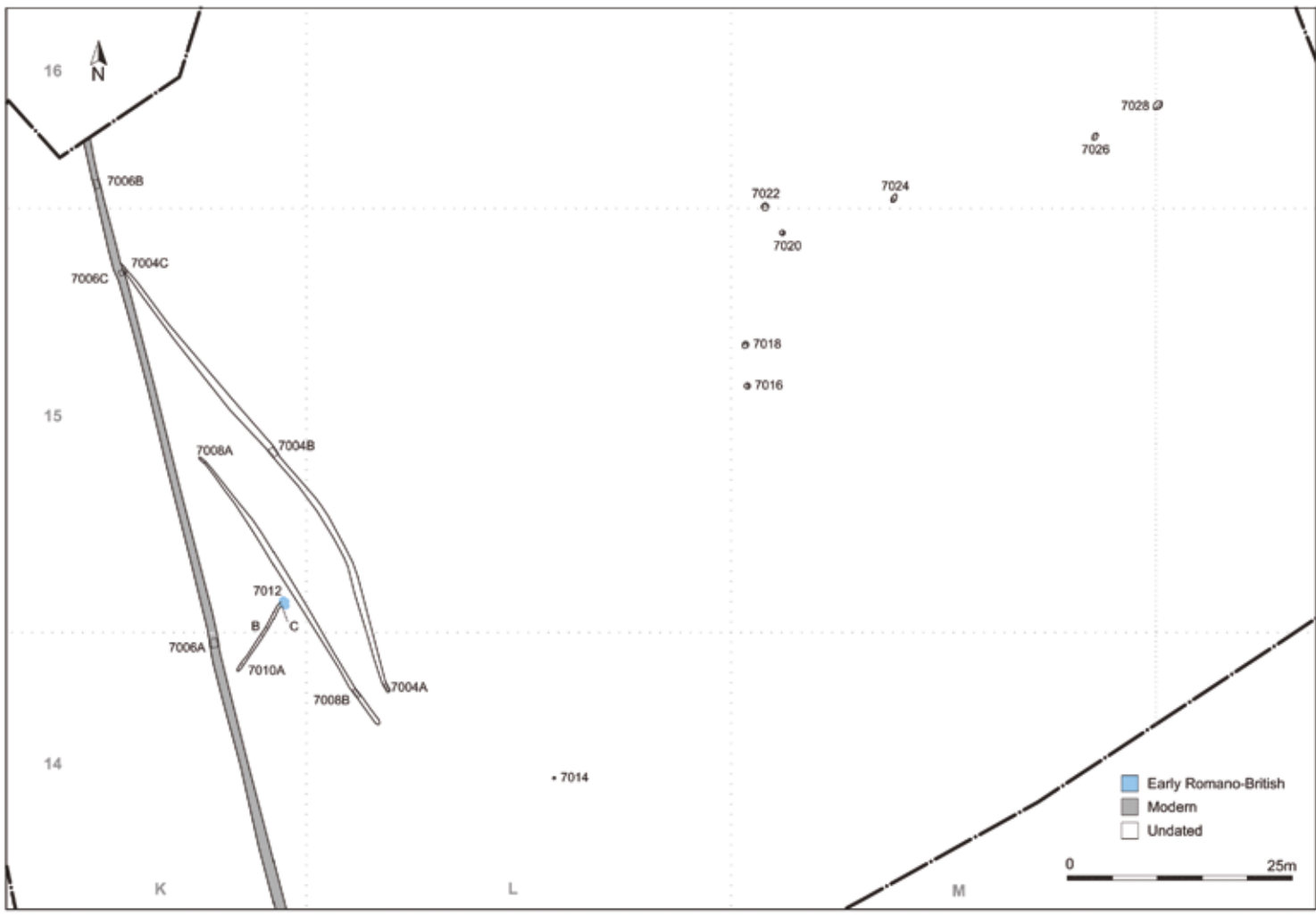


FIGURE 3. Area 1 – all features plan

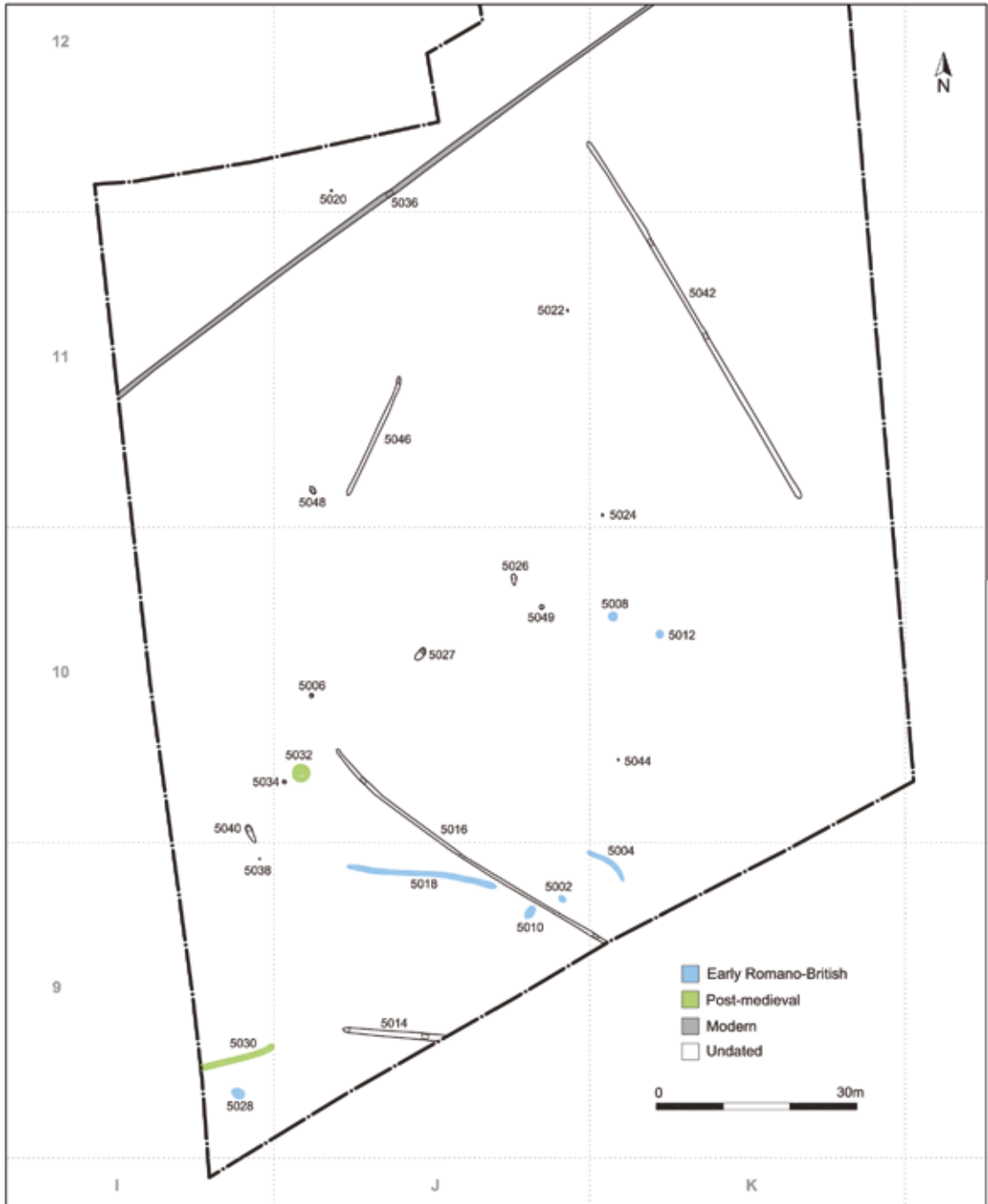


FIGURE 4 Area 2 – all features plan

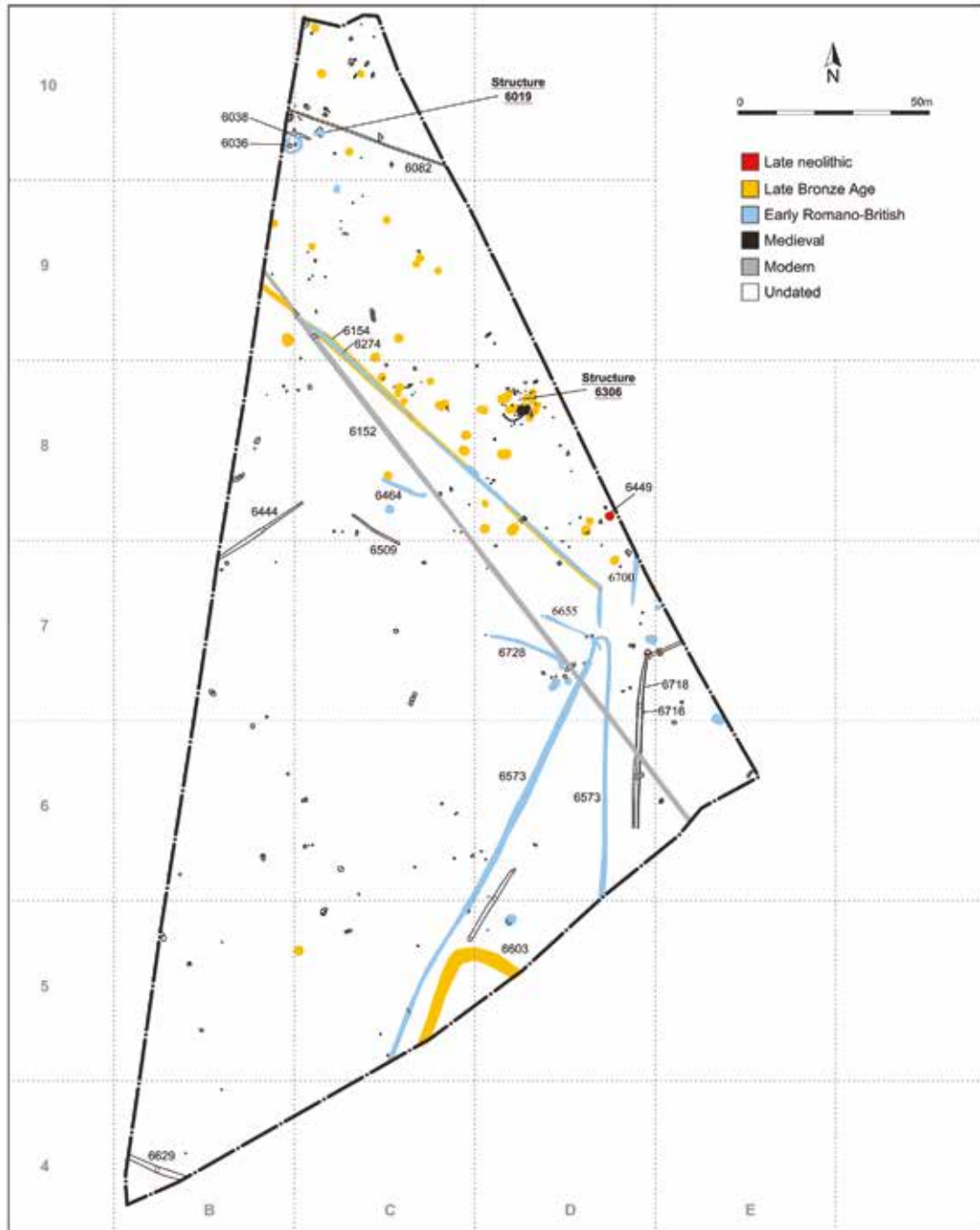


FIGURE 5 Area 6 – all features plan

TABLE 1 The phases of activity represented at Denham Park Farm

<i>Phase</i>	<i>Period</i>	<i>Date</i>
1	Late Neolithic	c.3000/2900–2100/2000 BC
2	Late Bronze Age	1300-750 BC
3	Early Romano-British	Mid 1 st to 2 nd century AD
4	Medieval	12 th to 14 th century AD
5	Post-medieval	AD 1500 to AD 1750
6	Modern	Post AD 1750

late Bronze Age features in the western part of the site. There is no clear evidence for occupation or activity during the Iron Age and the next identifiable phase of human activity (Phase 3) consists of an early Romano-British enclosure system with related industrial activity. Subsequently, evidence was more sporadic with occasional features of medieval, post-medieval, and early modern date (Phases 4-6) recorded across the site.

The late Bronze Age

The late Bronze Age activity consisted of potential boundary ditches and a variety of pits and post-holes, most of which were widely spaced but some of which were organised in to loose clusters, at least one of which is potentially representative of a structure (St6306). One hundred and six features can be attributed to the late Bronze Age; 65 by pottery in their respective fills and 41 by association due to their presence in Structure 6306. All of these features were concentrated in a small area in the western part of the site (GS B7-C10; Figs 2 & 5).

Late Bronze Age ditches

Two ditches were assigned a late Bronze Age date on the basis of pottery present within their fills. Ditch F6154 ran on a north-west to south-east alignment from Grid Square B9 to Grid Square D7 (Figs 2 & 5). It contained a total of four sherds (12g) of late Bronze Age pottery and no other finds. It was, however, re-cut along the majority of its identifiable length by Phase 3 (Roman) Ditch F6274. F6274 was an integral part of a Roman ditch system and so it may be more than coincidence that this Roman feature so precisely follows the earlier one. It is possible that F6154 remained as a visible feature in the landscape and was re-used as a

boundary in the later period. Modern Ditch F6152 ran on a similar alignment, perhaps suggesting that the local topography made this a natural and logical way in which to divide up the landscape. Alternatively, the fairly small quantity of pottery recovered from F6154 may be residual and may have arrived in what is, in actual fact, a Roman ditch due to the disturbance by this feature of one of the numerous late Bronze Age pits present in this area.

Similarly, F6603, the curving Phase 2 ditch at the southern end of the westernmost area of excavation (Figs 2 & 5) ran parallel to Roman Ditch F6573, suggesting a spatial/functional relationship. However, dating evidence was slightly more secure for F6603, consisting of 23 sherds (131g) of late Bronze Age flint and sand tempered pottery, than that associated with F6154. The possibility that topographic factors or that earlier systems of enclosure/land division influenced later systems is behind the similarity in alignment of this ditch to the surrounding Roman ditches must be considered in the same way that it is for Ditch F6154.

