

# EXCAVATION OF A RING DITCH, MIDDLE TO LATE BRONZE AGE AND LATE IRON AGE FIELD SYSTEMS AND MEDIEVAL BRICEARTH PITS AT EAST HALL FARM, SITTINGBOURNE, 2005 AND 2007

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## INTRODUCTION

The excavations at East Hall Farm were undertaken by Oxford Archaeology (OA), on behalf of Scott Wilson acting for Countryside Properties Ltd, prior to the construction of a mixed-use development, including a loop road, during 2005 and 2007. These works were preceded by a desk-based assessment undertaken by CgMs Consulting in 2003 (CgMs 2003) and by an evaluation undertaken by OA in 2004 (OA 2005c). The excavation methodology comprised a combination of detailed excavation and strip, map and sample excavation, and covered a combined area of 11.6 hectares.

The site is located on the eastern edge of Sittingbourne, on land to the north of the London-Whitstable railway line, centred on NGR TQ 9278 6401. The work was undertaken in two phases: the loop road excavation was undertaken in 2005, and the areas on either side of this (Sites 1 and 2) were excavated in 2007. The Sittingbourne area lies on an outcrop of the Thanet Sands capped by Head Gravels and brickearth. The excavation lay on the boundary of these deposits, the northern part being composed of flint gravel while brickearth predominated in the southern part. The underlying solid geology of the area is chalk. The development area was situated between the tidal Milton Creek and a stream that drains north-east from Bapchild to feed Conyer Creek. In turn, Milton Creek and Conyer Creek feed into the Swale. Between the two watercourses the land was originally undulating. To the north, a flatter alluvium-covered landscape occupies the south bank of the Swale.

## Archaeological and historical background

The potential archaeological resource of the development area was the subject of a desk-based assessment (CgMs 2003), the results of which are summarised below. The desk-based assessment concluded that the study site had the potential to produce evidence from the Lower Palaeolithic through to the Roman Period, although brickearth extraction from the late nineteenth century to the mid twentieth century had significantly reduced this potential. In particular, the desk-based assessment recognised a possibility (considered fairly remote) that Lower Palaeolithic artefacts might be recovered from the Head Gravel Deposits and that Upper Palaeolithic material might occur within any surviving brickearth deposits. Spreads of later prehistoric material in the area indicated that within areas which had not been quarried, the site had the potential to contain evidence of occupation (including lithic scatters within the plough soil). More significantly, evidence from early twentieth century brickearth extraction suggested that a late prehistoric/Roman landscape was preserved in the area to the north-east of Sittingbourne. Accordingly, it was thought that there was a high potential for artefactual evidence and subsurface features dating from the late Bronze Age, the Iron Age and the Roman periods to survive in parts of the site which had not been quarried.

## Evaluation fieldwork

An archaeological field evaluation of the area affected by the development was carried out during April and May 2005. This demonstrated that whereas much of the area of the development had been subject to quarrying during the nineteenth and early twentieth century, the loop road was situated within an area where archaeological features were preserved. Elements of a late Bronze Age to early Iron Age landscape were identified, consistent with that predicted by the desk-based assessment. The greatest concentration of archaeological features was recorded in the northern part of the loop road.

## Excavation methodology

All work followed procedures laid down in the OA Fieldwork Manual (OA 1992). The overburden was stripped under close archaeological supervision using a 360° mechanical excavator with a toothless ditching bucket, to the top of the first archaeological horizon, or top of the superficial geology, whichever was encountered first. Subsequently the exposed archaeological features were cleaned by hand where necessary and were digitally mapped using a total station. An appropriate sample of the features (agreed with the project consultant and local authority curator) was excavated by hand. Structural remains and other areas of significant and specific activity were fully excavated and recorded. Non-structural linear features were sample excavated and recorded with an appropriate number of interventions to establish their character, date and morphology. Non-structural pits were half-sectioned. Recovery of finds by hand was supplemented by a targeted programme of palaeoenvironmental sampling. All features and deposits were issued with a unique context number. Individual and intersecting features were drawn in plan and section by hand at a scale of 1:20. Features were photographed using colour slide and black and white print film. Digital photographs were also taken.

A number of environmental bulk samples were taken. Priority was given to the basal fills of features and to those contexts showing visible charred plant remains. For features such as postholes, sampling was limited to those that could be firmly attributed to a potentially datable group or structure. Soil micromorphology monoliths and series samples for mollusc analysis were taken from key selected features.

## Archive

The finds, paper records and digital archive is temporarily stored at OA but will be deposited at an appropriate museum in Kent when possible. The archive includes all records made on site: evaluation and watching brief reports, post-excavation assessment reports, original versions of the final artefact, bone and environmental reports, pottery and animal bone databases, pottery recording sheets, human bone recording sheets, full radiocarbon results, and digital CAD plans of the site.

## THE SITE

All fills comprised clay-silt (brickearth), with varying inclusions of flint and charcoal flecks unless otherwise stated.

## Palaeolithic, Mesolithic and Neolithic activity

Although the earliest features on the site probably date from no earlier than the late Neolithic/early Bronze Age, evidence for activity at the end of the Palaeolithic, during the Mesolithic and the Neolithic is evidenced by worked flint recovered from much later features. This flint is discussed in more detail below.

### *The ring ditch (Fig. 4)*

A ring ditch (1330), close to and partially extending beyond the north-eastern limit of the loop-road excavation, was probably the earliest feature on the site. It measured 14.7m in diameter and was 1.1-1.5m in width, by 0.15-0.4m in depth. In profile the ring ditch varied, but most often had a flat base with steeply sloping or concave sides. In general it contained a single fill of clay-silt, with occasional inclusions of flint and charcoal.

The date of the ring ditch is uncertain. Small quantities of middle to late Bronze Age pottery were recovered from the ring ditch (15 sherds, 20g), and it is possible that the ring ditch is a late example dating from this period. It is also possible, however, that this pottery was intrusive, and the ring ditch earlier in date.

Two hollows (1323 and 1332) lay within the ring ditch. Neither contained any human remains, and one (1323) contained middle to late Bronze Age pottery (29 sherds, 43g) and could, therefore, have been contemporary with the ring ditch. Another similar hollow (1332) contained no finds. These features are described below with the other middle to late Bronze Age features.

### *Middle to late Bronze Age features*

Features dated to the middle to late Bronze Age transition (c 1350-1000 cal BC), on the basis of ceramic evidence, comprised parts of a field system, two cremation burials, two curvilinear ditches and four pits. These features can be subdivided into three phases on stratigraphic grounds.

The first phase of middle to late Bronze Age activity comprised a curvilinear ditch (3077) aligned approximately east-west. It probably formed part of the same phase of activity as ditch 1376, excavated during the 2005 loop-road excavations, and pit 3047 situated in the south-western corner of Site 2.

This first phase of middle to late Bronze Age activity was superseded on Site 2 by a second phase of field boundaries comprising ditches 3078 and 3079, along with ditch 1567 which was excavated during the loop-road excavations. Ditch 3079 was orientated north-west – south-east, measured approximately 3 m in length and ran across the north-eastern part of Site 2 abutting ditch 3078 to the south-east. Ditch 3078 measured approximately 34m in length and was orientated north-east – south-west, running across the south-eastern corner of Site 2 and beyond the limit of the excavation at both ends.

The third phase of middle to late Bronze Age activity consisted of a group of rectilinear and subrectangular enclosures (4000, 4001 and 4002) and two short sections of linear ditch (1160 and 1178) aligned along a segmented linear ditch (1488), along with three four-post structures (2520, 2521 and 2522) and a five-post structure (2135), two unurned cremation burials (2021 and 2027) and a group of four curvilinear ditches which may have defined the corner of an enclosure (4003). Three pits (2325, 2263 and 2277), all containing middle to late Bronze Age pottery are impossible to assign to any one of these subphases, although at least one of them (2325) was earlier than the latest phase of middle to late Bronze Age activity, as it was cut by the eastern boundary ditch of enclosure 4002.

### *Phase 1, ditches 3077, 1376 and pit 3047 (Fig. 5)*

Curvilinear ditch 3077 measured approximately 158m in length, and was orientated west-south-west – east-north-east, running across the south-eastern part of Site 2 and the southern part of the 2005 loop-road excavation, before terminating in the south-western corner of Site 1. An 8.1m wide gap in the ditch in the south-western corner of the loop-road excavation would have allowed the north-

south movement of people and animals (and also allowed later north-west - south-east ditch 1567 to bisect the line of ditch 3077 without cutting it). Ditch 3077 measured from 0.5 to 1.1m in width and 0.12-0.22m in depth and was largely flat based with steep or concave sides. It had a single fill of clay-silt, and contained two separate deposits of middle to late Bronze Age pottery, one of 24 sherds weighing 494g from the south-western end of the ditch and another of 36 sherds weighing 75g from near to its north-eastern end.

Linear ditch 1376 measured 17.1m in length and was orientated north-north-east – south-south-west, running beyond the limit of excavation to the SW and ending in a rounded terminal approximately 0.41m to the south of ditch 3077, with which it formed an approximate right-angle. The ditch measured approximately 0.80m in width and between 0.20-0.40m in depth, becoming shallower to the north-east. In profile it was concave to the south-west, becoming flat based with steep sides to the north-east. Its single fill consisted of clay-silt.

Pit 3047 was subcircular in plan, with a gently rounded base and concave sides. It measured 0.68m in diameter by 0.16m in depth and its single fill contained part of a middle to late Bronze Age jar comprising 8 sherds weighing 31g.

#### *Phase 2, ditches 3078, 3079 and 1567 (Fig. 6)*

After ditch 3077 had silted up and gone out of use, a group of three new ditches (3078, 3079 and 1567) were laid out, possibly forming a new enclosure system orientated north-west - south-east. These three new ditches occupied part of Site 2 and the loop-road excavations.

Linear ditch 3078 was orientated north-west - south-east, ending in a rounded terminal to the NW and abutting or being cut away by ditch 3079 to the south-east. The ditch was approximately 36.5m in length and 0.48-0.82m in width by 0.08-0.28m in depth, with a generally concave profile. Deposits of middle to late Bronze age pottery totalling 35 sherds weighing 257g came from the NW end of the ditch, including its terminus.

Ditch 3079 was linear in plan, orientated north-east – south-west, and extended beyond the limits of Site 2 at both ends, running on into the loop-road excavation area for a short distance before ending in a rounded terminus. The ditch measured approximately 33.5m in length by 0.65-0.90m in width and 0.24-0.28m in depth, and was generally concave in profile. It produced 22 sherds of middle to late Bronze Age pottery weighing 135g.

Running parallel to ditch 3078, approximately 31m to its north-east, linear ditch group 1567 comprised five separate ditch segments orientated north-west - south-east, defining a boundary approximately 74m in length which extended beyond the limits of the excavation at both ends. The ditch had four gaps in it, ranging in width from 8.50 to 0.35m, which may have been intended to facilitate the movement of people or animals. The ditch group ranged between 0.44 and 1.2m in width and 0.24 and 0.28m in depth, and generally had a flat base with steep or concave sides, although towards its south-eastern end it became more concave in profile. Only 2 sherds of middle to late Bronze Age pottery weighing 32g were recovered from the fills of the ditch group, both coming from a single deposit at its south-eastern end.

#### *Phase 3, ditch groups 1488, 1160, 1178 and 2514, and enclosures 4000, 4001, 4002 and 4003 (Fig. 7)*

At some point during the middle to late Bronze Age transition a new field system comprising a group of enclosures (4000, 4001, 4002 and 4003) and three short lengths of ditch (1160, 1178 and 2514), defined to the south-west by a long segmented boundary ditch (1488), was laid out to the east of the Phase 1 and 2 field systems.

Linear ditch group 1488 was similar to ditch group 1567, running roughly parallel to it, approximately 13m to its NE, although unlike ditch group 1567 it clearly cut ditch 3077. Ditch group 1488 comprised seven ditch segments approximately 101.5m in total length with five gaps between 1.1 and 8.7m in width. It ran beyond the limit of excavation to the south-east. The ditch was 0.4-1.9m in width by 0.08-0.36m in depth and was generally flat based with steep sides. The ditch fills produced 3 sherds of middle to late Bronze Age pottery weighing 4g, all from the south-eastern end of the ditch group.

Enclosure 4000, the westernmost of the middle to late Bronze Age transition enclosures, cut ditch 3077 and was also laid out on a north-east - south-west alignment, against the grain of the phase 1 and 2 field systems, suggesting that it, and the field system of which it was a part, was a later addition to the agricultural landscape of the area. The enclosure was rectilinear in plan and measured approximately 86.5m in length by 39.5m in width, defining an area of approximately 3400m<sup>2</sup>. It was defined to the south-west by ditch 1488 and on its north-western and south-eastern sides by linear ditches which terminated a few metres to the north-east of ditch 1488 at their south-western ends, and were cut away by a late Iron Age to early Roman trackway (4005) to their north-east. The ditches were generally 0.30-0.80m in width by 0.06-0.43m in depth and were mostly concave in profile. The south-eastern side of the enclosure was defined by two ditches with a 1.6m south-facing gap defined by rounded terminals which must have provided access for people and animals into enclosure 4001 to the south-east. At the south-eastern corner of the enclosure ditch 2144, along with ditch 1488 may have defined part a track or driveway linking the enclosure with those to the south-east. The ditch fills produced a single sherd of middle to late Bronze Age transition pottery and another of early to middle Bronze Age date.

Enclosure 4001, to the south-east of enclosure 4000, was orientated north-east - south-west, was subrectangular in plan, and measured approximately 89m in length by 40m in width, defining an area of around 3560m<sup>2</sup>. It was defined to the south-west by a linear ditch with rounded terminals at both ends, to the north-west by the south-eastern boundary of enclosure 4000 and to the south-east by an intermittent linear ditch which also served as the north-western boundary of enclosure 4002 to its south-east. To the north-east the enclosure may have extended beyond the limit of excavation. The enclosure ditches were generally 0.30-1.10m in width by 0.10-0.44m in depth and were mostly concave or flat based in profile.

Enclosure 4002 was orientated WNW-ESE, was subrectangular in plan, and measured approximately 79m in length by 75m in width, defining an area of 5925m<sup>2</sup>. The enclosure extended beyond the limits of the excavation to the south-east and was defined by intermittent linear ditches on all four sides. The ditches measured 0.25-1.5m in width by 0.15-0.56m in depth and were generally flat based with steep sides in profile. Considerable gaps in the boundary ditches in the north-eastern and south-eastern corners of the enclosure may have been blocked by fence lines or other ephemeral structures that did not survive later truncation. In the north-west corner a relatively short (approximately 19.5m long) linear ditch running within the enclosure, parallel to the main north-western boundary of the enclosure, may have defined one side of a narrow funnel or track for sorting animals. Towards the south-western end of the north-western boundary of the enclosure, a gap of 7.9m defined at either end by rounded ditch terminals may have functioned as an entrance, perhaps being controlled with a fence line and gate. Fourteen sherds of middle to late Bronze Age transition pottery weighing 118g were recovered from the ditch fills. The southern-end of the north-western boundary of the enclosure produced a single sherd of late Iron Age to early Roman pottery weighing 7g, but given the dating evidence from the rest of the enclosure it seems likely that this sherd was intrusive.

Enclosure 4003 was a subrectangular or subcircular enclosure, which largely lay beyond the limit of excavation to the north-east. It was defined by at least three successive phases of ditch. The

ditches were curvilinear in plan, orientated north-east - south-west, and measured at least 28.5m in length, running beyond the limits of excavation at both ends. The ditches measured 0.5-1.3m in width by 0.2-0.51m in depth and were generally flat based with steep sides in profile. A sherd of middle to late Bronze Age transition pottery weighing 13g and a single sherd of indeterminate pottery weighing 1g were recovered from the ditch fills.

Ditch 1160 was curvilinear in plan and orientated north-east - south-west, ending in rounded terminals at both ends. The ditch measured 13.39m in length by 0.81-1.13m in width and 0.06-0.18m in depth, becoming shallower from the SW to the NE. In profile the ditch had a flat base with steep or concave sides.

Ditch 1178 was also linear in plan and measured approximately 23.36m in length. The ditch was orientated north-east - south-west and measured 0.53-1.04m in width by 0.12-0.16m in depth. In profile it was generally flat based with steep or concave sides.

Ditch 2514 was orientated north-west - south-east, linear in plan, being cut away to the north-west by late-Iron Age to early Roman ditch group 4007 and extending beyond the limit of excavation to the south-east. The ditch measured 0.37-0.74m in width, being narrower at its north-western end and 0.12-0.40m in depth. In profile it was concave and it had a single fill which contained 2 sherds of middle to late Bronze Age pottery weighing 8g.

#### *Post-built structures 2520, 2521, 2522 and 2135 (Fig. 8)*

A group of four post-built structures of middle to late Bronze Age transition date were found within enclosure 4000. Four-post structure 2520 lay in the north-western corner of the enclosure, slightly separate from the main group. It measured 3.1m by 2.9m and its constituent postholes were 0.30-0.34m in diameter by 0.08-0.12m in depth, all with flat bases and near vertical sides. The single fills of the postholes produced a single indeterminate sherd of pottery weighing 1g.

The remaining structures (2521, 2522 and 2135) were all relatively tightly clustered in a linear group orientated roughly north-south in the centre of the enclosure. Four-post structure 2521 measured 3.1m by 3m and comprised four postholes measuring 0.3-0.4m in diameter by 0.12-0.25m in depth with flat bases and near vertical sides. Two sherds of indeterminate pottery weighing 6g came from the fills. Four-post structure 2522 measured 3.06m by 2.9m and its constituent postholes were 0.26-0.5m in diameter by 0.22-0.34m in depth with flat bases and near vertical sides. A single sherd of middle to late Bronze Age transition pottery came from the posthole fills. Five-post structure 2135 measured 3.16 by 3.32m and its constituent postholes were 0.32-0.43m in diameter by 0.24-0.44m in depth with flat bases and near vertical sides. In three of the postholes postpipes were visible in section. The posthole fills produced 7 sherds of middle to late Bronze Age transition and indeterminate pottery weighing 26g.

#### *Cremation burials 2022 and 2027 (Fig. 9)*

Cremation burials 2022 and 2027 were situated towards the southern end of enclosure 4000 and lay approximately 7m apart. Both cremation burials had been deposited in subcircular pits with flattish bases and near vertical sides. Cremation pit 2022 measured 0.38m in diameter by 0.14m in depth while cremation pit 2027 measured 0.3m in diameter by 0.26m in depth. Both cremations were unaccompanied.

