An early Roman lime kiln and later Roman agricultural processing at Maylands Gateway, Hemel Hempstead

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Archaeological Excavation Report

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INTRODUCTION

In 2017 Oxford Archaeology (OA) was commissioned by RPS Group PLC on behalf of Prologis to undertake an archaeological excavation on a 13.45ha site in advance of commercial development at Maylands Gateway, Hemel Hempstead, Hertfordshire. Two areas totalling 2.4ha were excavated. The work formed part of a mitigation strategy for a new warehouse development and was undertaken to inform the planning authority in advance of the submission of a planning application (4/00064/17/MFA). A brief for the fieldwork was set by Alison Tinniswood and a written scheme of investigation (WSI) was produced by RPS Group PLC detailing Dacorum Borough Council's requirements for work necessary to discharge the planning condition (CgMs 2017).

The site was located immediately to the south of a Romano-British religious complex excavated in 1966–67 and 1982–83 by David Neal, initially with volunteers and later with the then Department of the Environment Central Excavation Unit (Neal 1983; 1984). The complex has since become known in the literature as Wood Lane End temple-mausoleum and is a nationally important Scheduled Monument (list entry number 1015490). Built either in the later 1st or early 2nd century AD, the temple-mausoleum and its associated features appear to have been relatively short-lived, being abandoned and possibly demolished by the end of the 2nd century (Neal 1984, 208–9). The current excavations at Maylands revealed the substantial remains of an early Roman lime kiln in the north-eastern part of the site. This structure is thought to have been contemporary with, and probably integral to, the construction of the nearby religious complex. Some ditches found on an alignment similar to those previously discovered to the north are thought to have formed part of the *temenos* boundary of the religious complex.

To the SW of the lime kiln, a second phase of activity was discovered, this dating to the mid–late Roman period and most likely dating after the abandonment of the temple complex. Here, the excavation exposed several corndryers, one of which was particularly large with several stages of modification and redevelopment. The size and complexity of the largest corndryer, alongside a vast quantity of charred plant remains, indicates that cereal processing was being undertaken on a relatively 'industrial' level. The corndryers were set within a series of field boundaries and there was very little evidence of domestic activity. The archaeology suggests that the site was situated towards the periphery of an estate, with agricultural processing perhaps supported by produce from a number of farms in the area. One possibility is that the corndryers were being operated from a large, high-status settlement nearby that was managing local arable surpluses and exporting large quantities of processed grain. The villas at Gadebridge Park and Gorhambury both provide potential candidates, while another more local villa may yet lie undiscovered. An alternative explanation is that the site was run directly by the state to process grain for the army rather than a private landowner.

Location

The site is located at the eastern periphery of the modern town of Hemel Hempstead in Hertfordshire. The development area comprised approximately 13.45ha of land centred at NGR TL 0836 0764 (Fig. 1). Prior to development, the site was a sportsground with a playing field and a running track. The eastern part of the site is located on a gently southwest-facing

slope, while the western side had been terraced for the sportsground. The land slopes from 137m aOD in the north-eastern corner to 128m at the southern boundary. The site is bounded to the south by Breakspear Way, to the east by Buncefield Lane, to the north by Wood Lane End and residential properties, and to the west by commercial properties.

The bedrock geology underlying the northern part of the site is mapped as clay, silt and sand of the Lambeth Group, while chalk of the Lewes Nodular Chalk Formation/Seaford Chalk Formation extends below the southern part of the site (BGS nd). These geologies are overlaid by superficial deposits of clay, silt, sand and gravel of the Clay-with-Flints Formation across most of the site. No superficial deposits were recorded for the north-eastern and south-western corners and an area of the southern part of the site.

Archaeological and historical background

Prior to investigations at Maylands Gateway (see below), evidence of multiperiod activity ranging between early prehistory and the medieval period was known in this area of Hemel Hempstead and its immediate hinterland. Much of this information is recorded on the Hertfordshire Historic Environment Record, which includes data produced from isolated find spots and excavations.

Prehistory

Evidence of early prehistoric remains in the area is sporadic. Several probable Palaeolithic flint tools were discovered in the early 20th century to the north of Wood Lane End, about 800m north-west of the site (MHT540, MHT1303, MHT2276, MHT7315). Flints of Mesolithic and Neolithic date were recovered along with some unidentified animal bone during the excavation of a garden pond at Burleigh Road, Leverstock Green, about 670m to the south (MHT10812). Neolithic and Bronze Age flint artefacts have been found about 700m further north just off Maylands Avenue (MHT584, MHT585). A poorly dated but possible prehistoric ditch containing burnt flints and an undated pottery sherd was discovered during an evaluation at the former Lucas Aerospace site, Maylands Avenue, less than 400m north-west of the site (MHT11824). Following an evaluation about 85m north of the site, an excavation at Buncefield Lane identified transitional late Bronze Age to early Iron Age activity, including pits, ditches, and postholes (MHT9203; McDonald 2004). Excavations by OA during the widening of the M1 motorway, just north of junction 8 at Buncefield Depot, about 1km to the east of the site produced four pits and a ditch containing flint-gritted pottery (MHT16356; Stansbie *et al*. 2012, 51). A late Iron Age pit containing pottery fired clay and charcoal was also discovered during an evaluation about 1km to the south-east at Handpost Lodge, Leverstock Green (MHT11888).

Roman

The Maylands Gateway site is located just over 5km west of the *municipium* of Verulamium, an important Romano-British town, now mostly underlying a greenfield site to the west of modern St Albans (Fig. 2). The Viatores (1964, 155) suggested that a Roman road (route 169B) left Chester Gate at the northern end of the town. Excavations and field survey in the 1980s indicated that this road passed the south side of Gorhambury villa. If so, its projected line probably also passed south of the Maylands site and eventually connected with Akeman Street, perhaps somewhere east of Boxmoor villa. However, it is entirely possible that this

route was, in fact, the true line of Akeman Street joining Alchester with Verulamium, though in the absence of clear evidence there are various suggestions for the eastern route of this road (cf Niblett 2001; Thompson and Niblett 2003, fig. 1.3; Copeland 2009, fig. 5). Gorhambury and Boxmoor were two of three villas that were present nearby, all of which were previously excavated by David Neal. Gorhambury villa was located about 3.3km east of Maylands (Neal *et al*. 1990), Gadebridge Park villa was sited about 3.5km WNW (Neal 1974), and Boxmoor villa was *c* 5km WSW (Neal 1977).

A Romano-Celtic temple complex was discovered in the 1960s and more extensively excavated in the 1980s immediately to the north of the current site at Wood Lane End (MHT94; Neal 1983; 1984). Thought to have been built in the early 2nd century AD (though possibly slightly earlier), the site comprises an extensive rectilinear *temenos* or precinct, measuring 85m NW/SE and 75m NE/SW, enclosed by a boundary wall and a ditch on the south-west side. Within the *temenos* stood a sub-rectangular temple that potentially reached as high as 15m. A second building attached to the outer face of the north-west wall was interpreted as a *schola* (a place of learning). The remains of a rectangular ancillary building were discovered to the south-west of the *schola*, outside the *temenos* boundary. The complex was extended during the mid-2nd century AD by the addition of a small bath, just within the south-east entrance to the site, and a small square shrine or mausoleum was erected some 10m south-east of the temple.

Excavations at Buncefield Lane immediately north of the temple complex revealed ditches that appear to have been part of a field system that extended north from the Wood Lane End site (MHT9203; McDonald 2004). Early Roman pottery was recovered from the ditch and pit fills. Trial trenching at Wood Lane Close to the west of the complex revealed several Roman pits and postholes (MHT6824), though an excavation at 102 Wood Lane End, just to the east of the temple complex, did not produce any significant findings (KA 2018)

Evidence of a possible Roman building evidenced by a series of post-pads was found at Leverstock Green, about 890m south-east of the site. Remains from a ditch at this site also produced 2nd -century pottery, charcoal, roof tiles, bricks, flue tiles, some animal bones and a glass bead (MHT9622; AA 1998; 2001).

The discovery of 2nd–4th-century pottery and the rectangular foundations of a building was found at Breakspears Farm to the east of the Maylands site during the construction of the M1 motorway in 1958 (Anthony 1960). More recently, work undertaken during widening of the M1 south of the Breakspears Farm site, uncovered some late Iron Age/early Roman features but with more intensive activity dating to the early–middle Roman period (Stansbie *et al*. 2012, 27–42, fig. 3.1). Features dating to the latter phase included a trackway, a corndryer, a field system, and part of a curvilinear enclosure, with pits and postholes relating to possible structures in the enclosed area. The northward continuation of this site was investigated in an evaluation in 2017, which revealed additional evidence of early Roman settlement, and is currently the subject of further work (OA 2017).

About 1.7km north of the site, two separate excavations of a commercial and residential development site at Spencer's Park revealed evidence for late Iron Age and early Roman activity over a 6.6ha area of land. A large late Iron Age/early Roman settlement complete with enclosures, trackways, post-built structures and metalled areas, was discovered on a plateau in the western half of the site (BA 2015a–c). This work also revealed a number of late Iron Age

cremation burials. Subsequent work on the adjacent area to the east exposed an extensive field-system within which was discovered an enclosure containing a series of cremations (OA 2019). These remains almost certainly related to the settlement to the west.

Medieval and post-medieval

There are very few historical references that shed light on Hemel Hempstead from the early medieval period, though one Saxon charter (S1784) notes that King Offa of the East Saxons granted land (the *Pogo Haemele*) centred on Hemel Hempstead to Bishop Waldhere of London in AD 705 (Yorke 1985, 6, 28, 35). Just prior to the Norman conquest, the manor of Hemel Hempstead was held by two brothers of Earl Lewin, and by the time of the Domesday Survey the land was given to the count of Mortain by William I (VCH 1908, 215–30).

The remains of an aisled hall at Westwick Cottage about 1.2km south-east of the site were dated by dendrochronology to AD 1184–1219 (MHT9232). It is thought possible that the building once belonged to the medieval manor of Westwick, which was granted to St Albans Abbey in AD 996 (Gelling 1979, 80; Greening 1997).

Excavation on the M1 widening scheme just south of junction 8 revealed an enclosed rural settlement dating to the late 12th–13th century (Stansbie *et al*. 2012, 42–51). This comprised both outer and internal boundary ditches, a post-built structure, other possible buildings evidenced by gullies and postholes, and a limekiln. Further medieval pits and a ditch were discovered to the north of junction 8 (ibid. 51–4).

Although little evidence for medieval cultivation has been found on the Maylands site, ridge and furrows were identified about 200m to the north (McDonald 2004; MHT9205). This may have been related to the post-medieval farmstead at Woodell's Farm, located *c* 350m to the north-east of the site (MHT30291). Woodell's Farm is located on the 1840 tithe map but is thought to have had medieval origins (Gover *et al.* 1938, 41–2). Historic mapping from the beginning of the 19th century shows that the site was divided into small fields and was predominantly used for agriculture until the 20th century when the sports field was developed (CgMs 2016, 13–14).

Previous archaeological work at Maylands

A geophysical survey of the site was undertaken in 2016 which identified no anomalies of archaeological origin, with all features interpreted as being of modern or natural origin (Stratascan 2016).

A series of geotechnical test-pits were dug subsequent to the geophysical survey and a watching brief was maintained during this work by Albion Archaeology (AA 2016). One archaeological feature was identified. The south-western part of the site had been heavily landscaped, and the eastern part of the site comprised a small area of terracing.

Following the geotechnical test-pitting, a trial-trench evaluation was undertaken across the site (AA 2017). Archaeological features were identified in 17 of the 28 trenches excavated. These included a late Neolithic/early Bronze Age pit, an Iron Age ditch, ditches/gullies, pits, postholes and a drying oven of Roman date, and quarry pits (mostly filled with post-medieval material). At the time, it was suggested that some of the Roman ditches may have corresponded with boundaries aligned with the Wood Lane End temple complex to the north

(ibid., 13), and many of these were re-exposed during the current excavations (see below). A palaeochannel was identified in addition to the archaeological remains, and in 12 trenches evidence for 1.8m of modern made-ground was found, likely to have been laid during the construction of the sportsground. In these areas, truncated archaeological features were reached at considerable depths, while elsewhere well-preserved features were encountered just below the modern topsoil.

Additional trial trenching was undertaken by OA in order to accurately define the extent of the archaeological remains discovered in the earlier evaluation. A total of 13 trenches were opened just beyond the main concentration of archaeological features. A small number of 'new' features were identified including ditches, pits and a possible oven, all dating to the 1st–early 2nd century AD (OA 2018a).

Research framework

The updated project design presented in the post-excavation statement formulated a series of research aims based on the results of the previous evaluation of the site and a brief assessment of the results of the current work immediately after excavation (OA 2018b). These aims were developed with reference to the East of England Research Framework (Medlycott 2011). Since full post-excavation analysis has been completed, each objective has variously increased or decreased in importance and some have ceased to be relevant. For example, one of the later Roman corndryers (1635) was previously thought to be an early Roman tile kiln. Since the interpretation of this feature has since changed, the original research aims relating to the tile kiln are no longer relevant. Also, the evidence for earlier prehistoric activity at the site is now thought to be negligible; these remains are fully described in the site narrative, but their significance is no longer able to address the research aim set-out in the post-excavation statement. In view of these developments, the original nine research aims have been reduced to seven and several of the remainder have been updated, as follows:

1. Understand the extent of the Iron Age activity at the site and identify whether there is any evidence for change or continuity during the transition to the Roman period.
2. Identify any evidence relating to the temple complex—can any light be thrown on any 'special' characteristics of the area and do any feature enhance our understanding of the form and layout of the religious complex?
3. Were the products of the lime kiln used to construct and/or repair the Wood Lane End monument complex? Can the date of the kiln be refined through investigation of CBM samples and comparison with similar material from the Wood Lane End excavations?
4. How did the lime kiln function and how did this compare to other examples from Roman Britain?
5. What role did the site play in crop processing, and how did this develop through the Roman period? Can this be addressed by further stratigraphic analysis of the corndryers, refinement of their dating, and analysis of the associated charred plant remains?
6. What wood types were used to fuel the lime kilns and the corndryers, and what can this tell us about woodland management during the Roman period?

7. Can the agricultural phase, the use of the corndryers and the organisation of the site, be understood within its wider regional context, particularly in relation to other rural and urban settlements?

Excavation methodology

The excavation comprised two trenches exposing an area of 24,247m^2. The site was stripped using a mechanical digger under the supervision of an OA archaeologist. Mechanical excavation ceased upon discovery of archaeological features or the natural bedrock, which were subsequently sample excavated by hand. Upcast and spoil from mechanical excavation was scanned by eye and by metal detector to aid the recovery of artefacts.

At least 10% of all linear features not associated with structural features, including all terminals, intersections and 'unusual' deposits were excavated. Fifty per cent of linear features associated with structures, such as ring gullies, were excavated. At least 50% of pits were excavated, except for any that were prehistoric, which were fully excavated. Full excavation (100%) of any layer or deposit relating to domestic or industrial activity, such as hearths, kilns or floors, were excavated. Although, this basic sampling structure was followed on site, the excavation strategy was reflexive to allow for individual decisions to be made where features clearly related to the research framework of the project.

The excavated areas were recorded at an appropriate scale with all featured being surveyed by GPS and located on the Ordnance Survey National Grid. All features and deposits were fully recorded and described on OA context sheets. All sections of excavated archaeological features were recorded by measured drawing at an appropriate scale (mostly 1:10). Spot heights of individual features were recorded relative to Ordnance Datum. A photographic record using high-resolution digital data capture was maintained throughout the course of the fieldwork.

All artefactual and environmental remains were treated in accordance with standard OA guidelines. Finds were bagged and labelled according to the individual deposit from which they were recovered, ready for later cleaning and analysis. Sealed contexts were routinely sampled for the retrieval and assessment of environmental remains. Specific methodologies for the analysis and recording of each artefact type and for environmental remains are presented in the relevant specialist reports below.

Site archives

The finds and documentary archive will be deposited with Dacorum Museum, except for the large ceramic building material assemblage that cannot be accommodated by the museum and will be completely discarded in due course. An accession code is yet to be issued. The digital archive will be deposited with ADS.

STRATIGRAPHIC NARRATIVE

The archaeology has been divided into six phases. These include a prehistoric phase, four Roman phases constituting the bulk of activity at the site, and one post-Roman phase. The prehistoric phase (Phase 0) was restricted to one feature—a pit—that appears to represent an *in-situ* deposit dating to the Neolithic. A sizable quantity of prehistoric worked flint was found residually in later (mostly Roman) contexts and these are considered below in relation to phase 0 activity. Phases 1–4 relate to activity in the Roman period, broadly covering the early Roman period (*c* late 1st–2nd centuries AD) when a series of land boundaries were dug and a lime kiln was established, and the later Roman period (*c* 3rd–4th centuries AD) which witnessed an intensification of agricultural processing at the site. The final post-Roman phase (phase 5) was more ephemeral, being largely restricted to agricultural disturbance of Roman features during the medieval period.

Stratigraphic relationships were analysed where apparent, though these were generally minimal, and spatial relationships between different features were taken into account. For the Roman period, dating evidence was generally poor and reliant on a fairly small pottery assemblage, supplemented by the broader dating of ceramic building material (mostly bricks and tiles).

Phase 0: prehistoric

Prehistoric material was generally sparse. A quantity of worked flint recovered from across the site indicates some Neolithic activity. In addition to 83 flints found dispersed across the site in the subsoil and as residual finds in Roman feature, two contexts produced small collections of flint flakes (Fig. 3). Pit 1299 contained 29 worked flints, all probably early Neolithic in date, suggestive of an *in-situ* deposit (see *Worked and Burnt Flint* below). Another group of 19 flakes, much less well preserved than those in pit 1299 but also of early Neolithic type, was recovered from an extensive layer (1648) of burnt waste from Roman corndryer 1635. The number of worked flints appear to have been residual in this layer but were well preserved and had not moved far from their original place of deposition. These artefacts were found in association with a large spread of charcoal and unworked burnt flints that had accumulated as a result of later Roman crop-processing activity (see below).

In addition to these features, pit 1917 was previously discovered about 12m to the west of the late Roman corndryer 1906 during the evaluation by Albion Archaeology (AA 2017, 12, fig. 5). This was not found again in the current excavations, though it was recorded as being sub-circular in plan, measuring 0.65m across and 0.33m deep, and it contained 13 fragments of worked flint dating to the late Neolithic/early Bronze Age.

Phase 1: late Iron Age/early Roman (1st century AD)

Ditch 1077 defined the north-eastern corner of a large enclosure aligned roughly WNW-ESE and NNE-SSW. The dimensions of the exposed part of this enclosure measured *c* 135m by 65m, though its full size could not be discerned (Fig. 4). The ditch had a deep V-shaped profile throughout its length, measuring 1.4–2.74m wide and 0.48–1.2m deep. Several interventions through the ditch shows that it contained numerous fills generated by gradual silting, often comprising layers of eroded natural clay and flints from the ditch sides (Fig. 5, section 1019). In some areas, these fills were interspersed with tips of burnt debris (Fig. 5, section 1117).

The lower fills consistently produced 'Belgic-type' late Iron Age pottery, often composed of grog-tempered fabrics that could have remained in use up to at least *c* AD 70. One basal fill (1418) also produced a perforated triangular brick of late Iron Age/early Roman date. Natural silting and soil development in the upper half of the ditch created a stable profile and a shallow visible feature, but not a significant obstacle. Fills in this part of the ditch contained late 1st- and 2nd-century pottery, clearly indicating that the feature remained open into phase 2 (and probably survived as a boundary until much later—see below). Along its north-south alignment, the ditch appears to have been either recut or had cut an earlier pit (1269); the distinction was not clear in plan. The earlier cut contained a single fill (1287) which produced late Iron Age grog-tempered sherds, while early Roman material was again not encountered until the middle and upper fills of the main ditch cut (Fig. 5, section 1070).

Two pit clusters and an isolated pit lay within the enclosure and were probably contemporary with it. Pits 1364, 1367 and 1370 were located in the western part of the enclosure. Pit 1364 was ovoid in plan and the largest of the three, measuring 1.08m by 1.7m across and 0.42m deep. The pit showed signs of burning in the base and its upper fill contained *c* 200g of grog-tempered pottery. Pit 1370 was the smallest of the three and was cut by circular pit 1367. The base of the later pit was heavily burnt, and its lower fills contained quantities of charcoal and late Iron Age pottery sherds. Pits 1305, 1308 and 1310 were located near the eastern side of the enclosure. These were all small and shallow circular/oval hollows, 1m or less in diameter and up to 0.2m deep. Pit 1305 contained evidence of burning and a layer of charcoal and ash with fired clay and tile and may have been a hearth. Pit 1300 lay close to the southern edge of the excavated area. It was similar in dimension and profile to the three pits to its north, and it may have been used as a smithing hearth as it produced iron slag and hammerscale, though the fired clay lining was not vitrified.

A slightly sinuous gully or ditch (1228) ran parallel to the east side of the enclosure defined by ditch 1077, extending north-south some 16–20m distant from it. This feature was undated, producing no finds, but its position suggests that it was associated with the enclosure and is perhaps of this early phase. It extended over 55m and continued south beyond the excavation. It measured 0.46–0.55m wide and 0.16–0.25m deep with a V-shaped profile. The fill consisted of clay and flints eroded from the ditch sides and naturally accumulated sediment.

A large and irregularly shaped pit (1047) was located towards the northern end of the excavated area where it was cut by phase 1 ditch 1032 (see below) and possible phase 2 quarry 1042 (Fig. 5, section 1012). Although cut by later features, the pit was found to measure at least 1.55m by 2.7m across and 0.55m deep. The feature was poorly dated, though it contained a large quantity of charcoal, numerous fragments of vitrified hearth/furnace lining, slag, hammerscale, burnt flints, and metal objects of iron, mostly nails and melted scraps of copper-alloy waste. Part of this fill had eroded into the adjacent ditch where further fragments of slag were found in fill 1050.

Further evidence of land division was defined by ditch 1032. This feature had an irregular WNW-ESE alignment, turning temporarily southward in the middle, and turning sharply northwards before extending beyond the east edge of the excavated area. An undated section of ditch (1186) in the smaller eastern excavation area, just over 50m distant, was on the same alignment as ditch 1032 and it is likely to have been part of its continuation. The

irregularity of its alignment within the excavated area may have been a detour at the enclosure corner to encompass a feature that has left no trace. But for the detour, the east-west and projected north-south alignments would have formed a right-angled corner. Ditch 1032 had a V-shaped profile measuring 0.99–1.6m wide and 0.26–0.76m deep (Fig. 5, section 1012). For much of its length the ditch had a single fill of naturally accumulated yellowish-brown silty clay with numerous nodular flints resulting from weathering. Towards the western end, as mentioned above, some debris including charcoal, slag and tile, had eroded into the fills from the adjacent pit 1047, which was cut by ditch 1032. Pottery from the ditch was sparsely distributed, with the largest concentrations occurring towards the western end. This predominantly comprised material of late Iron Age–later 1st-century date.

Two short gullies, 1111 and 1138, were located to the north of and perpendicular to the western end of ditch 1032. Both measured *c* 5m long, 0.65m wide and 0.09–0.18m deep. There was a gap of 1.5m between the two gullies, while a 3m gap extended between the southern end of 1138 and ditch 1032. The northern section (1111) contained only late Iron Age pottery, though the southern section (1138) contained mid–late 1st-century pottery. The only other finds were fragments of thin copper-alloy sheet from gully 1111. Other than these gullies, there is little evidence for any further phase 1 activity to the north of ditch 1032 other than small pit 1104 which contained a small amount of later 1st-century pottery.

Phase 2: later 1st century to mid-2nd century AD

Phase 1 ditch 1077 continued in use in phase 2, as evidenced by the recovery of late 1st/early 2nd century pottery in its upper fills, though it is unlikely to have been a substantial land division feature by this time (Fig. 6). It was also cut by a chalk quarry on its eastern side, which is thought to have been dug later in this phase to supply raw material for the lime kiln (see below). Phase 2 is poorly served by ceramic dating. The pottery assemblages were dominated by sandy fabrics in the Verulamium tradition. Vessels such as the ubiquitous Verulamium white wares were in production from the middle of the 1st century AD to the end of the 2nd century AD, if not slightly beyond. This phase spans the likely period of construction of the religious complex to the north and provides the likely date for the construction of the lime kiln and the probably associated chalk quarries.

Lime kiln 1188

Lime kiln 1188 was discovered within the smaller excavation area in the far north-eastern corner of the site. The structure was very well preserved, consisting of two firing chambers composed of a considerable quantity of ceramic building material (Figs 7 and 8). The tile used in its construction provides primary dating evidence for the feature. A tegula built into wall 1485 has an early form of cutaway dating to AD 43–120, and the *tegulae mammatae* which formed the bulk of the structure (see below) are broadly of the same date, possibly continuing in use into the 2nd century AD. Pottery was unfortunately sparse and of little use for dating.

The kiln consisted of two conjoined circular chambers, each with a narrow flue extending from the NW side (Fig. 9). These had been constructed in a sub-rectangular foundation (1193/1270) measuring *c* 5.6m long (NE-SW) by *c* 4m wide (NW-SE). The feature was cut into the natural chalk and terraced into the hillside. The NW edge of the kiln had been cut and partly truncated by a large quarry filled with modern material (this was not investigated because of modern contamination but may originally have been a chalk pit supplying the kiln).

Within the foundation trench, walls (1484–1487) were constructed to form a figure-of-eight structure with an opening of 1m between the two kilns. Their combined, internal, width was 5m and individually their internal diameters were 2.6m.

The walls were constructed of four conjoining sections: the walls (1484) lining the remainder of the foundation trench in an oval formation around the NE, SE and SW sides, a central façade block (1487), an internal central block to the rear of the kiln (1486), and the SW façade (1485). All the wall elements appear to have been bonded, indicating that both chambers were constructed together. Internally, 1486 and 1487 formed two triangular blocks that subdivided the kiln while abutting the primary wall structures. The internal block of 1487 was constructed with tile facing with chalk rubble infill behind, while the block attached to the SE side (1486) appears to have been entirely tile-constructed. The kiln walls were 0.4m thick but consisted of two 200mm-wide sets, probably relating to the creation of a ledge that would have supported the limestone load during firing. They stood to a maximum height of 1.1m, consisting of 22 courses on the SE side. The façade wall was constructed with vertical faces, but the internal wall was slightly incurved and may have formed a corbelled dome.

The tiles used in the construction of the walls were predominantly *tegulae mammatae* of lydion size, together with a small number of smaller types of *pedalis* and *bessalis* size. Plain bricks may also have been utilised, but all retained samples recorded as brick are incomplete and could be fragmentary *tegulae mammatae*, missing the diagnostic sections. The bricks comprised a mix of complete, halved and broken *tegulae mammatae* and included heavily overfired and vitrified examples, as well as soft underfired tiles. The bricks were bedded in red clay and the walls were rendered internally with the same clay. This protected the bricks from direct secondary burning and re-firing, but heat discolouration seen on many of the bricks no doubt relates to their position within the kiln and the intensity of heat generated during use. The *tegulae mammatae* had all been laid face down with the *mammae* embedded in the underlying layer of bedding clay.

The flue from the SW chamber was 0.8m long and 0.5m wide and was fronted by walls 1485 and 1487 forming a rectangular façade. Within the kiln chamber, the flue walls projected a short distance of about 0.15m beyond the inner wall face. The internal flue walls were burnt and blackened from firing. Wall 1487, which separated the flues of the two chambers, measured 2.05m long by 0.7m wide and stood to a maximum height of 0.75m with 12 tile courses. The flue from the NE chamber measured 0.7m at the inner edge, splaying out to 1.1m externally. Two large lydion bricks remained *in situ*, demarcating the original west side of the flue and end of wall 1487. Burning along the edge of these bricks indicates that it formed the edge of the original flue, but at some stage during the use of the kiln the end of wall 1487 was demolished for a length of 0.3m, leaving a neat end-face and widening the flue to 1–1.4m. The bricks at the base of the wall were left *in situ* as paving at the base of the enlarged flue. There is an indication on the NE side of the flue that this was also inturned and projected a short distance beyond the wall face inside the chamber.

Circular hollows had been created in the floor within each kiln chamber, one to the NE (1471) and one to the SW (1461), both cut into the natural chalk and serving as ash pits (Fig. 10, section 1046). The hollow in the SW chamber was conical in form and the deeper of the two. It measured 1.8m by 2.2m wide and 1.15m deep. The chalk natural was heavily burnt and cracked and discoloured blue-grey with patches of light pink-orange. Patches of heavily burnt,

dark purplish-red clay was also found adhering to the sides. In the NE chamber, oval hollow 1471 was shallower than its counterpart at 0.85m deep. It had a concave base with sloping sides and measured 1.5m wide and 2.0m long at the top, decreasing to a diameter of 1.4m at the base. This hollow also had evidence of burning with the chalk natural discoloured grey around the sides.

Outside the kiln to the north were the remains of the stoking chambers. That on the western side was by far the best preserved, where the flue was seen to open into a long oval hollow (1191) measuring 1.6m by 3m across (Fig. 10, section 2000). The stoking chamber reached *c* 0.4m deep just beyond the flue but deepened by 0.2m into hollow 1191, which measured 1m by 1.5m across. The remnants of some rough stone revetting (1405) remained around the SW edge of 1191. It is possible that hollow 1191 represents the base of an earlier lime kiln that had been demolished and replaced by 1188. This might account for the presence of layers of trampled, puddled chalk, compacted chalk with charcoal, and degraded tile, charcoal and flints. Deposits 1401 and 1472 (not shown in section) produced several fragments of broken brick and *tegulae mammatae* of the same type as used in the kiln construction, though these layers could relate to early stages in the construction of kiln 1188. The NE stoking chamber (1454) was very poorly preserved by comparison, forming an ill-defined, shallow, concave hollow.

In the bases of hollows 1461 and 1471 and western stoking chamber 1191 were thin layers of charcoal, ash, burnt clay and calcined chalk (fills 1394, 1490 and 1456) (Fig. 10, sections 1046 and 2000). These were overlain by compacted layers of degraded and calcined chalk blocks that had been discoloured from firing (1392, 1489 and 1405). Overlying these primary layers were a series of alternating layers of chalk rubble, collapsed tile structure and mixed deposits of chalk rubble, tile and degraded tile or burnt clay. The chalk blocks ranged in size from *c* 80–150mm and were generally unburnt. The tile within these layers was of the same character as that in the standing structure, suggesting that it represents the collapse of the upper levels of the kiln. These layers had also accumulated to the north, spreading out across the stoking chamber. The uppermost layers contained several fragments of medieval or post-medieval roof tile and pottery, perhaps indicating that materials from the kiln had been robbed.

The quarry pits

At least nine large and irregularly shaped features were identified in the main excavation area. These have all been interpreted as the remains of chalk quarries that are likely to have been dug to access prime deposits of chalk. These ranged markedly in size from those *c* 7–8m across to the largest which spanned over 22m in length. Evidence of these pits was originally discovered in the evaluation of the site, which found that several contained post-medieval/modern materials (AA 2017, 15–16). Machine-dug slots were dug into a couple of the pits exposed in the current excavation and these, too, found that the pits contained finds of relatively recent date. However, it is now thought likely that this modern dumping was related to the levelling-up of the land for the construction of the sports field in the earlier 20th century. The pits therefore may be much earlier, and a plausible explanation is that at least some related to chalk quarrying in the Roman period to supply the lime kiln with raw material.

One of the pits (1042) was partially excavated by hand where it cut phase 1 pit 1047 (see above). Quarry pit 1042 measured 12.3m wide and 12.5m long. It had a steep side and a flat

base that was reached at 0.14m deep at the northern end of the feature. The pit contained a single clay fill with unworked flint nodules, a few sherds of late 1st-century pottery and some early Roman tile fragments. Quarry pit 1042, along with two slightly smaller quarries to its SE, appears to have been respected by ditches 1280 and 1003 (see below). Another possible quarry pit appears to have cut phase 1 ditch 1077 on its eastern side, though this ditch was recut in the later Roman period (see phase 4 below) putting the date of this quarry in some doubt.

Other features

Phase 1 ditch 1032 was abandoned and became replaced to its south and west by ditches 1003 and 1280. Ditch 1280 extended south-eastward over 30m into the excavation area before terminating. It had a V-shaped profile measuring 0.98–1.3m wide by 0.23–0.48m deep. Its lower two fills were composed of thin silts lain prior to a final backfill of burnt debris including charcoal, burnt flint, slag and fired clay, plus brick, tegulae, and pottery of 1st–mid-2nd-century date. Ditch 1280 was orientated SE-NW and was very closely aligned to a ditch that defined the SW side of the Wood Lane End temple complex to the north (cf Neal 1984, 194, fig. 1). It is possible that ditch 280 was part of the same feature (see *Discussion*). A gap of *c* 37m divided ditch 1280 from ditch 1003, which was of similar character and straightness. This feature extended for almost 80m on a slightly more east-west alignment before being truncated just before the eastern edge of the excavation area. The ditch had a V-shaped profile or sloping sides with a flat base measuring 0.62–1.18m wide and 0.26–0.46m deep. Its silty clay fill contained numerous natural flints and occasional fragments of charcoal. Finds were sparse and, apart from a small fragment of glass and a scatter of tile, consisted exclusively of pottery of 1st-century date. It is thought to be a phase 2 feature, given its similarity to and alignment with ditch 1280. Ditches 1003 and 1280 appear to respect the positions of three large chalk quarry pits, which suggests that the pits were before the ditches were dug.

To the north of the western end of ditch 1003 was a concentration of small pits or postholes (1118, 1120, 1122, 1124, 1126, 1133 and 1135). These were all shallow circular or oval features measuring 0.3–0.75m in diameter and up to 0.15m deep. The fills of each comprised clay sediments with flints and a few artefacts. Small quantities of pottery dating between the late 1st and 2nd centuries and/or tile occurred in six features and a nail in one. The features are most likely postholes, perhaps representing some form of light structure, though no building plan could be resolved. Pit 1100 was found a short distance to the east of the posthole group. It had a distinctive charcoal-rich fill with fired clay and burnt flint suggesting that it was probably a small hearth/oven base.

To the south of ditch 1003, towards the eastern edge of the excavated area, a sparse scatter of features may represent limited activity dating to this phase. These included two undated oven/hearth bases (1149 and 1160), and two pits (1151 and 1173) containing pottery of 2nd- and late 1st–2nd-century date, respectively.

Phase 3: mid-2nd to mid-3rd century AD

Ditch 1137 extended northwards for just over 70m from the southern edge of the excavation. After a gap of about 3.5m, the alignment of ditch 1137 was continued northwards by ditch 1205, which extended a further *c* 12m. Pottery from ditch 1137 included some material dating

to the late 1st–mid-2nd century, similar to that recovered from ditches 1280 and 1003, though several interventions also produced later 2nd-century sherds. Although the dating of ditch 1137 is later than ditches 1280 and 1003, it is clearly aligned perpendicular to 1003 and thus was likely dug in relation to it. Also, if ditches 1280 and 1003 were originally related to the boundary of the religious complex to the north (see above), they may have been extant at least until it was abandoned at the end of the 2nd century AD (cf Neal 1984, 208–9).

Evidence that ditch 1077 was recut was found in two places. This recutting did not occur all along the length of the ditch and it may be that it survived in places to a satisfactory depth, while elsewhere some recutting was necessary to redefine the boundary. Recut 1412 was well defined towards the western end of the east-west trajectory of the ditch (Fig. 5, section 1119). Here, a thin ashy deposit (1416) covered the basal fill (1492) on the northern side of the cut. The recut was also well defined close to the southern end of the ditch, to the east of structure 1327. Here, recut 1253 had a sloping, concave profile that measured 2.3m across and 0.76m deep (Fig. 5, section 1069). Its lowest fill (1263) contained early/mid-2nd-century pottery mixed with charcoal and animal bones. It was notable that the uppermost fills of both recuts (1413 and 1265) contained 3rd–4th-century pottery, indicating that ditch 1077 remained open into phase 4 (see below), though it had mostly silted up by this time before it was finally backfilled.

Ditch 1137 extended parallel to the north-south alignment of ditch 1077. As mentioned above, this feature appears to have survived as a shallow boundary (and potentially with remnants of a bank) at least into the first half of the 2nd century if not later. The uppermost fill of this feature was found to contain pottery dating to the late 3rd–4th century (see below), as well as charcoal-rich rake-out deposits from the corndryers, suggesting that it too remained open into phase 4.

Pit 1239 was dug close to and respecting the NE corner of ditch 1077. This circular feature was very wide and shallow, measuring nearly 3m across and 0.18m deep, and had a flat base. Its single fill contained pottery spot-dated to AD 120+, and it was cut by a probable post-Roman field boundary/land drain.

Phase 4: mid-3rd to 4th century AD

Phase 4 is characterised by several corndryers, one of which (1635) was particularly large and complex (Fig. 12). It is possible that some of these structures were constructed and initially used in phase 3, though without clear ceramic dating evidence this remains speculative, and the main period of agricultural processing is thought to belong to phase 4. A few pottery groups were dated to the later 3rd and 4th century AD, mostly by the presence of late Roman Oxfordshire wares. Most of this material derived from discrete features, though some groups were recovered from the upper fills of ditches, indicating the maintenance of pre-existing land boundaries. The long-lived ditch 1077, which was recut in phase 3, continued to form a boundary in phase 4. Considerable quantities of late 3rd–4th-century pottery were recovered from the upper backfills (1265 and 1413) of two of these recuts (Fig. 5, sections 1069 and 1119). Charcoal-rich rake-out deposits from the corndryers also filled the upper layers in the ditch recuts, such as in cut 1417 (fill 1420) just to the north of spread 1073, which contained thousands of fragments of burnt germinated grain, suggesting that much of it comprised the charred waste from malting grain nearby (see *Charred plant remains*).

It is notable that the main area of agricultural processing that developed in the western half of the site was divided by the ditch, with corndryers 1071 and 1078 located to its north while corndryers 1635, 1906 and 1734 were positioned to the south. The last three were aligned either parallel or perpendicular to the ditch. Structure 1327, probably also a corndryer (see below), was also positioned within the enclosure defined by ditch 1077, but further to the south-east.

Corndryer 1734

T-shaped corndryer 1734 was located just south of ditch 1077 (Fig. 13). It was aligned NNE-SSW with the cross-flue to the north. The surviving structure had been heavily truncated and only its eastern half was excavated. The flue was built in a T-shaped foundation trench (1737) measuring 0.38m deep, 6.11m long and 0.88m wide across the main flue (Fig. 14, section 1221). The cross-flue measured 2.4m long by 0.75m wide. A sub-circular hollow (1735) at the south end measuring 1.3m wide and 0.19m deep formed the stokehole.

The walls of the oven (1734) were constructed using a mix of materials. Large flint nodules up to 260mm long were used to line the northern half of the main flue. In the southern half, where the flue widened to form the firing chamber, the walls were constructed of rounded chalk blocks up to 0.2m on the eastern side and possibly tile on the western side, though this was only exposed at the surface. The walls of the cross-flue were largely missing, though chalk-rubble walling survived along the south side of the eastern section. At the southern end, flat slabs of tile were laid horizontally on the base covering an area 0.7m long. This end included a large brick, 0.35m x 0.5m, that was very heavily burnt and blackened. The brick was not recovered for specialist analysis, but the size recorded makes it larger than a lydion and is it not comparable to a tegula. It is likely that the piece was an incomplete brick of larger form, possibly a *bipedalis*. These tiles appear to have been placed as a repair to the firing chamber floor following a period of prolonged wear and overlay a deposit of blackish-grey charcoal and ash in a sandy silt matrix (1738). This layer was 0.11m thick and infilled the worn hollow that extended 0.61m along of the firing chamber.

Primary deposits relating to the firing and use of the structure were poorly preserved. A thin lens of charcoal was noted at the base of layer 1743, probably the remains of cinders. It also contained heavily abraded fragments of brick and scraps of fired clay. The stokehole was filled with sandy silt (1736) containing frequent charcoal, occasional sub-angular flints, small brick and tile fragments, representing debris raked out from the firing chamber. A piece of carbonized timber (1747) was found lying in the eastern end of the cross-flue, parallel with the north side (Fig. 15). This had been cut from centre of tree trunk. It measured 1060mm long, 380mm wide and 120mm thick. The end of a second, thinner piece was observed projecting from the section and may have been associated. Timbers in this position may have formed part of a shelf built over the cross-flue to deflect heat over the grain on the drying floor. Alternatively, the shape of the timber could indicate that it was the end of the paddle used to turn grain whilst drying, though the piece appears to be too thick and large for such an object and its function is more likely to have been structural. A sample of the timber was radiocarbon dated to cal. AD 60–214 at 95% with a 1-sigma calibration at 68.2%, giving a date of cal. AD 76–132 (SUERC-90391 [GU53274]). Given such an early date, it is thought likely that the timber was re-used from an earlier structure, probably from the same source as much of the CBM. Whatever its origin, the burnt timber was preserved *in situ* and covered a deposit

of burnt and germinated grain that was processed by malting in the corndryer (see *Charred plant remains*). Also from this basal deposit were fragments of fired clay bedding or wall lining, scraps of tile including a tegula fragment and residual pottery of late 1st–2nd-century date.

Infilling the main flue was a mix of deposits 0.2–0.27m deep comprising burnt debris from firing into which parts of the superstructure had collapsed primarily in the central section and the firing chamber of the main flue. These deposits comprised a greenish-grey, ashy, silty clay (1739) containing frequent chalk fragments and crushed chalk and tile; a charcoal-rich dark brown/black sandy silt (1741) containing large slabs of tile; and a dark greyish-brown sandy silt (1740) containing frequent charcoal, tile and bricks plus a scatter of burnt flints and fragments of fired clay bedding/wall lining. The tile from these layers included fragments of tegula, brick and a small fragment of flue tile with scored keying. The last is of 1st–early 2nd-century date. One of the tegulae had damaged lower corners, so the cutaways are incomplete, but indicate a date of no earlier than the 2nd century and probably later.

Infilling the final hollows in the top of the flue were deposits of greyish-brown sandy silt containing scattered chalk fragments, tile and broken flints (1742 and 1743). These represent erosion and silting in the top of the feature. Finds recovered from 1742 included a small quantity of late 1st–2nd-century pottery, burnt flints, fired clay bedding/wall lining and tiles. Notably, the tiles included bricks, imbrices, and some tegulae with one of the latest types of cutaway dated to mid-3rd–4th century, providing a likely date for the abandonment of the structure. This feature is almost certainly earlier than corndryer 1635 given that ditch 1704, which part enclosed 1635, respected corndryer 1734 at its eastern end, while large spreads (1070 and 1073) produced from rake-outs of corndryer 1635 covered the foundations of corndryer 1734.

Corndryer 1635

Corndryer 1635 was discovered about 5m to the SW of corndryer 1734 and was notably on the same alignment (Fig. 13). It was overlain by thick spreads of dark material, mostly composed of charcoal and other organic material that needed to be removed to expose the structure (Fig. 16). These spreads continued to the north and east of corndryer 1635. This structure was originally interpreted on site as a tile kiln, a view that was retained at the assessment stage of the project (OA 2018b). The tile-kiln interpretation was based on the large size of the structure, its rectangular plan and the apparent arrangement of a central flue with a series of side flues at right angles. The work was also hindered by the fact that the structure was heavily truncated and disturbed. Initially, it seemed likely that the purported 'tile kiln' was in operation alongside lime kiln 1188, and together supplied building products for the construction of the Wood Lane End temple complex to the north (and potentially providing bricks for the construction of the lime kiln). However, this interpretation has been subsequently rejected for the following reasons. Firstly, the arrangement of several flues running longitudinally in conjunction with wider-than-average side flues, as well as the large blocks of upstanding natural in between, indicated a structural design that was atypical for most Romano-British tile kilns. Serious doubts were raised during the analysis of the tile, which exhibited considerable similarity to that found in the other nearby corndryers, all of which incorporated tile that broadly dated the mid-2nd and 4th centuries AD. There was also no link with the types of tiles used in the structure of lime kiln 1188. While it could be argued

that good-quality products were used in the construction of the temple-complex buildings with wasters and seconds being used for the lime kiln, the complete absence of wasters in corndryer 1635, plus an absence of the *tegulae mammatae* used in the lime kiln, strongly argues against this.

Detailed analysis of corndryer 1635 shows that it was a multi-phase structure (Fig. 17). Two main stages of use are evident, and within each there is evidence of remodelling indicating three or four additional sub-stages. It is probable that throughout its life, corndryer 1635 was at all times a large crop-processing kiln comprising multiple structural elements that, individually, look much like standard T-shaped corndryers. These elements were constructed within a rectangular foundation trench 1733 (not shown on plan) measuring overall 9.3m north-south by 5.6m east-west surviving to a depth of *c* 0.4m. It divides into two unequal parts: a southern sector containing four east-west flues and a northern sector containing up to four north-south flues. The northern sector can also be further subdivided into northern and southern sections, and the earliest phase is situated in this northern two-thirds of the foundation trench (1733), while the later phases developed in the southern third. The three subdivisions of the foundation trench measure *c* 3–3.5m wide north-south by 5–6m east-west. These have flat bases and steep, near vertical walls cut into the natural clay and flint. The following structural sequence is divided into three stages and the interpretation of these 'phases' of construction and use of the feature is assessed in more detail in the discussion.

Stage 1

The northernmost sector probably represents the location of the earliest structure. The northern edge is irregular and angled to create a narrower west end of *c* 2m compared to 3m on the east. The only upstanding structure that impinges on this area probably relates to later developments. The size of the sector is large enough to have contained a single corndryer or the two flues and drying floors of a double corndryer. A small number of features provide some hints of the arrangements. A diagonal gully (1611) extended from the NW corner into the centre. It contained *in-situ* burnt clay along its northern edge, suggesting that it was a flue base. At the western end, a large sub-rectangular hollow (1620) was found to contain deposits of charcoal, burnt reddened clay, unburnt yellow clay and some tile. *In-situ* burning occurred along its west edge. This pit may have formed the stoking chamber in an early-phase structure aligned east-west. General burning on the base of the foundation trench in the centre between 1620 and 1611 may relate to the next stage of use when this northern area must have been used as the stokehole for the enlarged corndryer orientated to the south.