At the Reading Business Park site, very regular, rectilinear ditched enclosures of middle to late Bronze Age date were recorded (Brossler *et al* 2004, fig. 3.10). The late Bronze Age to early Iron Age rectilinear enclosures recorded at Springfield Quarry Extension, Beaconsfield, have been described as being of regional significance, relatively rare for the eastern region, and as representing agricultural intensification (Phillips 2006, 14). These are very similar to the Bronze Age enclosures and field systems which lie approximately midway between the North and South Rings at Mucking, Essex (Bond 1988, fig. 2) and in close proximity to the ringwork recorded at South Hornchurch, Essex (Guttmann & Last 2000,

figs 2 & 4). Despite the straight line followed by F6154, there is little indication of the late Bronze Age ditches forming enclosures of such regularity at this site. The form of F6603 is more reminiscent of the boundaries recorded at sites such as Stratford Close, Aston Clinton, Bucks (Stansbie 2016, fig. 3), Mill House Farm, Chadwell St Mary, Essex (Newton 2017, fig. 20), and Game Farm, Brandon, Suffolk (Gibson 2004, fig. 10) which, although forming clear and distinct enclosures, took a more organic, undulating form than the regular straight lines at Reading Business Park, Springfield Quarry, South Hornchurch and Mucking. At Game Farm, Brandon (Gibson 2004) and Chadwell St Mary (Newton 2017) these undulating, gently curving ditches appear to have been directly associated with domestic activity and house structures. At Reading Business Park and Springfield Quarry the straight, regular ditches forming rectilinear enclosures are described as field systems (Brossler *et al* 2004, fig. 3.10) and are similar in form to Bronze Age field systems recorded at sites such as The Holme, Colne Fen, Earith, Cambridgeshire (Evans 2013, fig. 4.2) and several of the Fengate sites near Peterborough (Pryor 2006, figs 42 & 43). Therefore, on the basis of the very short section of Ditch F6603 that was present within the excavated area, it is possible to speculate that this feature formed part of an organically-shaped enclosure of the type that appears to have been associated with domestic occupation at the sites discussed above. Limited finds and environmental evidence to support this interpretation were recovered from F6603, with the pottery assemblage only of moderate size in comparison to those from other Phase 2 features and, as was typical across the site, only low densities of carbonised plant remains, associated with the processing of cereal crops, were present. However, it appears likely that further evidence associated with late Bronze Age domestic activity exists to the south of the westernmost excavated area.

