ARCHAEOLOGICAL SOLUTIONS LTD

FOSTERS END DROVE, BLACKBOROUGH END, EAST WINCH, NORFOLK

RESEARCH ARCHIVE REPORT

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RESEARCH ARCHIVE REPORT FOR EXCAVATIONS AT FOSTERS END DROVE, BLACKBOROUGH END, EAST WINCH, NORFOLK

1 INTRODUCTION

1.1 This report comprises the research archive for excavations at Fosters End Drove, Blackborough End, East Winch, Norfolk (centred on NGR TF 6835 1516) (Fig. 1) carried out by Archaeological Solutions Ltd (formerly the Hertfordshire Archaeological Trust) in six stages between February 2003 and October 2008 (Fig. 2). It has been compiled in accordance with EH MAP 2, Section 7 and Appendix 6. It follows the interim site narratives (Roberts, Wilkinson and O'Brien 2003; Grant, Roberts and Weston 2003; McConnell 2006; House, Pole and Weston 2007) and the post-excavation assessment and updated project design (Graham and McConnell 2007). It supersedes a grey report written on completion of the Phase 1 excavation (O'Brien *et al* 2003).

1.2 Part I of the report comprises the analytical reports which have arisen from post-excavation research. This is supported by Part II, in which the relevant catalogues and other records are presented, as well as by illustrations drawn during finds analysis (Figs. 35-39) and plan/ section drawings (Figs. 2-34).

I ANALYTICAL REPORTS

2 SITE NARRATIVE

2.1 Overview

Five main phases of activity were identified on the site (Fig. 3): Phase 1 (middle Iron Age), Phase 2 (late 2nd to 3rd century AD), Phase 3 (early to mid 3rd century AD), Phase 4 (late 3rd to 4th century AD), and Phase 5 (18th century).

Of the six phases of excavation (Figs. 4 and 5), three (Excavation Phases (EPs) 1, 3 and 6) revealed significant Roman (late 2nd to 4th century AD) archaeology. Very limited middle Iron Age activity was attested in EPs 3 and 4, which also, along with EP 1, revealed features initially interpreted as Parliamentary enclosure ditches, which, upon further investigation, turned out to be 18th century private enclosure ditches. EP 2 revealed only undated pits and several undated tree hollows; undated tree hollows were also found in EPs 3 and 4.

Phase 1 was attested by just three features (a ditch and two pits), two of which produced evidence for structured or ritual activity. The Phase 2 (late 2nd to 3rd century AD) site was set out around a linear droveway, aligned parallel to the site's contours, with a perpendicular branch leading away to the south-east. A ditched rectangular enclosure was established to the north-west of the droveway. This was later enlarged and subdivided, and an aisled timber building, with an adjoining right-angled post alignment, was constructed in this enclosed space. The layout of these first Roman features implies that the site was used at this time for the sorting and holding of livestock. The discovery of deposits of tap slag may suggest that smelting activity

occurred locally, if not on-site, at this time. The site then changed use and became a centre for pottery production in the early to mid 3rd century AD (Phase 3). In addition, small-scale deposits of tap slag suggest that the site retained its association – though to a much lesser degree – with iron smelting activity. Activity related to the pottery industry is represented by four pottery kilns, a T-shaped drying oven, a workshop with a heated room for drying, and a second related building. The droveway was also modified at this time, with the erection of a line of posts which would have restricted access to (and visibility of) the production site, and the re-cutting of its ditches so as to modify access to its south-easterly branch. The kilns are thought to have been abandoned at about the same time; archaeomagnetic dating of one of them sets this date as *c*. AD 250. Phase 4 represents the demolition of the pottery production site, which seems to have been deliberately levelled, in the late 3rd to 4th century. Further features of this date contained significant quantities of iron-smelting slag, indicating intensified industrial activity probably focused to the south and/or south-west of the pottery production site, outside of the excavated area.

The deposit model varied only slightly across the site, with the ploughsoil which lay between the topsoil and the natural drift in Excavation Phase (EP) 3 being absent from EP 2 and EP 4 and mixed with the topsoil in EP 1 (see 4.1 for descriptions of deposits).

2.2 Phase 1 (400 to 100 BC): middle Iron Age pits and ditch

See Section 4.2 for feature and context descriptions
Figs. 3 and 6

Three middle Iron Age features were identified: a pit (F2436) and a ditch (F2219) in EP 3 and a pit (F1010) in EP 4. In addition, residual middle Iron Age potsherds were encountered in 18th century Ditches F1002 and F1008. It is likely that these features were directly associated with, and contemporaneous to, a known middle to late Iron Age iron smelting site (Norfolk HER 12559), located 500m to the west of the excavated area (Fig. 1). This site produced evidence of iron quarrying and smelting. It also produced a four strand plaited ring and triple ring terminal gold torc, suggesting that this working area was of notable importance to its users at this time.

That this site was of notable importance during the middle Iron Age might also explain the presence of 125 pottery sherds in Pit F2436. Together, these formed a complete handmade jar, which appears to have been deposited whole, but was later crushed and fragmented in the deposition environment. Several parallels are known for the deliberate deposition of complete pottery vessels in this manner. Hill (1995) has shown that such objects were often placed as part of structured acts of deposition. However, a lack of associated 'structured' finds in this feature suggests that this vessel was either discarded whole, or ritually deposited.

Based on our knowledge of wider Iron Age depositionary practices (Lally *forthcoming*), it is possible that this latter explanation might also account for the deposition of 120 fragmented pottery sherds in Pit F1010. Six of these sherds came from the upper fill, L1011, and the remaining 114 from the middle fill, L1014 (a much thinner deposit). Most of the sherds from L1014 were of the same fabric as those from L1011, many probably deriving from a single vessel. Parts of four further jars and a probable bowl, all in different fabrics, were also present in L1014. L1014

was a dark-coloured deposit; a sample taken from it was found to contain charcoal, burnt weed seeds and cereal grains, the latter consistent with domestic hearth waste, though the origin of the deposit could not be determined. As well as pottery, it contained burnt flint and stone, a cattle molar, a fragment of an iron strip and three objects thought to represent debris either from iron working or from the use of nailed wood as fuel. Ditch F2219 contained only three small sherds of middle Iron Age pottery.

2.3 Phase 2 (late 2nd to 3rd century AD): initial Roman activity

The site was initially laid out in the late 2nd or early 3rd century AD. The shallow configuration of the droveway, the enclosure, and the enclosure's later subdivision, appear to suggest that this initial phase saw the site used for animal farming, and related domestic and industrial activity. The droveway may have also been used to link the site with other local farm and/or industrial areas, while also providing a recognisably bounded route into and out of its associated enclosure and the aisled building.

2.3.1 The droveway

See Section 4.3.1 for feature and context descriptions
Figs. 3, 4, 5 and 7

The droveway was aligned approximately south-west to north-east. Most of the south-eastern edge of the droveway was demarcated by Ditch F1238 (EP 1), which was labelled as F2003 when encountered in EP 3. At the north-eastern end of its visible extent, F2003 turned south-eastwards through *c.* 90˚, marking the edge of an apparent branch/ arm of the droveway, leading away to the south-east. The other edge of this branch was marked by Ditch F2035 (recut at some point as F2043), which turned at its north-western terminus to mark the edge of the main droveway. Opposing the terminus of Ditch F2035, Ditch F2068 marked the remainder of the south-eastern side of the droveway within EP 3. A square-sectioned channel in the base of parts of F2068 may suggest clearance using a spade or shovel. This ditch continued as Ditch F3003 in EP6, which, after *c.* 5m turned south-eastwards through *c.* 90˚, marking the edge of another branch/arm of the droveway which again lead away in a south-east direction. The northern edge of this branch may have been marked by Enclosure Ditch F3006. The south-eastern edge of the droveway continued in a south-west to north-east direction as marked by Ditch F3031, which extended beyond the bounds of EP6. The north-western droveway edge was less clearly-defined, being marked at this early stage by Ditch F2323 at the eastern edge of EP 3, which continued into EP6 as Ditch F3036, and by Ditch F2170 over a course of *c.* 14.5m further to the south-west of the terminus of Ditch F2323. A short length of Ditch F3045 was excavated *c.* 5m west of Ditch F3036, similarities in size, shape and profile between the two features may suggest that Ditch F3045 was associated with the droveway; however a lack of direct association makes this assertion entirely speculative.

While the droveway may have been primarily employed for the movement and control of livestock, it is possible that it was also used for several different, yet contemporaneous, purposes. For example, the droveway may have marked the official entry and exit point onto the site and its associated industrial or agricultural

areas. Certainly this is attested elsewhere during the Roman period. For example, Morris (1979, 59) suggests that the site of Hall Farm in the Nene Valley was served by a "narrow lane" that joined the site to its agricultural fields on higher ground. It is therefore possible that the Fosters End droveway connected the site with other spaces within its immediate environs. As Crawson (2001, 247) suggests, by the 3rd century AD, the Nar Valley certainly had a well-established infrastructure of roads and canals used for the transportation of both people and objects. It is likely that the droveway complimented this infrastructure.

It is possible that the south-western and/or south-eastern arms of the droveway also connected the Fosters End Drove site to the river Nar. The river was certainly navigable at this time, linking the Nar Valley, via the Wash, to the North Sea, the east coast and beyond (Crawson 2001, 247). Other Roman industrial sites are known to have been similarly linked to rivers and major roads (Swan 1984, 48), an example being Brampton, Norfolk, where a service road and trackways linked pottery workshops to a timber wharf beside the river Bure (Knowles 1977, 211). Whatever its true nature, it is likely that the droveway was multi-functional and contributed, along with its associated enclosure space, to the formation of work related identities, in as much as demarcating specific areas for occupational activity (e.g. iron smelting = iron worker).

2.3.2 The enclosure
See Section 4.3.2 for feature and context descriptions
Figs. 3, 4, 5, 8 and 9

In this earliest phase of Roman activity, the enclosure measured *c*. 85m by 45m (*c.* 0.38ha). Its south-eastern boundary was marked only by Ditch F2170 of the north-western droveway edge (see Section 2.3.1); otherwise, it appears to have been open to the droveway, although it may have been marked with wattle hurdles or other temporary/ lightweight barriers which have left no archaeological trace (*cf.* Pryor 1996, 317). The back (north-west) boundary of the enclosure was marked by Ditch F1033 and its two sides by Ditches F1229 (south-west) and F2267 (north-east). The intersections of the enclosure's side boundaries with its back boundary were not seen (one having been truncated by an 18th century ditch, and the other lying in the narrow strip lost to quarrying between EP 1 and EP 3), but it is thought that these ditches were contemporary.

The enclosure was modified at some point during Phase 2. Newly-cut Ditches F2168 and F1198 formed a staggered division of the originally enclosed area. Both cut earlier Ditches F2170 and F1033, implying that these were already backfilled by this time. It is thought that Ditch F1019 (labelled in EP 3 as Ditch F2510) was contemporaneously cut at this point, marking the new boundaries of the site. This expanded the site considerably, with it now measuring more than 128m by 50m (an increase of at least 0.2ha). That Ditch F1019 intentionally bounded the limits of the Phase 2 site is strongly supported by the absence of Roman features to either the north or west of the ditch. Along a small part of its north-west to south-east arm, F2510 cut an earlier (undated) ditch, F2358. It is possible that this ditch - which was of far smaller dimensions - may have marked an earlier version of the same boundary. The fact that Ditch F1198 terminated at the line of Phase 2 Ditch F1130, rather than continuing to that of the new enclosure ditch, may indicate that the limits of the old

enclosure continued to be perceived as significant, or that the subdivision of utilised space preceded the decision to expand the site's boundaries. Enclosure Ditch F2510 appeared to continue into EP6 as Ditch F3017, which was a short ditch terminus extending directly from Ditch F2510, and as Ditch F3006, which was *c.* 4m to the east of Ditch F3017. Ditch F3006 was visible for *c.* 25m before it was obscured by the edge of the excavation. Pit F3014 was located *c.* 0.5m to the north-west of the terminus of Ditch F3006. It has been suggested that this pit, and the identical undated Pit F3011, which was situated *c.* 2m to the north, formed some kind of obstruction within the droveway (Greene & Newton 2008).

Coupled with slag found in the droveway ditches, the earliest evidence for iron smelting came from three of the Phase 2 enclosure ditches: F1033 (17g), F1229 (386.8g) and F2510 (46g). Taken together, this evidence suggests the possibility that onsite iron smelting occurred prior to the production of Nar Valley pottery during Phase 3. As discussed above, iron smelting contemporaneously occurred at two other local sites. Although demarcated by both a droveway and developing enclosure ditches, the site at Fosters End Drove was nevertheless part of a wider local industrial landscape.

Despite being located relatively close to the kilns, the initial enclosure ditches did not contain any kiln products, and so are thought to predate pottery production at the site. This was also true of droveway Ditch F2068, supporting the contention that it was no longer open in Phase 3, when Kiln S2118 (adjacent to it) was in use.

The large pottery assemblages found in enclosure Ditches F1033 and F2267 included few diagnostic sherds, being consistent with the deposition of scattered domestic debris. On the basis that the site's Roman apsidal and rectangular buildings both stratigraphically postdate features of the enclosure, it is thought that this domestic activity was associated with the aisled building from the earliest period of the site's Roman use. This is supported by the fact that a greater volume of pottery was also deposited in boundary Ditch F1019 - situated behind the area in which the aisled building and kilns were located (48 sherds, 673g) - as opposed to Ditch F2510, which was sited further to the north-east (9 sherds, 168g). Ditch F2168 also contained a large pottery assemblage. Other finds from the enclosure ditches include two abraded lava quern fragments from Ditch F2168, and CBM fragments, recovered mainly from Ditches F1019 (4014g of flue tile, 40mm thick brick and miscellaneous fragments) and F2510 (852g of tegula), although CBM deposits were present in smaller quantities in other ditch areas. The upper middle fill of Ditch F2168 included waster vessels in Nar Valley fabrics, thought to be later products of Kilns F2133 and F1170 (see Section 3.3). This implies that, though its terminus (like that of F1198) was cut by S2251, this ditch was not completely in-filled until pottery production was underway at the site during Phase 3.

The shallowness of the initial droveway and the enclosure ditches (maximum depth 0.53m in Ditch F2035) may indicate that they served to demarcate, but not to enforce, boundaries. These were much shallower than parts of later Phase 3 enclosure Ditches F1019=F2510, which, in places, measured up to 1.33m deep and 2.49m wide. A drainage function for the droveway ditches and the enclosure's back boundary (F1033) seems unlikely as they run parallel to the contours of the site. While it is possible that the perpendicular ditches of the enclosure did aid drainage, it is thought

that this would not really have been necessary given the sandy natural deposits of the site, which are well-drained.

Visually, the demarcation of boundary areas was especially important during the Roman period. Karl and Löcker (*pending*) suggest that many different gods existed to protect bounded spaces at this time. For example, the god *Terminus* protected boundaries and boundary markers, *Cardea* protected doors and hinges, *Forculus* protected gates and gateways, *Limentius* protected the doorstep, and the two-headed *Janus* protected all manner of gateways. It is therefore possible that the ditches were too shallow to have much 'functional' value, but instead held some perceived symbolic significance to the site's occupants, perhaps serving to ensure the protection of the site's residents by certain known gods.

2.3.3 The aisled building and post-alignment
See Sections 4.3.3 to 4.3.5 for feature and context descriptions
Figs. 3, 4, 5, 10, 11 and 12

The form and construction of the aisled building

The long sides of the aisled building were aligned parallel to the droveway and long axis of the enclosure. This structure was represented by four rows of postholes, indicating two outer aisles flanking a central nave (a layout similar to that encountered with Barn 2 at the 2nd to 3rd century site at Orton Hall Farm, Cambridgeshire (Mackreth 1996, 58)). The configuration of two outlying postholes (F1039, F1049) suggests an outbuilding or lean-to on the north-eastern end of the aisled building. These types of 'lean-to' structure are widely-attested in the Romano-British archaeological record (Morris 1979, 58-61). Central end storey posts were present at both ends of the building (F1068 and F1037 to the north-east, F1157 to the south-west), with the southern end possibly having been raised on a wooden sill beam (represented by Gully F1155) to compensate for the downward slope of the land. It is possible that additional timber props may have stood on stone footings - therefore leaving no archaeological trace - or that additional postholes belonging to this structure may have been truncated or even obliterated by later ploughing, prior to the excavation of the site.