Stage 2

The second phase of construction extended further south in the central sector, with the foundation trench expanded by the addition of an area that extended the western and eastern ends as annexes beyond the shorter northern block. Various hollows in the base of this section suggest that there may have been a preliminary stage or stages with L-shaped flues and chambers similar to that seen in stage 3 within the southern sector (see below). If this was the case, these structural elements were extensively dismantled to make way for the construction of what appears to be a channelled corndryer. The surviving structure is represented by five parallel walls aligned NNE-SSW. The two outermost walls 1716 and 1708 were shorter and narrower than the three central walls and may represent parts of earlier structures incorporated into the channelled kiln. Wall 1708 formed a short length surviving

against the west edge of the foundation trench measuring 0.74m long by 0.22m wide. It was formed of a single line of blocks, constructed of broken brick and tile of varying sizes with some flint nodules bonded with clay in three irregularly and roughly laid courses. Wall 1716 was constructed of tile in five irregular courses measuring 1.74m long by 0.22m wide. Tile sampled from 1716 included large corner fragments of a tegula and two bricks with evidence of burning on their edges.

The three central walls comprising structures 1709–1713 and 1715 were each more substantial than 1708 and 1716. The westernmost of the three had been built in three sections (1709, 1710 and 1711) end to end with a total length of 3.84m. The northern part (1709) was constructed of broken brick and tile laid in three courses and measured 1.44m long by 0.56m wide. The central part (1710) measuring 1.3m long by 0.3m wide was built of irregularly coursed flint nodules in clay bonding. The southern part (1711) took the form of a single line of red tile and brick, laid in clay bonding three courses high, and measured 1.1m long by 0.3m wide. The central wall consisted of two sections, probably originally continuous but separated by an area of later disturbance or robbing (1616). The northern block (1712) measured 0.6m long and wide and consisted of brick and tile in clay bonding standing three courses high. The southern block (1713) was constructed of knapped and unknapped flint nodules laid roughly in three courses measuring 1.6m long by 0.56m wide. The eastern internal wall (1715) was constructed of brick and tile laid two bricks wide in clay bonding surviving to three courses high. It measured 3.2m long by 0.34m wide. Several blocks of brick and tegulae were recovered from the wall, including two tegulae with lower cutaways, one dated to AD 160–260 and the other to AD 240–380.

These three central walls formed the flues for a large corndryer, which was fired from the northern end where there was a 2.0m-by-2.5m area of heavy wear and burning. In the eastern flue, the remains of paving (1714) survived as a complete *bessalis* and slab of a larger brick with burning along the edge, perhaps suggesting that it had previously been used in a flue wall. Thin layers of charcoal and burnt debris (1744 and 1745) covering the bases of the two central flues contained a high proportion of carbonised cereal grains compared with glume bases, with very few weed seeds (see *Charred plant remains*). There was also some burning and wear on the floors of the two narrower, outermost flues, but it is uncertain whether this was contemporary with this structural stage or an earlier stage. Hollowing in the bases of the southern ends of the central-sector annexes provided hints that the two central flues may have turned outwards to form L-shaped flues at an earlier stage, channelling the heat into the side chambers. There appears to have been some robbing of structural elements within these side annexes, though the exact arrangement of the original flues now appears to be lost.

The base of the stage 2 structure was infilled and covered with layer 1654, which consisted of a yellowish-brown silty clay with red flecks of burnt clay or CBM, grey ash and charcoal-rich silt, containing some flint pebbles and gravel, plus a considerable amount of tile (mostly bricks and tegulae with small quantities of imbrex and flue tile). The tegulae and flue tiles in this deposit all point to a 3rd–4th-century date and was presumably derived from the demolition of the phase 1 and 2 structures. No doubt much of the re-useable tile was incorporated into the stage 3 structures.

Stage 3

The third stage involved the cutting of four rectangular chambers at the southern end, all aligned ESE-WNW and set at right angles to the long axis of the whole structure. Blocks of natural clay were left upstanding, projecting into the centre of the southern sector from the east, south and west sides to create four rectangular compartments around a central square core. At the northern end, separating the southern block from the central sector, was stokehole 1656, an irregular, semi-circular hollow 2.9m wide, 1.6m long, and 0.29m deep. The stokehole cut through layer 1654 and may have truncated the ends of the flue walls to the north, thus destroying any relationship between those walls and the later chambers. It is probable, however, that the original stage 3 structure incorporated both elements, only to be modified once more by the imposition of stokehole 1656. Across the floor of the stokehole was a layer of burnt debris (1651), 0.09m thick, composed of a firm, fine, dark grey/black sandy silt containing abundant charcoal, moderately frequent flints, small fragments of CBM and a large pottery sherd (sf 1386). The layer may belong to the final phase of use of the corndryer (possibly relating to a final stage when the two northernmost chambers in the southern sector were blocked up—see below). However, burnt debris had probably accumulated over a long period, becoming more mixed in this area.

The NE chamber measured 2m long by 1m wide and was lined by three walls, all 0.2m wide and surviving to 0.25–0.3m high. Along the northern edge, 1723 was constructed of irregular and roughly knapped flint nodules of different sizes and randomly coursed. A course of degraded tile forms the upper courses of the wall at the east end, where it joins with the end wall 1724. This was constructed of large slabs of tile, laid in clay bedding in five courses including a large proportion of tegulae, laid with the flange forming the wall face and set upright. The tegulae here had been deliberately split in half longitudinally and included several complete lengths and lower cutaways. None were retained for analysis but based on what was visible in the site photographs, these were of Warry's type C or D, dating between the mid-2nd and the 4th century. The south wall (1725) was constructed in three rough courses of roughly knapped flint nodules and tile with evidence of heat discolouration.

The floor of the chamber was covered by a layer of charcoal and ash (1649) in a firm, dark clay containing tile and a low density of small flints. The tile recovered from the layer was almost entirely tegulae, which included examples of mid-3rd–4th-century date. The flanges were all burnt along the outer edges indicating that they had formed part of the wall, but some had other patterns of burning in their surfaces suggesting either reuse or possibly that they had formed part of the arch over the flue. Fragments of fired clay lining were also recovered, including one piece that had roller stamping on the surface. Another piece had a tile impression on the back at an angle to the moulded surface of the lining, suggesting the tiles in the upper course were laid projecting beyond the underlying course to build up an arch over the flue.

During the latest stage, this chamber had been blocked off by the construction of wall 1722 across its mouth. This blockage measured 1m long, 0.4m wide and 0.28m high. It was constructed of broken tile of various shapes and sizes, bedded in clay, suggesting that much had been recovered from earlier phases of disused structure. At its northern end lay a better-constructed tile pier made up of three or four near complete bricks (*pedales* or lydions). Flint wall 1723 was built out over these, which appear to have been separate from the main block

of 1722, either forming the end of 1723 or perhaps the original end of 1715 before it was truncated by stokehole 1656.

The NW chamber measured internally 1.68m by 0.6m and was lined on the north, west and south by walls 1717 and 1718. Wall 1717 was a short, incomplete segment at the western end of the chamber. It measured 0.84m long by 0.2m wide and consisted of a single line of flint nodules and broken fragments of tile, possibly tegulae *c* 100–150mm long, bonded in clay. The gap between either end of this wall and the chamber-side walls (both 1718) may have been deliberate, indicating that some sort of flue or chimney. The two side walls both measured 1.9m long and *c* 0.2m wide with three courses surviving. These were constructed of tile with some flint forming the lowest course. The tile was almost exclusively tegulae, including complete half-tiles split longitudinally and placed face upwards with the flanges forming the wall face. None was collected for more detailed analysis, though several retained the lower cutaways. The tile here could have dated any time after the mid-2nd century AD.

Covering the floor of the chamber was a layer of charcoal and ash (1650) in a firm, dark black/brown, sandy clay matrix containing small angular flints, burnt flints and frequent CBM grit. The deposit was darker towards the western end where there was a greater concentration of charcoal (0.2m thick). A substantial quantity of tile was recovered from this layer, probably collapsed from the superstructure. It included tegulae, imbrex, brick and flue tile, as well as fragments of the fired-clay wall lining. Two complete half-tegulae split longitudinally had clearly been used in the walls and both had cutaways that date them to the mid-3rd–4th century.

The chamber was blocked at its east end by wall 1718b. This measured 1m long by 0.45m wide and, as with wall 1722, was clearly a later addition to the two chamber-side walls. It was built of broken tile fragments, clearly of smaller size than those used in the chamber walls suggesting that this material had been re-used several times over.

The SE chamber had an internal measurement of 2.27m by 0.68m and was lined by walls 1727, 1728 and 1729. At the NE corner was a rectangular recess 0.45m wide, possibly originally matched on the SE, to form a short cross-flue similar to standard T-shaped flues. North wall 1727 measured 1.72m long, 0.2m wide and 0.3m high, though it was cut by a test-pit. It was constructed of broken tile and flint nodules, in roughly five random courses, set in clay bedding. The south wall consisted of two sections: 1729 forming the main block and 1728 at the eastern end. Wall 1729 measured 1.7m long, 0.35m wide and 0.3m high. It was constructed predominantly of flint nodules 100–250mm long in three rough courses, interspersed with occasional broken tile. It was abutted by 1728, possibly a later modification, which formed the east end and measured 0.9m long, 0.3m wide and 0.3m high. It consisted of about five courses of broken flat tile or brick slabs, *c* 150–200mm long. The outside edge of 1728 formed a projection of tile, *c* 0.36m wide, beyond the outer wall face. This may have been the base of a buttress or supporting structure projecting from the southern side of the corndryer, or it was an infilling of an earlier cross-flue matching that in the NE corner of the chamber.

At the eastern end of the chamber were two large slabs of tile, possibly tegulae, set on edge sloping slightly against the foundation cut. A gap in the middle may have been the position of a third missing tile. These were clearly different in character to the walls on either side and they appear to have formed a sloping flue at the back of the chamber, made to draw hot air

through it and up the back. This may have been a modification replacing an earlier, blocked cross-flue.

The SW chamber was lined by walls along the north (1731 and 1732) and south (1730) sides with an unlined cross-flue at the western end creating a T-shaped compartment. The end flue could have been a later modification. The cross-flue measured 2m long and 0.32m wide, while the main flue measured 2.5m long by 0.6–0.7m wide. Both walls of the compartment formed a return to line the inner eastern edge of this flue.

Southern wall 1730, measuring 2.4m long by 0.4m wide, was very roughly built with little clear coursing of flint nodules of varying shapes and sizes with little evidence of deliberate shaping. This wall stood for three courses to about 0.3m high. The flint was interspersed with a small number of broken tile fragments, and tile formed the corner of the return into the cross-flue.

The north wall was formed of two parts. The eastern section 1731 appears to have been the primary construction, which measured 1.2m long, 0.4m wide and 0.3m high. It consisted of large flint nodules, roughly knapped, *c* 150 x 100mm, but up to 300mm long, laid in two irregular courses. This was abutted by the tile construction 1732 and interleaved with the tile in its lower courses. The eastern end projected into the adjoining north-south flue from the central chamber, and this may have been added to increase the air flow. The western section 1732 measured 0.76m long, 0.3m wide and 0.36m high. It formed an L-shaped block with a return into the cross-flue. This was constructed in regular courses of brick and tile with six courses surviving at the corner but included occasional flint. The base of the chamber was covered with a dark charcoal-rich deposit (1693), 0.14m thick, consisting of fine dark-grey/black sandy silt with infrequent flint nodules and CBM.

The central area measured *c* 1.6m square and was bounded by the four individual chambers. It was subdivided to form two flues supplying heat to the main chambers. The eastern flue was best preserved, delineated by wall 1720 forming its western side and leading to the SE chamber. Wall 1720 was aligned N-S. It extended at a slight angle to the dominant alignment of the corndryer and headed to the end of wall 1729, probably originally joining with it. Wall 1720 was a narrow free-standing structure, one block wide measuring 2m long, 0.24m across, and surviving up to three courses high. It was constructed of broken tile blocks that were heavily burnt and heat damaged, laid in a clay bedding. On the eastern side of the flue, wall 1726 was set against the natural between the NE and SE chambers, adjoining walls 1725 and 1727 and was later abutted by 1722.

Between wall 1720 and the eastern chambers was a line of tile paving (1721) measuring 1.6m long by 0.38m wide. It consisted of three complete, heavily burnt and blackened, rectangular lydion tiles each measuring *c* 425 x 300 x 40mm. To the west of 1720 in the western flue, the floor paving 1719 was more disturbed and broken. Several of these tiles had been heavily burnt on both surfaces and some were heat-discoloured throughout their thickness, which is a pattern more consistent with a suspended floor above the firing chamber and may indicate these were collapsed from the flue covering rather than forming the floor. Covering the base of the eastern flue was a layer (1746) of charcoal-rich silt abutting walls 1720 and 1722, covering paving 1721, and possibly extending into the SE chamber.

Following disuse and abandonment of the corndryer, a layer of collapsed/demolished building debris accumulated. This consisted of flint nodules and CBM within a silty clay matrix. It was up to 0.25m thick, covering and infilling the flues and the four chambers. The tile

recovered amounted to *c* 150kg and consisted primarily of brick and tegulae, together with some imbrex, *tubuli* and voussoir. A high proportion was burnt with many of the tegulae exhibiting the typical burning pattern on the flange when used in the walls. Other bricks and tiles were heavily burnt on all surfaces with some having areas of vitrification suggestive of high temperatures being reached in the firing chamber.

Ditches 1080 and 1704

Corndryer 1635 was partially enclosed by curvilinear ditches 1080 and 1704 (Fig. 13). Ditch 1704 curved around the northern side of the corndryer for 16m, while ditch 1080 curved for 33m around its western and southern sides. Both ditches had V-shaped profiles, with 1704 measuring 0.41–0.71m wide and 0.12–0.2m deep, and 1080 measuring 0.77–1.2m wide and 0.29–0.68m deep. On the western side, the gullies were offset by a gap of 2.7m between the two terminals, though on the eastern side, there was a larger gap of 11.4m that appeared to respect the position of corndryer 1734, suggesting that it or its demolished remains were still extant (see above).

Ditch 1704 contained a single uniform fill of greyish-brown silty clay and flint pebbles, which produced a small quantity of 2nd-century pottery and a little tile from its western end. Ditch 1080 contained multiple fills, the lowest of which was predominantly a greyish-brown silty clay containing scattered charcoal and pottery dated to the late 1st–2nd century AD. The upper fills, however, consisted of a very fine grey sediment with a high ash content and probably represents tips of waste from corndryer 1635. It is worth noting that all the roller-stamped flue tile dating to late 1st to late 2nd century recovered from the site was confined to this ditch, probably residual dumping from a nearby structure. Remaining flue tile from the ditch, however, was 2nd century or later. Other finds included the neck of a blue glass flask and concentrated in the eastern end and terminal of the southern ditch, some iron nails, a quantity of broken quern stone and some slag.

It is possible that these curvilinear ditches were originally dug in an earlier phase, which suggests that the earliest stages of corndryer 1635 were also probably earlier. As mentioned above, the dating of the early use of this structure is inconclusive as the succession of modifications and rebuilds of 1635 has eradicated any such evidence. Notably, however, a small group of 4th-century pottery, perhaps dating as late as the second half of the 4th century, was recovered from the NW terminal of ditch 1080, demonstrating its use in this late phase.

Corndryer 1906

A few metres north of ditch 1704 lay corndryer 1906. This feature was discovered and fully excavated during the evaluation phase by Albion Archaeology (AA 2017, 13, fig. 7). The corndryer was relatively well preserved, with much of its tile construction surviving around the firing chamber. Corndryer 1906 was aligned WNW-ESE, almost exactly perpendicular to corndryers 1635 and 1734 (Fig. 13). The tile walls were set within a foundation cut that appeared to form a square end in which the cross-flue of the corndryer was positioned. Evidence for packing deposits, comprised of clay and flints, were found between the tile walls and the edge of the construction cut. The form of the firing chamber was a variation on the classic T-shape with the side walls tapering out to the ends of the cross-flue, rather than turning at right angles, almost to a Y-shaped end.

The side walls survived in four courses to a height of *c* 0.37m and extended parallel to each other over 3.4m long, forming a chamber 0.65m wide. After splaying out to the cross-flue, two gaps were found between the side walls and the end wall, probably in order to draw in air. The walls were built using tegulae and a few bricks bonded with clay. Each tile had been broken in half and positioned with the flange facing the interior of the structure. Several possible *pedales* bricks were used around the entrance next the stokehole; however, these were very fragmentary due to heavy burning. Two lower fills within the corndryer were thickest near to the stokehole end but were found to spread throughout the firing chamber. These were dark grey/black, the lowest of which containing much charcoal. These fills were sealed by two clay silt deposits containing CBM fragments and appear to represent the abandonment and probable dismantling of the structure.

Corndryer 1071

Corndryer 1071 was discovered to the north of ditch 1077, about 20 north of corndryer 1906 (Fig. 18). The structure was fairly well preserved, aligned NE-SW, and was built in the classic T-shaped form. Its foundation trench (1163) was a continuous cut that widened out to a sub-circular stokehole (1072) at the SW end. The total length of corndryer 1071 was 5.3m, with its masonry component extending 3.85m and the stokehole measuring 2.5m in diameter (Fig. 14, section 1043). The trench for the main flue measured 1.25m wide, and the cross-flue trench measured 2.9m long by 0.83m wide. The walled flues measured 0.65m and 0.3m wide respectively for the main and cross-flue. The corndryer flues were 0.4m deep and the stokehole reached 0.73m at its deepest.

The corndryer was built of a mix of flint nodules and tile set in a bedding of puddled chalk and silty clay. The flint nodules ranged in size from 0.1m to 0.3m and had been selected for size and shape, with some possibly roughly knapped. Flints predominated in the walls of the end cross-flue where they had been laid in five to six rough courses, two stones thick, to form walls 0.27–0.3m wide. The only place where the walling was missing was at the east end of the cross-flue. Tiles became much more common at the SW end, presumably as it is more heat-resistant than flint, which is more likely to shatter at high temperatures. The tile comprised a high proportion of tegulae. However, both corner piers at the junction of the flues were constructed of brick. The tegulae re-used in the structure can be dated on the basis of their cutaways no earlier than AD 160–260 and are more likely to be mid-3rd–4th century.

Covering the floor of the flue was a thin compacted layer of charcoal in a fine, black, ashy silty clay, 20mm thick, representing fuel debris (1165). Fragments of burnt flint in this layer had become calcined as part of the firing process. Within the stokehole, a thicker layer of charcoal and ash (1167) had accumulated on the floor to a depth of 0.11m. A single sherd of late 1st–2nd-century pottery, two hobnails, a nail stem and a worked flint were recovered from these primary layers, all probably residual. The walls and arch at the mouth of the flue had collapsed into the stokehole, partly embedding in the underlying debris and blocking the mouth of the flue, presumably when the structure went out of use. Within the flue, further collapsed debris (1164) comprised a mix of flint nodules, large tiles and lumps of chalk with scattered charcoal, embedded in a matrix of light brownish-grey clay. The tile included slabs of tegula (several of which had cutaways indicative of a mid-3rd–4th-century date), imbrex, flue tile and brick. The flue then filled up with further collapsed debris with lenses of tile and flints, which slid off the walls as they weathered and eroded over a more extended period. Brownish-grey silty clay

accumulated around the debris. Frequent charcoal within the deposit suggests that much of the finer sediment had washed in amongst the collapsed debris derived from cinders piled up around the stokehole. The infilling of the stokehole consisted of thick black layers of charcoal and ash (1103 and 1166) containing fragments of flint nodules, burnt flint and tile. Burnt debris that had been raked out during the use of the structure was to some extent mounded up around the edge of the stokehole and had later eroded back into the abandoned hollow.

The greatest quantity of pottery was found in the upper deposits of the corndryer, including 2nd-century material in the firing chamber (fill 1102) and mid-3rd-century sherds in the stokehole (fill 1103). Fill 1102 produced a large quantity of tile, including several complete or near complete tegulae, and large slabs of brick, imbrex and flue tile. The lower cutaway forms of the tegulae included examples dating to the 2nd–mid 3rd centuries and the mid-3rd–mid-4th centuries, the latter being quite thick, sometimes with a characteristic slightly convex surface.

Corndryer 1078

Corndryer 1078 was discovered about 15m west of corndryer 1071 (Fig. 18). The structure had been built in a T-shaped foundation trench, aligned NNE-SSW (similar to corndryers 1635 and 1734), which was cut into the natural clay-with-flints to a depth of 0.3–0.35m (Fig. 14, section 1018). The cut was continuous and accommodated both the built structure and the stokehole. It measured 4m long by 1.2m wide, increasing to 1.35 across the stokehole and 2.87m across the cross-flue at the north end. Very little of the built structure had survived, most of which had presumably been robbed out. On the base in the western half, a layer of puddled chalk (1428) up to 0.15mm thick was exposed. This probably formed a foundation, 0.25m wide, for the walls in the main flue. The walls of the cross-flue were probably of a similar thickness. The use of puddled and crushed chalk differentiates corndryer 1078 from the other dryers. Whether this formed a solid chalk cob or was mixed with flint nodules cannot be ascertained on the surviving evidence. A single fragment of tile was observed embedded in the chalk and the presence of tile fragments in the backfill perhaps suggests that the chalk was used in combination with tile for the superstructure.

Burning of the clay natural (1085) occurred on the base of the central flue and was most intense close to the mouth of the flue. Overlying the flue base was a thin black layer of charcoal (1079) up to 0.08m thick, which contained an abundance of carbonised grain, including some possible grains of free-threshing wheat (see *Charred plant remains*). This interleaved with a thicker layer (1075) filling the base of the stokehole which consisted of multiple thin lenses of charcoal and ash with occasional scattered fragments of chalk raked out from the flue floor. It also contained a piece of iron, scraps of burnt flint and fragments of brick and imbrex tile that had been burnt or re-fired. Pottery from these primary layers of burnt debris was dated to late 1st–2nd century. The burnt debris abutted the chalk structure and was overlain by a 0.1m-thick layer of collapsed or demolished chalk superstructure (1086) comprising blocks of pale greyish-brown puddled chalk and chalk lumps in a matrix of dark brown clayey silt. Overlying this was a more mixed layer (1089) infilling the main flue, which also comprised broken lumps of puddled chalk and frequent fragments of tile, in a dark clay smeared with charcoal and red burnt clay. It produced a small quantity of 2nd-century pottery, an iron nail and fragments of flue tile. Demolition of the structure appears to have taken place soon after it was decommissioned, possibly as a result of the drying floor failing

and collapsing over the flue. The cross-flue was infilled with a dark brown and yellow clay soil (1091) with reddish smears, possibly burnt clay, and containing sparse chalk grit, small flints and occasional tile fragments. The stokehole was infilled with interleaving deposits of charcoal and ashy sediment and brown clayey soil containing fragments of chalk and tile (1076 and 1087). These fills produced pottery dating to AD 240–300.

Structure 1327

Structure 1327 was located in the south-eastern part of the exposed area of the enclosure bounded by ditch 1077 (Figs 12 and 19). This feature was very shallow and poorly defined. It had clearly suffered from later disturbance, but its general form suggests that it was probably once a corndryer. The feature consisted of an interconnecting group of shallow dished hollows. In its centre was a vaguely T-shaped feature (1296) measuring 4m long (NE-SW). This measured 3m wide at its NE end and 0.67m wide in the middle, increasing to 1m at the SW end. The size and shape are compatible with its interpretation as a corndryer. At the northern end of the feature were two sub-rectangular hollows (1292 and 1294) that may have formed a single feature 3.24m long by 1.7m wide. At the southern end was a large sub-circular hollow (1320) measuring 5.57m long. The hollows had a maximum depth of 0.2m, but were often shallower (Fig. 19, section 1087). Evidence of patchy *in-situ* heat reddening of the clay natural was found on the bases of features 1292, 1294 and 1296, all of which contained dark grey-black charcoal-rich layers. Fragments of burnt flint, tile and fired clay occurred in the fills, as well as stone and iron objects and a considerable quantity of pottery dating to the mid-3rd–4th century. While an interpretation of a corndryer seems likely, the area had been heavily disturbed by badger burrows (1315, 1337, 1357 and 1359) and it was not possible to tease out any further detail of the structure. Sub-circular hollow 1320 on the southern side of the feature had been riddled by one of these badger burrows (1357). It was shallow with an irregular base and contained a fill of brown clayey soil with flint gravel and fragments of tile, burnt clay and pottery of early 2nd-century date.

About 1m to the west of structure 1327 was a large irregular hollow (1323). It measured 3.78 by 3.04m and was 0.11m deep (Fig. 19, section 1090). The edges were very sinuous and the base irregular and uneven. It was filled with a reddish-brown silty clay containing frequent flints up to 210mm, as well as pottery dating to 3rd–4th-century, plus some tile. It had the appearance of an area that has been churned up by trampling, though the function of the feature remains unclear.

Other features

A cluster of small gullies, pits and postholes were found adjacent to corndryers 1071 and 1078 (Fig. 18). Most of these were entirely undated though some, at least, may have been directly related to the agricultural processing in this area. Of these features, two short gullies—1330 and 1332—contained possibly residual pottery dating to the mid-1st–2nd century and mid-2nd century and later, respectively. Two more gullies to the south-west—1333 and 1335—appear to have been similar feature, though these could not be dated. Nonetheless, the proximity of these features to the corndryers tentatively suggests that they related to elements of an associated working area.

Ditch 1069 was found to extend *c* 15m from the northern edge of the excavated area (Fig. 12). It measured 2.26m wide and 1.1m deep and had a narrow V-shaped profile in its lower

half, but a widely splayed profile in the upper half. The ditch aligned with phase 1 ditch 1032, though finds from its fills indicate that it was in use much later. Ditch 1069 contained eroded clay alternating with lenses of flint and its upper horizons produced sparse fragments of bone, pottery of late 1st–2nd-century date and tile including the only *tegulae mammatae* from this part of the site. Much of this material is thought to be residual, probably dumped after the abandonment of the religious complex to the north, and while it is possible that the ditch had been dug prior to phase 4, the middle fill of the ditch (1062) contained a considerable amount of burnt debris comprising charcoal, burnt flint and tile, deposited with pottery and tile of mid-3rd century or later date. A body sherd of a pale-green glass beaker, probably of mid-4th–early 5th-century date, was also found in the fill of the ditch terminus.

A circular posthole (1057) and an oval pit (1060) were positioned a short distance from the terminus of ditch 1069 and appear to have been aligned with it. The pit was 4.6m long, 2.24m wide and 0.54m deep. Neither feature produced datable pottery, though some tegula and brick fragments were recovered from the upper fill of the pit. These features are thought to have been contemporary with ditch 1069 owing to their proximity and alignment.

Two isolated pits—1097 and 1109—were located towards the eastern edge of the excavated area, the latter in the north-eastern corner. These were fairly irregular features, both with undulating bases. Pit 1097 contained pottery dating to the 3rd century AD and pit 1109 contained pottery dating to the second half of the 3rd century or later. The function of these pits is uncertain.

Phase 5: post-Roman

The uppermost deposits overlying the lime kiln contained late Roman tile as well as medieval roof tile, suggesting disturbance possibly relating to quarrying that had cut into the edges of the kiln. Several scattered features of medieval and post-medieval date included a pit (1131) in the NE corner of the main excavation area and a posthole (1397) near lime kiln 1188, both of which produced post-medieval pottery.

WORKED AND BURNT FLINT

by Mike Donnelly

Introduction

The excavation yielded a moderate assemblage of 131 struck flints and 1841 fragments of burnt unworked flint weighing 16,774g (Table 1). The assemblage lacked high numbers of cores and tools that often typify residual assemblages, with just one core and three undiagnostic tools. Material from two contexts contributed disproportionately towards the assemblage: pit fill 1298 (pit 1299) contained 29 struck flints including numerous blades, and layer 1648 produced the majority of the burnt unworked flint, consisting of 784 fragments weighing 12,379g plus 19 struck flints. It is likely that Roman industrial processes generated much of this later collection, while the finds from pit 1299 consisted of items more typical of the Neolithic period.

Methodology

The artefacts were catalogued according to OA South's standard system of broad artefact/debitage type (Anderson-Whymark 2013; Bradley 1999). The general condition was noted, and dating was attempted where possible. During the analysis, additional information on condition (rolled, abraded, fresh and degree of cortication) and the state of each artefact (burnt, broken, or visibly utilised) was also recorded. Retouched pieces were classified according to standard morphological descriptions (eg Bamford 1985, 72–7; Healy 1988, 48–9; Bradley 1999). Technological attribute analysis was initially undertaken and included the recording of butt and termination type (Inizan *et al.* 1992), flake type (Harding 1990), hammer mode (Onhuma and Bergman 1982), and the presence of platform edge abrasion.

Provenance

A considerable proportion of the flintwork was recovered from the corndryers (7.63%) and lime kiln 1188 (6.87%) but there were numerous pieces from more typical features such as pits (35.11%) and ditches (30.53%) (Table 2). Another significant assemblage came from a spread of material associated with the cereal-processing areas (17.56%). As mentioned above, two separate contexts—pit fill 1298 and layer 1648—accounted for a considerable quantity of the struck flint and a large proportion of the burnt unworked material (42.59% by count and 73.80% by weight). Apart from these features, the flintwork was dispersed amongst numerous contexts, and where concentrations occurred these were usually recovered from environmental samples. Pit 1299 contained one of the larger, fresher and technologically consistent assemblages and may indicate a contemporary feature of probable Neolithic date. This was the only feature dating prior to the late Iron Age and Roman activity at the site. Burnt unworked material was concentrated in layer 1648, but there were also sizable amounts in ditch fill 1442 and pit fill 1365. It is also worth mentioning that the recovered burnt unworked material only represented a fraction of the material found on site.

Raw material and condition

The flints were in good condition with 55.68% fresh pieces and 29.54% lightly damaged flints (Table 3). Moderately damaged pieces accounted for 11.36%, while only 3.41% of the

assemblage was heavily edge damaged. Lightly corticated pieces dominated the assemblage with minimal numbers of moderate, heavy and uncorticated pieces. The generally low level of damage is surprising and probably indicates that much of the material had been redeposited quite rapidly and perhaps suggests that some of the larger assemblages were found relatively *in situ*.

The assemblage

The assemblage contains fairly equal numbers of flakes and blades. A blade index of 18.82% is appropriate for assemblages often associated with late Mesolithic or early Neolithic industries (Ford 1987). This figure is probably representative of several groups, some of which would have had a far higher blade index. Therefore, it seems quite likely that at least part of the Maylands assemblage is early prehistoric in date. The most likely candidate for a contemporary assemblage would be from pit 1299, despite it having a lower blade index than that of the whole assemblage, while layer 1648 with its higher blade index is clearly a residual collection in a Roman context. The quantity and freshness of the flintwork recovered does suggest that a quite sizeable knapping scatter or group of features associated with flint knapping was present. The intensity of Roman agricultural processing reduced much of this to a residual collection.

Only one core was present (0.87%) and there were no examples of core rejuvenation, cresting or core tablets. The core, a cylindrical opposed-platform blade form, was found in ditch fill 1033. It was quite large and could have dated anywhere between the late Upper Palaeolithic through to the late Mesolithic or rarer still, the early Neolithic. Two of the three tools originated from Roman layer 1698, including an early form with an inner blade and a small arc of denticulations along its lower right edge. One retouched flake had its retouch along the ventral left edge and was a squat, hard-hammer-struck form typical of later prehistoric industries. The final tool was recovered from ditch fill 1258 and represented the damaged scraper face of a tool of indeterminate form.

Key contexts

Pit fill 1298

Pit 1299 yielded 29 struck flints but lacked any material from sampling and it is unclear how representative the hand-recovered assemblage was (Table 4). The assemblage contained a mix of quite large well-made blades and some very heavy flake debitage. It was reminiscent of several early Neolithic pit assemblages that the author has recently examined. However, this date is only suggestive as the material is largely undiagnostic. One notable aspect is the extremely high degree of freshness in the material, with an average figure for edge damage of 1.03 (‘1’ being 100% fresh, while ‘5’ would be 100% heavily damaged). Such a figure could only be generated by *in-situ* material, either in a knapping scatter or from a group of struck flints that had rapidly found their way into a later feature such as a pit. Thus, it seems that the flake and blade component of this assemblage belong together, and while a Mesolithic date could not entirely be ruled out, a date in the earlier part of the Neolithic period would be most likely. Mesolithic pit assemblages are known (eg along the M1 widening scheme, Booth *et al*. 2012) but Neolithic pit assemblages are far more common.

Layer 1648

This layer was clearly associated with one or more of the Romano-British corndryers. The flintwork was in poorer condition than for pit 1299 (1.73 average damage levels) and was clearly residual, but the levels of damage were still quite low and indicate minimal redeposition. The assemblage was 'blade heavy', but also included large quantities of burnt unworked material with a much higher figure for the whole layer as this material was entirely recovered from a series of control samples. This is also true of the struck flints and it is possible that a sizeable assemblage was present in this layer. The assemblage had some evidence for soft-hammer technology as well as platform-edge abrasion; indeed, both techniques are rare after the Neolithic period.

Discussion

There are two main aspects of this assemblage. The first is that the technology employed, and the condition of the material suggests a probable early Neolithic component. This would include not just pit 1299, but also much of the residual material recovered from Roman contexts, including many of the pieces found in layer 1648. The second factor relates to the very large amount of burnt flint. The 1841 pieces (16,774g) represent a small sample of the total found during the excavation. Flint nodules were broken down into more manageable segments and burnt, most likely for heating water. Pot boilers are often found in later prehistoric contexts, though here the material appears to have been associated with the corndryers. If malting was undertaken nearby, as is suggested from the analysis of the charred plant remains (see above), this may provide a context for the use of burnt flint to heat water. It is worth noting the 'large quantities of fine flint, shattered and flaked by heat' found in association a charcoal spread in the base of a large pit/tank (feature 8) excavated by Neal (1984, 205) at Wood Lane End (see also Fig. 36, no. 4). Parallels for this can be found at Northfleet where several pits or steeping tanks containing burnt flints were thought to have been used in the brewing process (Biddulph 2011, 138–42, 148–9).

SLAG

by David Dungworth

Introduction and methods

All the ironworking waste was examined visually and recorded following standard guidance (HE 2015). The material was divided into several categories based on surface morphology, density, porosity and colour (Table 5). The material was weighed up to 100g using a 0.1g-accuracy scale, while larger pieces were weighed on a 1g-accuracy scale.

Results

In total, just over 3.1kg of slag and other materials was recovered (Table 6). This includes unambiguous evidence for iron smithing in the form of several smithing slag-cakes and hammerscale. The non-diagnostic ironworking slag could have formed in a variety of ways but the presence of smithing slag-cakes and hammerscale, the modest size of the assemblage,

and the absence of any diagnostic iron smelting slags, suggests that it all probably derives from iron smithing.

More than two-thirds of the slag (and virtually all of the hammerscale) derived from phase 1 features. Hammerscale was recovered from pits 1047, in the northern area of the excavation (and cut by ditch 1032), and pit 1300 near the southern edge of the excavation. It is not clear whether either of these pits were used for *in-situ* metalworking, or if they simply represent deposition of material generated elsewhere. However, the incorporation of more than 100g of hammerscale in pit 1047 leaves little doubt that smithing took place in the immediate vicinity. The total quantity of metalworking evidence is fairly modest and might have been produced by smithing over a very short period (cf Soulignac 2017). The recovered iron objects may have been raw material destined for forging, or examples of objects made or repaired. It is possible that some or all of the slag from later contexts is residual.

Conclusions

The size and nature of this assemblage provide evidence for late Iron Age/early Roman iron smithing, probably on a subsistence level to meet local needs. While the smithing may have included the fabrication of some artefacts from fresh bloomery iron, it is likely that the focus was on the repair and re-use of existing objects.

ROMAN POTTERY

by Paul Booth

Introduction

Some 2444 sherds (23,606g, 28.88 REs) of late prehistoric and Roman pottery were recorded and analysed. This total includes the relatively small collection from the second phase of evaluation carried out by OA (2018a), and 195 sherds (971g, 1.06 REs) of pottery recovered from soil samples taken for environmental evidence, since in several cases these represent the only material from the contexts in question. The late prehistoric component of the assemblage amounts to only six sherds (53g). The remainder of the pottery is late Iron Age and Roman, with the large majority of sherds dated to the 1st and 2nd centuries AD. The assemblage was recorded using the OA system for late prehistoric and Roman pottery (Booth 2014), in line with the recent *A standard for pottery studies in archaeology* (PCRG *et al*. 2016). Sherds were assigned to subgroups or individual fabrics/wares within major ware groups. Quantification of wares within individual context groups was by sherd count and weight. Vessel types were quantified by rim equivalents (REs) and by a more subjective vessel count (MV) based on rim sherds. Details of decoration were recorded, as well as evidence of use and reuse where identifiable. Methodological issues relating to the recording are discussed further at relevant points below.

The pottery was in relatively poor condition. Much of it was heavily fragmented (although the sherd count ignores recent breaks as far as possible): the mean sherd weight was 9.7g and excluding the material from samples was 10.1g. The surface condition of many sherds was poor, principally owing to adverse soil conditions rather than the effects of continued redeposition. Survival of surface treatments such as slipping and burnishing was patchy and

evidence for such treatments was often totally lacking, even where their original presence was very likely. Some sherds were very heavily eroded. These characteristics meant that degrees of wear, rather than erosion, could only be occasionally noted.

Fabrics/wares

The excavation produced a wide range of late Iron Age and Roman fabrics (Table 7). The ware groups can be combined to constitute two main classes of material, fine and specialist wares on the one hand, and on the other the rest of the coarse wares (cf Booth 2004). The fine and specialist ware groups (identified by the initial letter of the fabric code) are: samian ware (S); fine wares: colour-coated, lead glazed, mica coated, etc (F); amphorae (A); mortaria (M); white wares: other than mortaria (W); and white-slipped wares (Q). The remaining ware groups are: 'Belgic type' (broadly in the sense of Thompson 1982, 4–5), usually grog-tempered, fabrics (E); 'Romanised' oxidised coarse wares (O); 'Romanised' reduced coarse wares (R); black-burnished ware (B); and calcareous (particularly shell-tempered) and other wares (C).

Within these classes there are hierarchically arranged subgroups, usually defined on the basis of inclusion type, and individual fabrics/wares are then indicated at a third level of precision, both levels of subdivision being expressed by numeric codes. Thus, W20 is a general code for coarse sandy white/cream wares, while W21 is a specific code for the Verulamium region product of this character. For the bulk of the present assemblage fabric identification was at the intermediate level of precision. While a significant proportion of the material was in fabrics that were certain or probable products of the Verulamium region industry, other sherds were of unknown or uncertain origin, and detailed assignment to very specific fabric codes, particularly in the R10, R20 and R30 groups (see further below) did not seem to be warranted. Attribution of sherds to ware groups or to individual fabrics was on the basis of macroscopic inspection, with frequent but not universal use of the binocular microscope at x10 or x20 magnification.

Relatively summary fabric descriptions or labels are given in Table 7, although some fabrics recently added to the OA series (but mostly of minor significance) and others added specifically from Maylands are described in more detail. More comprehensive descriptions can be found in the project archive and/or in the handbook to the National Roman Pottery Fabric Reference Collection (Tomber and Dore 1998). Fabric codes from the latter are cross referenced in the table in bold.

In addition to fabric codes and descriptions, Table 7 also gives an estimate of the distance of the source area of a particular fabric from the site. The categories used are I (Continental import), ER (British, extra-regional), R (regional, in a radius of roughly 10–45km from the site) and L (local, up to *c* 10km distant). The 10km figure for the 'local' range is intended to include known sources of Verulamium region products (apart from their London clones). Distances are direct rather than involving calculations of how far a particular product might have had to move to reach the site depending on its mode of distribution. Some wares cannot be assigned confidently to one source category or another, and an L/R group is therefore used. Most of the E ware group fabrics are thought most likely to derive from local sources, but there is no definite evidence that this was the case.

Quantification of fabrics/wares by the three principal measures is presented in Table 8. Variation in fabric proportions depending on the measure employed is typical. For convenience, percentages based on sherd count are used here as the primary means of quantification in discussing fabrics.

In overall terms the assemblage was dominated by three main fabrics or ware groups. 'Belgic-type' wares accounted for almost a quarter of all sherds, although they were less well-represented by weight and, particularly, in terms of REs. The great majority of these sherds were grog-tempered (subgroup E80), but sand-tempered sherds, sometimes with grog as a secondary inclusion type, were also present (particularly the coarse sand-tempered subgroup E30). Other elements in this ware group were numerically insignificant.

The most common fabric was W21, Verulamium-region white ware, with 23.2% of sherds, 26.2% of weight and 31.5% of REs. A range of variants of this fabric were recorded, particularly relating to the firing. Not only did sherds range in colour beyond 'white' to cream to buff-brown, but over 40% of the W21 sherds had darker, often grey, external surfaces, in some cases confined to rims, but often more widespread. Sherds assigned to fabric R212, the equivalent sandy grey ware, were (by definition) reduced throughout and were significantly less common than varieties of firing grouped under the heading of fabric W21. These amounted to 8.7% of all sherds but consisting of well-fragmented material so that percentages for weight and REs were significantly lower.

The combined reduced coarse wares formed the largest component of the overall assemblage, accounting for 31.8% of sherds and a little less by weight, but 34.6% of REs. Three main subgroups, R10, R20 and R30, were present, comprising fine, coarse and medium sand-tempered fabrics respectively. The mean sherd weights of these groups (8.1g, 11.3g and 6.6g) indicate well-fragmented material, particularly in the case of the R30 subgroup, enhancing the difficulty of attribution of sherds to potential known sources. The interrelationships of these groups and other distinct fabrics are broadly as follows. The R10 fabrics are characterised by fine sand, which can occur commonly, or sometimes by larger sand grains occurring only occasionally in a fine matrix. Iron oxides and very occasional fine organic inclusions can also be present. This generic group can include products of industries such as Hadham and Highgate Wood. A specific product of the latter, Highgate Wood fabric C (see Brown and Sheldon 2018), is fabric R88 here, present in the form of white-slipped poppyhead beakers (eg Fig. 20, No. 16). Further sherds from this source, particularly if small and/or lacking a white slip, might also have been present but have been just recorded as R10. A similar situation might apply in the case of Hadham reduced ware (R84), of which a mere seven sherds were identified with various degrees of confidence. It is very likely that further sherds of this industry will have been subsumed in R10.

R20 and R30 subgroups are more closely comparable to Verulamium region products. Verulamium fabric R212, strictly a component of the R20 group, is distinguished (in line with the character of fabric W21, see Tomber and Dore 1998, 154) from the general R20 sherds by its denser sandy texture, whereas the sand grains in the latter subgroup can be larger and/or slightly more scattered in the matrix of the sherd. The sand inclusions in the R30 sherds are typically smaller and their density is characteristically (but not always) less than that of R212. In effect, R30, R212 and R20 form a continuum of sand-tempered fabrics, and a degree of

overlap in their definitions seems unavoidable, particularly in view of the fact that many sherds were small.

The main fabrics/ware groups discussed so far accounted for 79.6% of the total sherds from the site, and only slightly less in terms of weight and REs. The main subgroups of oxidised coarse wares had very similar characteristics to the corresponding reduced ware groups but were of minor importance. Hadham products were identified (fabric O57) and, again, it is quite likely that further examples will have been subsumed under the heading of subgroup O10. The coarser sandy O20 fabrics were only present as body sherds, and there was only a single tiny rim sherd in subgroup O30, the very low MSW of which precludes meaningful comment. The only other fabric in this group which is assigned to source is pink grogged ware (O81), from Stowe in Buckinghamshire (Booth 1999, the fabric is unsourced in Tomber and Dore 1998, 210). A fairly significant component of the assemblage, at least in terms of sherd count (8.7%) is of probable shell-tempered wares (C10), consisting of uniformly leached sherds often with a very pale buff surface, particularly on the interior. Jar rims in this fabric suggest a fairly wide chronological range from the 1st century onwards so it is not clear if most or all derived from a single source, though this is possible, and may have been fairly local if so. A hooked rim form characteristic of a later Roman date (from context 1602, one of few groups assigned to the 4th century) might perhaps indicate a product of the Harrold industry (Brown 1994). A second example (Fig. 20, No. 25) came from a context (1214) assigned to Phase 3, but this was the top fill of a component of ditch group 1137, which could have been rather later in date, or simply contained occasional intrusive sherds. Although more than 50km distant, vessels from Harrold are relatively common in the Verulamium area in the late Roman period (eg Wilson 1984, 223–225, nos 2189–2201; 240, 243, nos 2419–25.

Fine and specialist wares form only a modest proportion of the assemblage, particularly in terms of sherd count, which only totals 5.2% when fabric W21, effectively a local coarse ware, is excluded. Representation by weight is significantly higher because of the skewing effect of mortarium and amphora sherds, but in terms of REs is higher still.

In terms of sherd count, the combined Central Gaulish samian ware sources (Lezoux (S30) and Les Martres-de-Veyre (S32)) outnumber South Gaulish (S20) material, but the latter provides the majority of the samian ware by REs. South Gaulish forms present are 24, 27(3), 35, and a bowl, of which only two of the 27s and the 35 are present as rims. Les Martres-de-Veyre provides the only decorated sherds from the site, all from a single very eroded form 37 bowl. Fabric S30 (Lezoux) forms are 27, 33(3), 46?, Curle 15, and 38 (the 27, two 33s and the Curle 15 represented by rims), and the single East Gaulish sherd is of form 38.