Dispersed Features

Thirty-six dispersed features were attributable to this phase, most of which were discrete pits. They were distributed throughout Grid Squares B7-C10 (Figs 2 & 5), forming part of the concentration of late Bronze Age activity in this area. Some occurred as part of loose groups also containing undated features, potentially comprising groups

of contemporary and functionally related pits. Finds from these features consisted mostly of small to moderate quantities of pottery but a small number of features were found to contain slightly more extensive finds assemblages; F6009 (Grid Square C10) contained loomweight fragments in addition to pottery, F6225 (Grid Square C9) also contained worked stone, struck flint and daub, and F6461 (Grid Square C8) contain struck flint, burnt clay and daub as well as pottery. Features F6079 (Grid Square C9), F6150 (Grid Square C9), F6279 (Grid Square D9), and F6506 (Grid Square C8) all contained struck flint in addition to the pottery which dated them to Phase 2.

At the Reading Business Park site, Brossler *et al* (2004, 126) identified four different types of late Bronze Age pit, mainly on the basis of their shape in profile. They considered that the pits with a rectangular profile (steep sides and flat base) were potentially storage pits (*ibid.*) Of the 40 Phase 2 pits and postholes that were recorded at the current site, ten displayed the steep-sided, flat-based profile of Brossler's (*ibid.*) storage pits (although to some extent, such an identification is subjective). Similar profiles were identified amongst the early Bronze Age pits which were recorded at Church Hill, Saxmundham, Suffolk, some of which were considered to have a possible storage function (Newton 2013, figs 8 & 9). Experimental work has shown that the optimal angle for the sides of pits used for the storage of grain was less than 90°; making the beehive profile of many Iron Age pits the most effective form and the bowl-shaped profile the least efficient (Reynolds 1974, 126–127). Very few, if any, of the Phase 2 pits at Denham displayed beehive shaped profiles. However, this does not preclude them from being interpreted as storage pits; they may not have been used for the storage of grain but could have worked effectively for the storage of other items, particularly if those items were stored in pottery vessels, wooden containers or skin or leather bags. Indeed, this may be the case for any of the pits recorded at this site.

Pits could also have been used for the preparation of foodstuffs as part of this storage process. *Kiviak*, for example, is a Greenland Inuit delicacy made by sealing seabirds, usually little auks, in fresh sealskin and storing it in pits for several months until it is partially decomposed/fermented (Evans 2011). *Kæstur Hákarl*, Icelandic fermented

shark, is prepared in a similar way (Durst 2012, 91). It is conceivable that foods could have been stored and preserved in similar ways during the Bronze Age and the shape of the pit required for this may have been markedly different from that required for the storage of grain. It is also possible that these pits were associated with the extraction of the underlying gravel, which could have had a structural use, even in the Neolithic and Bronze Age (Thomas 1999, 66). Refuse disposal is another possible primary function of pit features, but even if their primary function was something else, refuse disposal is a possible, if not probable, secondary function of such features. Based on their shapes in profile, pits recorded at the Iron Age riverside settlement at Farmoor, Oxfordshire may have been storage pits but, due to the finds assemblages recovered from them, it was suggested that they may equally have been rubbish pits (Lambrick & Robinson 1979, 65). As Brück (1995, 255) notes, many societies view rubbish and refuse as being a source of symbolic fertility and regeneration, at least in part due to its potential for use as manure, and it is therefore possible that the way in which it was deposited was subject to a specific set of rules or behaviours. It is even possible that such material was deliberately curated for use in acts of 'structured deposition' (Garrow 2006), in which deposits are placed in features in a structured and recurring manner (Cunliffe & Poole 1995, 83) or, as Lally (2008a & b) describes it, 'the deliberate deposition of specially selected 'packages' of objects of different kinds, repetitively and sequentially in certain positions within the fill matrices of certain features'. Richards and Thomas (1984) have suggested this is one of the key ways in which prehistoric 'ritual' practices may be identified. There is, however, little clear patterning in the artefactual assemblages recovered from the Phase 2 pits, with only a handful of features containing anything other than a handful of pottery sherds. The only possible indication of such behaviour can be seen in those features which contain more than one fill; in these features it is usually the basal fill which contains the greatest quantity of artefactual material. However, significant elements of the pottery assemblage are considered to represent deliberate deposition of discarded and broken domestic detritus, possibly originally accumulated in above-ground middens, and therefore suggesting the possibility of the curation of such

material for deposition within pit features in potentially symbolic acts.

If these pits were associated with the storage of grain or the storage and/or preservation of other foodstuffs, it may be considered slightly unusual that they were located in an area that appears to be unenclosed, despite the apparent presence of an enclosure to the south, as represented by Ditch F6603. A similar situation has, however, been observed at Mill House Farm, Chadwell St Mary, Essex (Newton 2017) where several groups of both pits and postholes were observed to occur outside of the various enclosures. It is possible that this indicates that these features were associated with activities which needed to be kept away from areas of domestic habitation but could also represent chronological development of the site, with foci of activity shifting from location to location, possibly with 'unenclosed' features representing activity prior to the development of enclosures.

The various Phase 2 and undated postholes present across the site, particularly where there occur in groups or clusters, potentially represent small structures of the kind that may have been used as granaries (Reynolds 1979, 80), ricks, in which corn or barley that had been cut damp could be stored and allowed to dry prior to threshing (Cunliffe 1986), or as drying racks for grain or skins (Megaw & Simpson 1981, 382).

Structure 6306

A cluster of 68 pits and postholes, several of which were truncated or sealed by later activity, were identified during excavation as a potential structure (St6306; Grid Square D8; Figs 2, 5 & 6). Finds were recovered from 23 of the features within this group. Pottery comprised a range of form and fabric types consistent with late Bronze Age post-Deverel-Rimbury (PDR) pottery in the Thames Valley (151/716g), two pieces of fired clay (F6327 and F6403) and two flint flakes (F6323 and F6421) were also present in the assemblage. The clustering of the features was considered sufficient evidence to suggest that those which were undated were contemporary with the dateable features.

There was limited structural configuration to this group of features, despite its designation during excavation as a structure. It is notable that its north-western and south-eastern extents were marked by intercutting groups of pits with smaller postholes occurring in the intervening area. Within