The aisled building was *c.* 17.3m long and 11.5m wide. The outbuilding measured 4m by 5.5m. Generally, the arcade postholes (either side of the nave) appear to have held the largest posts, with postpipes indicating timber posts with a diameter of *c.* 0.30 to 0.40m (e.g. F1055 and F1070). Internally, the pairs of arcade postholes were spaced *c.* 5.3m apart (indicating the width of the nave), the six bays were each *c.* 2.4m wide, and each aisle *c.* 3.1m wide. In terms of construction, these dimensions are consistent with those of other aisled buildings in Roman Britain (Morris 1979, 64), though larger than a regional example from Brettenham, Norfolk (Mudd 2002, 23), and smaller than two from Mildenhall, Suffolk (Bales 2004, 11-17).

The repair, propping and resetting of posts, indicated mainly on the south-west side of the building, may have been undertaken in order to maintain the building's existing structure, or to create new internal partitions. Several of the outer aisle posts cut or flanked smaller subsidiary postholes. It is likely that these housed prop posts or struts.

It is not clear where the entrance to this building was positioned. It may have been to the north-west, where there appeared to be a gap in the aisle row of posts, or to the south-west, where there was a complicated sequence of repositioning or replacement of postholes (F1099, F1095, F1097 and F1103). Either of these positions would have been sheltered from the locally prevailing easterly wind. Arcade Posthole F1058, close to the area of repositioning and replacement, contained eight articulated vertebrae, ribs, the scapula and the left forelimb of a young sheep/goat. This appears to have been a foundation deposit. The use of young animals as structure-associated foundation deposits is widely-attested in the Romano-British archaeological record (Scott 1999).

One of the site's two concentrations of nails came from features associated with the aisled building (13 from features considered to be structural, plus four from the associated pits). The entire daub assemblage from the site (1612g) was also recovered from features comprising or associated with the aisled building. This evidence strongly suggests that the building was of nail-jointed timber construction with wattle and daub walls and a thatched roof. CBM was recovered from features of the aisled building, but generally in small quantities (the 2996g from F1049 being an oddity, with no other feature containing more than 568g); the only diagnostic pieces were two tegula fragments in F1159. The CBM is thought to represent post packing and/ or accidental incorporation and is not considered indicative of the building's construction.

Early use of the aisled building

Most of the pottery assemblage recovered from the features of the aisled building was Nar Valley reduced ware, indicative only of a very broad date range (consistent with the entire span of Roman activity at the site), but some contexts contained pottery suggesting a *terminus ante quem* of the early to mid 3rd century. Of particular relevance are beakers of Camulodunum types 391 (from F1039) and 406 (from F1051), which would have gone out of production in the late 2nd/ early 3rd century and the mid 3rd century, respectively. Other datable items were also recovered: a glass jug handle dating to the 1st to 3rd century, a 1st to 2nd century copper-alloy spoon (SF 1.2) and an early Roman hairpin (SF 1.1). The early dates associated with these items are consistent with this building having been one of the earliest elements of the Roman site. The association between the aisled building and Well F1137 (Fig. 13) (the building's occupants would have needed a water supply, and the well is conveniently located at the building's north-east corner) adds weight to this interpretation.

At some point during the use of the aisled building, Pits F1161, F1133, F1135, F1146, F1148, F1150 and F1152 were cut behind its south-west end (Figs. 3, 4, 5, 10, 11 and 12). As they had no stratigraphic relationships with the building, it seems likely that they were dug while it was still standing. Their pottery content suggests a 3rd century date. Although they may initially have been used to quarry the site's natural flint and carstone, these pits were used for rubbish deposition (pottery along with small quantities of animal bone, nails, CBM and daub). A single large pit, F1087, was cut inside the building; it contained 3rd century pottery, slag, animal bone, daub, a nail and a body fragment of a blue/green glass vessel (one of only two pieces from the site). This pit is thought to have been dug and backfilled with waste material while the building was still standing. Together with nave Posthole F1097, external Pit

F1135 and nearby Well F1137, this large internal pit produced evidence of iron smelting. In terms of slag content, F1087 contained 745g, F1097 contained just 2.7g, F1135 contained 16g, and Well F1137 contained 591.7g. Slag was also found in nearby enclosure Ditches F1033 (17g) and F1229 (386.8g).

The recorded functions of aisled buildings at other Romano-British sites range from agricultural to domestic to industrial (Morris 1979, 55). The building at this site seems to be a simple example of this type of construction, having little or no evidence of internal subdivision at this time other than that of the aisles from the nave, no evidence of wall plaster, and no surviving elements to suggest the presence of a floor, other than beaten earth (floors of rammed chalk (*cf.* Bales 2004, 13) or mosaic (*cf.* Morris 1979, 56) are attested in other recorded Roman aisled buildings). Morris (1979, 61) suggests that by the 3rd century, such simple buildings were occupied only by the lowliest of workers, and were more commonly given over to agricultural or industrial functions. However, the Fosters End Drove example is thought to have been in use during the late 2nd to mid 3rd century, and its associated finds assemblage, which included both tap slag, frequent small fragments of charcoal and 40% of the site's late 2nd to 3rd century animal bone assemblage, may be taken to imply some domestic occupation, as well as minor iron smelting activity. That the site was used for domestic purposes at this time is also supported by the presence of small quantities of samian ware (see Section 5.3), though none of the finds imply particular wealth or high-status.

Several other sites are known to have boasted similarly-dated structures, most of which appear to have been used for animals and/or agricultural processing (Morris 1979, 64). For instance, Mackreth (1996) has suggested that Barn 2 at Orton Hall Farm, Cambridgeshire, was used for malting, while at Beck Row, Suffolk, a mid 2nd century partly-aisled timber building appears to have been initially employed as an animal shelter before being used for both grain threshing and storage, and wheat and barley malting (Bales 2004, 62). However, there is no evidence to suggest that the aisled building at Fosters End Drove was used for threshing, agricultural processing or storage. Indeed, with the exception of small deposits of cereal grains in Postholes F1089 and F1113 (presumed to have been hearth waste), there is little evidence to suggest that this building served any agricultural purpose whatsoever.

Despite the minor evidence for iron smelting, the building appeared to contain no industrial features, such as a furnace. Nor did it contain any overtly domestic features such as a hearth. However, it is possible that these features, along with a floor, did once exist within the building, only to have subsequently been truncated by later ploughing. Certainly, the ceramic beakers, glass jug handle, spoon and hairpin recovered from this building suggest some form of domestic occupation, as does a quernstone fragment and handle of a Baetican Dressel 20 olive oil amphora in Posthole F1280. Alternatively, some of these finds might have been deposited during the construction of the building or subsequently after it was abandoned.

During Phase 2, the aisled building appears to have been a multi-functional structure, possibly having being used for (non-crop associated) storage, as a shelter for livestock, and/or as a domestic residence for local agricultural or iron smelting workers.

The right-angled post alignment

The outer aisle postholes of the aisled building's south-east side also formed one end of the right-angled 'L'-shaped post alignment. This continued on the same line for *c*. 13.2m beyond the south-western end of the building, before turning through 90˚ to run south-eastwards for a further *c*. 21m, terminating in line with the droveway edge. The depths and profiles of the postholes of the right-angled alignment were similar to those of the aisled building, suggesting that this subdivision of the enclosure was marked by a sturdy construction of considerable height. Its specific use remains uncertain, though it may have been used to fence or screen off some form of stock enclosure, yard or garden. A comparative example to this screen line is given by Selkirk (1983, 116), who describes finding a 'monumental' screen at the rural enclosure site at Gorhambury, Hertfordshire.

2.3.4 The well
See Section 4.3.6 for feature and context descriptions
Figs. 3, 4, 5 and 13

Excavations identified a single, exceptionally well-preserved well, located at the north-eastern corner of the aisled building. It seems likely that both the well and aisled building were contemporary, as no other source of water for the building's occupants has been identified. Access to a reliable water supply would also be essential to both pottery production and iron smelting. It is therefore likely that this feature was used for both domestic and industrial activities.

The first stage in the construction of the well was the cutting of Pit F1137 to a depth of 3m. This is thought to have been sufficient to reach the Roman water table, though the modern water table has been lowered by 20th century drainage of the Nar Valley (Silvester 1988, 172). A central carstone and flint stone shaft (M1139; diameter 0.65m) was then constructed to a height of *c*. 1.3m, with the space between it and the pit-edges subsequently backfilled using the site's natural drift deposits (L1261 and L1264). The construction of the shaft then continued in the same manner, but with a smaller diameter (0.55m) indicating a potential weak point in the structure, followed by another episode of backfilling (L1263 and L1262) and then by the completion of the shaft to ground level (a further 1.1m) and the final backfilling (L1138) around it.

The earliest deposits within the shaft itself were peaty or gleyed clayey deposits, possibly derived from material leached through the stone lining or used to line and seal the well. The next two deposits, L1268 and L1269, were sandy fills containing domestic debris, including fragments of heavily-degraded lava stone quernstone. Pottery dates indicate that the well was first used from the mid to late 2nd century. Assuming that some of the sherds from both L1266 and L1269 were old when deposited, it would seem that the well continued in use into the 3rd century. The uppermost contexts, L1142, L1141 and L1140, may have derived from contemporary topsoils used to backfill the well when no longer in use; burnt material including charcoal, cereal grains and weed seeds were incorporated in L1142. Their pottery content suggests that this backfilling occurred around the mid 3rd century. This *terminus ante quem* is consistent with the dating evidence from the aisled building.

While many timber-lined Roman wells have been found in the region - with examples from Brampton (Rankov 1982, 370) and Scole (Wilson 1974, 439) - the stone lined well shaft seen here is more unusual and represents a considerable investment of labour. Carstone, which outcrops in north-west Norfolk between Hunstanton and Hilgay (Williamson 1993, 7; Larwood and Funnell 1970) was found in the natural deposits at this site, and was employed in the construction of the later workshop. From a structural perspective, the use of carstone is locally attested in the construction of Park Farm Villa, Snettisham (Gregory 1982, 357).

A well comparable to that at Fosters End Drove has been identified at Snettisham (Lyons 2004). This was also situated close to pottery kilns, though in this instance, the well was lined with clay and flints. Non-flammable materials may have been used to line these wells due to their association with both kiln and iron smelting activity, though the Fosters End Drove well is thought to predate its nearby kilns. Even if contemporary, it is unlikely that the damp wooden lining of a well would represent a fire risk.

2.3.5 Features attesting nearby iron smelting

A total of 15 features contained deposits of tap slag (Pits F1087, F1097, F1135, F3044 and F3049, Ditches F1033, F1229, F1238, F2003, F2035, F2068, F2170, F2510 and F3006, and Well F1137), with a combined weight of 3775.3g. All but four of these deposits were centred on the enclosure and droveway ditched areas. Although limited, this evidence places the Fosters End Drove site within an industrial iron smelting landscape. As detailed on Fig. 1, two other local sites have produced evidence for iron smelting at this time. This includes an area of Grandcourt Manor Farm, situated 1km north-west of the site (HER 37638), and the larger-scale shaft furnace production site at Ashwicken (Tylecote and Owles 1961), located less than two miles north of the site. It is possible that the excavated droveway continued northwards, linking Fosters End Drove with these sites. This is supported by analysis undertaken on the Fosters End Drove slag residues, which confirmed that both the Ashwicken and Fosters End Drove sites share the same source of ore used in smelting.

During Phase 4, smelting activity appears to have centred on the area immediately east of Pit F2054. This feature was cut in close (if not direct) association to Phase 2 droveway Ditch F2008. It is possible that Phase 2 smelting activity also occurred in this area. Alternatively, smelting may have occurred off-site, possibly at nearby Ashwicken. Inspection of the slag residues from Fosters End Drove confirmed that all examples originated from secondary depositional contexts, rather than from primary smelting activity. Analysis revealed that larger lumps of slag, of a kind normally associated with furnace tapping, must have been intentionally fragmented *in situ*, before being transported and deposited in their later depositional features. As such, it is possible that the slag found on-site originated from Ashwicken, having being transported to the site for some unknown yet intentional reason, or having been introduced to the site by people associated with the local iron industry on their way across the local landscape. If the Phase 2 slag did originate from Ashwicken, it is likely that the droveway provided a known access route to the Fosters End Drove site for local workers and visitors.

2.3.6 The nature of the Phase 2 site

The layout of the site, with its enclosure, droveway, aisled building and well, suggests that it was used for a number of different purposes. The Phase 2 site was part of a much wider local industrial landscape. It is likely that the site was associated with some form of iron smelting activity at this time. It is also possible that this activity was complimented by other subsistence related activities, such as livestock farming and other agriculture; though there was a lack of supportive evidence to suggest that this site itself played any major role within such practices. Rather, the site appears to have served some multi-functional purpose; an observation which is true of other contemporary Roman sites such as partially-ailed Barn 1 at the mid 2nd century malting site at Beck Row, Suffolk (Bales 2004, 62). This structure was initially used as a shelter for animals, before being employed as a granary, and later for malting.

While the Fosters End droveway may have been used for the channelling of livestock, it is possible that ditches associated with the droveway were at the same time perceived as being both functional and symbolic. Bounding may have visually demarcated ownership of the site. It may also have contributed to and maintained the status of its owner(s) and/or users. Our knowledge of Roman religious beliefs at this time further suggests that these ditches may have ensured the continued wellbeing of the site's occupants and their activities, via the protection of gods associated with boundaries and enclosed spaces. The fact remains that 'droveways' may have fulfilled any number of roles during the Roman period. This is supported by the evidence for the droveway linking the site of Hall Farm to its immediate environs (Morris 1979, 59). Rather than being *just* a means of channelling livestock, Morris (1979, 59) suggests this feature to have been a form of 'narrow lane'. The term 'lane' is perhaps also appropriate for the Fosters End droveway, as it is likely that during its lifetime, this droveway channelled people, animals and materials into and out of the site, while also controlling access to its increasingly enclosed spaces.

2.4 Phase 3 (early to mid 3rd century AD)

Following the initial use of the site for both domestic and small-scale industrial activity, pottery production began at some point during the early 3rd century AD. This industry is represented by four pottery kilns, a workshop with an integral drying oven and a second, separate drying oven. A second building may have provided additional work space or have been used for storage of materials or accommodation for potters. Other developments on the site during this phase included the modification of the droveway and the laying out of a new enclosure in the northern corner of the site, the outer boundary of which (Ditch F1019=F2510) is thought to have remained open.

2.4.1 Modification of the droveway

See Sections 4.4.1 and 4.4.2 for feature and context descriptions

<u>The north-western droveway edge</u>
Figs. 3, 4, 5, 15 and 16

Ditch F2170, which had marked the boundary between the enclosure and droveway in Phase 2, was filled in and replaced during Phase 3 by a line of posts which extended from its former position to the terminus of Ditch F2323. It is possible that Ditch

F2323 remained open during this phase. Several of the new postholes cut Ditch F2170, and one, F2391, cut the terminus of Ditch F2267. Ditch F2267 had previously demarcated the north-eastern limit of the Phase 2 enclosure, and this later cutting implies it was no longer open at this time.

On average, posts were spaced *c*. 2m apart in the main part of this line, and had an average diameter of *c.* 0.70m. As well as the original posts, this line also included slightly later props (which tend to have been smaller, with an average diameter of *c.* 0.26m) and repairs (generally set back a little). Two very large adjacent postholes (F2203 and F2312) may represent an entrance or gateway from the droveway into the area north-east of Ditch F2168 (see below). If so, then Posthole F2256 (set between them) probably pre- or post-dated the creation of this access. A larger than average space between Postholes F2391 and F2417 (located further to the north-east) may represent a second access point between this area and the droveway.