Only three fine ware sources are represented. Sherds attributed to Central Gaul (fabric F48) came from two separate vessels (Fig. 21, Nos 32 and 33). Products of the Nene Valley (F52) and Oxford (F51 and FO) industries are by definition mostly of later Roman date, the Nene Valley vessels including a jar as well as a variety of beakers (eg Fig. 21, No. 34). The only identifiable Oxford form was a dish of Young-type C45 (Young 1977). White ware mortaria from the Oxford industry (fabric M22) could have reached the site as early as the early 2nd century, but the only identifiable form (Young-type M17) is dated AD 240–300, while the colour-coated mortarium type C97 is also later than AD 240. Early mortarium supply to the site is unsurprisingly dominated by Verulamium products (eg Fig. 20, No. 22; Fig. 21, Nos 38 and 39, although two of these are relatively late forms), supplemented by a single imported

vessel, perhaps from Central Gaul (Fig. 21, No. 37). Amphorae are poorly represented, by fragments of possible Dressel 20 (fabric A11) and a single rim of a CAM 186A vessel (Fig. 20, No. 4), probably a fish-sauce amphora of southern Spanish origin. White and white-slipped fabrics are dominated by the Verulamium regions products (W21 and Q25) already discussed, except to note that the only certain vessel form in the latter fabric was a jar (Fig. 20, No. 26) and that jars also dominated output in fabric W21 (61.5% of REs) but not to the complete exclusion of a variety of other forms, of which flagons (13.9% of REs) and bowls (12.6%) were the most important.

Vessel types

The late Iron Age and Roman vessels amounted to a total of 28.88 rim equivalents (REs). A minimum figure of 241 vessels based on a count of rim sherds is indicative, but less reliable, and these data are only used occasionally for comparative purposes. Vessels were recorded in terms of a series of major classes arranged approximately in a sequence from narrow mouthed to wide mouthed vessels, defined by letter codes. The classes/codes are amphorae (A), flagons/jugs (B), jars (C), uncertain jars/bowls (D), beakers (E), cups (F), bowls (H), uncertain bowls/dishes (I), dishes (J), mortaria (K), and miscellaneous forms (M). 'Intermediate' vessel classes (D and I) are used where insufficient of the rim survives to allow an estimate of the likely ratio of rim diameter to height, the key criterion for definition of the relevant types (Webster 1976, 17–19). Vessels of class G (tankards/handled mugs, etc) and class L (lids) were not present in this assemblage. The class labels are conventional terms and are not necessarily indicative of specific functions. The vessel classes are divided into broad subgroups, usually with respect to key aspects of form (eg a simple division between straight-sided and curving-sided bowls and dishes), and in some cases, specific typologies were also used in the recording (eg for samian ware and for Oxford fine wares and mortaria). Further definition of each vessel is provided by use of a fairly elaborate system of rim codes. This is essentially a descriptive tool but serves as a useful guide to chronology in some cases, for example in distinguishing between the different types of flange on bowls and dishes, which can be of considerable significance for dating. As with the recording of fabrics, discussed above, the hierarchical definition of vessel form is considered to provide an effective approach to the material, revealing broad patterns of assemblage composition very easily, while allowing for more detailed analysis if this appears to be useful. Vessel class and sub-class definitions and overall quantities are given in Table 9, and the quantification of the major vessel classes by fabric is presented in Table 10, which omits fabrics for which no rim sherds were recorded.

The assemblage was dominated by jars, which amounted to just over 60% of all vessels. Bowls and beakers accounted for 8.5% and 8.2% of vessels respectively, and no other vessel class contributed more than 5% of the assemblage. A very large proportion of the jars (62% of all jar REs) were not assigned to sub-classes, usually because insufficient of the profile was present to enable these to be determined. This reflects the fragmented nature of the assemblage, which also accounts for the relatively high percentages of uncertain jar/bowl and bowl/dish classes (3.5% and 4.6% respectively). Medium mouthed (CD) vessels, with a wide variety of everted rim types, amounted to a little over half of the jars that were assigned to sub-classes. Narrow mouthed (CC) and then angled everted rim (CI) forms were lesser

components, and a variety of other sub-classes were numerically insignificant, bead rim (CH) jars, for instance, amounting to only 1.5% of all jars and less than 1% of the total assemblage.

Table 10 shows that the overall percentage of jars in the assemblage is matched almost exactly by their representation in fabric W21. They formed particularly dominant proportions of the output of E wares and the shell-tempered fabric C10, and were also well represented in reduced fabrics, as would be expected. A single jar was the only vessel in Verulamium white-slipped fabric Q25 (Fig. 20, No. 26).

Bowls, although much less numerous than jars, also occurred in a wide range of fabrics, though absolute quantities of many of these were small, even in cases where they formed a relatively high proportion of the REs in the fabrics in question (such as O30 and R20). The principal sub-class consisted of carinated bowls, many in fabric W21, but they also occurred in fabrics E80 (Fig. 20, No. 17), O10 (Fig. 20, Nos 18 and 20) and R212 (Fig. 21, No. 36). The three straight-sided (HB) bowls included a bead-and-flanged form in fabric R10 (Fig. 21, No. 43) and a miniature form in fabric R20 (Fig. 21, No. 42). Curving-sided (type HC) bowls occurred exclusively in samian ware (see above).

Beakers were present in both fine and coarse wares. The former included two different vessels in fabric F48 (Fig. 21, Nos 32 and 33) and four Nene Valley (F52) vessels, all from the same context (1223) (eg Fig. 21, No. 34). There was a single Verulamium example (Fig. 20, No. 15) and reduced ware vessels in fabrics R10, R84 and R88. The last consisted of several examples of poppyhead beakers (eg Fig. 20, No. 16). Amongst other drinking-related classes cups, like curving-sided bowls, were present only in samian ware in a variety of forms (see above). Flagons, with a single exception in fabric R10, occurred only in fabric W21, with a minimum of six vessels present (eg Fig. 20, No. 23).

Dishes were poorly represented at only 3.5% of REs, though more will have been hidden amongst the uncertain bowl/dish (I) class vessels. Single examples were present in fabrics S30 (Curle 15), F51 (Young-type C45) and O10, the last (Fig. 20, No. 21) perhaps originally mica-coated (cf Wilson 1984, nos 2512–16), though the surfaces do not survive. All the reduced ware and black-burnished ware examples were of the straight-sided form (JA), mostly with simple upright rims that can range chronologically from the 1st century to the later 3rd–4th in the case of some of the black-burnished ware vessels (two in fabric B11, for example, one of which was oxidised). The small B11 repertoire did include one body sherd from a cooking pot-type jar, a form otherwise not represented in this fabric.

The single amphora and the mortaria have been mentioned above, the latter group comprising six vessels of 1st–2nd century date and two Oxford vessels dated after AD 240. These are otherwise unremarkable. The only remaining noteworthy vessel is a miscellaneous form, of 'Castor box'-type, in Verulamium white fabric W21 (Fig. 21, No. 40). This appears to be a very rare form, unparalleled, for example, in the material from Frere's Verulamium excavations (Wilson 1973; 1984).

Phasing and chronology

The site sequence has been divided into four main phases, and two 'composite' phases (1–3 and 2–3). Quantification of the pottery in terms of these phases is presented below as percentages of the total sherds in each phase assemblage (Table 11). The resulting phase groups are fairly small, which limits the identification of meaningful trends in the

development of the whole assemblage. There seem, however, to be fairly close similarities in the composition of the pottery from Phase 2 and the composite Phase 1–3, and between Phase 3 and the composite Phase 2–3. Thus, in addition to the basic breakdown, the combined quantities of material from these pairs of phase groups have also been indicated in Table 11. This scheme presents a more robust basis for interpretation of chronological development of the assemblage.

The Phase 1 assemblage is small but very heavily dominated by 'Belgic-type' fabrics (which were even more dominant by weight, amounting to 91.9% of the Phase 1 pottery). The material was particularly fragmented, with a mean sherd weight of only 6.7g, well below the (still very modest) figures for later phases. The assemblage included three of the six sherds in handmade prehistoric fabric FA4—all the sherds in this fabric were redeposited in late Iron Age or Roman contexts. The absolute chronology of this phase is uncertain. The prominence of the E wares suggests that occupation began before the Roman conquest. This is entirely possible, but not certain. A recent review of pottery evidence from Hertfordshire suggests that 'early late Iron Age ceramic forms and fabric' emerged in the second half of the 1st century BC and only increased significantly in quantity in the later part of that century (Thompson 2015, 131). Moreover, 'native grog-tempered pottery' continued in production into the Flavian period (ibid., 129). This point is reflected in the high proportion of these wares in the Phase 2 assemblage. The RE total for Phase 1 was only 0.90, but this consisted of rims of 12 vessels (a further indication of the brokenness of this assemblage), 11 of these from assorted jars in fabric E80 (Fig. 20, Nos 1–3) and the other from a jar or bowl in fabric R10 (Table 12). The scarcity of 'Romanised' fabrics in this phase group suggests a latest date of *c* AD 70 and perhaps rather earlier.

'Belgic-type' fabrics still accounted for almost half of the sherds in the combined Phase 2 and 1–3 assemblage, though they were little less significant in terms of weight (42.4%, as opposed to 46.9% of sherds). This is still a very high figure and underlines the point about continued production of these wares into the Flavian period. In addition, it suggests that while the overall date range assigned to Phase 2 potentially runs up to the middle of the 2nd century AD, activity in the earlier part of this phase might have been more intensive. A variety of reduced fabrics headed by the fine R10 group now formed a significant component of the assemblage (31.3% of sherds), and Verulamium white wares totalled 13.7% of sherds. In addition to these, fine and specialist wares (including five Verulamium mortarium fragments) amounted to 2.1% of total sherds, the figure including two amphora fragments, but mainly comprising samian ware sherds, with La Graufesenque, Les Martres-de-Veyre and Lezoux all represented.

The composition of the assemblage in terms of vessel types was significantly different from that of Phase 1 (Table 12). Jars inevitably remained dominant, but now accounted for only 60.5% of the assemblage by REs. A comprehensive range of vessel classes was now present, with beakers particularly prominent, totalling 11.5% of REs (though these only represented four vessels as defined by rims), and bowls accounting for 7.3%. Jars occurred in a wide variety of fabrics, but 40% of all the jar REs were still in grog-tempered fabric E80, reflecting the continued importance of this fabric, at least in the earlier part of this phase. The beakers included sherds from several different Highgate (fabric R88) vessels (eg Fig. 20, No. 16).

The combined Phase 2–3 and 3 assemblages were both similar and different to the Phase 2 groups. The most obvious differences were seen in the dramatic reduction in the level of E wares, completely residual by the time of the probable mid-2nd-century date for the commencement of this phase, and a corresponding substantial increase in the representation of Verulamium white ware (W21) and, to a lesser extent, its reduced ware counterpart fabric R212. The overall contribution of reduced wares was slightly less than in the previous phase, reflecting *inter alia* the disappearance of Highgate Wood fabric R88. This was more than compensated for by a marked rise in the quantity of shell-tempered fabric C10, from 1.4% of sherds in combined Phase 2 to 16.6% in combined Phase 3, although representation by other measures was rather less (12.3% weight and 8.6% REs). As mentioned above, the source of this fabric is not known. Its vessel repertoire was rather like that of E80, heavily dominated by jars (78.5% of REs in this phase) with the remainder comprising uncertain jars/bowls and a single example of a bowl/dish.

Overall, comparability of the vessel class range with that of the previous phase is notable. The proportion of jars in the two assemblages was almost identical. The representation of flagons and the bowl-dish continuum increased, while that of beakers and cups declined; the latter only occurred in samian ware at this site, so it is possible that their reduced numbers might reflect continued activity in this phase after the end of the 2nd century, when samian ware was much less readily available. Pottery specifically indicating activity in the later 2nd century and later is not abundant, but includes a modest amount of Nene Valley colour-coated ware, and a very few sherds of BB2 might also belong to this period rather than earlier, the two forms identified this phase being probable dishes, one with a vertical plain rim and one with a projecting bead. The terminal date of the Verulamium-region industry is not entirely clear. It is typically thought to be about the end of the 2nd century (eg Tyers 2014), but a date at least as late as the end of the 3rd century is possible (eg Lyne 2006, 119) and is supported by vessels such as Fig 23, No. 44 in this assemblage, for which a date earlier than the mid-3rd century seems highly unlikely.

For this reason, the significance of the occurrence of fabric W21 at 12.1% of sherds in the Phase 4 assemblage is uncertain. On the later chronology, this material could have been contemporary with the earlier part of the Phase 4 date range. Alternatively, it was entirely residual, but given its importance in the previous phase a relatively high residual occurrence would not be surprising. Phase 4 is dated from about the middle of the 3rd century onwards on the basis of the presence of Oxford products. Black-burnished ware 1 (fabric B11) occurs in this phase for the first time. The three B11 forms present are all consistent with a 3rd–4th-century date range but are not very closely datable within it—one rim form might be assignable to the first half of the 3rd century, but the two plain-rimmed dishes can only be assigned a late 2nd–4th century range, although mid-3rd–4th century dates are more likely for both.

The pottery provides little indication of the terminal date of activity on the site. Most of the typologically latest vessels in the assemblage have already been mentioned, of which none need date after the early 4th century. While a longer chronology is possible, factors such as the scarcity of Oxford colour-coated ware argue strongly against it.

Use, reuse and repair

There was minimal evidence for taphonomic aspects, owing in large part to the typically poor condition of the assemblage. Three sherds (fabrics W21, R212 and R30) had sooting on the exterior, and four (fabrics W21, E20 (2) and R212) had internal burnt deposits indicative of use as cooking vessels. Undifferentiated burning was noted on 11 sherds, but its significance is unclear as it was not easy to distinguish between burning and the discolouration of surfaces that was such a widespread feature of fabric W21 (see above). That many of the jars in this fabric were used as cooking vessels is quite likely but cannot be quantified reliably.

A single samian ware form 35 cup in context 1247 had evidence of internal wear, suggesting that this vessel was used for mixing ingredients (cf Biddulph 2008).

There was no evidence for vessel repairs. Three sherds had indications of reuse. A base sherd in fabric R10 from context 1446 had been roughly trimmed to the circular shape of the base. Another base sherd, in fabric W21 from context 1651, had a hole knocked in it, and a simple rim sherd of a dish in fabric B20 from context 1657 had a single hole of uncertain function drilled in the vessel wall.

Discussion

The pottery from the immediately adjacent excavations of 1982 and 1983 (Nation 1983; Dannell 1984; Neal 1984, 212–15) provides obvious points of comparison for the present assemblage, though detailed quantification is mostly lacking. The Wood Lane End complex had a heavy 2nd-century emphasis, particularly seen in the 1982 material. That from the 1983 excavation appears to have a wider date range; 'native-type fabric' was noted, but seems to have accounted for a relatively minor proportion of the assemblage (Neal 1984, 212), while at the same time the 1983 samian ware included Flavian material (Dannell 1984). Overall, however, the present assemblage appears to have had a more significant late Iron Age–early Roman component, but the representation of later Roman material seems to have been higher in the 1983 excavation, with Oxford wares, amongst others, more prominent than in the present assemblage (Neal 1984, 212 (8% of rim sherds), fig. 13, nos 22, 28 and 29).

Other local assemblages derive from a variety of site types, including intra- and extra-mural areas of Verulamium, the substantial villas at Gadebridge Park (Neal 1974) and Gorhambury (Neal *et al*. 1990), and rural settlement close by at junctions 8 and 9 of the M1 (Stansbie 2012). Only the last presents systematically quantified data for fabrics from fairly substantial groups (4936 sherds from junction 9 and 5419 sherds from junction 8, though the latter assemblage was particularly fragmented). Comprehensive ranges of late Iron Age–early Roman grog-tempered and related fabrics were seen at Gorhambury (Parminter 1990, 177–81) and Folly Lane, St Albans (Thompson 1999), where they dominated assemblages of that date, as they do at Maylands and at the M1 sites, grog-tempered fabrics totalling 41.8% and 37.7% of sherds at junctions 9 and 8 respectively (Stansbie 2012, 104, 106). This perhaps suggests more intensive pre-conquest activity at these sites than at Maylands, where the comparable figure was only 19.7% (Table 8). The remarkable funerary assemblage from Folly Lane is of course unparalleled, but a relatively wide range of late Iron Age and early Roman imported material was found at Gorhambury. These fabrics are absent at Maylands, where the only early Roman imports consisted of samian ware and two amphora sherds. Comparable material at the M1 sites was supplemented by occasional sherds of north Gaulish white ware, and by three

sherds of Terra Nigra at junction 9 (Stansbie 2012, 105), but the range of imported pottery was essentially restricted. In the middle and late Roman periods, Maylands is the only one of these three sites to produce imported vessels other than in samian ware and amphora fabrics, consisting of a single mortarium in fabric M16 (Fig. 21, No. 37) and the two fabric F48 beakers (Fig. 21, Nos 32 and 33), for all of which a Central Gaulish source is possible. The quantities involved are small and their significance therefore uncertain, but these occurrences might perhaps relate to a ceramic reflection of the particular prominence of the Maylands site in the 2nd century.

This prominence is also seen in the greater quantities of Verulamium white wares at Maylands, where fabric W21 amounted to 23.1% of the total sherds, compared to 11.4% and 13.5% at the M1 J9 and J8 sites respectively. Moreover, it is notable that at both the M1 sites the percentages of Verulamium white ware by weight were lower than by sherd count, whereas the reverse was the case at Maylands, and Fabric W21 accounted for 31.5% of the whole assemblage by REs. Fabrics assigned to the Verulamium industry with some certainty (M21, W21, Q25 and R212) accounted for 40% of the total REs from this site, a figure which must be regarded as a minimum (see discussion of ware groups R20 and R30 above). These products were most prominent in the combined mid–late 2nd century (and perhaps later) within Phase 3, increasing very substantially in importance compared to the preceding phase. This prominence is reminiscent of that seen for example in the very large mid-2nd-century groups at Insula XIV in Verulamium (Wilson 1973, 318–40). In the Maylands Phase 3 assemblage, the dominant local/regional component was supplemented by about 1.5% (by sherd count) of imported pottery—mostly samian ware, as in the very similar Phase 2 group—but also for the first time by an equivalent percentage of extra-regional material (for source attributions see Table 7). Hereafter, in line with a trend that will have affected all the other sites in the area, pottery from extra-regional sources became important, and in the late Roman phase (phase 4), material from the Oxford, Nene Valley and Much Hadham industries, alongside pink grogged ware and black-burnished wares, accounted for 15.6% of the (admittedly small) phase sherd total. As noted above, however, Hadham wares are likely to be underrepresented in the record, so extra-regional pottery is likely to have been more common before the late Roman phase than the present figures suggest.

The meagre representation of black-burnished wares, both from Dorset and elsewhere (the BB2 sherds here are thought most likely to derive from North Kent, but this is not certain), confined almost entirely to Phase 4, appears to be in part a consequence of the very limited 4th-century activity at Maylands. The quantities are comparable to those from the M1 sites—in all cases well under 1% of sherd count—and although at Maylands the quantity of REs (2.5%) is slightly higher, it is still rather less than the figure of 4% (based on rim count) from the 1983 excavations at the adjacent Wood Lane End site (Neal 1984, 212), which in turn is quite closely matched at Gorhambury (Parminter 1990, 176), again based on rim count. Lyne (1999, 235) notes that Dorset BB1 is rare at Verulamium from the mid-2nd century but more common in late 3rd–early 4th-century groups at King Harry Lane and Folly Lane—though the relative scarcity of these wares here is consistent with the national distribution pattern (Allen and Fulford 1996). It is notable, however, that BB2 (OA fabric B20) is apparently absent from the large 2nd–4th-century assemblage from Folly Lane (Lyne 1999), despite its presence at Maylands and at Gorhambury. One characteristic that Folly Lane does share with Maylands,

however, is the relative lack of 4th-century material, which explains some notable absences, such as that of late shell-tempered wares.

Catalogue of illustrated vessels

The vessels are arranged in approximate typological sequence by phase and the numbers in square brackets refer to drawing numbers assigned to pottery selected for illustration.

Phase 1

1. [37.] Fabric E80 (fine variant) type CD jar. Context 1035.

2. [43.] Fabric E80 (fine variant, oxidised throughout) type CD or CE jar with cordon at base of neck. Burnished on shoulder and top of rim. Context 1368.

3. [38.] Fabric E80 type CH jar. Context 1049.

Phase 2

4. [13.] Fabric A17 CAM type 186A amphora. Context 1268.

5. [18.] Fabric R30 type CC jar. Context 1238

6. [26.] Fabric E80 type CD jar. Context 1115

7. [12.] Fabric E80 type CD jar with multiple grooves on the body. Context 1255

8. [36.] Fabric E80 type CD jar, grooved/furrowed on shoulder. Context 1084

9. [42.] Fabric E80 type CD jar with girth groove and cordon at base of neck. Context 1113

10. [41.] Fabric E80 type CE jar with grooves at base on neck and shoulder. Burnished on top of rim and shoulder. Context 1113

11. [40.] Fabric W21 type CD jar with rim with pronounced internal lip. Context 1113

12. [21.] Fabric W21 type C jar with slightly dished rim. Context 1244

13. [35.] Fabric E80 (fine variant) type CI jar with groove on shoulder. Context 1084.

14. [17.] Fabric R20 type CI jar with girth groove. Context 1238.

15. [44.] Fabric W21 (fine) type ED beaker (or small jar). Context 1285.

16. [25.] Fabric R88 type EF poppyhead beaker, white slipped. Context 1247.

17. [6.] Fabric E80 (fine variant) probable type HA carinated bowl with cordons on the body. Context 1440.

18. [1.] Fabric O10 type HA carinated bowl. Context 1700.

19. [27.] Fabric E80 type H bowl of uncertain form with rim with internal lip. Context 1115.

20. [20.] Fabric O10 type H bowl with grooves on upper body. Context 1244.

21. [7.] Fabric O10 type JB dish, burnt. Contexts 1238 and 1446.

22. [11.] Fabric M21 type KA mortarium. There may have been a stamp adjacent to the spout, but it is totally eroded. Context 1276.

Phase 3

23. [33.] Fabric W21 type BA flagon. Context 1222.

24. [28.] Fabric W21 (fine) type CC jar with notched rim. Context 1219.

25. [31.] Fabric C10 type C jar. Burnt. Context 1208.

26. [39.] Fabric Q25 type CD jar. Context 1066.

27. [8.] Fabric R212 type C jar. Context 1603.

28. [9.] Fabric R30 type CD jar with white slip. Context 1603.

29. [5.] Fabric R10 type CD jar with grooves at base of neck and on shoulder. Context 1643.

30. [30.] Fabric C10 type C jar with hooked everted rim. Context 1214.

31. [32.] Fabric W21 type C jar with reeded rim. Context 1222.

32. [3.] Fabric F48 type EC beaker with overall clay pellet roughcast. Context 1660.

33. [19.] Fabric F48 type EC beaker. Context 1224.

34. [23.] Fabric F52 type E beaker. Context 1223.

35. [24.] Fabric W21 type HA bowl with reeded rim. Context 1223.

36. [29.] Fabric R212 type HA bowl with reeded rim. Context 1213.

37. [2.] Fabric M16 type KA mortarium. Context 1653.

38. [4.] Fabric M21 type KA mortarium with vertically downturned flange. Context 1665

39. [22.] Fabric M21 type KA mortarium with downturned flange very similar to No. 38. Burnt. Context 1223.

40. [34.] Fabric W21 type MI 'Castor box'. Context 1222.

Phase 4

41. [16.] Fabric R212 type C jar. Context 1265.

42. [10.] Fabric R20 miniature type HB bowl. Context 1324.

43. [15.] Fabric R10 type HB bowl with bead and flanged rim, burnished interior and exterior surfaces. Context 1265.

44. [14.] Fabric W21 type IA dish/bowl with bead and flanged rim. Context 1265.

CERAMIC BUILDING MATERIAL AND FIRED CLAY

by Cynthia Poole

Introduction

A large quantity of ceramic building material (CBM) was recovered from the site, including samples from three built structures that incorporated tile in their construction. These were corndryer 1635, lime kiln 1188 and corndryer 1071. Corndryer 1078 had been robbed and was not certainly constructed with tile but contained small quantities in its fill. Corndryer

1734, just to the east of 1635, was constructed partly of tile and produced a modest assemblage. Feature 1327 was tentatively identified as a very damaged corndryer and this feature produced a substantial quantity of tile. Finally, corndryer 1906 was constructed entirely of tile and had been exposed as part of earlier evaluation work, but the structure was not dismantled, nor was the tile sampled as part of the current project (AA 2017). Some other features also produced sizable quantities of CBM, especially enclosure ditch 1077, which extended to the north of corndryer 1635.

A total of 6439 fragments of tile amounting to 2,203,970g has been recorded, together with 1141 fragments of fired clay weighing 8061g and four fragments of *opus signinum* (550g). The CBM total weight includes an estimated 42kg that remains unrecorded from two layers (1640 and 1654) infilling corndryer 1635. These remaining contexts have been very rapidly scanned and assessed and the weight roughly quantified at a gross level. In descriptions of the material below where quantities are given, the weight has been rounded up or down to the nearest 0.5kg.

The condition of the CBM was very variable depending on the features from which it was recovered. The lime kiln walls produced many complete, near complete or half tiles and corndryer 1071 utilised large blocks of bricks in its structure and produced several complete or near complete tegulae in its fill as well as substantial parts of imbrex. The wide variation in mean fragment weight of groups between different features is tabulated in Table 13b.

The assemblage is overwhelmingly Roman in date, but a small quantity of late medieval–early post-medieval flat roof tile was recovered from a limited number of features and details of these are recorded in the archive. The Roman tile ranges in date from 1st to 4th century AD, much of which can only be broadly dated as 'Roman', but a proportion has been more closely dated within the period based on diagnostic characteristics of different forms.

The decision was made to visit and assess samples of CBM from Wood Lane End and Gadebridge Park villa held in archive at Dacorum Museum, Hemel Hempstead. This was deemed important since very little of these assemblages was published in the original reports (Neal 1974, 195–200; 1983; 1984). Better understanding of these collections has provided useful information on the context of the CBM at Maylands, particularly with regards to similarities and/or differences in the materials used in the early Roman lime kiln (1188) or the later Roman corndryers. A brief assessment of the Wood Lane End and Gadebridge Park villa materials is included in this report.

Methodology

All CBM was retained from pits, postholes, ditches and corndryers 1078, 1327 and 1734. However, owing to the extremely large quantities of CBM found in lime kiln 1188, corndryer 1635 and corndryer 1071, only a sample from each was retained. From lime kiln 1188, a total of 73 tiles were collected from the walls (contexts 1485, 1486 and 1487) and a proportion of each of the layers of collapsed structure were retained with a gross quantification by the crate made on site of the discarded element (a crate is estimated to hold *c* 30kg regardless of fragment size). The quantities discarded were noted in the CBM record. Corndryer 1635 was sampled in a more random fashion due to difficulties encountered as a result of freezing weather conditions.

At the analysis stage, not all the retained tile could be recorded due to time and available resources. Processing such a large assemblage within the time available also proved to be a challenge and there were difficulties in establishing the total quantities from each context. In general, an attempt was made to record a sample of material from every context but towards the end of the recording period it was clear this could not be achieved. The decision was thus taken to cease recording of material from the collapsed layers of lime kiln 1188 in favour of completing work on the structural contexts of corndryer 1635, material from its enclosing ring ditches (1080 and 1704) and any small groups from other miscellaneous features. Layers overlying this corndryer were recorded in full for the smaller groups or sampled in the case of layers 1640 and 1654, of which between a third and a half was recorded with the remainder scanned and a gross weight estimated for unrecorded tile from each context. It is intended to complete recording as the opportunity arises so that a full record may be deposited with the archive.

The assemblage was recorded in accordance with guidelines set out by the Archaeological Ceramic Building Materials Group (ACBMG 2007). The record includes quantification, fabric type, form, surface finish, forms of flanges, cutaways and vents, markings and evidence of use/reuse (mortar, burning, etc). A visual record comprising digital photos, rubbings of markings and drawings of flange profiles supplements the written record, with terminology following Brodribb (1987). Coding for markings, tegula flanges, etc. follows that established by OA for the recording of CBM. Tegula cutaway types, and dating of these types, are linked to the categories established by Warry (2006). Fabrics were characterised largely on macroscopic features, supplemented by x20 hand lens for pieces made in the finer fabrics.

Some discard of material took place during recording: the general policy was to retain all complete or near complete tiles, all complete lengths and all complete widths, though the last was not adhered to in the case of the *tegulae mammatae* as the large number made retention of all impractical. Preference was given to well-preserved examples and those with imprints. In the case of the bricks and *tegulae mammatae* from lime kiln 1188, all items with animal imprints have been retained. A representative sample of material was retained from all large contexts or structural groups with the best preserved or most informative examples of each tile type retained with corner or edge fragments preferred over body sherds, except where markings were present. Poorly preserved, fragmentary signature marks of uncertain type were not usually retained. The quantity of tile retained is still large, consisting just under 1300 fragments weighing *c* 700kg.

Fabrics

The fabrics can be generally regarded as a single locally produced group comprising coarser and finer varieties, depending on the tile type produced. Bricks and *tegulae mammatae* were made in coarse fabrics where preparation was more cursory with larger inclusions, argillaceous lumps and laminations remaining in the fabric (fabrics A, E and G). In general, other thinner tiles were made in fabrics with finer sandy inclusions (fabrics B, C, D and F), where the clay had been worked to a greater degree to remove coarse grits and reduce the argillaceous inclusions to a much smaller size.

Coarse fabrics: groups E, A and G

The basis of this group was a fine-medium sandy clay, generally fired red/orange and containing some form of ferruginous inclusions in the form of iron-oxide grits, haematite, ironstone or clay pellets and a scatter of angular flint grit and rounded pebbles generally less than 25mm, but occasionally up to 40mm in size. The flint had generally been heat-shattered during the firing process. Variations, exceptions or additions to this are noted individually in the fabric descriptions below. Fabrics E2 and E3 commonly included pinkish-brown examples, which from the softness of the fabric appeared to be underfired, while heavily or overfired examples varied through shades of cerise, purplish-red, maroon, purple, and grey-black often with a greenish, vitrified surface.

Fabric E1: characterised by strongly laminated clay matrix with distinct cream laminations or marl clay running through the red/orange clay matrix, often expanding into large rounded pellets up to 10mm, and containing small red haematite or ironstone in 1–6mm grits. In heavily or overfired examples the laminations could be grey/black in colour. This was used for mainly for brick, flue, imbrex and a tessera (246 fragments, 75kg) ranging in date through phases 2–4. It was most commonly found in corndryer 1071, corndryer 1327, and corndryer 1635 and its associated ring ditches (1080 and 1704).

Fabric A: This is a variant on fabric E1 and is similarly characterised by a strongly laminated fabric but is distinguished by its pale pink colour, cream laminations, and occasional white chalky inclusions. Often small bright red haematite grits were scattered through the fabric. This may reflect variations in the local clay, possibly chalky marls at the interface between the chalk and clay-with-flint deposits. Fabric A was used mainly for brick and a few flue tiles (71 fragments, 21kg), during phases 2, 3 and 4 with the emphasis more on the later phases, suggesting that it was mainly produced during the middle–late Roman period. It was found in largest quantity in corndryer 1071, with smaller amounts in corndryer 1078, ditch 1137, pit 1180, corndryer 1327 and corndryer 1635 with its associated ring ditch 1080.

Fabric E2: This fabric was characterised by the large number of cream or buff silty-clay pellets mostly less than 10mm in size, but occasionally up to 15mm, that gave the tile a distinct ‘oatmeal’ texture and often resulting in a lumpy surface. In addition, diffuse orange or red ferruginous clay pellets or small red iron-oxide inclusions *c* 1–5mm in size were present in smaller quantities. This included lighter shades of red, pinkish-red and light orange.

Fabric E3: This fabric was characterised by a high density of red ferruginous inclusions in the form of red haematite, iron-oxide inclusions, ironstone grits or coarse orange-red argillaceous pellets; cream marl clay pellets were sometimes present and fine diffuse cream laminations might also be present.

Fabric G: This was used for a small number of bricks (14 fragments, 17kg) from phase 2–3 deposits associated with corndryer 1635. It was distinguished from fabric E3 by the exceptionally high density of coarse flint inclusions up to 40mm in size and in one case sandstone grit (or compressed lump of moulding sand).

The fabric E group was used most commonly for bricks and *tegulae mammatae* (2072 fragments, 1240kg), but was also found in a significant quantity of tegula, imbrex and flue tile (1083 fragments, 587kg). Moulding sand was not visible on many pieces suggesting it fell off or was fine and not easily differentiated from the sand clay matrix. Where it was visible it

ranged from fine to coarse grades of sand and included a few gritty examples incorporating burnt flint grit. It occurred throughout all phases and was also represented amongst the fired clay suggesting this derived from the local clay deposits.

Fine fabrics: groups B, C, D and F

Fabric B: includes pinkish- and purplish-red, pinkish-brown and light orange colours. This was in effect a fine version of fabric E3 containing frequent fine red iron-oxide inclusions 1–3mm in a fine-medium sandy clay matrix. It was used for tegulae, imbrex, flue tile and brick and was mainly found in phase 2–3 features, and some in phase 4. Tegulae in this fabric cover the date range AD 100–380.

Fabric C: characterised by moderate or high density of medium and coarse white and clear quartz sand, clay matrix rarely faintly laminated with cream streaks, occasional red ferruginous inclusions/haematite and flint grits usually <6mm, but occasionally up to 14mm, rarely contained clay pellets and clay matrix rarely noted as micaceous. Moulding sand was consistently a mix of coarse quartz and burnt flint grits 1–5mm. Most commonly used for tegula, plus rare examples of imbrex and brick. Mainly found in phases 2–3, and some in phase 4. Tegulae in this fabric cover date range AD100–380.

Fabric D: hard fine smooth, sometimes silty, clay, inclusions usually absent or very sparse medium quartz sand, colours other than red and orange very rare, but a grey core occurs more commonly in this fabric than any others. Moulding sand generally medium–coarse quartz, commonly combined with burnt flint grit. Most frequently used for tegulae and to a lesser extent imbrex and flue tile; very rarely found as brick. This was found mostly commonly in phases 2–3, with reduced quantities in phase 4.

Fabric F: high density of fine sand within clay matrix; other inclusions rare but if present are usually sparse flint grit. Moulding sand more commonly coarse and gritty, but also includes fine and medium moulding sand. Mainly used for tegula and imbrex, occasionally flue tile and brick. This was found mostly commonly in phases 2–3, with small amounts in phase 4.

Discussion of the fabrics

The fabrics have sufficient characteristics in common to suggest that they were all produced relatively locally, utilising clays from the same basic geological deposits. The variations observed suggest the differences were in part due to the quality and effort put into preparing the clay and that the coarser, more-poorly mixed fabrics were adequate for brick, while the thinner roofing and flue tile were often made with finer, better-prepared fabrics. The differences seen between the coarser and finer groups may indicate that there were several producers in the area, but it could also reflect variations in the clay source exploited or different periods of production. Taking the lime kiln group subtypes E2 and E3, both have animal hoof and paw prints, and both probably represent a concentrated production batch, suggesting that this subdivision is not significant and represents variations in the local clay source or preparation. Fabrics occurring in early Roman phase 1, almost all from ditch 1032, were predominantly fabric E2 and E3, with just an example each of B and D and a tiny scrap identified as E1. Neither fabric A nor E1 were associated with the lime kiln but have a similar distribution in relation to other features. It seems that these laminated clay fabrics were a product of later activity and that the difference in colour between A and E1 may not be overly

significant. It is possible that they were produced by a different tilery to other fabrics in group E. In phase 2, the full range of fabrics were found.

There is no reason to suppose that the fabrics were anything but local products. The range of fabrics is directly comparable with those identified from the M1 widening scheme (Poole 2012, 136–7), except that Fabric F was there assigned to a shelly fabric that is not present at Maylands and Fabric A was equated with Eccles ware. However, a re-examination of the fabric sample suggests the M1 fabric A is broadly similar to that identified at Maylands. The same coarse gritty moulding sand with burnt flint grit and the coarse white quartz moulding sand also occurred in the M1 assemblage. It was suggested that the local fabrics in the M1 assemblage were most likely to have been produced by the Radlett-Brockley Hill pottery and tile industry to the south of St Albans. Similar fabrics have also been identified at Bricket Wood, South Mimms (Poole forthcoming), where Fabric E was the least common type suggesting that it may have come from further field, and it is possible the group E fabrics were produced more locally.

Forms

The tile forms include all the standard types of Roman tile, comprising tegula and imbrex roofing tiles, flue tiles for cavity walling, tesserae and a variety of bricks including a large quantity of *tegulae mammatae* from lime kiln 1188.

Brick and *tegula mammata*

Large quantities of brick were used in the construction of the ovens and kilns on site and 3288 fragments (2965kg) have been recorded. From the lime kiln a total *c* 960kg of brick was discarded on site which almost certainly included a proportion of *tegula mammata*, that were not readily identifiable as such. The brick was made in the Group E fabrics, predominantly E3 and E2 with smaller quantities in A, E1 and G. Where finer fabrics (B, D, F) were assigned, these were all small fragments, and the coarser elements may not have been represented.

Brick types present in the assemblage included *bessalis*, *pedalis*, and lydion. There was no evidence to suggest that any of the larger brick sizes, such as *sequipedalis* or *bipedalis*, are represented in the assemblage. Sizes of the more complete bricks are shown in Tables 14–17. Much of the brick cannot be identified to individual forms, but the majority is probably of lydion-type based on thickness, fragment size and general finish in comparison to the better-preserved examples.

Overall, brick finish could be quite variable, ranging from smooth, even upper surfaces, sometimes with fine striations from wiping, to more roughly finished, uneven or irregular. Base surfaces and edges were generally rough and irregular to varying degrees, but flat even bases formed a regular if less frequent component and was more common amongst the brick from the western area than the lime kiln. Knife/wire trimming of either bases or edges of the bricks was a rare occurrence. For most of the brick, the only complete dimension was thickness, ranging between 30–59mm and (mostly) 37–47mm. The identification of significant quantities under 40mm thick was based on numerous corner fragments of this thickness, and though not all pieces in the thinner size range were corner fragments, general characteristics allowed these to be identified as brick with some confidence.

The plain form of the bricks inevitably meant that there were few features that could be used to characterise an assemblage and differentiate producers. A distinctive feature common on much of the brick from the larger excavation area were indented borders (Fig. 22, No. 5): these are shallow, recessed margins alongside one or more of the edges on the upper surface. They ranged between 8–30mm wide and some had two extending along either side from one corner. A more unusual example had one on the top surface 30mm wide and a second on base along the edge at right angles. These were most common on bricks from corndryer 1071 and corndryer 1635, and a small number of examples came from ditches and corndryer 1327, but only a couple of examples were noted from lime kiln 1188. On post-Roman brick, indented borders are thought to be an effect from the type of mould used. In this case, however, they were interpreted as the result of stacking the brick probably while drying, though it might possibly be from firing in the kiln. These borders are often discontinuous, especially when two are present when one might be quite short. These are, in effect, pressure or hack marks and a small number of other similar impressions were noted, including one diagonal across the end of a corner, in the corner of another brick, and some in the tile edge, indicating that in some circumstances the bricks were stacked on edge on top of each other at right angles. Some of the very even, flat bases may also have resulted from resting on a flat smooth surface, such as the top of another tile.

Handling marks were also a common feature on much of the brick, with fingertip depressions on the surfaces or finger grooves across edges and arises. Sometimes the marks were sandy or smeared, with some longer grooves on base or top surfaces seemingly the result of the tile starting to slide out of the tiler's grasp. No handling marks occurred on bricks from the lime kiln, being only present on those from the larger excavation area. Other deliberate marks on bricks were fairly common and included signature marks and imprints, which are described and discussed below in relation to the whole assemblage.

Segmental brick

A semi-circular segmental brick (Fig. 22, No. 6) was recovered from corndryer 1071: it was made in fabric E3 and measured 47–54mm thick and over 220mm long by over 190mm wide. Its full diameter or length was estimated to be *c* 500–550mm. This is very close to the size of one found on the M1 J8N site (Poole 2012, 139). A second possible example came from layer 1190 overlying the lime kiln and another brick from layer 1436 in the lime kiln had been chipped post-firing to form a semi-circular shape with the curved edge retaining a skim of mortar over the surface.

Brodribb (1987, 55) notes that semi-circular bricks were used as pillars or pilasters with a plaster render. Semi-circular bricks of similar and smaller sizes have also been found close to Maylands at sites J8N and J9 on the M1 Widening Scheme (Poole 2012, 139) in early and middle Roman contexts. At Fishbourne, it was postulated that the semi-circular bricks were used as columns or pilasters in the early phase palace, though they were only found *in situ* where used for seating in the third-period plunge bath within the East Wing (Cunliffe 1971, 44). Circular bricks have been found used as paving for the threshold of a door in Room 1 of the villa at Northchurch (Neal 1977, plate 3) and as hypocaust *pilae* at Gadebridge villa in Room 9 (Neal 1974, 15), but no semi-circular tiles were recorded.

Tegula mammata

Tegulae mammatae are a sub-category of brick, distinguished from standard brick by one of more bosses of clay attached to the upper surface during manufacture. A total of 382 fragments (806kg) have been recorded, recovered exclusively from lime kiln 1188, except for a single fragment from ditch 1069. A further *c* 240kg of *tegulae mammata* fragments from layers within the lime kiln were discarded during excavation. It is probable that many of the plain brick fragments in the lime kiln had in fact originated from *tegulae mammatae,* but fragments with no evidence of a *mamma* cannot be differentiated from standard brick.

All the examples found were of Brodribb's (1987, 60–2) type A, which have one or more rough hemispherical clay bosses (*mammae*) attached to the surface of the brick. *Tegula mammata* come in the standard range of brick sizes and with a variety of patterns of the *mammae* (ibid, fig. 25). The most common variety at Maylands was of lydion size with two *mammae* placed diagonally in opposite corners top right and bottom left (Fig. 22, No. 1) or in a very small number of cases top left and bottom right. Although the many fragmentary pieces with just one *mamma* in a corner could be one of the other possible types, there is no evidence from the more complete pieces that any of these were present. Other varieties noted was a lydion of type 1 with a single *mamma* in one corner (Fig. 22, No. 2), and a small number of type 7 with a single central *mamma* (Brodribb 1987, fig. 25a) in the smaller brick sizes of *pedalis* (Fig. 22, No. 3) *and bessalis* (Fig. 23, No. 4). On one of these the position of the *mamma* could indicate the fragment was type 9 lydion (Brodribb 1987, fig. 25h), but it is more likely to be a pedalis with the *mamma* very off-centre on one axis.

The lydions are technically 1 by 1½ Roman feet (*pes*), but the surviving complete dimensions show much variation with a range of 390–425mm long, 266–305mm wide and 35–65mm thick. Thickness varied considerably within a single brick and was often at its greatest at the edge or corners. The *pedals*, though few in number, fall into two size categories, one 280–285mm wide and another 295–296mm square. The *bessales* were all very uniform measuring 190–195mm square and 53–56mm thick. Sizes of the more complete examples are listed in Tables 14–16 with the brick. All the *mammae* were of a similar type forming a hemispherical boss, generally very crudely and roughly finished, often with finger marks from pressing them into the brick surface or wiping across the edges. There were some that were neatly finished with a regular convex surface and some workers clearly took more care than others. On many broken examples, a scoop 5–19mm deep was made in the tile surface and the lump of clay was pressed into this. The *mammae* were often 40–70mm across (Fig. 26), apart from a few outliers, and measured 6–25mm high, though commonly around 15mm. They were placed roughly centrally in the square *bessalis* and pedalis tiles, though slightly off-centre along at least one axis and often both. In the type-2 lydions, the *mammae* were centred between 15–125mm from the end edge and 20–95mm from the long edge.

Mammae are thought to aid bonding when the brick was used in flooring or as courses in walling. If used as flooring this would mean the rougher underside from manufacture would be uppermost during use. *Tegulae mammatae* are largely confined in their distribution to the south-east of England and appear to be an early form of 1st or 2nd century date. Fragments in the same fabrics, and probably of the same type, were found at the M1 junction 8 excavations in middle Roman contexts (Poole 2012, 139, fig. 7.18 no. 11), and at Gorhambury villa in Flavian and late 1st-century contexts (Neal *et al*. 1990, 169, fig. 147.1068). At Beauport

Park, East Sussex, they were used as flooring in the early 2nd-century bathhouse (Brodribb 1979, 146). They were also found in 1st-century deposits of the proto-palace and Flavian palace at Fishbourne (Cunliffe 1971, 43–4), where they were found with scored and roller-stamped keying, suggesting their use as wall tiles.

Tegulae

Tegulae formed one of the larger components of the CBM assemblage (Fig. 23, Nos 7–10). In all, 706 fragments weighing 247kg were recovered, plus an estimated 42kg currently unrecorded. These were all found in the western area of the site, except for a small quantity recovered from the north-eastern excavation area. The largest group was found in corndryer 1071 with several complete or near-complete tegulae from layers 1102 and 1164 accounting for 55% by weight of the tegulae. Corndryer 1635, its associated ring ditches (1080 and 1704), and overlying layers produced a third of the total tegulae form the site, but the material from this group was much more fragmented in general. Three half tiles with complete lengths were recovered from the layers infilling corndryer 1635. Several structural elements of the walls were not sampled, though a number of tegula halves with complete lengths were visible in the north-west and north-east chambers. Corndryer 1906, exposed in the evaluation by Albion Archaeology (AA 2017), had walls completely constructed of tegulae split in half with the flanges set in the wall face in the same manner as used in 1635.

Finishing was generally neat with a smooth upper surface, including examples with a finely striated upper surface from smoothing, especially in fabric C. Bases were invariably rough with varying degrees of irregularity and wire/knife trimming of the base a common feature. Knife trimming of the edges occurred frequently to remove projecting lips of clay that had squeezed under the tile mould.

For much of the tegulae, the only complete dimension was the thickness which exhibited a wide range from 12–36mm to 32–41mm. Dimensions for the complete/near complete examples are given in Table 18. Both curving (A4, D, D2, E, F) and rectangular flanges (A, A2, A3, B) are present and the types and dimensions are summarised in Table 19. The typology for flange profiles follows that used for the M1 assemblage (Poole 2012, tables 7.28). Types A4 and D were the most common varieties. Some were intermediate between these two types, and several examples occurred where A4 merged to D or E along the length of the flange. This indicates that flange shape was not considered to be a crucial feature and differences may reflect the preference of individual tilers, or rather perhaps the standard practice at different tileries rather than personal preference.