Two radiocarbon dates were obtained from burnt human bone from the cremation burials. The calibrated results are identical when rounded out to the nearest ten years, both deposits dating to 1300-1050 cal BC (95.4 per cent probability) and probably 1260-1120 cal BC (68.2 per cent probability; burial 2022: SUERC-41366, 2965±30; burial 2027: SUERC-41367: 2960±30). Both cremation burials were, therefore, deposited within the middle to late Bronze Age periods as defined

by Needham et al.(1997).

#### *Pits (Fig. 7)*

In total, seven pits and two shallow hollows have been dated to the middle to late Bronze Age. Of these, one (pit 3047) has been attributed to Phase 1 and is described above. Of the remaining pits, six have been assigned to Phase 3 purely on the basis of their locations. Three of them (2325, 2263 and 2277) lay at the south-eastern end of Site 1 within or close to enclosure 4002. A further three features (hollows 1323 and 1332 and pit 1400) lay at the northern end of the site, within and close to the ring ditch. The final two pits (1367 and 1370) lay near the southern edge of loop road excavations, in an area where features of all three phases occur. Whilst the pottery they contained suggested that they dated from the middle to late Bronze Age, they cannot be attributed with any confidence to a particular phase.

#### *The southern pits (2325, 2263 and 2277)*

Pit 2325 was subcircular in plan and measured 0.58m in diameter by 0.24m in depth. In profile it had a flat base and steep sides and its single fill produced a sherd of middle to late Bronze Age pottery weighing 3g. Pit 2263 was subcircular in plan and concave in profile, measuring 0.75m in diameter by 0.16m in depth, with a single fill which contained 7 sherds of middle to late Bronze Age pottery weighing 5g. Pit 2277 was also subcircular in plan and measured 0.98m in diameter by 0.71m in depth. In profile it had a flat base and steep, near vertical sides. Its four fills contained an assemblage of 44 sherds of middle to late Bronze Age pottery weighing 464g, including Deverel-Rimbury material, sherds from a globular bowl and a weakly shouldered jar with a slightly flaring rim.

#### *The northern hollows (1323 and 1332) and pit (1400)*

Two features (1323 and 1332) already mentioned above were contained within the circumference of the ring ditch. Both were circular hollows, and one (1323) produced 29 sherds of middle to late Bronze Age pottery weighing 43g. Hollow 1323 was subcircular in plan, measuring 2.1m in diameter by 0.28m in depth and had a flat-based profile with concave sides. Hollow 1332 was also subcircular in plan, with an irregular profile, and measured 1.1m in diameter by 0.23m in depth.

A nearby pit (1400), which lay just to the south of the ring ditch, may also have dated from the middle to late Bronze Age. It was steep-sided with a flat base and measured 0.88 m in diameter and 0.38 m deep. It contained two fills of grey silty sand, the lower of which contained 23 sherds (108 g) of probably middle to late Bronze Age pottery. The upper fill, however, contained late Iron Age/early Roman pottery, and the date of the feature is, therefore, uncertain.

#### *Unphased pits (1367 and 1370)*

Pit 1367 lay at the southern end of the site. It was oval in plan, measuring 0.67 m by 1.16 m with a depth of 0.43 m. It contained two fills, the upper of which (1369) contained the largest group of middle to late Bronze Age pottery from the excavation. The south-western side of this pit was cut by a slightly smaller pit (1370), which contained no dating evidence but which may have been broadly contemporaneous. Three shallow hearths (1473, 1474 and 1475), one of which may have been stone-lined, were cut into the top of the two pits.

#### *Late Iron Age-early Roman features (Figs. 10 and 11)*

After the abandonment of the middle to late Bronze Age field systems, there was no activity which left any archaeological trace until the late Iron Age/early Roman period, when two, or possibly three trackways and a series of enclosures and field boundaries were laid out. Two trackways (4005 and 4006) cut across the south-western and north-western corners of the excavation respectively, with

three linear ditches (1100, 2500 and 2506) dividing the land into rectilinear enclosures to the north-west of trackway 4006. A rectilinear enclosure (4004) occupied the eastern end of the excavation, with a further group of linear ditches (4007) possibly representing a second enclosure or a third trackway running along the eastern limit of the excavation.

#### *Trackway 4005*

Linear trackway 4005, situated in the south-western corner of Site 2, was orientated north-east - south-west and ran beyond the limits of excavation to the north-east and south-west. The trackway measured approximately 38m in length by 10 m in width and was marked by two boundary ditches (3075 and 3076) between which the trackway itself was represented by two intercutting hollows (3080 and 3081). The hollows (3080 and 3081) measured a total of 35.27m in length and were 3.0-3.4m wide by 0.26-0.45m deep, with flat bases and moderately sloping sides (Fig. 11, section 1). Flanking ditch 3075 measured 20.53m in length, terminating to the north-east in a rounded terminal several metres short of the north-western edge of the excavation and running beyond the limit of excavation to the south-west. The ditch was 1-1.15m in width and 0.65m in depth at its south-western end, but became shallower to the north-east where it measured 0.33m. In profile the ditch varied from V-shaped towards the south-west to flat based with steep sides further north. Flanking ditch 3076 measured approximately 43.80m in length by 0.88-1.06m in width and 0.22-0.35m in depth and was generally concave in profile. The ditch fills produced 43 sherds of pottery, weighing 248g, most of which was late Iron Age to early Roman in date, but some of which (4 sherds weighing 24g) dated to the middle to late Bronze Age transition.

#### *Trackway 4006*

Trackway 4006 ran across the north-western corner of Site 1 on a north-east - south-west alignment, running beyond the limits of excavation to the north-east and continuing across the 2005 loop-road excavation area to the south-west. It measured approximately 96 m in length by 6m in width and comprised two sets of intermittent flanking ditches. The flanking ditches measured 0.45-1.12m in width by 0.2-0.56m in depth and were generally flat based with steep sides or were concave in profile (Fig. 11, section 2). At the south-western end of the trackway an area of flint metalling measuring 5.06m by 4.19m, perhaps representing a track surface, was uncovered. The fills of the flanking ditches produced 96 sherds of late Iron Age to early Roman pottery weighing 353g.

#### *Ditches 1100, 2500 and 2506*

Ditch 2500 lay to the north-west of hollow-way 4006 in the north-western corner of Site 1. It measured approximately 37m in length and was aligned north-west - south-east. The ditch fill produced a small amount of late Iron Age/early Roman pottery, and the ditch may have formed a field boundary aligned on trackway 4006. Ditch 2506 was aligned north-west - south-east and intercut with the northern flanking ditch of trackway 4006. Unfortunately the stratigraphic relationship between the two ditches was unclear. However, the ditch fill produced a small quantity of late Iron Age/early Roman pottery and it is therefore possible that it belongs to a late Iron Age/early Roman phase of activity, either earlier or later than the establishment of trackway 4006.

#### *Enclosure 4004*

Enclosure 4004 was subrectangular in plan and orientated north-east - south-west, extending beyond the limits of excavation to the north-east and south-east. The enclosure measured at least 78.5m in length by 58.5m in width, enclosing an area of at least 4592m<sup>2</sup>. No south-eastern boundary to this enclosure was observed during excavation (but see ditch group 4007 below). The enclosure ditches measured 0.50-0.85m in width by 0.08-0.46m in depth and were generally flat based with gentle sides or were rounded in profile (Fig. 11, section 3). The ditch fills produced 6 sherds of late Iron Age-early Roman pottery weighing 11g. Large gaps in the north-western boundary of the enclosure, the largest of which measured approximately 25m across, may have been caused by differential truncation. The north-western enclosure ditch extended beyond the line



of the south-western boundary for a distance of approximately 9m before ending in a rounded terminal, suggesting the presence of a second late Iron Age to early Roman enclosure here. A group of three short ditch segments (2422, 2337 and 2253) on a north-west - south-east alignment which lay immediately to the south of this terminal may have been related to the enclosure, perhaps having a role in subdividing the putative enclosure to the south. These ditch segments defined a possible boundary at least 20m in length, but with significant gaps, and measured 5.9m long by 0.7m wide, 2.67m long by 0.46m wide and 4.06m long by 0.4m wide respectively, ranging in depth from 0.1-0.24m. They generally had flat bases with gentle sides. The fills of the ditch segments produced 10 sherds of pottery weighing 10g.

#### *Ditch Group 4007*

Ditch group 4007 comprised three linear ditches (2511, 2512 and 2513), representing at least two, and possibly three, phases of activity, cutting across the south-eastern corner of Site 1 on a north-east/south-west alignment and extending beyond the edges of the excavation in both directions. The westernmost ditch (2511) cut ditch 2512 to its east, which was also cut by ditch 2513, the easternmost ditch. The whole complex therefore represents either three successive phases of enclosure boundary or a boundary ditch cut by a north-east/south-west orientated trackway.

Ditch 2511 measured approximately 55m in length by 1.18-1.34m in width and 0.5-0.65m in depth, and had a flat base with steep sides (Fig. 11, section 4). Ditch 2512 was shorter and narrower, measuring 32m in length by 0.88-1m in width and 0.18-0.48m in depth, and had a rounded base and steep sides in profile. Ditch 2513 measured 35m in length by 0.86-0.91m in width and 0.12-0.3m in depth, and varied in profile from concave to V-shaped with a rounded base. The fills of ditch 2511 produced a single sherd of early Roman pottery weighing 9g, while the fills of ditch 2512 produced four sherds of late Iron Age to Roman material and a single sherd of indeterminate material weighing 6g in total.

#### *Medieval features (Fig. 12)*

Medieval features were confined to the north-western end of the loop-road excavation, and comprised a subrectangular enclosure (1055), two linear ditches and a group of subcircular pits, probably for gravel extraction. Enclosure 1055 incorporated the prehistoric ring ditch (1330) and seems to have been designed to demarcate it in some way, perhaps incorporating it into a parish boundary.

#### *Enclosure 1055*

Enclosure 1055 was subrectangular in plan and orientated north-east - south-west, measuring 15.73m north-west - south-east by at least 15.76m north-east - south-west and defining an area of at least 248m<sup>2</sup>. It extended beyond the edge of the excavation to the north-east. The enclosure ditches measured 0.59-0.80m in width and varied from 0.06-0.40m in depth. In profile they were generally concave or flat based with concave sides. The ditch contained two fills which produced six sherds of medieval pottery weighing 22g and dating to between the 11th and early 13th centuries.

#### *Ditches 1060 and 1257*

Linear ditches 1060 and 1257, both of which were orientated north-east - south-west, flanked enclosure 1055, with ditch 1060 lying to the north-west of the enclosure and ditch 1257 to the south-east. Ditch 1060 measured approximately 21.5m in length and ran beyond the edge of the excavation at both ends. The ditch measured 0.55-0.70m in width by 0.20-0.30m in depth and had a flat base with steep sides. Ditch 1257 measured approximately 15.2m in length, running beyond the edge of the excavation to the south-west and being cut away to the north-east by pits 1416 and 1617. It measured 0.64-0.81m in width by 0.1-0.26m in depth and was flat based with concave sides. The fills of each ditch produced four sherds of late eleventh century pottery weighing 5g and

4g respectively.

#### *Pit Group 1313 (Fig. 13, Table 1)*

At some point during or after the late eleventh to mid twelfth century a group of 26 pits were cut into the brickearth in the area of enclosure 1055 and ditch 1257, cutting both features. Most of the pits formed a very dense cluster around the south-western corner of the enclosure, suggesting a single and probably short-lived phase of activity, although there were several outliers, mainly to the north-east of the main cluster and within the enclosure, with one pit (1447) cutting the prehistoric ring ditch. The purpose of these pits was probably brickearth extraction. The pits were generally subcircular or irregular in plan and mostly flat based with steep or gentle sides. They varied in diameter from 0.6-3.6m with most falling between 1.0m and 2.5m and were between 0.12-0.78m in depth. The majority of the pits had a single fill, although several had two or three, and one (pit 1397) had four. The pit fills produced a modest assemblage of 44 sherds of late eleventh to mid twelfth century pottery weighing 522g.

#### Medieval to post-medieval features (Fig. 14)

Medieval to post-medieval activity was restricted a single ditch (1070) in the north-western corner of the loop road excavation. The ditch may have been related to agricultural activity, but could also have served to demarcate the parish boundary.

The ditch was orientated north-west - south-east and measured approximately 41.2m in length, running beyond the edge of the excavation to the north-west and fading out to the south-east near the middle of ring ditch 1330. A 1.2m gap in the ditch towards its north-eastern end was defined by rounded terminals and presumably provided access through it. The ditch measured 0.38-0.78m in width by 0.05-0.9m in depth, becoming shallower towards its south-eastern end, and was generally concave or flat based with concave sides in profile. The ditch fill produced two sherds of pottery weighing 5g and dating to the early thirteenth century.

#### Post-medieval features (Fig. 15)

Tree-throw holes, probably related to the use of the area as an orchard in the post-medieval period were widely distributed across Site 1. A concrete and brick-built structure (2153), located in the south-west corner of Site 1, may have been the base of an apple hopper associated with the use of the orchard.

## THE FINDS

### The struck flint *by Michael Donnelly*

#### *Introduction*

A total of 627 lithics were recovered from the excavations (Table 2). Many of the flints appear to be of early prehistoric date and were residual while others probably date to the middle-late Bronze Age and were contemporary with the features from which they were recovered. Two of the flints may be from a bruised blade/long blade assemblage of final/terminal Upper Palaeolithic date, but the majority are likely to be of late Mesolithic/early Neolithic date.

#### *Methodology*

The artefacts were catalogued using OA's standard typology (Bradley 1999). Retouched pieces were classified according to standard morphological descriptions (eg Bamford 1985, 72-77; Healy 1988, 48-9; Bradley 1999). Metrical and technological attribute analysis was undertaken and

included the recording of butt type (Inizan et al. 1993), termination type, flake type (Harding 1990), hammer mode (Onhuma and Bergman 1982), and the presence of platform preparation and edge abrasion. Information on the condition and state of the artefacts was also recorded.

#### *Material and condition*

The majority of the assemblage was struck from flint from local gravel sources. The high quality of the finished product, however, indicates that some care went into selecting appropriate nodules.

The cortex varies from rare, moderately thick to thin whitish chalky examples to more frequent, weathered chalk examples and heavily rolled and abraded examples. Some flakes and blades exhibit an olive green cortex with an underlying orange band attributable to flint from the Bullhead Beds (Dewey and Bromehead 1915) but these may have been obtained from derived material found locally. Blades and blade forms were particularly common on Bullhead flint. Several pieces display weathered or frost shattered surfaces indicative of expedient core selection. The two possibly Palaeolithic blades have a very thin weathered chalky cortex.

While most of the pieces have a light patina, a significant portion have no patina at all. Heavy patina/cortication was very rare. Most of the flints were in a relatively fresh condition, but some displayed moderate edge and heavy damage, and a small proportion was rolled. A significant percentage of the assemblage was broken, perhaps reflecting both the thinness of many of the blade forms but also the use of sources of flint with numerous inherent flaws.

#### *Primary technology*

Overall the assemblage was flake-based and this was reflected in the cores which displayed flake scars on 15 of 16 examples. These varied in form from tested nodules and core fragments through to more carefully formed single and multi platform varieties. Flake cores had an almost even split between single and multiple platforms. They tended to have few removals and were often quite large (average 84g, range 11-249g), but some were more complex and three highly complex flake cores may date to the late Neolithic/early Bronze Age. The majority are typical of the highly expedient flake core strategies of the middle and late Bronze Ages. Curiously, one very small bladelet core closely resembles the narrow bladelet cores of northern Britain fashioned on small beach pebbles. There is also a similar very crude small flake core which could also be early or represent the expedient use of a suitable fragment for producing a few flakes.

Blade forms (blades, bladelets and blade-like flakes) accounted for 53 of the 463 blanks recovered giving a blade to flake index of 12 per cent (Ford 1987). This figure is quite low if the assemblage is taken as a coherent whole but probably reflects the presence of a limited early prehistoric component in an otherwise late flake-based assemblage. The blades were typically in the range of 40-60mm but two were far longer. One complete example measured 83mm by 27mm while the surviving part of another broken blade-like example measured 75mm by 36mm. These pieces could be of final/terminal Upper Palaeolithic date. Blade-related reduction is also indicated by a crested blade while three core rejuvenation flakes also reflect more careful, earlier flint reduction strategies.

All stages in core reduction were represented in both the flake and blade assemblages (Table 3), albeit in very differing numbers. The lack of blade cores, except for a tiny bladelet example, suggests that many of the blades had been brought to the site as finished tools or blanks. Although metric analysis was not carried out on the flake assemblage, many are squat or broad. These forms typify later prehistoric assemblages.

Hard-hammer technology (Table 4) was the dominant hammer mode within the assemblage, although soft-hammer bulbs were also present, and indeterminate bulbs were common. The soft-

hammer figure for blade forms was high indicating a specialised mode of production. The few blade tools and the microburin accounted for all the soft-hammer and indeterminate examples, while most of the scrapers and retouched flakes displayed hard-hammer bulbs.

Plain platforms (Table 5) dominated the overall assemblage, although cortical platforms and linear examples were also present. Cortical platforms are particularly common in later prehistoric assemblages or where the initial working was carried out at a separate site. Linear examples may be a product of failed removals but can also occur where thin blanks are preferred. The dominance of plain, cortical and linear platforms alongside more ambiguous dihedral examples suggests a significant later prehistoric component to the assemblage.

More specialised platform types were also present including faceted and punctiform examples. Both of the potential Upper Palaeolithic blade tools displayed faceted platforms. Punctiform platforms were very rare, especially on flakes although they were present on some blades. The faceted and punctiform assemblages and their frequency on blade forms and blade tools indicate a specialised blade reduction component in the assemblage. There were also a few modified, indeterminate and other types that are probably a product of expedient later prehistoric knapping.

Platform abrasion occurred on 10 per cent of pieces with surviving platforms but abrasion was much more common on blade forms (32 per cent) and blade tools (38 per cent) and was very rare in the flake assemblage (7 per cent).

The range of terminal types (Table 6) is typical for most assemblages, but the frequency of fine terminals is very high and may indicate that at least some portion of the flake assemblage was also early. Other assemblages from Kent typically have figures of around 50 per cent for fine terminals (Harding 2006; Anderson-Whymark 2011). However, the middle-late Bronze Age assemblages from the A2 had figures of around 62-65 per cent (Donnelly and Anderson-Whymark 2012) and such a figure coupled with a small early prehistoric component, particularly one in which finished forms are brought to site, could account for the figure of 71 per cent found here. Alternatively, given that the site was some distance away from the lower quality clay-with-flints deposits, a more selective collection strategy of nodules may have been adopted resulting in fewer failed removals.

