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A LATE IRON AGE AND EARLY ROMAN SETTLEMENT AT LEYBOURNE GRANGE, WEST MALLING, KENT

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Summary

Excavations were undertaken in four areas (A to D) in 2009 by Oxford Archaeology at the site of Leybourne Grange hospital to the north-west of Maidstone, Kent, in advance of residential development. A watching brief was subsequently maintained on other areas, though archaeological remains were confined to one area (E). Residual worked flint, including a polished axehead, points to Neolithic activity in the area. More worked flint and pottery tentatively dated a ditch in Area D to the late Bronze Age. The most significant activity dated from the late Iron Age to early Roman period. In Area A, a large enclosure, which contained pits and a four-post structure, was established in the late 1st century BC or early 1st century AD. This was replaced by a second enclosure, which contained a group of inter-cutting pits. Pottery suggests that the ditches were infilled within a few decades after the Roman invasion of AD 43. A series of late Iron Age and early Roman narrow field or boundary ditches were recorded in the southern part of Area A and Area D. Another enclosure, dated to the late Iron Age, was recorded in Area E. Significant amounts of pottery – mainly locally-produced, but also including imported amphora and Gallo-Belgic wares – were recovered from both the ditches and pits. Together the excavated evidence suggests a low-status rural settlement. A U-shaped arrangement of square pits belongs to the post-medieval period and may relate to extensive tree-planting carried out in the 19th and 20th centuries.

INTRODUCTION

Location and scope of work (Figs 1-3)

The site of Leybourne Grange, West Malling, Kent (NGR: TQ 678 593) is located to the west of Leybourne village and to the south of the M20 motorway within the grounds of a former hospital (Fig. 1). The site was identified as an area for residential development, and a condition attached to planning permission (planning application reference TM/94/1253/OA) required a programme of archaeological work to be carried out prior to development. Two phases of evaluation (MoLAS 2003; Riccoboni 2008) informed the production of a written scheme of investigation, which set out the specification for further investigation designed to mitigate the effects of the development (Waterman CPM 2008a, 1). Accordingly, four areas – defined with reference to location of archaeological remains as indicated by the evaluations, the presence of standing buildings, and the limits of the development – were subject to a 'strip, map and record' excavation in 2009. The areas concerned were designated as areas A, B, C and D (Figs 2 and 3).

Area A covered an area 5009.39 m², Area B was 871.35 m², Area C was 372.14 m² and Area D was 683.744 m². During the excavation of Area A, a small extension at the eastern edge of the trench was requested by Wendy Rogers, Senior Archaeological Officer for Kent County Council, in order to reveal the full outline of a posthole structure and clarify aspects of a ditched enclosure. The areas also took into account a number of constraints. In the north there was a root protection zone, to the north-east a tree which was retained as a bat roost, to the south and west, there were two-metre deep service ducts, and an area of fuel tanks was located in the south-western corner.

A watching brief was subsequently maintained in other areas of development from 2011, continuing until 2017 (Fig. 2). This was conducted in several phases. Phase 2 (that is, the first phase of watching brief, but the second phase of archaeological work, excluding the evaluations) was undertaken in an area immediately to the east of excavation area A. An area of 1102.59m^2 was exposed and designated Area E. Two trenches, X and Y, were dug to the south of this area. Archaeological remains were recorded in this area and the trenches, and are reported on below. Phases 3, 4 and 5 were located to the east and north of the excavation. No archaeology was revealed during these phases of work. In addition, historic building recording was carried out on two buildings – Gardener's Cottage and Manor House – within the grounds of the former hospital. These are subject to separate reporting and are not described further here.

A summary report of the findings will be published in due course in *Archaeologia Cantiana*. An expanded pottery report is presented in volume 17 of the *Journal of Roman Pottery Studies* (Biddulph, forthcoming).

Fieldwork methodology

The overburden was stripped from the site under archaeological supervision using a 360º mechanical excavator with a toothless ditching bucket until the first archaeological deposit or the natural soil was encountered. A provisional pre-excavation plan of the stripped areas was digitally produced using a Leica RX 1250EX Smart Rover GPS system. Hand excavation of the archaeological features followed. All archaeological deposits were allocated a unique context number. Plans and sections of individual excavated slots were drawn at a scale of 1:20. The locations of the individual plans and section lines were tied into the overall digital site plan using a Leica total station or GPS system. Features were also recorded by colour slide, monochrome film and digital photography.

Finds were recovered by hand during the course of the excavation and generally bagged by context. Finds of special interest were given a unique small find number. Soil samples were collected in order to assess deposits for palaeo-environmental evidence. Priority was given to the basal fills of features and those showing visible signs of preservation of charred remains.

Geology and topography

The site is situated on the edge of the Lower Greensand Group and Hythe Formation, with the Upper Greensand and Gault Formation to the north (BGS, nd). The bedrock is overlain by drift geology of Head deposits with alluvial deposits to the south and west along the River Lilleburn. The site is highest at the northern part of Area A, which lies at *c* 32 m above Ordnance Datum (OD), and lowest in areas B and C and the southern part of Area A, in which a general height of 31 m OD was recorded. The slope resulted in thickening of a colluvial soil towards the south. Area D lay at a height of *c* 32 m a OD. The overburden encountered in all areas was up to 1 m thick. The 'natural', encountered during both evaluations, consisted of a mixture of sands and gravels in a clay matrix.

Archaeological background

Prior to two phases of evaluation at the hospital site, no prehistoric or Roman activity was known in the immediate area, although occasional Roman-period finds – including pottery and a 3rd-century coin – had been recorded at West Malling (Riccoboni 2008, 5). An archaeological evaluation undertaken by MoLAS in July and August 2003 identified archaeological remains within eight of the 39 trenches (MoLAS 2003). The evidence consisted of a series of ditches, gullies, pits and postholes, which pointed to a late Iron Age or Roman-period settlement site. All the features were sealed by a layer of colluvium. A second evaluation, undertaken by Archaeology South East in

December 2007, recorded features to the south of the area identified by the MoLAS evaluation (Riccoboni 2008). The work encountered ditches, which contained pottery of late Iron Age and Roman date, and a small pit, which contained one sherd of pottery tentatively dated to the later Bronze Age.

Excavations by Wessex Archaeology along the route of a bypass connecting Leybourne and West Malling uncovered evidence at least two areas of late Iron Age and Roman activity (see Fig. 19). One area was located *c* 1 km east of Leybourne Grange, while the second was 1.5 km south-east of the site. Both areas contained enclosures, ditches, and pits (Ellis 2009).

The hospital site is set within the parkland landscape of the estate belonging to Leybourne Castle (SAM 23023), *c* 800 m to the east, or the post-medieval Leybourne Grange country house estate. There was extensive tree planting in the 19th and 20th centuries relating to the hospital (Waterman CPM 2008a, 3).

ARCHAEOLOGICAL DESCRIPTION

Earlier prehistoric (c 4000 BC-700 BC) (Fig. 4)

Features potentially dating to the Neolithic and late Bronze Age were uncovered in Area D (Fig. 4). A roughly NE-SW-aligned ditch, which extended beyond the southern limit of the area, was examined with two interventions. The ditch measured on average 0.7 m wide and 0.3 m deep. The single sandy clay fill within the northern terminus (4009) contained a denticulated flint blade of Neolithic date. Some 10 m to the east, ditch 4042, which measured 0.4 m wide and 0.2 m deep and was also orientated NE-SW, may have been filled later; a fragment of a fine sandy fabric with sparse flint, tentatively dated to the late Bronze Age, and four flint objects (two flakes and two blades) of uncertain date were collected from the ditch's single silty clay fill (Fig. 4). To the ditch we may add a pit (4039) that measured 1 m across its widest extent and 0.45 m deep. It was previously excavated by ASE during the 2007 evaluation (Riccoboni 2008, 24), and produced worked flint and pottery tentatively dated to the late Bronze Age. Another pit (4021), which measured 0.6 m wide and 0.2 m deep, was recorded to the east of 4040. An association with pit 4039 or the ditches is possible, though no dating evidence was available.

No other features were assigned to the earlier prehistoric period, but struck flint, including a flint axe, and a small amount of earlier prehistoric flint flakes recovered as residual occurrences in late Iron Age and early Roman features confirm Mesolithic, Neolithic and Bronze Age activity in the area. Given the small quantities recorded, it remains a possibility that the material collected from ditches 4009 and 4042 is also residual.

Late Iron Age (c 50 BC-AD 43/50)

Area A (Figs 5-7)

Excavation of Area A (Figs 5 and 6) revealed an enclosure complex that was first occupied during the late Iron Age. The earliest recorded activity was seen in the north-west part of the excavated area. Ditch 1079 defined the corner of an enclosure that measured at least 12 m by 20 m. Interventions through the ditch gave an average width of 0.65 m and depth of 0.16 m. Two fragments of sandstone-tempered pottery were recovered from the enclosure's single fill. Ditch 1079 appeared to intersect ditch 1109, but any relationship was obliterated by later features, including late Iron Age pit 1070 and ditch 1107, which filled during the early Roman period. Ditch 1109 remains undated, though it may be associated with ditch 1179, which more or less shares its N-S orientation. Ditch 1179 averaged 1 m wide and 0.3 m deep and contained sand-tempered

pottery to similarly suggest late Iron Age filling. Ditch 1382, measuring 0.3 m wide and 0.1 m deep, was another stratigraphically early feature, as it was cut by ditch 1179. A single sherd of shelly pottery places it in the late Iron Age. Ditch 1382 may be related to the equally-slight ditch 1041; they share orientation and dimensions and could define a five-metre wide trackway, though this interpretation is very speculative. A bead-rimmed jar in a sandstone-tempered pottery fabric was recovered from the feature.

A larger enclosure, approximately 50 m by 60 m, was defined by ditches 1377 and 1381. This may have replaced the enclosure represented by ditch 1079, although there was no physical relationship between the two, and 1079 might instead have been an internal feature contemporary with the larger enclosure. Ditch 1377, part of the west side of the enclosure, measured 1.6 m wide by 0.6 m deep and had a variable U- or V-shaped profile. It was filled by a single clay-sand deposit that contained 26 fragments of grog-tempered and glauconitic pottery broadly dated to the late Iron Age. Ditch 1381 represented the north and east sides of the enclosure. The north side was orientated at 90º to 1377 and the two are likely to have met, but the junction could not be investigated as it lay beyond the area of excavation. Ditch 1381 along the north was of similar dimensions and profile to 1377 – 1.5 m wide, 0.7 m deep with a concave base – and was filled with up to two clay-sand deposits (Fig. 7, section 1082). These contained a relatively large ceramic assemblage dominated by grog-tempered wares, but included shelly wares, glauconitic wares and possible Italian amphora fragments, which point to deposition in the early or mid 1st century AD. The east side of 1381 cut ditch 1386. The earlier ditch was 0.7 m wide and 0.6 m deep (Fig. 7, section 1088). Pottery recovered from its single fill included a grog-tempered ware storage jar, a bead-rimmed jar in a glauconitic fabric, and a white-slipped oxidised fine ware, which together suggest a date after AD 43 for deposition, although this post-conquest material was probably intrusive. Ditch 1381 extended for *c* 60 m on a NNE-SSW orientation and terminated, and at this point had reduced to 0.86 m in width and 0.43 m in depth. A large amount of pottery was dumped in the ditch. One intervention (1211) contained 470 sherds, which included bead-rimmed jars in sandstone-tempered fabrics, cordoned jars and bowls in grog-tempered wares, a butt-beaker in a glauconitc fabric, and a range of probably imported fine wares, terra rubra and a whiteware flagon among them. These date deposition to around the second quarter of the 1st century AD, and are consistent with the dating evidence from other parts of the enclosure. Ditch 1365 may have formed the south side of the enclosure. However, it was slighter and shorter and contained pottery that suggested that it was a later feature, and it is likely that the enclosure was open here.

The space within the enclosure was sparsely occupied, but a number of features do reveal something of the nature of activity. Pits were recorded in the northern part of the enclosure. Pits 1038 and 1256 both measured *c* 1.5 m in diameter and had similar straight-sided, flat-based profiles. Pit 1256 was deeper at 0.85 m, compared with 0.18 m for 1038, but 1038 may have lost depth through later truncation. Their broad similarity, however, does suggest a shared function (see Discussion). Pit 1268 was different. It was rectangular in plan, measuring 1.8 m along its length, and was up to 0.5 m in depth. Its profile – steep on one side and gently sloping on the other – suggests that its function was different from 1038 and 1256. The pit contained a dump of charred plant remains (see K L Hunter, below), pointing to the use of the feature as a waste pit, although whether this was the pit's primary purpose is not certain. A group of four inter-cutting pits were located nearby. The largest (1070) measured 3 m across its widest extent, and was 0.7 m deep. It had gently-sloping sides, which became vertical near its flat base. Pottery from the feature – including grog-tempered ware and a lid-seated jar in shelly ware – suggests that it filled during the first half of the 1st century AD or later. A further three pits (1057, 1094 and 1098) were smaller than 1070, measuring up to 1.6 m wide and 0.5 m deep. The precise relationship between the four pits could not be ascertained, but they are likely to have post-dated enclosure ditch 1079, and it was certain that all were cut by ditch 1107.

A four-post structure (1132) was recorded in the southern half of the enclosure. The

postholes measured on average 0.5 m in diameter and 0.15 m in depth (Fig. 7, sections 1035-8), and formed a 2 m wide square. The few sherds of pottery recovered from the postholes were consistent with a late Iron Age date. Three pits south of 1132 (1148, 1149 and 1157) has similar steep-sided and flat-bottomed profiles, although they were not identical in size; the smallest (1157) was 1 m wide and 0.15 deep, while the largest (1148) was 1.9 m wide and 0.2 m deep. Dating evidence from the pits comprised late Iron Age glauconite- and quartz-tempered fabrics. Measuring up to 0.8 m in diameter and 0.3 m deep, pits 1137 and 1139, immediately south of 1149, were smaller than the pits to their north. The edges of 1137 were scorched, and the pit fill contained abundant charcoal and an intensely burnt glauconite- and grog-tempered jar. Pit 1139 also contained charcoal, but showed less evidence of *in-situ* burning. Nevertheless, both features are likely to be identical in function, probably serving as hearths. A number of postholes (1207, 1209, 1306) were recorded in the southern part of the enclosure, but these did not form a coherent pattern and it is uncertain whether they relate to a single or multiple structures. A terminus of a ditch or gully (1078) was also seen in this area, but apart from being filled in the late Iron Age, judging by the pottery collected from it, little about the feature can be said.

Two ditches were uncovered at the south-eastern part of Area A. Ditches 1379 and 1380, which extended beyond the edge of excavation, were both orientated NE-SW, but the former was the wider of the two, being *c* 1.5 m wide, compared with *c* 1 m for 1380. The features were, however, more similar in terms of depth and profile. No pottery was collected from 1380, while 1379 contained two sherds of sandstone-tempered pottery. Their shared orientation, and the fact that they were both cut by later ditch 1364, suggests that 1379 and 1380 were contemporary and associated with each other.

Area D (Fig. 4)

Three ditches, all aligned NE-SW, were assigned to the late Iron Age (Fig. 4). Ditch 4040, which extended beyond the edge of excavation, measured on average 0.5 m wide and 0.25 m deep. It had a concave profile and contained a single sandy clay deposit. No finds were recovered, and it is likely that the ditch filled through natural processes. Ditch 4041 emerged from the northern edge of excavation and continued for 15 m before terminating. It cut the putative late Bronze Age ditch 4042. Ditch 4041 was wider than 4040; an intervention through the feature revealed a concave profile with dimensions of 1.7 m wide and 0.46 m deep. Like 4040, ditch 4041 contained no finds, although charcoal and fired clay fragments were encountered in its single silty-clay fill. Ditch 4043 measured 0.6 m wide and 0.15 m deep. It had a flat base and moderately-steep sides and contained a single silty deposit that largely accumulated naturally, although very occasional deposition through human action is evident from a single sherd of pottery that gives deposition a late Iron Age date. Infilling of ditches 4040 and 4041 is tentatively assigned the same date.

Area E (Fig. 11)

The north-west corner of an enclosure defined by a ditch (5038) was exposed (Fig. 11). Interventions through the ditch revealed the feature to be on average 2.47 m wide and 0.5 m deep and have gently sloping sides and a concave base. The ditch was filled by up to two episodes of deposition. The silty sand deposits contained 151 sherds of pottery of late Iron Age date, principally grog-tempered, but also including shell, flint and glauconite tempered fabrics. The ditch was also recorded in Trench X 9 m to the south of Area E. Two pits were seen inside the enclosure. One of these, 5004, is tentatively assigned to this phase on account of a single sherd of shell tempered pottery recovered from its single silty sand fill and the feature's proximity to the ditch. The pit was oval in plan and measured 2.3 m across its widest extent and was 0.32 m deep.

Late Iron Age/Early Roman (c AD 10/43-70/100)

Area A (Figs 5-9)

The east side of the enclosure defined by ditches 1377 and 1381 was re-cut, relating to a complete replacement of the late Iron Age enclosure (Figs 5 and 6). The replacement, defined by ditches 1107, 1383 and 1385, was trapezoidal in shape with parallel north and south sides. It is not certain that 1107 and 1385 connected with the north side, 1383, as the junctions lay outside the area of excavation. However, the ditch alignments and chronology make it very likely that 1107, 1383 and 1385 are part of the same enclosure. This being the case, the enclosure was *c* 65 m from north to south, and was widest across its southern end, *c* 50 m, narrowing to *c* 30 m across its northern end. The east side of the enclosure, ditch 1385, cut ditch 1381 (Fig. 7, sections 1082 and 1088).

Ditch 1107, the enclosure's west side, was 1.5 m wide and 0.6 m deep. Interventions through the feature showed a V-shaped profile with gently-sloping sides and, in one section, a base formed from a narrow slot with a flat base and steep sides. The ditch filled in up to three episodes of deposition. Dating evidence consisted of some 170 sherds of pottery. These included storage jars in shelly and grog-tempered wares and a fine white ware, probably imported from Gaul, which collectively provide a date for deposition in the second quarter of the 1st century AD. The terminus of ditch 1107 was not uncovered, but it plausibly continued northwards to meet the north side of the enclosure, ditch 1383. At 1.3 m wide and 0.4 m deep, this was narrower and shallower than 1107. Sections through the ditch showed a profile with a concave base and gently-sloping sides. Up to two fills accumulated in the ditch, and these contained 50 sherds of pottery comprising fine white ware accompanied by grog-, glauconite- and sandstone-tempered fabrics, which potentially offer a date after AD 43. Ditch 1385 formed the east side of the enclosure, and also turned to define the enclosure's south side. In five interventions across the east ditch, the feature averaged 1.5 m wide and 0.6 m deep (Fig. 7, section 1082; Fig. 8). The south ditch, as recorded in three sections, was on average narrower at 1.3 m and shallower at 0.5 m. The profile of the east ditch comprised moderately steep convex or stepped sides and a narrow rounded or flat base. The ditch was filled in up to two episodes by a sequence of natural deposition (erosion and weathering), and deliberate dumping. One section through the ditch contained a large assemblage of 530 sherds of pottery that included large fragments and near-complete vessels. A fine sandy oxidised beaker and fine white wares in association with a cordoned pedestal bowl in glauconitic ware, and bead-rimmed jars in grog-tempered ware and sandstone-tempered fabrics are likely to date deposition to the mid 1st century AD onwards. The enclosure's southern ditch had a U-shaped profile (except at the western extent of the exposed ditch, which was irregular), and contained up to three fills deposited mainly through natural processes. Little pottery was recovered, although it was consistent with that from the enclosure's east ditch. The enclosure's south ditch was a re-cut. A section through the feature (1160) recorded a trace of an earlier ditch (1162). The substantial remains of a glauconitic bowl, dating to the late Iron Age up to *c* AD 50, were collected from 1162. Ditch 1107, the enclosure's west side, also represented a re-cut. It cut curving ditch 1108. This measured 0.5 m wide and 0.14 m deep. The ditch was filled by up to two deposits, from which late Iron Age pottery was recovered.