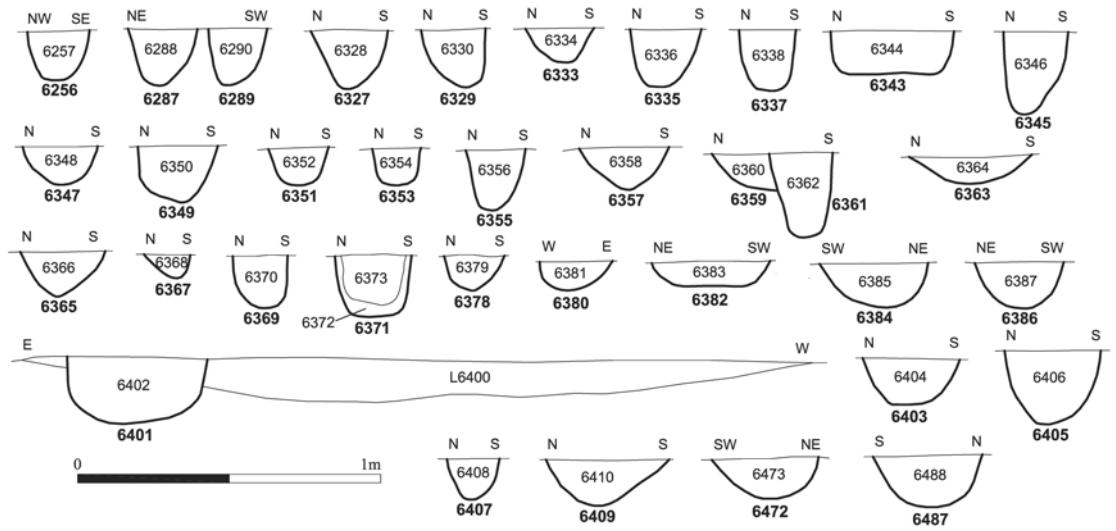
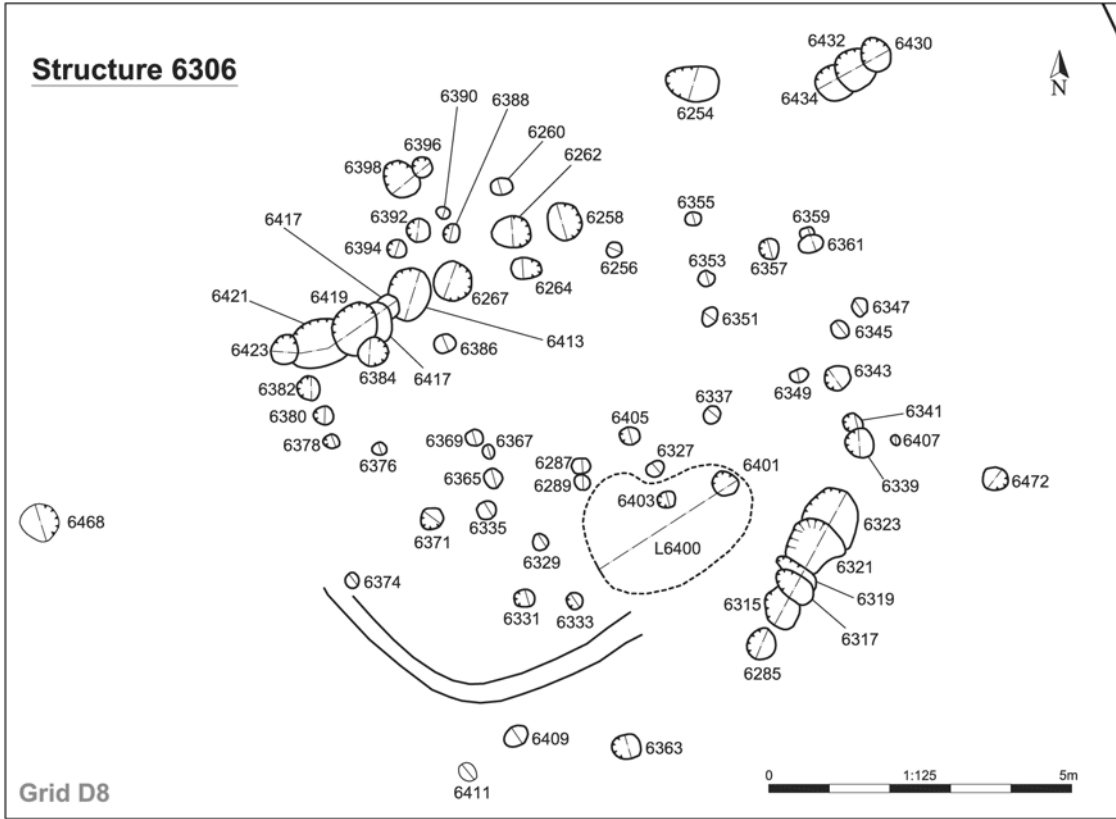


FIGURE 6 Structure 6306

the layout of these postholes it may be possible to discern lines or pairs of features.

The roundhouse was the standardised form of domestic structure which predominated throughout the later Bronze Age and Iron Age (Brück 2000, 287). In the Solent-Thames region, within which the site lies, simple post-built roundhouses, sometimes with porch-like structures marking their entrances first appear from the middle Bronze Age onwards and become much more common in the later Bronze Age (Lambrick 2014, 135). It is therefore reasonable to suggest that complex domestic structures at Bronze Age settlement sites are most likely to be roundhouses. The ground plan of St6306 superficially appears to comprise a vaguely ring-like accumulation of features with a relatively blank patch within the centre of this ring. This impression, however, is mainly given by the groups of intercutting pits located to the north-west and south-east of the structure. A similar situation was noted amongst the late Bronze Age features at Mill House Farm, Chadwell St Mary, Essex, where few of the identified posthole groups displayed clear structural configurations, including those which were identified as structures during excavation (Newton 2017). A few of the many posthole groups identified at Mill House Farm were considered to be comparable to some of the buildings recorded at the buildings at Mucking, also in Essex (Bond 1988, fig. 8). However, none of these possible buildings were truly circular, although oval-shaped buildings are not uncommon in the Bronze Age (*cf* Drury 1977, 23; Bradley 1970, 322–323) and they displayed less clarity of structural configuration than examples from contemporary sites in the vicinity. It is possible, therefore, that structure St6306, like those at Mill House Farm (Newton 2017), represents a roundhouse structure which has not left a particularly clear ground plan due, possibly, to taphonomic processes or phases of repair and rebuilding during its lifespan. Contemporary sites in closer proximity to Denham Park Farm than these Essex examples, such as Hartshill Copse, West Berks (Collard *et al* 2006, figs. 3 & 5), Green Park, Reading (Brossler *et al* 2004, figs 3.10 & 3.11), and Building 500 at Bancroft, Milton Keynes (Williams & Zeepvat 1994, fig. 11) contain roundhouse structures with much clearer circular ground plans.

Closer inspection of the ground plan of St6306 suggests that it may in fact have been a rectangular

building. Several straight lines of postholes are evident, whereas they do not appear to form a clear ring, and these straight lines may be considered to represent several possible configurations (Fig. 7). Despite the predominance of the roundhouse in the later Bronze Age (Brück 2000, 287), rectangular structures of this date are known, such as Structure X at Hartshill Copse (Collard *et al* 2006, fig. 5). It seems possible, therefore, that St6306 may have been a small rectangular structure, possibly representing an ancillary building of some kind, appended to or associated with domestic structures beyond the limit of excavation. The number of postholes and the various permutations that the ground plan might indicate suggest that any structure at this location might have been rebuilt, repaired, or modified, perhaps more than once. The groups of intercutting pits that flank the posthole group to the north-west (F6413, F6415, F6417, F6419, F6421, F6423 and F6384), north-east (F6430, F6432 and F6434) and south-east (F6315, F6317, F6319, F6321 and F6323) may represent storage or refuse pits directly associated with the structure.

The overall character of the late Bronze Age activity at Denham Park Farm

During the middle Bronze Age in southern England, settlement size and morphology is fairly uniform, consisting of clusters of two to five roundhouses accompanied by ponds, granaries and storage pits (Brück 1999; Brück 2007, 25). These were often set within an enclosure and associated field system (Brück 2000, 285). By the later Bronze Age, which the Phase 2 archaeology at Denham Park Farm represents, there was increasing diversification in settlement types, with settlement similar to those of the middle Bronze Age still present in addition to a range of other site types, including ringworks, early hillforts and hilltop enclosures, midden sites, and timber platforms in wetland contexts (Brück 2007, 25). The archaeology at Denham Park Farm appears not to conform to any of these types of settlement; only one potential roundhouse is present (doubts must be raised about the structural configuration of this possible building; see above) and although it lies in close proximity to a long, straight ditch, it does not appear to have been within an enclosure. In most of northern and western Europe, late Bronze Age settlement appears to be dominated by scattered farmsteads, nucleated settlements being rare.