The variations in the flake and blade assemblages suggest that a significant component of the flake assemblage dates from a period in which a less specialised flake reduction strategy was employed and that the blade component, alongside many associated flakes, were related to more specialised reduction strategies of earlier date.

### *Secondary technology*

A large collection of tools was recovered (Table 2), including common forms such as end scrapers, microdenticulates/serrated flakes and simple retouched flakes, alongside rare forms such as a burin, an unfinished and possibly triangular arrowhead, and a putative bruised blade.

Very few tools were of definite later prehistoric date. Although simple retouched flakes are often found in middle-late Bronze Age assemblages, they are difficult to date and could easily be residual earlier material. Similarly, the two piercers, while quite crude, could also be of earlier date. Many of the scrapers are very regular on elongated flakes and could arguably be early in date in contrast to the more expedient, thick irregular examples from the later parts of the Bronze Age.

Almost all the retouched blade tools were either on inner or side trimming blanks with one distal trimming example. These were mostly retouched blades or microdenticulates but also

included a burin and a bruised blade. In contrast, flake tools were more common on blanks with significant amounts of cortex and were far rarer on inner blanks, with a very few miscellaneous trimming blanks.

The collection of eight microdenticulates/serrated flakes was of note. Two were double sided while six were single sided examples, and four showed traces of gloss. The size, form and gaps between teeth varied greatly and many had seen heavy use which had wholly or partially removed much of the working edge. Several used natural concave edges to aid in the act of cutting. Two were fashioned from bullhead flint and were discovered close together while five more came from a flint-rich deposit in a middle-late Bronze Age ditch. Despite this, the pieces are likely to be of Mesolithic or Neolithic date. Also dated broadly to these periods are a multiple angle burin on an inner flake and an end truncated blade segment, almost microlithic in form. The microburin is slightly atypical in that the notch has been applied from the dorsal surface but is otherwise a good example of a proximal microburin and dates from the Mesolithic. Two flakes from polished flint implements recovered from ditch 1488 and the topsoil are of Neolithic date.

The arrowhead (from ring ditch 1330) is triangular in form and could be a broken or unfinished example of a number of forms of varying date such as barbed and tanged or leaf-shaped arrowheads. The piece's butt end appears to have broken off of a larger piece but has clearly begun to thin and narrow abruptly.

The scrapers include several examples that appear early with very few of the more typically crude thick squat examples that can be found in middle-late Bronze Age assemblages. There are two very thin, broken end or side-and-end scrapers where the retouch has been cut into the cortical surface of a flake from the early stages of reduction. Another similar, but slightly thicker broken example, fashioned on a distal trimming flake, is more typically Mesolithic or Neolithic in form. Two very regular end scrapers on thin inner flakes appear to be late Neolithic/early Bronze Age in date. One is almost a thumbnail but is quite large. One elongated end scraper with a faceted platform is also likely to be of this date. One regular side scraper on a thick inner flake, a nosed end scraper on a side trimming flake and two side scrapers also probably belong in the same period. Finally, two end scrapers on thick, hard-hammer, cortical flakes with slightly irregular retouch and an irregular side scraper on a side trimming flake may date to the middle-late Bronze Age.

Two piercers were recovered. One was formed on a thick, hard-hammer side trimming flake with the point at its distal left corner, while the other was on the distal end of a very regular and thin distal trimming flake or blade segment with parallel negative scars on its dorsal surface. The former may be of middle-late Bronze Age date while the latter is probably Neolithic. A single notch was found on a distal trimming flake and could belong to almost any period but is more likely to be of later prehistoric date. One large and regular D-shaped backed knife on an inner blade-like flake is of early Neolithic date, while two other D-shaped backed knives can only be dated more generally to the Neolithic. One was D-shaped and naturally backed and the other was more triangular in form with retouched rather than natural backing. The last knife was small with natural backing but with clear invasive retouch and is broadly Neolithic/early Bronze Age in date. The side denticulate on a preparatory flake was not diagnostic.

The most startling finds from the project were the two large blades from an undated hollow (1402) and middle-late Bronze Age ditch 1488. The former was a long and straight blade that measured 83mm by 27mm and, although not of long blade dimensions, it is large for a Mesolithic assemblage. It has retouch/rubbing along its left edge with use damage along its right and quite slight retouch along its distal margins and may in fact be an end-of-blade scraper. It also has a faceted platform, something that is rare in Mesolithic assemblages that which it shares with a potentially bruised blade. This large blade is broken but it survives to a length of 75mm by 36mm

wide. It has deep, stepped damage along its right edge while its left side is cortical and naturally backed. Both were residual but were in relatively good condition. Both are also fashioned from high quality chalk flint. While their age remains uncertain, they may well date from the final/terminal Upper Palaeolithic.

### *Discussion*

The flint assemblage appears to consist of several components of differing dates. Although some of the flint appears to have been contemporary with the middle to late Bronze Age features from which it was recovered, there are also significant Palaeolithic, Mesolithic, Neolithic and earlier Bronze Age components which were residual.

Large numbers of slightly abraded late Upper Palaeolithic artefacts were recovered from the brickearth-gravel interface at Bapchild, c 1.5km to the south-east of East Hall Farm. The discovery of two putative 'long-blade' artefacts of terminal Upper Palaeolithic date at East Hall Farm is not, therefore, unexpected. Although the small number and partially broken nature of the assemblage urges caution, the size, technological aspects, source material and type of use-damage all indicate an early date.

Recent investigations at Springhead, to the west of Sittingbourne (Anderson-Whymark in prep.) and on the A2 (Donnelly and Anderson-Whymark 2012) have also brought to light material from bruised-blade assemblages (Barton 1998). These assemblages represent the very last phase of late Glacial and perhaps very early Holocene flint use (Lewis and Rackham 2011). Other discoveries of similar material are known from further east in Kent at Riverdale, Canterbury (Barton 1986).

A considerable quantity of the background scatter dates to the Mesolithic or early Neolithic. Although it can be difficult to separate Mesolithic and early Neolithic material, a microburin and an end truncated blade are clearly Mesolithic. In north Kent, dense Mesolithic flint scatters are extremely rare, although dispersed assemblages similar to Sittingbourne are well known (Harding 2006) and have been found nearby along the A2 (Donnelly and Anderson-Whymark 2012), on the CTRL (Harding 2006), and from the East Kent Access Road (Harding 2012). More recent excavations at Shorne only a few miles west of Sittingbourne have also identified a large flint scatter dated to the Mesolithic (Kent News 2012).

Early Neolithic material is widespread in Kent, with concentrations in and around Maidstone and Folkestone (Harding 2006; Clarke 1982; Ashbee 2004; Allen et al. 2012). Often the assemblages have been recovered from natural features such as tree-throw holes and are associated with Mesolithic material.

Overall, the pattern of Mesolithic and early Neolithic activity in north Kent matches that from Sittingbourne, and consists of dispersed low-level or task specific activity rather than dense artefacts scatters associated with domestic sites.

Very few pieces can be attributed to the late Neolithic/early Bronze Age, although two possible derivative arrowhead/other tool blanks with finely faceted platforms, and a backed knife, also with a faceted platform, were recovered.

The middle-late Bronze Age assemblage was dispersed across the site. Many of the pieces originated in ditch fills, but one pit (2277) contained a contemporaneous assemblage with numerous waste flakes and crude cores. The flints often showed edge damage and may have been middened prior to deposition. The quantities of flint debitage that would reflect primary reduction or tool manufacturing were not recovered, and it is easy to imagine that much of the flint knapping was highly expedient.

Mid to late Bronze Age sites near to Sittingbourne at Coldharbour Road and the A2 also yielded sizeable quantities of middle-late Bronze Age material in association with contemporaneous features. At Coldharbour Road (Mudd 1994) a similar flake dominated assemblage with a limited range of tools, including simple retouched flakes, knives, basic scrapers and piercers was recovered. Core reduction was again fairly expedient.

Along the A2 (Donnelly and Anderson-Whymark 2012) three areas of middle-late Bronze Age activity yielded assemblages similar to that at Sittingbourne. Tools were rare and usually consisted of piercers, awls, scrapers and simple retouched flakes. The broad and squat forms, the hard-hammer based technology from simple cores, and the low range of tool types were all apparent. In each instance, there was some indication of pre-burial middening, and at each site the flints appeared to have clearly domestic associations.

### *Catalogue of illustrated flint (Figs. 17-18)*

#### Final Upper Palaeolithic

1: probable bruised blade, faceted platform, small find 6, cat 198, context 1498, ditch 1488, final upper Palaeolithic

2: end of blade scraper on a long blade with rubbed/utilised lateral margins, faceted platform, cat 183, context 1401, undated hollow, Final Upper Palaeolithic

#### Mesolithic-early Neolithic

3: microburin, atypical ventrally notched proximal segment, cat 266, context 1549, ditch 3077, Mesolithic

4: end truncated blade, straight truncation, cat 27, context 4906, evaluation trench 49, Mesolithic

5: microdenticulate on plunging blade, serrations lower left, cat 273, small find 10, context 1549, ditch 3077, Mesolithic-Neolithic

6: microdenticulate on naturally backed side trimming blade, single sided, on bullhead flint, cat 488, small find 55, context 2242, ditch 2241, between enclosures 4001 and 4002, Mesolithic-Neolithic

#### Late Neolithic-early Bronze Age

7: end scraper on regular flake, damaged lateral margins for hafting, cat 166, context 1371, pit 1370, Neolithic

8: backed knife on regular flake, cat 109, context 1272, ditch 1257, Neolithic-Early Bronze Age

9: end-and-side scraper, possibly a broken thumbnail?, cat 26, context 4904, evaluation trench 49, Neolithic-early Bronze Age

10: triangular arrowhead, either unfinished or simple triangular form, cat 110, small find 5, context 1309, ring ditch 1330, late Neolithic-early Bronze Age

11: multiplatform flake core, borderline discoidal core, cat 65, context 8802, evaluation trench 88, late Neolithic-early Bronze Age

#### Bronze Age

12: bifacially worked core, flake reduction strategy, prominent spurs, cat 530, context 2278, pit 2277, middle-late Bronze Age

13: broad, squat, hard-hammer, distal trimming flake, cat 519, context 2279, pit 2277, middle-late Bronze Age

### *The prehistoric pottery by Leo Webley and Emily Edwards*

#### *Introduction*

Excluding later Iron Age material, an assemblage of 614 sherds (3433g) of prehistoric pottery was

recovered. Aside from one possible early or middle Bronze Age sherd, all of the diagnostic material belongs to the middle Bronze Age or the transition to the late Bronze Age. The assemblage has been fully recorded following PCRG (1997) recommendations.

The general condition of the assemblage was poor, the average sherd weight being 5.6g (despite the assemblage including many quite thick, coarse sherds) and the rim count being very low (only 9 rims were noted). There were few other featured sherds: four base sherds and four shoulders were also noted. Only two sherds bore any decoration. The remainder of the assemblage consists of plain body sherds which, in all but one case, have been attributed to the same phase as the diagnostic sherds on the basis of the similarity of fabrics.

### *Fabrics*

Six major fabric groups have been distinguished based on macroscopic examination:

F1 Moderate to abundant poorly-sorted angular calcined flint up to 8 mm; sparse to moderate silt-sized micaceous sand. Sparse iron oxide pellets up to 2 mm visible in some sherds.

F2 Moderate to abundant poorly-sorted angular calcined flint up to 2 mm; sparse to moderate silt-sized micaceous sand. Sparse iron oxide pellets up to 2 mm visible in some sherds.

F3 Moderate to abundant well-sorted angular calcined flint up to 1 mm; sparse to moderate silt-sized micaceous sand. Fine fabric, sometimes burnished.

F4 Sparse well-sorted calcined flint up to 1 mm; sparse to moderate silt-sized micaceous sand.

FG1 Moderate poorly-sorted angular calcined flint up to 5 mm; sparse grog up to 2 mm; moderate silt-sized micaceous sand; sparse iron oxide pellets up to 2 mm. Soapy feel.

G1 Sparse grog up to 2 mm; moderate silt-sized micaceous sand. Soft. Soapy feel.

Almost all of the pottery was tempered with flint and also contained naturally-occurring micaceous sand. Flint-tempered micaceous fabrics also dominate at other middle and late Bronze Age sites in the local area, such as Iwade (Hamilton and Seager Thomas 2005), Kemsley (McNee 2006) and Shrubsoles Hill (Raymond 2003). The fabrics used for the Bronze Age pottery at this site are very similar to flint-tempered wares seen in the later Iron Age/Roman assemblage. Though there is a broad tendency for the Bronze Age fabrics to be coarser and contain a greater density of poorly-sorted flint, there is a significant overlap. It has thus not been possible to closely date some contexts containing only small, plain, flint-tempered body sherds. The assemblage is discussed by ceramic phase below.

### *Early or middle Bronze Age?*

A single sherd from ditch 2126 (the ditch defining the north-western side of middle-late Bronze Age enclosure 4000) has been tentatively dated to the early or middle Bronze Age. This is a plain body sherd in a soft, grog-tempered fabric, oxidised to an orange colour on its outer surface and reduced at its core and inner surface.

### *Middle to late Bronze Age transitional*

The pottery from this phase forms a coherent group of material probably dating to the later middle Bronze age and the transition to the late Bronze Age. The forms compare well with those from the contemporary assemblage from Iwade, c 4 km to the north-west.

Much of the assemblage consists of thick, coarse sherds from large jars. Many of these probably derive from straight-sided bucket urns in the middle Bronze Age Deverel-Rimbury tradition. Others have a slightly curved profile and may be from convex-sided jars, characteristic of the middle to late Bronze Age transition (cf Iwade: Hamilton and Seager Thomas 2005, fig. 32.1–3). Where present, rim sherds have a simple rounded or flat-topped form (Fig. 16.5-7). Two sherds are decorated along the rim top, one with incised slashes (pit 2277; Fig. 16.4) and one with fingertip impressions (pit 3047). Otherwise, these vessels seem to have been entirely plain; cordons and perforations are absent.



The most interesting group of pottery is from pit 2277, where sherds from large urns/jars are found in association with other vessel forms. Fill 2278 contained a sherd from a small jar or cup ornamented with a small boss (Fig. 16.1; cf Iwade: Hamilton and Seager Thomas 2005, fig. 31.7), again a form that dates from the later middle Bronze Age into the late Bronze Age (ibid., 26–7; Couldrey 2003). Fill 2279 contained a large fragment from a fine, burnished globular urn with a slight shoulder (Fig. 16.2; cf Iwade: Hamilton and Seager Thomas 2005, fig. 31.9; Shrubsoles Hill: Raymond 2003, fig. 1.15.6–7), similar to examples from late Deverel-Rimbury groups at Kimpton, Hants (Dacre and Ellison 1981, 178). A further sherd from the same layer may come from a similar globular urn or weak-shouldered open bowl (Fig. 16.3). Pit 1367 also contained a quite large number of thick, coarse body sherds which probably derive from a large urn, as well as much finer sherds probably from a small jar which unfortunately was highly fragmented.

Elsewhere on the site, additional fragments of weak-shouldered vessels were recovered from ditches defining the boundary between enclosures 4001 and 4002, ditches 1488 and 3077 and pit 1400. The carinated and necked vessel forms characteristic of post-Deverel-Rimbury Plain Ware assemblages are absent, however.

### *Conclusions*

Though the assemblage is small and highly fragmented, it is of significant interest, as relatively little middle Bronze Age pottery has been recovered from non-funerary contexts in Kent (Champion 2007). Assemblages belonging to the transition from the middle to the late Bronze Age have only recently begun to be identified in southern England (Morris 2006), and the small assemblage from this site provides a modest example.

### *Catalogue of illustrated pot (Fig. 16)*

- 1: Body sherd with boss from small jar or cup; Fabric F1; fill 2278, pit 2277; M-LBA
- 2: Base and slight shoulder from a fine globular bowl; Fabric F3, fill 2279, pit 2277; M-LBA
- 3: Slightly flaring rim and slight shoulder from a globular bowl or weak shouldered open bowl; exterior lightly burnished; Fabric F3, fill 2279, pit 2277; M-LBA
- 4: Rim sherd with incised slashes; Fabric F2; fill 2280, pit 2277; M-LBA
- 5: Rounded rim sherd, possibly from an urn; Fabric F1; fill 3038, ditch 3077; M-LBA
- 6: Rounded rim sherd; charred residue on exterior; Fabric FG1; fill 3038, ditch 3078; M-LBA
- 7: Rounded rim sherd; fill 3062; M-LBA, ditch 3078; M-LBA

### *The late Iron Age and early Roman pottery by Dan Stansbie*

#### *Introduction*

A total of 158 sherds of late Iron Age and early Roman pottery weighing 676g was recovered, mostly deriving from the fills of the ditches flanking trackways 4005 and 4006, the main fill of hollow-way 4005, along with the fills of ditch group 4007 and enclosure 4004. The material was recorded with fabric codes based on the Canterbury Archaeological Trust reference collection (CAT nd). Vessel forms were recorded using the Oxford Archaeology later prehistoric and Roman pottery recording system (Booth 2007). Where necessary the pottery was examined under a binocular microscope at x20 magnification to aid in identification of the fabric. Reference was also made to Pollard's corpus of Roman pottery from Kent (Pollard 1988) and to Hawkes' and Hull's (1947) report on the pottery from Camulodunum.

The condition of the assemblage is poor with an average sherd weight of 4.2g. Many groups were made up of small, abraded sherds, with poorly preserved surfaces. There were few groups containing large sherds. The overall impression is of an assemblage which has eroded into field and trackway ditches, having initially been incorporated into the fields from middens via manuring.

The assemblage is largely late Iron Age in date, although the presence of small quantities of early Roman material indicates continuity beyond the Roman conquest.

### *The assemblage*

The assemblage is dominated by late Iron Age flint-tempered fabrics (LIAB1), which account for 45 per cent by weight and incorporate sherds from four jars, including a bead-rimmed jar (CH). The flint-tempered fabrics are supplemented by fine/coarse grog-tempered fabrics (B1.1), which make up 21 per cent of the assemblage by weight and include sherds from a jar and a corrugated bowl (CAM229). Also present is material in a grog and flint-tempered fabric (B3), which contributes 16 per cent of the assemblage by weight and includes sherds from a jar. The remaining fabrics account for less than 5 per cent of the assemblage by weight and include glauconitic Medway Valley ware (B9.1), grog and sand-tempered ware (B5), grog and shell-tempered ware (B5.1), coarse grog-tempered ware (B2), shelly fabrics (B6), fine sand-tempered ware (B8), including sherds from a jar and coarse sandy fabrics (B9).