A lack of postpipes, and disturbance to the edges of the postholes, seems to suggest that the posts were not left to rot *in situ*, having possibly been removed for reuse or deposition elsewhere. Pottery recovered from them gave a broad late 2nd to mid 4th century date, suggesting that this material may have been deposited either during the erection or removal of the posts. Small amounts of CBM, which could have been part of packing deposits or accidentally incorporated, were recovered from some of the postholes. Large Posthole F2312 contained a larger amount (1095g), which included pieces of tegula and 40mm thick brick; this may represent packing material or part of the construction of the putative entrance point between F2312 and F2203. Single nails were found in Postholes F2442, F2317 and F2312.

It is noticeable that this line of posts was positioned opposite the junction of the main droveway and its perpendicular branch. This is thought to have been a relevant factor in its erection: the post line would have acted to prohibit general access directly from this branch (access from which was also newly controlled; see below) into the production area north-west of the droveway, meaning that all visitors would have had to pass through designated entrance points (see above). Another factor may have been that the posts would have prevented direct viewing of the area behind it as people approached, serving to demarcate public and private space, perhaps in a similar way to the 'L'-shaped fence line in Phase 2.

<u>The south-eastern droveway edge</u>
Fig. 3, 4, 5, 15 and 17

The Phase 2 droveway ditches were replaced in Phase 3 by shallower ones (F2050=F2025, F2007 and F1244). F2050=F2025 blocked the gap which had existed between Phase 2 Ditches F2068 and F2035/F2043, and also (along with Ditch F2007) blocked off much of the droveway's south-easterly branch, leaving only a narrow entrance (*c*. 5.4m), slightly offset from the access point between Postholes F2203 and F2312 on the droveway's north-western edge. This is thought to reflect a narrowing in the whole course of the south-easterly branch of the droveway, to *c.* 12m, bounded by Ditches F2023 and F2013. A gap between the termini of F2050=F2025 and F2023 (obscured by 18th century ditch F2021) allowed access from this route into the enclosure in which Kiln S2118 and Drying Oven S2105 were located. Ditch F3033, excavated in EP6, is thought to represent the northern extent of this enclosure. Despite

the baulk of the site between EP's 3 and 6 obscuring the exact nature of the relationship between Ditch F2050=F2025 and Ditch F3033, similarities in their shape, size and profiles indicate that they were directly associated. Ditch F3033 appeared to be purposefully terminated by Pit F3019, which contained an entire, but broken, 2nd to 4th-century vessel (SF 1) which had been pierced prior to deposition. This symbolic 'killing' of a vessel is evident in Pit F2190.

The new droveway ditches contained very few finds (a total of nine sherds of undiagnostic Roman pottery, two fragments of tegula, two of flue tile, and pieces of tap slag (total 898.2g) from F2007 and F2013), and none to indicate the date at which they were cut. They are dated to Phase 3 by their spatial and functional association with the post line and buildings beyond it.

The significance of the droveway in Phase 3

The narrowing and additional modification of the droveway during Phase 3 implies a stronger focus on human, rather than animal, movement and activity. This is supported by the addition of two possible entranceways along the newly-established fence line (Postholes F2203/F2312 and F2391/F2417), which appear to have led to areas associated with both the new apsidal (S2435) and rectangular structures (S2253). The establishment of this fence line, used presumably to partition off the area associated with the structures from the droveway, implies that the droveway continued to be used by non-residents. If solely used by those persons living and working at the site - for domestic, agricultural or industrial activity - there would be little need to visually sanction space in this way. Along with newly-cut enclosure Ditches F2507 and F2510, this fence line would have created an enclosed area of land – possibly a yard - directly associated with rectangular building S2253. Together, this evidence implies an increased focus on activity associated with Buildings S2253 and S2435 at this time. A lack of intrusive archaeology along the internal line of the droveway further suggests its continued use during Phase 3. It is likely that the droveway complimented the onset of Nar Valley pottery production; maintaining the site's association with other local industrial areas and links between the site and the wider transport infrastructure, which were first established in Phase 2.

2.4.2 The aisled building

A continued use of the aisled building is implied at this time by the presence of Phase 3 pottery in many of its associated postholes and pits, and its relationship to, and neat juxtaposition with, two additional Phase 3 buildings (an apsidal workshop and a large rectangular structure). This suggestion is further supported by the lack of later archaeological features within its locale. Indeed, it is possible that many of its internal intercutting postholes were first established during Phase 3, corresponding with the functional replacement or maintenance of propping posts (F1041, F1049, F1055, F1070, F1077, F1083, F1089, F1093, F1107, and F1228). In addition, internal modifications most likely took place at this time. One of four north to south aligned postholes (Posthole F1121) dated to this phase, and it is possible that the remaining postholes associated with the north to south post alignment situated in the centre of the structure also dated to this phase.

2.4.3 The workshop
See Section 4.4.3 for feature and context descriptions
Figs. 3, 4, 5 and 18

S2251 lay at the boundary of EP1 and EP3 meaning that, unfortunately, a *c*. 4.5m strip through its centre was lost to quarrying between the two stages of investigation. Despite this truncation, the building's plan could be discerned with remarkable clarity: the structure was rectangular with an apse appended to the south-west end of its north-western wall, subdivided into one large and two small rooms, with an additional small room protruding from the north-west side of its north-eastern end. The whole of the building was sealed by a rubble spread within the overlying subsoil (L2001/ L1002).

The initial construction cut (F2563=F1213) comprised a steep to near-vertical sided, flat-based trench demarcating rectangular foundations (external dimensions *c*. 12 x 6m), subdivided by a perpendicular branch of the same cut, approximately a quarter of the way along its length from the north-east. It is interesting to note that this subdividing wall continued the line of truncated Phase 2 Ditch F2168 and that the north-east end of the apse aligned with the terminus of Ditch F1198. The presence of kiln wasters in the fill of Ditch F2168 indicates that it had not been filled in along its entire length by the beginning of Phase 3, but its terminus can no longer have been open. The north-eastern end of the building was then further subdivided by the cutting of a second rectangular foundation trench (F2435, 5m x 3.2m), which protruded *c*. 1.6m beyond the end of F2563 to the north-east. F2435 also included two interior 'protrusions', which did not meet, slightly offset from the line of F2563 at the north-east end of the building.

The foundations in F2563 (M2566) and F2435 (M2432 and M2434) were of the same type, comprising unfinished carstone slabs, with some rounded flint nodules, set into the trenches with their short axes (50-200mm) at right-angles to the cut and their long axes almost vertical, leaning slightly along the axes of the trenches. The gaps between the stones were filled with sandy silt (L2568 in F2663, L2567 in F2435) which had probably washed into the gaps, rather than representing bonding or packing material. The configuration of the carstone slabs at the intersection of F2563 and F2435 indicates that the stones associated with F2563 were laid first.

The construction of the foundations at the south-western end of the building (in EP1) was less clear. They are thought to have been similar to those encountered at the north-eastern end, though a clay raft was observed to underlie the foundations close to the break between the two areas of investigation. There was no evidence to suggest that the apse was a later addition, so it is assumed to have been a contemporary part of the building's original construction.

L2380, a clay layer rammed into the top of M2432 and M2434, extended across the room's floor area, which protruded to the north-east. A single course of a rounded flint nodule wall (M2378) remained *in situ* above it (along the lines of M2432 and M2434). In the north-eastern chamber, floor area L2380 showed signs of direct exposure to heat, especially around a small gap in M2378 on the chamber's outer north-eastern wall.

No CBM was found *in situ* or within contexts directly associated with the building. It seems that the building was thoroughly levelled when it went out of use. The largest CBM assemblages (comprising resultant demolition material) were found in two of the Phase 3 pits, namely F1208 (directly north-west of S2251) and F2150 (*c*. 21m to the south-east). These features contained over 32kg and 18kg (respectively) of material, including tegula, imbrex, box flue tile, and 40mm and 50mm thick bricks. A concentration of CBM, including box flue tile and 40mm thick brick, in a segment of Ditch F1019 to the north-west of S2251, is thought to have derived from the demolition of this building. In addition to evidencing the presence of a tiled roof on at least one of the buildings, these assemblages strongly suggest the existence of a hypocaust system. The timber construction of the site's other buildings points to the conclusion that this hypocaust was within S2251. The CBM assemblage recovered from F1208 and F2150 (or indeed that recovered from the whole site) does not represent the entirety of the materials used in the building; it is possible that bricks and tiles were removed from the site for reuse in structures beyond its boundaries.

There was no evidence to suggest that the ground within the footprint of S2551 had been cut away to allow for subterranean heated air circulation. As such, it is proposed that one of the rooms had a raised floor supported on *pilae*. Given the evidence for heat exposure in association with L2380, it is considered likely that this raised-floored chamber was the small (internal dimensions *c*. 1.7 x 1.4m) south-westerly chamber in F2435.

The small size of this chamber is consistent with the small size of the Roman brick assemblage, suggesting that only a few *pilae* were needed to support the *c*. 2.4m^2 raised floor. Box flue tiles may have been used to further channel hot air up the walls of this chamber. Though the whole building had stone footings, it is possible that only the north-eastern end (around the hypocaust system) was stone-built. The remainder might have been of timber construction, with structural posts set into, or resting on, the stone footings. However, the proximity of Kilns S1170 and S2113 to the south-west end of S2251, and their associated risk of fire, may have meant that complete masonry/ brick and tile construction was necessary.

S2251 was initially interpreted as a bath house. However, given the primarily industrial rather than domestic nature of the site, the proximity of the building to two of the site's kilns, and the small size of the presumed heated chamber, it is possible that the building was used as a potter's workshop. Vessels had to be dried prior to firing. In the British climate this normally, but not exclusively, took place indoors (Swan 1984), and was often aided by the regular use of artificial heat. Indeed, large-scale, systematic production would not have been possible without such a facility (Swan 1984, 47). While small for a *caldarium* intended to hold people, the heated chamber of the Fosters End Drove workshop would have been suitably sized to hold batches of unfired pottery and would have allowed those using it to extend their potting season into the colder, damper months. That this was a building used for drying is supported by the discovery of similar structures at Holt, Denbighshire (Grimes 1930) and Mancetter, Warwickshire (Wilson and Wright 1966). At Holt, the drying area occupied one end of a rectangular building, which boasted a normal hypocaust system (Swan 1984, 47), possibly orientated towards the drying of tiles (Leach 1976, 99; Swan 1984, 47). At Mancetter, a 2nd century drying 'shed' (Swan 1984, 47) boasted an integrally- constructed elaborate system of flues retained by

stone kerbs. Swan (1984, 47) suggests that during the building's second phase, this drying system was modified so that one half of the flue system could be fired separately from the other, or that both halves could be fired together depending on need.

As well as a possible drying chamber, S2251 incorporated a second small room, possibly used for storage purposes, and a large open space, which would have lent itself to the exposure of potting clay (allowing the breaking down of the kaolinite in the clay, making it easier to work with) (after Leahy 2003), the mixing of clay and throwing of vessels. A similar set-up is attested at Arlington, Sussex (Holden and Holmes 1980) and at The Churchill Hospital, Oxfordshire (Young 1977, 24-26). In the former instance, a 'potter's hut' was found, comprising a room once screened-off by a wooden partition, possibly separating the internal layout into two parts: that of an area with a hearth for drying and storage, and that of a workshop proper (Swan 1984, 46).

2.4.4 The rectangular timber building
See Section 4.4.4 for feature and context descriptions
Figs. 3, 4 and 19

S2253 was represented by large postholes, indicating a rectangular structure (*c*. 20 x 6.6m) with a possible porch at its south-west end and no evidence for internal subdivisions. Five of its postholes cut Phase 2 Ditch F2267, but it had no further stratigraphic relationships. It was represented by two parallel rows of large postholes, with smaller postholes along its gable ends and a cluster of still-smaller postholes (internal and external) at its south-western end which are thought to represent a porch or similar appendage. Some of the postholes of the building's long sides stratigraphically post-dated others, but their configuration was not inconsistent with both postholes having held posts at the same time, or even with both posts having been erected during the initial construction of the building. However, it is possible that some, especially in cases where the later posthole was also smaller (e.g. F2468, F2491, F2376), represented the later repair or propping-up of the building.

The postholes of the building's long walls tended to be larger and significantly deeper (mean 1.12 x 1.05 x 0.82m) than those of its gable ends (mean 0.83 x 0.92 x 0.45m). Except for those forming the south-western gable end and porch (which were rounded in plan and more moderately-sloping in profile), the postholes tended to be sub-rectangular in plan with near-vertical sides and flat bases. The presence of clearly defined postpipes in all but two of the postholes of the side walls indicated posts with diameters ranging between 0.16 and 0.75m (the larger posts may have compensated for the lack of a supportive inner aisled framework). The presence of postpipes and undisturbed posthole edges, but also in several cases of a thin sandy silt layer sealing the postpipe, suggests that the posts were chopped off at ground level when the building fell into disuse, rather than the posts having been pulled up or left standing. Charcoal from the postpipe void of Posthole F2375 is consistent with the post having been burnt *in situ* when the building was demolished (see Section 3.11.3). This is consistent with evidence from the other buildings and the kilns in this part of the site, suggesting that the area was levelled when it ceased to be used.

The postholes of the two side walls were grouped into six opposing pairs (although this was confused slightly by the stratigraphically later postholes), separated by a gap of *c*. 5m (posthole centre to posthole centre). The building was 18.6m long (gable end to gable end), with its porch projecting *c*. 2.4m beyond its south-western gable. The relatively small size of the gable end postholes is thought to indicate that they were not load bearing: they are interpreted as having provided a 'frame' for the building's end walls, but its roof is thought to have been supported entirely by the posts of the side walls. Morris (1979, 66) suggests that the majority of rectangular buildings were in fact wider than their aisled counterparts, demonstrating that wider Roman buildings were not reliant upon an internally aisled framework. Rather, the majority of known Roman rectangular structures were either supported by the outer structural walls (with or without buttresses) or by posts on pads or timber sleeper walls not recognised during excavation (Morris 1979, 66). It is unlikely, given both the depth of the remaining posts in this structure, and the survival of the aisle postholes in the aisled building, that this was also once an aisled building. The construction of the building superstructure is not clear: tegula, imbrex and 40mm thick brick were recovered from L2374 (overlying Postholes F2354 and F2355) and from Postholes F2473 and F2258, but only in very small quantities (total 3867g); they are not thought to represent the construction of the building. Given the structure's timber frame, wattle and daub walls seem most likely; no daub was recovered from this building, but this may be consistent with the building having been thoroughly demolished when it fell into disuse. The reuse of the building's daub as temper for daub on new structures located outside of the site (*cf.* Peachey in Nicholson forthcoming) is a possibility. The building's roof is likely to have been thatched, although there was no positive evidence to support this interpretation.

The postholes of the porch were smaller than those of the gable ends (mean 0.32 x 0.45 x 0.21m), suggesting that it was a less substantial structure than the main part of the building. It may even have been unroofed, forming a simple fence to channel people towards the building's entrance (possibly between F2270 and F2325), rather than a covered element of the building itself. Such a feature would have been complemented on the other side of the putative entranceway by posts set in F2334 and F2349, guiding people to the left, rather than right or centre, of the building on entry. No further evidence for internal subdivision of the building was found. The function of Posthole F2258, located on the building's central axis *c*. 2.1m south-west of the porch, is unclear. It was approximately equidistant between the timber building and the possible workshop and may have served to discourage people from passing between the two (perhaps supporting a rope fence or similar lightweight structure), conceivably to keep people away from workshop's furnace or to prohibit access to the area 'behind' the buildings.