Features within the enclosure were confined to a group of inter-cutting pits (Fig. 7, sections 1094-95). The stratigraphy was not clear, but in plan pit 1302 appears to have been one of the earliest features in the sequence. It was 1 m wide and 0.34 m deep and had concave base and sides. It contained a single fill from which a fragment of grog-tempered ware was recovered. It should be noted, however, that in section (Fig. 7, section 1095), 1302 is shown to be later in the sequence of pits. Pit 1316 was also potentially early. It was cut dug into the natural soil, was oval in plan and measured 1.5 m across its widest extent and 0.3 m in depth. In section it had an asymmetrical profile, ranging from steep to gently sloping. The pit contained a dump of charcoal and burnt soil, possibly the remains of a hearth. No dating evidence was recovered, but pit 1298 is recorded as

cutting 1316, although in plan the relationship is less clear. Pit 1298 was filled with two sandy silt deposits, one containing 150 fragments of pottery with a group date of *c* AD 40-55; in addition to grog-tempered ware that dominated it, the group included Patch Grove ware and a sherd of a fine sandy oxidised ware. The pit measured 3 m across its widest extent and 0.7 m in depth, and had stepped sides and base. After it had been infilled, the feature was cut by a further five pits. Like 1298, pit 1299 was large at 4 wide and 0.8 m deep (Fig. 9). It had an irregular profile, its sides ranging from gently-sloping to steep. The pit had a complex sequence of filling, for which deliberate backfilling and dumping was largely responsible, although one deposit can be attributed to natural silting and erosion of the pit's edges. A deposit of stones was recorded along western side of the pit. The apparently haphazard nature of the deposit suggests that the stones were dumped, rather than laid to create a lining. Some 290 sherds of pottery were recovered from the feature. Dominated by grog-tempered wares and glauconitic fabrics, the assemblage retains a late Iron Age character, although a fragment of a South Gaulish amphora and the feature's stratigraphy indicate that the pit was dug and backfilled in the mid 1st century AD. Pits 1295 and 1297 were similar in their dimensions, averaging 1.4 m wide and 0.3 m deep. Profiles were variable. Pit 1295 had a concave base and gently-sloping sides, while 1297 had a flat base and moderately steep sides (*c* 45º). Pottery from the features was late Iron Age in character. Pit 1297, however, contained Patch Grove ware, which supported the post-conquest date offered by the stratigraphy. Feature 1259 was also dug into pit 1298. At 0.7 m wide and 0.3 m deep, it was smaller than the others. In addition, its edges were burnt during its use, and the pit contained charcoal and lumps of burnt clay. These factors suggest that the feature served a function different from the other pits. The excavator suggested that the feature was a cremation grave. The absence of human bone renders this – and related interpretations, such as a pyre – unlikely, but a hearth is a plausible alternative. Thirteen sherds of late Iron Age or mid-1st-century grog- and glauconite-tempered pottery (none of it burnt) were retrieved from the feature.

A sequence of ditches and narrow enclosures was exposed along the southern part of Area A. Ditch 1363 was the earliest. It extended on an ESE-WNE alignment for at least 70 m, terminating near the western limit of excavation and continuing beyond the eastern boundary. The ditch cut the eastern edge of late Iron Age enclosure ditch 1381, appearing to terminate here before resuming its course westwards (Fig. 7, section 1059). Five slots through the ditch give an average width of 0.95 m and depth of 0.3 m, and indicate a concave- or U-shaped profile. The latest pottery from the ditch included fine sandy oxidised ware in association with grog-tempered, glauconitic and shelly pottery, offering a mid-1st century date for deposition. The ditch was cut by ditch 1378, a NNE-SSW orientated ditch that extended for 10 m. It may have turned west at its southern end, but the junction was obscured by later ditch 1364. A U-shaped profile, 0.9 m wide and 0.2 m deep, was recorded in sections across ditch 1378 (Fig. 7, sections 1057 and 1061). Its single fill contained a seven sherds of pottery dating to the late Iron Age or mid-1st century AD. The ditch was in turn cut by ditch 1364, which also cut late Iron Age features 1379 and 1380. Ditch 1364 extended for over 90 m on an ESE-WNE alignment, continuing beyond the east and west limits of excavation. Like 1378, ditch 1364 had a shallow U-shaped profile 0.6 m wide and 0.3 m deep (Fig. 7, section 1061). The latest pottery from the feature included fragments of white ware and sandy grey ware pottery, which in association with grog-tempered and shelly wares, indicate a post-conquest date for deposition, though probably no later than *c* AD 70. Another ditch, 1365, was recorded in this area. Ditch 1365 measured 1.14 m at its widest extent and 0.3 m in depth. It extended for 25 m on the prevailing WNE-ESE orientation and had a concave profile. It contained up to two sandy-clay deposits, which contained an oval-bodied necked jar with a hooked everted rim in a fine sandy grey ware which typically dates to the 2nd century onwards, although it was found in association with standard late Iron Age pottery, and so a late 1st-century date may be more appropriate.

A row of postholes, a fence line or palisade, was parallel (and possibly associated) with ditch 1363. Postholes 1153, 1155 and 1271 had an average diameter of 0.5 m and depth of 0.2 m. Pottery

recovered from 1153 included coarse and fine oxidised fabrics and grog-tempered ware, suggesting a mid-1st century or later date for deposition. The excavator noted that pottery was brought to the surface around 1155 by machining, though none was retained.

Area C (Fig. 10)

A ditch (3007) was recorded through three interventions. It extended on a WNW-ESE alignment from the east edge of excavation for some 13 m before terminating. The ditch was widest at the point at which it continued beyond the excavated area, being 2.4 m wide and 0.4 m deep. At its terminus, the ditch measured 0.6 m wide and 0.1 m deep. The feature had steep sides and a concave base, and was filled with a single deposit that contained sandy grey ware and a fragment from a South Spanish amphora in association with grog- and glauconite-tempered pottery, which suggests a mid-1st century or later date for deposition. The ditch may have been cut by a N-S orientated ditch, 3015, although the relationship between them was unclear. The ditch measured 2.8 m at its widest extent and 0.4 m deep, and had a U-shaped profile. No dating evidence was recovered, so the feature remains undated.

Trench X (Fig. 11)

The terminus of a ditch and its recut were recorded in Trench X to the south of Area E. The earliest cut (5050) was a steep-sided feature with a flat base. It was 0.4 m deep and at least 0.45 m wide and terminated with a rounded end. The terminus contained a single silty clay fill, from which a sherd of glauconite-tempered pottery was recovered. The feature was recut by 5045, which was almost identical in profile and measured 0.4 m deep and 0.65 m wide. The recut was filled by a single sandy silt deposit, which contained 17 sherds of pottery, including Patch Grove ware, grog-tempered ware, and glauconitic ware. The terminus cut late Iron Age enclosure ditch 5038, and may mark the eastern extent of ditch 1363 in Area A, on which the terminus appears to be aligned.

Post-medieval/modern

Area A (Figs 5 and 12)

An oval enclosure (1251) 11 m wide and at least 10 m long was modern in date. It was located immediately east of ditch 1385 and comprised at least nine square pits approximately 0.6 m wide and 0.2 m deep (Figs 5 and 7, sections 1072, 1074-75). A glazed fragment of medieval tile and two fragments of modern ceramic building material were recovered from two pits. The modern date is supported by environmental samples collect from the features, which were found to be rich in modern root, seed and insect material.

Posthole 1144 is tentatively assigned to this phase on the basis of a fragment of modern brick or tile recovered from it. Given its chronological and spatial isolation, the feature might more properly date to the late Iron Age or early Roman period, assuming that the ceramic material is intrusive.

Area C (Fig. 10)

An L-shaped gully was recorded in Area C. Sections across the feature (3009 and 3011) gave average dimensions of 1.2 m wide and 0.15 m deep. Seven fragments of modern brick and tile were recovered from the feature.

Area E (Fig. 11)

The cuts of a Victorian water pipe trench (5020/2028/5037) and other service trench (5018) of probable Victorian date were recorded. Both were orientated NE-SW and roughly parallel. The water pipe trench was seen in Trench Y, but 5018 was not present in Trench X, suggesting that 5018 terminated before reaching Trench X or extended to the south of it. It is likely that the trenches were dug to service a stable block to the north-east.

Unphased

Area A (Fig. 5)

Ditch 1366 was a curving feature that continued beyond the southern limit of excavation. The feature was 1 m wide and 0.25 m deep. No finds were recovered, and dating is uncertain, but the ditch must have been dug in the Roman period or later, since it cut ditch 1379.

Three stakeholes (1335, 1337 and 1339) were seen in the south-eastern corner of Area A. These were on average 0.15 m in diameter and 0.2 m deep. No dating evidence was present, although one stakehole (1335) was cut by ditch 1366. Posthole 1284, 0.6 m in diameter and 0.3 m in depth, was seen at the terminus of ditch 1365. No dating evidence was recovered, and its association with 1365 and surrounding features is not certain.

Area E (Fig. 11)

Pit 5013 was located inside late Iron Age enclosure ditch 5038 and 3.5 m south-east of pit 2004. It measured 1.4 m across its widest extent and 0.15 m in depth, and was filled by a single silty sand deposit. The feature contained no pottery and remains undated, though a late Iron Age or early Roman date seems likely. Ditch or gully 5024/5026 to the north of ditch 5038 extended on a NWE-SSW orientation. Its southern terminus was recorded 8.5 m from the north edge of excavation. An intervention through the feature indicated that it was 0.7 m wide and 0.1 m deep and had a concave or bowl-shaped profile. No finds were recovered.

THE FINDS

The lithics

By David Mullin

A total of 42 lithic items were recovered from the excavations at Leybourne Grange. These included Neolithic scrapers and a polished flint axe. In addition, a total of 120 pieces of burnt flint weighing 575 g were recovered from 18 contexts.

Burnt unworked flint (Table 1)

The largest amount of burnt unworked flint was recovered from context 1261, a fill of pit 1259. A total of three pieces, but weighing 160 g were recovered from context 1375, fill of pit 1299 (also recorded as cut 1333) (Table 1).

Worked flint (Table 2)

A total of 42 pieces of worked flint were recovered from 24 contexts from across the site (Table 2). The largest number from any context was three from 1063 (fill of ditch 1066), three from 2003 (the

subsoil) and three from 4004 (fill of gully 4003). All other contexts contained only single items, except context 1332, fill of pit 1299, which also contained late Iron Age pottery. Flint chips (less than 5 mm by 5 mm) were also recovered from seven contexts. The material is dominated by undiagnostic waste flakes, but there is a small Mesolithic element which includes microblades from context 1262, fill of pit 1298, and context 1286, fill of pit 1284, and microblade shatter from 1063, a fill of ditch 1066. Some of the waste and blade-like flakes may also belong to this period.

Neolithic scrapers were recovered from 1030, a fill of ditch 1031, and again ditch fill 1063, while an early Neolithic denticulated blade was recovered from 4010, a fill of ditch 4009. Retouched notched flakes were also recovered from 3008 (ditch 3007) and subsoil 4001 and these too are likely to be of Neolithic date. The most striking and chronologically diagnostic worked flint from the site is a small (11 cm x 6 cm) polished flint axehead from context 1262, a fill of pit 1298. This has been polished all over and has subsequent flake removals, including one from the blade, probably resulting from use. This style of axe is distinctively early Neolithic in date.

While the flint from gully 4003 occurred alongside late Bronze Age pottery, the flint was non-diagnostic waste and cannot be assigned a firm date. All the contexts from which flint was recovered appear to post-date the worked flint. A large flint hammerstone was recovered as an unstratified surface find, and a further flint hammerstone was recovered from context 1116, fill of pit 1115.

Discussion

The Mesolithic element of the assemblage is small and is impossible to interpret beyond demonstrating the presence of people in the area during this period. The Neolithic material, while still very sparse, is slightly more diagnostic, as it includes scrapers, notched flakes, a denticulated flake and core maintenance pieces. The diagnostic items are of early Neolithic date, but are again difficult to interpret due to the low numbers recovered and their occurrence in later features.

The small flint axe from pit 1298 is an unusual find, as it was recovered alongside Iron Age pottery. It may be the case that the axehead was deliberately curated and deposited in a much later feature and possibly relate to a belief that the object was in some way ‘ancestral’ or had strong symbolic power (Thäte and Hemdorff 2009). Although Neolithic stone and flint axes are known from Roman contexts (Adkins and Adkins 1985), very few are known from late Iron Age deposits. One parallel is a complete polished stone axe recovered from Site C west of Tollgate Junction on the A2 Pepperhill to Cobham road widening scheme (Roe forthcoming), where it had been placed on the base of a pit close to an iron gouge of mid-late Iron Age date.

Catalogue of illustrated lithics (Fig. 13)

1. Scraper. Neolithic. Area A. Context 1030, segment 1031, ditch 1107.
2. Scraper. Neolithic. Area A. Context 1063, segment 1066, ditch 1107
3. Denticulated blade. Early Neolithic. Area D. Context 4010, ditch 4009.
4. Polished axehead. Early Neolithic. Context 1262, pit 1298.

The pottery

By Edward Biddulph

Introduction

A total of 3591 sherds with a weight of 46,873 g were recovered from the excavation. A further 221 sherds, weighing 3210 g, were collected from a subsequent phase of watching brief. The assemblage consists almost exclusively of late Iron Age and early Roman pottery dating up to *c* AD

50/70. A small quantity of sherds is of earlier date, probably late Bronze Age/early Iron Age, and a single post-medieval fragment was also noted. The assemblage was sorted within context groups into fabrics and then into sherd groups – collections of sherds sharing certain characteristics, such as rims belonging to the same vessel or pieces with particular decoration, or simply a mass of undiagnostic body sherds of identical fabric. Each sherd group was quantified by sherd count, weight, and where rims were present estimated vessel equivalence (EVE), which records the surviving percentage of a complete rim (here expressed in decimal form; 0.25 EVE equals 25%), and minimum number of vessels (MV) based on rim count. Vessel types were identified only from rims, and given Oxford Archaeology form codes (Booth, nd). In addition, vessels were matched with forms in regional typologies, primarily Monaghan's corpus of North Kent and Upchurch pottery (Monaghan 1987), the *Camulodunum* series (Hawkes and Hull 1947), and Thompson's typology of 'Belgic' forms (Thompson 1982). Where possible, fabrics were assigned codes devised by the Canterbury Archaeological Trust (CAT, nd).

The assemblage derived from 135 contexts, producing context groups which varied very considerably in size. The average size of group was 371 g. The largest group (1210) weighed *c* 8900 g, but including this only four context groups produced more than 2000 g of pottery. Fifty-five context groups produced less than 50 g of pottery each. The condition of the material was also variable. Surface condition ranged from good to poor, and some sherds were worn, although relatively few sherds were heavily abraded.

The list of fabrics encountered is provided below. Detailed descriptions for a number of fabrics can be found in Tomber and Dore (1998), whose National Roman Fabric Reference Collection codes are in parentheses. Fabric quantification is given in Table 3. This report summarises the changing pattern of pottery supply over time and illustrates a representative selection of pottery.

Late Bronze Age/early Iron Age fabrics

FLINT	Flint-tempered fabric
SAND	Sand-tempered fabric

Amphorae

R50	South Spanish amphora fabric (BAT AM 1-3)
R56	South Gaulish amphorae fabric (GAL AM 1-2)
R98	Unsourced amphora fabric

Shelly ware

R69	North Kent/South Essex shelly ware

Late Iron Age/early Roman fabrics

LIAB4	Coarse flint-tempered ware
B1	Fine grog-tempered ware (SOB GT)
B2	Coarse grog-tempered ware (SOB GT)
B3	Grog-tempered ware with flint
B5	Grog-tempered ware with sand
B5.1	Grog-tempered ware with shell
B8	Fine sand-tempered ware
B9	Coarse sand-tempered ware
B9.1	Glauconitic Medway Valley ware
B9R	Sandstone-tempered ware
R154	Red-surfaced grog-tempered ware

Fine wares

B12	Terra rubra (?GAB TR 1A)
BER12	Terra nigra (GAB TN 1)
R151	Unsourced red colour-coated ware

Oxidised wares

R8	Fine sandy oxidised ware
R68	Patchgrove oxidised ware (PAT GT)
R71	Miscellaneous fine oxidised wares
R74	Miscellaneous sandy oxidised ware

White-slipped wares

R18	North Kent fine white-slipped oxidised ware

Reduced wares

R73	Sandy grey ware

Samian wares

R42	South Gaulish samian ware (LGF SA)

White wares

B17	North Gaulish sandy white ware (NOG WH 3)
BER5-10	Unsourced Gaulish white wares
BER15	Organic (?chaff) tempered ware
R75	Miscellaneous white wares

Post-medieval wares

PM	Miscellaneous post-medieval ware

Assemblage composition and pottery supply

Context group dates and stratigraphic phasing allowed the assemblage to be divided into two phases: late Iron Age (*c* 50 BC-AD 43/50) and early Roman (*c* AD 40-70). There was in fact little to separate the phased assemblages from a ceramic perspective; both were dominated by grog-tempered wares and other pottery supplied during the late Iron Age and the earliest years of the Roman period. Ceramic groups of early Roman date were so dated on account of the usually small amounts of pottery that were attributed with certainty to the Roman period. If removed, then the groups would be identical in composition to those assigned exclusively to the late Iron Age. Similarly, most late Iron Age groups could conceivably date beyond AD 43, since the principal wares continued to be made after this date. However, it is notable that early Roman context-groups generally belonged to features that were situated higher in the stratigraphic sequence and therefore were later than features containing pottery dated to the late Iron Age. This suggests that the ceramic phases are reasonably valid when compared with the stratigraphic phasing.

Late Iron Age (Table 4)

Pottery from groups dated to the late Iron Age and recovered from features assigned on the basis of stratigraphy to the same period accounted for 61% of the entire assemblage by EVE. Fine grog-tempered ware (B1) took the largest share of the late Iron Age group – 27% by EVE (Table 4). The fabric was available mainly in bead-rimmed jars (CH) and jars or bowls with everted rims and cordoned or corrugated shoulders (CD/HD), for example Monaghan (1987) type 4F, or Hawkes and Hull (1947) *Cam* 229. Other forms were present, however, including high-shouldered necked jars (CE), barrel-shaped jars (CB) and narrow-necked jars or flasks (CC). The fabric was variable and ranged from very fine to lumpy and relatively coarse. The division between fabric B1 and its course counterpart, B2, was not always clear, with both wares essentially forming a continuum of a single fabric. There was consequently some overlap of forms, with the everted rimmed, corrugated bowl or jar (CD/HD) and bead-rimmed (or the related globular) jar (CG/CH) appearing in the coarse fabric. However, storage jars (CN), for example Monaghan (1987) type 3D and Thompson (1982) type B1-2, were found only in the coarse fabric. Some grog-tempered fabrics contained additional

tempering agents. A bowl with an everted rim and corrugated shoulder (HD) was present in grog and flint tempered ware (B3), and a similar form (CD) was also available in grog and sand tempered ware (B5). A globular jar (CG) and a butt-beaker (EA) were also recorded in this fabric. Grog and shell tempered ware (B5.1) was present in the form of bead-rimmed jars (CH), lid-seated jars (CJ) and so-called saucepan jars (CU), the last characterised by thick, bulging walls, an internally thickened rim, and the absence of a neck (Hawkes and Hull 1947, *Cam* 254). Lid-seated jars were manufactured in the north Kent marshes (Monaghan 1987, type 3L), but were ubiquitous at production sites along the Essex coast, notably at Mucking and West Tilbury (Jones and Rodwell 1973, 22; Drury and Rodwell 1973, 82; Jefferies and Lucy 2016, 162, type AB), and it is possible that the vessels originated there. Red-surfaced grog-tempered ware was a much finer fabric. Forms were restricted to fine dining forms, including a necked bowl (HD), and a carinated bowl (HA) with cordons and lattice decoration, which may have been inspired by Gallo-Belgic forms, such as the girth beaker *Cam* 84.