Small quantities of early Roman material were present in the assemblage, suggesting that the field systems continued in use beyond the Roman conquest. These fabrics all accounted for less than 5 per cent of the assemblage by weight and included buff sandy ware (BER14), early Thameside grey wares (R73.3), fine grey Upchurch fabrics (R16) and oxidised Upchurch fabrics (R17.1).

### *Discussion*

The assemblage is made up of a fairly standard range of fabrics for the late Iron Age to early Roman period in the region (Pollard 1988, 29-33), but does not include any imported material or specialist wares, aside from the very small quantities of Upchurch ware dating to the early Roman period. It is also jar dominated and therefore appears to derive from low-status, rural, domestic activity. However, given the agricultural context of the assemblage and the probability that it had passed through a middening process before deposition on the fields, the make up of the assemblage may be misleading, with a selection bias towards lower status, lower value pottery operating to filter out more high-status kinds of pottery.

### *Illustration catalogue*

1. Plain-rimmed jar. Fabric E60. Ctx 1360. LIA-AD70

### *The medieval and post-medieval pottery by Paul Blinkhorn*

A total of 55 sherds (557 g) of medieval and post-medieval pottery, largely dating from the 11th-13th centuries, was recovered. It was recorded using the Canterbury Archaeological Trust fabric series for Kent (Table 7).

The assemblage largely consisted of small, rather abraded sherds. Most of the calcareous material had been leached from the shelly wares. However, the highly fragmented but reconstructable near-complete profile of a small jar was noted in medieval pit 1397, and a rimsherd from a larger vessel of the same type in similar condition was recovered from pit 1105.

The range of wares suggests that the medieval occupation lasted from the later 11th to the 13th centuries, with the bulk of the pottery dating from the earlier part of this period. Most of the pottery was recovered from the fills of subrectangular enclosure 1055, ditches 1060, 1257 and 1070 and pit group 1313, although a small number of sherds were intrusive in Roman and Bronze Age features.

## The fired clay and ceramic building material *by Cynthia Poole*

### *Introduction*

A small quantity of both fired clay and ceramic building material was recovered from the excavations (Table 8). This amounted to 74 fragments of fired clay weighing 981g from nine contexts and 13 fragments of ceramic building material weighing 231 from nine contexts. In addition fired clay was recovered from eight sieved samples and amounted to 128 fragments weighing 86g.

### *Condition*

The material is generally in fairly poor condition, much of it heavily abraded with a mean fragment weight for the fired clay (excluding sieved) of 13.3 g and of 17.8 g for the ceramic building material, both of which are low and normally indicative of little diagnostic material.

### *The fabrics*

Three fabrics have been identified using a x10 hand lens:

Fabric A: orange, fine silty clay matrix containing infrequent rounded fine quartz sand, frequent fine iron oxide grains and occasional shell fragments (angular, subangular).

Fabric B: orange brown, fine sandy clay containing occasional fine quartz and mica sand, infrequent coarse quartz sand (rounded) and common fine red Fe oxide. Occasional angular grits 1-7 mm possibly of flint/chert.

Fabric C: orange sandy clay mixed with frequent coarse quartz sand (rounded).

The three fabrics are all similar suggesting the same broad source. The fired clay from pit 1397 grades from fired clay into unfired, which looks as though it could derive from the natural subsoil. Although the site sits on a gravel outcrop, brickearths occur locally and the subsoil on site was a silty clay probably developed from the brickearth. The Fabric B material used for the fired clay is likely to be clay obtained locally either on the site or very nearby. The source of the tile fabrics may be from brickworks or tileries from further afield, but one exploiting the same basic geologic substratum (probably local brickearth deposits).

### *Forms*

Most of the fired clay was amorphous and could not be identified. One fragment from an undated area of burnt debris had a convex surface with a maximum diameter of 29mm and may have been part of a spherical ball or slingshot. If so it is likely to be of Iron Age date. The largest sample from middle to late Bronze Age ditch 1160 consisted mostly of broken fragments, grading from fired to unfired together with three pieces with a shaped surface. One with a flat straight edge had sooting on the surface. These fragments appear to be associated with a hearth (or possibly oven base). The fragments are consistent with hearth or oven lining utilising the natural clay subsoil. The edge fragment suggests there may have been a kerb round the hearth. The amorphous (unidentified category) or pieces with a single surface present (utilised) probably derive from in situ burning of brickearth/clay subsoil where oven or hearth bases have cut into such deposits. Some fragments were associated with burnt flints which may represent burnt debris from oven bases. Small amorphous fragments recovered by sieving from a cremation grave probably represent in situ burnt soil scraped up from the pyre site when recovering the ashes of the deceased.

The ceramic building material covers a range of periods. Fragments of plain tile may be Roman. A tessera and unidentified fragment from the subsoil both appear to be Roman, whilst another unidentified fragment of tile from medieval pit 1292 also looks Roman. A glazed fragment

of peg or nib tile from ditch 1178 is of medieval date (late twelfth - early sixteenth century), and two thinner unglazed pieces of roof tile from a post-medieval hollow and a pit are post-medieval.

### *Conclusions*

The same or closely related clay sources were exploited from the prehistoric to the post-medieval period. In the prehistoric period the clay was probably quarried close to the site or utilised the clay subsoil excavated in the course of pit or ditch digging. The fired clay can largely be attributed to the middle to late Bronze Age or late Iron Age period and was apparently being utilised as hearth or oven bases. Unfortunately it is difficult to assess the precise nature of the structures - whether these were simple bowl shaped hearths worn into the ground surface or deliberately cut bases for ovens. There was no evidence of in situ burning of features' sides or bases. In addition to oven/hearth clay, there was a small fragment of what may have been a clay ball or slingshot c 26-29mm in diameter. The ceramic building material from all periods is sparse and representative of casual loss or as part of the manuring process and is not indicative of structures in the immediate area.

### *Metalwork by Leigh Allen and Ian Scott*

The metalwork assemblage comprises a silver finger-ring and 24 iron objects consisting largely of nails.

The silver ring was recovered from a subsoil layer. It consists of a plain narrow band hoop with a D-shaped section and an internal diameter of 19 mm. It has been crudely made. Rough folds in the silver are clearly visible on the inside and at the join. It is probably post-medieval or modern in date.

The majority of the iron objects consist of highly corroded fragments of nails (18 fragments) which were recovered from medieval and post-medieval contexts. In addition a split pin, a fragment of sheet, a hoop handle formed from drawn wire, a chain made of small oval links twisted for decorative effect, and a number of fragments probably from a pan were also recovered. These objects are probably all modern in date.

### *The worked stone by Ruth Shaffrey*

A total of four pieces of worked stone were recovered. A possible whetstone fragment of probable Kentish Ragstone was recovered from middle to late Bronze Age pit 2277 and a probable quern fragment of hard quartzitic sandstone from ditch 3079 (also middle to late Bronze Age in date). A further quern fragment, probably from a rotary quern was found in medieval ditch 1257. It is made from a ferruginous sandstone. A fourth piece of cherty Greensand is roughly squared and may have been used structurally. It was recovered from medieval pit group 1313. The stones could probably all have been obtained fairly locally.

### *Slag by Luke Howarth*

A small amount of material was identified as possibly relating to metalworking. Three small fragments were recovered during the excavation, the rest from the residues of environmental samples. The majority of the material is either naturally occurring ferrous material or undiagnostic fragments of vitreous black vesicular slag or clinker. Much of it is slightly magnetic. From 13 samples only two possible pieces of hammerscale (one being spheroidal hammerslag) were observed. There is thus little evidence that metalworking was a significant activity. However, what has been found may indicate that metalworking took place nearby. The possible pieces of hammerscale and hammer slag were recovered from middle to late Bronze Age pit 2277 (in which

they were probably intrusive).

## ENVIRONMENTAL EVIDENCE

The charred plant remains and wood charcoal *by Sheila Boardman*

### *Introduction*

Following an assessment of 54 bulk soil samples (Smith 2008), seven samples were selected for more detailed study: two for wood charcoal and five for charred plant remains. The samples ranged in volume from 30 to 40 litres. All of the samples come from middle to late Bronze Age deposits (consisting of two cremation deposits and four pit fills) except for one which was from a late Iron Age/early Roman ditch fill.

### *Methodology*

The samples were processed at Oxford Archaeology using a modified Siraf-type water separation machine. The flots were collected in a 250 micron mesh and the heavy residues in a 500 micron mesh. Flots and residues were sorted using a low power binocular microscope at magnifications of x10 to x20, for cereals grains, chaff, seeds and other quantifiable remains. Wood charcoal fragments greater than 4 mm in size were removed from flots and residues, together with a selection of the charcoal in the 2-4 mm size fraction. Individual fragments were fractured by hand and sorted into groups based on features observed in transverse section at x10-40 magnifications. The fragments were then sectioned longitudinally along their radial and tangential planes and examined at magnifications of up to x250 using a Metam P1 metallurgical microscope. Identifications of the wood charcoal were made with reference to Schweingruber (1990), Hather (2000), Gale and Cutler (2000) and Clifford in Godwin (1956, 385). Identifications of the charred grains, chaff and seeds were carried out at magnifications of x10 to x40, using standard morphological criteria for the cereals (eg Jacomet 2006) and other cultivated plants, and by comparison with modern reference material. Classification and nomenclature of the plant material follows Stace (2010).

### *Results*

The wood charcoal results are listed by fragment count in Table 9. The samples are comprised almost entirely of oak (*Quercus*) fragments, about a third with tyloses indicating mature wood. The cremation fuel, therefore, may have largely comprised of sapwood. No small round wood was seen. Some of the oak charcoal in both samples appears to be partly vitrified (glassy), indicating high temperatures in the cremations. There were a few fragments of hazel (*Corylus*) charcoal, some possible Pomoideae (hawthorn group) and possible ash (*Fraxinus*) charcoal. Nearly all the fragments in sample 51 were below 4 mm in size.

The charred plant remains are listed in Table 10. The counts are for individual grains, seeds, nutlets, etc. unless otherwise stated. The samples produced small amounts of plant material. The cereals are dominated by glume wheat grains and chaff. On the basis of the chaff, this appears to be largely spelt wheat (*Triticum spelta*), possibly with small amounts of emmer wheat (*T. dicoccum*). The other cereals are barley (*Hordeum vulgare*) and oats (*Avena* sp.), represented almost entirely by grain. There are several hulled barley grains and fragments, but no naked grains were seen.

### *Discussion*

The main fuel used in the two cremations was oak, which is well suited to this purpose (Edlin 1949). The selection of single species as fuel in Bronze Age cremations has been noted elsewhere and this may have had ritual significance (Thompson 1999; Challinor 2010), especially if a single tree was selected to match the individual's age, sex and status or some other attribute (Gale 2007, 358). Oak was commonly used in cremations of this period, but it was not always selected, even

where it was clearly available. Occasional fragments of hazel and possible ash and Pomoideae charcoal in the East Hall Farm samples may represent accidental inclusions, or they possibly had some other significance. While local growth of all the woody taxa is very likely, it is not possible to make general observations about local woodland or fuel use during the Bronze Age, based on these two, heavily oak-dominated cremation samples.

The charcoal fragments in sample 51 were all less than 4 mm in size, whereas those from sample 53 were largely in the 4-10 mm range. This may reflect position in the pyre and sample location as well as post-depositional factors.

Of the charred plant remains, cereal chaff and weeds were the most numerous finds across both the Bronze Age and late Iron Age/early Roman samples, so they may represent refuse from various small-scale crop cleaning operations (and other domestic refuse) which was discarded onto fires. The range of cultivated plants is broadly similar to those found on the East Kent Access Road sites (Hunter, pers. comm.) and on southern Kent sites including Pilgrims Way and White Horse Stone (Giorgi 2006) but with some differences. Across the region, emmer wheat is generally more common than spelt wheat during the Bronze Age. Emmer then continues alongside spelt into the Iron Age, with spelt increasing throughout.

At East Hall Farm, spelt and emmer are both present by the middle to late Bronze Age, and spelt chaff appears more numerous in these samples. Two other finds of dated (or proxy dated) Bronze Age spelt wheat come from Princes Road in North-West Kent (Pelling 2003) and from the A2/Darent Valley area in North-west Kent (Smith 2011, 165). Whether the adoption of spelt was associated with cultivation of new areas or a new (winter) sowing season remains to be seen. The relatively large number of sheep's sorrel seeds in Sample 18 may point to cultivation of lighter, more acidic soils, but this sample also has species associated with damper conditions, such as blinks (*Montia fontana*) and pale persicaria (*Persicaria lapathifolium*). Meanwhile, stinking mayweed (*Anthemis cotula*) in later prehistoric assemblages is thought to indicate cultivation of heavier soils. Though slightly richer, the late Iron Age-Roman ditch sample is almost identical to the middle to late Bronze samples in the range of cultivated material and wild plant species present. One seed of stinking chamomile (*Anthemis cotula*) and a few seeds of redshank/persicaria (*Persicaria* spp.), provide very tentative evidence of cultivation of heavier, and possibly damper, ground.

#### The animal bone by *Kris Poole and Lena Strid*

Almost all of the animal bone recovered from the site derived from a series of five modern animal burials in pits which were distributed in a 14 m wide band across the centre of the site (within the area occupied by middle to late Bronze Age enclosure 4001, see Fig. 7). Very little bone was recovered from features of archaeological interest. Aside from the modern burials, the only large group of animal bone was recovered from late Iron Age/early Roman ditch 3075 (part of trackway 4005). The semiarticulated remains of an adult caprine were recovered from a cut across the southern end of the ditch. The mandibular wear stages indicate that the animal was over 6 years old when it died. The measurable radius is very large in comparison to the radii from contemporary sites in Britain (see table 4), and thus likely to derive from a male.

The remaining animal bone consisted of fragments of a sheep/goat tooth and large mammal bone in middle to late Bronze Age ditches 1106 and 1178 respectively, 38 fragments of unidentifiable bone from late Iron Age/early Roman ditch 1100, and a cattle metacarpal and two fragments of large mammal bone from medieval-post-medieval ditch 1070.

The modern animal burials consisted of sheep burials, most of which still articulated,

although some had been disturbed. The burials included two neonatal skeletons. Two of the remaining burials were around 3.5 years old at death.

## CREMATED HUMAN REMAINS *by Helen Webb*

### Introduction

Cremated human bone was recovered from two pits (2022 and 2027). Radiocarbon dates indicate that both burials date from the end of the middle Bronze Age or the very beginning of the late Bronze Age (1300-1050 cal BC, see above). The deposits were osteologically analysed and the results are presented below.

### The cremation deposits

Both features containing cremated human bone were located 7 m apart, within the south western part of Site 1, approximately 32 m south of the post structures.

A very small quantity (8.3 g) of cremated human bone was recovered from the sole fill (2021) of pit 2022. There were no finds associated with the cremated bone. The fill was a clay-silt, rich in charcoal with some ash, although there was no evidence of in situ burning.

Cremation deposit 2028 was the earliest of two fills within pit 2027. It consisted of charcoal rich clay-silt from which 431 g of human bone was recovered. There was no evidence of in situ burning. Six of the cremated bone fragments from this deposit were identified as animal, possibly representing pyre goods. Cremation deposit 2028 was overlain by 2034, a thin layer (0.04 m) of redeposited clay-silt subsoil, probably intended as a kind of capping layer after the deposition of the cremated material.

### Osteological methodology

In accordance with recommended practice (McKinley and Roberts 1993), a 100 per cent bulk sample of the cremated bone and surrounding soil was taken for each deposit. These samples were wet sieved and sorted into fractions of >100 mm, 4-10 mm and 4-2 mm. Bone was then sorted from the residues and osteologically analysed.

The total bone from each deposit was assessed for colour, weight and maximum fragment size. Each fraction was examined for identifiable bone elements and the presence of pyre and grave goods. Charcoal, burnt soil and flint were also noted. An attempt was made to identify the minimum number of individuals present, and their osteological age and sex of, but was generally unsuccessful. Results of the osteological analysis is summarised in Table 11.

### Disturbance and truncation

Neither of the pits had been disturbed or truncated by later archaeological features or animal or plant action. Truncation by machine stripping was minimal, and in the case of pit 2027, the cremation deposit (2028) itself was untruncated, being overlain by deposit 2034.

### Condition and fragmentation of the bone

The bone principally comprised long bone shaft and skull fragments, although other skeletal elements, including ribs, pelvis and hand/foot phalanges were occasionally identified. Very little

trabecular bone had survived.

In general, the cremated bone was very fragmented, with the maximum fragment size ranging from 12 mm (2021) to 28 mm (2028). This marked fragmentation may be due to a range of factors relating both to funerary practices and taphonomy. It is possible that the human remains were deliberately broken up by mourners following cremation as part of the funerary ritual, possibly to symbolise the end of corporeal existence and to emphasise the separation of the deceased from the world of the embodied living. Alternatively, fragmentation of the bone may have occurred at any or several of the stages between collection from the funerary pyre to archaeological excavation and post-excavation processing. The marked fragmentation of this assemblage made identification of skeletal elements, age and sex problematic.

### Weight of the deposits

Investigations in modern crematoria have found that the bone weight of cremated adult individuals ranges between 1000g - 2400g, with an average of 1650 g (McKinley 2000a, 269). Predictably, individuals of smaller and more gracile build (such as many females and children) will usually have a lower bone weight, and poorer survival of the articular surfaces and spongy bone has been observed in modern older individuals with osteoporosis (McKinley 2000b, 404). In archaeological cremation burials these factors play a role, as do funerary practices, taphonomic changes within the burial environment and excavation processes.

The weights of the cremated deposits were low. Deposit 2021 contained only 8.3g of bone, whilst deposit 2028 contained 431g. Whilst very slight machine truncation of the former, and poor preservation of trabecular bone may account for some reduction in the final bone weight, the extent of this influence remains in question. Probably most significant is the original nature of these deposits. The discrete nature of both of these pit deposits makes it probable that they were deliberate burials, but the low weights, particularly deposit 2021, coupled with the fact that the deposits contained high amounts of charcoal and ash, may indicate that these were redeposited pyre debris from a nearby pyre site, or cremation-related deposits.