Pit F2545 was located *c*.3.5m behind (north-west of) the timber building. This pit had been dug and then lined with a clayey deposit which acted as packing to support a Dressel 20 Baetican amphora which had been placed upright in the pit. The lower part of the amphora was found *in situ* in the base of the pit; a group of four holes had been drilled into it near the base. The sherds of its upper part were found inside the lower part; they would have originally stood well-clear of the ground surface. The neck and handles of the amphora had been removed and the resultant fracture deliberately filed smooth. This pit is interpreted as a *pissoir* or outdoor toilet (cf. Callendar 1965, 31-34); it may originally have had some form of wooden structure

placed over it. Its location, behind the timber building and so out of site of the main areas of activity at the site, is appropriate to this interpretation.

In keeping with Morris' (1979, 66) comments on the ambiguous use of rectangular structures, the finds from the features of the timber building offer no significant insights into its function. Aside from the small pottery assemblage, a very small amount of animal bone was recovered, along with a nail and two fragments of quernstone which may have been used as post-packing. S2251 is interpreted as the site's main pottery workshop, but it is possible that S2253 provided additional workspace. Other likely functions include the storage of materials, fuel or equipment, or for housing of workers. It is likely that the Phase 2 aisled building remained standing and functional in Phase 3. If so, then (judging from its finds assemblage) this structure may have retained some domestic use.

Newly-established enclosure Ditch F2507 would have effectively divided the land associated with S2253. The north-eastern 'arm' of the ditch would have complimented the alignment of S2253, further enclosing a space between them and the droveway fence line. Ditch F2510 would have additionally contributed to this enclosure, marking its north-eastern limit. The use of this area, as with that of the rectangular building itself, remains uncertain. It may have been a yard or garden area associated with the structure, or it may have been used as an industrial space – with evidence for this having been subsequently removed by later truncation. Interestingly, there was no visible evidence for the division of space between the rectangular timber building and the apsidal workshop. This suggests that both buildings shared easy and open access for the site's residents/workers at this time.

2.4.5 The kilns

See Section 4.4.5 for feature and context descriptions

Two kilns (S1170 and S2133) were located immediately south of the workshop (S2251). Kiln S2119 lay at the north-western edge of the droveway *c.* 21m south-south-east of S2133. While these three kilns are thought to have been directly associated with the workshop, a fourth kiln, S2118, was over 40m distant from it and lay in a separate enclosure (bounded by Ditches F2050=F2025 and F2023); a T-shaped drying oven (S2105) was also located within this enclosure.

Kiln S1170

Figs. 3, 4 and 20

Kiln S1170 was aligned parallel to the short side of S2251. It was 4.1m long, 1.5m wide and 0.7m deep. It shared a significant relationship with apsidal Structure S2251 with the structure having presumably sheltered the kiln from prevalent winds. The construction of this kiln began with the cutting of an elongated pit, which was then lined with straw-tempered clay (L1171). The clay was fired through the use of the kiln. Over 28kg of this lining was recovered from the feature, being 10mm thick where found *in situ* on the kiln sides (though it was not found on the floor). A stokehole and flue at the north-west end of the kiln opened out into an oval-shaped central firing chamber. This gradually narrowed to the south-east, before opening into a small secondary chamber which is tentatively identified as a second flue. The fill of this south-eastern flue (L1179) contained considerably less charcoal and evidence for

burning than that of the flue to the north-west. In the centre of the central firing chamber, four portable pilasters of light grey baked clay (L1183, 0.17m long by 0.1m wide) supported a horizontal shelf of mid orange/brown fired clay (L1175) *c*. 0.35m above the kiln floor. An inverted Nar Valley coarse reduced ware jar placed beside the shelf extended this firing floor to the north-west. The portable pilasters are examples of prefabricated furniture, seen in other kilns of the earlier Roman period, but not usually 3rd century or later ones (Swan 1984, 114, 119).

Although comprised primarily of Nar Valley sherds, the pottery from Kiln S1170 is not thought to represent the last use of the kiln. Wasters and sherds subject to re-firing after fracture are present; these may represent previous use of S1170, but alternatively may have been dumped into it, possibly from Kiln S2133, along with other pottery waste following its last firing. This interpretation is supported by the recovery of non-Nar Valley sherds and a small quantity of animal bone from S1170.

Kiln S2133
Figs. 3, 4 and 21

Kiln S2133 was situated 5m south of apsidal Structure S2251 and was 2.66m long, 1.04m wide and 0.81m deep. The alignment of the kiln, the north-western end of which had been truncated by modern quarrying, differed slightly from that of Kiln F1170 and the workshop. Like S1170, it comprised an elongated pit (F2143) lined with straw-tempered clay. The oval-shaped firing chamber was located at the south-eastern end of the kiln, with a narrow flue entering it from the north-west. No trace of a firing floor survived, though a 'ridge' of fired clay approximately two thirds of the way up the surviving wall of the firing chamber may represent the remains of such a floor, or a lip to support a 'shelf' such as that seen in Kiln S1170. A portable pilaster of grey fired clay (L2240) was recovered from the top of the fill (L2230) of the flue and fragments of a second were found in the fill of the firing chamber (L2144).

Kiln S2133 contained a larger pottery assemblage than any other feature at the site, consisting entirely of Nar Valley fabrics apparently representing a misfired and abandoned kiln load; there was no evidence for the heat-shattered sherds in this assemblage having been re-fired. However, the near absence of kiln furniture and the non-functional position in which the single surviving pilaster was found indicate that the pottery was not left *in situ* following the failed firing, and the absence of complete vessels suggests that these were salvaged. It thus seems that following the putative misfiring, the kiln was emptied, its furniture removed or destroyed, and the surviving vessels salvaged. The remaining pottery was then dumped back into the kiln (and into nearby Kiln S1170) as part of its backfill. However, there is also a hint that care was taken over the selection of some sherds for this deposit: among the sherds from Kiln S2133 were sherds representing slightly less than one half (one side) of a single jar with distinctive decoration (see Section 3.3). The second half (side) of this vessel was recovered from the stokehole (F2110) of Kiln S2118 (see below). The careful splitting of the two halves of this vessel and their deposition in two separate kilns is considered significant, and this jar is tentatively interpreted as a deliberate deposit marking the end of pottery production in both kilns.

A date of AD 200-250 was obtained through the archaeomagnetic dating of the lining of Kiln S2133. This is consistent with the date of pottery recovered from the feature but more refined, indicating that the kiln was not used after the mid 3rd century.

Kiln S2119
Figs. 3, 4 and 22

Kiln S2119 was poorly-preserved. It measured 2.23m long, 0.85m wide and 0.28m deep. It was aligned north-west to south-east, perpendicular to the droveway which lay immediately adjacent to the south-east, and parallel to Ditch F2168. It consisted of an oval-shaped firing chamber (F2126) with clay lining (L2127) *in situ* on the upper parts of its walls and collapsed into its base; little of this lining material had survived by comparison with the other kilns. Two straw-tempered clay portable pilasters (L2129, up to 0.27m tall by 0.15m wide) remained *in situ,* but no evidence of its firing floor survived. Apparent flues entered the firing chamber from the south-east and north-west; the clay lining (L2127) was found to continue 0.15m into the former, but not the latter. The north-western flue ran into a circular pit (F2130), interpreted as a stokehole.

The pottery assemblage from Kiln S2119 was far smaller than that from the other Phase 3 kilns, perhaps indicating a gradual decline in use rather than the sudden and definitive abandonment postulated for S2133 and S1170. Sherds re-fired after fracture were present, indicating multiple uses of this kiln. No finds other than pottery and kiln lining/ furniture were recovered.

An attempt to obtain an archaeomagnetic date from F2130 was unsuccessful as the clay had not been sufficiently heated.

Kiln S2118
Figs. 3, 4 and 23

Kiln S2118 was well-preserved and was 1.70m long, 1.90m wide and 0.70m deep. It was situated in a small enclosed area formed by Ditches F2035/2043 and F2068, with a possible entranceway providing access to it between Ditches F2043 and F2068 to the south-west. The construction of the kiln began with the cutting of two flat-based pits, linked by a narrow neck. The northern pit was to be the circular firing chamber and the southern, elongated pit (F2110), the stokehole. The walls of the firing chamber were lined with fired clay (L2177), which extended *c*. 0.1 to 0.2m from the edge of the cut, thus providing support for the solid clay vent-holed firing floor (L2176). Above the firing floor (*i.e.* above the ground surface) the roof of the oven is thought to have been domed, but this had collapsed and was found in pieces resting on the firing floor. The firing floor (L2176) is thought to be the second constructed in the kiln, through the 'patching' of the first (L2526) which it directly overlay. From it, vents ran downwards through L2177 to the open channel in the centre of the firing chamber; the base of this channel was lined with fired clay. This channel was found on excavation to be filled by a dark-coloured, charcoal-rich deposit (L2559), left from the kiln's last use, overlain by a silt deposit (L2558) which accumulated after the collapse of the kiln roof.

The flue of Kiln S2118 was lined with fired clay (L2174) on its walls, roof and base; it was remarkably intact, although parts of its roof had collapsed inwards. This collapse may explain the presence of three small potsherds (all in Nar Valley fabric) in L2175, the charcoal-stained sandy silt which filled the flue. The flue led southwards from the firing chamber into F2110. A large amount of kiln rubble (L2333=L2134) was found in a charcoal-rich sandy silt matrix in the base of F2110; this is thought to represent collapsed kiln furniture raked out of the firing chamber (perhaps the remnants of the first firing floor, L2526). This was overlain by two loose, sandy silt deposits (L2111 and L2112) which probably accumulated naturally following the kiln's abandonment.

The pottery assemblage from Kiln S2118 (sherds including wasters in Nar Valley fabric and sherds re-fired after fracture, but also two sherds of Wattisfield reduced ware from L2134) was much smaller than that from Kilns S2133 or S1170, perhaps indicating that (like Kiln S2119) it fell out of use prior to its abandonment. Included in the pottery from the lower sandy silt deposit (L2111) in the stoke-pit were sherds representing the other half (side) of the jar found in Kiln S2133 (see above). A fragment of a burnt, large-sized long bone, three abraded fragments of lava quern and an iron object which may have been a punch were also recovered from L2111. Two pieces of tap slag, broken in antiquity, were recovered from L2134.

Samples were taken from S2118 (L2176) for archaeomagnetic dating, but the results (alternative dates of 1st century AD or AD 507-655 obtained using two different calibration methods) were inconsistent with the ceramic evidence and are not considered to be reliable (see Section 3.1).

Drying Oven S2105
Fig. 3, 4 and 24

S2105 comprised a T-shaped cut (F2553) with near-vertical sides and a flat base, aligned north-east to south-west, approximately parallel with the droveway. It was a well-preserved feature, up to 0.45m deep, and its construction was still clearly visible. A floor of grey clay (L2557) was laid in the base of the feature and a wall was then constructed on top of this *c*. 40 to 80mm from the edge of the cut. The wall was of carstone and re-used tegula and brick in a matrix of grey clay. The space between the walls and the edges of the cut had been deliberately backfilled (L2555) to support the walls, but the space within the walls was filled by a charcoal rich deposit (L2556) thought to result from the feature's use.

T-shaped features of this kind of construction have traditionally been interpreted as corn driers (following Goodchild 1943; *cf*. Morris 1979) or (following Reynolds and Langley 1979 and Reynolds 1981) as malting ovens. Botanical evidence from 'corn driers' (T-shaped and otherwise), has suggested they were used for malting and the drying/ parching of grain (van der Veen 1989). In S2105, however, cereal remains were too sparse to represent either of these activities. This may suggest that crop processing waste was used as fuel (see Section 3.11, a suggestion supported by the botanical remains encountered in the site's pottery kilns.

An alternative interpretation of T-shaped and similar ovens - especially when found in association with kilns - is that they were drying ovens to aid pottery production (*cf*.

Young 1977, 20; Swan 1984, 47-48). Similar features are still used in vernacular pottery production (*ibid*). Swan (1984, 47-48) argues that the presence of grain in many driers attests a duel function, but this speculation predates recent discussion on the trade of crop processing waste and its use as fuel at sites across Roman Britain (*cf*. van der Veen 1999), including East Anglia (*cf*. Plouviez 1989; *cf*. Fryer in Nicholson forthcoming) and beyond. S2105 is thus interpreted as a pottery drying oven.

The forms of the kilns

The arrangement of the firing chamber of Kiln S2118 resembled that of the circular kilns at Brampton (Swan 1984, 121; Knowles 1977, 216, types IIA-C), though the chamber's basin-like profile and the use of a solid clay support integral with the kiln lining, rather then distinctly moulded pilasters, is distinctively different. The form of Kiln S2133 could not be fully discerned because of the truncation of its north-western end, but it is likely to have been a single-chambered, single-flue kiln with portable furniture (*cf*. Swan 1984, 114), as seen at sites including West Stow (West 1990) and Hedgerley (Oakley *et al.* 1934).

Kilns S2119 and S1170 differed from S2133 in having two flues. Although unusual in its asymmetry, Kiln S1170 was otherwise consistent in form (overall elongated shape and oval-shaped firing chamber merging gradually into its flues) with a twin-flued kiln. Twin flued kilns have not previously been encountered in the Nar Valley, being more commonly associated with the Alice Holt/Farnham and New Forest industries (Swan 1984, 118). They are thought to have been imported from Gaul in the mid-1st century AD, and reached a peak of use during the 3rd and 4th centuries (Swan 1984, 119). During this period, the use of twin-flued kilns spread into the north-east Midlands and parts of East Anglia.

Although it seems to have been 'shaped' more carefully from the outset (the cutting of its subsurface elements), Kiln S2119 is also consistent with having been of this type. The two flues of Kiln S1170 were level, indicating (in the absence of evidence for horizontal-draught kilns in Roman Britain (Swan 1984, 117), and despite the comparative lack of evidence for burning in the south-eastern flue) that fires would have been lit in both. Experimental work has shown this to be a successful method of firing large loads (*ibid.*), with the use of a firing platform (as attested in S1170) shown to combat the tendency for a cold spot in the central part of the firing chamber. There was a north-west to south-east slope (6% gradient) through Kiln S2119, which may be consistent with its having been a sloping or cross-draught kiln (*cf.* Swan 1984, 120). Alternatively, it could have functioned in the same manner as Kiln S1170. In both of these kilns it is noticeable that the south-eastern flue narrowed towards the firing chamber. Experimental work has shown that this design creates suction, drawing the flames more effectively into the firing chamber and so raising the firing temperature (Swan 1984, 34). The (late 2nd to) 3rd century date of Phase 3 activity is consistent with the 3rd to 4th century peak in the occurrence of twin-flued kilns in Britain and with their introduction in East Anglia (Swan 1984, 119, map 12).

Relationships between the kilns

The focus of activity in Phase 3 seems to have centred on the area 'behind' the post line on the north-western edge of the droveway. It is likely that the Phase 2 aisled

building, the 'L'-shaped fence line and the associated well (the site's only identified source of water) remained functional at this time. Kilns S1170 and S2133 were clearly located in association with the workshop and may have benefited from its use as a drying facility. That these kilns were located in such close proximity probably necessitated that the workshop be constructed from masonry and brick. Kiln S2119 was an outlier, but is still considered part of this functional grouping of features. The apparent 'tailing off' in its use may have been a result of its relatively inconvenient location.

Kilns S1170 and S2133 are thought to have been abandoned at the same time, probably following a misfiring in the latter, whose last (misfired) load was then dumped into both. Archaeomagnetic dating has given a *terminus ante quem* of AD 250 for this last firing. S2133 was deliberately demolished on abandonment; S1170 seems to have collapsed (or been forced) inwards, but its structural elements remained identifiable.