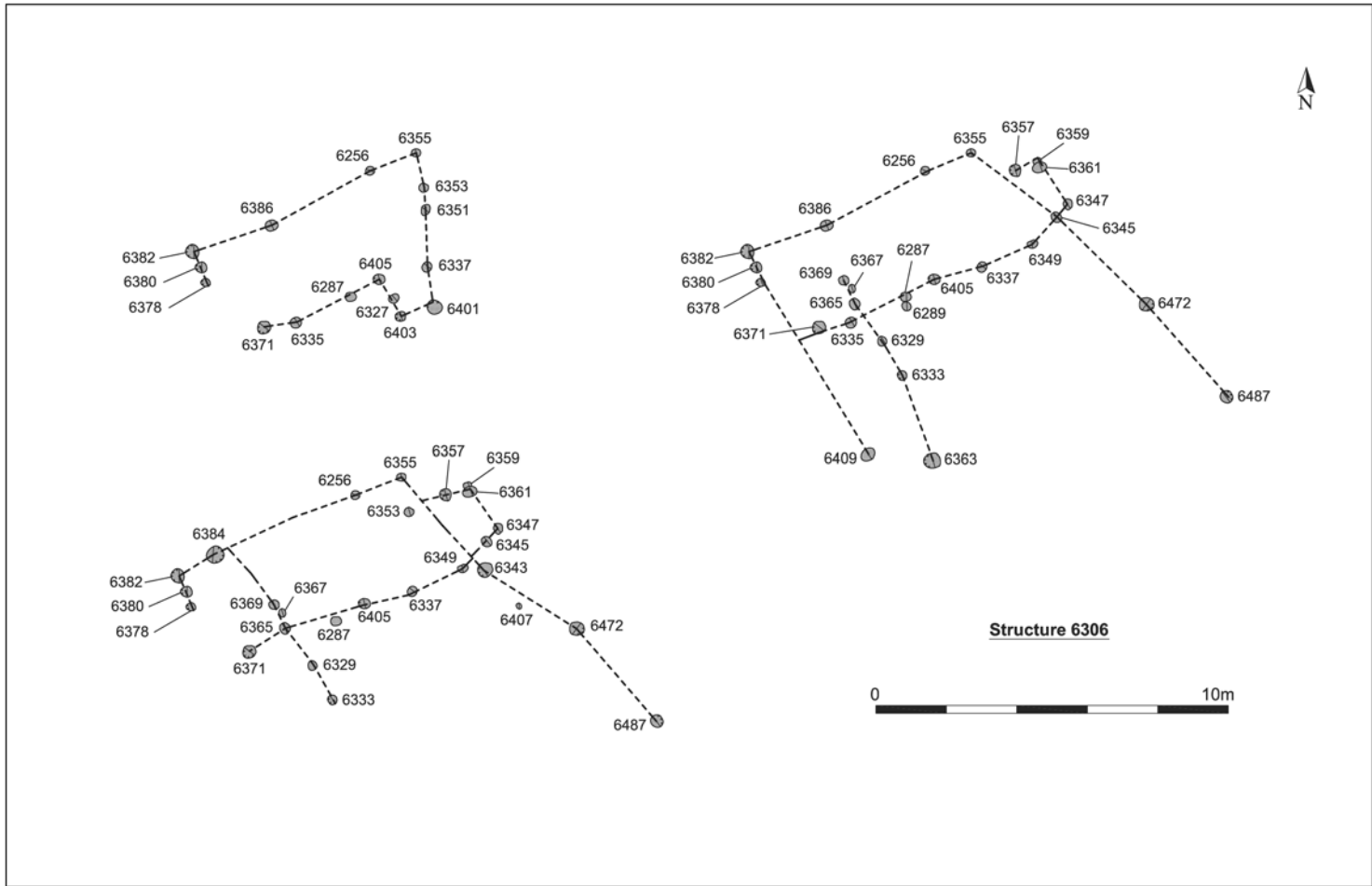


FIGURE 7 Possible configurations of Structure 6306

Particularly in Denmark and the Low Countries these were often occupied by a single household group (Brück & Fokkens 2013, 90). It is possible that the activity recorded here represents a similar type of settlement, consisting of a single household and associated features. Alternatively, and as is suggested by the positioning of Ditch F6603, further evidence for late Bronze Age activity exists beyond the limits of excavation, especially to the south, or was present in the area adjacent to the east, which was subject to excavation in 2014 but which appeared to have suffered significant truncation or damage by later agricultural activity.

The late Bronze Age pottery associated with the Phase 2 features belongs to the post-Deverel-Rimbury tradition. The assemblage is comparable to the style defined at the important Thames-side settlement at Runnymede Bridge (Needham 1996) and has affinities with the post-Deverel-Rimbury 'plain ware' assemblage at Petters Sports Field, Egham (O'Connell 1986, 75). Individual elements of the assemblage are also comparable to the assemblages at other notable local sites such as Reading Business Park (Morris 2004), Aldermaston Wharf (Bradley 1980), and Knight's Farm (Bradley 1980).

The carbonised plant remains recovered from late Bronze Age contexts are typical of the period. The scattered, low-level occurrence of these remains suggests widespread use and processing of cereals, which were probably removed from storage and prepared for use as they were needed. It appears that hulled barley and glume wheat were of importance in the local late Bronze Age economy but it also seems that some other crops that are likely to have been used here, due to their identification at nearby contemporary sites, were not represented in the assemblage. The presence of cultivated crops indicates that there must have been some degree of permanent settlement, supporting the suggestion that further evidence for house structures, enclosures, and the other appurtenances of domestic activity must exist outside of the excavated areas. However, it is understood that there was some fluidity of movement in this period, as is known to have been the case in the earlier Bronze Age (Ashwin 1996; Newton 2013, 16), with people moving around and congregating at certain locations, particularly midden sites, on a seasonal basis (Brück 2007, 26). Work on the midden site at Runnymede in Surrey has shown that the materials present here, such as pottery, were brought to the

site from a wide area (Longley 1980; Needham & Bimson 1988; Needham 1991; Needham & Spence 1996; Brück 2007, 26). Some possibility, therefore, remains that this site was only occasionally (but perhaps regularly) occupied, which could potentially explain the scattered distribution of the pits and other features present here.

The late Bronze Age activity and the surrounding area

The late Bronze Age archaeology recorded at Denham Park Farm appears to represent activity adjacent to, or on the periphery of, a settlement. Based on the positioning and distribution of the Phase 2 features, it appears most likely that any such settlement would have been located to the south of Area 6 in areas that have not been subject to archaeological investigation, or to the east in Area 5, which is archaeologically blank and appears to have suffered from significant plough truncation or similar factors (Fig. 2).

As is noted above, the topographical position of this part of the site may have afforded any settlement located here, or in the immediate vicinity, commanding views of the surrounding landscape and particularly the valley of the river Colne. This potentially provided benefits in terms of defence, communication, control of the landscape, grazing strategies and food procurement/hunting strategies. Limited contemporary settlement evidence is known in the surrounding area but the Colne Valley may have been an important communication link between this site and the settlement activity recorded in the Uxbridge area (HER 52349–50, 56024301, 50243). The various flint scatters that have been recorded in the surrounding area suggest greater utilisation of the landscape than is indicated by the number of known sites bearing evidence for cut features and finds of other types, including pottery (HER 50233) and a bronze palstave found in Rickmansworth (Rawlins 1976), are suggestive of notable levels of activity in these areas.

Early Romano-British activity

Introduction

Features of this date were present across the site (Figs 2-5). Those towards the eastern extent were sporadically distributed and formed no clear structures or systems of land division. The main concen-

tration of activity occurred towards the western extent of the site. These consisted of enclosure ditches, a sub-circular or penannular ditch, and a kiln structure, in addition to several discrete pits.

Discrete Features

A single feature containing Romano-British pottery was recorded in the north-eastern part of the site (GS K15). This feature, F7012 (Figs 2 & 3) appeared to cut the north-eastern end of a short undated gully.

In the excavation area to the south-west of this (Area 2; Grid Squares I9-K14; Figs 2 & 4), six discrete pits/postholes (F5002, F5008, F5010, F5012, F5028 and F5032) and a single layer or deposit (L5026) containing Romano-British artefactual material were sparsely distributed. Several broadly similar but undated features were also recorded in this area; no structural configuration or obvious functional relationships were observed between these features. Two linear features, F5004 and F5018, displaying no clear function but containing Romano-British finds, were also recorded within this part of the site.

Towards the western extent of the site (Area 6), 12 pits/postholes occurring in small intercutting groups or as discrete features, lying in relative isolation, were recorded. The majority of these were located in Grid Squares D7 or E7 (Figs 2 & 5), in close proximity to the area upon which the Romano-British enclosure ditches appeared to converge (see below). Most of these features were dated by the pottery present within their fills. However, F6040, F6088 and F6470 have been tentatively dated as Roman due to the presence of iron slag in their fills which contradicts the date suggested by the late Bronze Age pottery that was also recovered from them. Pits F6758, F6760 and F6762 formed a small group of intercutting features with the undated but stratigraphically later F6764. Pits F6736, F6740 and F6007 were located in area to the immediate east of ditch F6611, to the south of south-eastern terminus of ditch/gully F6728, and amongst a group of undated features of similar size and form. F6770 was a fairly large feature located towards the eastern side of this area of excavation. F6680 was similar in size and located approximately 40m north of F6770. Pit F6627 was a slightly amorphous feature located towards the southern edge of the excavated area in Grid Square D5.