Glauconitic Medway Valley ware (B9.1) was another important category, taking a share within the late Iron Age assemblage of 18% by EVE. Its black-grained and rounded glauconite or greensand inclusions give the ware a distinctive appearance, and even when it contained additional inclusions, notably grog and quartz sand, the ware was easily separated from other fabrics. Rustication – in the form of strips or nodules – was noted on three fragments. Glauconitic fabrics were well-established in the region, being attested at sites dating to the earlier Iron Age. Glauconitic fabrics accounted for 90% of the early-middle Iron Age assemblage from Eyhorne Street, Hollingbourne, some 15 km south-east of Leybourne (Jones 2006). The glauconite was available locally, and so the pottery may have been produced near the site. The use of grog with glauconite indicates that grog-tempering traditions were active where glauconitic pottery was made, and so potentially grog-tempered fabrics B1, B2 and others were of local origin (indeed, an over-fired and warped sherd in fabric B5 from pit 1298 is a potential waster from a local manufacturing site). There was a relatively wide range of forms in fabric B9.1. Footrings or low pedestal bases were noted in a number of contexts. Just one footring was found with a rim, which was identified as a carinated bowl (HA), but others are likely to have been part of oval- or globular-bodied jars with everted rims (Couldrey 1984, type 4; Drury 1978, type 13). Wide-mouthed jars with everted rims (CM) resembled these types, and some of the footrings or pedestals are likely to have belonged to them. Such forms have a long chronology; they were, for example, recorded at Eyhorne Street (Jones 2006). Barrel-shaped (CB), globular (CG), and bead-rimmed (CH) jars, as well as storage jars and jars with corrugated shoulders and everted rims (CD), were also available in the ware. One globular jar had a flaring rim and scored or roughened-surface decoration on its shoulder and body. Vessels other than jars were represented by a sole butt-beaker (EA).

A range of fabrics subsumed under the category of sandstone-tempered ware (B9R) took an 11% share of the late Iron Age assemblage. The pottery is handmade, and generally with dark exterior surfaces and orange-brown interior surfaces. Fabrics are variable, but are generally gritty, containing moderate to abundant quartz sand, moderate amounts of distinctive white or off-white rock fragments, and occasional chert, glauconite and argillaceous inclusions. On recording, the rock fragments were provisionally identified as ragstone or Kentish Rag, which derives from the Hythe Formation on which the site is situated. However, thin-section analysis by Dr Patrick Quinn at University College London identified the fragments as 'a silicified, cherty, quartz-rich, fine to medium-grained sandstone' (Quinn, forthcoming). As the Hythe Formation also consists of non-calcaeous sandstone, these inclusions are also likely to have been sourced locally. Forms were largely restricted to bead-rimmed jars (CH), often with facets below the rim (Monaghan 1987, type 3G), globular jars (CH), and a lid (L) was also recorded.

Flint-tempered pottery (LIAB4) accounted for 6% of the late Iron Age assemblage. The ware comprises a number of fabric variants, but all are united by the presence of white or grey sub-angular to angular flint (and chert) fragments. In addition, the ware contained quartz sand and grog

in varying proportions. The ware was available as globular jars (CG), bead-rimmed jars (CH), and jars with everted rims (CI).

Fine and coarse sandy fabrics were present in small quantities. A carinated jar (CF) with an everted rim and a cordon at the base of the neck and a platter were recorded in the fine fabric (B8), while a bead-rimmed jar was available in coarser fabric, B9.

North Kent or South Essex shelly ware (R69), which was separated from fabric B5.1 on the basis of its corky appearance and dominance of shell in the fabric, was reasonably well represented in the late Iron Age assemblage at 11% by EVE, although its relatively low quantity compared with contemporaneous assemblages further north, for example south-east of Dartford, where fabric R69 accounted for 17% (Biddulph 2011, table 5.6), reflects the fact that the source of the pottery was not local. Forms included jars also encountered in fabric B5.1: saucepan-jars (CU), bead-rimmed jars (CH), and lid-seated jars (CJ). Other forms included storage jars (CN) with characteristic herringbone decoration on the shoulder. These are almost certainly a north Kent product (Monaghan 1987, type 3D).

A small quantity of pottery arrived from Gallia-Belgica. A decorated fragment from a bowl or perhaps a beaker were recorded in a fine sandy fabric, with frequent black (?sand) and rarer white and mica inclusions (B12). It was unslipped externally, but had a red-brown slip on the interior surface. The fabric recalls Pompeian red ware, but this identification is unlikely on the grounds of form (Pompeian red ware was available exclusively as dishes and lids). A second sherd had a similar fabric, but was lighter in colour – buff-brown, rather than red-brown – and had an external red-brown slip. Again the sherd was decorated and probably from a beaker. Ruling out an Italian source, Gallia-Belgica seems the most likely origin for both, and the sherds are tentatively identified as terra rubra (Tomber and Dore 1998, 17). A platter (Hawkes and Hull 1947, *Cam* 5) in terra nigra (BER12) was a certain product from Gallia-Belgica. Additionally, two sherds of a fine sandy white ware (B17) belonged to vessels made in north Gaul. Sherds from an Italian or Gaulish amphora (R98) – it had a pink, calcareous and micaceous fabric – complete the range of imported wares, although an unsourced whiteware (R75) may be from Gaul. Other fragments of white ware were recorded as an organic-tempered fabric. This was a fine soft, pink-white grass or chaff tempered fabric with uneven surfaces. Its origin is more likely to be local than imported, but in the absence of rims to identify form, little more can be said. It is possible, given its description, that the fragments derive from a briquetage-like vessel.

Early Roman (Table 5)

Context groups assigned to the early Roman period on the basis of ceramic and stratigraphic dating accounted for 32% of the entire assemblage by EVE. Like those of the late Iron Age, the groups were dominated by grog-tempered wares. The fine fabric (B1) increased its share to 38% of the phased assemblage by EVE (Table 5). A more diverse repertoire of forms was recorded. High-shouldered necked jars (CE) were best represented (22% of forms by EVE in fabric B1). Other jars included narrow-necked (CC), globular (CG), bead-rimmed (CH) and lid-seated (CJ) types, and jars with everted rims and corrugated shoulders (CD). A necked bowl (HD, essentially a wider-mouthed variant of CD), a globular bowl (HG), and a beaker (E) were also recorded. The coarse fabric was available mainly in the form of storage jars (CN; Monaghan 1987, type 3D). Other forms comprised bead-rimmed jars (CH) and a corrugated jar (CD). A globular beaker (ED) and bowl (HG) were recorded in grog and sand tempered ware (B5). Grog and shell tempered ware (B5.1) was available as bead-rimmed jars and storage jars likely to have originated in north Kent or south Essex. The fine red-surfaced grog-tempered ware (R154) was supplied mainly as dining forms, including a butt-beaker (EA), globular beaker (ED) and a cup (FB) that copied terra rubra bell-shaped form *Cam* 56. A bead-rimmed jar was additionally recorded.

Sandstone-tempered ware (B9R) continued to make a significant contribution to the

assemblage, taking a 16% share by EVE. The bead-rimmed jar (CH) with facetting below the rim (Monaghan 1987, type 3G) remained the fabric's principal form, but but there was also a degree of functional specialisation. A near-complete strainer or colander (MG) and a base fragment of a second example, both with multiple holes made in the base before firing by the potter, were recorded. Flint-tempered ware (LIAB4) was better represented in this phase than it was in the late Iron Age assemblage, accounting for 11% by EVE. A lid (L), globular bowl (HG) and bead-rimmed jars (CH) were recorded in the ware.

Other wares belonging to this ceramic phase made relatively minor contributions to the assemblage. Notably, the amount of glauconitic Medway Valley ware (B9.1) had declined significantly to 4% by EVE, providing evidence that the use of glauconite had virtually ceased after the Roman conquest. Some of the forms present in this phase were identical to those represented in the late Iron Age – globular (CG) and bead-rimmed (CH) jars, and a carinated bowl (HA) – but the dramatic drop in quantity suggests that production had all but ceased. Unlike fabric B9R, the glauconitic fabric barely survived into the Roman period. The quantity of North Kent/South Essex shelly (R69) ware had also declined. A barrel-shaped jar (CB), bead-rimmed jar, and a saucepan-type jar (CU) were recorded. The proportions of sand-tempered fabrics B8 and B9 had little altered since the late Iron Age. A bead-rimmed jar was seen in fabric B9.

What especially distinguishes the early Roman assemblage from the late Iron Age group is the presence, albeit minor, of a range of Roman-period wares. One or more of these wares were recorded in every context group dated to this phase. Potters in the north Kent marshes supplied a butt-beaker (EA) and ring-necked flagon (BA) in a white-slipped oxidised ware (R18), probably after AD 50. (The identification of the flagon fabric is a little doubtful, as voids seen on the surface are not typical of the Upchurch fabric.) A jar rim was seen in Patchgrove grog-tempered ware (R68). The extent of pre-conquest production is unknown, but the ware, manufactured in west Kent, only achieved wide distribution after AD 43 (Pollard 1987, 39). The small amount of sandy grey ware present mainly comprised body sherds. The sole identified vessel – an oval-bodied hook-rimmed necked jar (CD) – was problematic in terms of date, since the form is more typical of the 2nd-century onwards (Monaghan 1987, type 3H). However, it was associated with grog-tempered ware and other 1st-century pottery, and so a later 1st-century date may still be appropriate. A bead-rimmed jar (CH) was recorded in the oxidised equivalent of sandy grey ware (R74). Fine oxidised (R8) and white wares (R75) were collected, but no forms recognised.

Samian ware made a small contribution to the assemblage. A rim sherd from a South Gaulish Drag. 18 platter was recorded. Amphorae fabrics became more diverse. The pink, calcareous and micaceous fabric (R98) present in the late Iron Age group was also noted in the Roman assemblage. This was joined by a south Gaulish fabric (R56), probably belonging to a Gauloise wine amphora, and a south Spanish fabric (R50) from a Dressel 20 olive oil container. North Gaulish and other Gaulish white wares (B17 and BER5-10) were present, as were fragments of the putative terra rubra fabric (B12) seen in the late Iron Age assemblage. It is possible that some of these fabrics (R98 and B12 particularly) were part of the same vessels recorded in the earlier phase, and that their occurrence was residual. Fabric R151, a fine sandy fabric with a grey core and interior surface, frequent small voids and occasional clay pellets or grog, and a micaceous orange surface with a red-brown slip, is of unknown source.

Catalogue of illustrated pottery (Figs 14-15)

The illustrated vessels offer a snapshot of pottery supply to the site or show a range of intrinsically interesting pieces. Dates given are for deposition, not production or use.

Context 1210, segment 1211, ditch 1381. c AD 10-50.

1. Saucepan jar (CU); grog and shell tempered ware (B5.1)

2. Everted-rim jar (CD) with corrugated shoulder and burnished rim neck and shoulder, Thompson 1982, type B1-3; coarse grog-tempered ware (B2)
3. Everted-rim jar (CD); coarse grog-tempered ware (B2)
4. High-shouldered necked and cordoned jar (CE) with burnished neck and shoulder; coarse grog-tempered ware (B2)
5. Everted-rim jar (CD) with burnished zone on rim and neck; grog and sand tempered ware (B5)
6. Globular jar (CG) with burnished shoulder; sandstone-tempered ware (B9R)
7. Bead-rimmed jar (CH), grog and sand tempered ware (B5)
8. Bead-rimmed jar (CH); sandstone-tempered ware (B9R)
9. Bead-rimmed jar (CH); sandstone-tempered ware (B9R)
10. Bead-rimmed jar (CH); sandstone-tempered ware (B9R)
11. Bead-rimmed jar (CH); sandstone-tempered ware (B9R)
12. Bead-rimmed jar (CH); sandstone-tempered ware(B9R)
13. Bead-rimmed jar (CH); sandstone-tempered ware (B9R)
14. Bead-rimmed jar (CH), Monaghan 1987, type 3F3; North Kent/South Essex shelly ware (R69)
15. Bead-rimmed jar (CH); grog and shell tempered ware (B5.1)
16. Storage jar (CN), burnished on shoulder, Thompson 1982, type B1-2; coarse grog-tempered ware (B2)
17. Butt-beaker (EA) or necked jar (CE), cordoned neck, overall burnishing; glauconitic Medway Valley ware (B9.1), with additional grog and quartz sand
18. Butt-beaker (EA); glaucontic Medway Valley ware (B9.1), with additional grog
19. Beaker in fine sandy buff-brown fabric with external red-brown slip, ?terra rubra (B12)
20. Necked bowl (HD), with corrugated neck and shoulder, Thompson 1982, type D1-4; coarse grog-tempered ware (B2)
21. Platter (JC), fine sandy ware (B8)

Context 1020, segment 1019, ditch 1381. c 50 BC-AD 50

22. Barrel-shaped (CB) or bead-rimmed (CH) jar, with combed or scored decoration on body; glauconitic Medway Valley ware (B9.1)
23. Globular jar (CG) with grooved shoulder; glauconitic Medway Valley ware (B9.1)
24. Bead-rimmed jar (CH); glauconitic Medway Valley ware (B9.1)
25. Storage jar (CN); glauconitic Medway Valley ware (B9.1)
26. Spindle whorl, shaped and perforated before firing; glauconitic Medway Valley ware (B9.1)

Other pottery

27. Globular jar (CG), with cordon on shoulder, Monaghan 1987, type 3E0; glauconitic Medway Valley ware (B9.1). Context 1292, segment 1211, ditch 1381, *c* 50 BC-AD 50.
28. Bell-shaped cup (FB), copying *Cam* 56; Fine red-surfaced grog-tempered ware. Context 1244, segment 1384, ditch 1385, *c* AD40/50.
29. Carinated bowl (HA) with cordoned body and pedestal base; glauconitic Medway Valley ware (B9.1). Context 1229, segment 1227, ditch 1385, *c* AD 40/50.
30. Platter (*Cam* 5), terra nigra (BER12). Context 1232, segment 1233, ditch 1385, *c* AD 40-55.
31. Carinated bowl (HA), with burnished lattice between cordons, possibly copying Gallo-Belgic girth beaker; fine red-surfaced grog-tempered ware (R154). Context 1292, segment 1211, ditch 1281, *c* 50 BC-AD 50.
32. Strainer/colander (MG), with based pierced before firing, then perforated with larger central hole after firing; sandstone-tempered ware (B9R), oxidised surfaces. SF 1005, context 1230, segment 1227, ditch 1385, *c* AD 40/50.

33. External surface of jar base showing cross motif in relief formed from applied strips before firing, possibly to strengthen the base; sandstone-tempered ware (B9R). Context 1374, pit 1299, *c* 50 BC-AD 50.

Ceramic building material and fired clay
by Ruth Shaffrey

Introduction (Table 6)

A total of 450 fragments of fired clay and ceramic building material, weighing 2922 g, were collected from the site, including 215 fragments (960 g) recovered during sieving, and a further 8 fragments (91 g) from the watching brief. All fragments were examined by eye and recorded in a Microsoft Access Database (retained in the archive). Most of the assemblage consists of fired clay in the form of daub (35% by weight), structural fired clay (19% by weight) and indeterminate fired clay fragments, likely to be structural in origin (31% by weight); a further 15% is ceramic building material (Table 6). Daub fragments were recovered from a number of late Iron Age and late Iron Age/early Roman ditch and pit fills but none in contexts associated with structures. The assemblage accumulated in ditches such as 1110 and some pits via processes of natural silting while other pits contained waste that had been dumped, for example 1299.

The assemblage is highly weathered, many fragments are amorphous in character and a significant quantity (285 fragments, 63% by count) are of indeterminate form; this is reflected in the mean fragment weight of 6.4 g. Fragments of daub (with surviving wattle marks) are generally larger but even these only have a mean fragment weight of 11.3 g. No detailed fabric analysis was carried out but the daub and fired clay is very uniform and mostly of a fine sandy fabric, often with additional clay pellets and voids from organic material.

Function

Evidence of the function of the structural fired clay and daub is limited. Only three fragments of daub have measurable thickness (23, 30, 36 mm) and most of the 87 fragments with wattle impressions reveal only very small sections. However, a number of fragments retain the impressions of two or more interwoven rods (context 1229, fill of ditch 1227, and context 1262, fill of pit 1298) and in one case the vertical sails are also visible (context 1292, fill of ditch 1211). The nature of the wattle and the thickness of the daub on these larger fragments suggest use within oven structures. A similar function for other less diagnostic pieces may be indicated by the high level of burnt material (73% of the daub and structural fired clay), some of which is considerably burnt and in particular the larger fragments, which are more likely to retain original exposed surfaces.

Small amounts of ceramic building material (CBM) were recovered, most of which is undiagnostic except for nine fragments of post-medieval or modern CBM, which can be identified as brick and wall tile. These were recovered from two features – gully 3011 and posthole 1221, part of structure 1251 adding further weight to that structure's putative post-medieval date.

A single fired clay object is a large ball-shaped object perforated through the centre (SF 16, context 1261, fill of pit 1259 Sf 16); this could be a bead or a small spindle whorl.

Discussion

This assemblage of fired clay and daub is generally of amorphous shape, a result of the material having been on the surface for some time prior to deposition (both accidentally and deliberately) in ditches and pits. Much of the material is certainly structural in nature and it seems reasonable that the non-diagnostic fragments derived from the same sources as the larger fragments. The daub may

indicate the presence of wattle and daub buildings nearby, although at least some of the assemblage was probably used in oven structures; either way they are indicative of occupation on the site or nearby.

Other worked stone
by Ruth Shaffrey

Six pieces of worked stone comprise four tiny and weathered lava fragments from pit 1299 and surface deposit 1312, and probably provide evidence for rotary querns in the general vicinity during the Roman period or later. There is a single classic sandstone hammerstone with extensive damage from context 1116, the fill of pit 1115, and a large lump of sarsen stone with one worked face now worn extremely smooth but with some evidence of shaping still evident. This was from context 1068, the fill of pit 1070. No original edges of this block remain and it is difficult to be certain of function, although it does not appear to be from a quern and appears most likely to have been used as part of a paved floor surface with the smooth face resulting from foot wear.

Metalwork
by Ian Scott

Composition of the assemblage

The copper alloy finds include three copper alloy bow brooches, two fragments from the spring of a bow brooch and two small pieces of eroded copper alloy sheet or objects made of sheet, all from context 1210, fill of ditch 1381. The iron finds comprise one iron nail (context 1142, fill of posthole 1141), and three nail stem fragments from contexts 1218 and 3012, the fills of posthole 1217 and gully 3011 respectively. Most of the metal finds are from late Iron Age or late Iron Age/early Roman deposits. The only closely datable objects are the brooches which are all of late Iron Age or early Roman date.