The situation of Kiln S2118 was distinctly different from that of the other kilns. As the areas immediately east and south of Excavation Phase 3 have not been excavated (and are unlikely to be in the near-future as they are not proposed for quarrying), the character of activity south-east of the droveway is unclear. It appears, however, that Kiln S2118 was set in an enclosure, the north-western and south-western sides of which were formed by Ditches F2050=F2025 and F2023. Access from this enclosure to the identified focal area of activity would have been via the access points in the droveway's boundaries. This makes it seem likely that S2118 belonged to a separate pottery production complex, perhaps extending significantly beyond the excavated area. This theory is supported by the presence of a separate drying oven within this enclosure and by the differences in form and 'robustness' between Kiln S2118 and the other kilns. It is likely that there was also another source of water (probably another well) beyond the excavated area, although kilns at other Romano-British sites have been recorded as far as 400m from an identified water source (Swan 1984, 6). The significance of this spatial division is, however, unclear; it is not thought to indicate the presence of two adjacent but unrelated sites.

Speculating on the possible origins of on site production and supply

Despite having been assigned to Phase 3, Peachey (this report) has speculated that some of the on site kilns may have started production during Phase 2; although this remains far from certain. Although a tentative suggestion, if this was indeed the case, then the beginnings of on site industrial production may have been linked to the establishment of the Roman fort at Brancaster (Hinchliffe 1985), with the origins of supply being intertwined with a commercial response to the close proximity of a lucrative Roman military market.

The split jar: a possible case of 'Enchainment' By Mike Lally

The presence of the jar split between Kilns S2133 and S2118 strongly suggests that the two were perceived to be related, as well as indicating that (given the situation of these jar sherds in deposits post-dating the kilns' use) they were abandoned at the same time (by the mid 3rd century AD).

That this jar was intentionally fragmented and deposited as two separate parts in two separate features is of particular interest and likely represents an intentional act of ritual. That there is currently no known comparative example for such a practice in the Romano-British archaeological record highlights the importance of this discovery. Chapman (2000) and Chapman and Gaydarska (2007) have recently investigated similar practices within European prehistory, linking the fragmentation and separate treatment of once-singular objects to a theory of enchainment. Enchainment implies that once fragmented, the separated parts of a former whole object continue to represent this singular object in its entirety, in some synecdochical capacity.

Chapman and Gaydarska (2007) have argued that objects treated in this way were often understood to have biographical agency, symbolically representing or referencing persons, places, moments in time and other similar objects. A good example of how fragmentation and enchainment works is provided by Chapman and Gaydarska (2007, 1) in relation to the death, cremation and enchainment of archaeologist Leslie Grinsell:

"*After his body was cremated, the ashes were to be placed in a replica collared urn and taken by a group of 12 close friends first to a grand funeral lunch in a Cotswold hotel and then to the top of a hill overlooking one of Grinsell's favourite landscapes. The group was to stand on the summit of the round barrow on top of the hill, while the collared urn was smashed, allowing the ashes to be blown off into the surrounding landscape. Then, each of the friends was to take a single large sherd of the broken urn as a token of their esteem, love and affection for Leslie. I am led to believe that each of the friends alive today still keeps their "Leslie sherd" as a treasured possession*".

In this example, the fragmentation and distribution of Leslie's replica collared urn not only visually and temporally marked the moment that his ashes were released, but also came to represent a series of other associations, including the body of Leslie himself, Leslie's love of the Bronze Age, his life spent dedicated to archaeology and his desire to mark the end of his life in a way associated with the Bronze Age. The newly fragmented sherds were then distributed among his friends, providing each with a material representation of Leslie, his body, the occasion and all its associated or *enchained* relationships.

Returning to the jar split between Kilns S2133 and S2118, it is possible that what we are witnessing here is a similar form of rationality in practice. The intentional fragmentation of one object into two associated, but separately treated, parts may have visually and symbolically served to strengthen the association between these once contemporarily active kilns, while also recording – through the processes of fragmentation and enchained deposition – their intertwined experiences of pottery production and subsequent supply, and the experiences of their associated workers. It is therefore possible that through this act of fragmentation, the enchained parts of the jar were understood to have represented far more than a singular object alone, with each fragment carrying with it the stories of its creation, the kiln, and people associated with local pottery production. In this way, it is possible that this enchained act of deposition may have additionally marked the formal termination or closure of both kilns.

2.4.6 Features attesting nearby iron smelting

A total of ten Phase 3 features boasted deposits of tap slag (Pits F2203, F2235, F2442, F2484, Ditches F2007, F2103, F2507, and Kilns F1170, F2118, F2133), with a combined weight of 2153.6g. In a similar way to Phase 2, the highest concentrations of slag occurred along the line of the south-eastern droveway ditch, which also demarcated the area later used for larger-scale smelting activity in Phases 3 and 4. As with Phase 2, the deposits of tap slag found in association with Phase 3 features do not necessarily imply that iron working occurred on site. It is possible that deposits assigned to this phase were imported - accidentally or otherwise – from other nearby sites and industrial areas, such as Ashwicken (see Section 2.3.5).

2.4.7 Other Phase 3 features

Fig. 25
See Section 4.4.6 for feature and context descriptions

The only other features assigned to Phase 3 were Circular Structure S2135, Ditch F2507, and Pit F2382. The circular structure (S2135) comprised a penannular gully (F2138) of 3.55m diameter with an opening to the east, enclosing two postholes (F2161 and F2136). The gully's substructure was very poorly-preserved, owing at least partly to truncation, with no structural elements surviving. The postholes may have supported the structure's roof, but no evidence of its superstructure was recovered.

It is possible that this structure was used for additional storage or drying space. Alternatively, this structure may have been some form of shrine, possibly associated with the site's potters and pottery industry. Similarly-shaped shrines have been found on a number of contemporary Roman sites, including Brigstock 1, Northamptonshire (Greenfield 1963; Taylor 1963), Bancroft 2, Buckinghamshire (Williams and Zeepvat 1994), Bozeat, Northamptonshire (Hall and Nicholson 1970), and Kelvedon, Essex (Wilson 1972; Wait 1985). Admittedly, each of these other structures was larger in diameter to the Fosters End Drove example – with Bancroft 2 being the closest possible parallel at 5.7m – and each also contained votive evidence. However, it is possible that S2135 was a much humbler example of a similarly-perceived structure and that any associated votive finds or altar have subsequently been truncated by later ploughing. Brigstock 1, Bancroft 2 and Bozeat all contained inner postholes, with Brigstock 1 boasting postholes in a similar positioning to those of S2135.

Kiln lining, deriving from Kiln S2133, was found in the part of the gully closest to that kiln, indicating that the two features went out of use at about the same time, and that the gully was backfilled with deposits (mid orange/grey silty sand) not relating to its use. There was no evidence of *in situ* burning associated with this feature.

It is also noticeable that, though located in the area bounded by the right-angled post line in front of the aisled building, all three kilns were set at a distance (6 to 19m) from these wooden structures. This is most likely due to their associated risk of fire.

Ditch F2507, juxtaposed with part of the Ditch F2510, served to demarcate a trapezoidal enclosure behind the timber building. The north-eastern terminus of this ditch was within 1m of F2510; its north-western end lay close to F2510 but was lost

within the *c*. 3.6m strip of land which had been quarried between EP 1 and EP 3. The alignment of F2507 and its obtuse-angled corner were out of keeping with the orientations of other features at the site, which were predominantly parallel or perpendicular to the droveway. This is thought to have been because Ditch F2507 was dug while the rectangular timber building was in use and so had to respect its position. The use of the enclosure in the northern corner of the site (measuring *c*. 0.007ha) is unknown: the only features within the enclosed area were Phase 1 Pit F2436 and two undated pits; the ditch itself contained small assemblages of pottery, animal bone and ceramic building materials and two nails.

Pit F2382 was exceptionally large (7 x 2.3m in plan). Its south-eastern end lay at the droveway edge, cutting Posthole F2385 of the Phase 3 post line, to which it lay perpendicular. The central axis of Pit F2382 was aligned with the central point (excluding the porch) on the long side of the timber building and with Ditches F2035 and F2043 of the Droveway's south-easterly arm. This pit contained an apparently domestic pottery assemblage, including a grey sandy ware bowl probably imported from Brampton and a white slipped jar in Nar Valley reduced ware fabric 2, the latter found lying on its base. No other finds were present.

2.5 Phase 4 (late 3rd to 4th century AD)

The majority of the Phase 4 features fall into two groups, those from which rubble representing the demolition of the Phase 3 workshop was recovered, and those associated with iron smelting.

2.5.1 Pits with demolition debris

Fig. 26
See Section 4.5.1 and 4.5.2 for feature and context descriptions

Two large pits (F1208 and F1184) located immediately behind (north-west of) the workshop, cutting Phase 2 Ditch F1198, and one *c*. 21m to its south-east (F2150), contained ceramic building materials and other debris thought to represent its demolition. The quantity of CBM recovered from F1184 (47 fragments; 1607g) was much smaller than those from F1208 and F2150 (291 fragments (32,208g), and 186 fragments (18,451g), respectively). All three pits contained tegula (concentrated in F2150), imbrex (concentrated in F1208) and flue tile (concentrated in F1208), with 40mm and 50mm thick brick also present in F2150. Miscellaneous CBM fragments were present in F1184 and F1208 but absent from F2150.

The CBM from Pit F1208 was concentrated (88% by fragment count, 85% by weight) in its two upper fills and the same was true of the pottery (57% by sherd count). Animal bone was present in four of the five fills which contained pottery and CBM, and L1217 also contained an abraded fragment of Mayen lava quernstone. Four of the fills of this pit contained no finds. The distribution of finds within the pit suggests that it was initially left open and that there were subsequently three episodes of dumping, only the last of which included significant amounts of CBM, interspersed with either backfilling with the site's natural deposits or natural silting.

All of the CBM from Pit F2150 came from its two upper fills, L2154 and L2155; L2154 contained frequent sub-angular flints which could also have been part of the

construction of the workshop. Both of these deposits also contained pottery (a total of 79 sherds) and a few fragments of animal bone; a nail and a silver spoon (SF3.6) were also recovered from L2155. The first and third fills of F2150 are likely to represent silting or slumping of the site's natural deposits, but its second fill (L2152) contained a large pottery assemblage (80 sherds) and a significant amount of animal bone (59 fragments) as well as a nail, a large iron open socket (SF3.9) and two bone shafts of pins, needles or spoons (SF3.8).

Pit F1284 had only a single fill and the patterning of finds within it was not recorded. As well as CBM, pottery and a single fragment of animal bone, this pit yielded a coin of the House of Valentinian (AD 364-78) (SF1.3), one of the latest objects to be recovered from the site.

The distribution of finds in Pits F1208 and F2150 suggests that they were not dug specifically for the disposal of debris from the demolition of the workshop; both seem to have been open for some time beforehand and to have been used for the disposal of domestic-type waste. All three pits were large and deep with approximately vertical sides; it is possible that they were initially dug to quarry the site's natural sand, perhaps for use as temper in its ceramic products, before being used for waste deposition and finally for the disposal of the fabric of the workshop. A wide variety of pottery sherds were present in the pits, supporting the theory that the kilns in this part of the site had gone out of use before the backfilling of these pits began.

The demolition of the site's buildings during/ prior to Phase 4 is further attested by the accumulation of L2410 and L2374, sealing the postpipes of the postholes of the Phase 3 rectangular timber building. The stratigraphic sequences relating to these deposits indicate that the posts were no longer upstanding, probably having been cut off at ground level, when these deposits accumulated.

2.5.2 Possible Shrine F2190 and related features

Fig. 3, 4, 5 and 27
See Section 4.5.3 for feature and context descriptions

F2190 was a large posthole with a clearly-defined postpipe which had been allowed to silt up once its post had been removed (L2195). Around the postpipe, the packing deposits (L2191 and L2192) remained *in situ*, both having frequent stone inclusions; above them, L2193 probably accumulated after the post had been set in place. A total of 47 sherds of Nar Valley reduced ware, representing a single complete rusticated jar, represented the only finds discovered in this feature (deposited in L2191). This deliberately-deposited vessel constituted the single most important pottery discovery dating to Phase 4. The jar appears to have been stabbed, causing it to break, before being buried. The 'ritual killing' of pottery vessels prior to deposition has been attested at other Roman sites and may represent some form of chthonic or 'underworld' ritual (Fulford and Timby 2001, 295-6).

F2190 lay at the centre of a ring (*c*. 1.8m diameter) formed by four very small postholes (F2205, F2207, F2209 and F2213) and a sub-rectangular pit (F2245). Immediately outside of this ring to the south-east, behind F2209, was a fifth small posthole, F2211. The uneven base of Pit F2245, on the south-west edge of the ring, may be consistent with its representing a double posthole. Each of these features

contained a single fill resembling the site's natural deposits, suggesting that any posts originally present had been removed. None of them contained any finds.

The structure which included F2190 may have been constructed with the intention of immediately destroying it; being employed as a form of closing ritual and closing deposit associated with the termination of on site pottery production and/or site usage. Alternatively, the structure may have stood throughout Phase 4, with the deposited and 'ritually killed' vessel representing either a foundation (at time of construction) or closure deposit (when abandoned). In either instance, the deliberate 'killing' and deposition of the pottery vessel appears to indicate that this structure had differentiated status to that of other buildings on the site. The ritual vessel deposited in this structure may have provided it with some form of 'special' or 'privileged' status. As such, one may speculate that this structure acted as some form of shrine.

This group of features lay *c*. 3.3m north of Pit F2150, with the paired posts (F2209/ F2211 and those possibly represented by F2245) pointing approximately towards the edges of this large pit. The dates of pottery recovered from F2150 and the jar from F2190 indicate that the two were approximately contemporary. It seems unlikely that the small postholes had any structural function as they were both too small and too shallow to have supported posts of any size. The postpipe of F2190 indicated a post of *c*. 0.35m diameter. The interpretation of these features is unclear, the more so as they postdate activity other than dumping in this part of the site. It is speculatively suggested that this suite of features (a 'ritually killed vessel' deposited at the base of a sturdy post which was then surrounded by a ring of smaller posts) represents a symbolic marker of the end of pottery production at this site.

2.5.3 Features attesting nearby iron smelting

(See all Phase 4 sections, Fig. 28)
See Section 4.5.4 for feature and context descriptions

During Phase 4, slag was recovered from a number of features across the site (Pits F1184, F1208, F1225, F1227, F1231, F1235, F1242, F1246, F1256, F1259, F1270, F1272, F1274, F1276, F2054, F2150, and Ditch F1278). It was noticeable, however, that clusters of slag-containing features were located mainly south-east of the droveway and in features situated in the south-west of the site. The largest concentration of tap slag occurred in Pit F2054 (25,663.7g), which also had a scorched base, implying that at one point, this feature received a deposit of 'still-hot' slag. Taken together, this evidence implies that industrial smelting activity took place in close, if not immediate, proximity to F2504; a suggestion also supported by the presence of tap slag in this area in earlier phases.

That no direct evidence for actual smelting activity was detected prevents any speculative estimation of the scale of on-site production at this time, though the increased presence of tap slag (when compared to that attested in earlier phases) may be taken to suggest a greater emphasis on iron working at a time when on-site pottery production lessened in intensity.

2.5.4 Other Phase 4 features

Fig. 28

With the exception of Pits F1242 and F2054, the features south-east of the droveway were undated. Pit F1242 is dated by its pottery content to the mid/ late 3rd to 4th century; the pottery from Pit F2054 could not be dated closely enough to indicate the phasing of this feature, but it has been assigned to Phase 4 on the basis that it cuts Phase 2 droveway Ditch F2003 and would have blocked part of the Phase 3 south-easterly droveway arm.

The pits, postholes, elongated pits/gullies and ditch in the south-west of the site varied in form and dimensions, although several of the larger pits were shallow, with the appearance of having been truncated, perhaps by ploughing. As well as slag, the features in this group contained (mid/ late) 3rd to 4th century or 4th century pottery (up to 107 sherds (1401g) from F1259 and 66 sherds (1217g) from F1272, but generally less than the 13 sherds (369g) from F1276). Also included in the group are a few features which contained no slag or diagnostic pottery, but formed part of the same spatial cluster. Stratigraphic relationships to other phased features were rare, but F1254 and F1256 cut Phase 2 Ditch F1229. The terminus of the only ditch in this group (F1278) was cut by 18th century Ditch F1003; F1278 ran parallel to the line of the droveway and extended beyond the south-western edge of EP 1.