Lower and upper cutaways at the corners of tegulae allowed the tiles to interlock on the roof in a waterproof manner. The development of lower cutaways has been analysed by Warry (2006, ch. 4) and he has proposed a broad dating of tegulae based on this, which has been used in the spot-dating of this assemblage. Only one example of the earliest group A dated to AD 43–120 and was found built into the wall structure (1485) of lime kiln 1188 (Fig. 23, No. 7). None could be assigned to Group B (AD 100–180) as the only examples of type B6 where a triangular wedge was cut from the base angle were damaged and incomplete. It was thus impossible to ascertain whether the cut wedge occurred alone or in conjunction with a rectangular moulded recess as in the later type C5. Group C (types C4 and C5) dating to AD 160–260 and group D (types D15, D16 and D1) dating to AD 240–380 were found extensively across the western area of the site, especially in relation to the corndryers. Differentiating

between Warry's type C5 and D15 is dependent on obtaining accurate measurements of the moulded and cut sections, which in the later type are respectively wider and smaller in the later type D15. Where there has been any doubt or borderline in terms of size, they have been designated as the earlier C5. Details of the cutaways are summarised in Table 20.

The upper cutaway (OA type A2) exhibited little change over time, remaining as a rectangular recess formed by the removal of the flange at the top corners to the level of the central body of the tile. The surfaces were sometimes cut at an angle so the base sloped either to the end (A2b), to the edge of the tile (A2a) or inside (A2c), and the flange end might also be cut at an angle or bevel.

Imbrex

The quantity of imbrex (158 fragments, 32kg) recovered is relatively small in proportion to the overall tile assemblage (Fig. 24, No. 13). The largest groups came from corndryers 1071 and 1635, and the overlying layers and ring ditches (1080 and 1704) of the latter. The imbrex generally had a smooth surface but was sometimes corrugated longitudinally from smoothing along its length and the underside was rough and irregular. Edges were often concave, often smoothed around the end edge, though the side edges were more often rough sometimes with untrimmed lips of clay projecting from the arris. Thickness ranged from 12–24mm and widths and heights could be measured or estimated where the profile survived from one edge to the apex, though very few complete profiles survived and there were no complete widths (Table 21). Profiles were both angular with a curved apex and rounded. Roughly half were made in fabric group E, predominantly E3 and of the remainder fabric C accounted for a little over a quarter, D a fifth and B and F the remainder.

Flue tile

A small but significant quantity of flue tile (225 fragments, 25kg) was found concentrated in a small number of features including corndryer 1635 and its enclosing ring ditches, the corndryers and ditches 1077 and 1137 (Fig. 25, Nos 14–18). Only one very abraded fragment was recovered from the area of lime kiln 1188, found in the uppermost post-Roman layer (1189) sealing the kiln. All the flue tile appears to derive from box flue (*tubulus*) except for part of a voussoir (*tubulus cuneatus*) (Fig. 25, No. 18) from corndryer 1635 (context 1640). There were also a few small corner fragments from 1102 and 1650 that may also be voussoirs as they appeared to have keying on adjacent surfaces (usually an indicator of voussoir).

A single fragment from the corner of a *tubulus* (corndryer 1734) measuring 22mm thick and made in fabric E2, had diagonal scored keying in a diamond lattice pattern with lines set 38mm apart. This type of keying dates to the 1st–early 2nd century AD. The southern ring ditch 1080 produced all four examples of roller-stamped flue tile, all with a uniform thickness 14–16mm and made in fabric D with one in B. They were moderately or heavily abraded and the patterns of the dies used were difficult to distinguish from the small fragments. Three appeared to be some form of chevron or diamond and lattice pattern and one was initially identified as Lowther's 'billet' group (die 104 or 105), but following examination of the Wood Lane End tile assemblage these were identified as die 5 (Fig. 25, No. 14) (Betts *et al*. 1994, 70–2), and it seems likely that the other two without precise identifications are likely to belong to the die 5 or 5A groups. Die 5 is relatively common, having been found at sites in London and the south-east, including examples from St Albans and Colney Street, Hertfordshire, and is broadly dated to the later 2nd century (ibid.). Roller-stamped tile was recovered from the

Wood Lane End complex which included not only the published, very-decorative Die 9 pattern (Neal 1984, 210, fig. 11.9), but also several examples of dies 5 and 5a amongst the unpublished archived material. Examples found reused in the villa at Gadebridge Park had diamond and chevron designs (dies 35 and 49) (Neal 1974, fig. 86; Betts *et al*. 1994, 104–6). In general, roller-stamped flue tile was in use between the later 1st century and late 2nd century, but is frequently found residually or reused in later contexts.

Much of the flue tile was combed. Half was made in fabric E1, a third in fabrics E3 and E2 and the remainder in fabrics A, B, D and F. Thinner tiles ranging from 10–20m thick were made in the finer fabrics B, D and F, while those in Fabric E group tended to be thicker, mainly 18–29mm, though a small number measured between 14mm and 18mm thick. No complete *tubuli* were found, though substantial parts of single faces were reconstructed mainly from corndryer 1071 (1102) (Fig. 25, No. 15). One measured 388mm high by *c* 160–70mm wide, which is equivalent in size to the Type A at Gadebridge Park (Neal 1974, 195, fig. 86). Another had a height of 320mm and a depth more than 130mm, and a third was over 350mm high with a depth of 140mm. The voussoir tile measured 200mm wide at the top decreasing to 182mm but its minimum base width did not survive (Fig. 25, No. 18). It is estimated to have had a height of *c* 300mm. Other complete widths measured 150 and 159mm and two were estimated to be *c* 160–70 and 175mm. Further complete depths included one of 145mm and two estimated at 145mm and 160mm. The flue tile was neatly finished with smooth surfaces were not combed. On several plain faces of the thicker tiles, the surface had been knife-trimmed creating a convex surface. Only three had evidence of vents cut into the plain faces, all from the southern ring ditch 1080. They were rectangular, measuring over 35mm, 40mm and 62mm long and set 30mm, 38mm and 31mm from the corner angle.

Keying occurred in a variety of combing patterns. The most common comprised straight vertical bands (type 1) or vertical wavy bands (type 3) often in combination (types 3a and c) (Fig. 25, No. 15). This is similar to one of the patterns on the type-A flue tiles at Gadebridge Park (ibid.). Two examples of a more-angular zigzag pattern (type 7) came from the area of corndryer 1635. Fairly common were straight, diagonal bands sometimes in combination with perpendicular or horizontal bands and sometimes curving, which probably derive from a variety of designs including crosses (types 2 and 4), saltires (type 5) and other patterns. Similar fragmentary designs have been found at Northchurch (Neal 1977, fig. XV) and the type-4 design has been found at Gadebridge Park, where it occurred *in situ* in an early 4th-century context (Neal 1974, 196–7). One design (type 22) comprised a large semicircle combined with a straight vertical band to create within the surviving fragment a D-shape within which a small D had been inscribed. Another distinctive pattern was a large S-shape with the gaps within the S infilled with short straight bands (type 23) (Fig. 25, No. 17), which was found at Gadebridge Park on the same tile as the type-4 design. It is possible types 22 and 23 are the same design executed in a slightly different manner. The voussoir was keyed with a saltire and a straight band forming a margin alongside the top edge and part of a straight band also occurred on the top surface alongside the edge (Fig. 25, No. 18). Voussoirs were also found at Northchurch villa with saltire and cross patterns (Neal 1977, 26–7, fig. XV), but fabrics and comb sizes are different to the Maylands example.

Comb widths ranged from 15mm wide with three or four teeth, up to 60–62mm wide with 8 or 10 teeth. The distribution pattern is shown in Fig. 27, which includes both complete widths and incomplete. The tooth size ranged from 1–6mm wide and distance apart varied from

adjacent up to 9mm. Variations in tooth size and spacing within individual combs sometimes appeared to be the result of wear or damage, but mostly reflected the vagaries of manufacture of the comb. Teeth profiles were variously rounded, flat-ended or V-shaped. The wide teeth and spacing on many of the combs gave a very coarse appearance.

Flat tile

A quantity of plain flat tile was recovered, which could not be assigned a specific form. Much of this is likely to derive from the central body of tegulae, though other forms such as the plain faces of flue tile, thin bricks and the flatter sections of imbrex cannot be ruled out. These forms could not be separated on thickness alone owing to considerable overlap; other diagnostic features are necessary to distinguish them. Two pieces from corndryer 1635 (context 1629) had been chipped to form circular discs. One fragment had been very neatly chipped to form a regular curved edge and measured *c* 80mm in diameter. The other complete disc was more roughly chipped and around one half was rather irregular resulting in a sub-circular shape measuring 68mm x 74mm. A third fragmentary edge from gully 1611 (which relates to an earlier-stage corndryer in 1635) measured 97mm in diameter. A fragment of flue tile also had part of a chipped curving edge surviving, suggesting that it too had been made into a disc 82mm in diameter. They were probably chipped to serve as lids for storage vessels or amphorae.

Tessera

Found exclusively in the southern curvilinear ditch (1080) surrounding corndryer 1635 were 14 tesserae (213g) all of medium size. They were red or orange in colour, made in fabrics B, C, D, E1 and F, square or rectangular and measured 16–26mm by 22–30mm. None had mortar attached and no evidence of use was found. The presence of tesserae was unexpected. It is possible that there was a brief period when tesserae were made from waste tile, and these were unused examples of the activity.

Markings

A range of marks have been recorded on the tile, both incidental and deliberate. Nearly all the marks were made pre-firing and relate to the manufacturing process. The indented borders and pressure marks have already been described above in relation to the brick on which most occur and the keying on flue tiles.

Handling marks

Handling marks in the form of fingertip depressions or accidental grooves were seen almost exclusively on brick, the majority from lime kiln 1188, corndryer 1071 and corndryer 1635. Only two examples occurred on other forms—a flat tile and a tegulae—where they occurred on the flange edge. Finger- and thumb-tip depressions were observed on both upper and lower surfaces, and edges were more often deformed by the finger or hand pressing into it. Occasionally both a thumb print on one side and fingertips on the other fossilised the act of the tiler when grasping the brick at the edge. Clear fingerprints were rare, found on only one specimen. Finger grooves in both upper and lower surfaces from handling were distinguished from signature marks and usually seemed to result from the tile starting to slip from the tiler's grasp, including one found on a base surface that extended over 165mm.

Signature marks

Signature marks occurred on brick, *tegula mammata*, tegula and flat tiles (probably tegula body sherds) predominantly from lime kiln 1188, corndryer 1635, ring ditches 1080 and 1704, and corndryer 1071, together with a small number from other features in the western area (Figs 22–24, Nos 1, 6, 8–12). In total, 88 were recorded of nine different designs made with one, two or three finger grooves (indicated as eg type 1.3) and details are summarised in Table 22. Where dimensions could be measured, or estimated, these are given in the table.

The most common types were the semi-circle or hoop inscribed with one or two fingers (type 1.1 and 1.2), which occurred on all forms. A single example with three finger grooves (type 1.3) was found on a tegula from corndryer 1071. These were normally placed centrally on the lower edge of the tile, but in *tegula mammata* they were placed off-centre, usually towards the lower right-hand corner to avoid the *mamma* in the lower left-hand corner. Type 1.2 were the most common variety on the *tegula mammata* (Fig. 22, No. 1). A small number of horseshoe-shaped examples of type 2 were differentiated from type 1 by the in-turning ends of the grooves. Type 21 was not common and found only on tegulae. This is probably a variant of the type-1 signature, essentially a much taller version resulting in an inverted U-shape often across the full width of the tegulae; where two finger grooves were present, the second usually only occurred across the apex and not down the sides.

Types 16 and 22 are also variants on the simple hoop. Type 16 is a quarter circle in the present assemblage made from the right and fading to the left, so in effect it is a half of type 1 (Fig. 25, No. 15). Type 22 consists of a single hoop, sometimes fading slightly to the left, and not quite reaching the tile edge at the left-hand end and within this in the centre was a slightly angled vertical finger groove (Figs 23–24, Nos 9 and 11). These were only found on tegulae from corndryer 1071, as was type 23 which occurred on a brick and tegula (Fig. 22, No. 10) from this structure. This uncommon signature formed a small C, possibly intended to be a small circle. Type 4 (or 5) takes the form of a circle or a closed loop sometimes coming to a point, sometimes with crossing tails. One occurred on a brick from the lime kiln, a triple example on a tegula from corndryer 1071 (Fig. 23, No. 8) and a possible example on a flat tile from ring ditch 1080.

Types 1, 2 and 4 are generally common types in most tile assemblages and a similar range of these marks was found on tile from M1 J8N and J9 excavations (Poole 2012, 142) and at the other villa sites in the area. Types 16, 21, 22 and 23 are uncommon and have not been noted at any neighbouring sites.

Imprints

Imprints and impressions were found on tile from lime kiln 1188 and, in the western area, corndryers 1635, 1071 and 1327 (Table 23). The prints all occurred on brick or tegulae. Incidental plant impressions were rare, and all examples comprised scattered impressions of cereal straw or grass on either upper or lower surfaces, all confined to brick and flat tile from corndryer 1071 and corndryer 1635. Most of the imprints were of animal footprints (eg Figs 22–25, Nos 2, 3, 8, 10 and 19). From the western area, these were typically infrequent with a total of 21 prints recorded, comprising mainly cat (Fig. 23, Nos 8 and 10) and dog paws, some partial hoof prints, possible human footprints and a hobnail boot. Several were partial and uncertainly identified, including the human prints. More unusual were two bricks which had

numerous score lines, which have been interpreted as a dog scratching the tile. One of the bricks came from the wall of corndryer 1071 and one from its fill (1102). Dog claw marks have also been noted on two imbrices from Beauport Park (Brodribb 1979, 156).

Most striking of these imprints were the examples on the brick and *tegulae mammatae* from the lime kiln (Fig. 22, Nos 2–3; Fig. 25, No. 19), which consisted of large numbers of hoof impressions together with dog, cat and possibly human. No detailed analysis has been made of the hoof prints, which could be sheep, goat, deer or perhaps pig, though sheep are the most likely culprits. Numerous animals had access to the drying area throughout the drying period, given the number of specimens with multiple examples of imprints. Although large numbers of animal imprints are not uncommon on larger tile assemblages (eg Brodribb ibid.), those from the lime kiln may represent a contemporaneous group. A possible interpretation is that the imprints represent a flock of sheep and perhaps goats, possibly of adults and young in view of the different sizes noted, together with one of more sheep-dogs. It is considered that the assemblage may be significant in the study of tile production on rural farming settlements and all bricks with imprints have been retained with the intention that they should be archived and available for research.

Miscellaneous marks

On the sides of some of the *tegulae mammatae* or bricks from the lime kiln, two or three shallow vertical rounded grooves were sometimes observed. The best preserved of these consisted of three evenly spaced vertical grooves on the long edge of the *tegula mammata* set 18mm apart and each groove measuring 4–5mm wide. Similar marks were noted in passing on other examples but were not systematically recorded as they were less clear. It is most likely that these relate in some way to the brick mould rather than having any other significance.

An unusual feature of some of the *tegulae mammatae* noted on a significant proportion of the *tegulae mammatae* were faint shallow lines, in a seemingly random pattern of criss-crossing lines. The clearest example was in the form of long zigzags, but on others the patterns are more like random scribbling and faintly inscribed (Fig. 22, No. 1). The lines making these marks were all faint and rough, and the tile surface rough, possibly eroded or weathered. The zigzag mark was designated as a signature during recording, as it survived complete and it seemed very unlikely to be accidental from its regularity. Zigzags or meanders signature marks are rare, but an example occurred on tile from the M1 excavations (ibid.) and have also been found at Winchester (Poole 2010, 335, fig 4.25) and on the Isle of Wight at Combley and Newport villas (Tomlin 1987, 112). However, those are clearly signatures and more like an ‘S’ in form and have little similarity to the wide angular Maylands zigzag. It is uncertain how the lines formed on the Maylands’ tiles, but they only seemed to occur on pieces with a rough weathered or eroded surface and as far as could be judged were made post-firing. It seems unlikely that they were a form of signature but may have been scratched post-firing to create a key or represent damage during removal from another structure in which case at least some of the tiles used for lime kiln 1188 may have been recycled.

On another brick from the lime kiln (context 1190) a series of smaller overlapping scored zigzags made with a thin implement may be graffiti though no letters were obvious. They are different in character to those described above and appear to have been made pre-firing. This may be another form of keying scored on the brick surface. Scored keying would be consistent

with the 1st–early 2nd-century date of the tiles used in the kiln, though the character of the scoring is atypical.

Fired clay

Fired clay was recovered from all the corndryers and lime kiln 1188, as well as a proportion disposed of in the ditches. The fabrics were composed of fine sandy or silty clay, sometimes micaceous, fired to a wide variety of shades of red, orange, pink, brown and grey-black and often containing flint grits up to 18mm. Some examples were similar to the CBM fabric E and cereal chaff or fine organic inclusions formed a component in a significant proportion based on impressions and voids present in the fabrics.

A small quantity of material related to the late Iron Age–early Roman phase of activity. This comprised mainly oven or hearth structure represented by fragments with a flat moulded surface. A small number of pieces were observed to have wattle impressions measuring mostly 9–13mm with a couple of 20mm. These were all recovered from ditch fills of varying date but are more likely to originate from small ovens rather than the later corndryers.

Some fragments found in pit 1047 are indicative of industrial activity. All fragments had a vitrified or cindered surface, fired black or grey with the surface ranging from fairly flat and gently undulating to very irregular and lumpy. On the largest piece the black vesicular cindered surface layer is 3–4mm thick, grading through grey then maroon layers that measured 3mm and 9mm thick respectively to the orange oxidised exterior 16mm thick, which will have lost the outermost unfired clay exterior. This material was found within a tip of charcoal and iron-working slag and the fired clay represents the internal wall lining of a smithing hearth or smelting furnace. The deposit is dated to the late Iron Age–early Roman period and represents the earliest industrial activity on the site.

A fragment of triangular perforated brick, probably used as oven furniture, also dated to this early phase. Perforated bricks are typically an Iron Age artefact, though they continued in use into the early Roman period. It was found in the basal fill (1418) of ditch 1077. It had a rough flat moulded surface with occasional chaff impressions and a smooth flat side surface pierced by a perforation 10mm in diameter. Its total thickness is estimated at 70mm, which suggests it was of typical standard size. Belonging to this early phase was a fragment of oven plate measuring 38mm thick and over 110mm long. It had smooth flat moulded surfaces on both top, base and edge, which is very slightly bevelled with abrupt but slightly rounded arrises. This piece is typical of rectangular oven plates found in the late Iron Age/early Roman period. It was found in oven base 1367 and was associated with pieces of oven wall 16–34mm thick with flat, convex or concave moulded surfaces sometimes with finger grooves and rough irregular finish, typical of oven wall. Some pieces have smooth impressed surfaces from knapped or broken flint nodules rather than from tiles, suggesting the oven walls were reinforced with flints and foreshadowing the use of flints in the corndryers.

Clay lining from lime kiln 1188

A sample of fired clay (*c* 10 litres) was retained from the lining (1484) of lime kiln 1188. From this, 62 fragments (1350g) were extracted for detailed examination and the remainder (5150g) discarded. Cursory examination of the discarded material showed this to be of the same character as the retained sample or broken amorphous scraps. The clay was all fired to

a uniform orange colour and consisted of a fine sandy clay with occasional paler-cream streaks. Coarse inclusions were very rare, though the occasional pebble up to 18mm was observed.

Most pieces took the form of flat tabular slabs with flat even surfaces on both sides. These measured 11–17mm thick and appear to have formed the bedding layer between the tiles forming the kiln walls. Some thicker pieces 24–32mm were also present, though these usually only had a single surface and may represent the internal wall face of the kiln. Some pieces have the impression of the tile corner or the ridge formed between adjacent tiles. The material forms a typical example of clay bedding and wall lining for a tile-built structure.

Clay lining from the corndryers

All the fired clay from the later phases represents structural material in the form of wall lining and bedding in between the tile and flints used in the construction of the corndryers. Much of this material consisted of small indeterminate fragments found in samples, mostly from debris raked out of the structures when removing fuel-ash and cinders. Better-preserved material retained evidence of the smooth rendered wall face or the smooth surfaces from tiles on the bedding fragments and measured between 9mm and 34mm thick.

A fragment had evidence of roller stamping on the surface in the form of a coarse chevron (or diamond) pattern. There is no evidence for buildings on the site and it is assumed the fragment arrived at the site possibly attached to a tile brought in for reuse. However, it was found in the burnt debris on the floor of one of the flues of corndryer 1635, together with other fragments of fired-clay lining and it is possible that the roller stamping is in fact the impression from a roller-stamped tile used in the corndryer walls. No flue tile of this type was recovered from the structure itself but did occur in ditches 1080 and 1704. The design is closest to an example from St Albans (Russell 1994, 48–9). Roller-stamped or relief-patterned daub has a distribution centred on London and its hinterland, though it is not exclusive to this core area. Relief-patterned daub has been found on 1st-century buildings in London, Verulamium and Colchester destroyed in the Boudiccan rebellion, but the use of such daub continued in use during the 2nd century before falling out of use by the end of that century.

Opus signinum

Four fragments (550g) of *opus signinum* were recovered from the rubble backfill (1102) of corndryer 1071. These formed parts of a flat slab, 42mm across, with a smooth flat surface, which resulted from a tile set against it. The fragments probably originally formed a single block perhaps attached to a tile reused in the corndryer. It was composed of pale pink lime mortar containing cream chalk/lime pellets up to 18mm, occasional flint gravels up to 30mm in size and a low density of broken tile fragments 1–10mm.

Reassessment of tile samples from Wood Lane End and Gadebridge Park villa

A selection of tile retained in archive from both Wood Lane End and Gadebridge Park villa was examined to establish whether there were any links between these and material from Maylands. It was not possible to examine all the retained tile from both sites, though a sufficient quantity of both collections was reassessed to establish any broad similarities or connections between them.

Few connections can be made between lime kiln 1188 and the Wood Lane End site based on the tile. No evidence for the use of *tegula mammata* nor the coarse fabric used in their production was found in the Wood Lane End archive. This does not preclude the likelihood that lime kiln 1188 produced mortar and plaster for the construction of the Wood Lane End buildings, but it does suggest that the tile used in the walls and floors of the lime kiln was recycled from an unidentified source, probably relatively locally based on the fabrics and the 1st-century forms identified (see above). Although the uniformity of the lime kiln assemblage suggests that it could have been a purpose-made batch, there are also hints of reuse, not least in the fact that much of the *tegulae mammatae* had been broken into halves or quarters. There is also the suggestion of scratched keying post-firing.

The fabric and finish of the tiles from the Wood Lane End site is generally much closer to the later-phased tile used in the corndryers at Maylands, though there are some differences that may indicate the Maylands material came from more than one source. The most common fabrics were the finer B, D and F as well as fabric A/E1. Fabrics E2 and E3 were also present, though not in the very coarse variety found amongst the *tegulae mammatae* of lime kiln 1188. Nor were any examples of the distinctive, coarse, gritty moulding sand observed on the tile from Wood Lane End. Apart from similarities in fabric, several features that may be regarded as distinctive of the Maylands assemblage were also found on Wood Lane End tile. These included a signature mark of type 21 on a tegula (WLE ctx 26), which also had a lower cutaway of type C5 indicative of a mid-2nd- to mid-3rd-century date and a brick with an indented border (WLE ctx 30). Other notable parallels were found with the flue tiles, most of which were combed but included several roller-stamped tiles and scored examples (all three types were found at Maylands). Apart from the single, published, highly decorative example of Die 9 (Lowther's 'Florid Group'), the remaining unpublished roller-stamped flue tiles were all keyed with die 5 and 5a (Betts *et al*. 1994, 70–4) (WLE ctxs 205, 210 and 212). This is the same as two examples from Maylands (ids 104 and 232) and it is probable that the other two examples from Maylands that were too poorly preserved are probably the same die. The combed flue tile from Wood Lane End includes examples with vertical bands of straight and wavy combing equivalent to types 1 and 3 at Maylands, and intersecting straight diagonal bands equivalent to types 2, 4 and 5. The size and character of combs used, resulting in much coarse combed keying, is also a feature of both sites.

Tile from Gadebridge Park villa was only briefly examined to ascertain whether this site may have been the source for any of the material used in the Maylands corndryers. Links to Gadebridge Park are more tenuous, however. While the Gadebridge Park fabrics were similar to the finer fabrics from Maylands (fabrics D and F) they felt intangibly distinct and no evidence of the coarser fabrics E2 and E3 was present. Also, a shelly fabric formed a minor component of the Gadebridge Park collection, but none of this material was found at Maylands. Features on the tegulae, such as flange profiles and signatures, were not closely comparable to the Maylands examples. Flanges included a very distinctive, strongly undercutting profile and one signature mark of type 1.3 was seen, none of which have equivalents in the Maylands assemblage. The presence of nail holes in the tegulae, entirely absent from Maylands, also set the Gadebridge Park material apart suggesting that it comprises a distinctly later element than the Maylands assemblage. Although there are some similarities with the combed flue tile, the little evidence that could be gleaned from other forms does not support a direct connection between the sites.

Discussion

There is a distinct difference between the tile assemblages from lime kiln 1188 and those from the corndryers and other features in the western excavation area. The largest of the structures, corndryer 1635, was initially interpreted as a tile kiln that was used to produce material for lime kiln 1188 and, in conjunction, for the Wood Lane End buildings. However, analysis of the tile from this structure has provided no evidence that it ever had this function or dated to this phase: the absence of early tile forms, wasters and *tegula mammata* discounts this possibility.

Lime kiln 1188 was built almost exclusively with brick, mostly of the *tegulae-mammata* type. A distinctive feature of this group was the large number of hoof imprints, suggesting that all the tile from the lime kiln had been laid out to dry as a single batch (becoming trampled in the process). A significant proportion had been heavily overfired resulting in vitrification and some distortion, while others appeared to be quite soft, suggesting that they were underfired. The original hypothesis during the excavation and the post-excavation assessment was that the lime kiln had been constructed with a purpose-made batch of tile made exclusively for that purpose, but analysis of the CBM has indicated that this was not necessarily the case. Instead the brick used appears to consist of seconds or wasters from the production of a large consignment of *tegulae mammatae*, probably all made at the same time and possibly for a specific building (perhaps the Wood Lane End buildings—see below).

The dating of lime kiln 1188 is entirely dependent on the tile used in its construction. Both the single tegula fragment built into its wall and the *tegulae mammatae* are consistent with a later 1st–early 2nd-century date. The lime kiln could therefore be contemporary with the construction of the Wood Lane End complex, which Neal (1984, 204) suggests occurred in the Trajanic period, and perhaps produced the lime used for the construction of the buildings. The plan of Building 1 at Wood Lane End indicate that lydion-size bricks were used in the floor and wall construction (Neal 1983, 77, fig. 4; 1984, 196, fig. 2), though as noted above there were no *tegulae mammatae* in the Wood Lane End archive. This could either mean that the tile from Building 1 was not retained after excavation or that *tegula mammata* was used in another building elsewhere. It should be noted that the only *tegula mammata* found at Maylands not from lime kiln 1188 was recovered from the late Roman upper fill (1062) of ditch 1069, just to the south of the religious complex, and is thus likely to be material from local abandoned structures.

In contrast to the lime kiln, there are clear links between the CBM from Wood Lane End and the later Roman corndryers at Maylands, particularly in the scored and roller-stamped flue tiles. The parallels between the Wood Lane End and Maylands CBM, as found in the fabrics and finishes, indicate that a considerable proportion of the tile was removed from the religious complex and reused as the buildings began to fall out of use. The mixture of tile, which comprised material from roof, walls and floors, suggests demolition or major refurbishment was involved rather than more modest repairs. However, there are certain distinctive markings on the Maylands tile, such as signature types 16, 22 and 23 and combing-pattern types 22 and 23 that do not occur at Wood Lane End as well as the later forms of tegulae with type D cutaways. It is possible that Wood Lane End buildings supplied sufficient tile for the earliest corndryers, while later phase structures perhaps received tile from farther afield (possibly from as-yet unidentified buildings nearby, other villas in the area, or even

Verulamium). The date range of the tegulae indicates that the buildings had evolved sometime between the mid-2nd and 4th centuries AD. Unfortunately, it was not possible to go to the level of detail to suggest a likely chronology for the establishment and use of the different corndryers from the CBM alone.

Comparison of key tile characteristics suggests several similarities in the tile used in the corndryers, though this is limited for the heavily robbed corndryers 1078 and 1327 (Table 24). The tegulae are broadly similar across all the structures and these suggest a 3rd–4th-century date for this agricultural-processing phase. The dating is supported by the flue tiles that are later Roman in character. In the cases of corndryer 1078 and corndryer 1327, where the tile can only point to a date of 2nd century or later, the pottery provides a 3rd–4th-century date. Similarities in construction technique include the longitudinal splitting of tegulae and laying them so that the flanges formed the wall faces. This was observed in corndryer 1635 and corndryer 1906 and was also a feature of a possibly-3rd-century corndryer excavated at Gadebridge villa (Neal 1974, 40). Evidence of burning was not observed on all tile from the corndryers, even though it was clearly used in the structures. About a third of the brick from the walls of corndryer 1071 exhibited no evidence of burning, though they were built into the flue of the structure. Those with burning on the edge probably relates to their use in the flue walls, but others had burning on upper and lower surfaces, which must indicate previous use in another structure. The thorough robbing of corndryer 1078 is a further indication of the reuse of tile and it is possible much, if not all the tile used in corndryer 1071 had come from corndryer 1078.

Overall, the tile from the western excavation area suggests a consistent assemblage originating primarily from the Wood Lane End complex with the addition of material from other sites, perhaps once all the suitable CBM from the temple complex had been exhausted. Several villas occur in the area around Hemel Hempstead, including Gadebridge Park, Gorhambury, Boxmoor and Northchurch. The CBM has already been largely ruled out owing to reassessment of material from this site. Unfortunately, publication of the tile assemblages from the other villas is limited to the most significant pieces. Nonetheless, the Gorhambury tile was shown to have had a similar range of imprints and the tegulae were probably made in a similar fabric, though the combed flue tiles were all made in a shelly fabric, none of which was found at Maylands. At Northchurch, dog paw prints occurred on the tegulae, voussoirs were present, one with a saltire pattern and combing patterns on other box tiles are similar to Maylands, but the use of shell- and calcite-gritted fabrics for these, again, suggests this was not the likely source of the Maylands material.

Illustrated catalogue

1. *Tegula mammata*, lydion type 2, complete, with signature mark type 1.2, with *mammae* removed leaving circular scars. Date: C1–EC2. Phase 2 ER. Size: 280 x 400mm, 48mm th. Fabric E3. Lime kiln 1188 (1486), sf1133

2. *Tegula mammata*, lydion type 1 with single mamma in corner, near complete; dog paw prints and faint hoofprints and possible bird prints. Date: C1–EC2. Phase 2 ER. Size: 288 x 405mm, 42–45mm th. Fabric E3. Lime kiln 1188 (1487), sf1353

3. *Tegula mammata, pedalis* type 7 with central mamma, complete. Several hoof prints. Date: C1–EC2. Phase 2 ER. Size: 282 x 290mm, 54mm th. Fabric E3. Lime kiln 1188 (1431), Id.80

4. *Tegula mammata, bessalis* type 7 with central mamma, complete. Date: C1–EC2. Phase 2 ER. Size: 190 x 194mm, 55mm th. Fabric E3. Lime kiln 1188 (1192), Id.701

5. Lydion brick, complete and heavily burnt, with partial indented borders along three edges. Date: Roman. Phase 4 LR. Size: 292 x 426mm, 37mm th. Fabric E3. Corn dryer 1635 (1721), Id.777

6. Semi-circular segmental brick, incomplete, with part of signature mark probably type 1.1. Date: Roman. Phase 2 ER. Size: 500–550mm dia (est.), 47–54mm th. Fabric E3. CD1071 (1071), Id.688.

7. Tegula: Incomplete tile. Flange type D, lower cutaway type A. Date: AD 43–120. Phase 2 ER. Size: >290mm long, >95mm wide, 29mm th. Fabric E3. Lime kiln 1188 (1485), sf1119

8. Tegula: Complete tile. Flanges type A4-E, lower cutaway type C5. Signature type 4.3 or 5.3. Imprint: possible cat paw. Date: AD160–260. Phase 4 LR. Size: 300–325mm wide, 410mm long, 27mm th. Fabric C. CD1071 (1102), Id.28

9. Tegula: Complete tile. Flanges type A4, lower cutaway type C5. Signature type 22. Date: AD160–260. Phase 4 LR. Size: 320–328mm wide, 397mm long, 32mm th. Fabric C. CD1071 (1102), Id.161

10. Tegula: 60% lower half. Flanges type A4 → E, lower cutaway type C5. Signature type 23. Imprints: partial ?cat paw prints. Date: AD160–260. Phase 4 LR. Size: >328mm wide, >366mm [total est. 410mm] long, 342mm th. Fabric E3. CD1071 (1102) Id.168

11. Tegula: Complete. Flanges type A4 → E, lower cutaway type C5. Signature type 22. Date: AD160–260. Phase 4 LR. Size: 325mm wide, 392mm long, 21–26mm th. Fabric C. CD1071 (1102) Id.169

12. Tegula: Lower half of tile. Flanges type E, lower cutaway type D16. Signature type 16. Date: AD 240–380. Phase 4 LR. Size: 322–335mm (top est. 350mm) wide, 413mm long, 20mm th. Fabric F. CD1071 (1164) Id.210

13. Imbrex: half tile split along apex with complete length Date: Roman. Phase 4 LR. Size: *c* 180mm wide, 270mm long, 92mm high, 18mm th. Fabric C. CD1071 (1102) Id.36

14. *Tubulus* with roller stamped keying: Die 5. Date: LC1–LC2. Phase 2: ER–3: MR. Size: 16mm th. Fabric D. Ring ditch 1080 (1623) Id. 104

15. *Tubulus*: Type 3a keying: the keyed face is covered in bands of coarse combing consisting of three linear bands aligned vertically with a straight central band flanked by a wavy band on both sides. Comb: 53mm wide, 7 teeth, 4mm wide set 4mm apart. Size: >156mm [est. 160–170mm] wide, 388mm high, 21–22mm th. Fabric E1. CD1071 (1102) Id.40

16. *Tubulus*: Type 3b keying: combing in wavy vertical bands forming figure of 8 pattern covering most of surface. Comb: 51mm wide, 8 teeth, 3–5mm wide, 2–3.5mm apart. Size: 150mm wide, >265mm high, 18–19mm th. Fabric E1. CD1071 (1102) Id.45

17. *Tubulus*: Type 23 keying forming S shape with infill Comb 56mm w, 7 teeth, 4–6mm w, 2–3mm apart. Size: 159mm wide, >235mm high, 15–22mm th. Fabric E3/E1 CD1071 (1102) Id.711

18. Voussoir (*tubulus cuneatus*): Two fragments, probably opposite faces of the same tile but together indicate the overall size and combing pattern of the voussoir face. Type 5b keying in form of saltire, framed by straight band along top (and probably the base too). Also, part of straight band on adjacent top surface. Comb 40.5mm w, 6 teeth, each *c* 4mm wide and set 3.5–4mm apart. Size: 200–<182mm wide, est. *c* 300mm high, 17–21mm th. Fabric E3. Corn dryer 1635 (1640), Id.256 & 739

19. Imprints: about a dozen hoof prints. *Tegula mammata*, lydion type 2b, 50%. Date: C1–EC2. Phase 2 ER. Size: 269 x >260mm, 47mm th. Fabric E3 overfired. Lime kiln 1188 (1485), Id1121

CHARRED PLANT REMAINS

by Denise Druce with Sharon Cook

Introduction

Following a preliminary assessment of some 64 bulk environmental samples taken during the excavations at Maylands Gateway, a selection was prioritised for further analysis of the charred plant remains (CPR) and charcoal (see below) to explore research themes specific to the site and its regional context. All the samples came from features forming an area of agricultural processing, including corndryers 1071, 1078, 1635 and 1734 and some associated features. Most of these deposits are thought to derive from this later agricultural phase dating to the middle–late Roman period after the abandonment of the Wood Lane End temple complex to the north.

The primary purpose of the analyses was to investigate whether the various features were used for different types of crop processing. In addition, the study sought to determine whether the relative quantities of CPR types in each sample could be used to determine the presence of spent fuel, accidental losses, or conflagration debris. Stratified deposits taken from various cuts through several ditches were also investigated to identify the sequence and nature of waste disposal.

Quantification and methodology

After the initial assessment, eight samples were prioritised for further archaeobotanical analysis. Each sample was processed using a modified Siraf-type flotation machine. The resulting flots were collected onto a 250µm mesh and air-dried. The residue was also dried and checked for any residual organic material and finds. The flots were examined with a Leica MZ6 binocular microscope, and any charred plant remains were extracted, identified where possible, and counted. Cereal grain fragments, fine chaff (eg awns, lemma/palea) and other material (eg charcoal, bone fragments, CBM and metal waste) was quantified using a scale of 1 to 4, where 1 represents less than five items, 2 between six and 25, 3 between 26 and 100, and 4 over 100 items. Identification was aided by comparison with the modern reference collection held at OA North, and with reference to Cappers *et al.* (2006). Nomenclature follows Stace (2010). The results of the CPR analyses are presented in Table 25 (corndryer 1071) and Table 26 (features other than corndryer 1071).

Cereal grains and chaff

All the deposits analysed for CPR contained abundant cereal remains, including the upper fill (1420) of ditch 1077 (cut 1417), which sub-divided the main agricultural-processing area. Preservation of cereal caryopses was variable, but examination of the better-preserved examples indicates a predominance of wheat (*Triticum* sp). The presence of several wheat caryopses showing longitudinal scars characteristic of wheat charred whilst still enclosed in its husks indicates a glumed variety was being cultivated. Although the morphological overlap of wheat caryopses makes it hard to determine species (Hillman *et al.* 1996), the accompaniment of abundant diagnostic spelt wheat (*Triticum spelta*) glume bases and spikelet forks in the samples suggests that this variety of wheat was the main crop being processed at the site. The presence of a few short and rounded wheat grains resembling a free-threshing variety in corndryer 1078 (fill 1079) suggests the possible cultivation of a bread wheat-type grain (eg *Triticum aestivum*). However, a lack of diagnostic free-threshing wheat rachis means this is tentative. In any case, the small number of possible bread wheat caryopses suggests that it was at least present as a contaminant of the main crop of spelt.

Several deposits from corndryer 1071 and upper ditch fill 1420 contained oat caryopses. As with the other cereal remains, the accurate identification of oat type cannot be made using the caryopses alone. The recovery of several diagnostic floret bases of both wild oat (*Avena fatua*) and cultivated oat (*A. sativa*), however, indicates the presence of both varieties. Like the bread wheat-type remains, the oats are likely to represent contaminants of the spelt-wheat crop. The presence of numerous grass (*Poaceae*) seeds of varying sizes, including large (>4mm) seeded brome (*Bromus* sp), suggests a tendency for the cereal crops to be invaded by grasses. Other grassy remains included rare to frequent oat awn fragments, and possible oat lemma/palea fragments, which were particularly abundant in deposit 1167b, from the stokehole of corndryer 1071. Probable wheat awns, including abundant silicified fragments in the same sample suggests this deposit contained a relatively high proportion of fine sieving waste. The presence of silicified remains, a type of preservation associated with high-temperature fires with a high oxygen content (Robinson and Straker 1991; HE 2011), suggests that the material is likely to have been either in direct contact with the fuel or was the fuel (see below).

All the analysed deposits contained coleoptile fragments and/or detached embryos, which are likely to have come from germinated grains. The quantities varied, though upper ditch fill 1420 contained thousands of fragments, which suggests that at least part of the deposit comprised the charred waste from the processing of malted grain. Although only very few sprouted grains were recovered from corndryer 1071, corndryer 1078 and corndryer 1635, sample 1065 from corndryer 1734 (fill 1747) provided ample evidence for malted grain. In this sample, nearly all the caryopses possessed grooves along the dorsal surface, created by the development of coleoptiles (sprouts), which often stretched over the whole length of the grain (Fig. 28). Such evidence demonstrates that sprouting occurred whilst the cereals were still enclosed in their husks (Carruthers 2011). Further evidence for this was provided by the frequent spelt wheat glume bases and spikelet forks with caryopses and/or coleoptiles still attached (Fig. 29). Deposit 1747 was associated with a burnt timber, which appears to have been a re-used structural element within corndryer 1734 (see above). It is feasible that the corndryer was destroyed by fire during its use and the timber perhaps protected the *in-situ* deposit of malted grain.

Charred weed seeds

As well as large grasses, a suite of typical cultivation/ruderal weeds was evident, including ubiquitous weeds of cultivation such as scentless mayweed (*Tripleurospermum inodorum*), stinking chamomile (*Anthemis cotula*), and fat-hen (*Chenopodium album*). Deposit 1079 in corndryer 1078 produced an assemblage with a slightly higher grassland component, including ribwort plantain (*Plantago lanceolata*), common/sheep's sorrel (*Rumex acetosa/acetosella*), and possible wild carrot (*Daucus* cf *carota*). This material may originate from hay being used as tinder, or even the remains of roofing or floor covering of the corndryer structure itself. It may equally represent processing waste from a cultivation plot with a higher diversity of grassland plants at its margins. The number of crop weeds varied quite considerably between samples, which may reflect the 'weediness' of the crop or the thoroughness of the earlier stages of processing.

Edible remains other than cereals

Very few remains other than cereals were recovered. These were limited to just four charred hazelnut shell fragments (*Corylus avellana*) and a single wild strawberry (*Fragaria vesca*) seed from upper ditch fill 1420. Their unique presence in this feature may reflect the fact that the ditch had been a recipient of other types of plant waste other than cereal processing. Indeed, the presence of a wild variety of flax (*Linum* sp), which was particularly abundant in pit 1364, and noted during the initial assessment of the samples, suggests that the processing of other types of plants took place at the site. Although the wild flax seeds may have accidentally arrived on site along with other vegetation, the whole plant may have been collected or cultivated for medicinal use, for its fibres, or for its oil (Grieve 1973).

Composition of the charred remains within and between features

To determine spatial patterning within the corndryers, rough estimates of the relative proportions of CPR and charcoal were calculated. The data presented in Fig. 30 show that six of the eight deposits were dominated by either CPR (mainly chaff) or charcoal; the remaining two—stokehole fill 1103 from corndryer 1071 and stokehole/flue fill 1079 from corndryer 1078—contained broadly equal proportions. The data from Maylands shows no correlation between sample composition and location. For example, CPR-rich deposits are just as likely to come from stokeholes as they are from flues. A similar pattern emerges with the charcoal-rich samples, which in this case dominate the charred assemblages in both stokehole deposit 1167b of corndryer 1071 and flue deposit 1747 of corndryer 1734. The latter was attributable to the presence of a charred timber.

Similar studies have successfully shown a correlation between the composition of the CPR assemblages and their position within the feature. Evidence from a T-shaped corndryer from Highpost, near Salisbury, for example, shows a clear spatial pattern, where glume bases dominated the stokehole and flue, while cereal caryopses dominated the cross-flue (Pelling 2013). In this case, a notable lack of charcoal suggests that crop-processing waste provided the bulk of the fuel.

Figure 31 shows the relative proportions of countable (ie complete or near complete) cereal caryopses, spikelet forks, glume bases and weed seeds. Even allowing for lower numbers of cereal caryopses due to fragmentation, the data suggest that most of the deposits are

dominated by cereal-processing waste. Indeed, the fact that *c* 95% of the CPR assemblage from 1167b and *c* 99% from 1165 (both from corndryer 1071), comprised extremely comminuted glume bases, which suggests that the bulk of the waste derived from husk removal.

The presence of cereal remains possibly burnt as a direct result of a conflagration is fortuitous as, barring the effects of charring, the material provides a snap-shot of what an assemblage might look like in its primary, *in-situ* state. In many ways, the composition and excellent preservation of fill 1745 from corndryer 1734, which is associated with possible burnt structural remains, confirms the interpretation of it being *in-situ* and provides useful comparative data for interpreting the taphonomy of other corndryer deposits. For example, the higher number of cereal grains relative to glume bases in this deposit is notable; as is the relatively high number of spikelet forks and lower number of weed seeds.

Discussion

The charred plant remains from Maylands show that the dominant crop being processed at the site was spelt wheat. The evidence is consistent with many other Roman sites in England, which also show a predominance of spelt wheat (Hillman 1982). Like similar sites, certainly in southern and central England, the CPR assemblages recovered from the corndryers at Maylands are likely to represent either accidental losses of spelt wheat being dried in their spikelets, cereal-processing waste being used as fuel, or a combination of the two. Evidence suggests that chaff was the favoured fuel for corndryers (Hillman 1981; Monckton 2010; Pelling 2011; 2013). Given the lack of culm nodes and straw from these sites, the material is likely to represent the fine sievings left over from the final stage of processing to remove the cereal husks and small seeds (Hillman 1981). Indeed, it is likely that these final stages of processing were carried out very nearby, and, given the scale of operations at Maylands, such waste would have provided an extremely useful source of fuel.

Glumed cereals were dried for a variety of reasons, including as an aid to de-husking, or to remove moisture prior to bulk storage (Monckton 2010). Cereal grains were also dried to halt the germination process following malting, and positive evidence for malting at Maylands comes from corndryer 1734, and upper ditch fill 1420, which appears to have been used for the disposal of malt-processing waste previously used as fuel. The excellent preservation of the malted spelt wheat from corndryer 1734 shows that the grains were malted whilst still retained in their husks. There would have been benefits to this and it would have reduced the risk of damage to the embryos that may occur during the de-husking process (Stevens 2011; Lodwick 2017).

Conclusions

Although there is certainly no lack of data from Roman corndryers in Britain, the scale of activity at Maylands, coupled with the excellent preservation of the archaeobotanical material from the site means it has provided an important contribution to our understanding of cereal processing, both in the region and in Roman Britain generally. While some sites show that a much more diverse suite of crops were being dried in such structures, the Maylands corndryers are in keeping with similar sites in southern England, which provide evidence for the specialised drying and processing of spelt wheat, often on an 'industrial scale' (Pelling

2013). Many of these sites provide evidence for a range of crop-processing activities taking place concurrently, including malting, de-husking, and milling (Monckton 2010; Carruthers 2011). Indeed, much of the evidence suggests that the principal fuel being used to heat corndryers was cereal chaff, including the waste from de-husking and malting (Hillman 1981; Monckton 2010; Pelling 2011; 2013). The drying of cereals is likely to require only a very gentle heat and therefore cereal chaff would have provided an ideal fuel. Another benefit, of course, would have been its accessibility.