Two discrete gullies, F6728 (GS D7) and F6464 (GS C8), were also located in this area (Figs 2 & 5). They were dateable to the Romano-British period and it seems likely that they functioned in conjunction with the Romano-British enclosure ditches that were also recorded within this part of the site.

Structure 6019 and Oval Enclosure F6036

Structure F6019 (GS C10; Figs 2, 5, 8-10) was an interesting and intriguing feature due to the apparently contradictory artefactual assemblages recovered from it. It is possible that this feature was of late Bronze Age date, based solely on the pottery recovered from it, but other finds and the technological characteristics that it displayed suggest otherwise. F6019 was identified during excavation as a furnace or oven. It was initially considered that the structure took a figure-of-eight form with the eastern end, F6028, forming the furnace chamber and the western end, F6022, forming the stokehole, with the slight depression between them, F6026, representing some kind of flue. Further examination suggests that this is not the case. The presence of slightly more than 15kg of iron slag (including tap slag) suggests that this feature represents an iron smelting furnace which would not have taken the form inherent to the original on-site interpretation. Instead, the clay-lined bowls that F6022 and F6028 appeared to form are characteristic of the lower portions of shaft furnaces (Crew 1995) positioned at the edges of a deliberately cut depression (F6020), designed for ease of access and to facilitate tapping of the slag within the base of the depression. It appears likely that the air inlets to these furnaces would have been on the outer edges of F6020 and the slag outlets facing each other (Fig. 11). Shaft furnaces were usually approximately 0.3m in (internal) diameter, although larger examples are known (Dungworth *et al* 2012); these appear to have been slightly larger. Following demolition of the furnaces, two further pits, F6032 and F6034, appear to have been dug in to their backfill.

All of the slag recovered from the site appears to derive from iron working. The quantity of tap slag present indicates that it derives from the smelting process and that the furnaces were tapping-furnaces, which may be an important indicator of date. No indication of smithing activity, perhaps best represented by plano-convex smithing hearth bottoms (Crew 1996), was present within

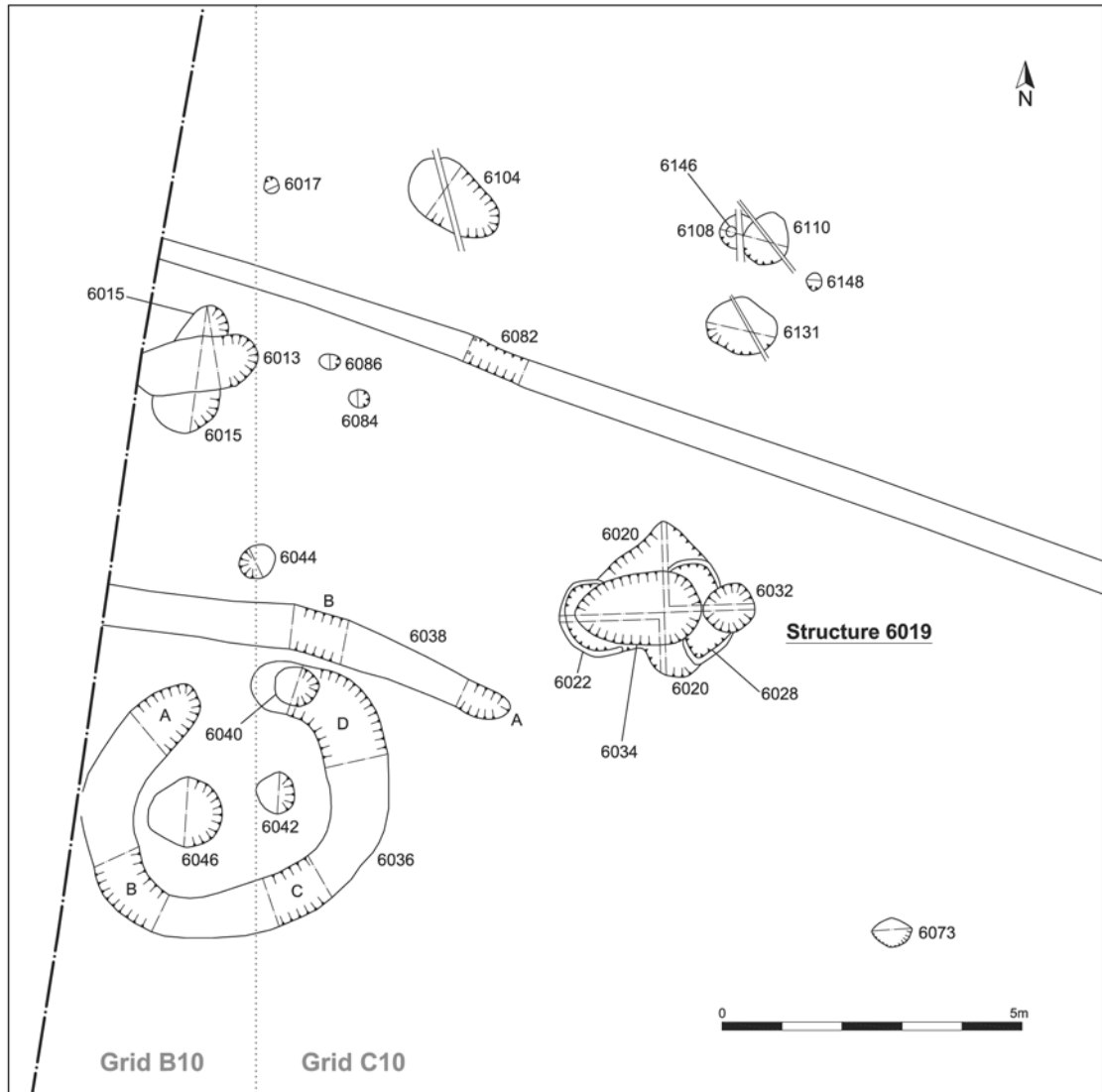


FIGURE 8 Area 6 – northern area detail

this assemblage. The slag itself appeared almost consistently to be a very dense material with little internal porosity. A general low response to a magnet across the assemblage suggests a quite efficient smelting process that removed most of the iron from the ore. The slag appears not to be *in situ* as the material from F6022, for example, comprises tap slag and furnace lining, suggesting that the pit was backfilled with waste material from the operation and destruction of the furnace, rather than the furnace simply being left to fall into

disrepair and subsequent disintegration.

Analysis of environmental samples from the furnace indicates that oak was the primary fuel. It is likely that this was burnt as charcoal and may have come from nearby managed woodland. Dating evidence recovered from this feature consisted of a notable quantity of late Bronze Age pottery (56 sherds; 564g) although in some cases it is possible that elements of this assemblage might run into the transitional period with the early Iron Age. Technologically, however, the suggestion that these



FIGURE 9 Structure 6019 view east, showing furnace bases at either end of the structure



FIGURE 10 Structure 6019 view south, showing furnace bases at either end of the structure

were tapping furnaces would conventionally place them in the late Iron Age or Romano-British period (Bayley *et al* 2008, 43). Salter (1989) has challenged this view and it should be noted that tapped slag has been recovered from the core of the 5th-century BC rampart at Castle Yard, Farthingstone, Northants (McDonnell in Knight 1986–87). This potentially extends the chronology for tapping furnaces much further back than is conventionally accepted, although the evidence is slight and, as Bayley *et al* (2008, 43) note, further evidence is required to realistically challenge this view, but it does not support a date consistent with the pottery evidence for the use of tapping furnaces. In light of the presence of the ironworking residues, it was considered that the ceramic material must be residual, perhaps incorporated in to backfill material dug from the surrounding area when the remains of the furnaces were filled in following their final use and, given the lack of clear evidence for a furnace superstructure, their dismantling. However, while it seems most likely that St6019 relates directly to the more securely dated Romano-British activity recorded in this area, and that the apparent discrepancy between the presence of iron smelting residues and the late Bronze Age pottery is the result of residuality, the possibility of late Bronze Age iron production cannot be dismissed completely as has been demonstrated at Hartshill Copse (Collard *et al* 2006). There, hammerscale from iron smithing was found in late Bronze Age contexts and its density and distribution cannot be explained by post-depositional processes, such as the possibility that this material filtered through as intrusive material from later contexts (Collard *et al* 2006, 395–397).