### Palaeodemography

Neither of the deposits appeared to comprise more than one individual, although the small quantities of bone present and considerable fragmentation made identification of repeatable elements problematic. From the general thickness of the identifiable long bone fragments, and the sectional thickness of the skull fragments, both deposits appeared to comprise adult remains. Unfortunately, no other ageing or sexually diagnostic skeletal markers were present in the deposits.

### Colour of the cremated bone

Cremated bone may range in colour from brownish-black (slightly charred), through hues of blue and grey, to white, or fully calcined bone (McKinley 2000b, 405). In general, Bronze Age cremated bone shows more uniform burning than burials of later periods (McKinley 2000c, 66). This is certainly true of the cremated bone from both of the Site 1 deposits, where all fragments were greyish-white. These colour changes depend on the temperature of the firing, the oxygen supply and the duration of exposure of the body to the flames (*ibid.*). From the high proportion of calcined bone within this assemblage, it would appear that a high efficacy of cremation had been achieved.

### Discussion

Both pits appear to have contained formal cremation burials, although it is clear from the low bone



weight that only a small proportion of the deceased individuals' cremated remains were deposited. Whilst chemical destruction, and slight mechanical truncation in the case of deposit 2021, would have played some role in bone preservation and completeness, even in intact, well preserved burials, it is rarely, if ever, the case that the skeletal remains of an entire individual are present (McKinley 1997, 137).

Cremated human bone is often recovered from contexts other than formal burials, and may reflect the end point of different stages of the cremation process, from the conflagration (archaeologically visible as pyre sites), burial and the clean-up of the pyre site. Elsewhere, pyre debris (which includes fuel ash, cremated human bone and pyre goods) has been discovered deposited within graves and other features, including ditches of round barrows (McKinley 1997, 138), or in intentionally cut features, such as small pits, for example. Such features are most likely to be confused with unurned burials (*ibid.* 139), but a clear example was excavated from below the Guiting Power III round barrow in Gloucestershire (*ibid.*). There, approximately central to the barrow, was a cremation burial comprising the remains (1903 g) of an adult female and full term foetus/neonate. Set to one side, was a pit filled with redeposited pyre debris, including 24 g of cremated bone, also that of an adult and a full term foetus/neonate, probably fragments from the same individuals represented in the burial. It is possible that cremation deposits 2021 and 2028 also represent pyre debris deposited within intentionally cut pits, given their low weights, but it is also plausible, given their close proximity to each other, and considering the example above, that 2028 (431 g) represents a formal cremation burial, with deposit 2021 (8.3 g) representing the associated pyre debris. The high fragmentation of the assemblage and subsequent difficulty in identifying repeatable elements and assessing age and sex, precludes further investigation of this.

The six fragments of cremated animal bone recovered from deposit 2028 may represent pyre goods. Animal bone is the most commonly found of pyre goods, but has been recovered from only 16 per cent of Bronze Age cremation burials in England (McKinley 1997, 137).

## DISCUSSION

### The sequence of land use and function

Aside from worked flint of Upper Palaeolithic, Mesolithic and Neolithic date, recovered from the brick-earth deposits, underlying gravels and as residual finds, the earliest evidence for activity on site was the ring ditch with a diameter of just over 14.5m, which extended beyond the north-eastern limits of the loop-road excavation, and which was probably associated with a barrow. Although it probably dates from the early or middle Bronze Age, the precise date of the ring ditch remains uncertain. The monument was respected by activity of middle to late Bronze Age and late Iron Age date. In the late Bronze Age the site was dominated by three phases of field system, comprising an initial phase of curvilinear ditch with a pit on Site 2 and the loop-road excavation, followed by a phase of field boundaries running north-east / south-west and north-west / south-east, also on Site 2 and the loop-road excavation. This was followed by a series of rectilinear enclosures orientated north-east / south-west and occupying the centre of Site 1, the westernmost of which (enclosure 4000) contained a series of three four-post structures, a five-post structure and two cremation burials. There is no evidence for activity during the early and middle Iron Age periods, but in the late Iron Age to early Roman period renewed agricultural activity led to the laying out of two (4005 and 4006), or possibly three (4007) track- or droveways on Sites 1 and 2, and extending into the loop-road excavation area, along with the construction of a large sub-rectangular enclosure (4004) at the eastern end of Site 1. From the early Roman period there is no evidence for activity until the 11th-13th centuries, when a subrectangular enclosure (1055) defined by a narrow ditch seems to have been constructed around the prehistoric round barrow, which was presumably still visible as an

upstanding earthwork and may well have been incorporated into the medieval parish boundary to the north-east of the site. Flanking this enclosure and possibly defining the edges of a small subrectangular agricultural enclosure were two north-east - south-west linear ditches, and concentrated around the south-western corner of enclosure 1055 was a dense group of pits with relatively sterile fills, which were probably dug for the extraction of brickearth. By the nineteenth century an orchard had been established on the site and the concrete foundation for an apple hopper lay close to the southern boundary of Site 1.

### The ring ditch

Ring ditch 1330 probably formed part of a round barrow, which may have served as a burial monument, although no human remains were recovered from within its circumference. The date of the ring ditch remains uncertain. Although it is impossible to exclude an earlier date, a small quantity of middle to late Bronze Age pottery was recovered from the ditch fills, and it is possible that the feature dates from that period or the middle Bronze Age.

Two hollows were found within the ring ditch and one of these (1323) produced middle to late Bronze Age pottery, suggesting that it could have been contemporary with the ring ditch. Part of the ring ditch extended beyond the limit of excavation to the north-east and it is possible that a human burial or burials lay in this unexcavated part of the monument. No other comparable features were found during the course of the excavation, but the loop-road excavation trench was relatively narrow at this point and further ring ditches might exist beyond the limits of excavation.

Comparable later Bronze age ring ditches appear to be scarce in Kent, but some similar features have been excavated, and some barrows appear to have been used for burial up to 1000 BC (Champion 2007, 89). At Monkton barrow cemetery on the Isle of Thanet to the east of Sittingbourne, barrow X contained a middle Bronze Age cremation burial in a pit near the inner edge of the ditch and the ditch fill contained a middle Bronze Age Trevisker urn (*ibid.*, 90). At Whitfield-Eastry a barrow with several structural phases had a late Bronze Age cremation burial deposited in it (*ibid.*, 92). Nonetheless, a date in the middle/late Bronze Age, would still place the ring ditch amongst the latest examples, in a period when most burials appear not to have been associated with ring ditches (Allen et al. 2012, 108-11).

### Middle to late Bronze Age field systems

#### *The landscape context*

The later Bronze Age landscape of the North Kent coastline is relatively well understood, with middle and late Bronze Age settlement and field-systems being particularly dense along the coast (Yates 2007, 22). Despite this, the immediate environs of Sittingbourne were not recorded as having the most intensive concentrations of activity, with the regions to the west of the Medway, particularly the Hoo Peninsula, along with the Isle of Thanet and the region to the north-west of the lower Stour to the east having a more dense distribution (*ibid.*, 23, fig. 3.3; Yates 2001, 75). Middle to late Bronze Age settlement and field-systems, have been recorded, however, at Kemsley Fields to the north-east of Sittingbourne (*ibid.*, fig 3.3) and at several sites on the north-east coast of the Isle of Sheppy, including Shrubsoles Hill. Enclosures are also recorded at Minster Abbey and Kingsborough Farm (*ibid.*, fig. 3.3). In contrast to the majority of these sites, the late Bronze Age field systems at Sittingbourne are relatively far inland and this different geographical positioning may mark them out as potentially different.

#### *The layout of the field-systems*

The earliest of the three phases of middle to late Bronze Age ditches and enclosures at Sittingbourne was represented by a single curvilinear ditch orientated broadly east-west and representing a broad

land division or boundary rather than a field system. Subsequently the land around this initial boundary ditch was divided into relatively narrow north-west - south-east orientated enclosures which cut across this boundary, and finally a series of larger subrectangular enclosures was established on a north-east - south-west alignment immediately to the east of the earlier land divisions. The sequence of land division suggests an increasing intensity of land use, with an initially small scale agricultural focus expanding to incorporate more land over time.

#### *The farming regime*

The layout of the late Bronze Age boundary ditches and enclosures suggests an agricultural function for the site, with the enclosures functioning as fields, either for growing crops, or as stock enclosures. There is little evidence in favour of either function in particular, although the double ditch in the north-western corner of enclosure 4002 could be interpreted as a stock run or crush, and Yates' view is that livestock management was a priority for the agricultural communities of the Thames Valley and Estuary (Yates 2001, 78). Poole and Webley, however, interpret similar double ditched boundaries from Westwood, Broadstairs as bounding banks or hedges (2008, 80) and the double ditched feature at Sittingbourne was, therefore, not necessarily associated with animal husbandry, although a banked or hedged enclosure does not necessarily exclude this type of regime. Corner entrances, which are also a feature of several of the enclosures may also be a feature of arable or pasture fields and are paralleled in the later Bronze Age at a number of sites (Poole and Webley 2008, 102). The environmental evidence was limited, but is more consistent with the suggestion that the enclosure were related to arable cultivation rather than pasture. Very little animal bone of middle to late Bronze Age date was preserved (just a few fragments of sheep/goat tooth and large mammal bone). Small quantities of cereals, predominantly spelt wheat, but also a little emmer and some barley and oats, were, however, recovered. Given the wide range of factors which can affect the incorporation of animal and plant remains into the archaeological, their subsequent preservation, and their recovery, it is impossible to infer the relative importance of arable and pastoral farming from the quantities of such remains which were recovered. The presence of both animal bone and cereals suggests, in any case, that the agricultural regime was mixed.

#### *Four-post structures*

The presence of three four-post structures and one five post structure within enclosure 4000 is particularly interesting in relation to the nature of the agricultural activities associated with the field systems at Sittingbourne. Four and five post structures have traditionally been interpreted as storage structures for arable crops (Gent 1983), and the presence of these structures at the heart of the enclosure system may indicate that they were being used to store crops produced in the local fields.

It is noticeable that these structures do not appear to have been associated with any other structures, such as roundhouses (an example of which was found within a partial enclosure on the A2; Allen et al. 2012), or with any significant deposits of artefacts which might be interpreted as domestic waste (although it is perhaps worth noting that along the A2 the largest quantities of artefacts were not associated with what seem to have been the foci of settlement (ibid., 107-8)). The largest groups of pottery were recovered from contexts which lay at some distance from the four-posters: pit 1400, near the ring ditch; pit 1400 at the southern end of the Loop Road excavation, the north-west corner enclosure 4002 and the nearby pit 2277, and from ditches 3077 and 3078 in the south-west corner of the excavations. It appears, then, that four- and five-posters were not directly associated with a settlement. In the context of the excavations along the A2 Allen et al. (2012, 107-8) it was noted that a range of features occurred away from what seem to have been the main foci of settlement. The four-posters at East Hall Farm could be seen as providing a further example of the dispersal of activities across the landscape which seems to be typical of the middle Bronze Age in particular.

#### *Burial*

The presence of two human cremation burials in the same enclosure (see below) is also interesting, as the burial of the dead within a landscape, or landscape feature, can be interpreted as an attempt to lay claim to that landscape. Taken together the four and five post-structures and the cremation burials may have been making a powerful statement about the tenure of the field system.

Until recently evidence for later Bronze Age burial in south-eastern England has been rare. Later Bronze Age unaccompanied cremation burials have, however, come to light at an increasing number of sites in south-eastern England in recent years (Webley et al. 2007, 139). Within the wider region of which the field system at Sittingbourne was part similar burials have been found at White Horse Stone (Hayden and Stafford 2006), on the route of High Speed 1, at Westwood, Broadstairs on the Isle of Thanet (Poole and Webley 2008, 103), along the A2 (Allen et al. 2012) and at several sites in Essex and Surrey (Webley et al. 2007, 139).

The location of the burials at East Hall Farm appears to be consistent with wider patterns, which involve a gradual trend away from burials associated with ring ditches, towards burials with field systems or as isolated field system (Allen et al. 2012, 109-11; fig. 2.49). Figure 19 shows the radiocarbon dates associated with middle to late Bronze Age cremation burials in Kent categorised in terms of their context. The dates from East Hall Farm fall within the middle of the range of dates for cremation burials associated with field systems.

#### *Wider social connections*

There is little direct evidence at Sittingbourne for connections with wider social networks, although it is clear from regional syntheses (Yates 2007, 2-24) that the entire Lower Thames and the Estuary was closely bound into regional and continental exchange networks, with particular concentrations of high-status sites and field systems on the Isles of Sheppy and Thanet. These sites, however, have a noticeably coastal distribution, and it is probable that the system at Sittingbourne, being relatively geographically distant from the sea, was not as closely tied in to these networks.

#### *The late Iron Age landscape and trackways/field systems*

##### *Landscape context*

Like the late Bronze Age, the late Iron Age in the Thames Estuary saw an expansion of agricultural activity and the construction of field systems and land boundaries (Champion 2007, 116), although settlement has a less coastal distribution in this period. Sites with enclosures either for settlement or fields are relatively common although it is sometimes difficult to tell which is represented (ibid., 120). Enclosure complexes which might represent either of these functions have been recorded at Hillside, Gravesend, Charing Sand Pit, Glebelands, Harrietsham, Highstead, and Brisely Farm, Ashford (ibid.)

##### *The field system and agricultural regime*

The layout of the late Iron Age enclosures and trackways is in many ways similar to those of the late Bronze Age. Site 1 was dominated by a subrectangular enclosure (4004) at its eastern end, with the edge of a second subrectangular enclosure, or possible trackway (4007) close to the eastern limit of excavation. Substantial trackways/holloways (4005 and 4006) cut across the south-western corner of Site 2 and the north-western corner of Site 1 and the loop-road excavation respectively, and three further linear ditches defined a possible enclosure to the north-west of the later trackway. As with the late Bronze Age, late Iron Age activity at Sittingbourne seems to have started with the construction of a boundary comprising a ditch and possible bank. This was supplemented by the construction of two further boundary ditches and finally the construction of the hollow-ways and enclosures. As with the late Bronze Age phase, this activity may be interpreted as representing increasing agricultural intensification over time. The patch of flint metallurgy excavated within the south-western end of trackway 4006, however, suggests an emphasis upon the movement of herds

of livestock rather than arable farming, and this may be a point of contrast with the earlier phase. Holloway 4005 with its substantial central ditch may also be interpreted as evidence for the heavy traffic, probably involving herds of animals.

Issues similar to those already mentioned with respect to the interpretation of the Bronze Age plant and animal remains apply also to the interpretation of the Roman remains. It is, nonetheless, noticeable, that the only significant group of animal bone - a semiarticulated sheep/goat skeleton, was recovered from a Roman ditch. Only a single sample of charred plant remains from a Roman ditch was analysed. It was similar in composition to the Bronze Age samples, and does not, therefore, suggest any significant changes in agricultural practices. The presence of stinking chamomile and redshank/persicaria might, however, indicate that cultivation had been extended onto heavier ground.

### Medieval activity

Medieval activity, dating to the 11th to 13th centuries, was limited to the north-western part of the loop road excavation. Within this period, however, there were three distinct phases of activity. Initially in the eleventh century two parallel north-east - south-west orientated ditches may have defined some kind of agricultural enclosure. Between the 11th and mid 12th centuries an enigmatic subrectangular ditched enclosure was constructed around middle Bronze Age ring ditch 1330, which presumably defined a still extant round barrow and may have been incorporated into the parish boundary. The purpose of the enclosure is unclear and it may be best interpreted as part of the parish boundary, possibly designed to emphasise the incorporation of the barrow into that boundary.

Finally, at some point in the late 11th to mid 12th centuries a substantial concentration of pits were dug in the area. The pit fills did not contain large quantities of material culture or rubbish and it seems likely that they were dug to obtain brickearth.

### Post-medieval activity

There is no evidence for activity between the mid twelfth century and the nineteenth century, but by the nineteenth century an orchard had been established on the site representing a classic Kentish post-medieval agricultural activity.