Evidence for the malting of spelt wheat has been recorded at several corndryer sites, perhaps most notably at Northfleet in Kent (Smith 2011). Other notable assemblages have been recovered at Catsgore in Somerset, Mucking in Essex, Tiddington in Warwickshire, and Hibaldstow in Lincolnshire (Hillman 1982; van der Veen 1989; Monckton 2010; Carruthers 2011). Like Maylands, both the Mucking and Tiddington corndryers show direct evidence for the malting of spelt wheat whilst still in its spikelet form.

Only one T-shaped corndryer has been recorded from an early Roman site, that found at Springhead in Kent (Lodwick 2017), and the evidence suggests that their design and use appear to have fluctuated regionally during the 2nd and 3rd centuries AD (ibid). The construction of corndryers appears to have peaked during the late Roman period, which saw an increase in more elaborate designs (ibid). Indeed, the development of corndryers has been directly associated with the near-monoculture of vast quantities of spelt wheat harvested and increased scale of cereal production across parts of southern and eastern England, particularly during the 3rd and 4th centuries AD (Cool 2006; Carruthers 2011; Pelling 2013). A pattern that has been linked to both climatic variations and social-economic pressures (Lodwick 2017).

Although there is substantial variation in the types of sites at which corndryers have been recorded, their close association with complex farmsteads has been recognised from the central belt area (including Upper Thames Valley and margins) (Lodwick 2017). At Maylands, malting commenced from the mid-Roman period, and this was an activity often undertaken at villas, complex farmsteads and roadside settlements. It is possible that malting at villa sites was for ale production, primarily for consumption within the estate. However, there is evidence that malting sites also tended to be situated near to major roads, which could have facilitated its transport to local markets and towns (ibid). Indeed, some see the association of corndryers with high-status villa buildings during the fourth century AD as a move to control the production of grain commodities during the increasingly volatile milieu of that period (ibid).

CHARCOAL

by Denise Druce with Sharon Cook

Introduction

Charcoal analysis was carried out on nine samples to explore evidence for possible wood fuel selection. Morphology of the wood, such as whether it comprised trunk or roundwood, was also assessed to identify wood maturity and any possible evidence for woodland management.

Methodology

Charcoal analysis followed standard methods where up to 100 fragments recovered through >4mm meshes, or failing this >2mm, were identified. The percentage volume of the analysed material in relation to the whole flot was also calculated. The charcoal fragments were initially sorted into groups based on the features visible in transverse section using a Leica MZ6 binocular microscope at up to x40 magnification. Representative fragments of each group were then fractured to reveal both radial and tangential sections, which were examined under a Meiji incident-light microscope at up to x400 magnification. Identifications were made with reference to Schweingruber (1990), Hather (2000), and modern reference material. Characteristics, such as possession of tyloses in hardwoods, any insect damage, or radial cracking were also noted as an aid to wood maturity, and condition prior to charring.

Results

Results of the charcoal analyses are shown by fragment count in Table 27. The taxonomic level of identification varied according to the observed genera/family and/or the state of preservation. In many cases, the fragments could only be taken to an approximate level of identification, ie to sub-family level, eg *Alnus glutinosa*/*Corylus avellana* (alder/hazel, both in the *Betulaceae* family), as some of the key diagnostic features that are needed to distinguish the species were not observed. In other cases, the level of identification was limited due to the similarities of species within a family or genus, eg *Prunus* sp, which includes sloe/blackthorn, wild cherry or bird cherry (referred to as blackthorn-type in text), or Maloideae, which includes hawthorn, apple, pear or whitebeam (referred to as hawthorn-type in text).

Nine species/groups were identified, the most diverse assemblage coming from deposit 1651, from one of the central chambers of corndryer 1635. This, and uppermost fill 1742 from corndryer 1734, were dominated by blackthorn-type (*Prunus* type), including positively identified blackthorn (*Prunus spinosa*); hawthorn-type (Maloideae) was also recorded in 1651. Many of the blackthorn fragments from 1742 showed radial splitting, a deformation often associated with the burning of green wood (Théry-Parisot and Henry 2012). Other taxa included oak (*Quercus* sp), alder/hazel (*Alnus glutinosa/Corylus avellana*), including positively identified hazel, field maple (*Acer campestre*), with rare birch (*Betula* sp) in 1103, and rare ash (*Fraxinus excelsior*) in 1651.

Deposits 1747 and 1743, from the cross-flue of corndryer 1734, contained a much more limited range of taxa, including oak and ash sapwood, and hazel branch wood. Ash sapwood was particularly prominent in 1747, which was directly associated with the remains of a burnt ash timber representing a possible structural timber. Both stokehole deposit 1167a from corndryer 1071, and deposit 1490 from lime kiln 1188, were notable for their dominance of oak wood. Indeed, the similarity of the oak fragments in 1167a, which were all from extremely fast-growing wood, suggests that the material possibly originated from the same piece, perhaps a large branch or piece of timber. Most of the oak identified at the site appears to comprise sapwood, which suggests the use of relatively young trees less than 25 years old (Duffraise *et al*. 2017).

Discussion

There is surprisingly little data on the nature of wood fuel used to heat Romano-British corndryers. However, it is not clear whether this is due to a lack of studies, or whether charcoal is not commonly found in these features. A lack of charcoal from the stokehole of a Roman corndryer at Great Barford, for example, was attributed to it being cleaned out following its last use (Challinor 2007a). Interestingly, the charcoal data from Maylands shows a remarkable similarity to the handful of studies that have been done, which suggest that a range of hedgerow/shrub taxa were used, often alongside a principal component of oak or ash. The late Roman malting oven at Northfleet in Kent contained primarily oak and hazel charcoal with smaller quantities of ash, dogwood, hawthorn and cherry (Barnett 2011, 117). Roman corndryers at Southfleet in Kent, Parnwell in Peterborough, and Fullerton in Hampshire contained mixed assemblages (eg birch, oak, field maple, hazel, and blackthorn-type in the latter) (Challinor 2006b; Challinor 2007b; Pelling 2011), which Challinor (2006a) suggests is typical of most domestic contexts. The primary wood fuel from all three sites, however, comprised ash and/or oak, which may indicate its deliberate selection.

The evidence from Maylands has shown the difficulties involved in disentangling the remains of wood used as fuel and that which was used in the construction of corndryers. However, the fortuitous presence of possible burnt timber in the cross-flue of corndryer 1734 suggests that ash may have been the primary wood used in construction, alongside oak and large hazel roundwood. Overall, the evidence suggests that a range of taxa was utilised as fuel that is likely to have come from a range of locally available resources, including woodland floors and or hedgerows. Some of the larger hazel and ash roundwood may have come from coppiced woodland. However, there was not sufficient material to positively demonstrate this. The lack of oak and ash heartwood suggests the use of relatively young trees.

There is surprisingly little charcoal data from Roman lime kilns. The mid-Roman lime kiln at Northfleet, Kent, contained charcoal consisting a range of taxa, principally of oak (particularly roundwood), but also of alder, ash, blackthorn, hazel and beech (Barnett 2011, 117). A dominance of oak from lime kiln 1188 would be consistent with other 'industrial-type' activities, such as metalworking, which often utilises oak wood. Oak, especially its heartwood, is an extremely efficient fuel, and would have provided the high, sustained, temperatures such activities would have required (Edlin 1949; Challinor 2006a). Challinor (ibid.) suggests that some industries, such as smithing, are likely to have used charcoal, which produces much less smoke.

Conclusion

The charcoal evidence is consistent with other Romano-British corndryer sites, where fuel wood appears to have been randomly collected depending on local supply and resources. As with other sites, the availability of other types of fuel, primarily cereal-processing waste, may have also affected what was used. Several sites show the use of a wide range of taxa alongside a preference for oak and/or ash, both of which were used at Maylands for both fuel and construction. The use of relatively young oak or ash trees, in both the lime kiln and the corndryers may indicate a lack of local mature woodland. However, such resources may have been reserved for other industries.

COINS

by Paul Booth

Four Roman coins were recovered in total (Table 28). The denarius of Julia Domna is in good condition (Fig. 32), but the condition of the three copper-alloy coins precludes further comment. The identifications of the two later Roman coins are very tentative, though the character of SF 1017 might suggest a date after *c* AD 330.

METALWORK

by Ian R. Scott

The metal assemblage is quite small and consists of 153 metal objects (198 frags), comprising 146 iron objects (187 frags), six cu-alloy objects (10 frags) and a single lead object. The range of finds from the site is quite limited, with only one tools few personal items (Table 29). The single tool, from ditch 1137 (Phase 3), is a heavy spud with broad blade (Fig. 33, No. 1), which could have been used as a digging tool. The only item that can be identified with transport is a single horseshoe nail from phase 1 ditch 1032 (fill 1037) and this is probably an intrusive nail of late medieval date.

There is a mere handful of hobnails (n=13), all of which were recovered from soil samples. Three hobnails were from corndryer 1071, and four came from ditch 1077 (cut 1253) (three from the upper fill of ditch and one from a lower fill). The other six hobnails were found in phase 4 pit 1296. The only personal item is a bow brooch (Fig. 33, No. 2) with sprung pin and a broad flat tapered bow which was unstratified. The brooch dates to the late 1st century BC–early 1st century AD.

The most numerous finds were nails, accounting for just over half the total metal assemblage by count (n=81; no. frag=89). These occurred in contexts of phase 1 (late Iron Age–early Roman) to phase 3 (middle Roman) with a small number in phase 4 (late Roman) features. Many of the nail are broken, but most fragments appear to be unbent. There is no obvious evidence clenching of nail stems, and few nails show any signs of bending whether from being pulled out of timber or from being burnt with old timbers.

The finds assemblage lacks any sign of domestic material and very little that could be called personal. The only personal items are the bow brooch and the small scatter of hobnails.

Illustrated Finds

1. Iron spud with short, broad, flared blade and heavy socket. L: 175; blade W: 73mm; socket D: 33mm and W: 73mm). Ditch group 1137, sf 1182. Phase 3: MR. Digging tool or spud rather than chisel.

2. Bow brooch with sprung pin, internal chord and a flat broad bow tapering to the foot. The bow has a border of a single line, and a fine zigzag line down the centre. A so-called ‘Nauheim Derivative'. Most of the catch-plate is missing. Cu-alloy. L: 60mm; W: 13mm. Context 1688, Sf 1008. Unphased (1st c. BC–1st c. AD).

GLASS

by Ian R. Scott

The glass assemblage is relatively small and comprised three sherds of Roman glass, all from Roman contexts (Table 30). The remainder was almost exclusively vessel glass from post-Roman contexts, all comparatively modern (predominantly 19th–20th century), plus three pieces of recent window glass.

The glass from Roman contexts comprised one piece of window glass and two sherds of vessel glass. The probable piece of Roman window derived from phase 2 ditch 1003 (fill 1013). It was pale green with dimples and flaws on one face and could be cast glass. The vessel glass consisted of a sherd from a possible late Roman beaker and another from necked vessel, probably a flask. The beaker sherd derived from phase 4 ditch 1069 (fill 1068) and is a body sherd in pale yellow-green glass with fine bubbles. It may be from a late Roman beaker that had a fire rounded rim, which would date to the mid-4th–early 5th century. The second vessel sherd was part of slightly tapered neck, probably from a flask in blue glass. It was recovered from phase 4 ditch 1080 (fill 1678). The form of the vessel and precise dating are uncertain.

STONE OBJECTS

by Ruth Shaffrey

Introduction

A single whetstone and 38 quern fragments (from eleven contexts) were recovered from the site. The worked stone was recorded with the aid of a x10 magnification hand lens. The resulting data have been kept with the site archive.

Results

A single small fragment of lava quern was found in Phase 3 ditch 1137 (fill 1222). It is almost certainly from a rotary quern, since lava is not known to have been imported for any other purpose. The 36 remaining quern fragments (representing a minimum of two rotary querns) were distributed amongst ten contexts: seven fills of ring ditch 1080, layer 1661, hollow 1294 (part of corndryer 1327), and fill 1640 of corndryer 1635 (Table 31). Many of these fragments now lack worked faces and are identified as quern fragments based on their lithology, but several demonstrate typical flat, pecked faces. Most are of a generally small size, meaning it was not possible to be certain if they came from rotary querns or millstones; the fragment from corndryer 1635 could be from a millstone. It is possible that all the fragments are from a single small millstone (or pair of millstones) associated with one of the phases of corndryers, together indicating an emphasis on crop processing here.

A single whetstone was found in lime kiln 1190. It is made of an iron-cemented sandstone and it has been very well used on all faces except for one broken end.

Discussion

The presence of querns of lava and Millstone Grit is to be expected. Querns of both types are common in the region, with lava querns having been found during previous phases of work

at Maylands (AA 2017, 19), and both types locally at sites such as Leavesden Aerodrome (Roe 2009) and M1 J8N (Shaffrey 2012). Both the M1 and Leavesden Aerodrome also produced several broken/smashed fragments of Millstone Grit quern. These are rarely retrieved during archaeological excavation, since it appears to have been normal to break the querns prior to discard or deposition (Heslop 2008). Such breakage provides difficulties for identification, especially when stones lack original worked faces. The recovery of smashed Millstone Grit querns at three sites in the region indicates that the reuse of querns, probably for hard core, was a common practice. It therefore cannot be said with any certainty that the fragments found here were used for grinding grain, though the presence of corndryers and large quantities of charred cereal remains probably suggests that they were associated.

Catalogue of worked stone

1. Whetstone: fine-grained brown, slightly ferruginous sandstone. Flat rectangular whetstone, broken at one end but utilised on all other faces. One of the long edges is straight and the other is concave along its length. All surfaces are worn smooth. Measures >107mm long x 46–49mm wide x 14–19mm thick. Weighs 190g. Ctx 1190. Chalk lime kiln 1188. Phase 2

2. Rotary quern (lava): Small fragment with part of flat worn surface. Measurements are indeterminate. Weighs 35g. Ctx 1222. Single fill of ditch 1221 Ditch group 1137. Phase 3

ARCHITECTURAL STONE

by Julian Munby and Ruth Shaffrey

One large fragment of finely sculpted architectural stone was recovered from subsoil layer 1002 (Fig. 34). The fragment consists of sandstone, possibly a Denner Hill sarsen, though it was not sufficiently petrographically distinctive for a provenance to be established. The style of the sculpture is characteristic of post-medieval buildings and Denner Hill sarsen seems to have been used fairly widely in the 18th–20th century. The proximity of the stone to the nearby Roman buildings at Wood Lane End should be considered, though there is no record of worked sandstone being recovered from that site.

ANIMAL BONES

by Ian Smith

Introduction

The small animal bone assemblage, which was in poor condition, derived from a variety of contexts that spanned the late Iron Age to late Roman periods. Much of the material was recovered from corndryers, pits, a ring ditch and enclosure ditches.

Methods

Identifications were attempted on all specimens using modern comparative specimens with the additional aid of Lawrence and Brown (1967). Measurements were taken following von den Driesch (1976). Diagnostic zones were recorded following Serjeantson (1996) and

following Worley (2017, 1) for the mandible. All bones were graded on a scale of 0 to 5 reflecting their condition as follows: 0 = excellent surface preservation, 1 = good surface preservation, 2 = fair surface preservation, 3 = poor surface preservation, 4 = surface entirely gone, 5 = bone highly eroded such that the anatomical element cannot be recognised. Teeth were not graded in the same manner, but notes were made regarding their condition. Tooth wear stages for cattle (*Bos taurus*) were recorded according to Grant (1982), though ageable teeth were largely absent owing to their fragmentary condition.

Results

The assemblage has been divided into several groups that represent individual phases or groups of phases. All the material derived from Roman contexts. Most of the hand-collected fragments (213) were from features excavated in the western part of the site (Table 32), with a smaller number (126) from the eastern area associated with lime kiln 1188. Bones from environmental samples come from four contexts in the western area (19 fragments) and two contexts from the eastern area (16 fragments) (Table 33).

Phases 1–3: Late Iron Age–Middle Roman

The late Iron Age to middle Roman material largely comprises tooth fragments and unidentified bone fragments. From ditch fill 1289 there are 11 fragments of horse (*Equus sp*) teeth, each of which are plausibly components of two severely damaged maxillary teeth. Four cattle tooth fragments, in very fragile condition, were recovered from the basal fill (1418) of ditch 1417 and comprise parts of two mandibular molars. Part of the cattle mandibular bone (a small part of one alveolus) is attached to one of these cattle tooth fragments. Part of a cattle scapula (the glenoid) was recovered from a black-grey silty clay ditch fill (1263). Other fragments from the same fill include one identified to the level of large (cattle-sized) mammal and another which was from a sheep-sized mammal. Other fragments from this phase were identified only to the level of 'mammal' only. Most of the fragments recorded from this group were in a poor state and were graded as 4 to 5.

Phases 1–4: Roman

Only one fragment belonged to this group, a poorly preserved cattle-sized long-bone shaft fragment, plausibly from a cattle right-sided radius.

Phase 2: Early Roman

The hand-collected early Roman group is dominated by horse fragments. However, these probably only relate to two anatomical elements, a much-fragmented horse skull from an ashy clay deposit (1456) in lime kiln 1188 and refitting parts of a distal humerus also from lime kiln 1188 (1190). The horse maxillary and skull parts from (1456) included a complete reassembled cheek tooth row (P2 to M3), which measured *c* 185mm long. Two teeth from the left maxilla were present (including the M3) plus four upper incisors. The occlusal length of the right P2 (40.71mm) suggests that the tooth is unlikely to be from a donkey (*Equus asinus*) (Eisenmann 1986, 91). Most of the maxillary teeth have a clear caballine fold which indicates that the tooth was from a horse (*Equus caballus*) rather than a mule (*E. caballus x asinus*) (cf Zeder 1986, 390). Also amongst the hand-collected material from the fills (1189) and (1190) of lime kiln 1188 were the distal parts of two cattle humeri and parts of a refitting

sheep/goat (*Ovis/Capra*) radius and two distal tibias. Severe root-etching was evident on the surface of some early Roman specimens (22 or 14% of all specimens) from the lime kiln.

The sieved material comprises a total of 16 fragments (bones and teeth) from small mammals. Three mandibular parts and one cranium with maxillae were identified as *Microtus* sp. and each are probable *Microtus agrestis* (field or short-tailed vole) specimens. These small mammal specimens originate from two contexts associated with the lime kiln, namely a sandy dark context (1455), and a charcoal-rich fill with chalk and red burnt clay (1490). The condition of all the small mammal bones was graded as good (stage 1) except for one graded as fair. They appear at odds with the condition of most the assemblage (the sheep and cattle sized bones). It must be noted that *Microtus agrestis* burrow and these specimens may therefore be intrusive.

Phases 2–3: Early Roman–Middle Roman

There were 48 hand-collected fragments from this group including a cattle humerus from layer 1654 from corndryer 1635 and, from the same structure, a sheep/goat cervical vertebra from fill 1651. The majority of specimens (42) were from ring ditch 1080 but were mostly of unidentifiable large-mammal fragments. One small bird bone cylinder (a hollow shaft with no ends and not determined to anatomical element) was recovered from the ring ditch (fill 1657).

The sieved remains included 13 fragments of cattle mandible and teeth from corndryer 1635 (fill 1746). The P3 and P4 were heavily worn (at Grant wear stage ‘p’) and clearly derived from an elderly animal. A complete small mammal metapodial (of mouse or small vole size) was recovered from the fill of the stokehole of corndryer 1071 (fill 1167).

Phase 3: Middle Roman

The middle Roman assemblage comprised remains of cattle and horses, plus 76 very poorly preserved medium and large mammal-sized fragments. The cattle and horse bones originated from a layer of soft silty clay (1603) overlying corndryer 1635. Three horse 1st phalanges may all originate from the same animal. The cattle parts, a proximal metatarsal and partial mandible were both in a poor condition (stage 3).

Phase 4: Late Roman

Only two cattle tooth fragments belonged to this group, recovered from ditch backfill 1265 and hollow fill 1294.

Conclusions

The animal bone assemblage is dominated by material in a poor condition. Teeth and mandible specimens comprised nearly half (48%) of the assemblage by weight (881g), though even tooth specimens were often very fragmented. Taphonomic factors had clearly had a significant effect on the survival of animal bones in general. The assemblage is thus too small to draw many conclusions about husbandry and meat diet at the site. The presence of the horse skull placed in lime kiln 1188 may be of some interest. It seems likely to have been deposit after the abandonment of the feature and may have been of ritual significance.

SITE DISCUSSION

The excavation at Maylands revealed evidence for activity beginning potentially as early as the late Iron Age and continuing through to the 4th century AD. The archaeology at Maylands is significant because it provides evidence for understanding the late Iron Age/early Roman landscape prior to the establishment of the 2nd-century religious complex at Wood Lane End, details relating to the construction of the complex and its wider layout, and most significantly what happened after the buildings were abandoned towards the end of the 2nd century. Clear evidence of this later Roman phase has been largely lacking from previous excavations at Wood Lane End (Neal 1983; 1984). The following discussion seeks to address the research aims set out towards the beginning of this report (see *Research framework*), and further considers how the features identified relate to evidence for activity in the wider landscape.

The extent and character of activity in the 1st century AD

Apart from pits 1299 and 1917 and residual finds of prehistoric worked flints, there was little sign of activity pre-dating the 1st century AD. The presence and frequency of 'Belgic-type' pottery, which continued to be produced and used to around AD 70, suggests that the main phase of activity began either at the very end of the late Iron Age or immediately post-conquest. The recovery of significant quantities of this pottery from the lower fills of ditches 1077 and 1032 shows that these boundaries were originally dug during this phase and served to organise the early layout of the site. Sherds of later 1st and/or early 2nd century pottery did not appear in the basal fills but began to be deposited in the middle and upper fills suggesting that these silting phases occurred sometime later. The positions and forms of ditches 1077 and 1032 suggest a general division of land to the south and to the north, with a gap between the two (Fig. 4).

A general lack of contemporary phase 1 features makes it difficult to understand the function and character of the early period of the site. Clusters of pits within the enclosure bounded by ditch 1077 suggest some limited activity. Pit 1370 contained evidence of burning on the base which suggested that it was used as a hearth or an oven, while most of the pits contained small amounts of domestic debris and charcoal. At the very southern end of the excavated area lay pit 1300, which produced a sizable quantity of slag and hammerscale suggesting that iron working was being undertaken nearby. No evidence for buildings was identified within the enclosure, though it is possible that any earth-fast structures with shallow foundations have been truncated and subsequently lost. Ditch 1228 aligned with the eastern side of this enclosure and together these boundaries may have defined a track or droveway.

To the north of ditch 1077, the western terminal of ditch 1032 may have formed an entranceway with ditch 1069. This would have allowed access from the Maylands site into the Wood Lane End site to the north, though the nature of any activity at Wood Lane End at this time is uncertain (see below). Ditch 1069 was recorded as a late Roman, phase 4 feature, so this is only possible if an earlier ditch had been completely recut removing any trace. Ditch 1032 turned NNE at its eastern end, and it appears to align with ditch 1186 in the north-eastern excavation areas, suggesting that it continued in this direction for some distance. However, this was not before the ditch made a diversion southward to enclose a slightly larger area in the south-eastern corner. Assessment of the site plan suggests that this was to enclose two of the chalk quarry-pits that are tentatively considered to be phase 2 features, associated

with lime kiln. It is possible that this was the case and the phase 1 and 2 activity in this area overlapped, or that the ditch extended to enclose some form of activity that is no longer archaeologically visible and that the chalk pit was later cut within the pre-existing boundary.

Ditch 1032 was clearly an early boundary and may have been associated with the Wood Lane End site to the north. Neal (1983, 83; 1984, 207) noted the recovery of 'native body-sherds' and samian ware that attested to activity in the 1st century AD, though it is uncertain what form this took. The only feature that appears to have pre-dated the *temenos* enclosure was a gravelled NW-SE trackway that originally extended through the centre of the *temenos* but was clearly cut by wall 2 (Neal 1983, 76–7, fig. 3). In the absence of clear evidence, Neal (1984, 207) briefly speculated that the site may have been associated 'with the veneration of a native sacred spot such as a grove', and this idea fits nicely as a precursor to the 2nd-century temple-mausoleum being established at this location. Without much in the way of conclusive new evidence for the function of the site it is difficult, if not impossible, to reassess or develop his interpretation of the pre-temple-complex phase any further.

The establishment and use of the religious complex

The Maylands site is unusual and important in that some of its principal features can be linked to the construction of the Wood Lane End temple complex to the north. The interpretation of the present site, and in particular of some aspects of its chronology, is driven in large part by the interpretation of the earlier excavation. The excavator (Neal 1983; 1984) saw the buildings examined in 1966 and 1982–3 as forming a shrine complex incorporating a temple-mausoleum with ancillary structures. The overall arrangement was roughly trapezoidal in shape, facing south-east, with walls on the south-eastern and north-western sides (two of the buildings in the complex lay north-west of the latter wall), and the south-western and (possibly) the north-eastern sides defined by ditches. The putative southern corner of the enclosure would have lain barely 25m north of the northern edge of the present excavation. The chronology of the complex was thought to be confined entirely to the 2nd century AD, with construction of the temple-mausoleum in the Hadrianic period, and disuse and perhaps demolition occurring around the end of the century.

The construction of the temple complex provides a plausible context for the presence of lime kiln 1188, the presence of which is not otherwise easily explained. Lime kilns are uncommon in Roman Britain and associations with specific building programmes are even rarer, though examples exist at Northfleet, Kent (Biddulph 2011, 150–1), and Abinger Hammer, Surrey (D Bird pers. comm.). Quite remarkably, lime kiln 1188 did not produce any pottery, apart from a tiny amount (23g) of early Roman material from a demolition fill. On the one hand, this is useful as it suggests that the lime kiln was built, operating and abandoned within a short period; on the other hand, it makes precise dating of the structure problematic. The date of the use of lime kiln 1188 rests entirely on the later 1st–2nd-century *tegulae mammatae* used in its construction, and the assumption that the kiln was built to produce lime for mortar and plaster in the religious complex. Both mortar and/or plaster (including in some cases *opus signinum* and stucco) were recovered from Wood Lane End buildings 1, 3, 4, 5, 6, 7 and 9 (Neal 1983, 75, 79; 1984, 195, 202). Neal (1984, 207) states that buildings 1,2, 3 and 9 were all 'constructed in a distinctive blue-toned flint bonded in a similar off-white mortar'. The remaining buildings were thought to belong to a second phase of construction, around the

middle of the 2nd century, and it is uncertain whether the products of the lime kiln were used in one and/or both phases.

Lime kiln 1188

Lime kiln 1188 was a type known as the 'Periodic' or 'flare' kiln, but it was unusual in that it consisted a conjoined pair that must have operated together. Pairs of individual kilns are known elsewhere, such as those found on Lincoln's Eastern Bypass excavations (Roman Lincolnshire Revealed 2017) and at Northfleet, Kent (Steadman 1913; Biddulph 2011, 150–1), and three structures were found at Hardwick Park, Wellingborough (Foster *et al*. 1977). Two Gallo-Roman examples at Sivry-Courtry (Seine-et-Marne) were set slightly apart and appear to have been successive with one dating from the mid-1st century and the later from the early–mid 2nd century (Suméra and Veyrat 1997). However, no parallels have been found where two adjacent kilns were interconnected, as at Maylands.

The size and layout of the two kiln chambers fits well with the directions given by Cato, writing in the 2nd century BC (*De agricultura* 38.1–2). He states that the size should be 10ft wide tapering to 3ft at the top, at a height of 20ft from bottom to top (broadly equivalent to 2.9m, 0.9m and 5.8m respectively). The bases of the Maylands examples are slightly smaller than this, and there is not the evidence from the surviving walls that the upper part was tapered to such an extent, perhaps being more barrel shaped rather than conical in form. Cato refers to some kilns having two flues ('*praefurnia*'), one of which was used to fuel the fire and the second to rake out the ash to ensure continual firing. It is unlikely the dual structure was ever envisaged to have functioned in that way, as both had pits dug in the bases, which Cato explains were to collect ash. His next admonition '*facito fortax totam fornacem infimam conplectatur*' is translated in the Loeb edition as 'see that the grate covers the entire bottom of the kiln', which poorly conveys the intended meaning. An alternative rendering might be 'ensure the foundation encircles the whole of the lower oven'. Jackson (1973, 136) in discussing the kiln at Weekley, Northants, suggests 'fortax' could refer to the ledge occurring at a height of *c* 1m found in that kiln and present in most of the known kilns. The word probably referred to all the lower walls up to the ledge, which would encompass the meaning as 'the basis on which the furnace sits' and the associations of support and load implied in the Greek version of the word. No ledge was noted in the Maylands kiln during excavation and the walls of the NE chamber were too poorly preserved for it to have survived on the east, but some hint may be detected in the SW chamber, preserved in the highest surviving section of the back wall at the junction between the two chambers.

The operation of the kiln was probably similar to the experimental firing undertaken at Iversheim, Germany (Sölter 1970, 35–40). The charge of chalk to be burnt would have been supported on the ledge by creating a corbel with the chalk blocks to keep the load separate from the fire and ash, possibly initially supported on a timber framework, and the kiln filled from the top. As the frame burnt away, the charge settled and became self-supporting. What is uncertain is whether the two parts of the kiln functioned simultaneously or whether one was in use while the other was unloaded, so that firing in one or the other could be continuous. Such an arrangement would seem impractical in view of the conjoined design. There are indications that the two were not used to the same degree, as the SW chamber appeared to have been subjected to greater use: the deeper pit in the floor suggests long use and wear, and the stoking chamber had worn to a deeper more substantial hollow. The

widening of the flue of the NE chamber indicates that it underwent some modification, which may indicate that it was later used for clearing out ash during firing, as suggested by Cato. Alternatively, the alterations may have been related to the collection of lime at the end of the firing. Dix (1979, 262) states that unloading of periodic kilns must have been from the top, but it is possible that in this case some other arrangement was attempted.

In terms of firing, charcoal from lime kiln suggests that oak wood was specifically targeted for fuel (see *Charcoal*). This differed to the wood used for fuel and construction in the late Roman corndryers, which tended to focus on scrub/hedgerow species or a mixture of ash and oak and suggests a more ad-hoc approach to fuel acquisition. Most of the oak appears to have derived from sapwood, indicating the felling of relatively young trees, mostly less than 25 years old. Such use of oak woodland for fuel in the lime kiln corresponds with that seen in other 'industrial' activities in the Roman period, such as metalworking. Oak heartwood is especially sought after for its potential for sustaining high temperatures for longer periods. It seems likely that practitioners of such activities were highly knowledgeable of the fuels that worked best and were able to access suitable, probably local resources.

The source of much of the chalk for the kiln appears to have derived from the western excavation area at Maylands, given the number of large quarry pits identified. As described above, these were quite large and irregular features, and it is notable that none were described in Neal's (1983; 1984) reports on the Wood Lane End excavations, suggesting that quarrying was undertaken away from the central area of the religious complex. The recovery of modern material from two pits also indicates that some may have been left open for a considerable period, though it is possible that those to the north of ditches 1280 and 1003 were backfilled given the presence of Roman pottery in quarry pit 1042 (which also lacked modern remains). This seems likely if these ditches were extensions of the Wood Lane End enclosure boundary.

The abandonment of the kiln may have come with the collapse of a load before it could be fired. The chalk rubble in the demolition fill did not show any signs of burning, so it is possible that it represents a fresh unburnt load. However, if it was just the chalk that had collapsed, it could presumably have been cleared and reset, so the failure of the kiln structure itself is the most likely cause of abandonment. The kiln chambers and stokeholes were infilled and covered by alternating layers of chalk rubble and collapsed tile structure. It is probable that the front wall partly collapsed, as the layers of rubble sloped from the kiln to the north over the stokehole. It is thought likely that the kiln had gone out of use at least by the middle of the 2nd century AD.

The layout of the religious complex

The alignment of ditch 1280 at the northern edge of the western excavation area accords with ditch 21 discovered to the rear of No. 98 Wood Lane End in the 1960s (Neal 1983, 75–6). Ditch 21 contained tile daub, and 2nd-century pottery (ibid.). The dating evidence from the basal fill of ditch 1280 also showed that it was open in the late 1st or early 2nd century. No material dating later than the mid-2nd century was recovered from any of the fills, while the uppermost layer appears to have been a deliberate backfill with dumps of pottery, slag, burnt flint and fired clay. It is thus likely that ditches 21 and 1280 were the same feature, bounding the south-west side of the religious complex (Fig. 35). Ditch 1003 produced similar dating evidence to ditch 1280, suggesting that both were contemporary. The alignment of

ditch 1003 broadly followed that of 1280, turning slightly eastward, but with a gap of just over 35m between the terminals. The dating and alignments indicate that ditch 1003 formed a continuation of ditch 21/1280, a boundary that extended eastward beyond the western excavation area.

The continuation of the south-eastern boundary in this direction suggests that the Wood Lane End complex was potentially much larger than originally thought. Masonry walls 2 and 9 defined the north-west and south-east sides and were set about *c* 90m apart. The north-east and south-west sides were less easy to define, known only from ditch 21, but measured potentially 75–95m across. The *temenos* covered a slightly trapezoidal area containing the temple-mausoleum and the shrine (Neal buildings 1 and 6). Ditch 21, however, continued to the north-west and, as is now thought with the discovery of ditches 1280 and 1003 at Maylands, potentially 180m farther to the south-west from the southern corner of the *temenos*. This suggests that the *temenos* was, in fact, just one part of a larger complex, within which Neal's buildings 3 and 4 (the 'storage' and '*schola*' buildings) were also located (see below for further discussion of these structures). About 200m north of the temple complex, excavations at Buncefield Lane revealed a series of ditches that also appeared to be on alignment with the *temenos* boundaries (cf McDonald 2004). While these may have formed part of a larger enclosure, they may just as easily represent elements of a wider field system. Thus, the layout of the putative larger enclosure shown on Figure 35 shown be read with caution.

Beyond lime kiln 1188 and ditches 1280 and 1003, the excavations at Maylands shed little additional light on the activities and use of the religious complex during the 2nd century AD. There is no evidence that any ritual activity occurred at Maylands, which is to be expected as this should be confined to the *temenos* to the north. One area where the current excavations have provided significant new information is in the development and use of the site after the abandonment of the temple complex.

The later Roman agricultural phase

Phase 1 enclosure ditch 1077 appears to have remained as a shallow boundary throughout the 2nd century and was recut in places probably in the early 3rd century when the site was being reorganised. This period was characterised by the abandonment of some or all the Wood Lane End buildings and the establishment at Maylands of at least five, possibly six, corndryers. The corndryers included a large multiflued-dryer (1635), set within a circular enclosure defined by two separate semi-circular ditches, and four T-shaped corndryers clustered adjacent and just to the north of 1635, two within and two outside the enclosure defined by ditch 1077. A fifth probable corndryer (1327) was heavily robbed and disturbed by a badger sett but lay to the south-east just within the enclosure of ditch 1077.

The structures are poorly dated, but the tile used in their construction was very different in character to that from the lime kiln and comprises material known to have been produced between the 2nd and the 4th centuries AD. A calibrated radiocarbon date centring on the late 1st–2nd century strongly suggests that the structural wood found in corndryer 1734 was recycled from earlier structures, perhaps located nearby. Indeed, further analysis of the Maylands CBM and comparison of it with material from Wood Lane End has shown that the corndryers were probably built with tile derived from the dismantling of the temple-

mausoleum and associated buildings, as well as other sources farther afield. It is uncertain whether this agricultural phase coincided with the abandonment of the religious complex or started sometime afterwards with the structures perhaps laying derelict for a short period. It is possible that the earliest part of this cereal-processing activity began in phase 3 (mid-2nd–mid-3rd century AD) but almost certainly continued through much of phase 4 (mid-3rd–4th century AD). Corndryers 1071 and 1078 contained some post-mid-3rd-century pottery, which supports the phasing to the later Roman period; indeed, the occurrence of multiple examples of corndryers in southern England is generally a later Roman phenomenon often found at roadside settlements, villas or large complex farmsteads (Lodwick 2017, 58–61; and see below).

Corndryer 1635: a possible developmental sequence

The size and complexity of corndryer 1635, coupled with its position within the semi-circular ditches and the presence of considerable spreads of raked-out burnt material, suggests that this structure operated at a much greater scale than the more standard T-shaped corndryers. The structure exhibited numerous phases of use and a possible sequence and combination of its individual elements is outlined below. The earliest phases of use are the least tangible as much of the original structure or structures had been removed to make way for and probably re-use materials to build the later structural phases.

A possible sequence is divided into three stages. Stage 1 consists of the earliest corndryer in the northern part of the cut. Few conclusions can be drawn about this stage as too little survives, but the evidence points to a single structure aligned east-west. Stage 2 can be regarded as the first double corndryer, with the remains of two walls now aligned north-south. These may have begun as T-shaped structures, but the pattern of recesses cut into either side is sufficiently similar to the later structure to suggest that paired L-shaped flues were used. The form of this corndryer is thought to have been a ‘channelled type’, which would have looked like examples known at Northumberland Bottom, Kent (Askew and Booth 2006, fig. 23) and Myrtle Road, Hethersett, Norfolk (Shelley and Green 2007, fig. 5). Stage 3 was more complicated and possibly involved three sub-stages. By now, the external parts of the stage 2 L-shaped flues were robbed out and the walls of the internal parts became used as long channels to heat a four-chambered structure at the southern end. Each chamber could have operated similarly to a conventional T-shaped corndryer. There is some suggestion that wall 1726 was continuous with those of the adjacent chambers and that all four functioned simultaneously when initially constructed. The long flues may have been necessary to create sufficient draught to carry heat through to all four chambers. If this was the case it raises the question of whether there were four separate drying-floors above each chamber, or just two, one on each side above a pair of chambers. Sometime later, the two northerly chambers were blocked off and a new stokehole with a shorter flue was positioned to the south, bypassing the previous draught channels. The final sub-stage appears to have consisted of a modification of the flue so that it only channelled into the south-east chamber.

The stage 3 use of corndryer 1635, with its individual modifications, is the best preserved and clearest to understand in terms of the functioning of the structure. The drying floors would probably have been situated over the south-east and south-west chambers but with a gap over the cross-flues to allow hot air to escape. This arrangement is similar to that of the double corndryers at Yewden villa, Bucks (Morris 1979, figs 14a and b; Eyers 2011, 3.38 and

3.40). How the flues were roofed over is unclear. Large tiles that could have spanned the width of the flues were absent in the rubble infilling the kiln. The layer of heavily burnt tile fragments forming layer 1719 in the eastern flue may have been the collapsed roof of the flue rather than flooring. The broken character of these tiles may also indicate that the flue vaulting was constructed as corbelling with courses of tile projecting one above the other. In the very final stage of use it seems that only the south-eastern chamber was in use, and it may be that this coincided with the blocking of the 'T' ends and replacement of the angled tiles set against the east wall. It is possible that wall 1720 was built in this final phase to create a single flue for this chamber, whereas previously there may have been single undivided firing chamber for both ovens.

Corndryer types and multiple instillations

Corndryer 1635 clearly underwent a long evolution of modification, of expansion and contraction. The purpose of corndryers with multiple chambers may on the one hand have been constructed to significantly to increase output, but also to facilitate processing of different crops and/or different forms of processing to take place simultaneously (ie drying and malting). Double corndryers are known at several sites. As mentioned above, those closest in form to the Maylands examples were found at Yewden villa where two L-shaped structures with separate flues were of very similar design, though the T-ends were more pronounced at Yewden compared to the rather shortened end flues at Maylands. Examples with straight double T-shaped flues, with the main flues often slightly splayed from the single stokehole have been found at Downton villa, Wiltshire (Rahtz 1963) and at Rockbourne Down (Sumner 1914) and Grateley (Cunliffe and Poole 2008), both in Hampshire. At Grateley, analysis of the seeds from the 3rd–4th-century corndryer showed that one chamber had been used for parching malted grain and the other for drying grain prior to grinding or parching to free spelt grain from the spikelets (Campbell 2008, 169). Unfortunately, only one CPR sample from corndryer 1635 was suitable for detailed analysis, which showed that the structure was utilised for malting spelt wheat (see *Charred plant remains*). If this was its primary purpose, it was undertaken on a comparatively large scale, though other activities such as drying grain to ready it for de-husking or for milling might also have been carried out. The presence of millstone fragments suggests the presence of a grain mill nearby (see *Worked stone*), which would not be unexpected given the number of corndryers. Cereal remains from some of the other corndryers, particularly 1071, suggest that malting of spelt wheat was a primary activity.

Except for corndryer 1635, all the remaining structures were of the standard T-shaped type. The proximity of the corndryers to each must be significant. The location of corndryer 1734, for example, suggests that it may have been closely associated with corndryer 1635 and its enclosing ditches. The spatial arrangement of these features suggests that they were broadly contemporary, though there was no meaningful dating evidence from corndryer 1734 and two pits (1735 and 1737) in the same area, which probably formed the stoking pit of the corndryer, were undated. Immediately north of ditch 1704 was corndryer 1906, which was set at a right angle to 1734 and 1635. This structure was examined during the evaluation of the site, but like the adjacent features it could not be closely dated. To the north of enclosure ditch 1077 lay corndryers 1071 and 1078. Again, these are not well dated though 1071 may have been constructed using materials from 1078 given that the latter had been completely robbed out.

While the corndryers were not all necessarily contemporary, it seems likely that more than one was would have been operating at the same time. This would have allowed for the processing of batches of grain at different stages, significantly increasing the scale of operations. At Orton Hall Farm, Cambridgeshire, there were a range of corndryer types, some of which may have been in use concurrently, including H-shaped, double-H, and reversed tuning-fork types; with its multiple barns and possible mill-house Orton Hall Farm is likely to have been a major processing centre (Mackreth 1996). Yewden villa has already been mentioned above for its likely simultaneous use of multiple corndryers and the site may have operated in a similar way to Orton Hall Farm. Another notable site includes the unpublished excavation at East Anton near Andover, Hampshire, where no less than 12 corndryers were identified (ACA 2011). This site was a peripheral element of a currently poorly understood roadside settlement, but the number of processing structures clearly indicates that the scale of the operations was extensive, and it may have acted as a central redistribution centre either for the inhabitants of the settlement and/or for several local farmsteads.

The character of the site in the 3rd and 4th centuries

The establishment of multiple corndryers at Maylands during the later Roman period, after the abandonment of the religious complex, suggests that the site developed into an important centre for agricultural processing and possibly for redistribution of arable surplus. There is very little evidence of domestic activity and it appears that the corndryers were established towards the periphery of a nearby settlement or were part of an estate centred at an unknown location. The presence of the late Roman structures, however, possibly provides a context for the 3rd–4th-century activity found within the former *temenos* at Wood Lane End, which was largely dismissed by Neal (1984, 209) as nothing more significant than 'cattle enclosures'. This evidence now requires reconsideration in light of the discoveries at Maylands.

A series of postholes were found to align with the central part of the Wood Lane End enclosure. This led north-west forming a fenceline from the original *temenos* entrance to where the temple-mausoleum previously stood (Fig. 36). One of the postholes cut the corner of the shrine (Neal's building 6), just to the south-east of the temple-mausoleum, and another series of postholes led from here to the north-east. Pottery and coinage from the posthole fills indicate that the shrine was demolished and that the fenceline was erected by the 4th-century AD (ibid., 202). Two much larger postholes (Fig. 36, no. 2) may also have been contemporary with this later phase, though neither produced dating evidence. Another line of smaller postholes was found to cut the robber trench of the south-west wall (Neal's wall 9) serving as its replacement sometime from the 2nd century AD (ibid., 205). Towards the north-eastern end of this boundary line, the postholes were found in association with gravelled surfaces (Fig. 36, no. 1), possibly indicative of buildings, containing 4th-century pottery. Another series of postholes were found to closely align and probably cut the foundation of the south-west ambulatory wall of the temple-mausoleum. These were filled with rubble, probably from the former building, and were thought by Neal (ibid., 195) to be contemporary with the postholes found elsewhere. Given their alignment along the side of the temple foundations it is possible that some remnants of the building were still extant.

Towards the south-west entrance of the *temenos* lay a very small bathhouse (Fig. 36, no. 5; Neal's building 7). Owing to its crude appearance and obvious differences in construction

technique, Neal (ibid., 204) thought it 'unlikely to be strictly contemporary' with the other buildings within the complex but suggested that it was still of 2nd-century date. This interpretation rested on the discovery of a complete Antonine dish sealed within the bathhouse flue and the early dating tile found in its construction. As Neal admits, however, the early tile could quite easily have been reused from earlier structures, just as it was in the later Roman corndryers at Maylands. Equally, the Antonine dish does not necessarily date the abandonment of the building to the 2nd century but that the flue was sealed sometime from the mid-2nd century onwards (P Booth (pers. comm.) also suggests that the date range for this dish type could easily have extended into the 3rd century AD). Perhaps more telling is the fact that a 4th-century bracelet and a coin probably issued in the reign of Gratian (*c* AD 375–383) was recovered from the demolition fill inside the bathhouse. Another point worth making here is that the plan of the structure shows two flues leading south-east extending beyond the *temenos* boundary indicating that the wall was no longer in place when the bathhouse was operating (ibid., 194, fig. 1).

Immediately south of the bathhouse was a large sub-rectangular pit or tank, measuring 10m by 4m across and 1.1m deep, with steep sides and flat base (ibid., 205; Fig. 36, no. 4). A surviving layer of clean clay lined its northern edge and across the base was a spread of charcoal mixed with heat-fractured flint. No evidence for burning was found in the pit itself but it seems likely that it may have been used to hold water that was heated either *in situ* or nearby. The upper fills of the pit contained pottery dating to the 3rd and 4th century, and it thus seems likely that it may have been contemporary with the bathhouse in the later Roman period (if the revised phasing of the bathhouse is accepted). Another probably associated feature was represented by a circular gully that was located about 10m north-west of the bathhouse (Fig. 36, no. 3). The gully extended around an area about 5m across and its fill contained charcoal and mid-4th-century pottery. A series of small ovens were also located just north of the bathhouse, though these were not dated (Fig. 36, no. 6).