Catalogue of illustrated metal finds (Fig. 16)

1. **One-piece Colchester brooch** with plain curved bow, flat side wings and hook to secure the external chord. The catch plate, which is largely missing, was pierced. The brooch is somewhat eroded. This type of brooch is generally dated to first half of the 1st-century AD. This example is large and comparable in size with an example from Puckeridge (Olivier 1988, 42, fig. 18.29). For the plain bow and flat side wings compare examples from Puckeridge (Olivier 1988, 42, fig. 18.30 and fig. 19.31) and an example from Colchester (Crummy 1983, 12, fig. 6.38). L: 83 mm; W: 33 mm. Context 1250, sf 1007.

2. **Two-piece Colchester brooch**. The bow has cavetto mouldings and a plain foot without terminal knob. The catch plate may have been pierced. The spring has an external chord which passed through a pierced lug at the head of the brooch. The spring is covered by side wings with moulded decoration. The central rib is decorated with a fine herringbone pattern towards the catch plate. Two-piece Colchester brooches are generally dated to the period AD 50-70, that is to the period immediately after the Roman invasion. Again this a quite large example – few two-piece Colchesters are longer than 50 mm – and comparable to an example from Richborough (Bayley and Butcher 2004, 82, fig. 62.160). L: 74 mm; W; 41 mm. Area A (E). Context n/a , sf 1001.

3. **Brooch bow fragment**, with simple transverse moulding. The profile of the bow shows a distinct change of angle at the point where the moulding is positioned. The lower part of the bow is plain

and has a concave curve and tapers to the foot. There is evidence for an open catch plate, now largely missing. The upper part of the bow widens above the moulding, but is incomplete. The form of the brooch is uncertain. The transverse moulding and the evidence for an open catch plate suggest affinities with the continental 'Knotenfibel' which dates to the late 1st century BC and early 1st century AD. The identity is not certain, but the open catch plate is suggestive of an early date. Extant L: 34 mm. Context 1301, sf 1011.

Iron slag
by Lynne Keys

A small quantity (117 g) of material, mostly iron slag, was recovered by hand and from soil samples taken on site. It was examined by eye and categorised on the basis of morphology. Each slag or other material type in each context was weighed. The diagnostic iron slags are those produced by smithing; no evidence for smelting was present in the assemblage. No smithing hearth bottoms (a large slag diagnostic of smithing) were recovered, but some micro-slags in the form of hammerscale were retrieved in samples. These were taken from pits 1056, 1268 and 1299, and ditch 1381, which all filled during the late Iron Age. The quantities of hammerscale flake and spheres were very small, so the material can be said to represent slags re-deposited away from the smithing area and then subject to disturbance and redistribution.

ENVIRONMENTAL EVIDENCE

Animal bone (Tables 7-8)
by Lena Strid

The excavations at Leybourne Grange yielded 376 fragments of animal bones and teeth. Of these, 232 (61.7%) derived from hand-collected context and 144 (38.3%) from sieved samples. During assessment, some bones were found to have been broken after deposition, and the assemblage could be re-fitted to a total of 217 fragments. Most of the material was deposited in the late Iron Age.

The assemblage was dominated by cattle. Other domestic mammals such as sheep/goat, pig and horse were also present. The majority of the identifiable remains were teeth, mostly in a fragmentary condition. Ageing could be carried out on one cattle second phalanx and two cattle teeth. The only indication of juvenile or sub-adult animals is a single cattle decidious fourth premolar (Table 7).

Bone preservation was poor, as indicated by the high number of fragmented teeth in combination with poorly preserved post-cranial elements (Table 8). A total of 22 bones (10.1%) were burnt. It was not possible to observe any traces of gnawing, butchery or pathology. The sieved assemblage comprised three bones identified to species: one cattle astragalus, one sheep/goat carpal bone and one field vole skull. The remaining 141 bones were small burnt and unburnt unidentifiable fragments.

Plant macrofossils
by K L Hunter

Introduction (Table 9)

This report presents the results of the archaeobotanical analysis of material extracted from soil samples taken from late Iron Age and early Roman pits and ditches. Following an assessment of 32 sample flots, six were selected for full analysis (Smith 2010). This analysis has confirmed the

presence of charred cereal remains, flax and various weed seeds, which in turn suggest potential economic crops – food resources that may have been present on the site. Comparison with assemblages from other late Iron Age and early Roman sites nearby (Smith 2006) shows that there is parity.

The samples were originally processed using a flotation technique to separate the lighter material (flot) from the minerogenic portions of the soil sample. The flot and residue were recovered on 250 mm and 500 mm meshes respectively. Charred plant remains seen while the residues were sorted by eye were retained and included with the material extracted from the flots. Thee flots from each sample were examined using a MTL10 stereo microscopee, and any identifiable plant remains were extracted and recorded (Table 9). The identification of the plant macrofossils was carried out in comparison with modern reference material and standard reference texts (Jacomet 1987; Beijerinck 1947; Schoch *et al.* 1988; Berggren 1981). The nomenclature for the identification of the plant remains follows Stace (1995).

Results

The quality of preservation of the charred remains was highly variable within individual samples as well as from sample to sample. So while some of the plant remains were well enough preserved to allow identification to species, other seeds/grain retained very few identifiable characteristics. All the remains represented are fairly robust and are commonly found in charred assemblages of this period. This might, however, suggest that the loss of the less robust material was due to taphonomic processes during or after the charring process rather than the remains never being present.

It should be noted that the identification of cereal grains to genus purely on their morphological characteristics can be problematic. Jones (1978) and Jacomet (2006) both highlight the variation and similarities of characteristics of cereal grains from different genus. Jones particularly highlights the similarity in shape of charred free threshing and glume wheat grains. The presence of more diagnostic chaff fragments may suggest the presence of a particular type of wheat, barley or oat, but unless the chaff is still attached to the grain it would be unwise to use the presence of one to confirm the identity of the other. For this reason the wheat grains have only tentatively been assigned to genus where the preservation is of sufficient quality. Where the wheat chaff has retained sufficient diagnostic characteristics it has been possible to suggest an identity to species, for example spelt, emmer or bread wheat.

Barley

Relatively few barley grains were identified from the samples. Where the preservation was good enough to tell, the barley grains seemed to be of a hulled type. Sample 21 (pit 1268) had more grains and rachis fragments than the other samples. The presence of apparently twisted grains in sample 21 suggested that at least some of the barley was of a multi-rowed type (*Hordeum vulgare*) (Table 9). A few rachis fragments from the same sample were sufficiently well preserved to suggest the presence of lax and dense eared types. A number of barley grains in sample 16 (ditch group 1107) appeared to have ‘collapsed’, and some of these exhibited evidence of sprouting: a distinct groove along the back of the grain. There was also a small number of detached sprouts and embryos in the same sample, though these may not be of barley origin. There was no evidence of insect damage to the grains, but it is possible that the grains had been charred during drying to prevent further sprouting of the crop following germination in storage (as suggested by Jones 1984).

Wheat

Apart from two samples (19 and 20), wheat remains were the dominate cereal. A few grains from

samples 1, 20 (pit 1259), and 21 (pit 1268) appeared to be of a free threshing type with larger rounded grains. Sample 21 also had a few free threshing wheat rachis fragments which suggests a hexaploid (*Triticum aestivum*) rather than (*Triticum turgidum*) tetraploid type. The majority of the wheat grains showed characteristics closer to that of a glume wheat, the grains being much narrower and possessing a markedly flatter ventral surface. Some of the grains had a distinct humped back which might also suggest emmer (*T dicoccum*) rather than spelt (*T spelta*). However, as Jones (1978) suggests there can be a marked variation in the shape of bread wheat grains with some closely resembling those of spelt and vice versa, and so the grain identification is at best tentative beyond the wheat genus. The chaff from the glume wheats is potentially more diagnostic. The glume bases and spikelet forks, like the grain, exhibited differential preservation. Some was sufficiently well preserved to identify to species level but often it was too degraded to take the identification beyond probable glume wheat type: emmer or spelt.

Oat

Much of the oat grain was too degraded to take the identification further than oat/brome type (*Avena/Bromus* ssp.). The presence of floret bases from both wild (*Avena fatua*) and cultivated (*A sativa*) oat suggest that both types may be present. Oat formed the dominant cereal type from samples 19 and 20 (pit 1259) and was a significant part of the assemblage from sample 16 (ditch group 1107).

Flax

The presence of flax in sample 21 (pit 1268) may be evidence of an economic crop, either the seeds being used for oil or the fibres of the plants used to produce linen. Historic studies of the processing of flax for fibre extraction involves a stage where the whole plant is dried and the seed is then stripped by hand from the stalk and retained to grow the following year's crop (McCutcheon 1983). It is likely that this stage of the process would produce quite diagnostic debris in the form of the papery seed capsules mixed with missed seeds. The seed heads, however, are not very robust and are less likely to survive archaeologically. The seeds recovered in sample 21 were on the whole fairly intact so were unlikely to be waste from oil extraction.

Vetch/pea

Numerous *Vicia* sp. or *Lathyrus* sp.(vetch/pea type) seeds were recovered from two samples – 15 (pit 1070) and 16 (ditch group 1107) – and were present in small quantities in two further samples – 20 (pit 1259) and 21 (pit 1268). This may represent a potential human food resource or fodder.

Weed seeds

There was a relatively small number of taxa represented in the flots, almost all of which were seeds considered fairly robust and commonly identified in charred assemblages. This may indicate a preservation bias towards the more robust remains and possibly adds weight to the suggestion that they are the result of secondary or tertiary deposition. All the taxa present could have been either contaminants of a cereal crop or elements from burnt bedding or fodder.

Chenopodium album (fat hen) is a plant which prefers nitrogen rich soils often associated with occupation and agriculture. These seeds may represent a weed growing close to the area of cultivation, but may be evidence of a fodder crop or even a potential human food resource as both leaves and seeds are edible.

Agrostemma githago (corn cockle) is represented by a seed capsule fragment in sample 21

(pit 1268). It is a weed that in the past was commonly associated with arable crops. The relatively large size of the seeds meant that they were often retained with cereal grains as they were processed. As the seeds are poisonous, they were later removed by hand picking. The large seeds of *Fallopia convolvulus* (black bindweed), *Persicaria maculosa*, *P hydropiper* (red shank and water pepper) and the wild oat (*Avena fatua*) may also have been weeds of crop retained with the cleaned cereal grain, as may have been the smaller seeds of *Tripleurospermum inodorum* (scentless mayweed), a common arable weed. The charred tuber like structures in two of the samples (16, 21) may be fragments of *carex* (sedge) rhizomes.

Discussion

The analysis of these six samples has demonstrated the presence of several crops with cereals, flax and possibly small legumes. The relatively small number of samples analysed means that identifying patterns of temporal or spatial variation in the plant remains is limited. However, there is a predominance of wheat over oats and barley (grain and chaff) in all but two samples. Wheat remains were the most numerous in three of the samples while sample 16 contained more or less equal amounts of wheat and oat. The assemblages from samples 19 and 20, however, were dominated by oat grains with some chaff. This might be an indication of spatial variation of crop processing or usage, but the small number of samples makes this unverifiable. The oat may have been crops grown on poor soils nearby; other sites in Kent may have similar assemblages (W Carruthers, pers. comm.).

The lack of any significant diagnostic oat chaff precludes discrimination between wild and cultivated oat, while the very small quantities of barley grain and chaff may suggest that it represents a weedy relic rather than a deliberate cultivar. The differential preservation within a single sample, such as 19 or 20 (pit 1259), might suggest that the assemblages were made up of material from more than one charring event. It is possible that all the charred remains were representative of secondary or tertiary deposition. The differential preservation of the different elements points to it being a secondary or tertiary deposit. This could have resulted from either the deliberate deposition of waste material into the pit on several occasions or a general accumulation of general waste material from the surrounding area.

The differing ratios of wheat chaff to wheat grains may suggest that the two were not originally directly associated, with the charred wheat chaff resulting from either deliberate waste disposal or the by-product of a secondary use for the chaff as fuel/tinder, although to verify the latter one would need to find similar deposits in association with a structure such as a drying kiln or furnace. The material in sample 19 and 20 may be the result of charred waste accumulating from several activities. The presence of collapsed grains particularly with the barley from sample 16, also detached embryos and detached sprouts, may be by-products of deliberate germination of the grain for malting but it is more likely, given the small numbers of grains involved in each sample, to be evidence of spoilt grain that had either sprouted because it was stored in an environment with too high a moisture content or in conditions that had been compromised. Either way, the spoilt grain would probably have been burnt to remove the risk of mould contamination of subsequent stored cereals. There was no evidence of insect damage to any of the cereal which might have resulted in it having to be be destroyed. The accidental charring of cereal grains is also a possibility as it was sometimes necessary to dry grain prior to storage.

No waterlogged or mineralised plant remains were recovered from the site and this means that there is a distinct preservation bias of the plants represented. The lack of more fragile charred material also seems to support this. The presence of *Corylus avellana* (hazelnut) shell fragments and one *Prunus spinosa* (sloe) stone fragment may suggest further food resources but they could also have been gathered accidentally with fire wood.

All the other seeds such as *Chenopodium album* (fat hen), *Galium aperine* (cleavers),

Odontites / Euphrasia sp. (bartsia/eyebright) and *Rumex* sp. (dock type) may be crop contaminants or residue from bedding or fodder. The arable weed seeds such as *Persicaria maculosa* (red shank) and the larger pea/vetch seeds could have been from fodder or bedding but might also have been a crop contaminants retained with the grain after winnowing and fine sieving to remove the chaff. The tuber-like fragments were recovered from samples that also produced sedge seeds; this may suggest an association noted at other sites, such as West Heslerton (Carruthers and Hunter 2007), and may have resulted from the burning of turf either as fuel or after it had been used as a building material. The sedge seeds equally could have been gathered with the stems as bedding, thatch or as a cereal contaminant.

The charred plant assemblages from Leybourne Grange are broadly comparable with assemblages of similar date recovered from Kent, for example samples from Springhead Roman town (Campbell, nd), from excavations along the A2 in Kent (Smith 2006), Tollgate and Northumberland Bottom (Davis 2006a, 2006b). (It should be noted that 38 samples were fully analysed from the A2 site, eight from Tollgate and 36 from Northumberland Bottom and three from Springhead.) In all cases the cereal remains were often relatively poorly preserved and few cereal grains were identified to species. Where identification was attempted, glume wheats were predominant in the Iron Age and Roman samples. Emmer was the dominant wheat from the Iron Age assemblages from A2 and Tollgate, while spelt was predominant in the Iron Age assemblages from Northumberland Bottom and Leybourne Grange.

The tentative wheat grain identification for the grain from the two Roman contexts at Leybourne Grange suggests a dominance of spelt over emmer, and this is also true for Roman samples from the other three sites and indeed with most other sites in and beyond the region (Campbell and Straker in prep.). Apart from one sample from the A2 site, very little oat or oat type remains were recorded. Unusually, oat and oat/brome were the dominant grain types in two Iron Age samples (19 and 20) at Leybourne Grange. They were also found in equal quantities to wheat remains in one of the Roman samples (16). The low volume of barley remains is a characteristic of all the sites, suggesting that if it formed a significant crop in the area then it was probably being processed separately from the wheat.

Flax seed was also recovered from the A2 and Northumberland Bottom in small quantities and is a occasional component of assemblages elsewhere in and beyond the region. It is likely that the seed was processed for oil and/or the stalks processed for fibre, although the intact nature of the seeds at Leybourne Grange means that oil extraction can not be demonstrated.

DISCUSSION

by Edward Biddulph

Occupation in the area of Leybourne Grange during the Mesolithic period is attested by the presence of residual flint microblades in later deposits, and flint scrapers and a polished flint axehead identify Neolithic activity. The material adds to the general background of earlier prehistoric activity in the Medway Valley, and complements a flint tranchet adze and microlith of late Mesolithic date, a late Neolithic arrowhead, and a variety of Neolithic to Bronze Age blades, bladelets, scrapers, flakes and cores found along the West Malling-Leybourne bypass, mainly in area A but all redeposited (Leivers 2009, 16). Worked flint of Neolithic to Bronze Age date has also been found in Snodland (Birbeck 1995, 81), and to this activity we may add a skeleton found in Halling, which was radiocarbon dated (though uncalibrated) to 2420-2040 BC (BM-249) (Oakley *et al.* 1967). Pottery and flint collected from ditch 4042 in Area D tentatively dates the feature to the late Bronze Age, and support is provided by a pit given the same date on the basis of pottery and flint within it, which was uncovered by Archaeology South East in an evaluation trench in Area D (Riccoboni 2008, 24). More late Bronze Age pits and ditches were recorded in areas A and E along the bypass route (Ellis 2009, 5).

The Neolithic axehead recovered from pit 1298 is a curiosity and given the date of deposition – a matter of a few years after the Roman invasion of AD 43 – evokes an interpretation of an object curated and specially placed during a time of change and uncertainty. As David Mullin notes (above), the axehead may have been regarded as an ancestral object that helped to maintain tenure of the land. A relatively large early Roman pottery assemblage, some 150 sherds, was collected with the axe, but its jar and coarse ware emphasis does not set it apart from other groups across the site (there is little to suggest structured deposition or link the assemblage with ceremonial activities, such as feasting).

A settlement was established in the late Iron Age. Excavation uncovered an enclosure, defined by ditches (1377 and 1381), open at one end, and measuring some 50 m by 60 m. Smaller ditches (1079, 1109 and 1179) within the enclosure may have sub-divided the enclosure, or marked the position of internal stockades, although they may instead have represented earlier features. The dating evidence cannot be precise about when occupation commenced. The pottery is not inconsistent with a start date in the late 1st century BC, but no groups were identified that must belong to that time. A bow brooch from pit 1299 shares traits with continental types that date from the late 1st century BC to early 1st century AD (I Scott, above), but this is not sufficient to firmly isolate late 1st century BC occupation. There is more certain evidence to place the late Iron Age enclosure in the first half of the 1st century AD. Assemblages from ditch 1381 included imported Gallo-Belgic wares, such as white wares and a putative terra rubra fine ware, in addition to a mass of locally-made pottery, and date deposition to the early 1st century AD.

No evidence of domestic structures was uncovered, but features within the enclosure still suggest something of the nature of activity. Pits in the northern part of the enclosure were straight-sided and flat-bottomed. Pits with a similar profile were the commonest pit type at White Horse Stone, Aylesford (Hayden and Stafford 2006, 148). Storage is a likely function. While the pits at Leybourne Grange did not readily match the classic cylindrical or beehive profiles of storage pits at the Iron Age hillfort at Danebury, this does not necessarily exclude the possibility, as the hillfort included pits which did resemble more closely in size and shape those recorded at the site (eg Whittle 1984, fig. 4.92, pit 75 and fig. 4.93, pit 391). Other pits had profiles – steep on one side and a gentle gradient on the other – that pointed to a different function. This remains unknown, although a dump of plant remains in pit 1268 suggests that the pits served as waste pits, at least as a secondary use. Two small pits in the southern part of the site had been burnt around the edges and contained charcoal-rich fills. These can be more definitely identified as hearths. The features possibly had a domestic function, although given the apparent absence of domestic structures, they may instead have had an agricultural function, for example parching grain or malting. Indeed, K L Hunter (above) recorded detached sprouts and embryos of possible barley origin, and although these were recovered from a later ditch (1107), they potentially provide evidence for the on-site charring of grain to prevent further sprouting of the crop following germination in storage. A four-post structure (1132) is likely to have provided storage. Structures such as this are typically interpreted as raised granaries (Bersu 1940, 97-8). Ditches in Area D (4040, 4041 and 4043) and the south-eastern corner of Area A (1379 and 1380) are more likely to be field ditches than enclosures, given their uniform layout and 10-20 m spacing between each. A distance of some 250 m separates the Area A and D groups, and it is not certain that the two groups belong to the same field system. Apart from the variable spacing, the ditches were not identical in dimensions, with those in Area A being wider and deeper than those in Area D. Nevertheless, the ditches suggest that quite an extensive area of land to the east of the enclosure was put to agricultural use, being available for the cultivation of crops (mainly wheat, but also including barley, oats, flax, and possibly legumes). Livestock were also kept in and around the site. The animal bone assemblage indicates that cattle were the most important species, followed by sheep or goats, pigs and horses (L Strid, above). The economic basis of the site may also have included pottery manufacture. The sandstone and glauconite temper used in much of the pottery recorded at the site was locally available; Leybourne

Grange was situated on the junction of the Upper Greensand, which produced glauconitic sand, and the Lower Greensand, from which the sandstone was derived in addition to glauconitic sand. There is, however, no evidence of kiln-like structures or hearth bases on which a clamp kiln may have been erected, or certain evidence of pottery wasters.