CBM was present in some of these features, mainly tegula, flue tile and miscellaneous fragments, with imbrex also present in F1272; the 1740g from F1256 and 1955g from F1246 were by far the largest quantities recovered. A nail and an iron handle were recovered from F1246, while F1272 contained a spindle whorl made from the base of a colour coated vessel and a weathered fragment of a Mayen lava quernstone. A polishing stone was found in Posthole F1282. Animal bone was recovered from F1272 and F1225 (46 and 42 fragments, respectively), with a few fragments also found in F1246 and F1256. The other finds recovered from these features are consistent with domestic waste having been dumped alongside the metalworking waste, perhaps suggesting that a domestic area also lay to the south-west of EP 1 at this time. The spatial and chronological distribution of slag-containing features implies that iron smelting was located further to the south/ south-west.

2.6 Unphased Roman features

See Sections 4.6.1 and 4.6.2 for feature and context descriptions
Fig. 29

2.6.1 Features containing undiagnostic Roman pottery

In addition to the Phase 2 to 4 features, there were a small number which contained finds indicative of a broad Roman date which could not be further refined, and which had no stratigraphic, spatial or functional associations to link them to any of the identified phases of activity.

2.6.2 Features attesting nearby iron smelting

A total of three unphased Roman features contained tap slag (Pits F2106 and F2247, Ditch F2032). The largest concentration occurred in F2032, which, together with the slag deposited in F2106, supports the earlier suggestion that smelting activity took place to the south-east of the droveway.

2.6.3 Features south-east of the droveway
Fig. 30

A second group of unphased features lay to the south-east of the droveway, on the edge of EPs 1 and 3, aligned perpendicular or parallel to the droveway and respecting its position. The spatial arrangement of these features suggests that they belong in Phases 2 or 3 but some contained slag, suggesting that they may date to Phase 4. These features seem to represent the edge of a Roman system of land division to the south-east of the droveway.

Intercutting Pits F2106 and F2252 were also located south of the droveway, very close to Phase 3 Drying Oven S2105. Their proximity to the drying oven suggests that they were associated with it, but no function has been identified for them and F2106 was found to contain a sherd of Oxfordshire red slipped ware, consistent with a Phase 4 date, though this was very small and may have been intrusive.

F2106 was a shallow sub circular pit with vertical sides and a flat base. Unusually for this site, it was filled by two deposits of clay, the lower one with yellow-green-brown colouration, the upper with pale grey-green colouration. Neither clay deposit was burnt, though it was considered possible that both had been lightly fired – perhaps through a single exposure to high temperatures. Twenty-four fragments of daub/ kiln lining were found along with four nails and 41 sherds of pottery within the upper fill.

F2106 was cut by undated Pit F2215 to the north, and by Pit F2252 to the south-west. A distinct 'hump' in the base of F2552 strongly suggests that two cuts are actually present, one cutting F2106 and the other south of this; the two appear to have been open at the same time – having no (surviving) stratigraphic relationship - during which time L2550 was deposited in both. L2551 was then deposited in the northerly pit; its configuration suggests that either the central part of the pit was left as an open hollow, to be filled later by the subsoil, or that this central area was filled by a deposit which was not distinguished from the subsoil on excavation. The southern cut appears to have been treated in the same manner: either left open to fill with later accumulations of subsoil or filled by an unrecognised deposit resembling the subsoil. In the 18th century, the southern cut was truncated by the cutting of Ditch F2015, so that only part of it remained, appearing as a tailing off of its northern neighbour. No finds were recovered from F2552.

The initial interpretation of F2106 was as a (presumably truncated) kiln, fired only once, if at all; F2552 (which contained no finds at all) was interpreted as a pit dug for the dumping of waste from the kiln when it was demolished. It was suggested that a spread of burnt/ lightly fired, pale coloured clay was present across the surface of both features, particularly around their edges; this was interpreted as the remains of a kiln's superstructure. However, the records made on the completion of excavation contain little to support this interpretation: the burnt/ lightly fired clay is though to have been L2549 and clayey patches within L2551; though the former (and the underlying L2548) could represent lining in the base of a kiln which was never used, this seems unlikely given their combined thickness and the absence of other supporting evidence. The daub/ kiln lining recovered from L2549 is likely to have derived from the superstructure of the adjacent drying oven, and the pottery recovered from these features included no sherds apparently produced at the site. It thus seems unlikely

that F2106 was a kiln. It may have been part of a facility for storing potting clay, linked to pottery production in this part of the site, but this suggestion is extremely tentative.

2.7 18th century Private Enclosure ditches

Fig. 31 and 32
See Section 4.7 for feature and context descriptions

A series of co-axial ditches, on a slightly different alignment to the droveway and other Roman features, was identified in EPs 1, 3 and 4. Although they also contained residual Roman, sparse medieval and earlier post-medieval finds, these were considered to be of 18th century date and to represent the private enclosure of the area.

2.8 Pre-Roman Ditches in EP6

In EP6 an apparent field or enclosure system underlay the Roman activity, but produced no dateable material. This field system comprised Ditches F3024, F3029, F3039, F3042, F3051 and F3055 and Pits F3011, F3022, F3048, F3049 and F3053.The ditches were aligned north-west to south-east, contrary to the Roman activity present to the south, indicating that they were part of an earlier, separate landscape.

2.9 Undated features

Figs. 33 and 34 (see Fig. 8 for F2225)
See Section 4.8.1 and 4.8.2 for feature and context descriptions

A remarkably small number of the features revealed in EP 1 and EP 3 were undated. A few undated features and several undated tree hollows were present in EP2 and EP4. The charcoal-rich fills of several of the tree hollows may indicate that the trees were destroyed by fire.

3 SPECIALISTS' FINDS AND ENVIRONMENTAL REPORTS

3.1 Archaeomagnetic dating

C.M. Batt and A. Trapanese
See Section 5.1

3.1.1 Introduction

Orientated archaeomagnetic samples were taken from well-preserved fired features comprising two kilns (S2118 and S2133) and Stokehole F2130, of Kiln S2119.

Feature	Feature No.	Lab code
Pottery kiln	S2118	F1
Stokehole	S2119	F2
Pottery kiln	S2133	F3

Table 1: Feature identification

The objectives were

- to determine whether the material had been heated *in situ* to a high enough temperature to record the geomagnetic field
- to provide a date of last use of the feature

Sampling was carried out by Dr C.M. Batt, C. Suteu and A. Trapanese, and the measurements were conducted by A. Trapanese, at the request of Archaeological Solutions Ltd.

3.1.2 Archaeological context

Five structures with evidence of burning were excavated, but only three of these were considered to be sufficiently stable and well-fired for archaeomagnetic dating. The first sampled feature was a pottery kiln (Fig. 23, S2118, Ref. F1). This was a well-preserved circular structure, slightly mounded in the centre, with a diameter of approximately 1.5m and an entrance 0.7m high. The kiln material was robust fired clay. Colouration varied from yellow in the central part of the kiln to dark red at the rim. The colouration suggested significant heating and the kiln showed no significant disturbance. The second feature was interpreted as a stokehole (Fig. 22, S2119 Ref. F2). It was oval-shaped, 1.2m long and made of sandy material with small pebble inclusions. The centre of the feature was orange, grading towards brownish-black at the upper rim. The colouration suggested heating, but not to very high temperatures, and there were no signs of disturbance. The third feature was a 'U'-shaped kiln (Fig. 21, S2133, Ref. F3). The material was a grey, compact clay. The northern part of the feature showed no evidence of cracking, but the feature had been partially destroyed by quarry activity and it was possible that the whole feature had undergone slumping.

3.1.3 Sampling

A total of 68 samples were taken from cleaned horizontal surfaces on the three features, using the standard disc method (detailed in the site archive). The samples were distributed as follows:

- F1 pottery kiln: 3 samples from mouth, 21 from rim and 5 from centre
- F2 stoke hole: 20 samples from rim
- F3 pottery kiln: 6 samples from the upper level and 13 from the middle level

The samples were oriented before their removal from the structures using a magnetic compass, as there appeared to be no local disturbances to the geomagnetic field caused by the feature itself or other factors. In the laboratory, the samples were trimmed and consolidated and the Munsell number recorded. A full record is provided in the site archive.

3.1.4 Measurement

The direction of natural remanent magnetisation (NRM) of all samples was measured using a Molspin fluxgate spinner magnetometer. The stability of the magnetisation was investigated by the stepwise demagnetisation of selected samples from each feature in fields of 2.5, 5, 7.5, 10, 12.5, 15, 20, 30, 40, 50, 60, 80, and 100mT (peak applied field), with the remanence being measured after each step. The samples selected for pilot demagnetisation were:

- 6 samples from the feature F1 (F1/5, F1/6, F1/12, F1/16, F1/22, F1/28);
- 3 samples from the feature F2 (F2/2, F2/11, F2/13);
- 4 samples from the feature F3 (F3/7, F3/12, F3/17, F3/19)

Selection of pilot samples was based on the initial natural magnetic intensities, distribution over the feature, having representative values or having outlying values.

From a study of the pilot sample behaviour, an appropriate demagnetisation field was chosen to provide the optimum removal of the less stable components (Tarling and Symons 1967), leaving the magnetisation of archaeological interest. After partial demagnetisation in this field the sample remanences were remeasured.

3.1.5 Results

<u>Feature F1 (Kiln S2118)</u>

All 29 samples collected in the field were processed for the determination of the NRM of the feature. The initial magnetic directions were scattered and included some outlying values, indicating that the NRM values are not related to a single magnetic field. In particular, samples collected from the mouth area showed outlying magnetic directions, which might indicate slumping in this area. The initial measurement of NRM produced a large α_{95} value of 10.6°, which is outside the practical limit of 5° defined as being appropriate for dating (Clark *et al.* 1988, 606). All samples had high values of initial intensity (57.47 - and 296 mAm^{-1}) suggesting that the feature had been heated sufficiently to record the geomagnetic field, and contained appropriate concentrations of magnetic minerals.

Six samples were subjected to the pilot stepwise demagnetisation: F1/5 and F1/6 were selected to represent samples from the area near the mouth, F1/12, F1/16, F1/22 from the rim of the kiln, and F1/28 from the central part. Samples F1/5 and F1/22 had a

low intensity, but the others were significantly above the noise level of the magnetometer. The MDF (the median destructive fields) values for the samples from the rim and central parts of the feature varied from 8.5 mT to 28.5 mT, indicating significant variation in the magnetic minerals in different parts of the feature. The intensity spectra had a similar shape. Each sample had 2 magnetic components, the component of lower stability being removed at 5 mT, leaving a higher stability component classed as stable (>2.5) using the criteria set by Tarling and Symons (1967).

After magnetic cleaning, the archaeomagnetic vectors formed a well-defined group, with distinct outliers. By applying the discordancy tests of McElhinny and McFadden (2000, 92) it was possible to identify those samples that could be statistically identified as outliers (F1/1, F1/9, F1/13, F1/14, F1/21, F1/22 and F1/23). On removal of these samples, the α_{95} value decreased to 4.4°, which is within the recommended range for fired materials, meaning that these results were appropriate for dating purposes (Tarling and Dobson, 1995).

Feature F2 (Kiln S2119)

20 samples from Feature F2 were measured. These samples had a very weak NRM (less than 10 mAm^{-1}), except for one sample (F2/10). The NRM directions were widely scattered, with a α_{95} value of 23°. The low intensity values suggested that either the feature was poorly-fired or that there was a low concentration of magnetic minerals. There was no correlation between the sample position and intensity. The scattered NRM directions suggested that the past magnetic field had not been accurately recorded.

Three samples (F2/2, F2/11 and F2/13) were subjected to stepwise demagnetisation. The choice of samples for pilot demagnetisation was limited as many had intensity values close to the measurement limit of the spinner magnetometer. Demagnetisation indicated that the magnetisation predominantly arose from soft magnetic minerals. The MDF varied from 11 mT to 15.5 mT. The samples had two magnetic components, the component of lower stability being removed at 5 mT. After the lower stability component was removed the remaining signal was classed as stable using the criteria set by Tarling and Symons (1967).

After magnetic cleaning, the scatter of archaeomagnetic vectors was found to increase. There were several samples that were classified as being significantly far from the mean as they exceeded the critical angle defined by McFadden and McElhinny (2000, 92) discussed in the site archive, but even their removal did not reduce the α_{95} value sufficiently. Based on these observations, this feature did not retain a stable record of the past geomagnetic field and was therefore undatable.

Feature F3 (Kiln S2133)

The third feature provided 16 samples; three broke during sampling. The NRM directions were well-clustered, with two distinct outliers (F3/1 and F3/2). The α_{95} value of 9.6° is high because of these two outliers. Samples had variable values of initial intensity (2-834 mAm^{-1}) but all were measurable, with the exception of F3/1

and F3/2, which were below the noise level of the instrument. These values suggested that the majority of samples had been heated sufficiently to record the geomagnetic field, and contained appropriate concentrations of magnetic minerals, apart from the two outlying samples.

Four samples were subjected to the pilot stepwise demagnetisation (F3/7, F3/12, F3/17 and F3/19). Demagnetisation identified the magnetic minerals to be generally hard, with a MDF of 16.5-30 mT. Each sample had two magnetic components, the component of lower stability being removed at 2.5 mT. After the lower stability component was removed, the remaining signal was classed as stable using the criteria set by Tarling and Symons (1967).

After magnetic cleaning, the archaeomagnetic vectors formed a well-defined group, with the same two distinct outliers. These were rejected on the basis of their weak magnetisation. On removal of these samples the α_{95} value decreased to 3.9°, which is within the recommended range for fired materials, meaning that these results were appropriate for dating purposes (Tarling and Dobson, 1995).

3.1.6 Dating of magnetic direction

The mean declination and inclination after partial demagnetisation for the three features were corrected to Meriden (Table 2), the reference locality for the British calibration curve, using the standard method (Noel and Batt 1990). The corrected mean site direction was then dated by comparison with both the newly developed RenDate calibration program (chart 1) and the more established Clark calibration curve (chart 2) in the conventional manner (explained in the site archive), and the dates are given in Table 2.

Description	**Initial measurements (mean in degrees)**			**After pilot demagnetisation (mean in degrees)**			**Date range at 95% confidence limit**	**Date range at 95% confidence limit**
	Dec	Inc	α_{95}	Dec	Inc	α_{95}	RenDate	Clark
F1: S2118	3.3	78.3	10.6 (N=29)	-3.8	70.0	4.4 (N=22)	522BC-55AD 507AD-655AD	150BC-100AD
F2: F2119	-39.6	69.5	26.3 (N=20)	-23.8	74.3	16.1 (N=15)	Undatable	Undatable
F3: S2133	-3.1	55.2	9.6 (N=16)	-7.4	58.7	3.9 (N=14)	136AD-576AD	200AD-250AD

Table 2: Summary of results: all directions are corrected to Meriden and errors are at 95% confidence

In archaeomagnetic dating, it is often necessary to give multiple possible date ranges as the earth's magnetic field has had same direction at different times in the past. However, the available archaeological evidence is usually sufficient to select the most likely range.

The Clark curve suggests that Kiln S2118 (F1) went out of use in the 1st century AD. However, the Clark curve has a number of limitations (Batt 1997) and the dates have also been provided by a more recent UK calibration (Zananiri *et al.* 2007), using the algorithm RenDate, which takes account of the errors associated with both the magnetic direction of the sample to be calibrated and the magnetic directions that make up the reference curve, whereas calibration with the Clark calibration curve only considers the errors associated with the feature to be dated and requires a visual interpretation of the area plotted on the curve. Therefore, calibration via the RenDate software provides a larger but more realistic date range and allows for the structure to have been last used between AD 507 and AD 655.