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### *Sittingbourne: Tables*

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Table 1: medieval and post-medieval pits

Pit No.	Diameter	Depth	Profile	Pottery (g)
1105	1.40	0.20	NA	235
1108	1.34	0.13	Flat based with gentle sides	NA
1263	0.80	0.20	Concave	NA
1280	1.00	0.15	Flat based with steep sides	NA
1282	1.26	0.15	Flat based with steep sides	NA
1284	NA	0.20	NA	NA
1288	NA	0.20	Flat based with steep sides	NA
1292	1.88	0.50	NA	7
1294	1.20	0.50	NA	NA
1297	2.40	0.54	NA	NA
1299	0.60	0.30	NA	NA
1301	0.45	0.20	NA	NA
1303	1.40	0.60	NA	NA
1305	2.95	0.56	NA	NA
1397	NA	0.20	Flat based with steep sides	230
1402	1.02	0.12	Flat based with gentle sides	NA
1404	1.40	0.20	Flat based with gentle sides	NA
1407	2.50	0.37	Flat based with gentle sides	12
1411	0.80	0.10	concave	NA
1413	0.80	0.14	NA	NA
1416	2.00	0.43	Steep sides	NA
1419	2.40	0.78	concave	17
1447	3.60	0.72	concave-irregular	9
1615	0.44	0.16	Flat based with steep sides	NA
1617	NA	0.30	Flat based with steep sides	12

Table 2: The flint assemblage

<i>CATEGORY TYPE</i>	<i>Excavations</i>	<i>Evaluations</i>	<i>Total</i>
<i>Flake</i>	349	62	411
<i>Blade</i>	18	2	20
<i>Bladelet</i>	7	3	10
<i>Blade-like</i>	21	1	22
<i>Irregular waste</i>	40	4	44
<i>Chip</i>	12		12
<i>Sieved Chips 10-4mm</i>	26		26
<i>Sieved Chips 4-2mm</i>	13		13
<i>Rejuvenation flake core face/edge</i>	3		3
<i>Crested blade</i>	1		1
<i>Janus flake</i>	1		1
<i>Core single platform blade</i>	1		1
<i>Core single platform flake</i>	3		3
<i>Core multi platform flake</i>	5	1	6
<i>Core fragment</i>	2		2
<i>Core tested nodule</i>	2	1	3
<i>Scraper end</i>	9		9
<i>Scraper side</i>	3		3
<i>Scraper end &amp; side</i>		1	1
<i>Arrowhead triangular</i>	1		1
<i>Piercer</i>	2		2
<i>Denticulate</i>	1		1
<i>Bruised blade</i>	1		1
<i>Burin</i>	1		1
<i>Microburin</i>	1		1
<i>End truncated blade</i>		1	1
<i>Ground implement flake</i>	2		2
<i>Knife backed</i>	2	1	3
<i>Knife other</i>	1		1
<i>Microdenticulate/serrated flake</i>	8		8
<i>Notch</i>		1	1
<i>Retouch miscellaneous</i>	3		3
<i>Retouched blade</i>	3		3
<i>Retouched flake</i>	6	1	7
<b>Total</b>	548	79	627

<i>No. burnt (exc. sieved chips) (%)</i>	19/509 (3.73%)	-	19/588 (3.23%)
<i>No. broken (exc. sieved chips) (%)</i>	99/509 (19.45%)	10/79 (12.66%)	109/588 (18.54%)
<i>No. retouched (exc. sieved chips) (%)</i>	42/509 (8.25%)	5/79 (6.33%)	47/588 (7.99%)

Table 3: The lithic assemblage by blank type

CATEGORY TYPE	Preparation	Distal trimming	Side trimming	Misc trimming	Inner
Flakes	74	57	74	101	105
%	18.00%	13.87%	18.00%	24.57%	25.55%
Blade forms	1	10	15	4	22
%	1.92%	19.23%	28.85%	7.69%	42.31%
<b>Totals</b>	<b>75</b>	<b>67</b>	<b>89</b>	<b>105</b>	<b>127</b>
%	<b>16.20%</b>	<b>14.47%</b>	<b>19.22%</b>	<b>22.68%</b>	<b>27.43%</b>

Table 4: The lithic assemblage by hammer mode

	<i>hard-hammer</i>		<i>indeterminate</i>		<i>soft-hammer</i>	
<i>CATEGORY TYPE</i>	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
<i>Flakes</i>	164	45.18%	163	44.90%	36	9.92%
<i>Blade forms</i>	8	18.60%	16	37.21%	19	44.19%
<i>Tools</i>	21	63.64%	9	27.27%	3	9.09%
<i>Totals</i>	<b>193</b>	<b>43.96%</b>	<b>188</b>	<b>42.83%</b>	<b>58</b>	<b>13.21%</b>

Table 5: The lithic assemblage by platform type

<i>CATEGORY TYPE</i>	<i>Cortical</i>	<i>Plain</i>	<i>Dihedral</i>	<i>Faceted</i>	<i>Linear</i>	<i>Punctiform</i>	<i>Shattered</i>	<i>Other</i>
<i>Flakes</i>	60	313	19	11	33	2	3	22
<i>percentage</i>	12.96%	67.60%	4.10%	2.38%	7.13%	0.43%	0.65%	4.75%
<i>Blade forms</i>	2	17	1	3	10	5	2	3
<i>percentage</i>	4.65%	39.53%	2.33%	6.98%	23.26%	11.63%	4.65%	6.98%
<i>Tools</i>	1	21	2	6	3			
<i>percentage</i>	3.03%	63.64%	6.06%	18.18%	9.09%			
<i>Totals</i>	<b>63</b>	<b>351</b>	<b>22</b>	<b>20</b>	<b>46</b>	<b>7</b>	<b>5</b>	<b>25</b>
<i>%</i>	<b>11.69%</b>	<b>65.12%</b>	<b>4.08%</b>	<b>3.71%</b>	<b>8.53%</b>	<b>1.30%</b>	<b>0.93%</b>	<b>4.64%</b>

Table 6: The lithic assemblage by terminal type

CATEGORY TYPE	fine/feathered	hinge	step	plunging	modified
Flakes	274	68	34	15	
percentage	70.07%	17.39%	8.70%	3.84%	
Blade forms	34	3	3	8	
percentage	70.83%	6.25%	6.25%	16.67%	
Tools	23	1	2	4	11
percentage	76.67%	3.33%	6.67%	13.33%	na
<b>Totals</b>	<b>331</b>	<b>72</b>	<b>39</b>	<b>27</b>	<b>(11)</b>
<b>%</b>	<b>70.58%</b>	<b>15.35%</b>	<b>8.32%</b>	<b>5.76%</b>	<b>na</b>



Table 7: Summary of medieval and post-medieval pottery

<i>Fabric code</i>	<i>Fabric</i>	<i>Approximate date</i>	<i>No. sherds</i>	<i>Weight (g)</i>
EM4	West Kent sandy ware	mid 12th-mid 13th century	32	233
EM35	Shelly ware	later 11th-early 13th century	18	288
EM.M5	Ashford Potters' Corner shell-filled sandy ware	early 12th-mid 13th century	1	9
M5	London ware	early 13th-14th century	3	11
LPM10	Modern English Stoneware	1800-1940	1	16
Total				

Table 8: Summary of fired clay and ceramic building material

	Fabric A		Fabric B		Fabric C		Fabric unidentified	
	Nos	Wt g	Nos	Wt g	Nos	Wt g	Nos	Wt g
Fired clay: oven/hearth	0	0	39	454	0	0	0	0
Fired clay: ball/SSh	0	0	1	3	0	0	0	0
FC: Utilised/Unidentified	12	218	32	369	0	0	118	23
Roof tile: medieval	0	0	0	0	1	85	0	0
Roof tile: post-medieval	2	26	1	17	0	0	0	0
Roman ceramic building material	2	29	0	0	0	0	0	0
Plain tile (Roman?)	6	56	1	18	0	0	0	0
Total	22	329	74	861	1	85	118	23

Table 9: The wood charcoal (symbols used in fragment counts: h - heartwood; s - sapwood)

Sample No		51	53
Feature		2022	2027
Context No		2021	2028
Sample vol. (litres)		30	30
Feature		Cremation	Cremation
Period		MBA	MBA
<b>Fagaceae</b>			
<i>Quercus</i>	oak	99hs	128hs
cf. <i>Quercus</i>	cf. oak	3	
<b>Betulaceae</b>			
<i>Corylus avellana</i>	hazel	1	1
<b>Rosaceae</b>			
cf. Pomoideae (*see below)	cf. hawthorn group	1	
<b>Oleaceae</b>			
cf. <i>Fraxinus excelsior</i>	cf. ash	1	
<b>Total Identified Fragments</b>		<b>105</b>	<b>129</b>
Indet. fragments		2	3

\*Pomoideae (syn. Maloideae) includes *Pyrus* (pear), *Malus* (apple), *Crataegus* (hawthorn) and *Sorbus* (rowan, service, whitebeam)

Table 10: The charred plant remains

Sample No		18	20	30	71	59
Feature		1367	1370	1323	2277	3075
Context No		1369	1371	1322	2279	3013
Sample vol. (litres)		40	40	40	40	40
Feature type		Pit	Pit	Pit	Pit	Ditch
Period		M-LBA	M-LBA	MBA	M-LBA	LIA-ER
<b>Cereal grain</b>						
<i>Triticum</i> sp.	wheat grain	3	3		3	10
cf. <i>Triticum</i> sp.	cf. wheat grain		1			
<i>Hordeum vulgare</i>	hulled, twisted barley grain				1	
<i>Hordeum</i> sp.	hulled barley grain	1F			1F	1
<i>Hordeum</i> sp.	barley grain	1	1F			2
<i>Avena</i> sp.	oat grain	1	1F			5
cf. <i>Avena</i> sp.	cf. oat					2
<i>Avena/Bromus</i>	oat/brome grass		1			2
Cereal indet.	indeterminate cereal	1	4	1	1	13
<b>Cereal chaff</b>						
<i>Triticum spelta</i>	spelt glume base	8	7	4	2	9
<i>Triticum</i> cf. <i>spelta</i>	cf spelt glume base	5				9
<i>Triticum dicoccum/spelta</i>	emmer/spelt glume base	8	2	1	7	33
<i>Triticum dicoccum/spelta</i>	emmer/spelt spikelet fork	1	2	1	2	
<i>Avena</i> sp.	oat awns present (+)		+		+	+++
Cereal indet.	straw node					1
<b>Edible plants</b>						
<i>Corylus avellana</i>	hazel netshell fragments			1F	2F	
<b>Wild plants</b>						
<i>Vicia/Lathyrus/Pisum</i>	vetch/tare/pea (3.5 mm)					1
<i>Vicia/Lathyrus/Pisum</i>	vetch/tare/pea (2.5 mm)	0.5				
<i>Vicia/Lathyrus</i>	vetch/tare (<2 mm)	4				1
<i>Melilotus/Medicago/Trifolium</i>	small seeded legume	1				
<i>Brassica/Sinapis</i>	cabbage, mustard, etc.	1				
Brassicaceae undiff.	cabbage family	1				
<i>Persicaria maculosa</i>	redshank					3
<i>Persicaria lapathifolium</i>	pale persicaria	0.5				0.5
<i>Persicaria</i> sp.	persicaria			1		
<i>Polygonum aviculare</i> agg.	knotgrass					1F
<i>Polygonum</i> sp.	knotgrass	1				
<i>Rumex acetosella</i>	sheep's sorrel	124	11		2	
<i>Rumex</i> sp.	dock	1				4
<i>Stellaria media</i>	common chickweed			2		
Caryophyllaceae undiff.	pink family	2		1		1
<i>Chenopodium</i> sp.	goosefoot		1F			1F
<i>Montia fontana</i> ssp. <i>chondrosperma</i>	blinks	4			1	
<i>Galium</i> sp.	bedstraw	1F			1F	
Lamiaceae undiff.	dead-nettle family	1				
<i>Anthemis cotula</i>	stinking chamomile					1
Poaceae undiff.	grass family, large grain	1F				
Poaceae undiff.	grass family, medium grain		1			

Poaceae undiff.	grass family, small grain	1				1
Poaceae undiff.	grass family, culm node					5
Indeterminate	seed/fruit/nut	5	1	3		6

Table 11: Summary of cremated human bone

		> 10 mm id frags	Weight	10 - 4 mm id frags	Weight	4 - 2 mm id frags	Weight
<i>Pit</i> 2022, <i>fill</i> 2021	Skull				0.5 g	Some identified	
	Axial						
	Upper limb						
	Lower limb						
	Unidentified long bone				1.0 g	Some identified	
	Hand/foot						
	Joint surfaces						
	Unidentified						
	<b>Total weight</b>				<b>1.5 g</b>		<b>6.8 g</b>
<i>Pit</i> 2027, <i>fill</i> 2028	Skull	Inc. temporal frag. and occipital frag.	2.2 g	Inc. occipital frags. and tooth root	16.1 g	Some identified	
	Axial	x2 pelvis frags. inc. acetab.	1.8 g	Rib frags.	0.4 g		
	Upper limb						
	Lower limb	Inc. femur frags.	4.7 g	Femur and tibia frags.	12.6 g		
	Unidentified long bone				58.3 g	Some identified	
	Hand/foot			Phalanx frags.	0.4 g		
	Joint surfaces			Inc. fem/hum head frags.	5.0 g		
	Unidentified		0.6 g		77.7 g		
	<b>Total weight</b>		<b>9.3 g</b>		<b>170.5 g</b>		<b>251.2 g</b>

## ***Sittingbourne: list of figures***

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Figure 1: Site location



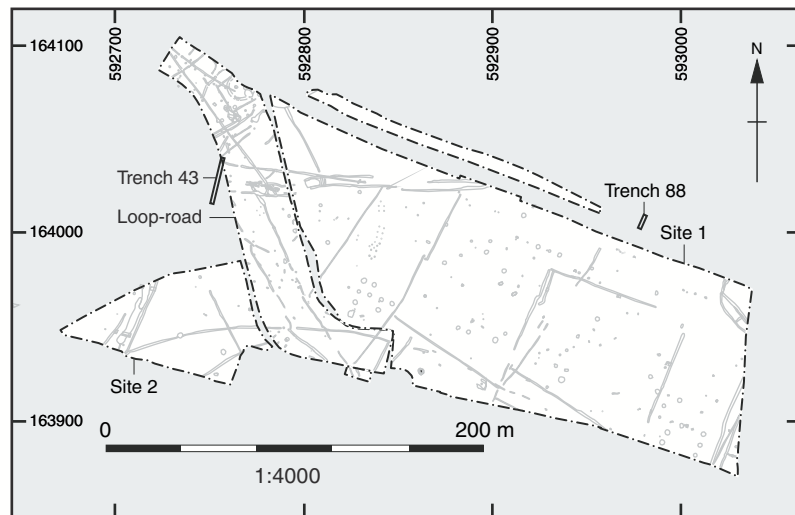


Figure 2: The excavations

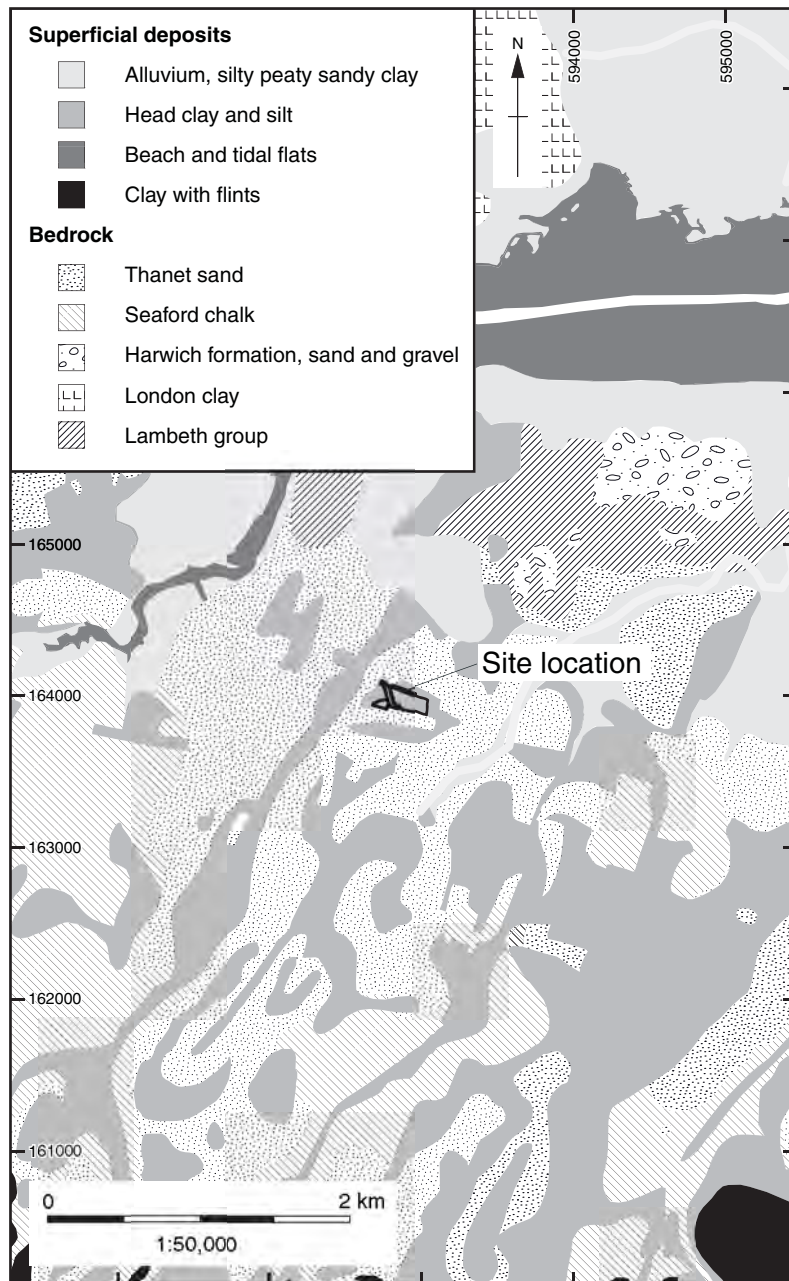


Figure 3: Geology

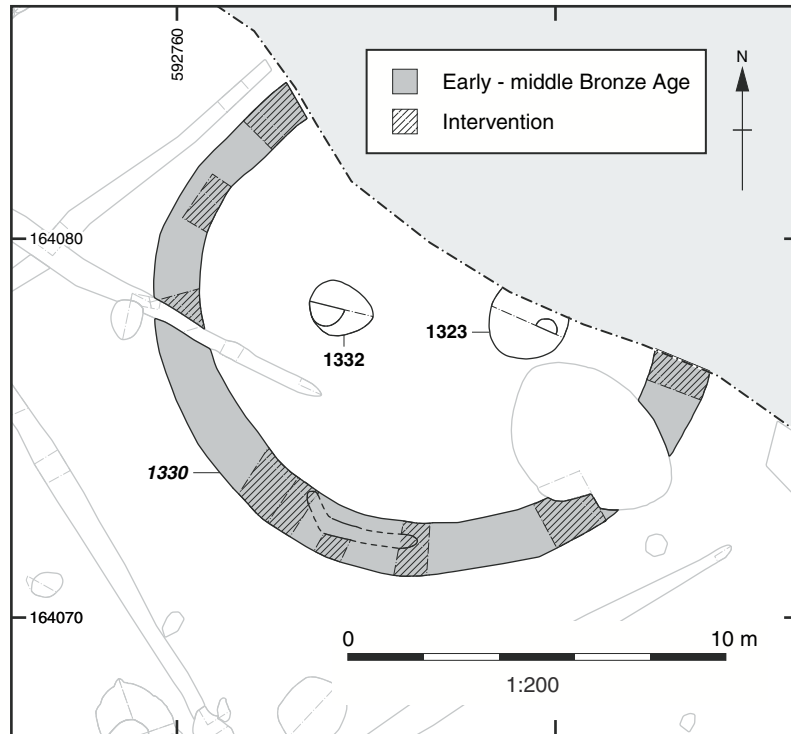


Figure 4: Middle Bronze Age ring-ditch

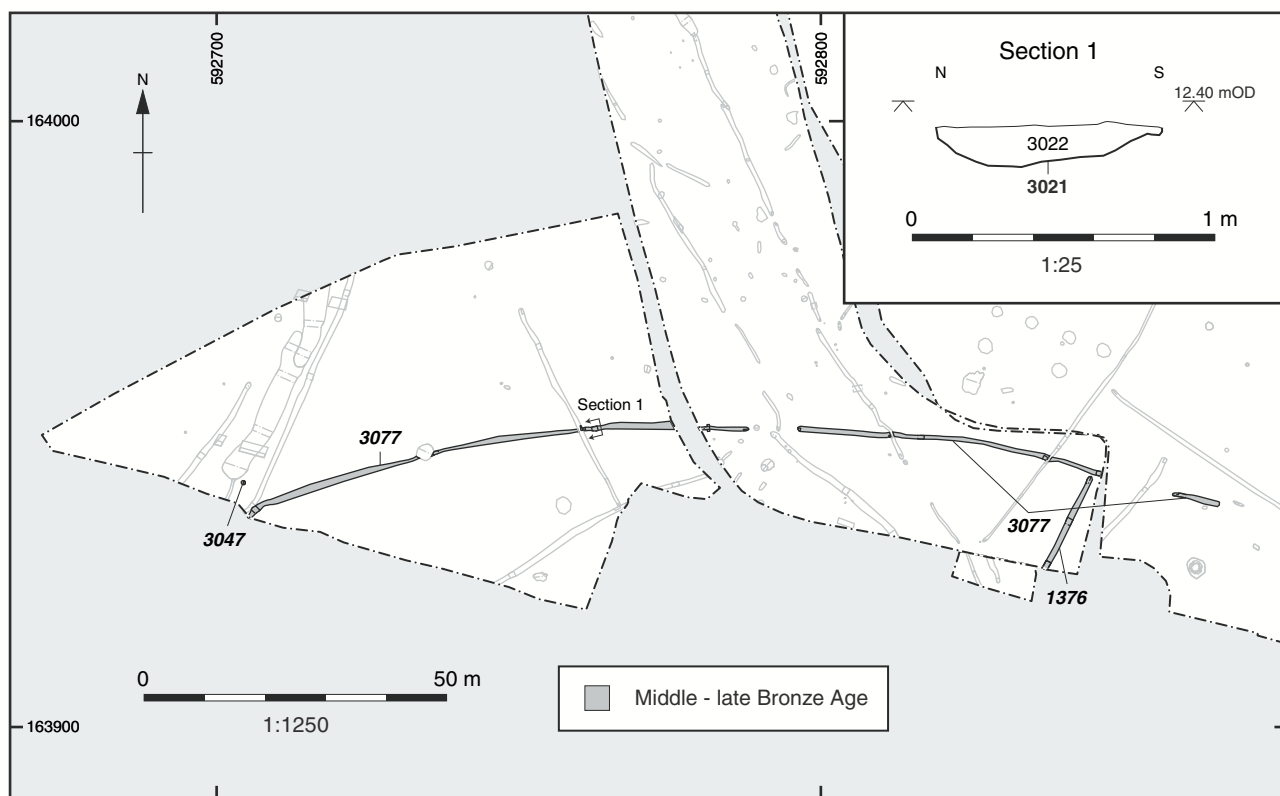


Figure 5: Middle-late Bronze Age field systems (Phase 1)