The enclosure was replaced by another enclosure that was defined by ditches 1107, 1383 and 1385. The replacement, trapezoidal in plan, was narrower than its antecedent, at 30-50 m, but was roughly the same length at 65 m. The pottery from the ditch fills indicate that the features filled in the early Roman period, probably no later than AD 70, given the continued dominance of grog-tempered ware and other fabrics of late Iron Age tradition, but it is possible that the ditches were cut before AD 43. Internal features were restricted to a cluster of pits. Like those of late Iron Age date, the pits varied in shape, though generally conformed to two types – pits with concave sides and bases (essentially U-shaped in profile) or pits with an asymmetrical profile, steep on one side and gentler on the other. As in the late Iron Age, some of the pits may have been used for storage. Pit 1259, which cut 1268, was identified as a hearth, and potentially the pit complex as a whole related to the cycle of crop processing, storage, and waste management.

The late Iron Age field ditches south-east of the enclosure were replaced by a set of ditches orientated ESE-WNW. Their layout has the appearance of a coherent set of narrow enclosures or fields, but in reality each ditch was dug in turn after the previously-dug ditch had filled, so the arrangement was presumably unplanned when the first ditch in the sequence (1363) was dug. The sequence evolved, with the layout of subsequent ditches building on that of the earlier ones. The ditches may have marked field boundaries, although the inclusion of shorter ditch 1365 and sets of postholes to the south of 1363 suggests a function related to livestock control, for example herding and corralling.

The stratigraphic and economic evidence points strongly to a rural settlement, largely concerned with crop cultivation, processing and storage, but also included animal husbandry. The absence of domestic structures suggests that the settlement lay beyond the area of excavation, although the focus need not have been far away, judging by the relatively well-preserved character of the pottery assemblage. Despite the collection of relatively exotic imported wares, a product perhaps of the site's proximity to Quarry Wood camp, an enclosed oppidum (Kelly 1971), the profile of the ceramic assemblage is consistent with the suggested site function, offering a low-status, rural signature.

The late Iron Age and early Roman activity finds a very close match in the archaeology of the West Malling-Leybourne bypass (Fig. 17). Excavations along the route uncovered two concentrations of contemporaneous occupation. Two parallel ditches recorded in area A, *c* 1 km east of Leybourne Grange, were replaced or incorporated within an enclosure with slightly tapering sides. This was replaced by a second, wider, enclosure, whose north side was shifted some 20 m south of the north side of the first enclosure. No domestic buildings were seen, but a four-post structure was associated with the second enclosure (Ellis 2009, 5-7). In area E2, 1.1 km south of area A and almost 1.5 km south-east of Leybourne Grange, an enclosure with tapering sides and an open end was recorded. A number of pits were found within the enclosure, although dating evidence suggests that these dated to the middle/late Iron Age (Eillis 2009, 9). The bypass and Leybourne Grange sites share chronology. Both were occupied in the late Iron Age and earliest Roman period, although activity appears to have commenced along the bypass in the 2nd century BC (Ellis 2009, 52); there was little evidence to push the dating at Leybourne Grange earlier than the mid/late 1st century BC. All sites were abandoned more or less at the same time. Pottery and radiocarbon give a terminal date for the bypass sites within the period AD 50-75 (Ellis 2009, 52).

The morphology of the bypass and Leybourne Grange sites – rectilinear D-shaped or trapezoidal enclosures whose location shifted slightly with each phase – is so similar as to suggest links between the populations that worked those areas. Whether the areas belonged to a single, extended community, or represented separate neighbouring settlements is uncertain, but the

populations inevitably shared cultural space, allowing ideas of farming practices and cultural behaviours that determined the shape and layout of activity zones to be transmitted and inherited down the generations.

It is noteworthy that identifiable structures at Leybourne Grange and the bypass area A site were restricted to four-post structures or possible raised granaries. This fits a pattern recognised elsewhere in the region. Two four-post structures, dated to the mid-late Iron Age, were recorded at Queen Elizabeth Square, Maidstone (Booth and Howard Davis 2004, 5). Excavations on the late Iron Age settlement at Snarkhurst Wood, Hollingbourne, uncovered two four-post structures among ditches and pits (Diez 2006, 7-9), and a further three structures belonged to the early Roman settlement there (Diez 2006, 12). A four-post structure was set within a landscape of curvilinear enclosures at Hockers Lane (Lawrence 2006, 19), and at nearby Thurnham, a late Iron Age rectilinear enclosure contained two four-post structures, although unusually these were associated with two roundhouses (Lawrence 2006, 23). A total of 55 four-post structures – associated with few other structural types – were uncovered at the early-mid Iron Age site at White Horse Stone, Aylesford (Hayden and Stafford 2006, 136), although there the number and clustered layout of the structures separates White Horse Stone from the other sites. The spatial arrangement apparent at White Horse Stone brings to mind the centralised organisation of hillforts and division of domestic and working areas (Hayden and Stafford 2006, 164, 171). If Leybourne Grange were similarly divided, then we should not expect domestic structures to be found in areas of grain processing and storage. Nor should we expect many structures. A settlement associated with a single four-post structure and a small number of pits might plausibly accommodate a single household occupying a roundhouse, as appears to be the case in the Upper Thames Valley, such as the early to middle Iron Age settlement at Groundwell Farm, near Swindon (Gingell 1981, 73). The condition of the pottery suggested that the domestic focus was close to the excavated area, though by no means immediately beside it, given the paucity of daub (Shaffrey, above) and remains of metalworking (Keys, above).

Leybourne Grange and the bypass sites were abandoned shortly after the Roman invasion of AD 43. Hockers Lane may have shared this chronology – the dating evidence points to a terminal date a few years either side of the conquest (Lawrence 2006, 20) – and its abandonment linked with the development of the late Iron Age settlement at Thurnham or potentially the subsequent construction of the Roman-period proto-villa (Lawrence 2006, 29). Both cases may have involved significant land and settlement re-organisation or population movement. A similar argument can be offered for the demise of the settlement at Queen Elizabeth Square in the mid 2nd century, which was met by the rise of the Mount villa, Maidstone and other villas within a 5 km radius of Queen Elizabeth Square. At least eight villas, which either commenced in the 2nd century or had been established in the later 1st century, have been recorded in the Maidstone area (Houliston 1999, 160; Booth and Howard-Davis 2004, 24). Villas closest to Leybourne Grange include Churchfields, Snodland, some 2.5 km north-east of the site, East Malling, 3 km to the south-east, and Eccles, 5 km east of the site. Dating evidence places construction of the Snodland villa in the 2nd century AD (Birkbeck 1995, 116). East Malling appears to be closer to Leybourne Grange in terms of chronology; Detsicas (1983, 94) gives it a late 1st century start date. Detsicas (1983, 120) suggests a firmer date for Eccles. The first villa phase, comprising a strip of rooms fronted by a corridor, is dated to *c* AD 65. We cannot definitely link the decline of Leybourne Grange (and neighbouring sites) with the rise of villa estates in the region, but there is no doubt that the rural landscape and population were subject to significant re-organisation in the later 1st century. The possibility that this re-organisation was driven by the needs of a town in the Maidstone area cannot be dismissed. There has been much speculation on the existence of a small town or nucleated settlement here (Wheeler 1932, 98; Detsicas 1983, 78; Houliston 1999, 158), although the evidence has not been forthcoming. (The higher-status aspect to the pottery from Queen Elizabeth Square compared with Leybourne Grange may, however, begin to offer some support to the speculation.)

The group of square pits (1251), arranged in a semi-circle or oval pattern, was the only

significant post-Roman feature to be uncovered in the excavations. Modern ceramic building material recovered from the pits suggests that the feature is of 18th to 20th century date, but it does not appear on any edition of Ordnance Survey map and is unlikely to be a structure. The feature might instead relate to the extensive tree-planting that has been undertaken since the 19th century (Waterman CPM 2008a, 3). A similar arrangement of trees was recorded 180 m to the north-east in an aboricultural survey. The ornamental planting of 25 trees was arranged in a circle, with each tree spaced 1.5 m apart. The group included a U-shaped belt of conifers, and cypress, sycamore, birch, willow, oak, Indian bean tree, copper beech and sweet chestnut were also represented (Waterman CPM 2008b, 65). The survey recorded none of the pits belonging to group 1251, and it is possible that no trees were planted. However, a single tree was noted within the space enclosed by the pits, and is shown on Figure 4 as an unphased feature.

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BIBLIOGRAPHY

Adkins, L and Adkins, R A, 1985 Neolithic axes from Roman sites in Britain, *Oxford J Archaeol* **4(1)**, 69-76

Allen, T, with Donnelly, M, Powell, K and Hayden, C, forthcoming *Archaeological discoveries on the line of the A2 Pepperhill to Cobham Widening Scheme, Gravesend, Kent: high-status late Iron Age and early Roman graves, Bronze Age, Iron Age, Roman and medieval settlements and other burials*, Oxford Archaeology monograph

Andrews, P, Dinwiddy, K E, Ellis, C, Hutcheson, A, Phillpotts, C, Powell, A B and Schuster, J, 2009 *Kentish sites and sites of Kent: a miscellany of four archaeological excavations*, Wessex Archaeology Monogr **24**, Salisbury

Bayley, J and Butcher, S, 2004 *Roman brooches in Britain: a technological and typological study based on the Richborough collection*, Rep Res Comm Soc Antiq London **68**, London

Beijerinck, W, 1947 *Zandenatlas Der Nederlandsche Flora Wageningen*, Bio. Stat Wilster **30**

Berggren, G, 1981 *Atlas of seeds and small fruits of Nothwest-European plant species with morphological descriptions. Part 3: Salicaceae-Crucifereae*, Berlings

Bersu, G, 1940 Excavations at Little Woodbury, Wiltshire, *Proc Prehist Soc* **6(1)**, 30-111
Biddulph, E, 2004 Iron Age and Roman pottery, in Booth and Howard-Davis 2004, 15-21
Biddulph, E, 2011 Late Iron Age and Roman pottery, in *Excavations in north-west Kent 2005-2007: One hundred thousand years of human activity in and around the Darent Valley* (A Simmonds, F Wenban-Smith, M Bates, K Powell, D Sykes, R Devaney, D Stansbie and D Score), Oxford Archaeology monograph **11**, Oxford, 116-124
Biddulph, E, forthcoming A late Iron Age and early Roman pottery assemblage from Leybourne Grange, West Malling, Kent, *J Roman Pottery Studies* **17**
Biddulph, E and Cook, I, 2010 *Leybourne Grange, Maidstone, Kent: post-excavation assessment*, unpublished report by Oxford Archaeology
Birbeck, V, 1995 Excavations on a Romano-British villa at Churchfields, Snodland, 1992-94, *Archaeol Cantiana* **115**, 71-120
BGS, nd Geology of Britain viewer, British Geological Survey, http://mapapps.bgs.ac.uk/geologyofbritain/home.html
Blackmore, L, 2003 Pottery assessment, in MoLAS 2003, 41-7
Blows, J, 2011 *Strategic stone study: a building stone atlas of Kent*, English Heritage, London
Booth, P, 2004 Quantifying status: some pottery data from the Upper Thames Valley, *J Roman Pottery Studies* **11**, 39-52
Booth, P, nd, *Oxford Archaeology Roman pottery recording system: an introduction* (revised June 2007), unpublished document
Booth, P and Howard-Davis, C, 2004 *Prehistoric and Romano-British settlement at Queen Elizabeth Square, Maidstone*, Oxford Archaeol Occ Paper **11**, Oxford
Campbell, G, nd The charred plant remains, in *Excavations at Springhead Roman town, Southfleet, Kent* (A Boyle and R Early), OAU Occasional Paper **1**, 36-39
Campbell, G and Straker, V, in prep. *A review of macroscopic plant remains studies in southern England*
Carruthers, W and Hunter, K, 2007 *A review of the evidence for macrofossil plant remains from archaeological deposits in Northern England*, English Heritage Res. Rep. Series 87, London
CAT, nd, *Canterbury Ceramics 2: the processing and study of excavated pottery*, unpublished report by Canterbury Archaeological Trust
Couldrey, P, 1984 The Iron Age pottery, in *Excavations in the Darent Valley, Kent* (B Philp), Kent Archaeological Rescue Unit, Dover, 38-71
Crummy, N, 1983 *The Roman small finds from excavations in Colchester 1971-79*, Colchester Archaeological Report **2**, Colchester
Davis, A, 2006a *The charred plant remains from Tollgate, Cobham, Kent*, CTRL Specialist Report Series, Archaeological Data Service, http://archaeologydataservice.ac.uk/catalogue/adsdata/arch-335-1/dissemination/pdf/PT2_Spec_Reps/06_Palaeoenvironment/ENV_research_reports/ENV_Charredplants/ENV_Charredplants_TLG_text.pdf?CFID=45&CFTOKEN=454ECBCD-4089-404A-BD2E40E91FF417B6
Davis, A, 2006b *The charred plant remains from Northumberland Bottom, Southfleet, Kent (ARC WNB 98)*, CTRL Specialist Report Series, Archaeological Data Service, http://archaeologydataservice.ac.uk/catalogue/adsdata/arch-335-1/dissemination/pdf/PT2_Spec_Reps/06_Palaeoenvironment/ENV_research_reports/ENV_Charredplants/ENV_Charredplants_WNB_text.pdf?CFID=45&CFTOKEN=454ECBCD-4089-404A-BD2E40E91FF417B6
Detsicas, A, 1983 *The Cantiaci*, Alan Sutton, Gloucester
Diez, V, 2006 The late prehistoric and Roman landscape at Snarkhurst Wood, Hollingbourne, Kent, CTRL Integrated Site Report Series, Archaeological Data Service, http://archaeologydataservice.ac.uk/catalogue/adsdata/arch-335-

1/dissemination/pdf/PT1_Int_Site_Reps/13_Snarkhurst_Wood/SNK_ISR_Text/SNK_ISR_text.pdf
Drury, P J, 1978 *Excavations at Little Waltham 1970-71*, CBA Res Rep **26**, London
Drury, P J and Rodwell, W J, 1973 Excavations at Gun Hill, West Tilbury, *Essex Archaeol Hist* **5**, 48-112
Ellis, C, 2009 Archaeology of the West Malling and Leybourne bypass, in Andrews *et al.* 2009, 1-55
Evans, J, 2001 Material approaches to the identification of different Romano-British site types, in *Britons and Romans: advancing an archaeological agenda* (eds S James and M Millett), CBA Res Rep **125**, York, 26-35
Gallois, R W, 1965 *British regional geology: the Wealden District*, British Geological Survey. Keyworth, Nottingham
Gingell, C, 1981 Excavation of an Iron Age enclosure at Groundwell Farm, Blunsden St Andrew, 1976-7, *Wiltshire Archaeol Mag* **76** (1982), 33-75
Hawkes, C F C and Hull, M R, 1947 *Camulodunum*, Soc Antiq Res Rep **14**, London
Hayden, C and Stafford, E, 2006 *The prehistoric landscape at White Horse Stone, Aylesford, Kent*, CTRL Integrated Site Report Series, Archaeological Data Service, http://archaeologydataservice.ac.uk/catalogue/adsdata/arch-335-1/dissemination/pdf/PT1_Int_Site_Reps/09_White_Horse_Stone/WHS_ISR_Text/WHS_ISR_Text.pdf
Houliston, M, 1999 Excavations at the Mount Roman villa, Maidstone, 1994, *Archaeol Cantiana* **119**, 71-172
Jacomet, S, 2006 *Identification of cereal remains from archaeological sites*, 2 edn, Archaeology Laboratory, IPAS, Basel University
Jones, G P, 2006 *The later prehistoric pottery from Eyhorne Street, Hollingbourne, Kent (420 68+100-68+500 99)*, CTRL Specialist Report Series, Archaeological Data Service, http://archaeologydataservice.ac.uk/catalogue/adsdata/arch-335-1/dissemination/pdf/PT2_Spec_Reps/01_Ceramics/CER_research_reports/CER_LaterPrehistoricPot/CER_LaterPrehistoricPot_Text/CER_LPR_EYH_text.pdf?CFID=45&CFTOKEN=454ECBCD-4089-404A-BD2E40E91FF417B6
Jones, G P, 2009 Later prehistoric and Roman pottery, in Ellis 2009, 18-31
Jones, M, 1978 The plant remains, in *The excavations of an Iron Age settlement, Bronze Age ring ditches and Roman features at Ashville Trading Estate, Abingdon (Oxfordshire), 1974-76* (M Parrington), CBA Res. Rep. **28**, London, 93-110
Jones, M, 1984 The carbonized plant remains, in *Archaeology at Barton Court Farm, Abingdon, Oxon* (D Miles), CBA Res Rep **50**, Oxford, fiche 9
Jones, M U and Rodwell, W J, 1973 The Romano-British pottery kilns at Mucking, Essex Archaeol Hist **5**, 13-47
Kelly, D B, 1971 Quarry Wood Camp, Loose: a Belgic oppidum, *Archaeol Cantiana* **86**, 55-84
Lawrence, S, 2006 The Iron Age settlement and Roman Villa at Thurnham, Kent, CTRL Integrated Site Report Series, Archaeological Data Service, http://archaeologydataservice.ac.uk/catalogue/adsdata/arch-335-1/dissemination/pdf/PT1_Int_Site_Reps/12_Thurnham_Villa/THM_ISR_Text/THM_ISR_text.pdf
Leivers, M, 2009 Worked flint, in Ellis 2009, 16-18
Lyne, M, 2006a *The late Iron Age and Roman pottery from Thurnham Roman Villa, Thurnham, Kent*, CTRL Specialist Report Series, Archaeological Data Service, http://archaeologydataservice.ac.uk/catalogue/adsdata/arch-335-1/dissemination/pdf/PT2_Spec_Reps/01_Ceramics/CER_research_reports/CER_RomanPot/CER_RomanPot_Text/CER_ROM_THM_text.pdf?CFID=45&CFTOKEN=454ECBCD-4089-404A-BD2E40E91FF417B6
Lyne, M, 2006b The late Iron Age and Roman Pottery from Snarkhurst Wood, Hollingbourne, Kent