The Clark curve suggests that Kiln S2133 (F3) was last used between AD 200 and AD 250; RenDate gives the possibility of a later date of last use, providing a date range between AD 136 and AD 576. The date ranges obtained are large as there is little variation in declination of the Earth's magnetic field during this period, which reduces the precision.

As discussed above, the magnetic directions from F2119 (F2) are too scattered to allow a date to be obtained, due to a combination of low temperature initial heating and differential movement of the material after heating.

3.1.7 Summary and conclusion

Both F1 and F3 show evidence of having been heated to above the Curie temperature and remaining *in situ* since the last firing event. Although there was evidence of some colour change in the material, the directions were closely-grouped, suggesting that all parts of the furnace that were sampled recorded the same event and did indeed provide a record of the geomagnetic field at the time of last firing. The magnetic direction of Kiln S2133 (F3) is consistent with last heating in AD 200-250, using the conventional Clark method. More recent statistical methods would suggest a similar central date, but with a wider range at 95% confidence. This would be consistent with the archaeological evidence. The magnetic directions for Kiln S2118 (F1) are more difficult to interpret, partly because the magnetic directions are more scattered and partly because the calibration curve in this period is less well-defined. The Clark method would suggest an early date of last use, in the 1st century AD, whereas the more recent statistical method suggests a much later date of last use, between *c*. AD 500 and AD 650. Further archaeological evidence would be required to choose between these options. The magnetic data is incompatible with the two features ceasing use at the same time (see Section 3.1.8).

Stokehole F2119 of Kiln S2119 (F2) appears not to have been heated to such high temperatures/ to contain insufficient magnetic mineral, and to have suffered post-firing disturbance, which makes it unsuitable for dating.

3.1.8 Note on the archaeomagnetic dating of Kiln S2118 (F1)
Kate Nicholson

The possible dates obtained for Kiln S2118 (see 3.1.6 and 3.1.7) using archaeomagnetic dating (150 BC- AD 100 using the Clark method; AD 507-655 using

the more recent statistical method of Zananiri *et al.* (2007)) are inconsistent with the ceramic evidence which indicates a date in the late 2nd to 3rd century AD. Furthermore, the archaeomagnetic evidence is incompatible with Kilns S2133 and S2118 having ceased use at the same time, but the presence of sherds from the same vessel in deposits relating to the disuse of the two kilns (see Section 3.3) is clear evidence that this was the case.

Given the strength of the ceramic evidence and the improbability of explanations such as unidentified slumping or reheating of Kiln S2118 over 200 years after its use for pottery production (especially in light of its good preservation and lack of disturbance to the kiln structure), the archaeomagnetic dates obtained for Kiln S2118 are considered to be erroneous. The reasons for this error are not known, though it is possible that they will become clear as the technique of archaeomagnetic dating develops (pers. comm. C.M. Batt, 02/04/07).

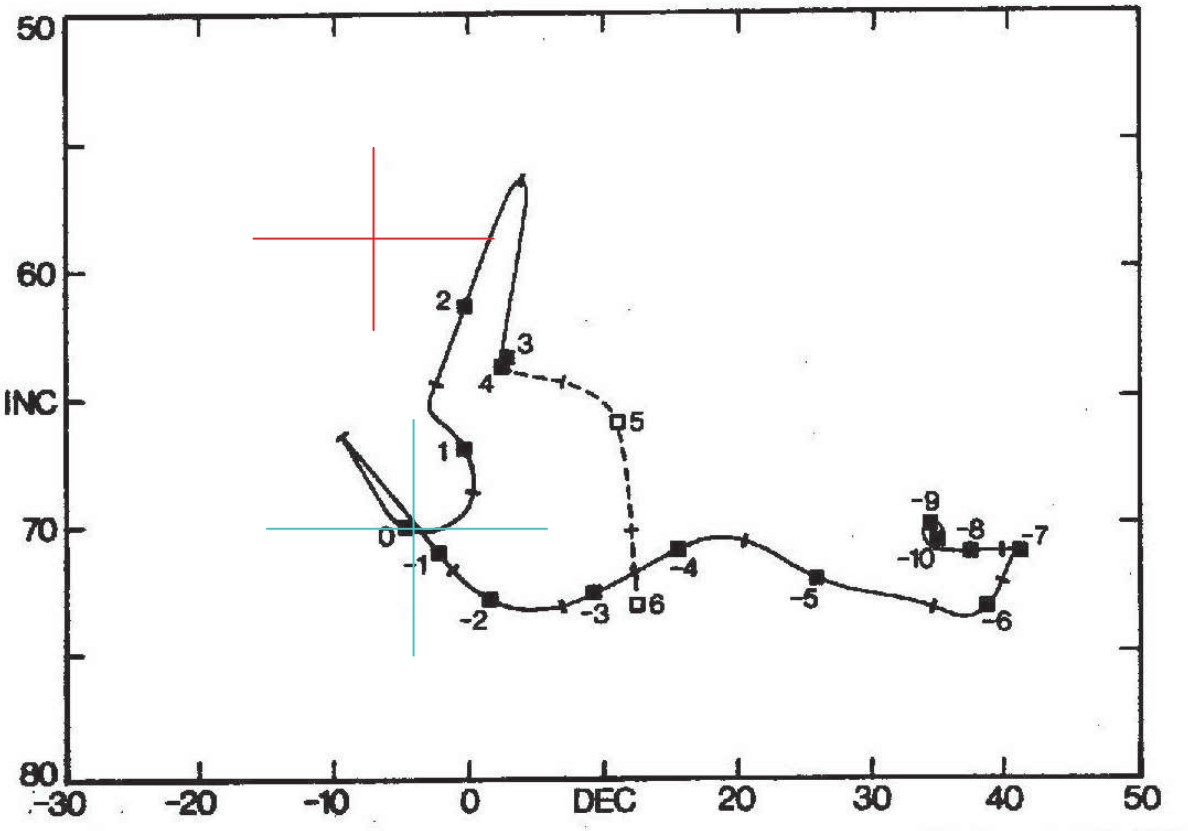

Chart 1: Comparison between the corrected mean archaeomagnetic directions for Feature 1 (Blue) and Feature 3 (Red), and their errors at 95% confidence, and the UK master curve of Clark et al. (1988), showing 1000BC-AD600. Figs are in hundreds of years BC (-) and AD. 0=BC/AD1. Ticks indicate half-century points. The declination and inclination scales are in degrees.

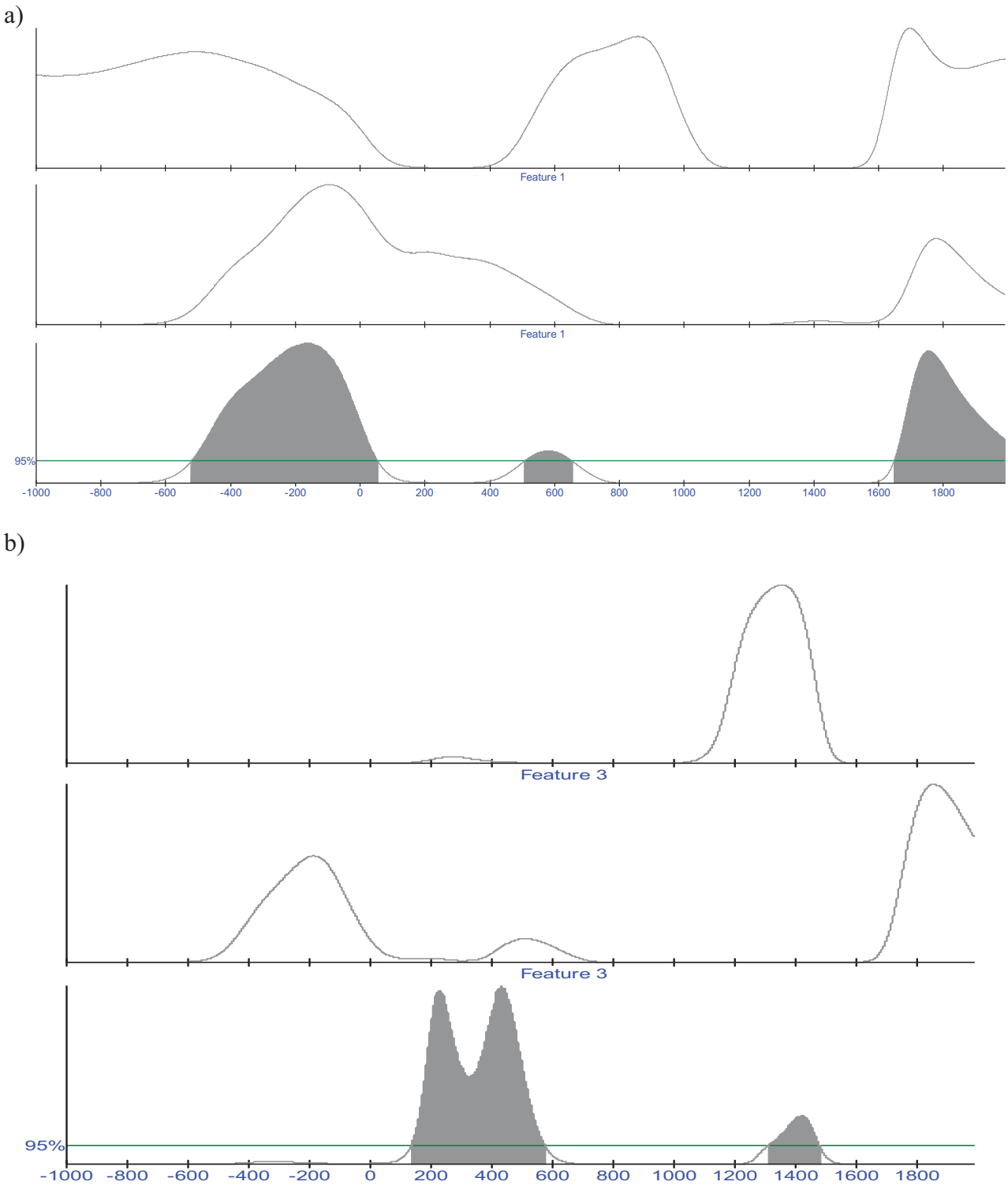

Chart 2: The probability density produced by the RenDate software (Zananiri et al. 2006) when applied to a) Feature 1 and b) Feature 3. The top two plots display at what points in time the earth magnetic field has had the same magnetic direction as that recorded in the feature. The two aspects of the magnetic direction (inclination (Inc) and declination (Dec)) are compared and the best matches for both quantities are highlighted in grey in the bottom graph. The dates are read off from the green line, which represents the error at 95% confidence.

3.2 Worked flint

Martin Tingle
See Section 5.2

3.2.1 Introduction

The assemblage is composed of eight pieces weighing 109g, all recovered from Excavation Phase 4. If unworked flint and burnt, but unworked, flint is excluded, the worked flint assemblage totals just five pieces weighing 70g.

3.2.2 Raw materials

The flint is unpatinated and only one flake in the assemblage has any surviving dorsal cortex; therefore, suggesting an origin for this material is problematic.

3.2.3 Composition and technology

Context	Find	Number	Weight (g)
1000	Broken Flake	1	6
1000	Natural Flint	1	8
1000	Flaked Axe	1	49
1009	Uncorticated Flake	1	3
1009	Primary Flake	1	3
1014	Burnt Flint	2	31
1014	Uncorticated Flake	1	9

Table 3: The composition of the flint assemblage

The assemblage is composed of four flakes and a reworked flaked flint axe. This seems to have been made from a larger and more conventionally-shaped axe. At some stage, this was broken and the butt end reworked to form the present tool.

3.2.4 Distribution

The worked flint derived from three contexts: two pieces from the topsoil, two flakes from a ditch fill (L1009) and a single flake from a pit fill (L1014).

3.2.5 Dating

The re-worked axe is certainly of Neolithic date; however, the remaining material could date from any period in prehistory.

3.2.6 Conclusion

Although the axe is an interesting piece, the assemblage is too small for any conclusions to be drawn from it.

3.3 Middle Iron Age and Roman pottery

Andrew Peachey
Fig. 35 - 39
See Section 5.3

3.3.1 Introduction

Excavations at Fosters End, Blackborough End produced a total of 256 fragments (5745g) of prehistoric pottery and 3292 fragments (99,374g) of Romano-British pottery from a series of sealed, stratified feature groups (Table 4). The Romano-British pottery is of particular importance because it includes well-preserved and stratified pottery groups from kilns and associated features representing pottery production in the Nar Valley. The pottery from Phase 2 indicates a well-defined start date for Roman occupation on the site, while Phase 3 provides a date for the commencement of pottery production on the site, and importantly, a date for the end of pottery production on the site that is substantially before the end of the Nar Valley pottery industry as a whole in the region. However, Phases 2 and 3 probably overlap substantially. The pottery from Phase 4 allows probable dates for the end of Romano-British activity and occupation on this site to be ascertained.

Archaeological investigation of the Nar Valley industry has been limited and few kilns or substantial groups from the area have been recorded. One Roman kiln has previously been recorded in Blackborough End (Gurney 1990) and further kilns have been excavated in Shouldham and Pentney (de Bootman 1983 and 1984), but only limited quantities of pottery were recovered. The most substantial groups of Nar Valley pottery were recovered from the Saxon Shore Fort at Brancaster (Andrews 1985) and the groups recorded here provide a further important insight into the character and scope of the Nar Valley pottery industry.

Phase	Feature Group	Sherd Count	Weight (g)
n/a	Unstratified/natural	74	2009
1	All features (prehistoric)	256	5745
2	All features	1106	26500
3	Kilns	1105	35921
3	All other features	333	22051
4	All features	571	11606
n/a	Unphased Roman features	89	1120
5	18th century features (residual)	14	167
Total		*3548*	*105119*

Table 4: Quantification of prehistoric and Roman pottery in feature groups

3.3.2 The prehistoric pottery

A total of 256 fragments (5745g) of well-preserved middle Iron Age pottery were recovered from five features, three of which were assigned a Phase 1 date (Pits F1010 and F2436 and Ditch F2219). The further features, both 18th century private enclosure ditches (F1002 and F1008), contained residual sherds of middle Iron Age pottery. Features with deposits assigned a Phase 1 date included Pit F2436, which contained a single deliberately-deposited vessel, and Pit F1010 (in EP4), which contained a substantial deposit of pottery. The pottery was examined according to the

guidelines of the Prehistoric Ceramics Research Group (1995) and fabric codes were assigned from the type series used at Bittering and Longham, Norfolk (Percival 1999, 246), with the descriptions repeated here.

Fabric descriptions (after Percival 1999, 246)

Q2: A hard fabric tempered with abundant, medium, well-sorted and rounded quartz sand.
Q3: A hard fabric tempered with abundant, coarse, well-sorted and rounded quartz sand.
Q7: A hard fabric tempered with abundant, fine, ill-sorted, rounded quartz sand and sparse, medium, ill-sorted, and sub-rounded calcined flint.
Q8: A hard fabric tempered with abundant, fine, ill-sorted rounded quartz sand and sparse, fine, sub-rounded calcined flint.

The greatest concentration of middle Iron Age pottery (125 fragments (4146g)) is accounted for by a single handmade jar with a burnished exterior in Fabric Q7 recovered from Pit F2436 (L2429) (Fig. 35.1). The jar appears to have been placed, complete, into Pit F2436. Due to later compression, parts of the jar have become severely crushed and fragmented, although it has been possible to reconstruct nearly all of the vessel profile and part of the base. The vessel is comparable to jar P26 recovered from Bittering Site 13023 (Percival 1999, 242), dated to the middle to late Iron Age (3rd to 1st centuries BC). The vessel from Bittering is characterized as a jar/bowl, but only the upper half of the vessel is present, and there can be little doubt that the vessels are of comparable type due to the similarities in size, profile and proportion.