Reassessment of the known later Roman features at Wood Lane End, coupled with a revised date for the bathhouse, means that these remains can now be considered alongside the cereal-processing evidence at Maylands to the south. A picture is now beginning to emerge of a 3rd–4th-century site that focussed on arable farming. At this point it may also be worth questioning (albeit tentatively) the date and interpretation of the two masonry buildings to the north-west of the former *temenos*. These include Neal's (1984, 199) possible '*schola*' (Neal's building 4) and an associated storage facility (Neal's building 3). Dating evidence from building 4 is sparse but does suggest 2nd-century activity. It is notable, however, that the south-east side of the building reused part of the north-western *temenos* wall, which was dismantled elsewhere possibly at the same time. The alignment of building 4 was, thus, not necessarily orientated on the position of the temple-mausoleum but because it was built using the pre-existing wall line. Even more poorly dated was the storage building, which Neal (ibid., 78) argues was demolished by the late Antonine period owing to the recovery of mid-2nd-century pottery from two sides of the robbed-out foundation trench. However, as with the bathhouse to the south, this evidence merely establishes that abandonment could have occurred during the 2nd century *or later*. The building was heavily disturbed by ploughing, and no internal floor surfaces or features survived. Of course, a revised date of buildings 3 and 4 to the late Roman period is not possible in the absence of pottery or other dating evidence to the 3rd and 4th centuries. Nonetheless, it may be worth reconsidering Neal's

(1983, 82) initial interpretation of building 3 as a granary, based on the use of external buttresses that are comparable to the masonry granary at Lullingstone villa (Meates 1979, 111–9, fig. 27). This is speculative, given the absence of internal features, though a granary would sit much better with a later Roman agricultural estate than an earlier religious centre, a consideration also raised by Neal (1984, 199) himself.

CONCLUSIONS

The excavation at Maylands has provided new evidence about Roman religious and agricultural activity close to Hemel Hempstead and contributes to several research questions outlined at the beginning of this project. Prehistoric activity was minimal and largely restricted to one pit containing early Neolithic material, plus a small quantity of probably contemporary material was recovered residually from Roman contexts. A low level of early prehistoric activity was no doubt present at the site, though much of it has presumably been truncated by Roman activity and later medieval/post-medieval ploughing.

The main period of activity revolves around the Romano-British religious complex, centred to the north of the site, and the later Roman agricultural structures. Evidence from field boundaries suggests that land was becoming increasingly defined and divided prior to the construction of the temple-mausoleum. This began either in the late Iron Age or the early Roman period. Neal (1984, 207) had considered that the site may have had a possible religious function from this early phase, though there is little evidence to support this premise.

The excavation of an early Roman lime kiln is of major significance and adds to a currently meagre number of known structures of this type at Romano-British rural sites. The dating of the lime kiln rests firmly on the considerable number of distinctive *tegulae mammatae* used in its construction (later 1st–2nd century) and the assumption that it was built for the primary purpose of providing lime for the construction of the 2nd-century religious buildings at Wood Lane End. Questions also arise regarding the context of the temple-mausoleum and its associated shrine: was it a self-contained religious centre serving travellers along the road from Verulamium (which may well be Akeman Street and therefore a major route) or 'cult-followers' on specific festival days, as suggested by its original excavator (Neal 1984, 208), or was it part of an, as-yet, unknown settlement (?villa). Temple-mausolea and shrines are known to have been built on villa settlements, such as at Lullingstone, Kent (Meates 1979) and Bancroft, Buckinghamshire (Williams and Zeepvat 1994). There was a notable lack of evidence for ritual activities within the Wood Lane End *temenos* and it may be that the temple-mausoleum and shrine were set on private land and subject to restricted use.

The wider character of the religious site also has implications for the context in which the later Roman agricultural phase developed. Neal (ibid., 208–9) notes that considerable changes occurred in the countryside around Verulamium during the 2nd century AD and hints at possible changes in landownership. Although corndryers do occur on sites without nearby villa buildings, it is perhaps surprising to find five or six (with one particularly large and complex example) together in the hinterland around Verulamium, where villas are otherwise relatively common. Several possibilities may account for this. One is that the arable processing here lay at the very periphery of a large and important villa estate, the centre of which was located at some distance, such as at Gadebridge Park or Gorhambury. Another possibility, as suggested above, is that the religious site was part of a larger domestic complex

that oversaw a more towards more intensive cereal-processing. Perhaps less attractive is the idea that the assets were not part of a single landowner's private estate. Neal (1984, 199, 209) notes that religious guilds may have been endowed with agricultural estates. If this was the case, however, it is difficult to see why the temple-mausoleum and shrine buildings were not maintained after the 2nd century when the corndryers were in operation. Alternatively, the site was a state-run enterprise, acting as processing and redistribution hub for the army. Again, however, there is little supporting evidence, such as the presence of military equipment, that might corroborate such an interpretation.

One aspect of the later Roman phase that is clear is that the site was processing considerable quantities of grain, either in the form of dried grain for de-husking, malt and/or flour. The archaeobotanical evidence suggests that malting was almost certainly occurring in several of the corndryers. If so, was the malt exported for further processing elsewhere or was this carried out at the site—the presence of a possible clay-lined water tank near the Wood Lane End bathhouse could have been used for brewing. Parallels for this type of feature have been found at Northfleet, Kent, where remains of clay- and wood-lined tanks, drainage gullies and sumps, as well as ovens have all been found in association with considerable environmental evidence for malted grain, together strongly indicative of the brewing process (Biddulph 2011). Equally, the identification of a millstone at Maylands points to the presence of a flourmill nearby, as was also suggested at Northfleet by several millstones (Shaffrey 2011, 371–4). The question of grain storage is also puzzling, and indeed there is a general lack of evidence for large dedicated granaries in Roman Britain, particularly at rural settlements (Smith 2016, 58–60; Lodwick 2017, 68; Fulford 2017, 361–2). The poor preservation of Neal's buttressed building 3, unfortunately, does not provide answers to this line of enquiry, though the possibility exists that it represents a granary or perhaps a malthouse.

Even if processed agricultural surplus was stored for a short time at the site, the quantities produced suggest that much of it was intended for a sizable population, most likely one that was not itself engaged in food production. The obvious intended market would have been Verulamium given its relative proximity and good transport links. Its status as a *municipium* would presumably have given it considerable economic and political influence over its surrounding hinterland. The alternative possibility that arable produce went directly to the army means that it would have bypassed Verulamium at a time when the town was relatively prosperous (Wacher 1995, 228–41; Fulford 2015, 75).

In many respects, the excavation at Maylands Gateway has raised more questions than it has answered. Nonetheless, it has revealed enticing new evidence on the construction, layout and period of use of the adjacent religious site at Wood Lane End, plus signs of considerable arable expansion and processing in the hinterland of Verulamium possibly from the 3rd century onwards. Such evidence provides significant new data relating to the function and organisation of the countryside around the town throughout much of the Roman period.

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APPENDIX A: SPECIALIST REPORT TABLES

Category	Number
Flake	82
Blade	11
Bladelet	8
Blade index	18.82% (19/101)
Irregular waste	9
Sieved chip 10-2mm	17
Core opposed platform blades	1
Scraper other	1
Retouched flake	1
Retouched blade	1
Total	*131*
Burnt unworked	1841/16774g
No. burnt (%)	28/131 (21.37%)
No. broken (%)	39/114 (34.21%)
No. retouched (%)	3/114 (2.63%)
No. cores/core dressing (%)	1/114 (0.87%)

Table 1: Summary of worked and burnt flint

Feature type	No.	Percentage
Pits	46	35.11
Ditches	40	30.53
Layer	23	17.56
Corndryer	10	7.63
Lime kiln 1188	9	6.87
Misc. features	3	2.29
Total	131	[100]

Table 2: Flint assemblage by context type

Condition	Total	%	Cortication	Total	%
Fresh	49	55.68%	None	3	3.45%
Light	26	29.54%	Light	73	83.91%
Moderate	10	11.36%	Moderate	7	8.05%
Heavy/rolled	3	3.41%	Heavy/very heavy	4	4.60%
Total	88	-	-	87	-

Table 3: Flint by condition and cortication

Category	Pit 1298	Layer 1648	Remainder
Flake	23	10	49
Blade	4	3	4
Bladelet		3	5
Blade index	14.81% (4/27)	37.50% (6/16)	15.52% (9/58)
Irregular waste		2	7
Sieved chip 10-2mm		1	16
Core opposed platform blades			1
Scraper other			1
Retouched flake	1		
Retouched blade	1		
Total	*29*	*19*	*83*
Burnt un-worked		784/12379g	1057/4395
No. burnt (%)	0% (0/29)	38.89% (7/18)	31.34% (21/67)
No. broken (%)	10.34% (3/29)	38.89% (7/18)	43.28% (29/67)
No cores/core dressing (%)	0% (0/29)	0% (0/18)	1.49% (1/67)
No. retouched (%)	6.90% (2/29)	0% (0/18)	1.49% (1/67)

Table 4: Flint from selected features

Category	Description
Slag cake (SC)	Circular or oval, and plano-convex (or concave convex), accumulations of fayalitic (Fe2SiO4) slag. The smaller varieties are readily identified as having formed inside a blacksmith's hearth (McDonnell 1991; Serneels and Perret 2003); however, larger varieties might be difficult to distinguish from furnace bottoms.
Non-diagnostic ironworking slag (NDFe)	Most ironworking slag assemblages include a significant proportion of fayalitic slag which lacks a diagnostic surface morphology that would allow the identification of the process(es) which produced them. In many cases, this is simply because the lumps of slag are small fragments of a larger whole; however, in some cases the lumps of slag are essentially complete but amorphous (cf HE 2015, fig. 18).
Hammerscale	Fragments of iron oxide (especially magnetite) which forms when iron is heated and forged. Usually black and lustrous. This occurs both as flakes (HS, <1mm thick with a surface area up to 20mm2) and as spheres (SS, up to usually up to 3mm diameter) (HE 2015, fig. 30).
Vitrified Ceramic Lining (VCL)	Vitrified ceramic usually showing a black vitreous (inner) face, an intermediate reduced fired ceramic layer and an oxidised-fired (outer) layer (HE 2015, fig. 11).
Heat-magnetised residues (HMR)	Heat-Magnetised Residues are fine, granular materials which tend to be orange-brown in colour. These residues are commonly recovered from the heavy fraction of environmental soil samples using a magnet. The careful visual examination of such residues shows that they are not metallurgical. While a variety of circumstances may account for the formation of this material, the simplest explanation is the accidental heating (and magnetisation) of soil. It is likely that this material could be formed whenever a fire is made at ground level.
Iron objects	Fragments of iron artefacts.

Table 5: Categories and descriptions of slag and related materials

Phase	Slag cake	Hammerscale	Non-Diagnostic ironworking slag	Vitrified ceramic lining	Fired clay	Partially burnt coal?	Iron objects	Total
1: LIA-ER	190.0	157.4	1481.6	203.6	–	–	214.4	2247.0
2: ER	609.0	–	–	–	27.1	–	2.6	638.7
3: MR	–	0.0	–	–	–	8.4	5.5	13.9
4: LR	250.0	–	–	–	–	1.4	–	251.4
Total	1049.0	157.4	1481.6	203.6	27.1	9.8	222.5	3151.0

Table 6: Summary of iron-working and related materials by phase (weight in grammes)

Ware Code	Description	NRFRC code/reference	Source area
Samian ware			
S20	South Gaulish samian ware (general, but most of not all La Graufesenque)	incl LGF SA	I
S30	Central Gaulish samian ware (general, but most if not all Lezoux)	incl LEZ SA 2	I
S32	Les Martres-de-Veyre Central Gaulish samian ware	LMV SA	I
S40	East Gaulish samian ware	incl RHZ SA	
Fine wares			
F48	Central Gaulish colour-coated ware	CNG CC2	I
F51	Oxford colour-coated ware	OXF RS	ER
FO	Oxidised probable Oxford fabric (F51) but with no surviving colour coat	cf OXF RS	ER
F52	Nene Valley colour-coated ware	LNV CC	ER
Amphorae			
A11	Dressel 20 Baetican amphorae (Peacock and Williams 1986, 140)	BAT AM 1 and BAT AM 2	I
A17	Cream/buff. Hard, with common ill-sorted subrounded milky and pink quartz inclusions up to 1.5 mm. Sparse Fe oxide. S. Spanish fish sauce amphora (CAM 186A)		I
Mortaria			
M16	Central Gaul? Soft, smooth cream fabric with moderate quartzite, quartz and mica (biotite and muscovite) inclusions up to 0.5 mm and sparse angular feldspar		I
M21	Verulamium region white mortaria	VER WH	L
M22	Oxford white ware mortaria (Young 1977, 56).	OXF WH	ER
M41	Oxford red colour-coated ware mortaria as fabric F51. Young (1977) forms C97–C100.	OXF RS	ER
White wares			
W10	Fine white fabrics (general)		R/ER
W12	Oxford fine white ware	OXF WH	ER
W21	Verulamium region sandy white ware	VER WH	L
White-slipped wares (except mortaria)			
Q20	Fine-moderately sandy oxidised white-slipped fabrics (general)		R?
Q25	Verulamium region coarse sandy oxidised white slipped fabric		L
Q40	Coarse sand-tempered oxidised fabrics with white slip		?
'Belgic type' wares			

Ware Code	Description	NRFRC code/reference	Source area
E10	Organic tempered 'Belgic type' fabrics		L/R
E13	Organic and grog-tempered 'Belgic type' fabric		L/R
E20	Fine sand-tempered 'Belgic type' fabrics		L/R
E30	Medium to coarse sand-tempered 'Belgic type' fabrics		L/R
E80	Grog-tempered 'Belgic type' fabrics	SOB GT	L/R
Oxidised 'coarse' wares			
O10	Fine oxidised coarse ware fabrics (general)		R?
O20	Sandy oxidised coarse ware fabrics (general)		L/R?
O30	Fine/medium sandy oxidised fabrics		R?
O51	Fairly fine, moderate clay pellets/grog and some organic inclusions		L?
O57	Hadham oxidised ware	HAD OX	ER
O80	Coarse tempered (usually grog) oxidised fabrics, equivalent to R90		L/R
O81	Pink grogged ware	PNK GT	ER
Reduced 'coarse' wares			
R10	Fine reduced 'coarse ware' fabrics (general)		L/R
R20	Sandy reduced coarse ware fabrics (general)		L/R
R212	Verulamium region medium/coarse sandy reduced fabric		L
R30	Medium/fine sandy reduced coarse ware fabrics (general)		L/R
R50	Black surfaced fabrics, usually hard, slightly sandy, often with a reddish brown or reddish grey core). Inclusions are sparse to moderate rounded quartz usually in the range *c* 0.2-0.8mm.	cf Young 1977, 203 fabric 5	L/R
R60	Reduced fabrics with significant organic inclusions (general)		L?
R79	Flint and sand tempered reduced coarse ware)		L?
R84	Hadham reduced ware	HAD RE 1	ER
R88	Highgate Wood fabric C	HGW RE C	R
R90	Coarse tempered (usually grog-tempered) reduced fabrics	Cf eg Young 1977, 202 fabric 1	L/R
Black-burnished wares			
B11	Dorset BB1	DOR BB 1	ER

Ware Code	Description	NRFRC code/reference	Source area
B20	Black-burnished (BB2) type fabrics, usually wheel-thrown, source(s) uncertain		ER?
Calcareous wares etc			
C10	Shell-tempered fabrics (general), here characterised by sherds with common voids		L/R
Later prehistoric fabric			
FA4	Sparse-moderate angular white flint up to 1.5–2mm, moderate-common very fine quartz sand *c* 0.1mm, sparse larger sand grains up to 0.8mm, sparse iron oxides and organic inclusions. Typically, unoxidised throughout but occasionally with irregularly fired (brown) surfaces		L?

Table 7: Late Iron Age and Roman pottery fabric codes and descriptions

Ware code	No. sherds	% No.	Wt (g)	% Wt	REs	% REs	MSW (g)
S20	7	0.3	105	+	0.52	1.8	15
S30	9	0.4	176	0.3	0.32	1.1	19.6
S32	5	0.2	58	0.2	0.15	0.5	11.6
S40	1	+	66	+	0.01	+	66
S subtotal	*22*	*0.9*	*405*	*1.7*	*1.00*	*3.5*	*18.4*
F48	4	0.2	37	0.2	0.34	1.2	9.3
F51	2	0.1	19	0.1	0.06	0.2	9.5
FO	4	0.2	25	0.1			6.3
F52	13	0.5	125	0.5	0.51	1.8	9.6
F subtotal	*23*	*0.9*	*206*	*0.9*	*0.91*	*3.2*	*9*
A11	4	0.2	30	0.1			7.5
A17	1	+	44	0.2	0.10	0.4	44
A subtotal	*5*	*0.2*	*74*	*0.3*	*0.10*	*0.4*	*14.8*
M16	1	+	99	0.4	0.01	+	99
M21	9	0.4	1218	5.2	0.77	2.7	135.3
M22	4	0.2	57	0.2	0.03	0.1	14.3
M41	4	0.2	214	0.9	0.30	1.0	53.5
M subtotal	*18*	*0.7*	*1588*	*6.7*	*1.11*	*3.8*	*88.2*
W10	5	0.2	42	0.2			8.4
W12	2	0.1	54	0.2			27
W21	568	23.2	6188	26.2	9.11	31.5	10.9
W subtotal	*575*	*23.5*	*6284*	*26.6*	*9.11*	*31.5*	*10.9*
Q20	2	0.1	13	0.1			6.5
Q25	48	2.0	164	0.7	0.33	1.1	3.4
Q40	1	+	28	0.1	0.09	0.3	28
Q subtotal	*51*	*2.1*	*205*	*0.9*	*0.42*	*1.5*	*4*
Fine and specialist ware subtotal minus fabric W21	***126***	***5.2***	***2574***	***10.9***	***3.54***	***12.3***	***20.4***
E10	6	0.2	14	0.1			2.3
E13	1	+	13	0.1			13
E20	7	0.3	44	0.2			6.3
E30	104	4.3	683	2.9	0.17	0.6	6.6
E80	481	19.7	4192	17.8	3.77	13.1	8.7
E subtotal	*599*	*24.5*	*4946*	*21.0*	*3.94*	*13.6*	*8.3*
O10	65	2.7	424	1.8	0.75	2.6	6.5
O20	36	1.5	326	1.4			9.1
O30	18	0.7	72	0.3	0.04	0.1	4
O51	1	+	3	+			3
O57	6	0.3	106	0.5			17.7
O80	4	0.2	93	0.4			23.3
O81	9	0.4	192	0.8	0.03	0.1	21.3
O subtotal	*139*	*5.7*	*1216*	*5.2*	*0.82*	*2.8*	*8.7*
R10	239	9.8	1948	8.3	2.87	9.9	8.2
R20	158	6.5	1784	7.6	1.92	6.7	11.3
R212	112	4.6	1131	4.8	1.44	5.0	5.3
R30	190	7.8	1261	5.3	2.46	8.5	6.6

Ware code	No. sherds	% No.	Wt (g)	% Wt	REs	% REs	MSW (g)
R50	7	0.3	109	0.5	0.31	1.1	15.6
R60	1	+	17	0.1			17
R79	3	0.1	23	0.1			7.7
R84	6	0.3	37	0.2	0.10	0.3	6.2
R88	56	2.3	236	1.0	0.79	2.7	4.2
R90	6	0.3	220	0.9	0.09	0.3	36.7
R subtotal	*778*	*31.8*	*6766*	*28.7*	*9.98*	*34.6*	*8.7*
B11	7	0.3	107	0.5	0.11	0.4	15.3
B20	9	0.4	228	1.0	0.22	0.8	25.3
B subtotal	*16*	*0.7*	*335*	*1.4*	*0.33*	*1.1*	*20.9*
C10 subtotal	*212*	*8.7*	*1528*	*6.5*	*1.16*	*4.0*	*7.2*
Fabric FA4	*6*	*0.3*	*53*	*0.2*			*8.8*
TOTAL	2444		23606		28.88		9.7

Table 8: Fabric quantification by sherd count, weight and REs

Class	Description	REs	% of total REs
A	*Amphorae (not subdivided)*	*0.10*	*0.4*
BA	Smaller flagons (diameter up to c 60mm)	0.58	2.0
BB	Larger flagons (diameter greater than 60mm)	0.72	2.5
B total		*1.30*	*4.5*
C	Jars (not specified)	10.81	37.4
CB	barrel shaped jars	0.03	0.1
CC	narrow mouthed jars (rim diameter less than 2/3 girth)	1.31	4.5
CD	medium mouthed jars (general)	3.62	12.5
CE	squat, high shouldered (or `necked') jars	0.20	0.7
CH	bead rim jars	0.26	0.9
CI	angled everted rim jars	0.80	2.8
CJ	lid seated rim jars	0.10	0.4
CK	'cooking pot type' jars (eg black-burnished ware jar types)	0.14	0.5
CN	storage jars (large, generally thick walled)	0.15	0.5
C total		*17.42*	*60.3*
D	*Uncertain jars/bowls*	*1.01*	*3.5*
E	Beakers (not specified)	0.90	3.1
EC	bag shaped beakers	0.34	1.2
ED	globular beakers	0.34	1.2
EE	indented beakers	*	
EF	poppyhead beakers	0.79	2.7
E total		*2.37*	*8.2*
FA	hemispherical cups	0.27	0.9
FB	campanulate cups (eg Drag 27)	0.28	1.0
FC	conical cups (eg Drag 33)	0.19	0.7
F total		*0.74*	*2.6*
H	Bowls (not specified) (diameter:height ratio from *c* 1:1 to 3:1)	0.66	2.3
HA	carinated bowls	1.13	3.9
HB	straight sided (usually flat-based) bowls	0.51	1.8

Class	Description	REs	% of total REs
HC	curving sided bowls	0.16	0.6
H total		*2.46*	*8.5*
I	Uncertain bowls/dishes	0.62	2.2
IA	straight sided bowls/dishes	0.68	2.4
IB	curving sided bowls/dishes	0.02	0.1
I total		*1.32*	*4.6*
J	Dishes (unspecified) (diameter:height ratio generally greater than 3:1)	*	
JA	straight sided dishes	0.69	2.4
JB	curving sided dishes	0.31	1.1
J total		*1.00*	*3.5*
KA	hook rimmed/bead and flange mortaria	0.78	2.7
KD	wall-sided mortaria	0.30	1.0
KE	tall bead/stubby or elongated flange mortaria (eg Young M17–M22)	0.03	0.1
K total		*1.11*	*3.8*
M	Miscellaneous		
MI	'Castor box'	0.05	0.2
TOTAL		28.88	

Table 9: Summary description and overall quantification of late Iron Age and Roman vessel classes by rim equivalents (REs)

Ware code	Vessel class											Total REs
	A	B	C	D	E	F	H	I	J	K	M	
S20						100						0.52
S30						68.8			31.2			0.32
S32							100					0.15
S40							100					0.01
S subtotal						*74.0*	*16.0*		*10.0*			*1.00*
F48					100							0.34
F51									100			0.06
F52			13.7		76.5			9.8				0.51
F subtotal			*7.7*		*80.2*			*5.5*	*6.6*			*0.91*
A17 subtotal	*0.10*											*0.10*
M16										100		0.01
M21										100		0.77
M22										100		0.03
M41										100		0.30
M subtotal										*100*		*1.11*
W21 subtotal		*13.9*	*61.5*	*4.7*	*3.7*		*12.6*	*3.0*			*0.5*	*9.11*
Q25			100									0.33
Q40				100								0.09
Q subtotal			*78.6*	*21.4*								*0.42*
Fine/specialist ware subtotal	***0.8***	***10.0***	***47.4***	***4.1***	***8.5***	***5.8***	***10.4***	***2.5***	***1.3***	***8.8***	***0.4***	***12.65***
E30			100									0.17
E80			94.2				5.8					3.77

Ware code	Vessel class											Total REs
	A	B	C	D	E	F	H	I	J	K	M	
E subtotal			*94.4*				*5.6*					*3.94*
O10				12.0			33.3	34.7	20.0			0.75
O30								100				0.04
O81			100									0.03
O subtotal			*3.7*	*11.0*			*30.5*	*36.6*	*18.3*			*0.82*
R10		1.0	58.9	5.9	14.3		3.1	10.5	6.3			2.87
R20			63.5				21.4		15.1			1.92
R212			79.9	1.4			12.5	6.3				1.44
R30			93.1	2.0				2.8	2.0			2.46
R50			100									0.31
R84					100							0.10
R88					100							0.79
R90			100									0.09
R subtotal		*0.3*	*67.6*	*2.4*	*13.0*		*6.8*	*4.6*	*5.2*			*9.98*
B11								18.2	81.8			0.11
B20								63.6	36.4			0.22
B subtotal								*48.5*	*51.5*			*0.33*
C10 subtotal			*79.3*	*13.8*				*6.9*				*1.16*
TOTAL	0.10	1.30	17.42	1.01	2.37	0.74	2.46	1.32	1.00	1.11	0.05	28.88
%	*0.4*	*4.5*	*60.3*	*3.5*	*8.2*	*2.6*	*8.5*	*4.6*	*3.5*	*3.8*	*0.2*	

Table 10: Quantification of vessel classes by fabric (REs) (row percent)

Ware code	1	1-3	2	1-3&2	2-3	3	2-3&3	4	Total
S20		0.5	0.7	0.6	0.2		0.1		7
S30			0.3	0.2	0.2	0.9	0.6	0.3	9
S32			0.7	0.4	0.2		0.1		5
S40						0.2	0.1		1
S subtotal		*0.5*	*1.7*	*1.2*	*0.6*	*1.1*	*0.9*	*0.3*	*22*
F48					0.2	0.6	0.4		4
F51								0.6	2
FO								1.3	4
F52						1.3	0.7	1.9	13
F subtotal					*0.2*	*1.9*	*1.1*	*3.8*	*23*
A11		0.3		0.1		0.6	0.3		4
A17		0.3		0.1					1
A subtotal		*0.5*		*0.2*		*0.6*	*0.3*		*5*
M16					0.2		0.1		1
M21			0.9	0.5	0.2	0.6	0.4		9
M22								1.3	4
M41								1.3	4
M subtotal			*0.9*	*0.5*	*0.4*	*0.6*	*0.5*	*2.5*	*18*
W10					0.6	0.4	0.5		5
W12								0.6	2
W21	2.3	12.1	14.8	13.7	47.3	30.0	38.3	11.5	568
W subtotal	*2.3*	*12.1*	*14.8*	*13.7*	*47.9*	*30.4*	*38.8*	*12.1*	*575*
Q20						0.2	0.1	0.3	2

Ware code	1	1-3	2	1-3&2	2-3	3	2-3&3	4	Total
Q25		0.3		0.1	0.2	8.4	4.4	0.3	48
Q40						0.2	0.1		1
Q subtotal		*0.3*		*0.1*	*0.2*	*8.8*	*4.6*	*0.6*	*51*
Fine/specialist ware subtotal minus fabric W21		*1.3*	*2.6*	*2.1*	*2.0*	*13.2*	*7.8*	*8.0*	*126*
E10	3.8	0.3		0.1					6
E13						0.2	0.1		1
E20	0.8	0.5	0.3	0.4		0.4	0.2		7
E30	4.5	2.1	14.6	9.7	0.2	0.7	0.5		104
E80	78.8	42.1	33.2	36.7	0.8	2.8	1.9	1.3	481
E subtotal	*87.9*	*46.1*	*48.1*	*46.9*	*1.0*	*4.3*	*2.7*	*1.3*	*599*
O10		2.4	1.4	1.8	2.4	2.6	2.5	7.0	65
O20		5.3	0.8	2.5	0.8	1.5	1.2		36
O30	0.8		0.2	0.1	2.4	0.6	1.3	0.3	18
O51		0.3		0.1					1
O57					0.4	0.6	0.5	0.3	6
O80		0.3	0.2	0.2		0.4	0.2		4
O81								2.9	9
O subtotal	*0.8*	*8.1*	*2.4*	*4.7*	*6.0*	*5.6*	*5.8*	*10.5*	*139*
R10	1.5	4.2	13.9	10.1	6.6	8.4	7.5	19.7	239
R20	2.3	6.3	4.6	5.3	4.4	2.2	3.3	22.3	158
R212	1.5	3.9	4.2	4.2	3.6	7.1	5.4	4.5	112
R30	0.8	4.5	6.2	5.5	8.2	13.6	11.0	7.0	190
R50		0.5	0.5	0.5				0.6	7
R60			0.2	0.1					1
R79								1.0	3
R84					0.2		0.1	1.6	6
R88		12.9	0.5	5.4	0.4	0.4	0.4		56
R90		0.5		0.2	0.4	0.4	0.4		6
R subtotal	*6.1*	*32.9*	*30.2*	*31.3*	*23.8*	*32.0*	*28.1*	*56.7*	*778*
B11								2.2	7
B20					0.4	0.4	0.4	1.6	9
B subtotal					*0.4*	*0.4*	*0.4*	*3.8*	*16*
C10 subtotal	*0.8*	*0.5*	*1.9*	*1.4*	*19.0*	*14.3*	*16.6*	*8.3*	*212*
Fabric FA4	*2.3*				*0.4*	*0.2*	*0.3*		*6*
TOTAL	132	380	582	962	499	537	1036	314	2444

Table 11: Fabric by phase quantification by sherd count (column %)

Phase	Vessel class											Total
	A	B	C	D	E	F	H	I	J	K	M	
1			92.2	7.8								0.90
1-3 & 2	0.9	2.9	60.5	2.0	11.5	4.7	7.3	2.9	3.3	4.1		11.17
2-3 & 3		7.6	59.3	4.6	8.6	1.8	8.3	5.7	5.5	2.6	0.4	12.51
4		0.7	56.0	3.5			14.2	6.7	11.2	7.7		4.30
TOTAL	0.10	1.30	17.42	1.01	2.37	0.74	2.46	1.32	1.00	1.11	0.05	28.88
%	*0.4*	*4.5*	*60.3*	*3.5*	*8.2*	*2.6*	*8.5*	*4.6*	*3.5*	*3.8*	*0.2*	

Table 12: Vessel class by phase—quantification by REs (row %)

Features Count	Brick RB	*T. mammata*	Flat tile	Tegula	Imbrex	Flue	Voussoir	Tessera	Indet.	Op. sig.	FC	Peg tile	Total	MFW
Lime kiln 1188	1317	369	10	15		1			199		537	4	2452	412.1
Layers over/ around corndryer 1635	39		45	37		3			2		4		130	219.13
Corndryer 1635 - N	87		168	111	20	7			161		5		559	233.47
Corndryer 1635 - S	233		73	130	20	58	9		26		152		701	336.93
N Ring ditch {1704}			24	26	1	3			3				57	31.842
S ring ditch {1080}	131		149	62	23	18		14	125		1		523	105.6
Corndryer 1071	540		59	245	50	57			397	4	12		1364	446.37
Corndryer 1078	50		12	1	11	24			1				99	72.848
Corndryer 1734	40		8	25	2	1			10		27		113	164.16
Corndryer 1327: F1327	123		56	13	9	11			21		5		238	169.52
CD pit group	2								9				11	95.727
Oven 1157									1		1		2	49
Oven 1300											6		6	5.5
Oven 1367											139		139	10.079
Oven 1611	16		4	1		1			10		6		38	106.39
Hearth 1424	2		11		2								15	159.33
F1330 ?oven											72		73	3.6986
F1331	1												1	291
D[1030]	10					7					1		18	38.833
D{1003}	5		9								2		16	84.438
D{1032}	41		33	2	1				32		1		110	55.855
D{1060}	2			3					4				9	86.778
D{1069}	67	1	8	2		1			22		1		102	144.75
D{1077}	35		36	11	6	10			35		109		242	46.351
D{1111}	3								1		4		8	109.25
D{1137}	28		25	10	6	10			36		1		116	52.828
D{1138}									2				2	3
D{1205}	5								5				10	194.5
D{1252}	8												8	39.875
D{1280}	23		1	2					22		1		49	90.061

Features Count	Brick RB	*T. mammata*	Flat tile	Tegula	Imbrex	Flue	Voussoir	Tessera	Indet.	Op. sig.	FC	Peg tile	Total	MFW
D{1412}	16		1	4	2	2			24				49	119.39
Layers	2		2	1	1				2				8	98.75
P1011	20		2										22	55.864
P1042	5												5	26.6
P1047											22		22	7.2727
P1093	3								2				5	63.4
P1095									1				1	7
P1097									1				1	73
P1100											7		7	3
P1104			18	1									19	7.8421
P1106											8		8	3.5
P1109					1				1				2	15
P1131	4		1						1			36	42	15.024
P1151	4			1		1							6	185.5
P1173			1										1	52
P1176												1	1	7
P1180	16			1									17	41.471
P1181						1							1	19
P1184			2										2	20
P1239	2		2		3				8				15	60.267
P1303	1												1	178
P1364											17		17	4.6471
P1389	4												4	349.5
P1620	4		4	1									9	117.22
N. PH Gp									9				9	4
PH1397	4											8	12	132.08
QH1437	3		1										4	298.25
Total Nos	**2896**	**370**	**763**	**707**	**158**	**216**	**9**	**14**	**1173**	**4**	**1141**	**49**	**7500**	295.15

Table 13a: Quantification (count) of CBM and building material tabulated by structures and features

Features Wt	Brick RB	*T. mammata*	Flat tile	Tegula	Imbrex	Flue	Voussoir	Tessera	Indet.	Op. Sig	FC	Peg tile	Total
Lime kiln 1188	447,153	543,605	2188	5636		48			6975		4589	283	1,010,477
Layers over/around corndryer 1635	13,085		7342	7455		530			46		29		28,487
Corndryer 1635 - N	47,470		28,353	49,019	1936	1266			2440		28		130,512
Corndryer 1635 - S	155,044		7501	65,289	3706	2586	1469		109		482		236,186
Ring ditch {1704}			250	1419	26	95			25				1815
Ring ditch {1080}	34,764		5647	9235	1725	2016		213	1613		18		55,231
Corndryer 1071	430,989		2690	132,521	20,681	13,078			8299	550	37		608,845
Corndryer 1078	4188		413	108	753	1737			13				7212
Corndryer 1734	7375		1415	8896	633	98			65		68		18,550
Corndryer 1327: F1327	32,471		2694	1769	797	559			2046		9		40,345
CD pit group	1016								37				1053
Oven 1157									13		85		98
Oven 1300											33		33
Oven 1367											1401		1401
Oven 1611	2432		715	715		51			105		25		4043
Hearth 1424	896		623		871								2390
Oven 1330											270		270
F1331	291												291
D[1030]	615					76					8		699
D{1003}	1022		317								12		1351
D{1032}	4967		492	507	42				126		10		6144
D{1060}	303			466					12				781
D{1069}	11,032	874	2030	439		159			226		4		14,764
D{1077}	4884		2172	2552	265	456			293		595		11,217
D{1111}	814								2		58		874
D{1137}	2214		1164	1105	511	738			391		5		6128
D{1138}									6				6
D{1205}	1907								38				1945
D{1252}	319												319
D{1280}	4091		28	88					199		7		4413
D{1412}	3551		89	1070	119	182			839				5850

Features Wt	Brick RB	*T. mammata*	Flat tile	Tegula	Imbrex	Flue	Voussoir	Tessera	Indet.	Op. Sig	FC	Peg tile	Total
Layers	474		43	134	62				77				790
P1011	1134		95										1229
P1042	133												133
P1047											160		160
P1093	312								5				317
P1095									7				7
P1097									73				73
P1100											21		21
P1104			128	21									149
P1106											28		28
P1109					18				12				30
P1131	305		19						3			304	631
P1151	847			221		45							1113
P1173			52										52
P1176												7	7
P1180	617			88									705
P1181						19							19
P1184			40										40
P1239	373		315		162				54				904
P1303	178												178
P1364											79		79
P1389	1398												1398
P1620	722		236	97									1055
N. PH Gp									36				36
PH1397	1035											550	1585
QH1437	1071		122										1193
Total wt g	**1,221,492**	**544,479**	**67,173**	**288,850**	**32,307**	**23,739**	**1469**	**213**	**24,185**	**550**	**8061**	**1144**	**2,213,662**

Table 13b: Quantification (weight in g) of CBM and building material tabulated by structures and features

Structure	Ctx	Id.	Form	Type	Th.	Width	Length	Wt g	Size

Lime kiln 1188	1192	701	*T. mammata*	Bessalis type 7	55	190	194	3427	100%
Lime kiln 1188	1406	176	Brick RB	Bessalis	56	210	>120	1966	40%
Lime kiln 1188	1407	75	Brick RB	Bessalis	56	193	>95	1546	30%
Lime kiln 1188	1407	594	*T. mammata*	Bessalis type 7	56-61	190	195	4008	100%
Lime kiln 1188	1407	595	*T. mammata*	Bessalis type 7	56	192	>190	2888	80%
Lime kiln 1188	1452	877	Brick RB	Bessalis	42	212	>145	1510	65%
Lime kiln 1188	1486	1365	*T. mammata*	Bessalis type 7	53	195	195	3531	55%
Corndryer 1635	1714	628	Brick RB	Bessalis	37	195	207	2422	100%

Table 14: Dimensions of *bessalis* bricks and *tegulae mammatae*

Structure	Ctx	Id.	Form	Type	Th.	Width	Length	Wt g	Size
Lime kiln 1188	1407	330	T. *mamma*ta	pedalis type 7	50	280	290	6000	80%
Lime kiln 1188	1407	331	Brick	pedalis	48-59	277-c295	305-315	7000	80%
Lime kiln 1188	1431	80	T. *mamma*ta	pedalis type 7	54	282	290	8000	100%
Lime kiln 1188	1487	1348	T. *mamma*ta	pedalis type 7	45-54	285	>185 [est. c. 280-300mm]	3614	65%

Table 15: Dimensions of *pedalis* bricks and *tegulae mammatae*

Structure	Ctx	Id.	Form	Type	Th.	Width	Length	Wt g	Size
Corndryer 1071	1071	666	Brick RB	Lydion	35-42	290	423	6354	75%
Corndryer 1071	1103	726	Brick RB	Lydion?	34-40	300	>215	3075	50%?
Corndryer 1635	1721	777	Brick RB	Lydion	37	292	426	9200	100%
Lime kiln 1188	1407	171	Brick RB	Lydion	52	286	>330	4235	50%
Lime kiln 1188	1407	159	*T. mammata*	Type 2 (Lydion)	52	282	400	7000	75%
Lime kiln 1188	1407	162	*T. mammata*	Type 2? (Lydion)	41-43	285	>370	6700	75%
Lime kiln 1188	1407	272	*T. mammata*	Type 2 (Lydion)	45	287	422	8165	98%
Lime kiln 1188	1407	156b	*T. mammata*	Type 2? (Lydion)	45	>157	410	4800	50%
Lime kiln 1188	1408	85	*T. mammata*	Type 2? (Lydion)	41	277	>155	2426	50%
Lime kiln 1188	1434	203	*T. mammata*	Type 2 (Lydion)	35	272	390	5191	80%
Lime kiln 1188	1434	228	*T. mammata*	Type 2? (Lydion)	47-58	280	>333	7000	70%

Structure	Ctx	Id.	Form	Type	Th.	Width	Length	Wt g	Size
Lime kiln 1188	1434	307	*T. mammata*	Type 2 (Lydion)	46	280	c.405	5809	80%
Lime kiln 1188	1485	1116	*T. mammata*	Type 2? (Lydion)	49	285	412	7364	75%
Lime kiln 1188	1486	1133	*T. mammata*	Type 2 (Lydion)	48	280	400	8386	100%
Lime kiln 1188	1486	1338	*T. mammata*	Type 2 (Lydion)	37-51	285	407	6626	80%
Lime kiln 1188	1486	1359	*T. mammata*	Type 2 (Lydion)	37-41	283	415	6503	90%
Lime kiln 1188	1486	1369	*T. mammata*	Type 2 (Lydion)	38-44	>120	425	2778	40%
Lime kiln 1188	1486	1375	*T. mammata*	Type 2b (lydion)	65	295	>346	8893	75%
Lime kiln 1188	1486	1376	*T. mammata*	Type 2 (Lydion)	46-47	295	425	2788	100%
Lime kiln 1188	1486	1378	*T. mammata*	Type 2? (Lydion)	43-51	286-295	>325	5335	65%
Lime kiln 1188	1486	1380	*T. mammata*	Type 2 (Lydion)	40	>175	410	3834	45%
Lime kiln 1188	1486	1381	*T. mammata*	Type 2 (Lydion)	42-48	>160	415	3240	30%
Lime kiln 1188	1486	1382	*T. mammata*	Type 2 (Lydion)	39-50	290	417	8547	95%
Lime kiln 1188	1487	1126	*T. mammata*	Type 2? (Lydion)	40-44	282	>325	5682	75%
Lime kiln 1188	1487	1130	*T. mammata*	Type 2 (Lydion)	35-47	290	>320	5242	70%
Lime kiln 1188	1487	1345	*T. mammata*	Type 2 (Lydion)	45-50mm	283-293	415	9040	100%
Lime kiln 1188	1487	1346	*T. mammata*	Type 2 (Lydion)	0	290	420	7661	100%
Lime kiln 1188	1487	1350	*T. mammata*	Type 2 (Lydion)	41	275	400	6766	100%
Lime kiln 1188	1487	1353	*T. mammata*	Type 1 (Lydion)	42-45	288	405	7020	95%
Lime kiln 1188	1487	1355	*T. mammata*	Type 2 (Lydion)	40-43	285-288	420-423	7695	100%
Lime kiln 1188	1487	1385	*T. mammata*	Type 2 (Lydion)	51	295	>334	6446	65%
Lime kiln 1188	1487	1351	*T. mammata*	Type 2 (Lydion)	35-41	280	400	6705	100%

Table 16: Dimensions of lydion bricks and *tegulae mammatae*

Structure	Ctx	Id.	Form	Type	Th.	Width	Length	Wt g	Size
Corndryer 1071	1071	688	Segmental brick	semi-circular	47-54	>190	>220	2679	50%
Lime kiln 1188	1190	57	Segmental brick	semi-circular	54	0	>190	913	Fragment

Table 17: Dimensions of segmental bricks

Structure	Cntxt	Id	Th	Width	W top	W base	W at lower c/a	Length	Size

Corndryer 1071	1102	28	27		325	300	290 at c/a	410	100%
	1102	29	22	>170				430	50%
	1102	31	23			c.355	290 (internal between flanges at lower c/a)	>320	50%
	1102	34	13-23	>235				440	60%
	1102	38	22		320+ (top)			>310	c.75%
	1102	38	20	>110				>425 (est. *c* 440)	
	1102	42	26		340	334		427	80%
	1102	161	32	-	328	320		397	100%
	1102	166	20-22			340		>270	25%
	1102	167	27	312 (centre)		305	283 (at lower c/a)	405	75%
	1102	168	24			>328 (est. *c* 338)	270 (internal between flanges at lower c/a)	>366 (est. *c* 420)	60%
	1102	169	21-26		325	317		392	100%
	1102	195	25-27	>160				408	50%
Corndryer 1635	1640	240	22	>140				>408 (est. *c* 450)	45%
	1650	244	20	>190				436	50%
	1650	245	29	>190				455	50%

Table 18: Dimensions (in mm) of tegulae with a complete width or length

Flange type	Nos	Width	Height	Fabrics	Comments
A	17	16-40	40-58	B, C, D, E, E2, E3	Curved & angular base angle, 2x fgs
A2	2	24-36	47, 50	C, E3	Curved & angular base angle, tapered
A3	7	19-32	44-53	C, D, E3	Curved & angular base angle, tapered
A4	66	17-39	41-64	All (excl. A)	Curved base angle rarely abrupt, finger grooves rare, most tapered
A4→D2/E	6	17-38	45-58	C, E2, E3	Curve and abrupt base angle, tapered
B & A3/B	4	16-33 top; 22-39 base	49-58	C, D, E	Curved & abrupt base angle, tapered
D	45	18-38	45-60	All (excl. A)	Curved & angular base angle, tapered
D2	5	18-36	45-60	C, E2, E3, F	Curved base angle, some with finger groove, occasionally tapered
E	10	21-39	46-58	B, C, E2, E3, F	Curved base angle, occasional finger groove, tapered
F	9	18-34	51-65	B, C, D, E, F	Curved & abrupt base angle, tapered
F2	3	26-38	57-62	C, D	Curved & abrupt base angle, tapered
Total	174				

Table 19: Tegula flanges: types and sizes

Cutaway type (OA)	Warry Gp & type	Nos	Length	Width	Height/depth	Comments
D1	A2	1	70	27	30	Found in structure of lime kiln
C1?	B6?	7	37-71	20	-	Cut wedge. Upper sections all missing, could be type A3/C1
A3	C4	7	-	7, 11, 13, 15	full	Made with mould
A3/C1	C5	34	42-72	7-19mm & 25-52mm	Full & 19-44mm	Moulded & cut
A3/C1	C5/D15	10	42-57	15-19mm & 25-35mm	Full & 20-32mm	Moulded & cut
A3/C1	D15	11	40-55	15-18mm & 19-45mm	Full & 13-20mm	Moulded & cut
A3b	D16 / D1	9	45-74	10-13 & 30-40	Full/35-43	Moulded & cut
A2	Upper	53	30-62	15-29	23-36	Moulded & cut rectangular
A2a	Upper	10	35-60	21-28 & 40	22-33	Moulded & cut sloping to outer edge
A2b	Upper	4	40-52	17-25	21-28, 35-38	Moulded & cut sloping to end
A2c	Upper	3	46-50	16-25	-	Moulded & cut sloping to inside