(ARC SNK99), CTRL Specialist Report Series, Archaeological Data Service, http://archaeologydataservice.ac.uk/catalogue/adsdata/arch-335-1/dissemination/pdf/PT2_Spec_Reps/01_Ceramics/CER_research_reports/CER_RomanPot/CER_RomanPot_Text/CER_ROM_SNK_text.pdf?CFID=45&CFTOKEN=454ECBCD-4089-404A-BD2E40E91FF417B6
Lyne, M, 2008 Roman and medieval pottery, in *The Roman Roadside settlement at Westhawk Farm, Ashford, Kent: excavations 1998-9* (P Booth, A Bingham and S Lawrence), Oxford Archaeol Monograph **2**, Oxford, 207-259
McCutcheon, W A, 1983 *The industrial archaeology of Northern Ireland*, Northern Ireland Department of the Environment
MoLAS, 2003 *Leybourne Grange Hospital, Birling Road, Leybourne, Kent: An Archaeological Evaluation Report*, unpublished report by Museum of London Archaeology Service
Monaghan, J, 1987 *Upchurch and Thameside Roman pottery: a ceramic typology for northern Kent, 1st to 3rd centuries AD*, BAR Brit Ser **173**, Oxford
Oakley, K P, Barker, H and Sieveking, G de, 1967, The skeleton of Halling Man, *Archaeol Cantiana* **82**, 218-20
Olivier, A, 1988 The brooches, in Puckeridge-Braughing, Hertfordshire: The Ermine Street excavations, 1971-1972. The late Iron Age and Roman settlement (T W Potter and S D Trow), *Hertfordshire Archaeology* **10**, 35-53
Quinn, P S, forthcoming, in Biddulph, forthcoming
Riccoboni, P, 2008 *An archaeological evaluation on land at Leybourne Grange, Birling Road, Leybourne, West Malling, Kent*, unpublished report, Archaeology South East
Roe, F, forthcoming, Stone axe, in Allen *et al.*, forthcoming
Schoch, W H, Pawlik, B and Schweingruber, F H, 1988 *Botanical macro-remains*, Haupt
Seager Smith, R, Brown, K and Mills, J M, forthcoming, The pottery from Springhead, in *Settling the Ebbsfleet Valley: CTRL excavations at Springhead and Northfleet, Kent – the late Iron Age, Roman, Saxon and medieval landscape. Volume 2: Late Iron Age to Roman finds reports* (P Andrews, E Biddulph and A Hardy), Oxford Wessex Archaeology
Smith, W, 2010 Charred plant remains, including charcoal, in Biddulph and Cook 2010, 43-62
Smith, W, forthcoming Iron Age charred plant remains, in Allen *et al.*, forthcoming
Stace, C, 1995 *New flora of the British Isles*, Cambridge University Press, Cambridge
Stansbie, D, 2006 *The late Iron Age and Roman pottery from White Horse Stone, Boxley, Kent*, CTRL Specialist Report Series, Archaeological Data Service, http://archaeologydataservice.ac.uk/catalogue/adsdata/arch-335-1/dissemination/pdf/PT2_Spec_Reps/01_Ceramics/CER_research_reports/CER_RomanPot/CER_RomanPot_Text/CER_ROM_WHS_text.pdf?CFID=45&CFTOKEN=454ECBCD-4089-404A-BD2E40E91FF417B6
Thäte, E S and Hemdorff, O H, 2009 Økser, amuletter og overtro: En steinalderøks i jernaldergrav på Avaldsnes, Karmøy (Axes, charms and superstition. A stone-age axe in an Iron-Age grave in Avaldsnes, Karmøy. A case of re-use of prehistoric artefacts by the ancestors?), translated by N Armstrong, AmS-Varia **49**, 43-52
Thompson, I, 1982 *Grog-tempered 'Belgic' pottery of South-eastern England*, BAR Brit Ser **108**, Oxford
Tomber, R and Dore, J, 1998 *The national Roman fabric reference collection: a handbook*, Museum of London Archaeol Services Monogr **2**, London
University of Southampton, 2005 Kentish Rag, in Stone in Archaeology: Towards a digital resource, Archaeology Data Service, https://doi.org/10.5284/1000246
Waterman CPM, 2008a *Leybourne Grange, Maidstone, Kent: Specification for Strip, Map and Record Excavation*, unpublished document
Waterman CPM, 2008b *Leybourne Grange, Maidstone, Kent: Arboricultural Survey*, unpublished

document
Wheeler, R EM, 1932 The towns of Roman Kent, in *Victoria County History of Kent* **3** (ed. W Page), London, 60-101
Whittle, A, 1984 The pits, in *Danebury, an Iron Age hillfort in Hampshire. Vol. 1 – the excavations 1969-1978: the site* (B Cunliffe), CBA Res Rep 52, London, 128-146
Worssam, C and Tatton-Brown, T, 1993 Kentish Rag and other Kent building stones, *Archaeol Cantiana* **112**, 93-126

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Figure 2: Plan of the site, showing areas of excavation, watching brief and historic building recording