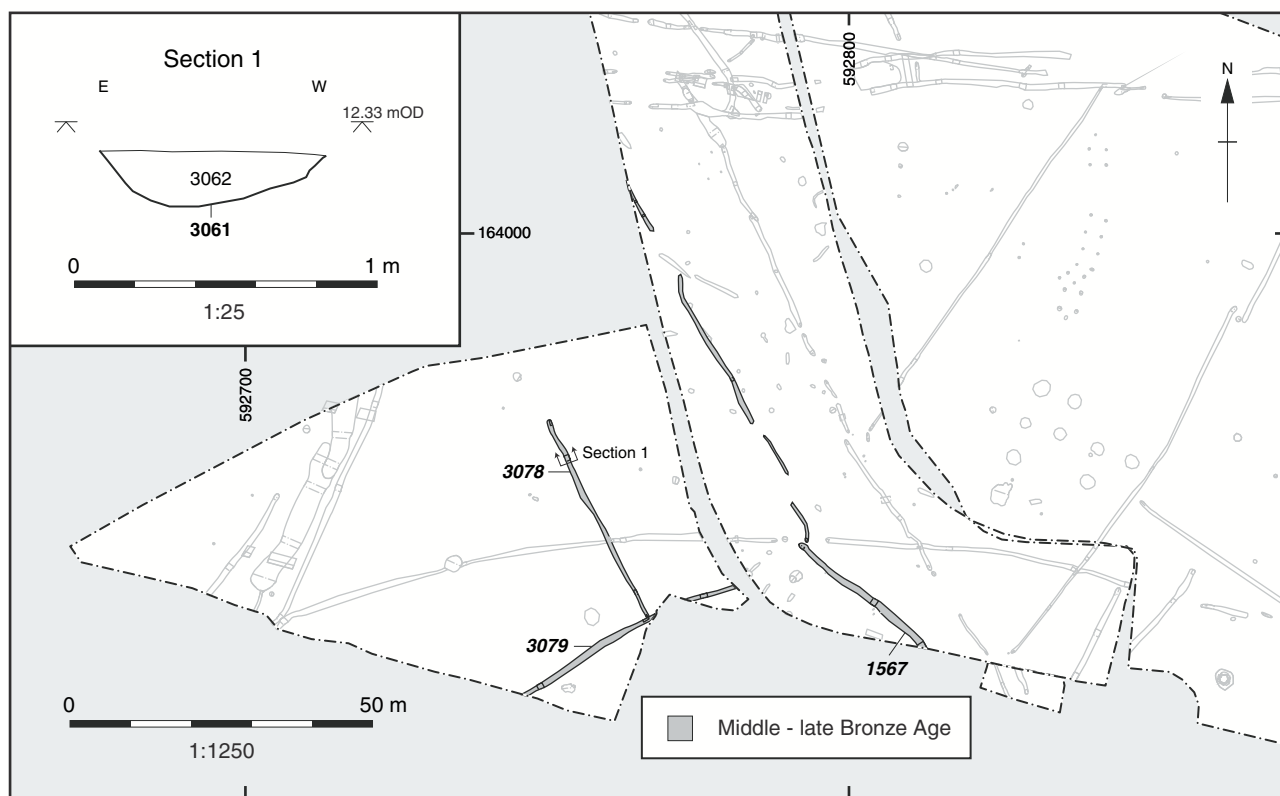


Figure 6: Middle-late Bronze Age field systems (Phase 2)

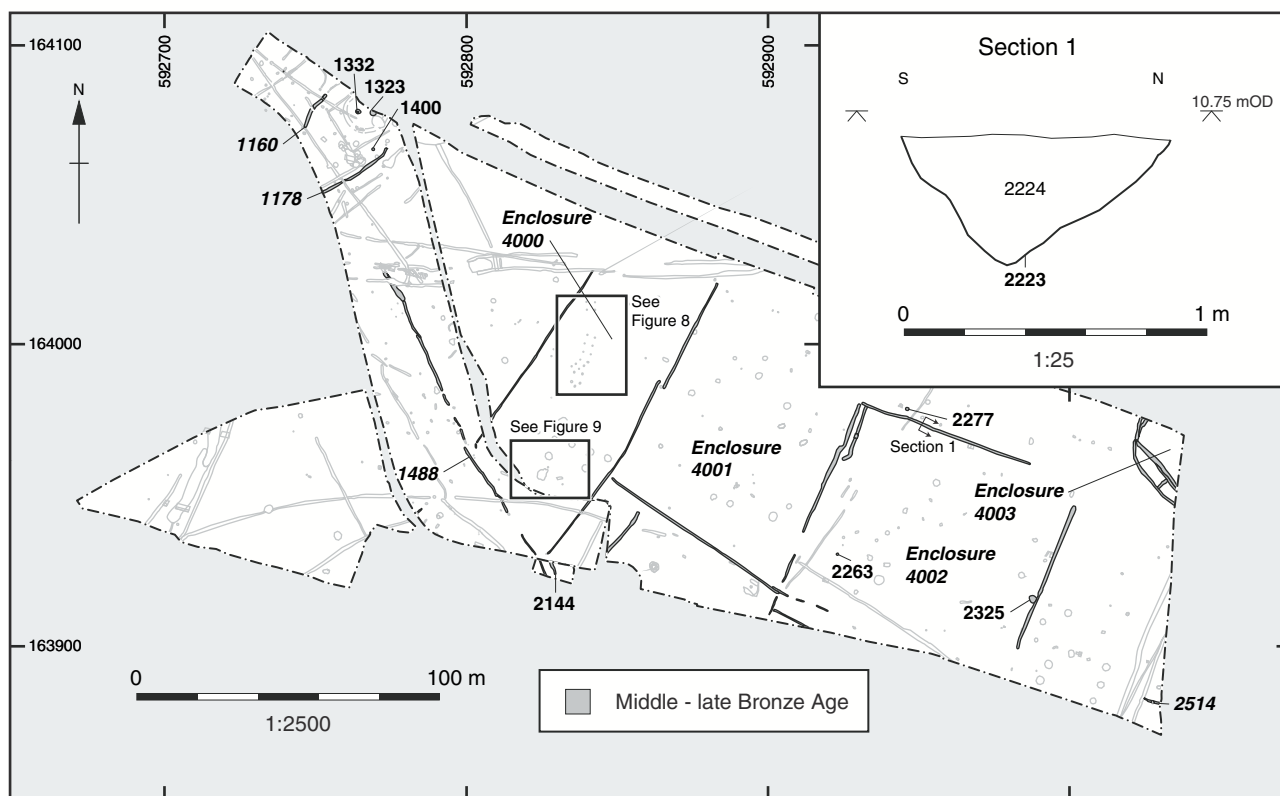


Figure 7: Middle-late Bronze Age field systems (Phase 3)

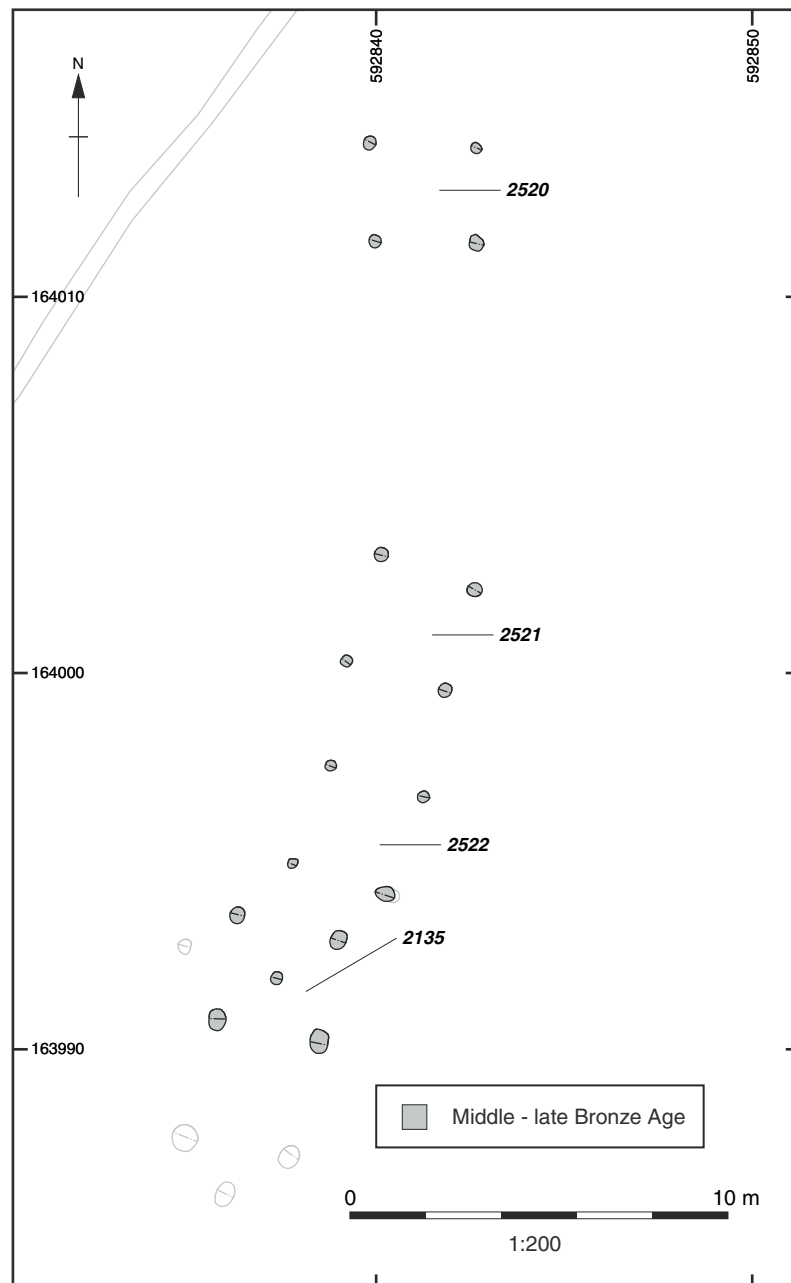


Figure 8: Middle-late Bronze Age post-built structures

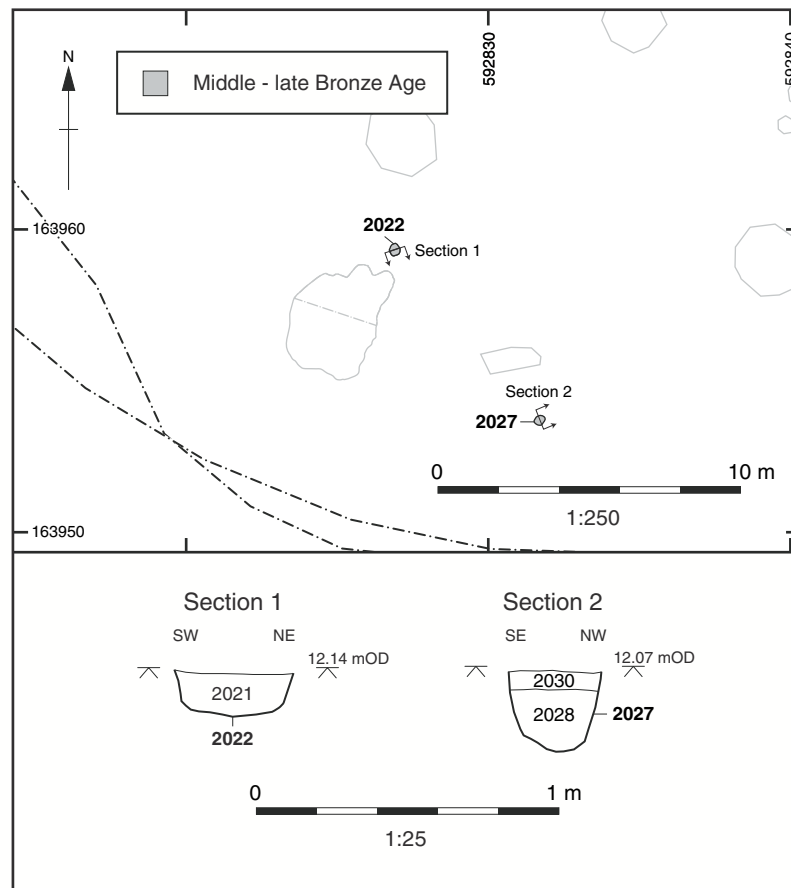


Figure 9: Middle-late Bronze age cremation burials



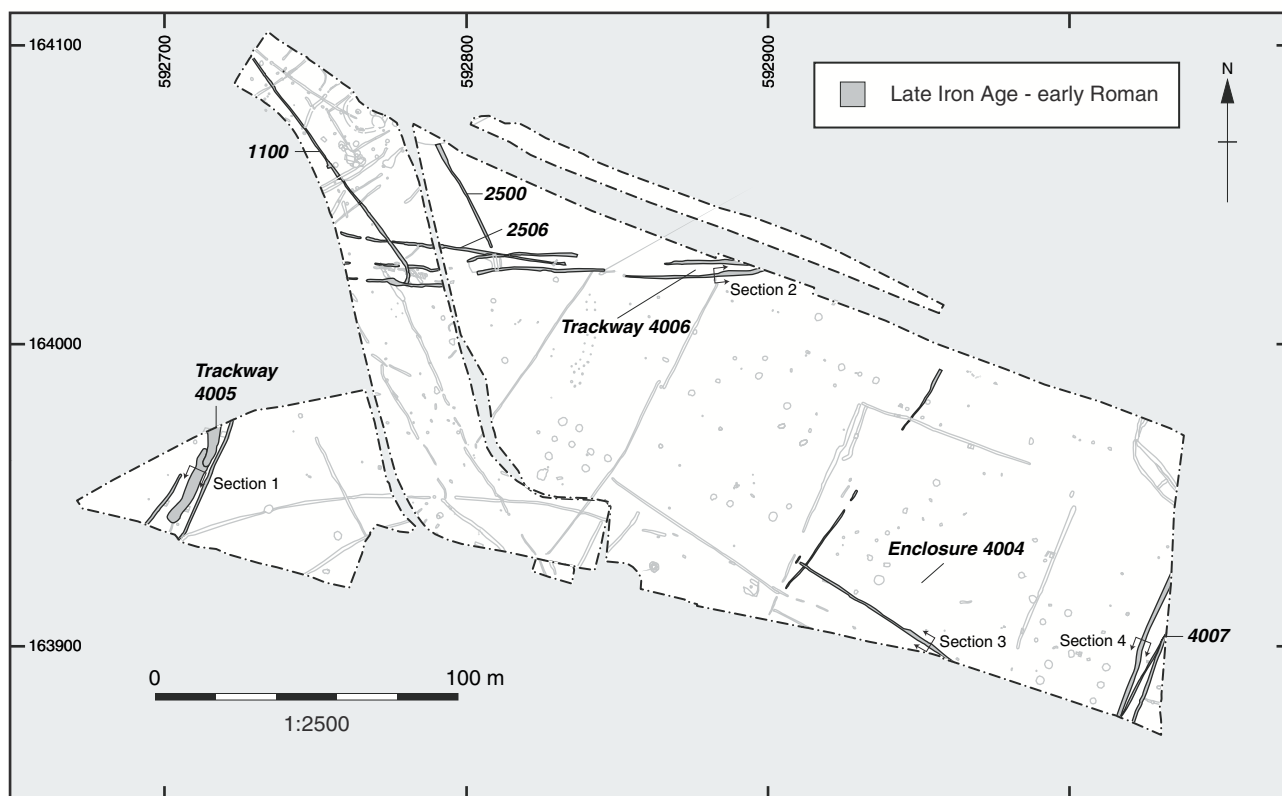


Figure 10: Late Iron Age-early Roman field systems and trackways

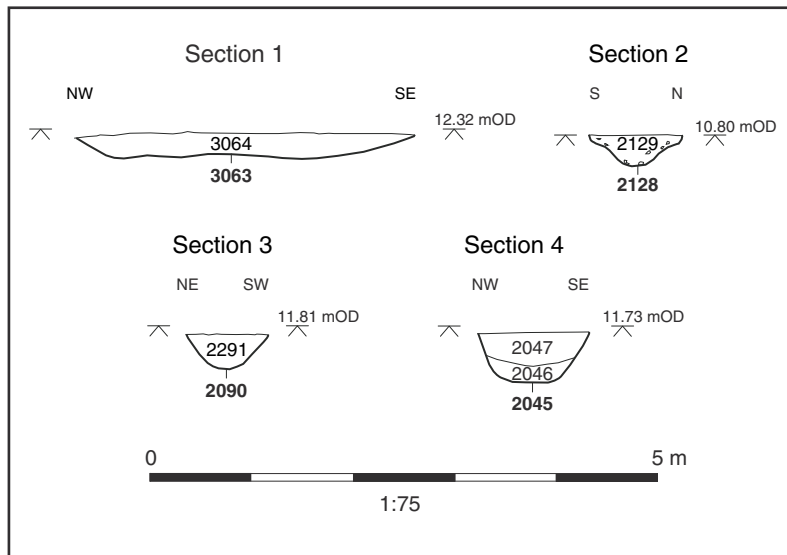


Figure 11: Sections through late Iron Age-early Roman field systems and trackways