Table 20: Tegula cutaways: types and sizes

Structure	Cntxt	Id	Th	W	Ht	L / D	Size
Corndryer 1071	1102	36	18	*c* 150	*c* 100	>235	50%
Corndryer 1071	1102	36	18	*c* 180	92	>270	25%
Corndryer 1071	1102	439	17-21	*c* 200	99	>280,	*c* 25%
Corndryer 1071	1102	439	17-21	*c* 180	97	>235	*c* 25%
Corndryer 1071	1102	439	17-21	*c* 160	86	>190	*c* 25%
Corndryer 1071	1102	439	17-21	*c* 190	86	>233	*c* 25%
Corndryer 1071	1102	441	15-24	*c* 200 (lower end)	97	>315	Fragment
Corndryer 1071	1102	704	17-19	*c* 170	80	>200	Fragment
Corndryer 1071	1102	705	14-21,	*c* 170	90	-	*c* 25%
Corndryer 1071	1102	705	20-24	*c* 200	90	-	*c* 25%
Corndryer 1071	1102	705	19-21	*c* 200	*c* 100	-	*c* 25%
Corndryer 1071	1102	705	17-19	*c* 180-190 (est.)	*c* 105-85	>300	*c* 25%
Corndryer 1071	1164	299	20-21	*c* 180-190 (est.)	*c* 85	432	50%
Hearth 1424	1427	68	16-17	135->160	61-75+	>195	50%
Corndryer 1635	1629	830	21	*c* 170+	*c* 95+	>110	Fragment
Corndryer 1635	1640	251	13-18	*c* 180	120	>170	Fragment
Corndryer 1635	1651	321	16	*c* 120	80	>130	Fragment
Ring ditch 1080	1670	853	22	*c* 180-190	*c* 100-110	>110	Fragment

Table 21: Dimensions of imbrex

Type	description	Total	Teg	Flat	Nos Brick	Nos T. mam	Width	Ht
1.1	Single hoop	25	11	6	5	3	66, 76, 170, 180, 200, 200; -	69, 35, 110, 120, 90, 125; 110, 52
1.2	Double hoop	29	11	4	9	5	130, 160, 170, 175, 180, 185, 185, 190, 240, 240; -	80, 70, 90, 104, 85, 114, 98, 57, 78, 90; 66, 75, 80, 90, 125
1.3	Triple hoop	1	1	0	0	0	150	70
2.1	Horseshoe single	3	1	0	2	0	-	165, 230
2.2	Horseshoe double	1	1	0	0	0	190	70
21.1	Tall hoop single	5	4	0	1	0	-	-
21.2	Tall hoop double	6	5	0	1	0	c.280-290; Full internal teg. width	150; 150, 185, 190
4.1	Circle single	2	0	1	1	0	-	-
4.3	Circle triple	1	1	0	0	0	75	74
8	S-Meander	2	0	0	0	2	-	-
16r	Quarter circle	1	1	0	0	0	57	80
22?	Hoop or partial hoop with internal line	2	2	0	0	0	95	86; 53
23?	C or Reverse C	2	1	0	1	0	24, 45	31, 49
12	Straight vertical or diagonal	3	0	0	3	0	-	-
12a	Straight diagonal	1	0	1	0	0	-	-
U	Fragment curved	9	0	4	5	0	-	-
	Total	88	39	11	28	10		

Table 22: CBM signature marks

Animal type	Lime kiln 1188		corndryer 1071		corndryer 1327		Corndryer 1635		Total
	No. tiles	No. prints	No. tiles	No. prints	No. tiles	No. prints	No. tiles	No. prints	Prints
Hoof (?ovicaprid)	34	>84	2	2					>85
Dog paw	13	21	2	2	1	1	2	2	26
Dog claw scratches			2	2					2
Cat paw	1	2	2	4			2	6	12
Human foot?	3	3	1	2					5
Hobnail boot			1	1					1
Total	51	>110	10	13	1	1	4	8	>132

Table 23: Summary of animal foot imprints

Structure	Tegula flanges	Tegula c/a	Flue tiles	Bricks	Signatures	Imprints	Date (CBM)	Date (pot)
Lime kiln 1188	A4, D, E	Type A	-	*Tegulae mamm.*; IB rare	Most type 1.2; also type 1.1, 4 & 8	Large number hoof prints; dog, cat	AD 43-120	-
Corndryer 1071	A4, D, E; plus A2, A3, F2	Type C5, D16, ?D15	Combed keying types 1, 3, 22, 23	IBs & pressure marks	Type 1, 4, 22, 23; ?12	Dog claws, human, hobnails, hoof, cat, handling, straw/grass	C3-C4	240+
Corndryer 1078	A	-	Combed keying types 1, 3, 23	-	-	-	C2+	240-300
Corndryer 1734	A, A4, D	D16, B6/C5	Scored keying	-	Type 1	-	AD 240-380	LC1-C2
Corndryer 1327	A, A4, B, D F		Combed type 1 & ?2	IBs	Type 12	Dog, handling	C2+	C3-C4
Corndryer 1906	A/A4	Present ?C5 or D16?	(no detailed record of the tile is available as the structure was not dismantled)				AD160-380	-
Kiln 1635	A4, D	C5, D15, D16	Combed: type, 1, 2, 3, 4, 5	IBs & pressure marks	Type 1, 2, 21	Cat, dog; straw; handling	AD240-380	C2
Layers over 1635	A4, D, A2, D2	C5, D15	Combed type 3, 4, 7, 5 or 14	-	Type 1, 21	Dog; handling	RB: AD240-380	C2
Ring ditches 1080 & 1704	A4, D, E, A, B, D2	C5, ?D16	Combed: types1, 3, 4, 7, 6/12. Roller stamped: die 5 (chevrons); die 104/105 (billet design), chevrons	IBs	Type 1, 2, 4	Handling	AD160-260 & ?AD240-380	C1-C2 (& C4)

Table 24: Comparison of significant tile characteristics used in the construction of the corndryers

Context No		1167a	1167b	1103	1165
Sample No		1017	1038	1011	1037
Cut No		1072	1072	1072	1163
Feature		Corndryer 1071	Corndryer 1071	Corndryer 1071	Corndryer 1071
Description		Fill of stokehole	Fill of stokehole	Fill of stokehole (overlying 1167)	Fill of flue: *in-situ* charred layer
Phase/Date		M-L Roman	M-L Roman	M-L Roman	M-L Roman
Sample Size l		20	40	40	2
Flot size ml		50	320	250	10
Percentage of flot analysed		50%	6.25%	6.25%	50%
Charred cereal grains					
Avena sp	cultivated/ wild oat		1	1	1 (still in husk)
Avena fatua	wild oat		2 (still in florets)		
Triticum sp	wheat	15	20	28	14
Triticum sp cf glumed	cf glumed wheat		1	6	1
Indeterminate cereal grains		27	28	76	24
	Total	*32*	*52*	*111*	*40*
Indeterminate cereal grain fragments		(4)	(5) mainly in <2mm fraction	(2)	(3)
Detached coleoptile fragments		(1)	(1)	(1)	(1)
Detached embryos		(2)	(3)	(1)	(3)
Charred cereal chaff					
Triticum spelta glume bases	spelt wheat	98	113	236	58
Triticum sp glume bases					31
Triticum spelta spikelet forks	spelt wheat	6	7	2	4
Avena fatua floret base	wild oat				1
Culm node		1			
	Total	*105*	*120*	*138*	*94*

Context No		1167a	1167b	1103	1165
cf *Triticum* sp glume base fragments	wheat	(3)	(5) c 95% of cpr	(4)	(5) c 99% of cpr
Avena sp awn fragments	oat	(2)	(4)	(2)	(3)
Triticum sp/*Hordeum* sp awn fragments	wheat/barley		(5)		
Silicified *Triticum* sp/*Hordeum* sp awn fragments	wheat/barley		(5)	(1)	
Lemma/palea fragments		(1)	(3)		(1)
Charred weed seeds (ruderals and arable/cultivated land)					
Anthemis cotula	stinking chamomile	4	1	1	
Chenopodium album (esp manured)	fat-hen	3	30		25
Fallopia convolvulus	black-bindweed		2		
Glebionis segetum	corn marigold				2
Polygonum aviculare	knotgrass		1		
Tripleurospermum inodorum	scentless mayweed	1	12		4
Charred weed seeds (damp/wet places)					
Carex lenticular	sedges two-sided		1		
Charred weed seeds (broad)					
Apiaceae	carrot family		1		1
Bromus sp	bromes	3	16	8	2
Fabaceae (<4mm)	pea family	1	1		1
Centaurea sp	knapweeds	1			
Polygonaceae	knotweed family			5	
Poaceae seeds >4mm	grass family	6	4	9	6
Poaceae seeds 2-4mm	grass family	1	7		
Poaceae seeds <2mm	grass family	6	26	8	8
Rumex obtusifolius	broad-leaved dock	1	9		3

Context No		1167a	1167b	1103	1165
Rumex sp	docks	2	4		1
Viola sp	violets				3
Indeterminate seeds/fruits				1	1
Total charred weed seeds		*29*	*115*	*32*	*57*
Other remains					
Charcoal		(5*) c 95% of flot	(3) c 5% of flot	(5*) c 50% of flot	(1) c 1% of flot
Bone fragments		(1)	(1)		(1)
Calcined bone fragments		(1)	(1)		
Coal fragments		(1)			
Brick/tile fragments		(2)	(2)	(1)	(2)

Table 25: Quantification of the charred plant remains from corndryer 1071 (charred remains are given as actual counts, whereas other remains are based on a scale from 1-5 where (1) =<5 items, (2) =5-25, (3) =26-100, (4) =>100 items, and (5) =>1000 items. (5*) = charcoal analysed. Counts are of seeds/fruits unless stated otherwise)

Context No		1079	1747	1745	1420
Sample No		1006	1065	1060	1032
Cut No		1078	1734	1635	1417
Feature Type		Corndryer 1078	Corndryer 1734	Corndryer 1635	Ditch 1077
Description		Charred layer from base of stokehole and flue	Associated with timber 1474 in cross-flue	Charred deposit within flue	Upper fill
Phase/Date		M-L Roman	M-L Roman	M-L Roman	M-L Roman
Sample Size l		40	10	14	40
Flot size ml		25	110	65	300
Percentage of flot analysed		50%	25%	25%	25%
Charred cereal grains					
Avena sp	cultivated/ wild oat				2
Triticum sp	wheat	23 (one sprouted)	191 (majority sprouted)	5	13 (2 sprouted)
Triticum sp cf glumed	cf glumed wheat	9	23 (many sprouted)		2 (1 sprouted)
Triticum spelta	spelt wheat		1 (spikelet)		
Triticum cf *aestivum*-type	cf bread wheat-type	2			
Indeterminate cereal grains		64 (one sprouted)	69 (one retained in glumes)	16 (2 sprouted)	53
Total		*96*	*284*	*21*	*70*
Indeterminate cereal grain fragments		(4) mostly in <2mm fraction	(3)	(5) c 50% of cpr	(5)
Detached coleoptile fragments		(2)	(3)	(3)	(5)
Detached embryos		(2)	(3)	(3)	(5)

Context No		1079	1747	1745	1420
Charred cereal chaff					
Triticum spelta glume bases	spelt wheat	85	83 (one with part of cereal grain still attached)	298	c750
Triticum sp glume bases			21		
Triticum spelta spikelet forks	spelt wheat	2	43 (14 with part of cereal grain still attached; three with whole coleoptiles; one with lemma/palea still attached)	34	12
Avena sativa floret base	common oat				1
Avena fatua floret base	wild oat				1
Avena sp floret base					1
Culm node			1	1	
Total		*87*	*148*	*333*	*c765*
cf *Triticum* sp glume base fragments	wheat	(4)	(4)	(5) c 50% of cpr	(5)
Avena sp awn fragments	oat	(2)		(2)	(3)
Triticum sp/*Hordeum* sp awn fragments	wheat/barley		(3)	(2)	(2)

Context No		1079	1747	1745	1420
Lemma/palea fragments		(2)	(2)	(2)	
Other charred edibles					
Corylus avellana nutshell fragments	hazel				4
Fragaria vesca	wild strawberry				1
Charred weed seeds (ruderals and arable/cultivated land)					
Anthemis cotula	stinking chamomile	1			
Chenopodium album (esp manured)	fat-hen	2			
Tripleurospermum inodorum	scentless mayweed				5
Charred weed seeds (grassland)					
Daucus cf *carota*	Wild carrot (mostly on chalky soils)	1			
Plantago lanceolata	ribwort plantain	4			
Rumex acetosella	sheep's sorrel	1	1	6	
Charred weed seeds (damp/wet places)					
Ranunculus repens-type	creeping buttercup-type				1
Charred weed seeds (broad)					
Asteraceae	daisy family	1			
Bromus sp	bromes	2	1 (sprouted)	5	42
Fabaceae (<4mm)	pea family	5	7	1	11
Centaurea sp	knapweeds	1			
Galium mollugo-type	hedge bedstraw (mostly on well drained base-rich soils)	1			
Galium sp	bedstraws			1	

Context No		1079	1747	1745	1420
Hypericum sp	St John's-worts	1			
Poaceae seeds >4mm	grass family	2		12	65
Poaceae seeds 2-4mm	grass family	2	1	18 (one still in glumes)	1
Poaceae seeds <2mm	grass family	22		1	2
Rumex obtusifolius	broad-leaved dock		1	26	6
Rumex sp	docks			5	
Viola sp	violets	2			
Indeterminate seeds/fruits		2		6	2
Total charred weed seeds/fruits		*79*	*11*	*75*	*135*
>4mm Poaceae fragments	Large grass seed fragments				(5)
Other remains					
Charcoal		(4) c 50% of flot	(5*) c 95% of flot	(2) c 1% of flot	(3) fine, c1% of flot
Coal fragments				(1)	
Brick/tile fragments		(3) fine		(5)	(5)

Table 26: Quantification of the charred plant remains from all features other than corndryer 1071 (charred remains are given as actual counts, whereas other remains are based on a scale from 1-5 where (1) =<5 items, (2) =5-25, (3) =26-100, (4) =>100 items, and (5) =>1000 items. (5*) = charcoal analysed. Counts are of seeds/fruits unless stated otherwise)

Context No		1490	1167a	1103	1747	1743	1742	1651
Sample No		1046	1017	1011	1065	1064	1062	1056
Cut No		1471	1072	1072	1734	1734	1734	1640
Feature Type		Lime kiln 1188	Corndryer 1071	Corndryer 1071	Corndryer 1734	Corndryer 1734	Corndryer 1734	Corndryer 1635
Description		Basal fill with chalk and red burnt clay	Fill of stokehole	Fill of stokehole (over 1167)	Burnt timber 1747 in cross-flue	Final fill in cross-flue	Upper fill 1747	Fill from central chamber/flue
Date		Early Roman	M-L Roman	M-L Roman	M-L Roman	M-L Roman	M-L Roman	M-L Roman
Sample size l		28	20	40	10	16	8	40
Flot size ml		330	50	250	110	140	150	200
Acer campestre				5				4
Alnus glutinosa or *Corylus avellana*	alder/hazel			32 (lrw)			2	5
Corylus avellana	hazel			28 (lrw/tw)	9 (lrw)		3 (lrw)	6 (rw)
Betula sp	birch			1				
Fraxinus excelsior	ash				90 (sw/lrw)	32		1(sw)
Maloideae	hawthorn-type							10
Prunus cf *spinosa*	blackthorn						8	7
Prunus sp	blackthorn-type	2		2			51 (rs)	20
Quercus sp	oak	157 (sw?)	87 (sw/fg)	1 (sw)	37(sw)	42 (sw)	37	16
Indeterminate		8		7 (bark)		1	4	15
No of fragments identified		159	87	69	136	74	101	69
Charcoal notes			Possibly all from same piece of wood				*Prunus* sp from possible green wood	

Table 27: Summary of charcoal analysis (sw = sapwood prominant, rw = roundwood prominent, lrw = large roundwood prominent, tw = twig fragments prominent, rs = radial splitting, fg = fast growing)

Context	SF	Est. date	Denomination	Obverse	Reverse	Mint	Reference	Condition	Comment
1077	1037	198	denarius	IVLIA AVGVSTA	MATER DEVM	Rome	RIC 49	SW/SW	See Figure 28
1070	1034	1-2C	as?	-	Female figure standing l			-/VW	Incomplete, obverse totally eroded
1077	1036	Later 3C	Radiate? 12mm+	Radiate head?	-			EW/EW	Almost totally eroded and diameter probably reduced as a result
1073	1017	4C	AE3 15mm+	Head r?	-			EW/EW	Incomplete, almost totally eroded

Table 28: Summary of Roman coins

Phase	Tool	Transport	Personal	Footwear	Household	Structural	Binding	Nails	Misc.	Query	Waste	Totals
1: LIA-ER					1			11	6	1	1	20
2: ER								1	3	1		5
1: LIA–3: MR				1				15	11	2		29
2: ER–3: MR				3				12	3	1		19
3: MR	1	1						33	13	6		54
4: LR				9		1	1	5	2	2		20
1-4: Roman								2				2
unphased			1					2	1			4
Totals	1	1	1	13	1	1	1	81	39	13	1	153

Table 29: Number of metal finds by phase and function

Phase	vessel	window	totals
2: ER		1	1
2: ER–3: MR	1		1
3: MR	1		1
5: post RB	36	3	39
Totals	38	4	42

Table 30: Summary of glass finds

No.	Notes	Wt (g)	Context	Cut	Group	Phase
1	Thin disc type with pecked flat faces. 36mm thick	665	1295	Hollow 1294		4
1	Flat worn faces with some traces of pecking. Burnt (reddened). >39mm thick	321	1626	Ring ditch 1655	1080	2
3	Traces of pecking on one fragment	273	1661	Layer		1-4
5	Small section of flat worn face with some traces of pecking on one fragment	264	1673	Ring ditch 1675	1080	2-3
1	Fragment	109	1674	Ring ditch 1675	1080	2-3
5	Small section of flat worn face with some traces of pecking on two fragments	229	1674	Ring ditch 1675	1080	2-3
6	Small section of flat worn face with traces of pecking on two fragments	406	1676	Ring ditch 1679	1080	2-3
12	One large fragment and 11 smaller ones. Larger fragment has straight pecked edges and pecked flat faces. 72mm thick	857	1677	Ring ditch 1679	1080	2-3
2	Some traces of pecking on one fragment	77	1678	Ring ditch 1679	1080	2-3
1	Traces of deep pock marks on one face and of rotational grooves on the other. Circumference curve suggests a diameter in the region of 50cm	1603	1640	Collapsed building material in kiln 1635		2

Table 31: Quantification of Millstone Grit quern fragments

Taxa	Phase 1-3	Phase 1-4	Phase 2	Phase 2-3	Phase 3	Phase 4	Total
cattle	5		2	1	7	3	18
sheep/goat			5	1			6
horse	13		89		4		106
bird				1			1
large mammal	1	1	49	42	58		151
mammal	30		2	3	18		53
medium mammal	1		3				4
total	50	1	150	48	87	3	339

Table 32: Number of animal bone fragments by phased group (hand-collected)

Taxa	Phase 2	Phase 2-3	Total

cattle		13	13
Microtus sp	4		4
cf *Microtus* sp	1		1
Rodentia (mouse/vole)	1		1
large mammal		3	3
mammal		2	2
small mammal	10	1	11
total	16	19	35

Table 33: Number of animal bone fragments by phased group (sieved)