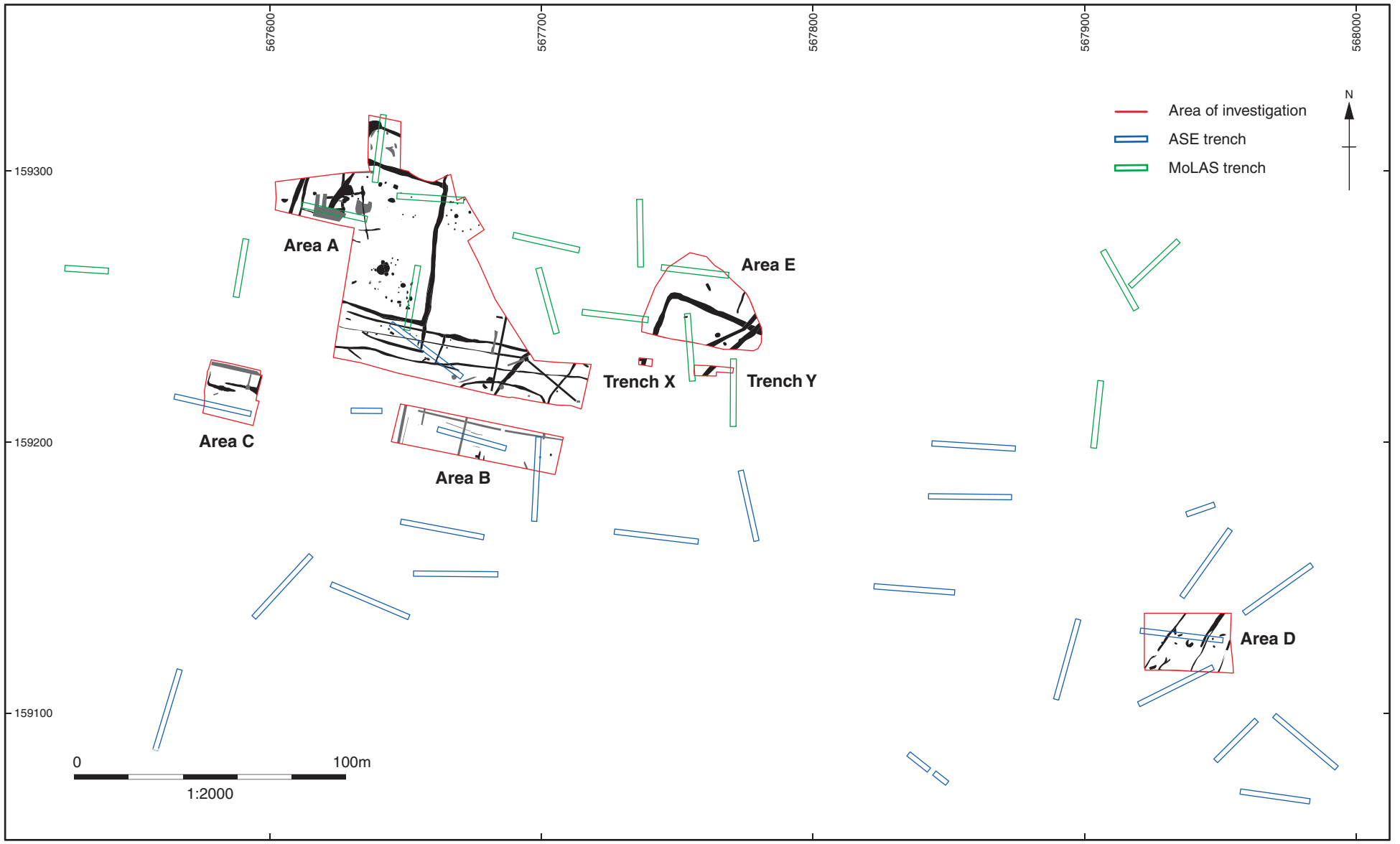


Figure 3: Areas of investigation

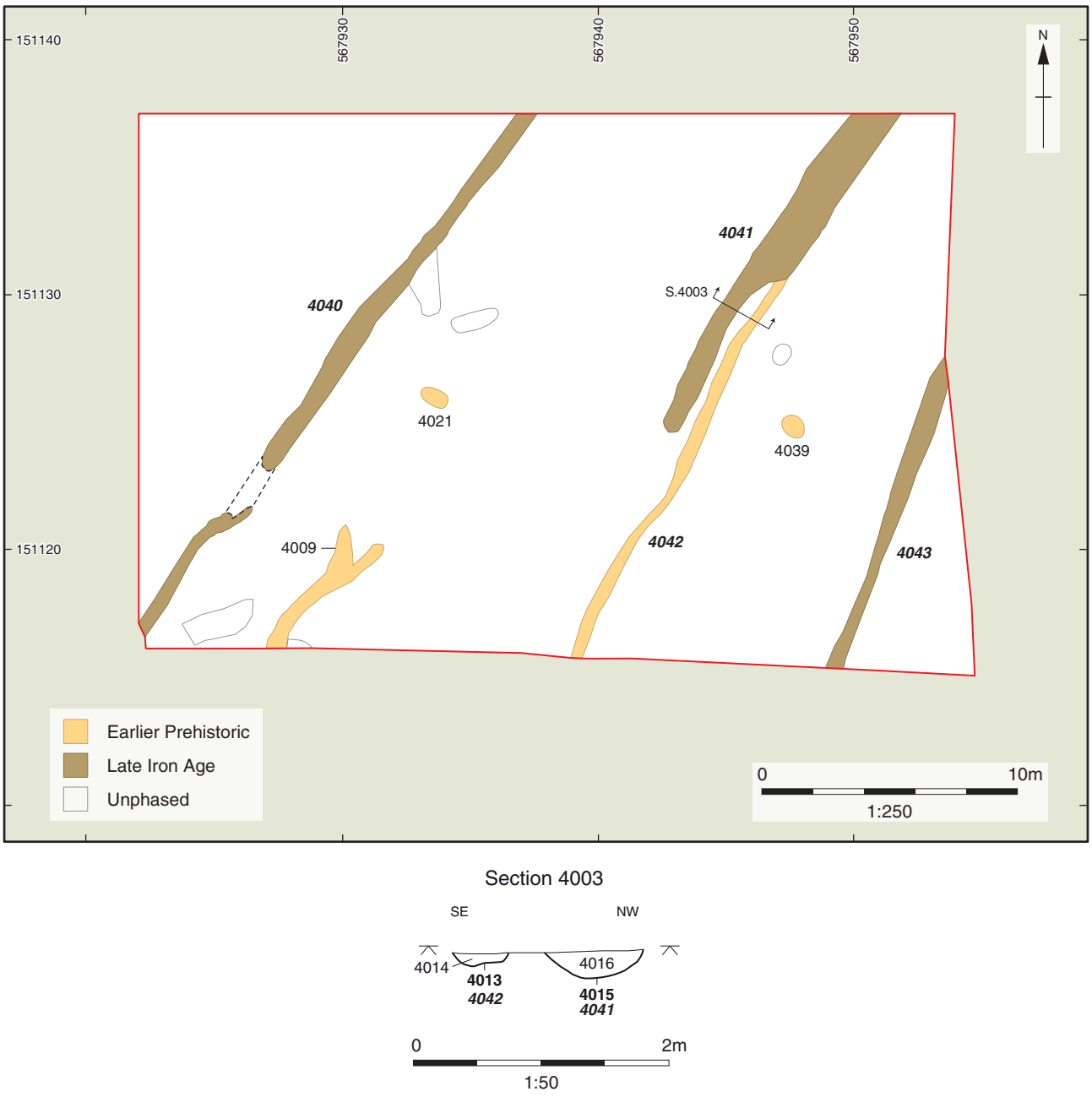


Figure 4: Phase plan of Area D and sections through selected Area D features

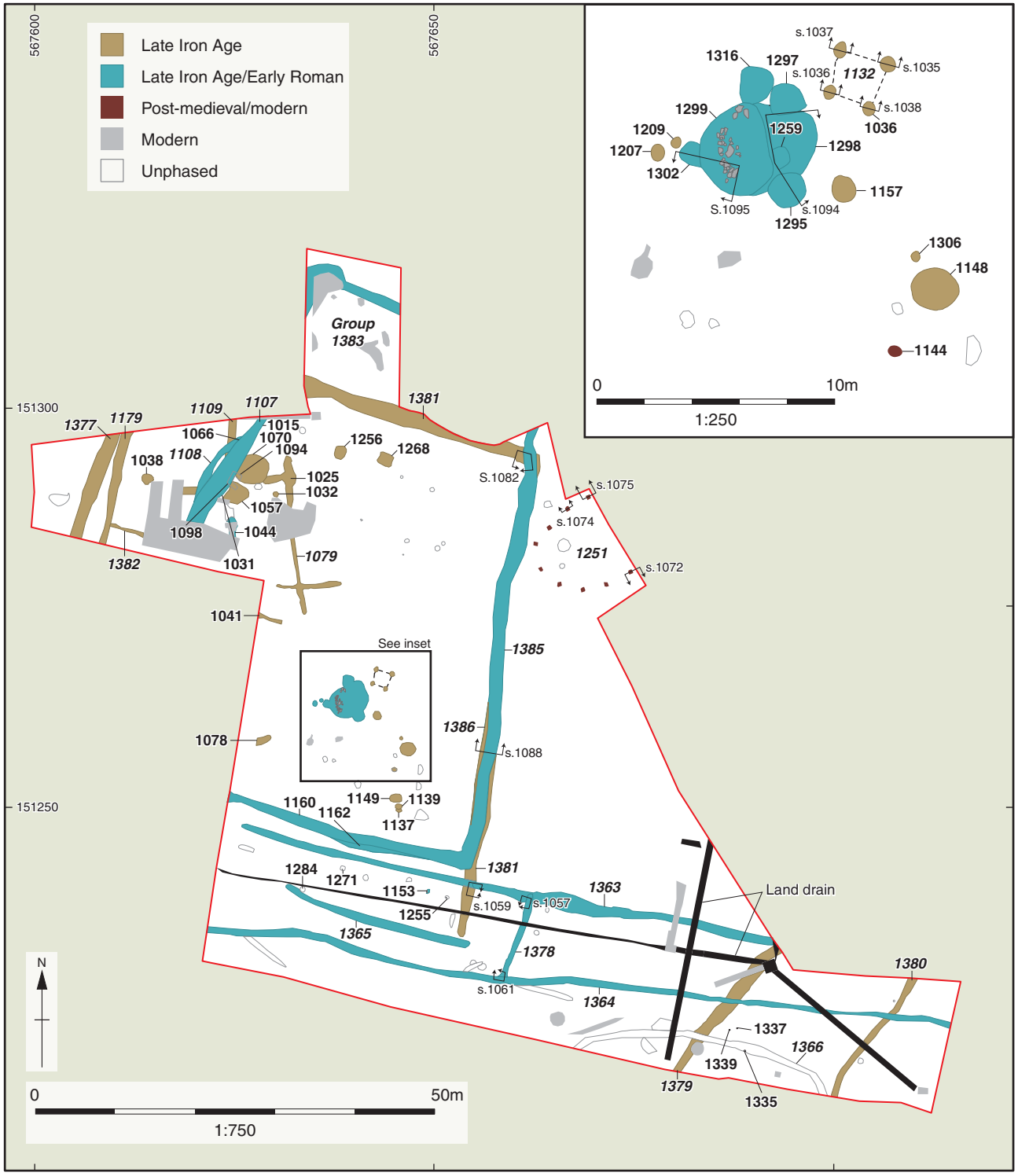


Figure 5: Phase plan of Area A

Figure 6: Area A under excavation, view of south-eastern corner

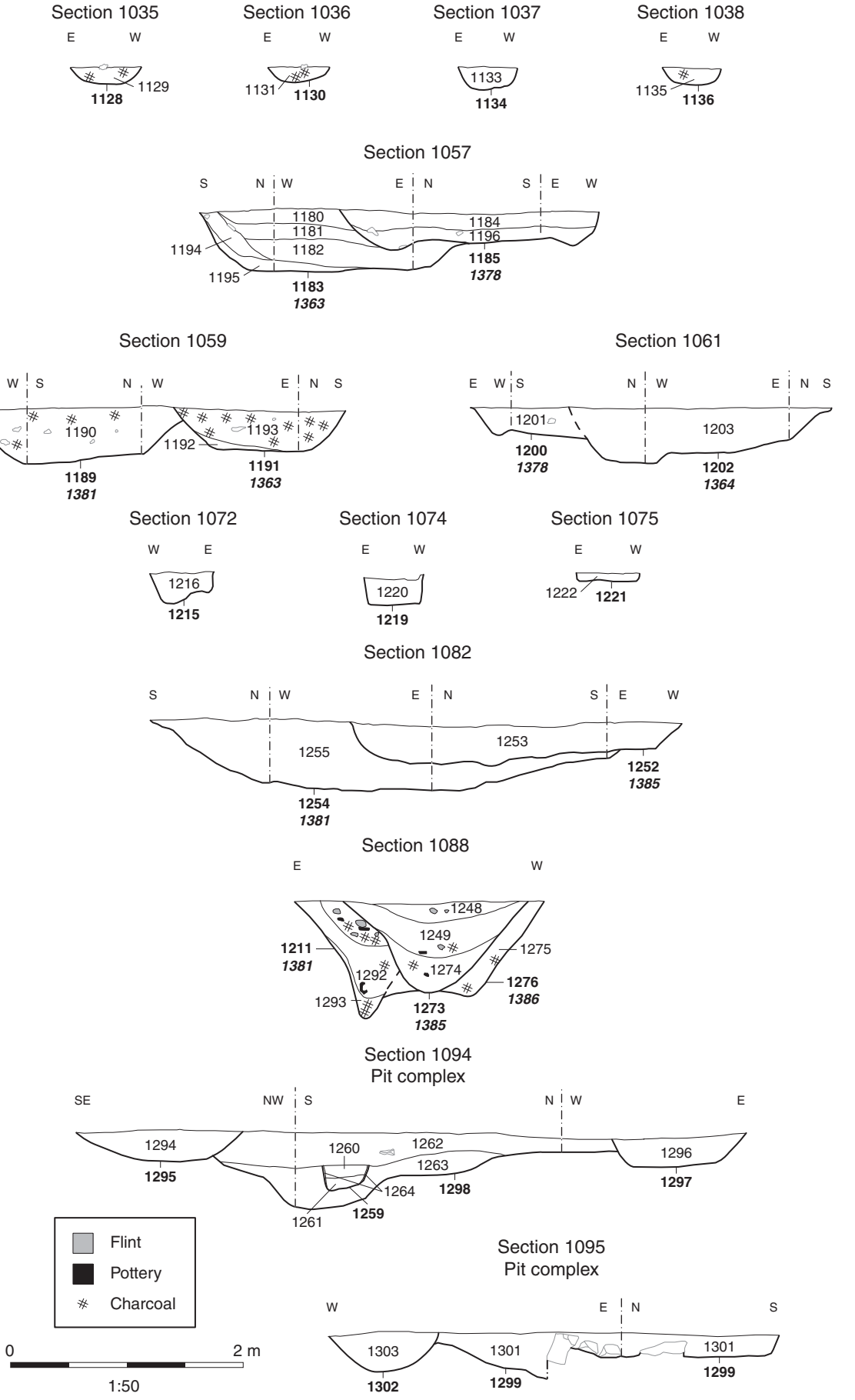


Figure 7: Sections through selected Area A features

Figure 8: View of section through enclosure ditches 1381, 1385 and 1386

Figure 9: Pit 1299 and pit group

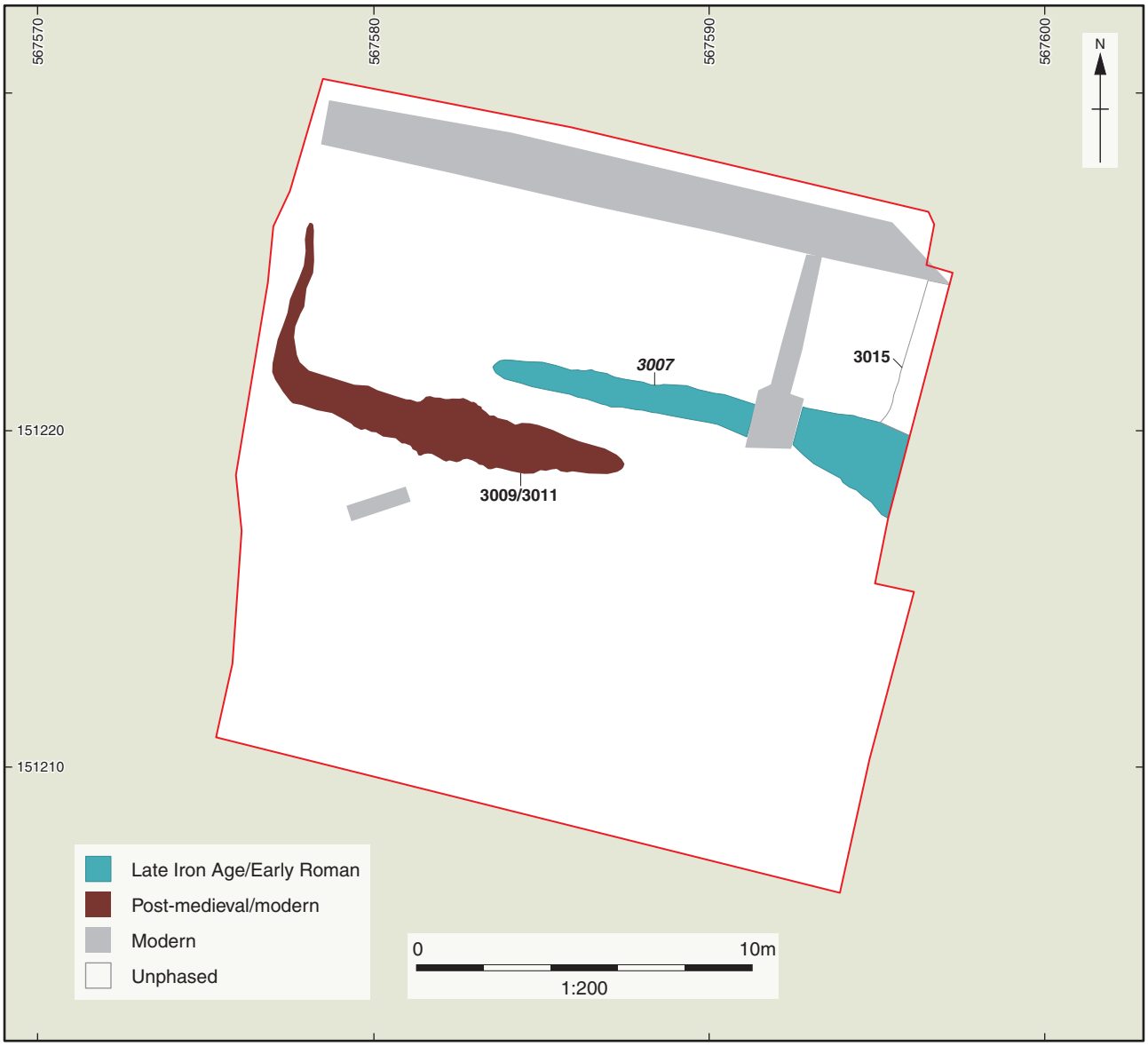
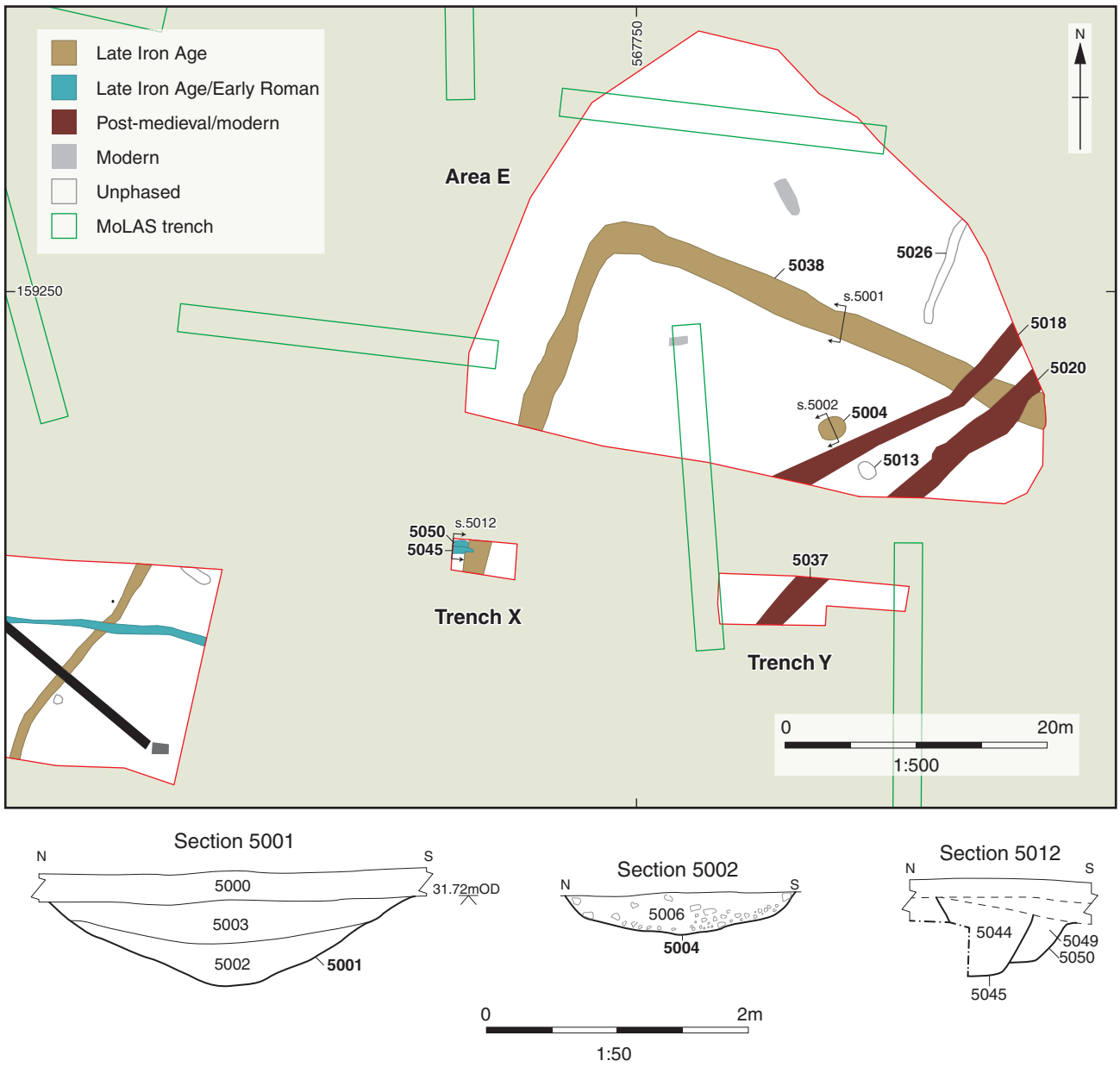


Figure 10: Phase plan of Area C



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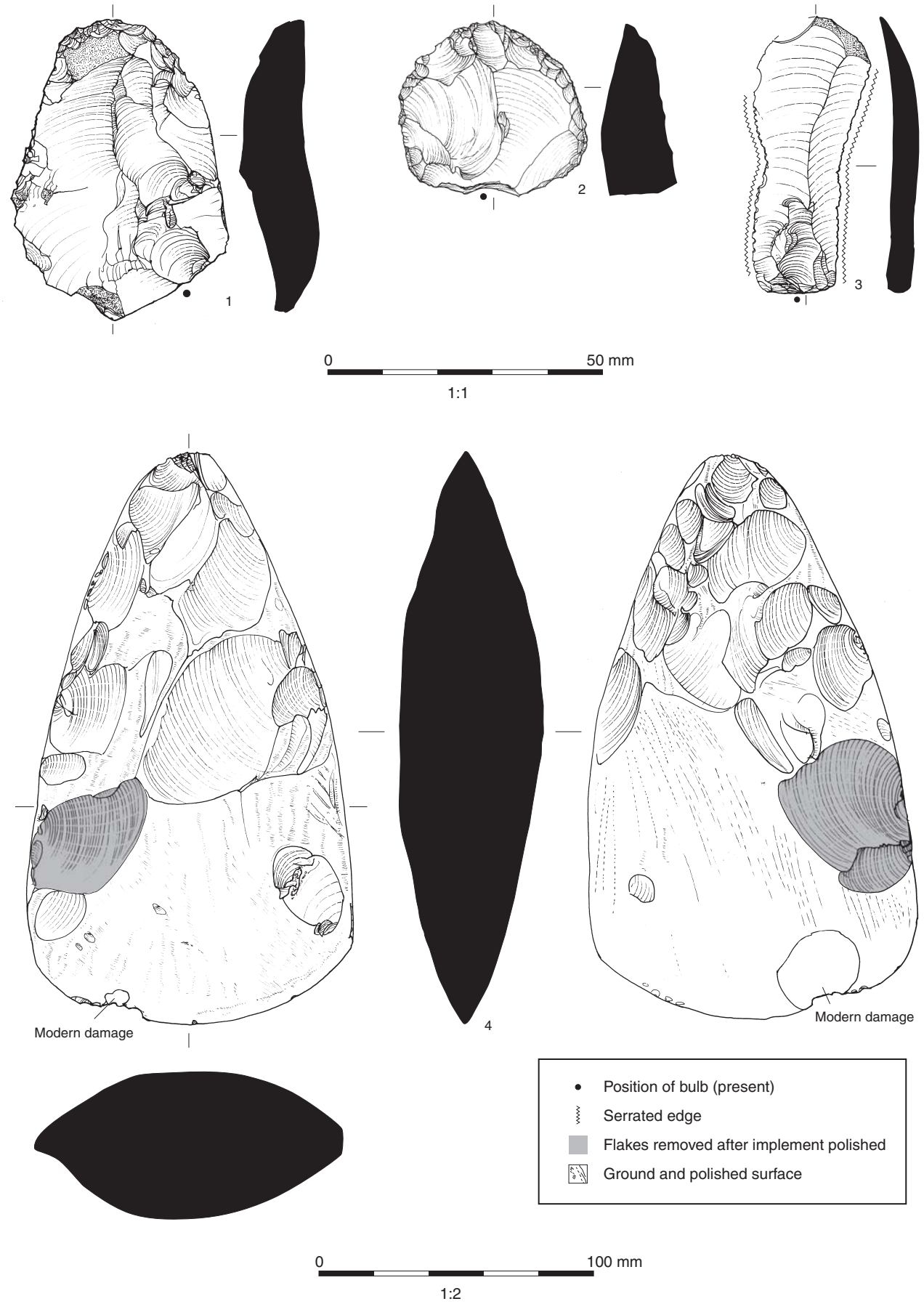