A large quantity (8751g) of slag and furnace lining was also deposited into penannular Gully F6036, which lay to the south-west of the furnace structure St6019 (Fig. 8). Like the furnaces, the fill of this feature contained late Bronze Age pottery. The proximity of this feature to the furnace structure as well as the presence of slag indicates that there must have been a functional relationship between the two. It is unclear if F6036 denoted an area in which processes associated with metalworking were carried out, or if this feature was simply used as a convenient location in which to dump slag removed from the smelting furnace. With an external diameter of 5.2m and an internal diameter of 3.2m, coupled with the 1m width of

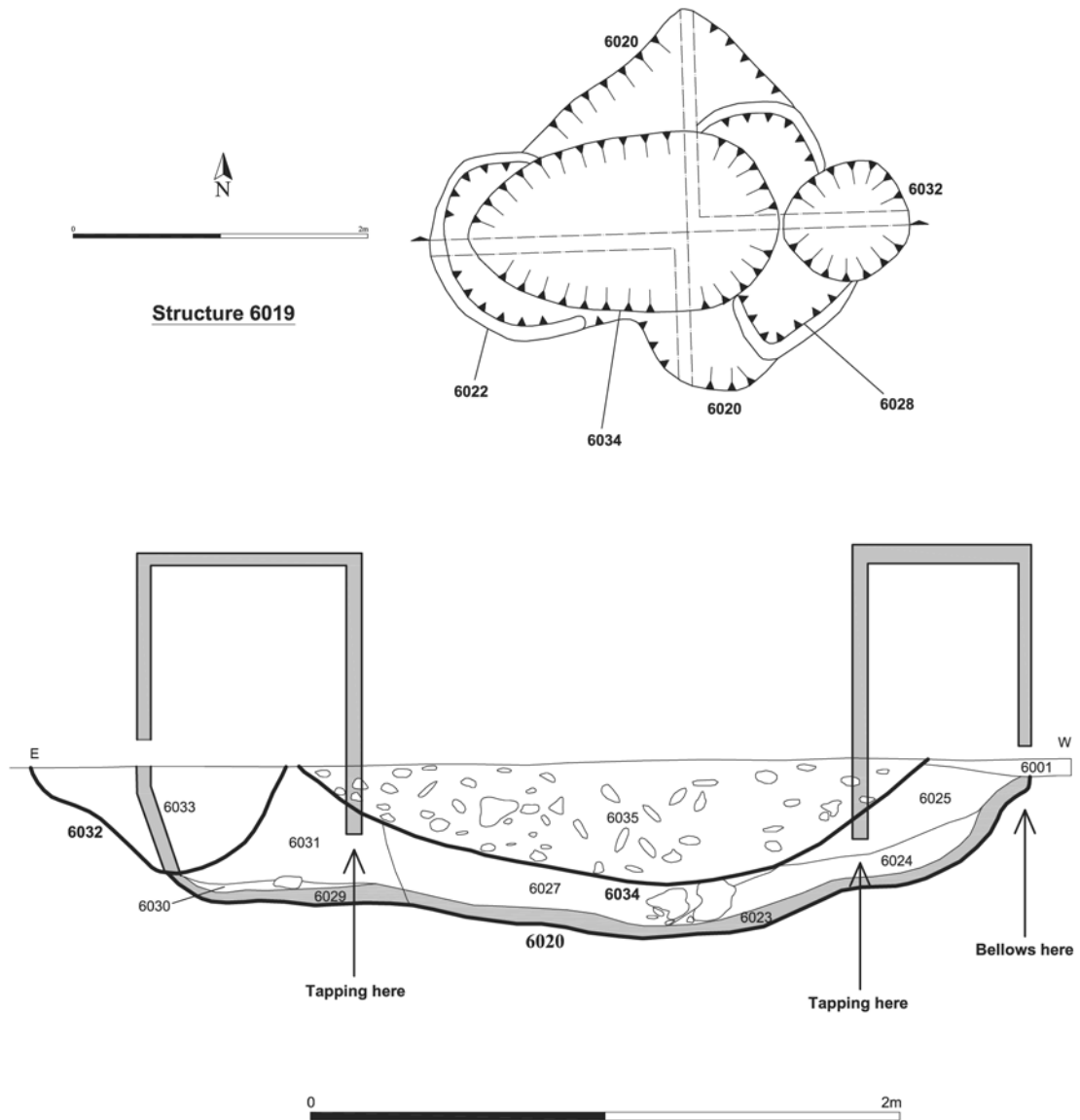


FIGURE 11 Conjectural reconstruction of Structure 6019

the feature itself, it is unlikely that this feature represents a roundhouse; the north-facing entrance would also be a notable deviation from the regularly observed southern or south-eastern position of roundhouse doorways (*cf* Oswald 1997). Similar features do not appear to be present at notable Roman iron smelting sites such as Rathlin Road, Crawley (Pine 2013, figs 2 & 3), Laxton, Northants (Jackson *et al* 1988, figs 3 & 4), St Denys, South-

ampton (Smith 2002, fig. 2), or Westhawk Farm, Kent, where even the 'crescent-shaped feature' associated with Workshop 1 was not comparable to F6036 (Paynter 2007, fig. 6 & 23). Nor were any such features recorded at Hartshill Copse, where indications of late Bronze Age ironworking were recorded (Collard *et al* 2006).

It is notable that both F6036 and St 6019 contained iron slag alongside Bronze Age pottery

but Roman pottery was not present. While Collard *et al* (2006) have demonstrated iron working in the late Bronze Age at Hartshill Copse, the degree of stratification and other evidence noted at that site is not present at Denham Park Farm. The evidence from Hartshill Copse also appears to relate only to smelting or refining, there is no indication that the original smelting of this material was carried out in the British Isles; iron production is understood to have been carried out as early as 2500–2300 BC in central Turkey (Collis 2003, 31) and it must be considered conceivable that small quantities of iron could have made its way to these shores through processes of trade and exchange much earlier than the technology and technical knowledge to smelt it from raw materials did. The presence of so much Bronze Age pottery indicates that there are question marks surrounding the date of these features at Denham but due to the quantity of slag present, current understanding of the chronology of the development of iron working, and the lack of any evidence to suggest otherwise, it must be assumed that the presence of this Bronze Age material, and the lack of Roman pottery, must be nothing more than an anomaly, possibly associated with taphonomic processes and the way that these features were dealt with when they were no longer in use. It appears that the slag was removed from the furnaces and the superstructure demolished; this material was then used to backfill what remained of the furnaces and Gully F6036. It is at this point that the Bronze Age material may have become incorporated, as the slag and furnace remains are mixed with soil dug from the surrounding area to backfill these features.

Crew (1995) notes that the quantity of slag that may be expected from a primary iron production site of Roman date may be as high as a tonne or more. At the late Iron Age and Roman iron production site at Rathlin Road, Crawley, in excess of 121kg of slag was recovered (Pine 2013), while at the large Roman iron working site at Westhawk Farm, 1.65 tonnes of slag were found (Paynter 2007, 17). In comparison to these sites, the single kiln and the 19kg of slag present at Denham Park Farm represents what appears to have been a small-scale smelting operation. It is possible that this represents the work of an itinerant iron worker, or the production of iron to be used in the manufacture of items for a small estate or farmstead. This type of industrial activity is not unusual for this

area; sites across the Solent-Thames region attest small-scale ironmaking, including the continuation of prehistoric traditions alongside shaft furnaces (Fulford 2014, 183).

Enclosure Ditches

As with earlier periods, Romano-British activity appeared to be concentrated mostly towards the westernmost extent of the site. In part this may be a result of taphonomic factors, such as the plough damage which appears to have been sustained within the excavation area to the immediate east but, on the whole, the distribution of archaeological features became increasingly sparse towards the east. Within the westernmost excavation area, however, an arrangement of ditches is suggestive of part of a system of enclosures.

Ditch F6274 ran on a north-west to south-east alignment from beyond the limit of excavation in Grid Square B9 to Grid Square D7 (Figs 2 & 5) where it turned to the south and was recorded as the *c.*10m long F6676. Running on a north to south alignment, within Grid Square D7, approximately 10m to the east of F6676, was Ditch F6700 (Figs 2 & 5).