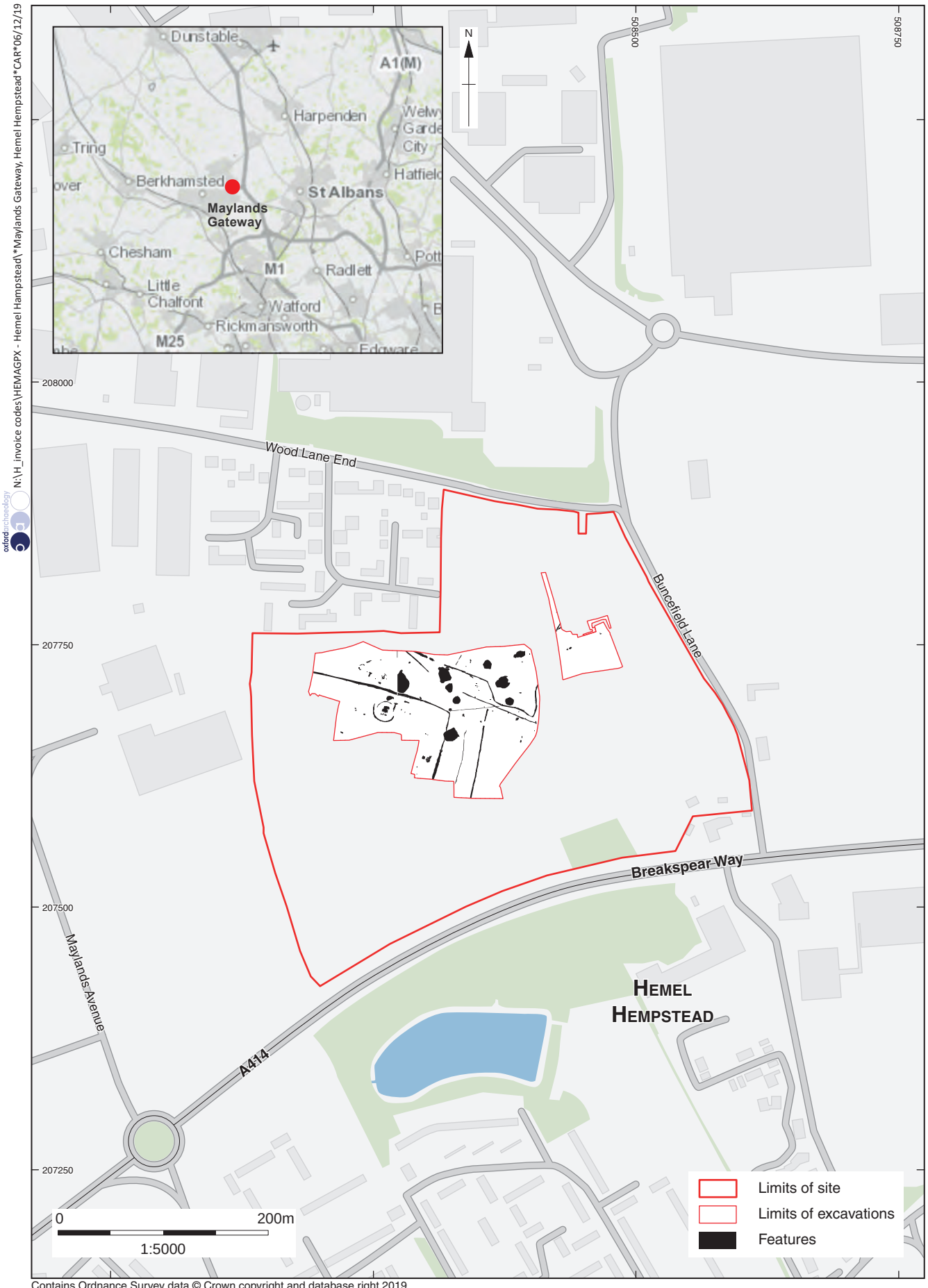

Figure 1: Site location

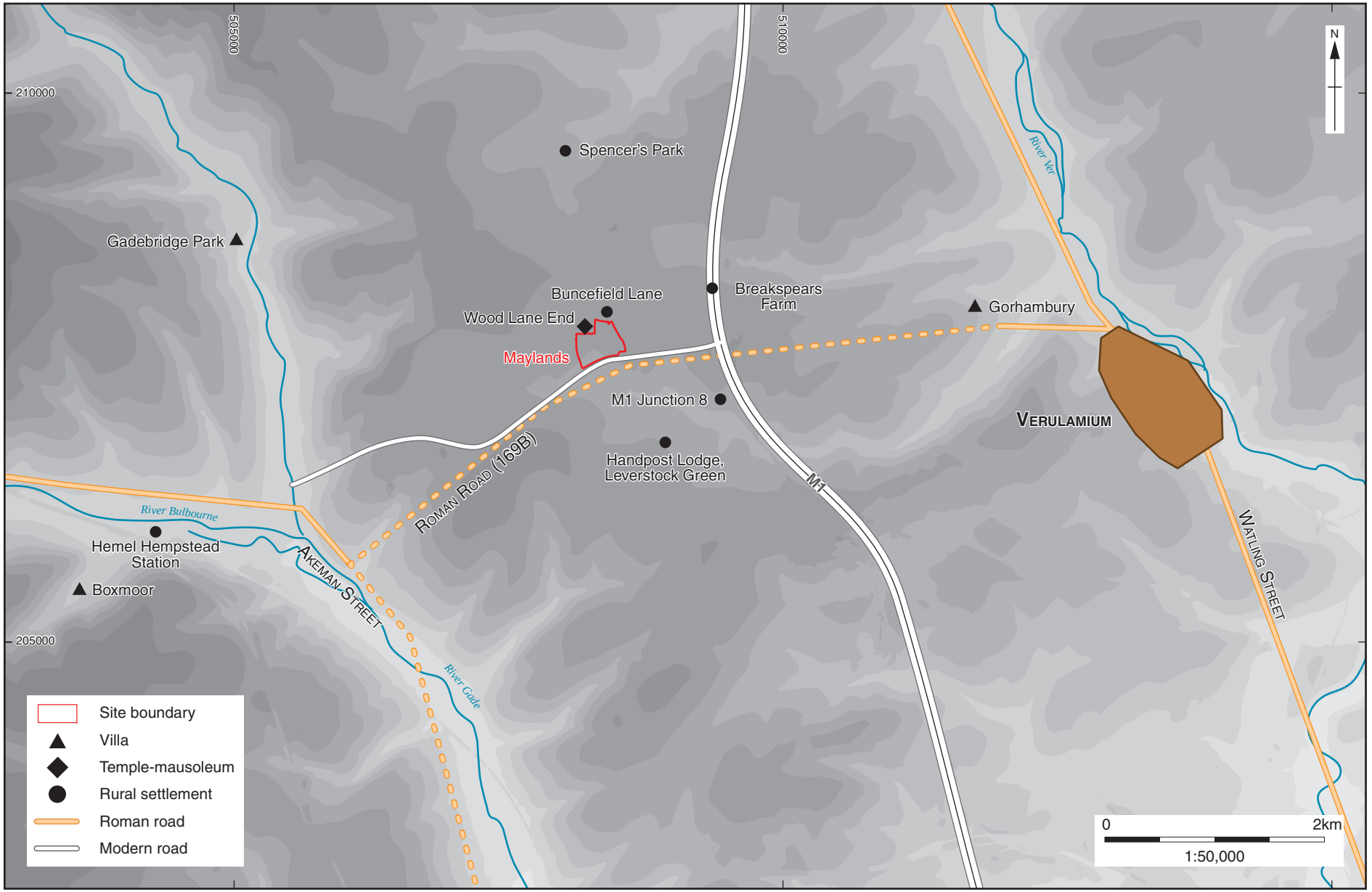

Figure 2: Roman sites in the hinterland west of Verulamium

Figure 3: Plan of Phase 0 features

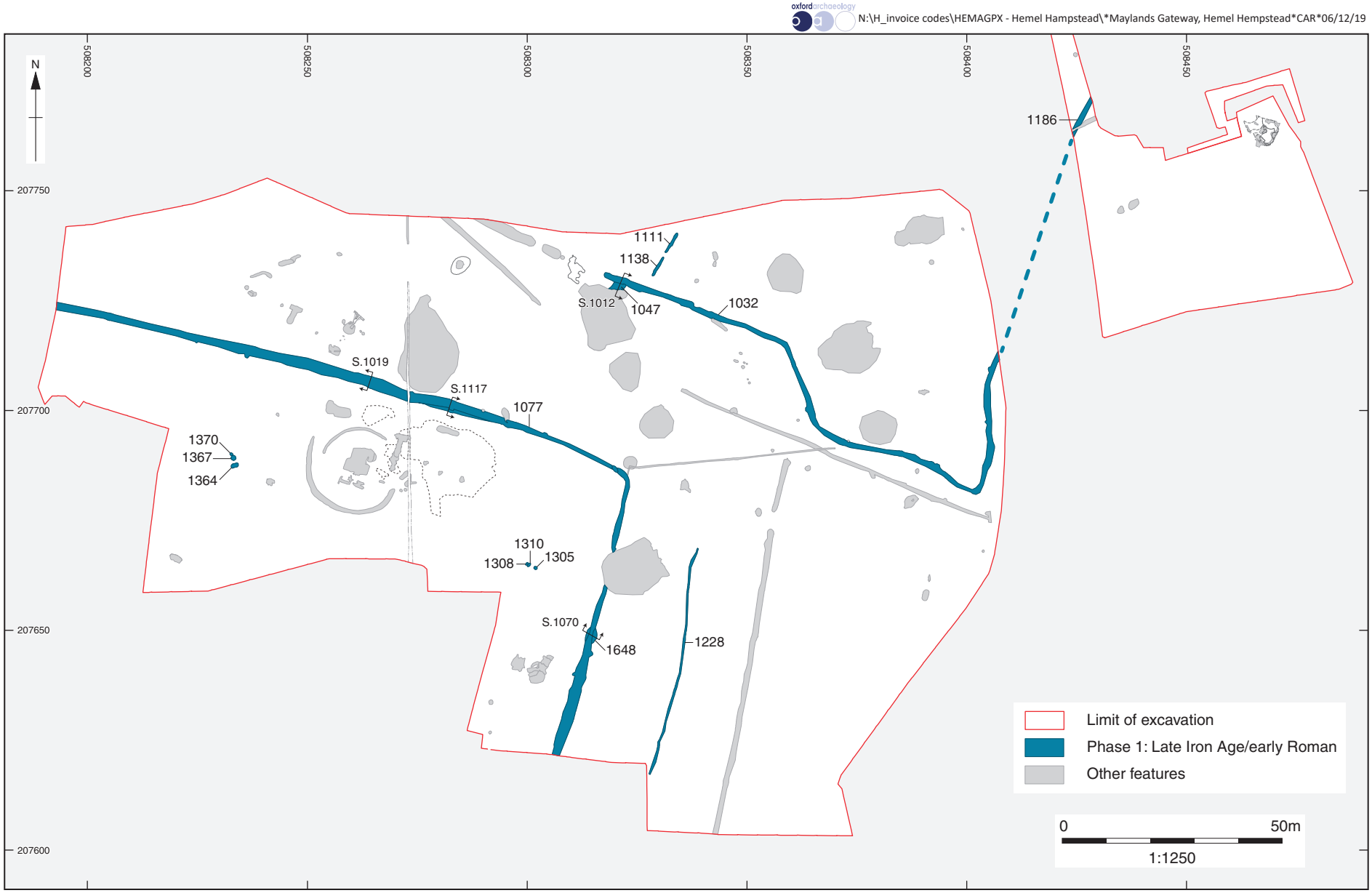

Figure 4: Plan of Phase 1 features

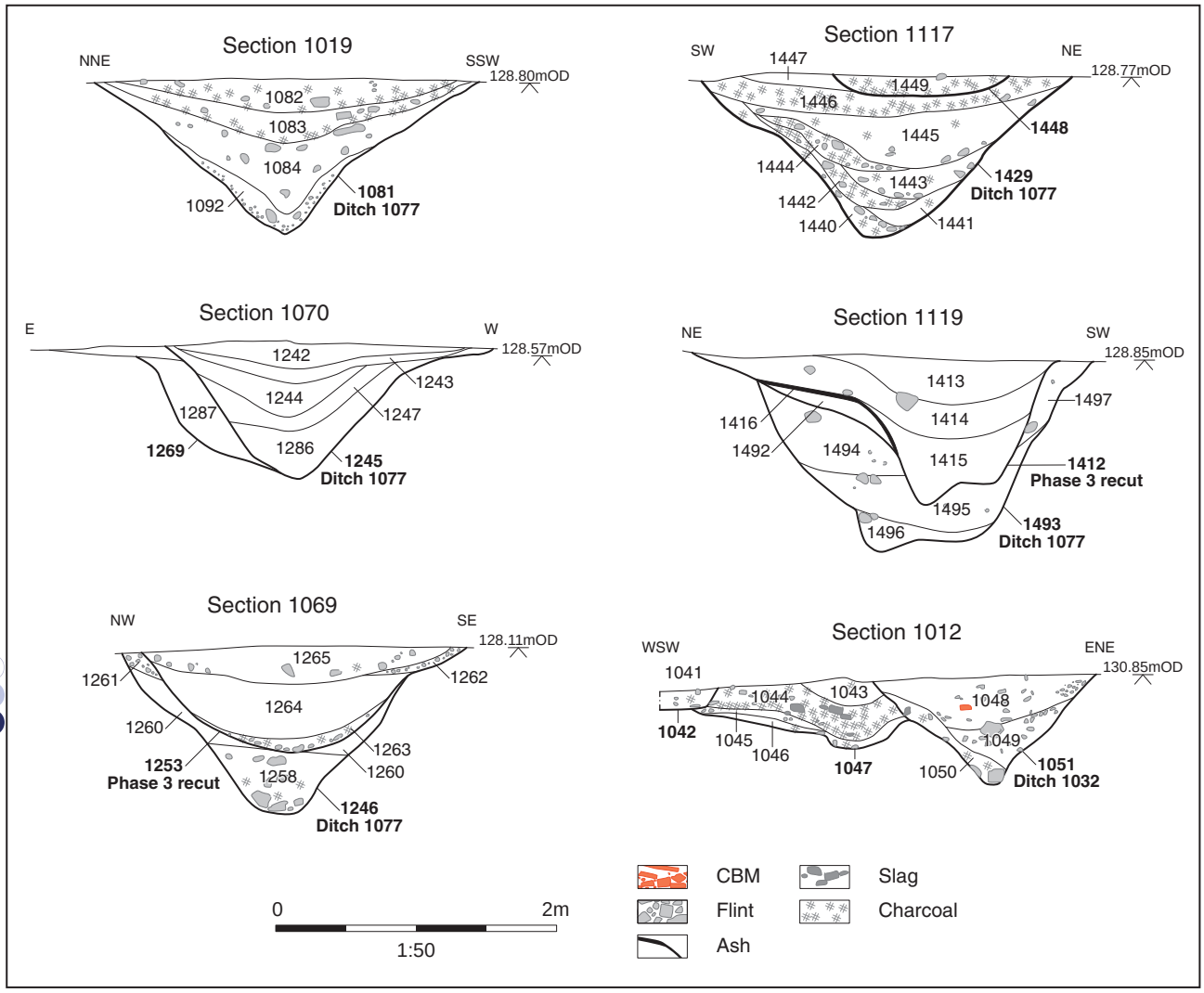

Figure 5: Ditch and pit sections

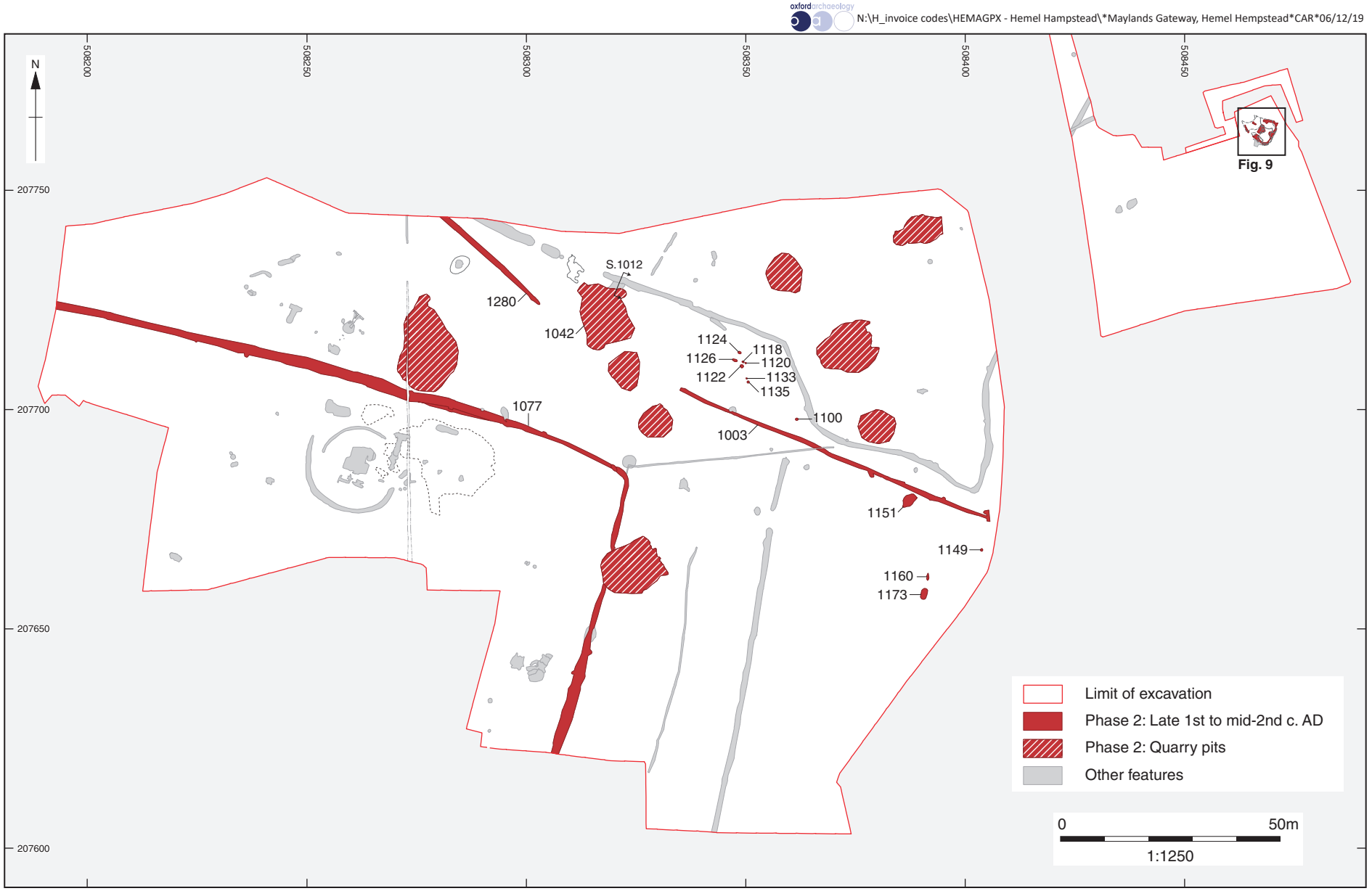

Figure 6: Plan of Phase 2 features

Figure 7: View of lime kiln 1188 under excavation

Figure 8: Excavation of dividing wall 1487 in lime kiln 1188

Figure 9: Plan of lime kiln 1188

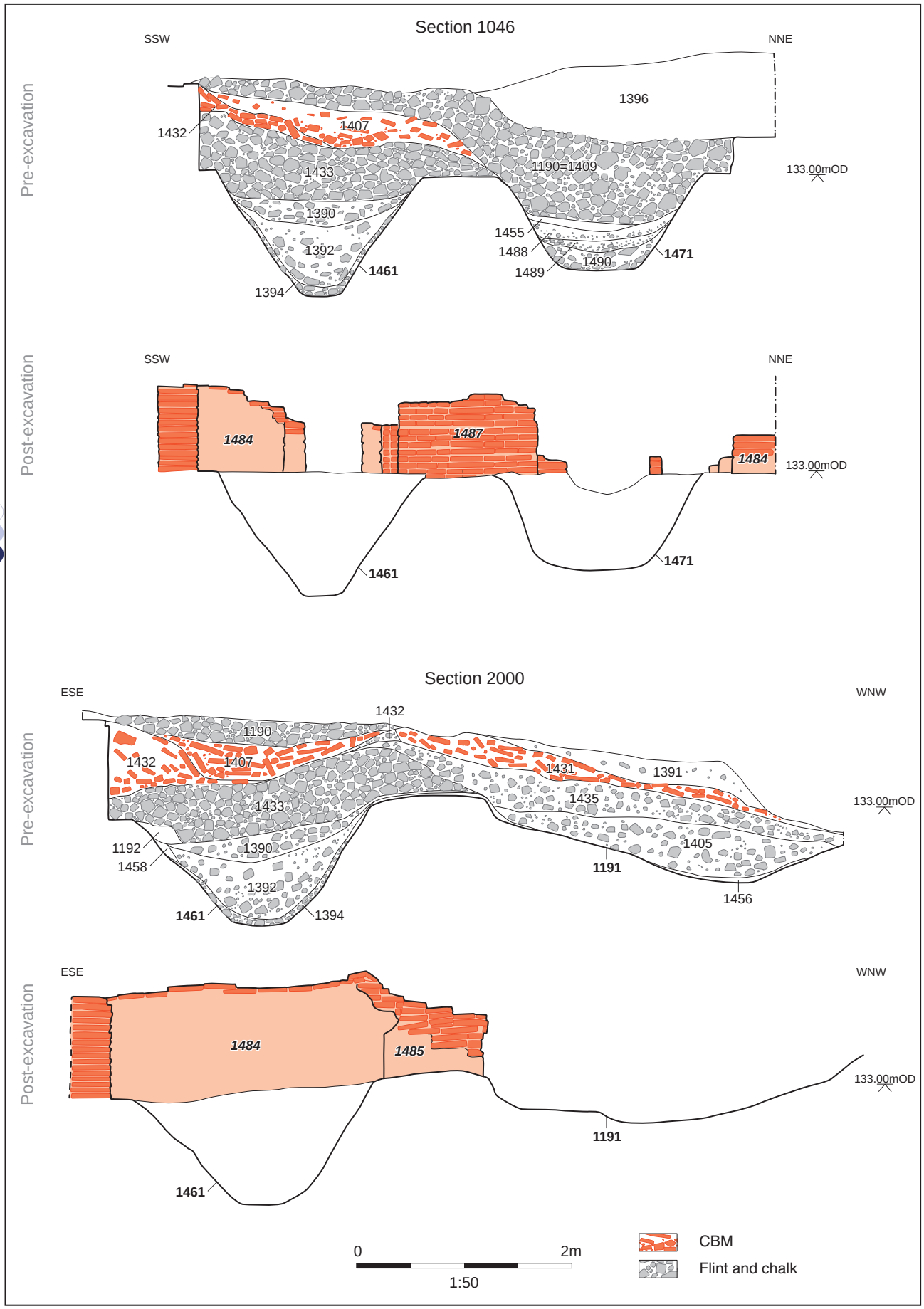

Figure 10: Sections through lime kiln 1188

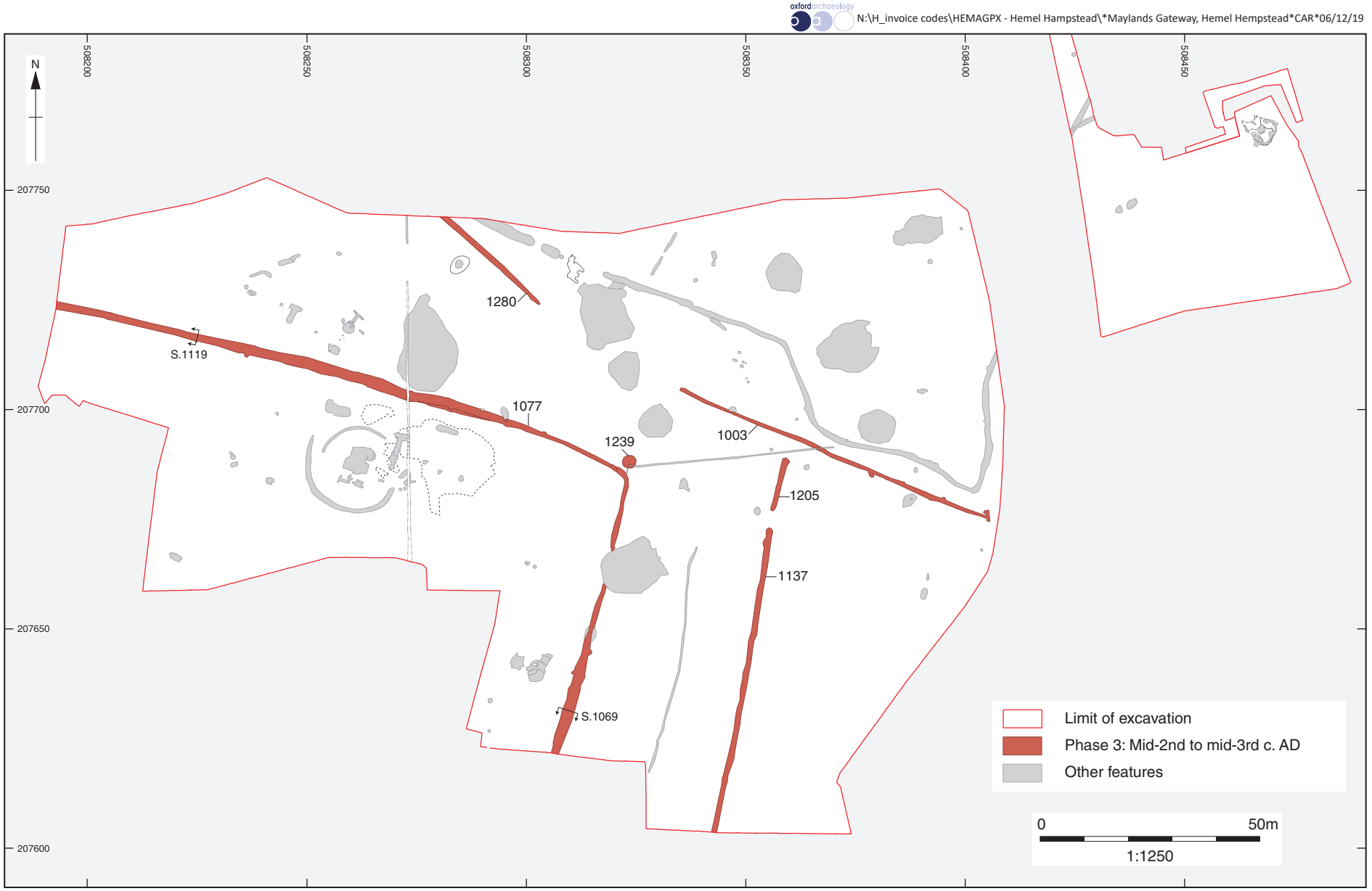

Figure 11: Plan of Phase 3 features

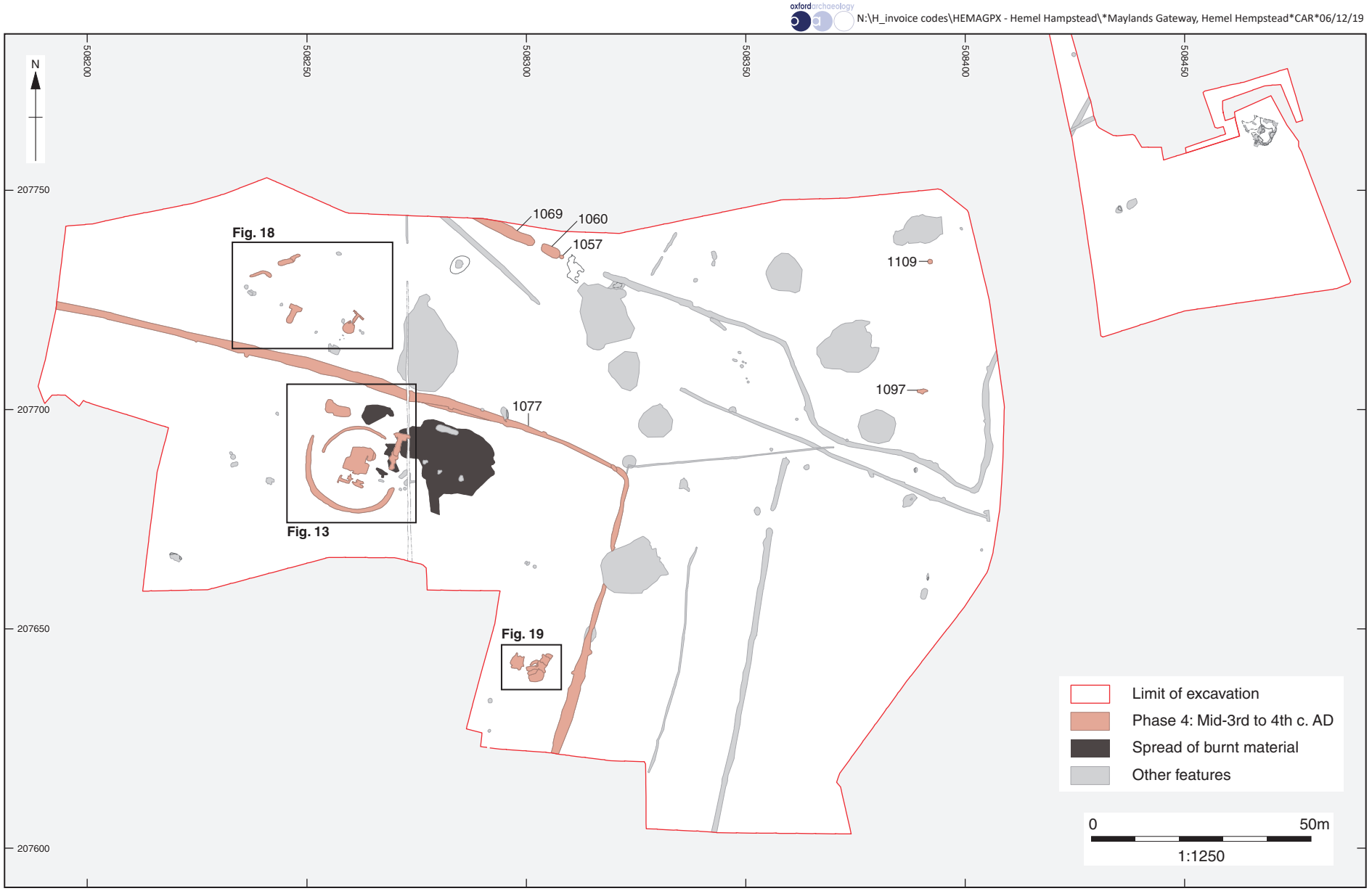

Figure 12: Plan of Phase 4 features

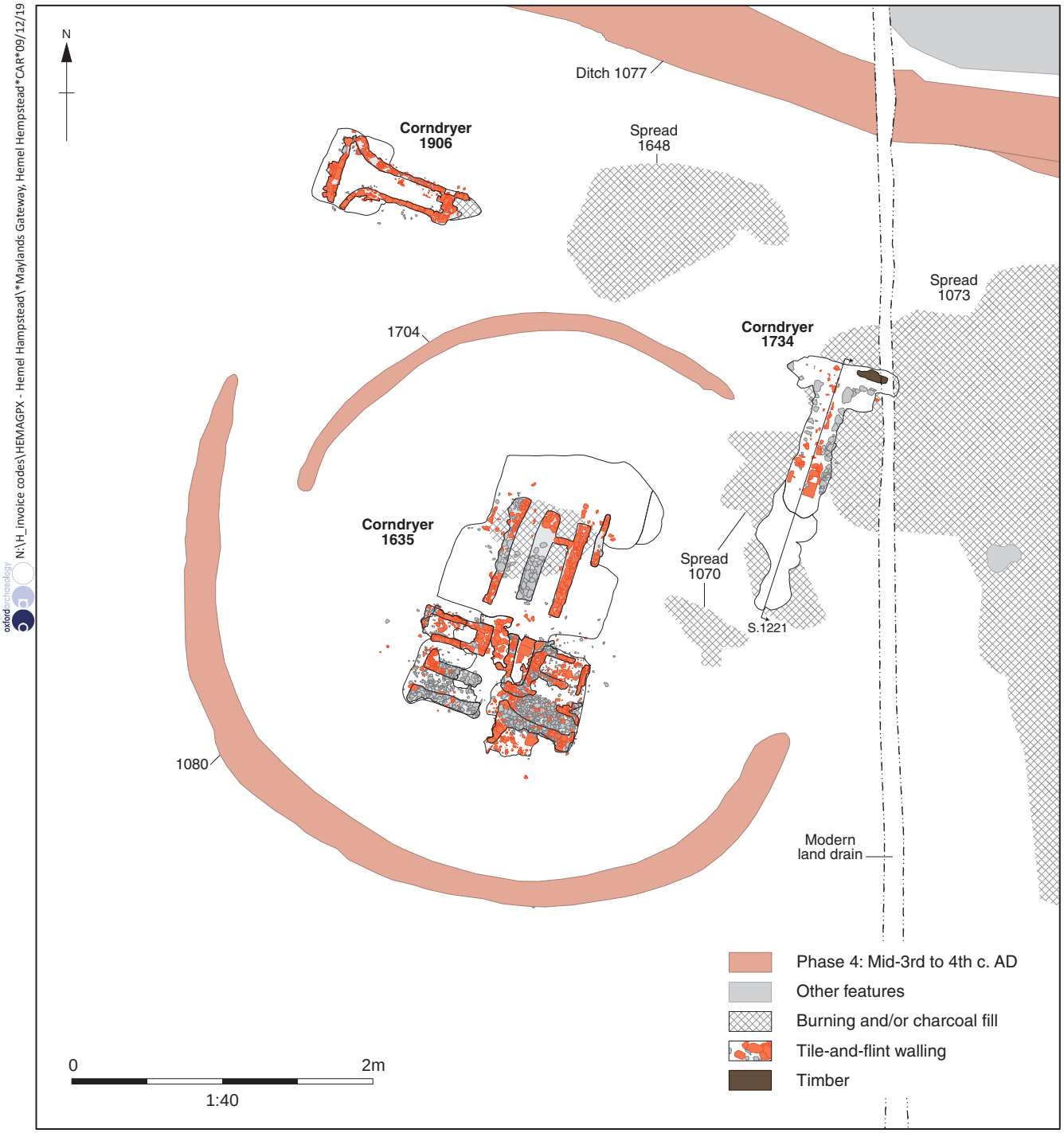

Figure 13: Plan of corndryers 1635, 1734, 1906 and associated features

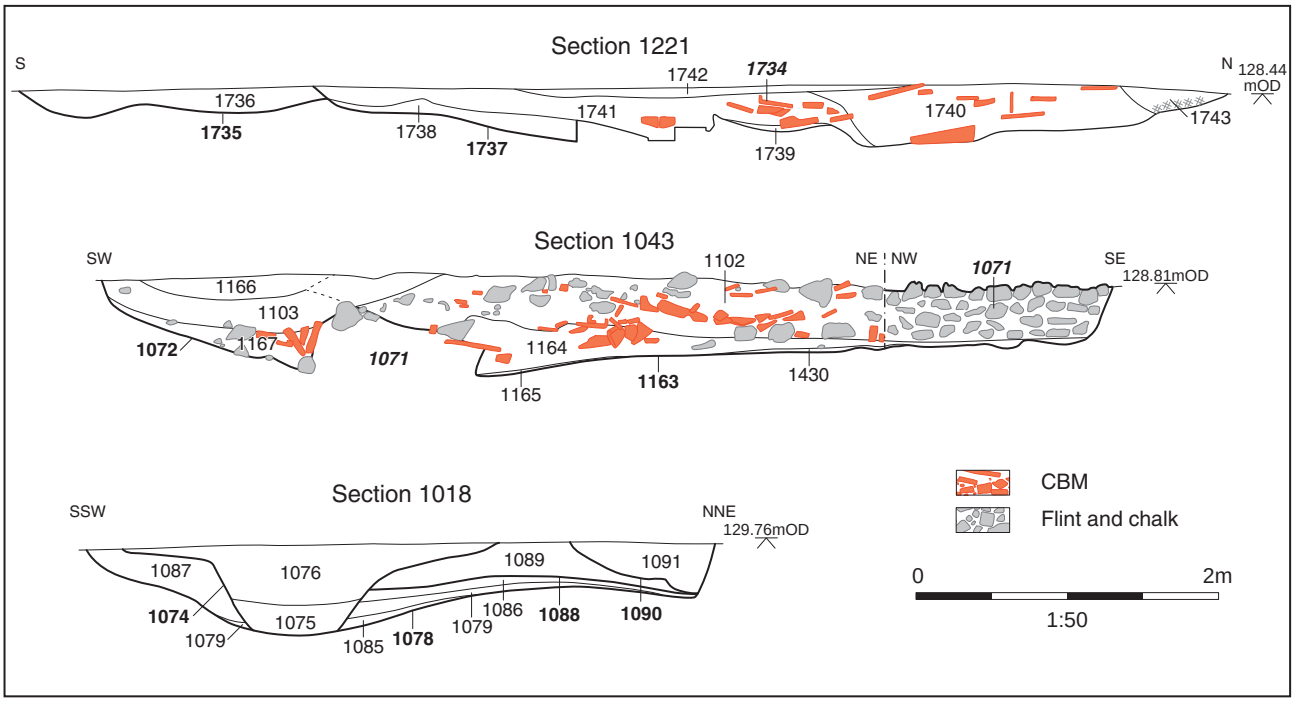

Figure 14: Corndryer sections

Figure 15: Corndryer 1734 looking south, showing timber 1747 in the cross-flue (scale: 0.5m)

Figure 16: Aerial view of corndryer 1635

Figure 17: Detailed plan of corndryer 1635

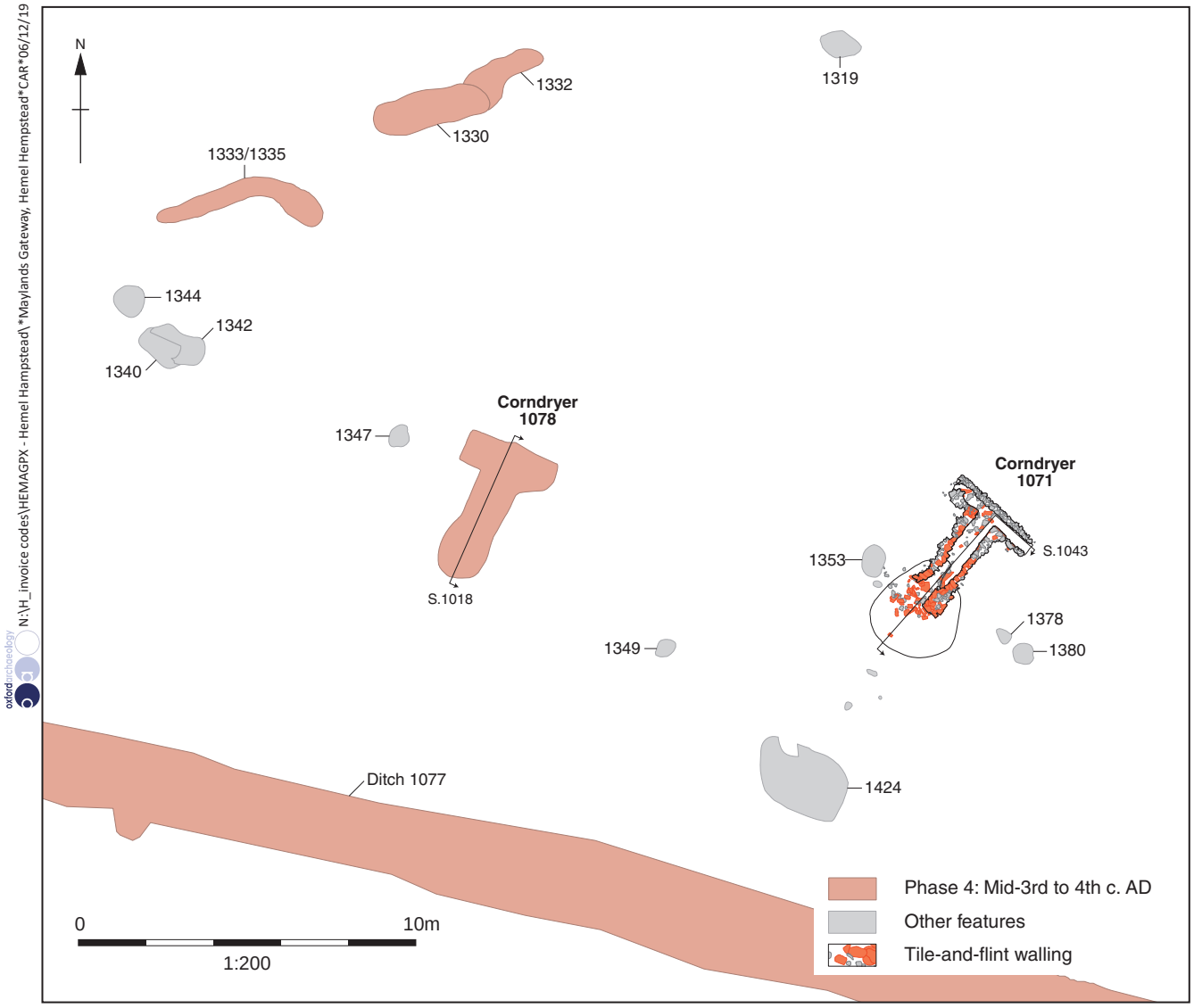

Figure 18: Plan of corndryer 1071 and 1078 and associated features

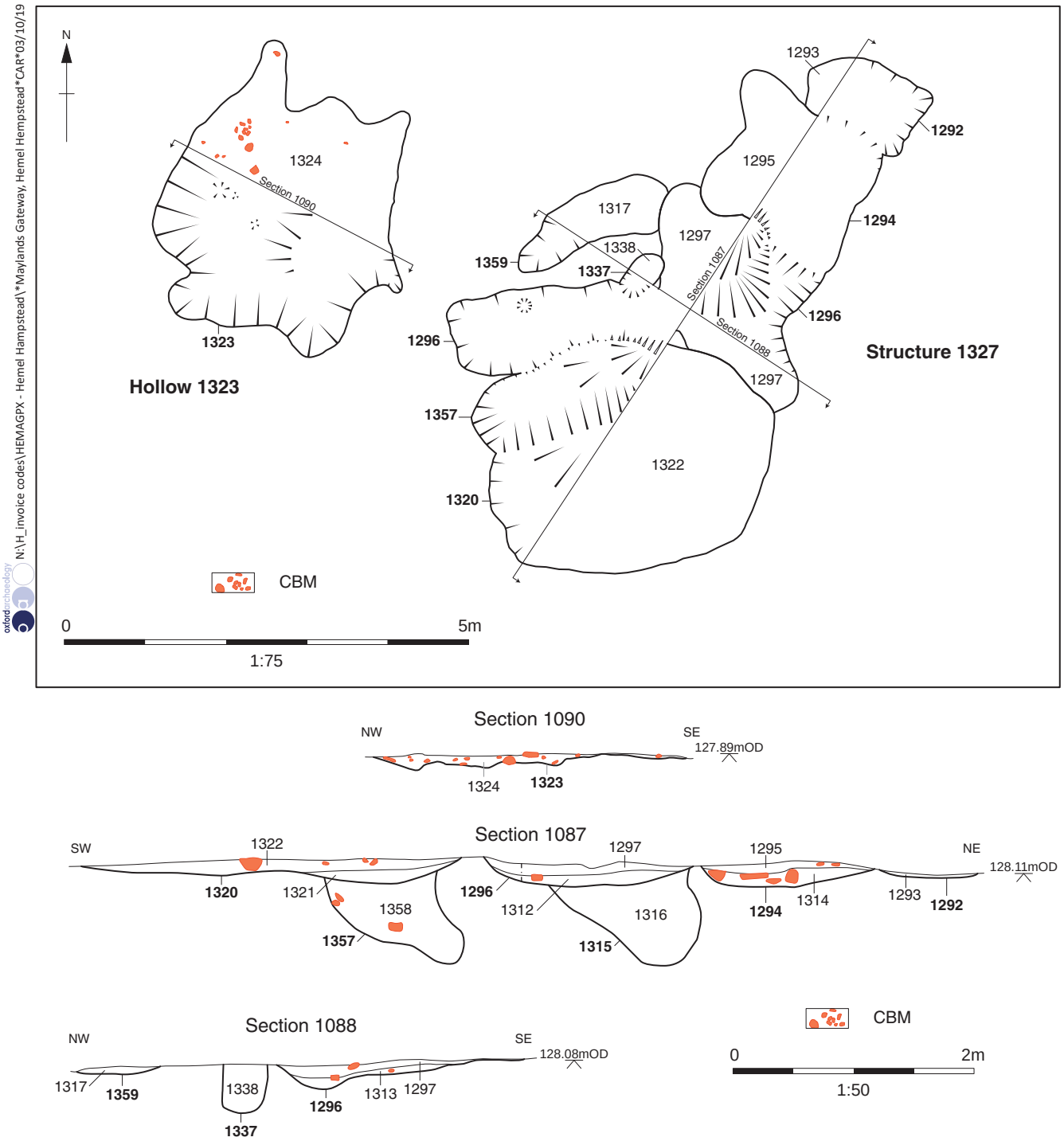

Figure 19: Plan and sections of structure 1327 and hollow 1323

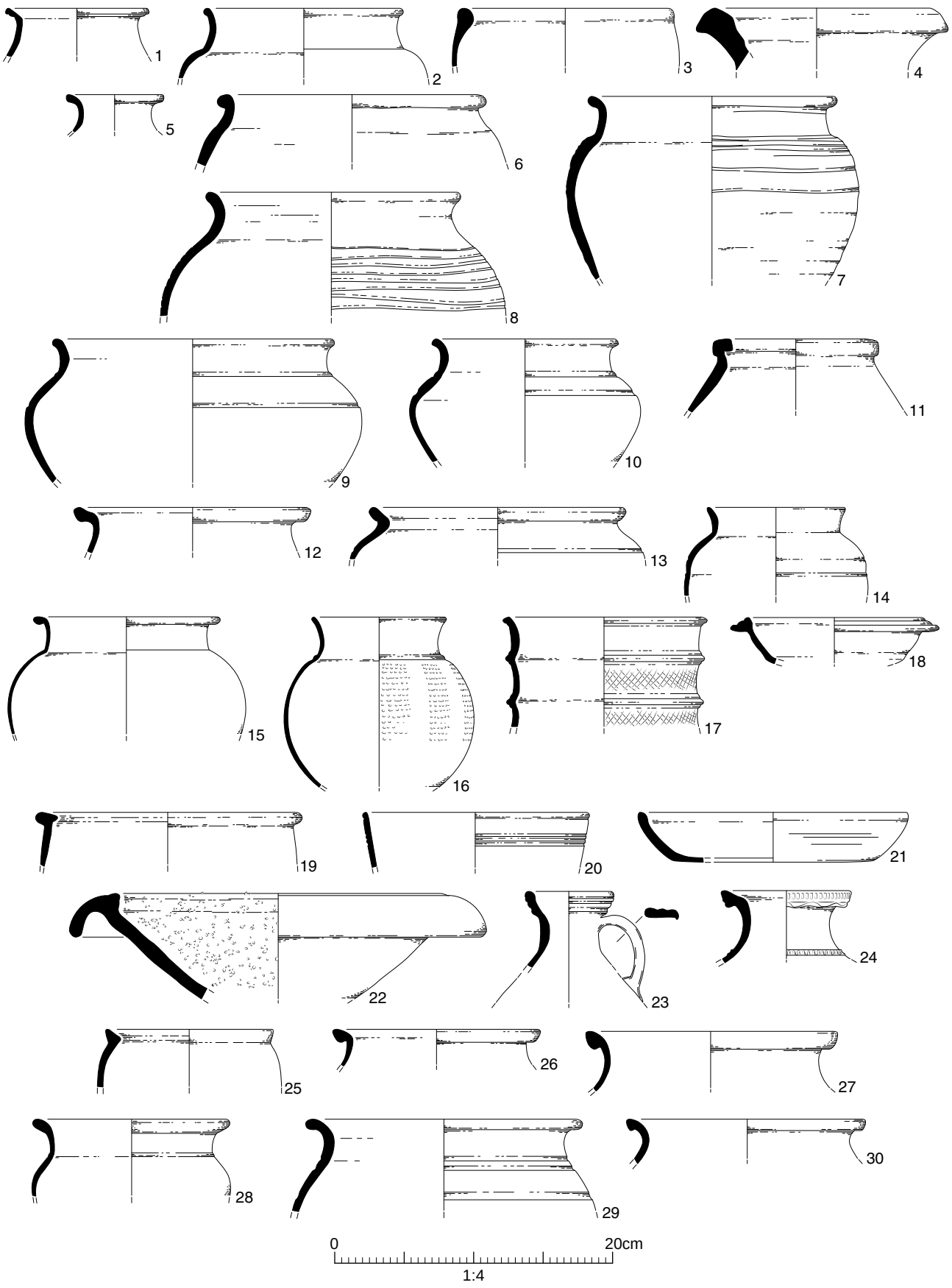

Figure 20: Roman pottery 1-30

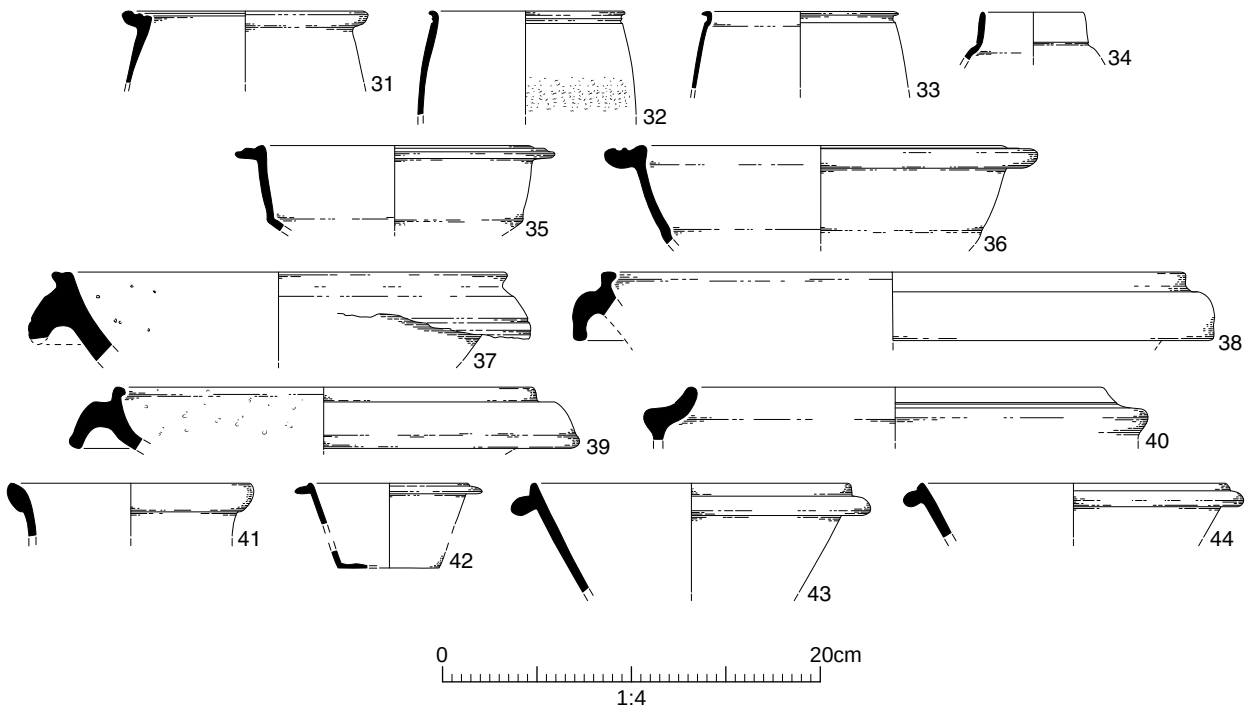

Figure 21: Roman pottery 31-44

Figure 22: Ceramic building material 1-6

Figure 23: Ceramic building material 7-10

Figure 24: Ceramic building material 11-13

Figure 25: Ceramic building material 14-19

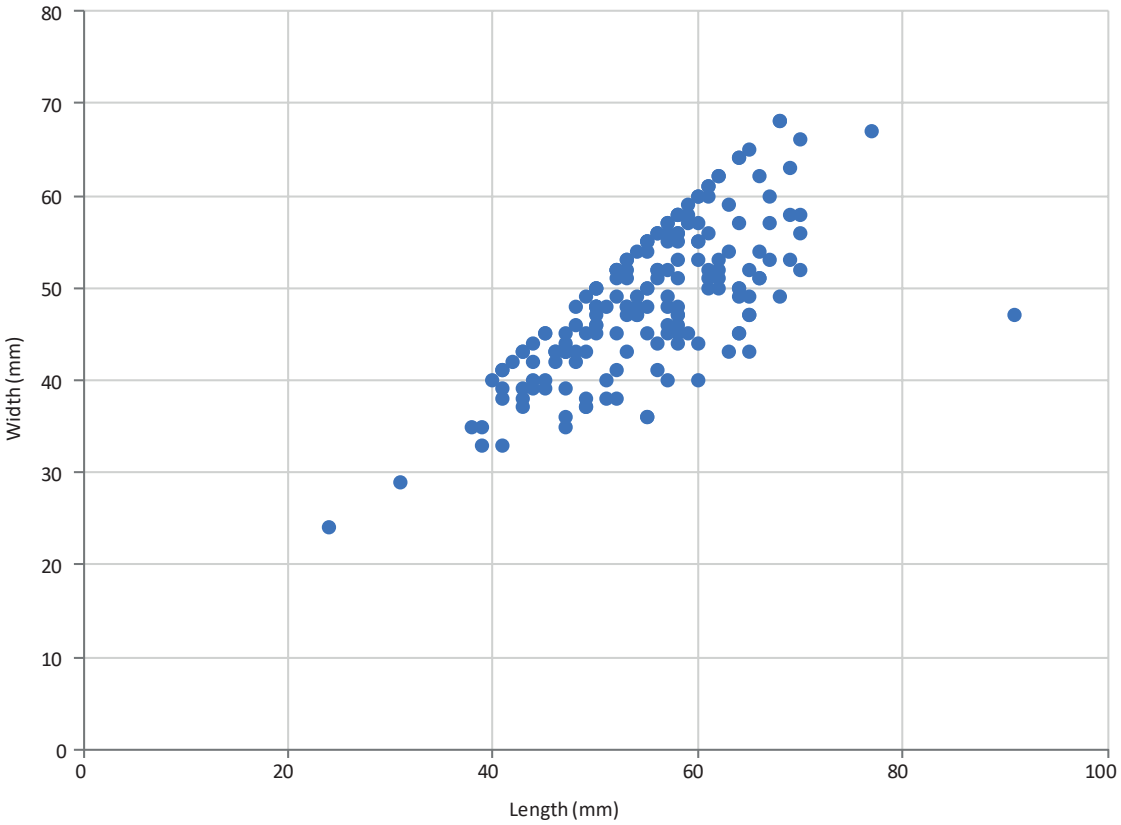

Figure 26: Distribution of mamma sizes on tegulae mammatae

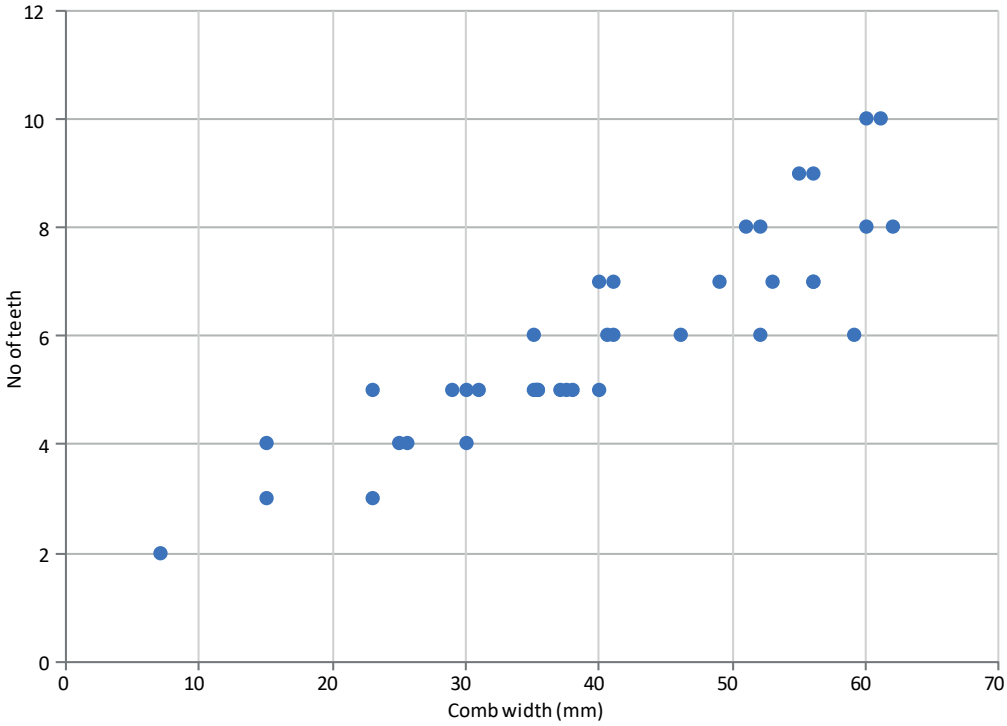

Figure 27: Combing widths against number of teeth found on flue tile

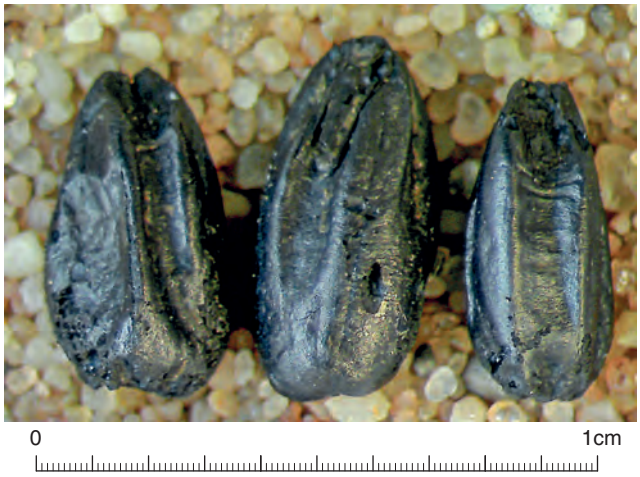

Figure 28: Sprouted spelt wheat

Figure 29: Sprouted spelt wheat in glumes

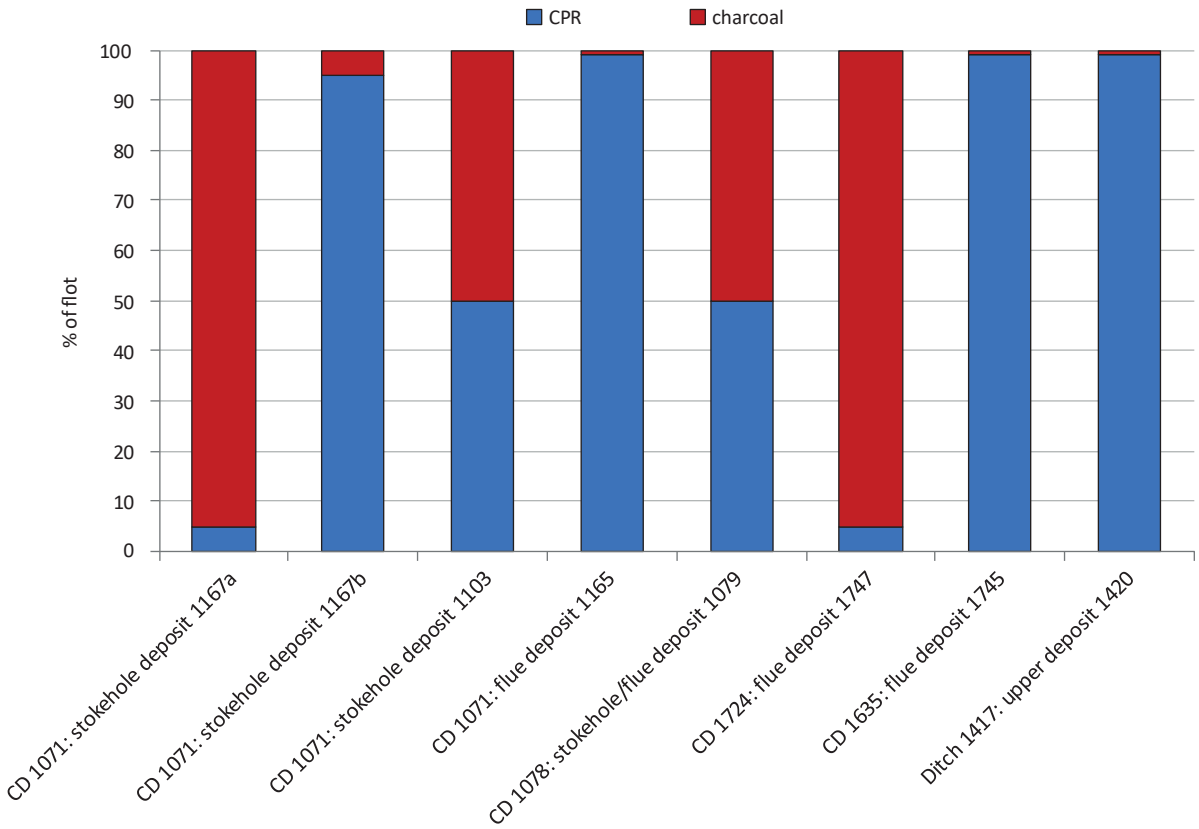

Figure 30: Relative proportions of charred plant remains and charcoal

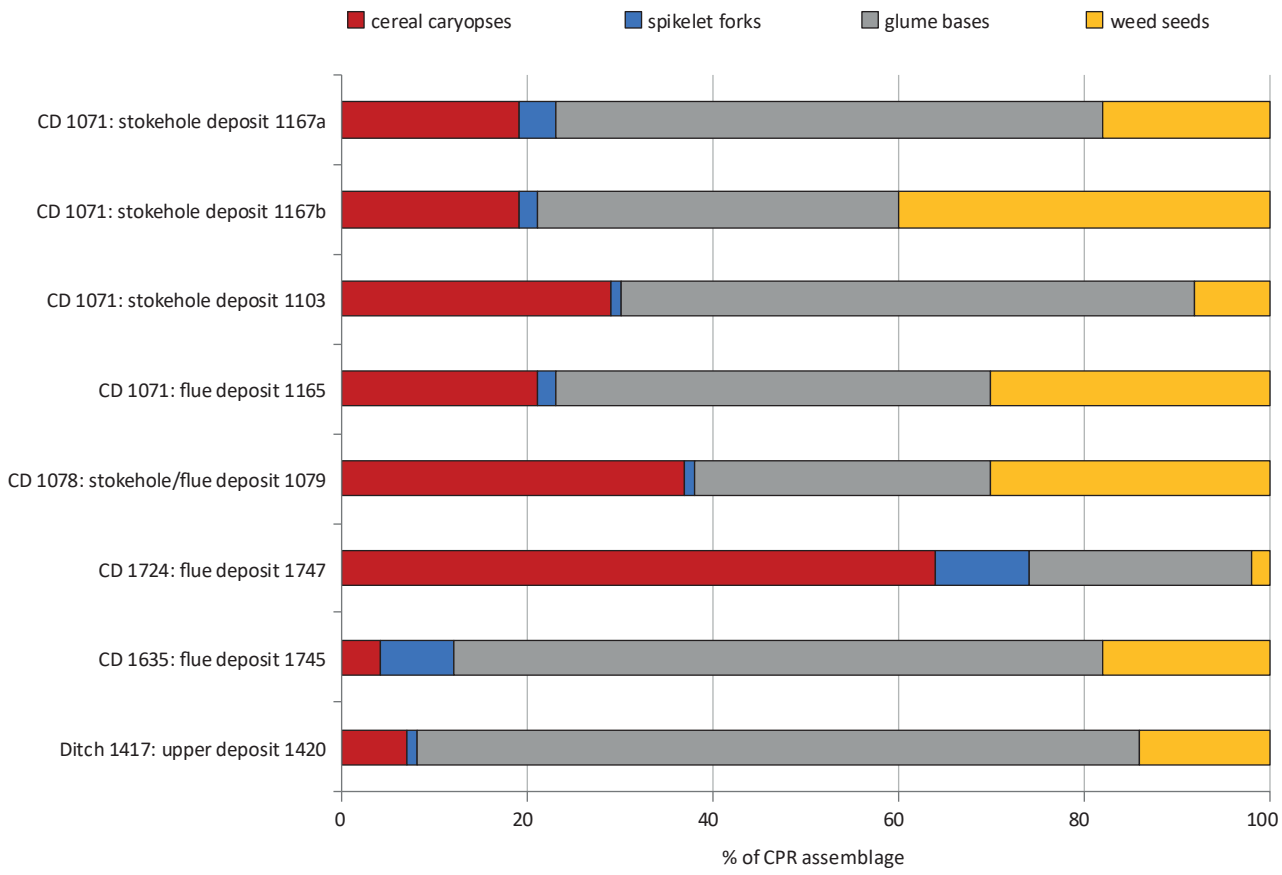

Figure 31: Relative proportions of charred plant remains types

Figure 32: Denarius of Julia Domna

Figure 33: Metal objects

Figure 34: Architectural stone fragment

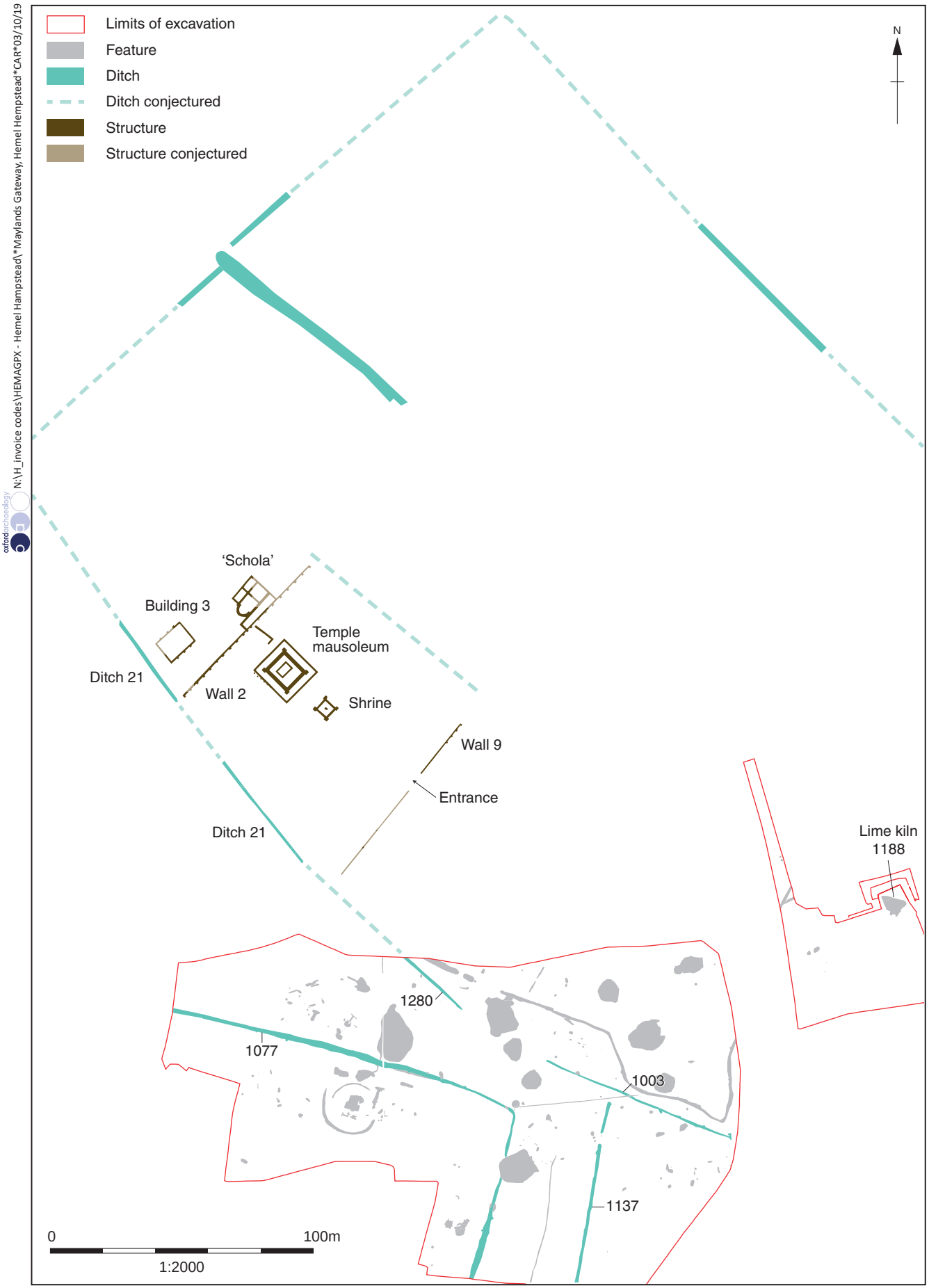

Figure 35: Interpretive plan of the 2nd-century AD layout of Wood Lane End temple complex with associated boundaries at Maylands Gateway

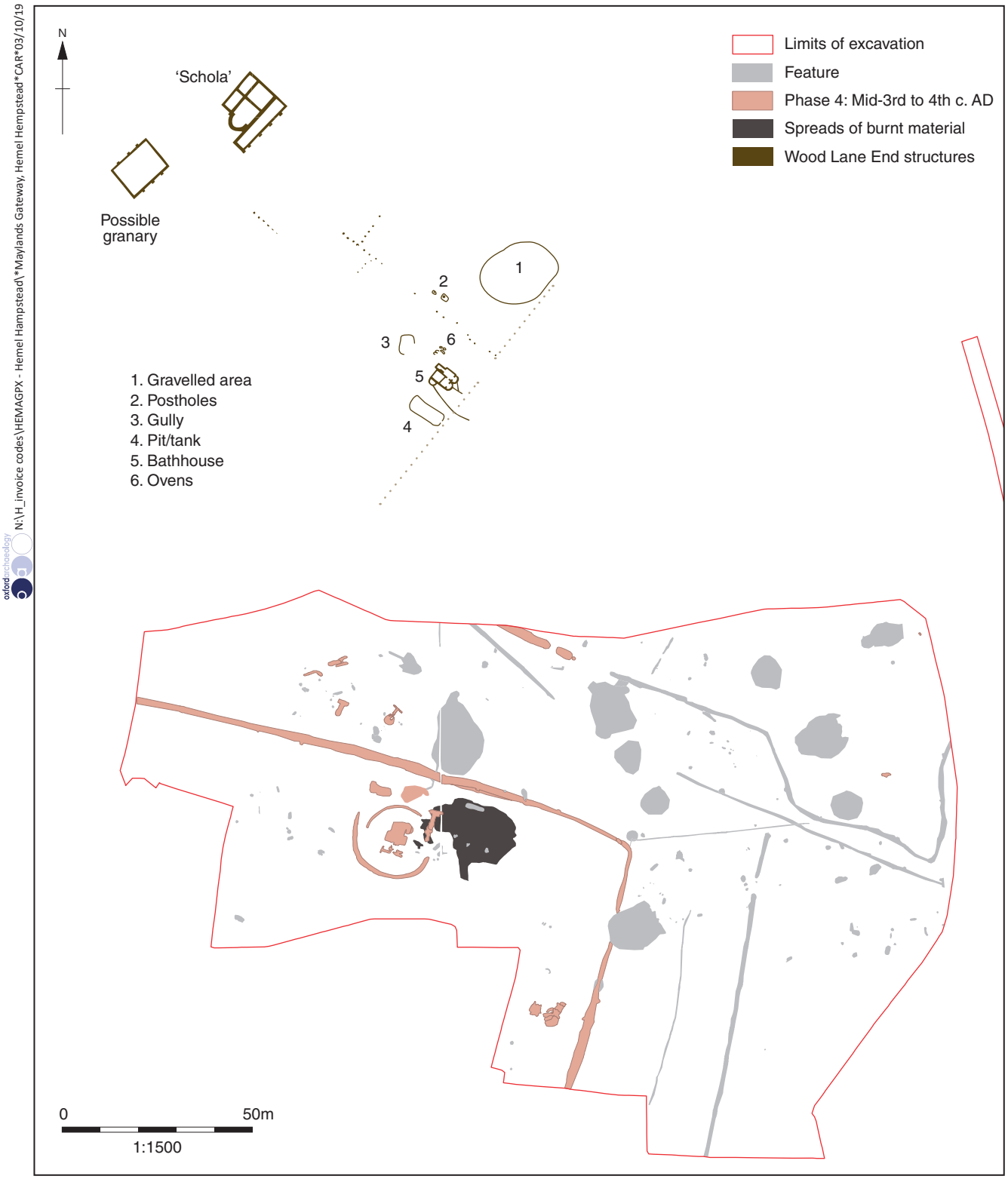

Figure 36: Interpretive plan of the possible 3rd-4th century layout of the Wood Lane/Maylands Gateway site

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