Figure 13: Lithics

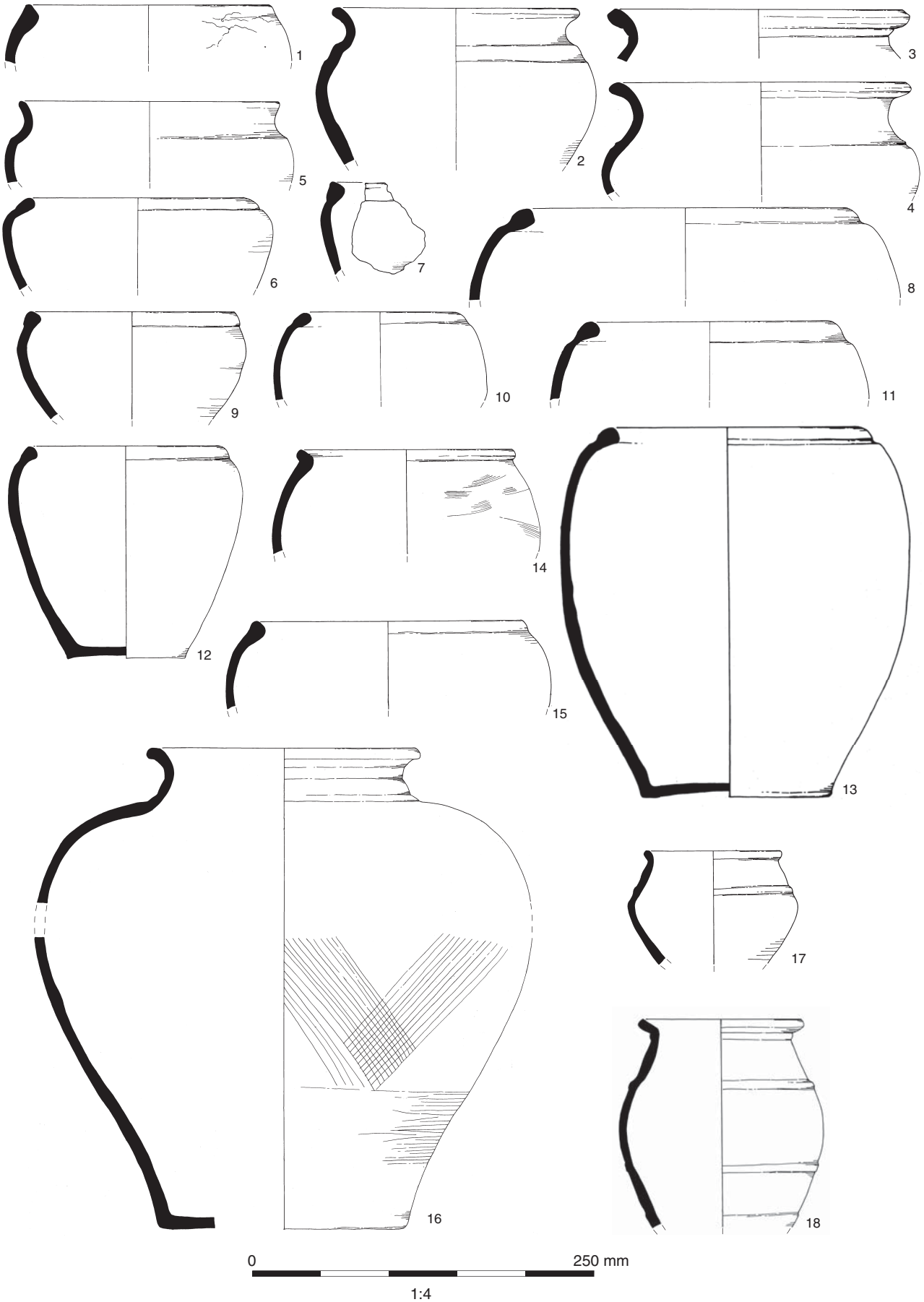

Figure 14: Pottery, catalogue nos 1-18

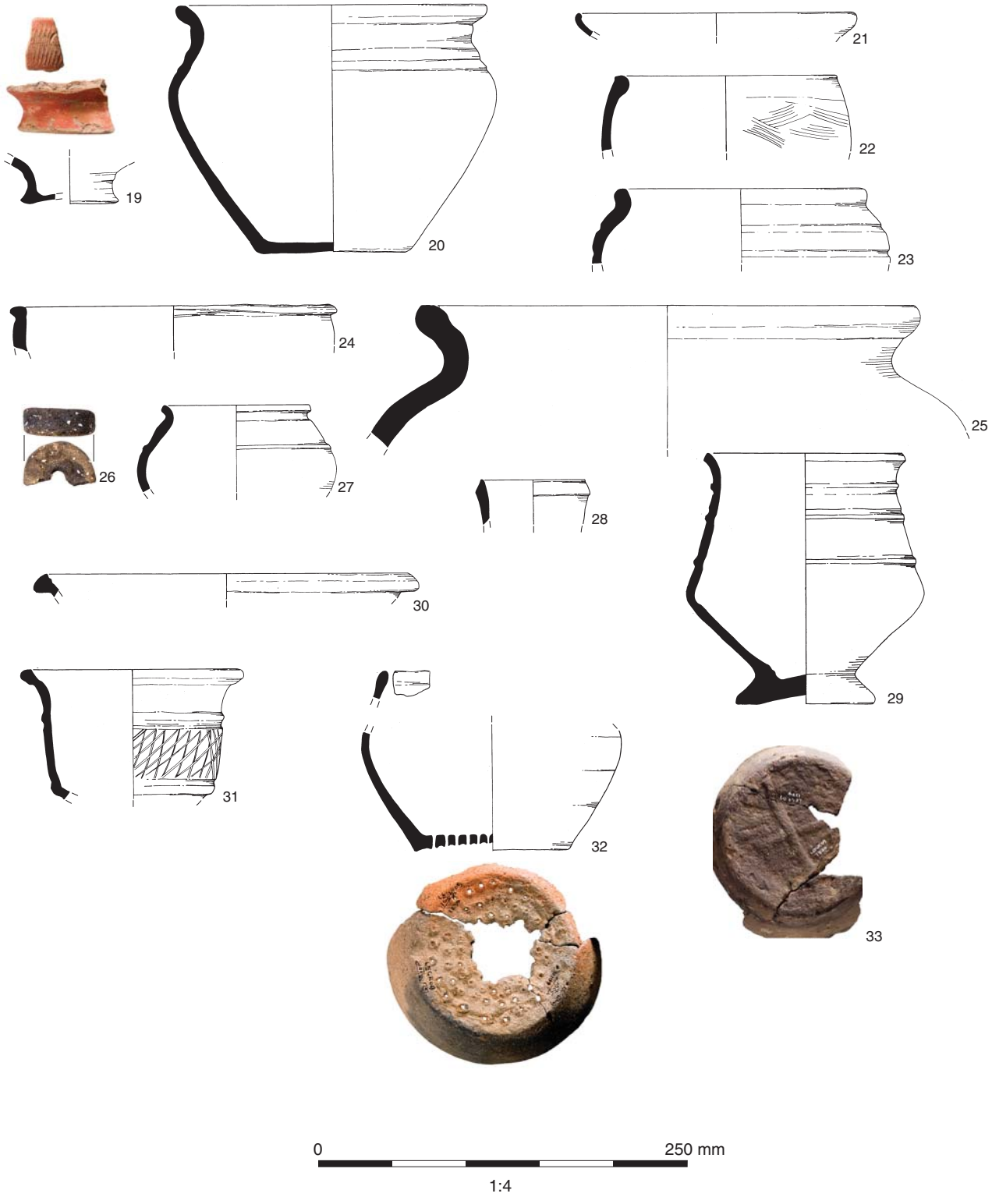

Figure 15: Pottery, catalogue nos 19-33

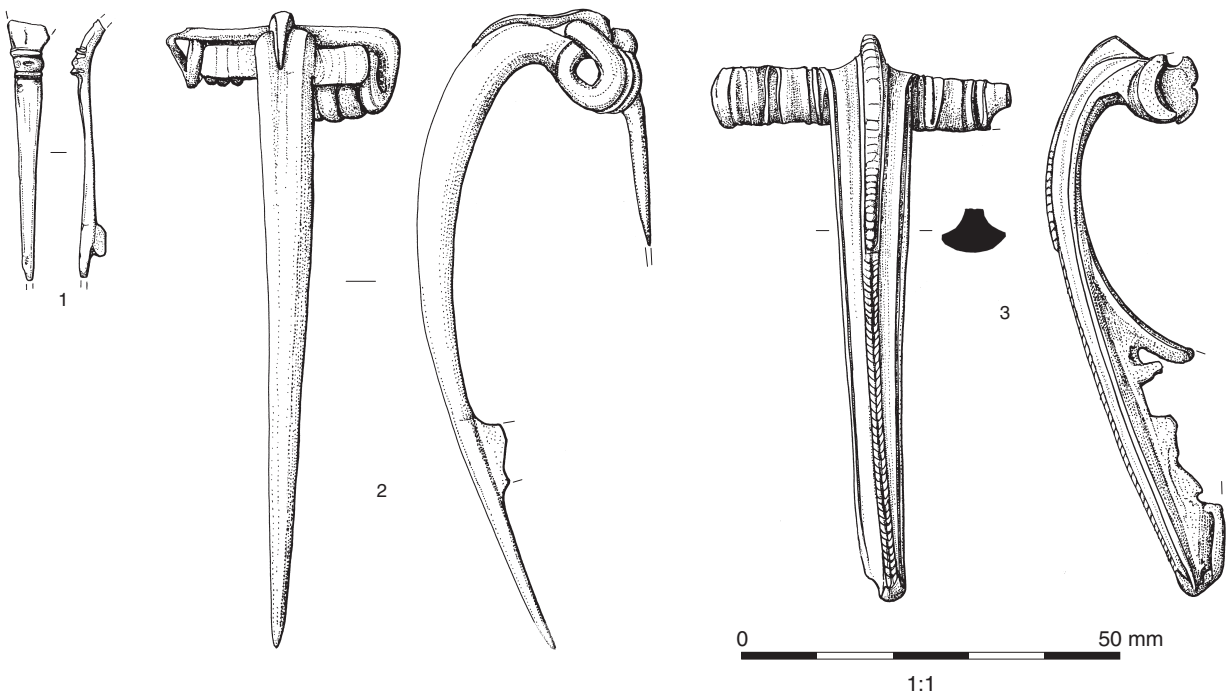

Figure 16: Metal finds

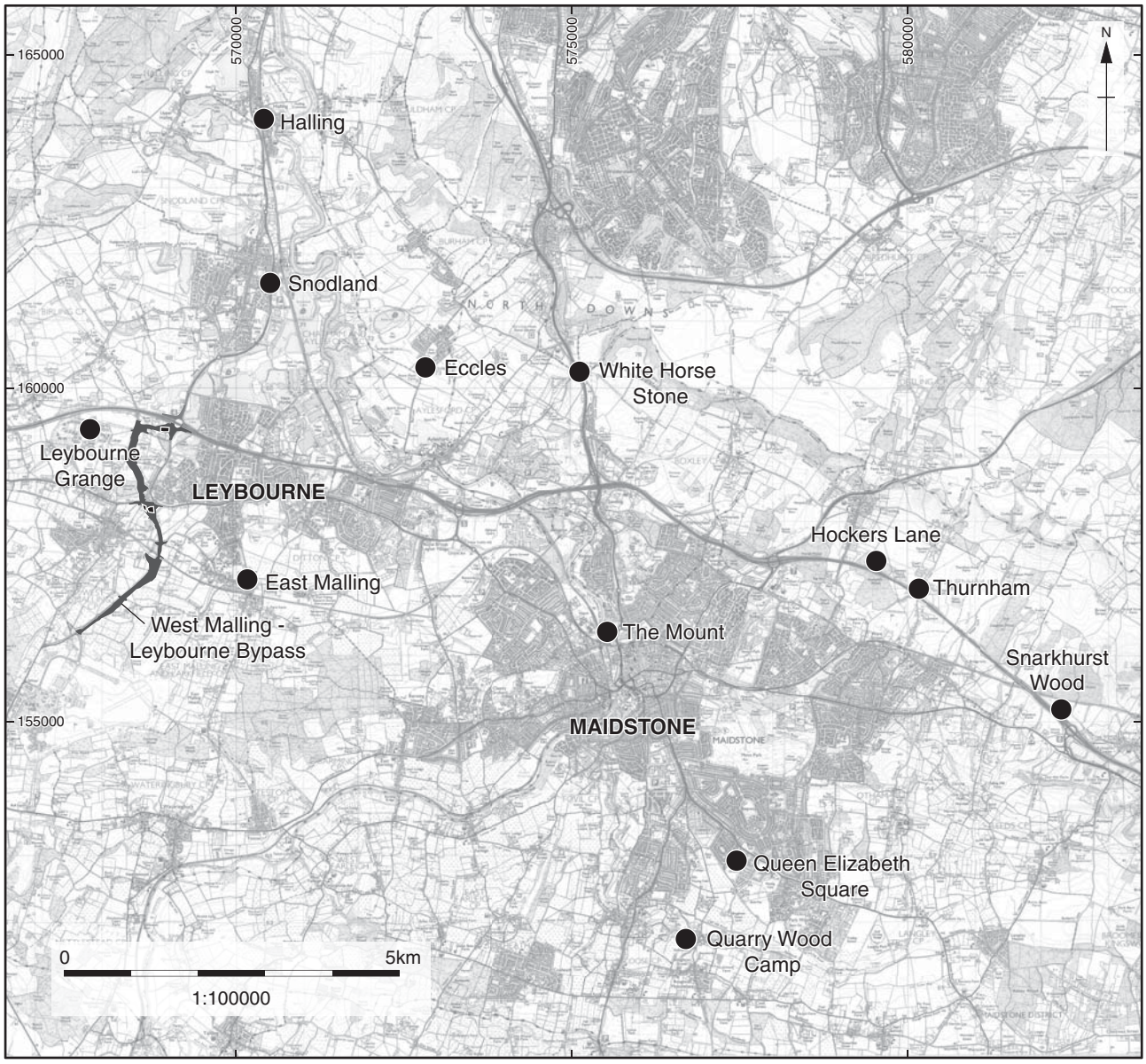

Figure 17: Location of sites mentioned in discussion

Table 1 Burnt unworked flint

Context	Count	Weight (g)
1026	2	41
1027	1	33
1063	3	30
1068	12	27
1120	2	10
1143	2	19
1146	1	8
1197	4	5
1201	1	5
1210	1	2
1229	6	32
1260	2	17
1261	50	130
1262	3	3
1269	3	2
1285	21	63
1286	4	14
1320	1	8
1375	3	160

Table 2 Worked flint

Context	Description	Date
1003	Tertiary flake, narrow blade scar	
1030	End scraper on thick flake	Neolithic
1039	Secondary flake, burnt	
1063	End and side scraper on thick flake	Neolithic
1063	Secondary flake	
1063	Microblade shatter	Mesolithic
1090	Core fragment, burnt	
1095	Utilised secondary flake	
1116	Secondary flake	
1158	Blade-like flake	
1159	Proximal blade fragment	
1168	Blade-like flake	
1187	Core trimming flake, narrow blade core	
1262	Microblade	Mesolithic
1286	Microblade	Mesolithic
1289	Secondary flake	
1309	Utilised tertiary flake	
1317	Blade-like flake	
1368	Proximal blade fragment	
2003	Core trimming flake, utilised	
2003	Core trimming flake, utilised	
2003	Proximal blade fragment	
3008	Core fragment	
3008	Core trimming flake	
3008	Retouched notched flake	
3010	Secondary flake	
3010	Tertiary flake	
3010	Tertiary flake	
4001	Secondary flake from blade core	
4001	Retouched notched flake	
4004	Narrow blade	
4004	Tertiary flake	
4004	Secondary flake	
4010	Denticulated blade, Bullhead flint	Neolithic
4023	Narrow blade	

Table 3 Late Iron Age and Roman pottery (MV – minimum number of vessels, EVE – estimated vessel equivalents)

Ware	Sherds	%	Weight (g)	%	MV	%	EVE	%
B1	1083		9342		88		9.53	
B12	5		64					
B17	2		22					
B2	527		12398		32		3.13	
B3	1		92		1		0.18	
B5	47		425		4		0.21	
B5.1	67		1150		13		1.1	
B8	21		165		2		0.35	
B9	114		1407		8		0.71	
B9.1	501		5856		25		3.96	
B9R	649		9547		44		4.11	
BER12	1		8		1		0.05	
BER15	21		35					
BER5-10	5		19					
FLINT	4		32					
LIAB4	250		3316		28		2.5	
PM	1		3					
R151	1		3					
R154	54		371		8		0.99	
R18	2		5		2		0.32	
R42	1		5		1		0.05	
R50	2		90					
R56	3		165					
R68	12		211		1		0.03	
R69	377		5121		19		2.47	
R71	2		2					
R73	10		25		1		0.08	
R74	2		32		1		0.09	
R75	7		18					
R8	28		53					
R98	3		49					
SAND	9		52					
TOTALS	3812		50083		279		29.86	

Table 4 Pottery from late Iron Age context groups. Quantification by EVE. * = fabrics present, but with no rim surviving

Ware	**C Jar**	**E Beaker**	**H Bowl**	**J Platter**	**L Lid**	**Total EVE**	**% EVE**
B1	3.77		1.06			4.83	27%
B12						*	
B17						*	
B2	1.9		0.45		0.03	2.38	13%
B3			0.18			0.18	1%
B5	0.14					0.14	1%
B5.1	0.87					0.87	5%
B8	0.29			0.06		0.35	2%
B9	0.17					0.17	1%
B9.1	3.2	0.27	0.07			3.54	18%
B9R	1.91				0.08	1.99	11%
BER12				0.05		0.05	<1%
BER15						*	
LIAB4	1.13					1.13	6%
R154			0.6			0.6	3%
R69	1.99					1.99	11%
R75						*	
R98						*	
Total EVE	15.37	0.27	2.36	0.11	0.11	18.22	
% EVE	84%	1%	13%	1%	1%		

Table 5 Pottery from early Roman context groups. Quantification by EVE. * = fabrics present, but with no rim surviving

Ware	B Flagon	C Jar	E Beaker	F Cup	H Bowl	J Platter	L Lid	M Misc.	Total EVE	% EVE
B1		2.97	0.06		0.59				3.62	38%
B12									*	
B17									*	
B2		0.65							0.65	7%
B5			0.03		0.04				0.07	1%
B5.1		0.23							0.23	2%
B8									*	
B9		0.45					0.09		0.54	6%
B9.1		0.24			0.15				0.39	4%
B9R		1.48						0.04	1.52	16%
BER15									*	
BER5-10									*	
LIAB4		0.94			0.09		0.04		1.07	11%
R151									*	
R154		0.12	0.08	0.19					0.39	4%
R18	0.25		0.07						0.32	3%
R42						0.05			0.05	1%
R50									*	
R56									*	
R68		0.03							0.03	<1%
R69		0.48							0.48	5%
R73		0.08							0.08	1%
R74		0.09							0.09	1%
R75									*	
R8									*	
R98									*	
Total EVE	0.25	7.76	0.24	0.19	0.87	0.05	0.13	0.04	9.53	
% EVE	3%	81%	3%	2%	9%	1%	1%	<1%		

Table 6 Summary of fired clay and daub

Type	Count	Wt (g)	% Wt (g)
Daub	87	982	34.7
FC (indeterminate)	285	890	31.4
FC (structural)	57	541	19.1
CBM	17	418	14.8
Total	446	2831	

Table 7 Animal bone: Number of fragments/species

Species	**Cattle**	**Sheep/ goat**	**Pig**	**Horse**	**Medium mammal**	**Large mammal**	**Indeterminate**
Loose teeth	55		3	2			51
Vertebra					1	7	
Rib					2	1	
Pelvis		1					
Phalanx 2	1						
Phalanx 3				1			
Long bone					1	17	
Indeterminate					1	3	70
Total fragment count (NISP)	56	1	3	3	5	28	121
Total weight (g)	173	1	9	72	0	80	46

Table 8 Preservation levels for animal bones

	n	Very good	Good	Fair	Poor	Very poor	Extremely poor
Bone	116	0.9%	17.2%		45.7%	19.8%	8.6%
Teeth	111	50.5%	42.3%	7.2%			
TOTAL	217	26.3%	30.9%	3.7%	24.4%	10.6%	4.6%

Table 9 Plant macrofossils

			PERIOD	LIA	LIA	LIA/ER	LIA/ER	LIA/ER	LIA/ER
			FEATURE TYPE	Pit	Pit	Pit	pit	Ditch	Ditch
			FEATURE NO	1070	1268	1259	1259	1227	1066
			CONTEXT	1068	1269	1260	1261	1229	1063
			SAMPLE	**15**	**21**	**19**	**20**	**11**	**16**
Taxa	**Common Name**	**Component**	**Habitat**						
Triticum sp.	free threshing wheat type	Grain	Cult	1	23		12		
Triticum cf. dicoccum Schulb	possible emmer	Grain	Cult						2
Triticum cf.spelta	possible spelt	Grain						12	11
Triticum sp.	glume wheat type	Grain(Sprouted)	Cult	10(2)	52(3)		41(4)		63(1)
Triticum sp.	wheat nfi	Grain	Cult	12	28	24			
Cf. Triticum sp.	possible wheat	grain	Cult		27	6	99	4	2
Hordeum sp.	barley (hulled)	Grain	Cult	2	35			6	4
Hordeum vulgare L.	barley (hulled) lateral grains	Grain	Cult		12				
Cf. *Hordeum sp.*	barley	Grain	Cult	2			1		6
Avena sp.	oat	Grain			71	18	447		
Cf. Avena/Bromus sp.	possible oat/brome	Grain(frags)	Cult	6	47	33	369	9	15
Cereal NFI	unidentified cereal	Grain	Cult	51	521	18		100+	
Triticum sp.	free threshing wheat type	Rachis fragment	Cult		3				
Triticum sp.		Awn fragment	Cult						

Triticum dicoccum Schubl	emmer	Spikelet fork	Cult		15			4	
Triticum Cf. dicoccum	possible emmer	Spikelet fork	Cult	2					
Triticum spelta L.	spelt	Spikelet fork	Cult		5		53		
Triticum cf.spelta	possible spelt	Spikelet fork	Cult					2	
Triticum sp.	glume wheat	Spikelet fork	Cult	7	23	20	225		
cf. Triticum sp.	glume wheat	?spikelet fork	Cult		172			16	15
Triticum dicoccum	emmer	Glume base	Cult		67				
Triticum cf. dicoccum	possible emmer	Glume base	Cult	2		3			
Triticum spelta sp.	spelt	Glume base	Cult		44				
Triticum cf. spelta	possible spelt	Glume base	Cult			8	104		
Triticum sp.	glume wheat	Glume base	Cult	26	680	15	121	40	44
Triticum/Hordeum sp.	wheat/barley	rachis fragment	Cult						1
Hordeum sp.	barley ?lax eared hulled	Rachis fragment	Cult		12				
Hordeum sp.	barley? dense eared hulled	Rachis fragment			10				
Hordeum sp.	barley	Rachis fragment	Cult	6	110	1		2	3
Avena sp.	oat	Lemma Fragments			11				
Avena fatua L	wild oat	Floret base	Da						2
Avena sativa L	oat	Floret base	Cult		1				
Avena sp.	oat	Floret base		7	12			1	
Avena sp.	oat	Awn fragment		2	***	1		3	4
	cereal type	Culm node	Cult						
	cereal type	Straw Fragment	Cult	3					

	cereal type	Detached embryo sprouted/sprout	Cult		11		6		8
	cereal type	Detached embryo	Cult		3			3	
Corylus avellana L.	hazelnut	Shell frags	SW		1		2		
Chenopodium album L.	fat hen	Seed	Da,n	10			5		
Chenopodium sp.	goosefoots	Seed	n		36		5		
Atriplex sp.	orache	Seed	n						
Chenopodium /Atriplex sp.		Seed	n						
Montia fontana ssp fontana L.	blinks	Seed	Damp places						
Stellaria neglecta L.	greater stitchwort	Seed	Damp shady places						
StellariaCf. palustris	marsh stitchwort	Seed	M,Fen	1					
Stellaria graminea L.	lesser stitchwort	Seed	GW						
Cf. Stellaria sp.	stichworts	Seed		1			1		
Agrostemma githago L.	corn cockle	Seed capsule fragment	Da			1			
Cf. Silene Sp.	campion type	seed		1					
Persicaria maculosa / persicaria	redshank/pale persicaria	Achene (frags)	Da	2	23(13)		15		
Persicaria hydropiper	water pepper	Achene(frags)	Damp places, shallow water often shaded.			15	109(53)		
Cf.Persicaria hydropiper	possible water pepper	Achene					8		
Persicaria sp.	knotweeds	Achene		4					
Fallopia convolvulus (L.) Love.	black bindweed.	Achene	Da		3(1)	2	12		
Rumex acetosella L.	sheep's sorrel	Achene / (tepal)	G Acid						

Rumex cf. palustris Smith	marsh dock	Achene	B ditches marshy fields						
Rumex sp.	dock type	Achene	DaGMSW	6	2		1		5
Cf. Rumex sp.	dock type	Tepal/perianth fragment		2	2				
Malva sp.	mallow	Nutlet	DG				1		
Viola sp.	violet type	Seed							
Rosa sp.	rose type	spine							1
Prunus spinosa L.	blackthorn	Stone (fragments)	WS			1			
Vicia/Lathyrus sp. (4mm)	vetch/pea	Seed	Da,Cult	4					32
Vicia/Lathyrus sp. (2mm)	vetch/pea	Seed	Da,Cult	65	7		2		122
Trifolium/Lotus sp. L	clover/birdsfoot trefoil	Seed		2					2
Trifolium/melilotus sp. L	clover/medick	Seed							
	legume	*pod fragments*							
Linum usitatissium L.	Flax	Seed	Cult				17		
Plantago lanceolata L.	Ribwort Plantain	Seed	G short or grazed. Da		2		1	2	
Odontites / Euphrasia L.	Bartsia/ Eyebright	Seed	Da G	2					
Galium aperine L.	Cleavers	Nutlet	Da,H	1					
Cf.Crepis sp.	Hawks beard	Achene					1		
Tripleurospermum inodorum(L.) Scultz-Bip	Scentless mayweed	Achene	Da	2	1		3		11
Cf.Tripleurospermum inodorum		Achene					2		
Juncus sp.	Rush	(Capsule)/seeds			(1)30				

Eleocharis palustris (L.) Roemer & Schultes	Common Spike Rush	Nut	A, shallow water. MG wet	1			2		
Eleocharis sp.		Nut							
Carex sp. (Trigonus)	Sedge	Nut	MBWG esp. damp/wet soils				2		3
Carex sp. (bi-convex)	Sedge	Nut	MBWG esp. damp/wet soils		1		5		1
Poaceae	Grass	Caryopsis					9	2	
Unident		seed		1		4	75		
Unident		Rhizome/ Tuber fragments			1				7
Unident		Bread like fragments				1			2
KEY									
B	Bankside								
C	Cultivated								
D	Disturbed ground								
Da	Disturbed ground inc. arable								
G	Grassland								
H	Hedge bank								
M	Marsh								
S	Scrub								
W	Woodland								
( )	Less usual habitats given in brackets.								

**	Occasional 6-20								
***	Frequent 21-100								
****	Abundant 100+								

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