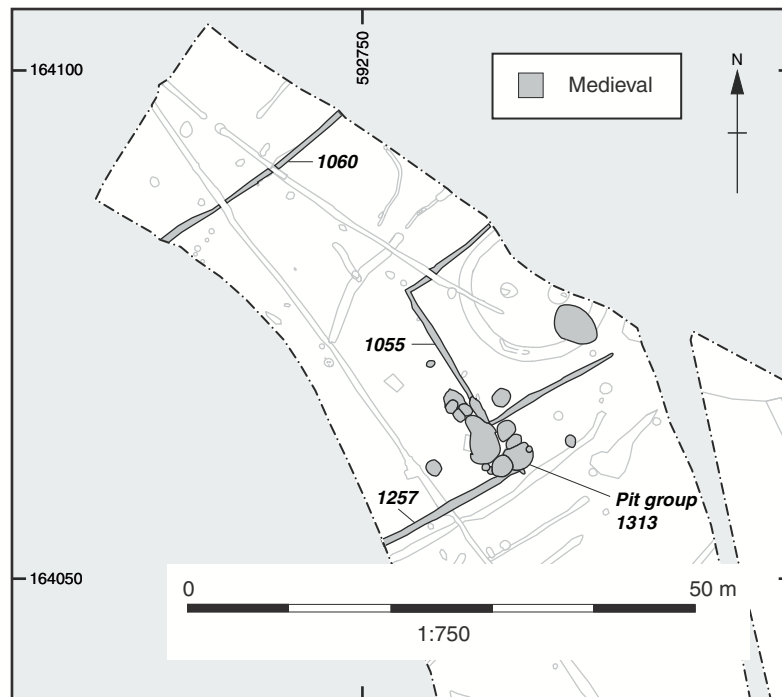


Figure 12: Medieval enclosure ditches and pits

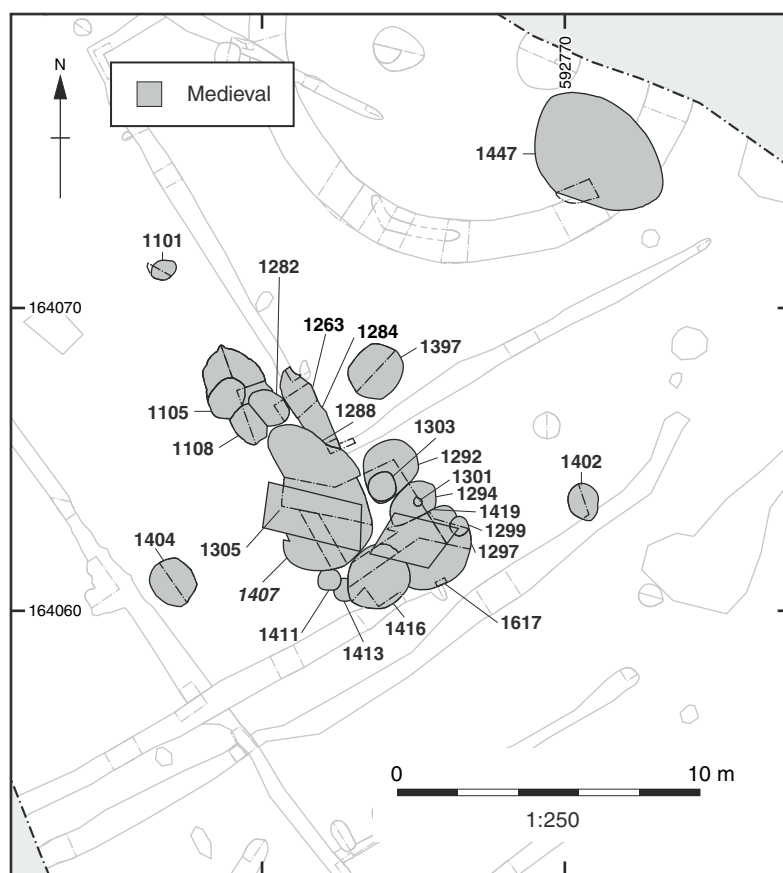


Figure 13: Medieval pit group 1313

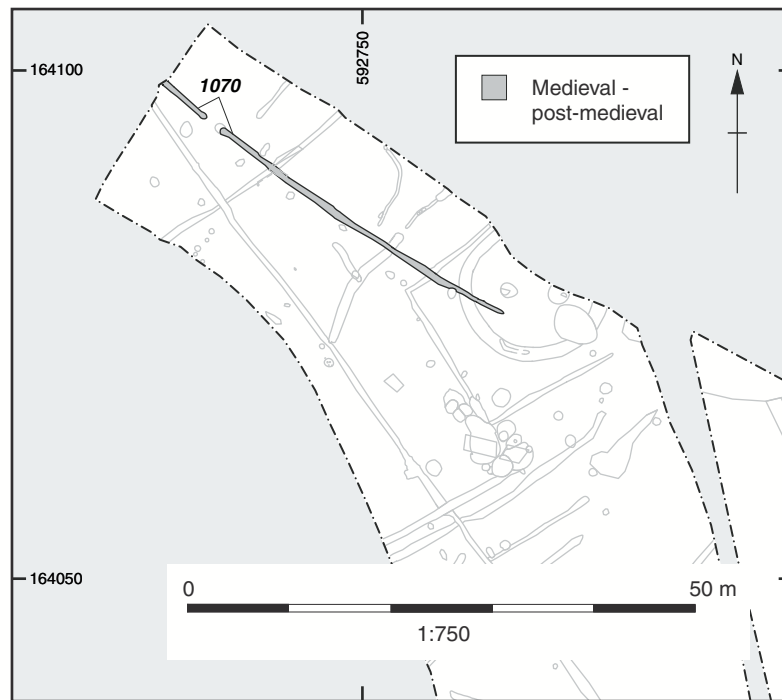


Figure 14: Medieval-post-medieval ditch 1070

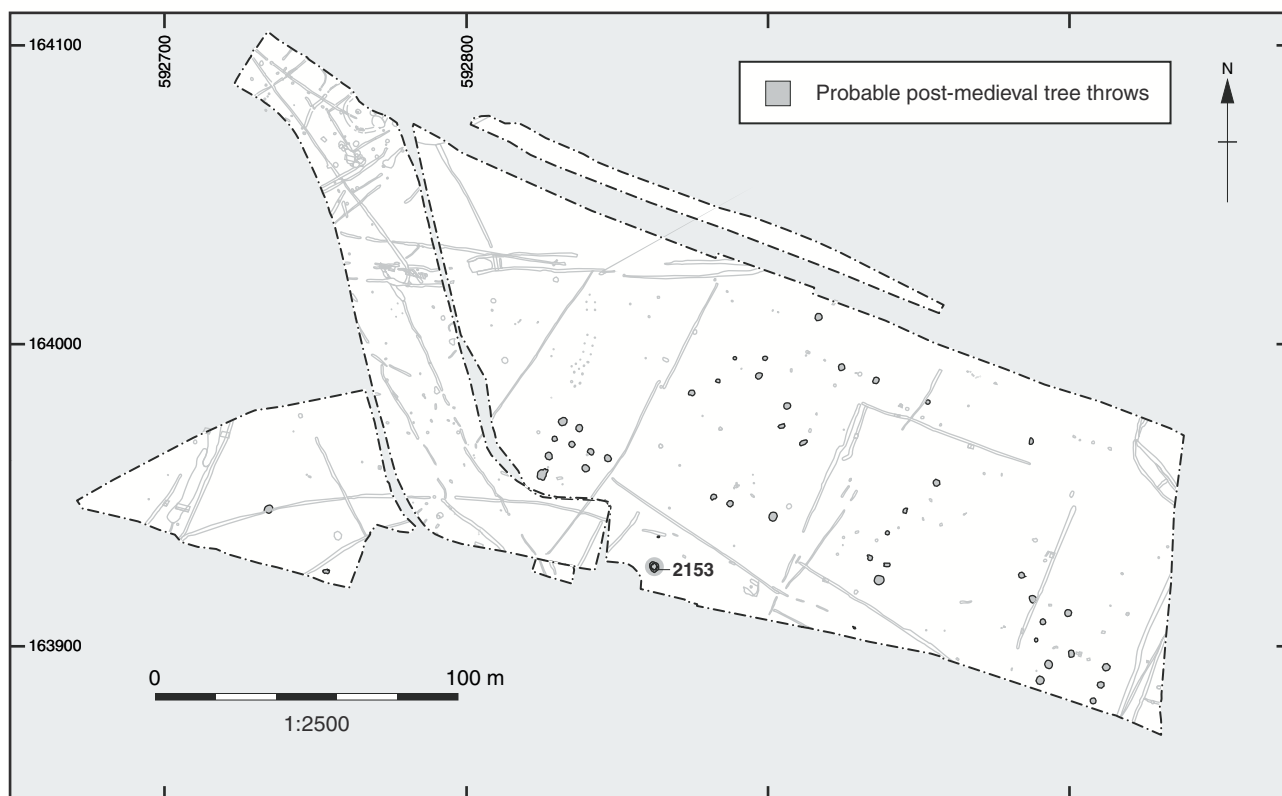


Figure 15: Post-medieval activity

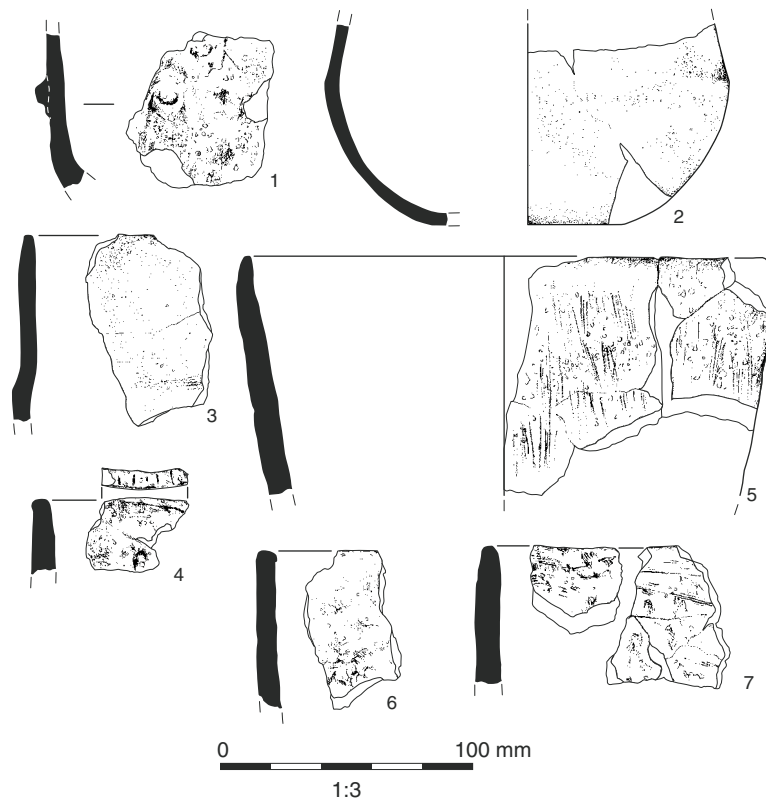


Figure 16: Selected prehistoric pottery

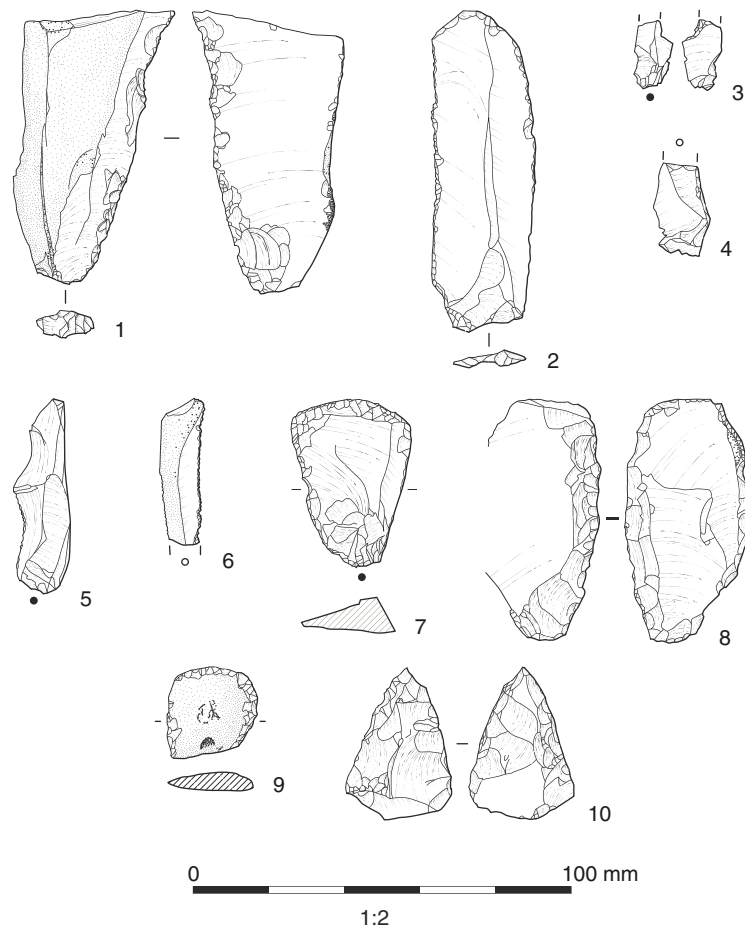


Figure 17: Selected worked flint



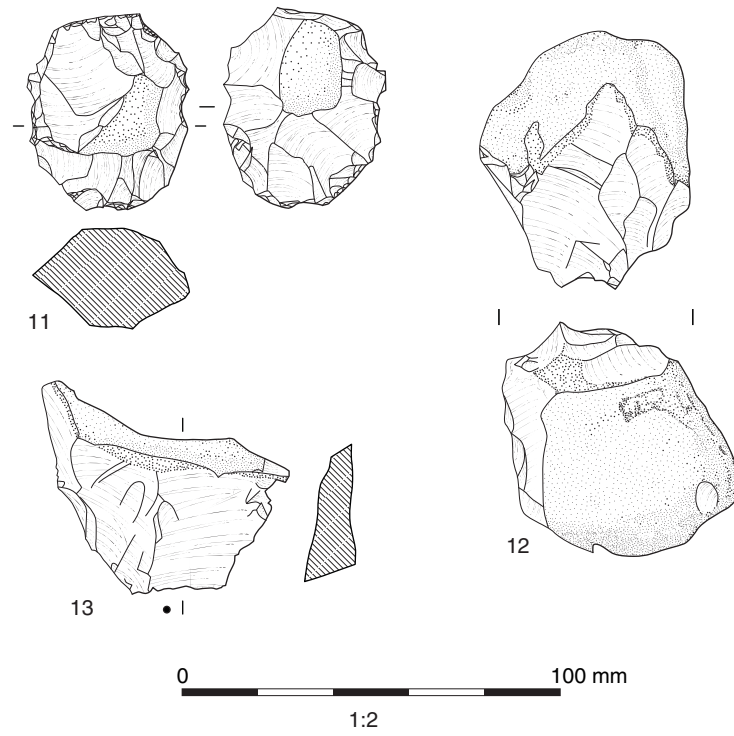


Figure 18: Selected worked flint

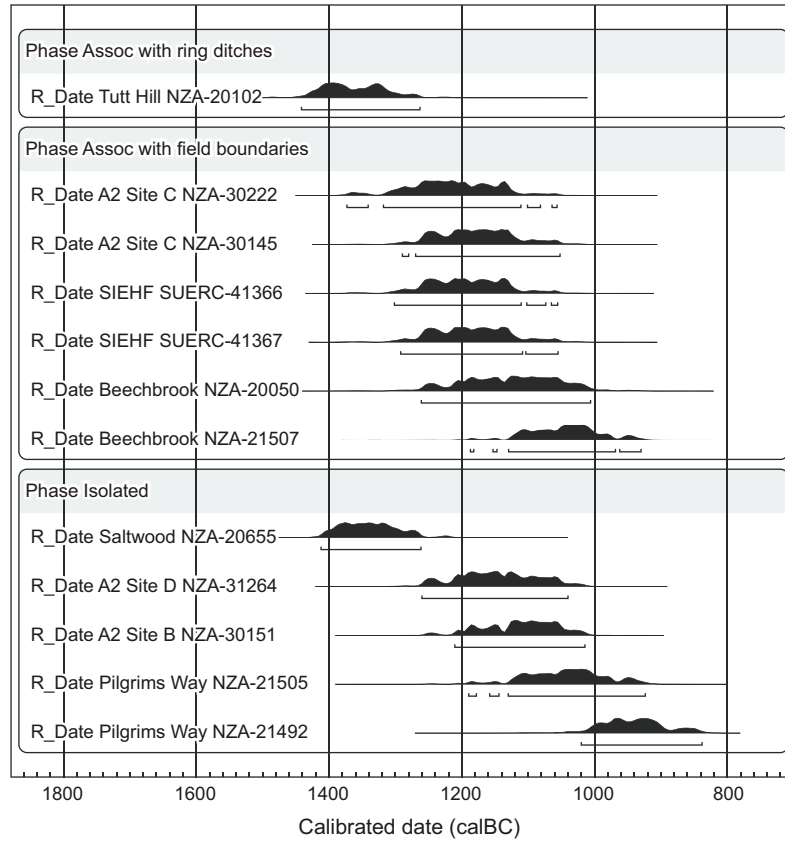


Figure 19: Radiocarbon dates for middle and late Bronze Age cremation burials in Kent in relation to their context