Slightly to the south of the southern terminus of F6676 was the apex of Ditch F6573. This feature extended from beyond the southern limit of excavation in Grid Square D6, running due north for *c.*50m before turning through 120° and running on a north-east to south-west alignment. On this alignment it re-cut an earlier ditch, F6611, which ran on the same orientation and then continued beyond the southern limit of excavation in Grid Square C5 (Figs 2 & 5). Cut by F6573 at the point at which it turned was the west-north-west to east-south-east aligned ditch/gully F6653. These features combined to form what appeared to be the corner of a large field or enclosure, the interior of which appears to have been to the west. Within this area, the discrete Roman linear features F6728 and F6464 and undated linear F6509 (GS C7-C8; Figs 2 & 5) may have formed a double-ditched boundary or similar arrangement, which appeared in fragmentary form. To the east of this apparent enclosure, undated ditches F6704, F6716 and F6718 appear to form the north-eastern corner of a possibly related enclosure.

The slightly later F6573, which cut F6611 for much of its length, appears to represent some kind of elaboration to the enclosure, possibly

forming a new triangular enclosure appended to its south-eastern side or, if undated ditches F6716, F6718 and F6704 were contemporary with the dateable Roman features, it might have additionally formed a corridor of land between two enclosures. The northerly end of this corridor appeared to open out in to some kind of junction or intersection with entrances to other possible enclosures to the north and east, beyond the limits of excavation and represented at this location by F6676=F6274, F6700, and the undated F6704 (these enclosures were not visible in the excavation area to the east because of the truncation in this area). This junction/intersection has similarities to the prehistoric 'stock management system' identified by Pryor (2001, 417–418) at Storey's Bar Road in the Fengate area of Peterborough. This interpretation of the Storey's Bar Road arrangement does, however, have to be questioned, especially in light of the reconstruction drawing reproduced by Yates (2007, plate 2) and because much of Pryor's (e.g. 2006) interpretation regarding prehistoric farming is based on his own experiences of modern lowland sheep farming, ignoring other farming practices, including even different types of modern sheep farming practiced elsewhere in Britain. Despite this, the implication of such a junction between enclosures is suggestive of pastoral agriculture and the need to move animals between enclosures. Evidence for this type of agriculture is lacking in the form of faunal remains due to the poor survival conditions for bone in this locality. It might, however, be considered to be supported by the limited artefactual (specifically pottery) evidence from the enclosure ditches, which might be seen to indicate that the use of midden material for manuring purposes was not carried out (*cf.* Gaffney & Tingle 1989, 224–225; Dark 2017, 21), and by limited evidence for any kind of arable agricultural intensification (Summers 2018).

Wacher (1978, 111) suggests that bounded enclosures may have been used in a type of crop-rotation system, during which livestock was allowed in the fallow fields to feed off the stubble and weed growth, while at the same time manuring the soil. This suggests that, despite the lack of clear evidence for arable cultivation, the enclosures recorded at Denham Park Farm may represent a mixed farming economy. Pollen evidence from Dorney, approximately 13km to the south-west, indicates that over the course of the Romano-British period

levels of grass, herb, and cereal pollen increased dramatically (Parker *et al* 2008; Rippon *et al* 2015, 135–136) suggesting a shift to mixed agriculture. It seems unlikely, although remains possible, that the enclosures are mustering points for the type of ranch-style farming that Wacher (1978, 111) describes as being associated with open spaces on moor, down, or fen. Fulford (2014, 166) suggests that fields for animal husbandry are less likely to have such pronounced lynchets and banks, as pasture does not result in as much erosion as cultivation, but the possibility that a mixed economy with a system of field rotation was in use would perhaps negate such an assertion. Furthermore, boundaries to corral livestock would have been required to be more imposing than those required to delineate areas of arable cultivation. Indeed, it is not necessary to enclose areas of arable cultivation as there are alternative methods that can be employed to keep pest animals out (Newton 2018, 150). It is likely that the ditches demarcating the enclosures at Denham Park Farm would have been complemented by a bank formed from the upcast generated during their excavation but a bank and a ditch of the proportions indicated by the excavated evidence are unlikely to have proven an insurmountable barrier to most livestock, particularly sheep. To have functioned effectively to control the movement of livestock, these boundaries must also have been augmented by a fence/hurdle line or a hedgerow. As none of these ditches were flanked by rows of postholes, any such fence line must have been situated at the summit of the putative bank.

'Trackways' between and linking fields, similar to those identified here, have been recorded at sites such as Armthorpe, South Yorks (Chadwick 2013, fig. 3 after Hughes 2006 and Roberts 2008) and Dernford Farm, Sawston, Cambs (Newton 2018). There are superficial similarities between the enclosures recorded at Denham Park Farm and those identified at Weedon Hill, Aylesbury (Wakeham & Bradley 2013) inasmuch as narrowly spaced parallel linear features were recorded at both sites. At Weedon Hill, however, these features appeared not to have the same 'trackway' function as those at Denham Park Farm. It is possible that this is because the Weedon Hill site represented enclosures appended to a nearby focus of domestic settlement, whereas the available evidence appears to indicate that domestic activity was not present in particularly close proximity to the Denham

site. The movement of livestock in such paddocks might have been facilitated in a different way to the outer fields of a farmstead or farming estate. However, trackways linking and alongside fields were recorded at Whitelands Farm, Bicester, Oxon (Martin 2011) and these were similar in appearance to the boundaries/enclosures visible within the excavated areas at Denham Park Farm. Unlike the current site, however, evidence for domestic occupation was recorded in proximity to these enclosures (*ibid.*).

The Denham Park Farm site as part of the wider Roman landscape

The Colne and Chess valleys were seemingly relatively well-populated in the Romano-British period, with a number of villa estates, industrial sites and other settlements. However, only sparse Roman remains have previously been recorded close to the Denham Park Farm site.

The position of the site, above the Colne valley and seemingly consisting of agricultural enclosures with a small amount of industrial activity, might indicate that this is an outlying part of one of the known villa estates within the valley of the Colne. At Fordham Road, Soham, Cambs, agricultural enclosures associated with a kiln of unknown purpose, corn-drying ovens, and a pair of ovens constructed from re-used *dolia*, were considered to represent an outlying or satellite component of one of the villa estates known from the surrounding area (Newton 2015). Supporting the link between the Soham site and one of the local villas was the quantity of high-status pottery in the finds assemblage; this was also noted in association with the enclosures recorded at Beck Row, Suffolk (Mustchin 2014), where the quantity of fine wares in the assemblage was considered to be more typical of major urban sites than a rural one, and which was also considered to have been part of an estate linked to a high-status settlement or villa in the local landscape. This was not the case at Denham Park Farm, where the pottery assemblage was suggestive of low-status domestic activity. This does not necessarily negate the suggestion of a link between this site and the Colne valley villa estates; at Fordham Road, Soham, it was suggested that refuse material generated at the high-status dwellings was deposited in or near the enclosure ditches identified at that site and this was not necessarily the case at Denham.

The small quantity of refuse material recorded here could conceivably have been generated by estate workers living here, perhaps temporarily, or regularly visiting this location. The presence of ironworking activity is, however, notable in this regard. It indicates that there were individuals present in the area from whom an ironworker could have made a living; these were skilled craftsmen and were paid accordingly. Diocletian's price edict of AD301 indicates that an ironworker should earn the same as a joiner, cartwright, woodworker, or lime burner (*50 denarii per diem*) and only slightly less than a marble worker or mosaicist (Bernard 2017, 81). Alternatively, an ironworker might have been employed directly by an estate; Palladius's *Opus Agriculturae* of the 5th century advises the masters of agricultural estates to keep their own ironworkers, carpenters, jar- and cask-makers on the estate (Harper 2011, 189). Without further investigation of the surrounding area, however, it is not possible to determine if the Roman archaeology here does indeed represent outlying enclosures forming part of a larger estate or farm, or if it represents lower-status land holding belonging to a skilled craftsman/men (the ironworker/s associated with the furnaces) and associated agricultural activity designed to supplement their income.

Features further to the east are more sparsely distributed. It is possible that several of the undated features towards the eastern extent of the site are of Romano-British date but very few form coherent enclosure forms or structural configurations.

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