The substantial and well-preserved quantity of middle Iron Age pottery in Pit F1010 is divided between two fills: L1011 (6 sherds, 196g) and L1014 (114 sherds, 1369g). The pottery in L1011 is entirely comprised of sherds in Fabric Q2, while the sherds in L1014 comprise 105 sherds (1076g) of Q2, six sherds (227g) of Q3 and three sherds (66g) of Q8. The pottery in L1014 represents approximately six vessels, with the bulk of the Q2 sherds probably derived from a single ovoid jar with an upright/slightly everted rim (Fig. 35.2) comparable to an example from Bittering Site 13023 (Percival 1999, 240: vessel P2). There are very few cross-joining sherds, and despite the presence of rim and base fragments, no dimensions can be measured. However, the six fragments in L1011 appear to belong to the same vessel (without joining) and indicate that the jar had an approximate diameter of 20cm. L1014 also contains a low number of fragments from four further jars with upright/slightly everted rims as well as a single probable bowl. The four jars are present in Q2 with a plain rim (Fig. 35.3), Q2 with a t-shape rim (Fig. 35.4), Q8 with a burnished/polished exterior (Fig. 35.5) and Q8 with grass-wiped interior and exterior (Fig. 35.6). The Q2 vessel with a T-shape rim (Fig. 35.4) is clearly paralleled at Longham Site 7239 (Percival 1999, 244: vessels P44-5), and while the remaining jars do not have exact parallels in the Launditch pottery, they clearly concur with the general trend of handmade types that occur there. The last diagnostic sherd in L1014 is a very small rim sherd in Q3, probably from a rounded bowl (Fig. 35.7), comparable to a vessel recorded at Bittering Site 15910 (Percival 1999, 244: vessel P36), although the size of this sherd makes any identification tenuous.

The remaining six sherds (34g) of prehistoric pottery are from Ditch F2219 and residual within 18th century private enclosure Ditches F1002 and F1008 (in EP 4); while very limited in quantity, these appear comparable in fabric and form to the larger deposits in Pits F2436 and F1010. The sherds from Ditch F2219 (L2220) are in Q3 and include a slightly shouldered jar with roughly vertical exterior scoring (Fig. 35.8), comparable in profile to the undecorated jar P10 recovered from Bittering Site 13023 (Percival 1999, 241). Scored decoration has been recorded on middle to late Iron Age body sherds at Longham (Percival 1999, 244: sherd P40) and at Spong Hill (Gregory 1995, 91, vessels 2 and 4). The sherds in Ditch F2219 are only present in a very low quantity, but much of this feature has been truncated by Phase 2 Ditch F2168 and Phase 3 Building S2251; no prehistoric pottery was recorded in the pottery groups from these features. The remaining middle Iron Age sherds are limited to very abraded Q2 sherds from Ditch F1002 (L1003 Seg.I) (1 sherd, 8g) and Ditch F1008 (L1018 Seg.D) (2 sherds, 9g), both in EP 4; these are comparable in fabric to those from Pit F1010, but do not include any diagnostic sherds.

The prehistoric pottery assemblage comprises a moderate quantity of middle Iron Age pottery, but the potential for interpretation of this pottery is limited by it occurring primarily in two isolated pits. The deliberate deposition of a complete vessel in Pit F2436, and possibly the deliberate deposition of one vessel, or certainly the predominance of one vessel, alongside fragments of others in Pit F1010, must be regarded as important middle Iron Age groups both within and beyond the context of the site. These groups may be associated with peripheral activity relating to a nearby centre of local occupation, or associated with isolated ritual activity. Either of these possibilities may be related to contemporary evidence for iron smelting recorded alongside pottery, and a gold torque, found within the parish (HER 12559). The range of jars with rounded/sinuous profiles and slightly everted/upright rims is typical of a middle Iron Age date, as is the fact that the bulk of the pottery was present in pit features (Percival 1999, 247-9). Further discussion of this group is limited, but it is clearly in character with that recorded at the Launditch approximately 30km to the east.

3.3.3 The Roman pottery

Methodology

The Roman pottery was quantified by sherd count, weight and R.EVE (Orton, Tyers and Vince 1993, 172-3) in all features. Fabrics were examined at x20 magnification to define fabric groups and assigned codes using the system developed for the National Roman Fabric Reference Collection (Tomber and Dore 1998). The Nar Valley fabrics were divided into categories 1 and 2 to denote which of the local fabrics could be related to the kilns on the site, though not definitely produced in them, and which were probably produced else where in the Nar Valley. The local sandy reduced wares (GRS) were also further divided according to petrology and surface treatments, with comparisons with similar coarse wares from other local published sites. Form comparisons are principally drawn from the largest published groups of Nar Valley pottery at Brancaster (Andrews 1985), with further comparisons with material from Blackborough End (Gurney 1990), Gayton Thorpe (Atkinson 1929), Spong Hill (Gurney 1995) and Feltwell, Hockwold cum Wilton and Denver (Gurney 1986). To facilitate the discussion of pottery in feature groups, a typology of

the Nar Valley fabric forms recorded in the kilns and in associated features is presented before the discussion. The alpha-numeric system of labelling forms (B = dish, G = jar, etc.) is based on the system devised by Going (1987). Illustrations have principally been selected to illustrate the typology, with illustrations of forms in other fabrics limited to references to published comparisons, unless this was not possible or they were of intrinsic interest.

Nar Valley and other local/regional sandy reduced fabrics

NAR RE1 Nar Valley reduced ware 1 (Gurney 1990, 89; Andrews 1985, 89) waster vessels in this moderate to hard fabric were recovered from all the kilns on the site, and is the most common fabric in the assemblage. The colour of this fabric is not always consistent and sometimes mottled in appearance, with surfaces and cores ranging from very dark grey (2.5Y 3/1 or darker) to dark 'burnt' orange, dark red-brown and black. The description of the fabric as a reduced ware is appropriate and oxidised sherds only occur as misfired kiln material or possibly as storage jars. Inclusions in the fabric comprise common sub-rounded quartz generally in the 0.25-0.50mm size range, occasionally to 2mm, with sparse fragments of flint (1-5mm, occasionally larger) and sparse iron rich grains (predominantly black and <0.5mm). The fabric has an irregular fracture and a slightly granular break.

NAR RE2 Nar Valley reduced ware 2. A very hard sandy grey ware with many similarities to NAR RE1. This fabric is only present in low quantities and is not present in any of the kiln assemblages, but may have been a product of other kilns in the Nar Valley region such as Shouldham and Pentney to the south-east or Snettisham to the north. The fabric is hard and consistently dark grey (GLEY1-2.5Y 4/1) often with a white slip on the rim and upper body, and superficially similar to pottery from Horningsea, Cambridgeshire (Evans 1991, 35-37). Vessel forms in this fabric differ from those in the Horningsea pottery, although similarities in the form of storage jars in NAR RE1 are also apparent and a potential link between the kiln groups should not be discounted. Inclusions are as NAR RE1, although the quartz tends to be slightly finer and sparse to common, with sparse mica also apparent. The fabric has an irregular to hackly fracture and a more granular break than NAR RE1.

GRS1 Sandy grey ware 1. This fabric is pale grey to off-white with a dark grey slip on both surfaces. Inclusions comprise sparse quartz (<0.3mm) and moderate to common mica that is especially noticeable in fresh break (but not in the slip). The fabric is comparable to RW5 at Brancaster (Andrews 1985, 91), and is very similar to the relatively non-micaceous Lower Nene Valley grey-slipped ware produced just over 30 miles to the south-west. The high degree of craftsmanship and forms of this fabric are also reminiscent of the Lower Nene Valley fabric, but the micaceous fabric is more typical of pottery produced in the Waveney Valley on the Norfolk-Suffolk border (see fabric WAT RE), and this fabric may represent a migrant or 'outlier' potter working some where in west Norfolk.

GRS2 Sandy grey ware 2. A hard fabric with either very dark grey or buff to oxidised surfaces (7.5YR 6/6) that fade to a reduced core (5Y 6/3). Inclusions comprise common quartz, sparse black iron ore, sparse red/black iron rich grains and sparse fine mica (all 0.2-0.7mm). Only one vessel, a bowl in Phase 2b Pit F2382 L2383, is present in this fabric, comparable to a bowl at Brampton, a probable source for this fabric.

GRS3 Sandy grey ware 3. A moderate to hard mid grey fabric (GLEY1and2 5/1) with inclusions of common quartz (0.1-0.4mm, occasionally larger), sparse

	fine mica and sparse iron rich inclusions (0.1-1mm). The ubiquitous type of Romano-British sandy grey ware.
BSW	Black-surfaced grey ware. A moderate to hard fabric with black surfaces and reduced grey margins and core, with the core a lighter shade than the margins. Inclusions comprise common, well-sorted, fine to medium quartz (0.05-0.25mm) with sparse red and black iron rich grains (<0.5mm), and very sparse/occasional flint (1-5mm). This fabric is very similar but finer and less granular than black sherds of NAR RE1. Only one vessel: a facetted 'Romano-Saxon' bowl is present, in Phase 2c Pit F1259 L1260. The source of this vessel is unclear but may originate from the Hadham Industry or a source in Suffolk/Essex (Darling and Gurney 1993, 211).

Other fabrics

LEZ SA2	Lezoux samian ware 2 (Tomber and Dore 1998, 32)
RHZ SA	Rheinzabern samian ware (Tomber and Dore 1998, 39)
TRI SA	Trier samian ware (Tomber and Dore 1998, 41)
BLW SA	Blickweiler samian ware (Tomber and Dore 1998, 35)
KOL CC	Lower Rhineland (Cologne) colour-coated ware (Tomber and Dore 1998, 57)
CNG BS	Central Gaulish black-slipped ware (Tomber and Dore 1998, 50)
MOS BS	Moselkeramik black-slipped ware (Tomber and Dore 1998, 60)
LNV CC	Lower Nene Valley colour-coated ware (Tomber and Dore 1998, 118)
OXF RS	Oxfordshire red-slipped ware (Tomber and Dore 1998, 176)
GRC CC	Great Casterton colour-coated ware (Tomber and Dore 1998, 169)
COL CC2	Colchester (late) colour-coated ware (Tomber and Dore 1998, 132)
PAK MD	Pakenham mica-dusted ware (Tomber and Dore 1998, 182-3)
HAD OX	Hadham oxidised ware (Tomber and Dore 1998, 151)
WES FR	West Stow fine reduced ware (Tomber and Dore 1998, 185)
PAR FR	Parisian fine reduced ware (Elsdon 1982, 8: Fabric 1)
LNV WH	Lower Nene Valley white ware (mortaria) (Tomber and Dore 1998, 119)
LNV CC (M)	Lower Nene valley colour-coated ware (mortaria) (Tomber and Dore 1998, 118)
C/EWWM	Colchester/Ellingham white ware (mortaria) (Hartley and Gurney 1997, 9-10)
BRM WH	Brampton white ware (Tomber and Dore 1998, 170)
HAR SH	Harrold shell-tempered ware (Tomber and Dore 1998, 115)
WAT RE	Wattisfield/Waveney Valley reduced ware (Tomber and Dore 1998, 184)
BB2	Black-burnished ware 2 (Tomber and Dore 1998, 131)
BAT AM2	Baetican (late) amphorae 2 (Tomber and Dore 1998, 85)
LON 555	London 555 amphorae (Sealey and Tyers 1989, 53 and 62)

The samian ware

Low quantities of worn samian ware were present in groups of pottery from 17 features (Table 5). The total quantity of samian is 30 sherds (647g) with the only notable group comprising seven sherds (229g) in the fills of Well F1137. There are no stamped sherds in the assemblage, and only two small body sherds from form 37 bowls that exhibit traces of moulded decoration in Phase 3 Gully F2317 (L2318) (TRI SA) and Phase 2 Well F1137 (L1268) (LEZ SA2), however both are abraded beyond recognition.

Phase	LEZ SA2		BLW SA		RHZ SA		TRI SA		Samian form types present
	sc	w	sc	w	sc	w	sc	w	
2	9	267	2	14	6	199	3	36	31R, ?31/31R, 33,37, 38, Lud Tx
3	2	65			1	7	2	29	33, 37
4	1	23			2	13	2	15	?31/31R, 33
Unphased (Roman)							1	2	?31/31R
Total	*12*	*355*	*2*	*14*	*9*	*219*	*7*	*80*	

Table 5: Total quantification of samian fabrics by sherd count (sc) and weight (w, in grams) in feature groups, and range of form types present

The bulk of the diagnostic forms are plain ware vessels in East Gaulish fabrics in Phases 2, 3 and 4, similar to the distribution of forms at Brancaster. There, East Gaulish forms 31, 31R and 33 dominate in the late 2nd to mid 3rd centuries, with lesser quantities of form 38 and sparse other forms (Dickinson and Bird 1985, 81). However, the sample size of this samian assemblage is too small for more in depth comparisons. This range of forms is also comparable to the similarly-sized samian assemblage from the Roman villa at Gayton Thorpe (Atkinson 1929, 196), and to the late 2nd to early 3rd century samian at the salt production site at Denver, where it is noted that high proportions of East Gaulish ware are typical in samian assemblages from Norfolk and East Anglia (Dickinson 1986, 114).

Phase 2 contains the highest quantity of samian in the Roman occupation phases of the site (total of 20 sherds (516g)); however, this may be a distortion of the distribution data that reflects the open nature of some of the Phase 2 features, notably those that form the droveway and enclosure. The droveway includes diagnostic fragments of three plain ware vessels: a Lezoux form 33 cup in Gully F3036 (L3037), a Trier form 31/31R bowl in Ditch F2035 (L2045A) and a Rheinzabern form 31R bowl in Ditch F2068 (L2082C). The highest concentration of Phase 2 samian came from the fills of Well F1137 and comprises seven sherds (229g). The vessel types in Well F1137 do not differ in character from the general pattern in the samian assemblage and include a Rheinzabern form 31R bowl (L1140), a Trier form 38 bowl (L1266), a Lezoux form 31R bowl (L1269) and a highly-abraded (unidentifiable) sherd from a Lezoux form 37 bowl (L1266). The plain ware in Phase 2 also includes a form 31R bowl from Lezoux in Posthole F1186 (L1187), which forms part of the Phase 2 right-angled post alignment beyond the end of the aisled building. This is complemented by two Rheinzabern vessels: a form 38 bowl in Pit F1079 (L1080) and a form Lud Tx cup in Pit F1066 (L1067), both in features that form part of the Phase 2 aisled building, and by a Rheinzabern form 38 bowl in Pit F1150 (L1151), a rubbish pit at the south-west corner of the aisled building. At Brancaster, the East Gaulish form 38 bowl reached its floruit in the late 2nd to mid 3rd centuries, but it was never as numerous as forms 31, 31R or 33 (Dickinson and Bird 1985, 81); therefore, its presence in Phase 2 can be interpreted as reflecting this distribution. The form Lud Tx cup is absent at Brancaster, but it was not an uncommon East Gaulish export between *c.* AD 160 and the mid 3rd century, and can probably be attributed to the latter half of this range in this assemblage.

Phase 3 features contained small fragments of East Gaulish samian. These included Gully F2317 (L2318) and Drying Oven F2553 (2555), but the only significant presence of samian ware was in Posthole F2268. Phase 3 Posthole F2268 (L2269) contained a Trier form 31/31R, but is notable because it also contains fragments from a clearly reused Lezoux form 33 cup (Fig. 36.9). This exhibits the remnants of four lead rivets that were placed through four pre-drilled holes, probably for the connection of an unknown 'attachment' to the exterior of the vessel. There are frequent examples of samian vessels being repaired using lead rivets but such vessels are usually bowls and not cups (Willis 2005, section 11.2). Furthermore, the purpose of the lead rivets in this instance does not appear to have been to repair the vessel. This type of alteration may have compromised the form 33 vessel as a liquid containing vessel, and drilling holes through the vessel carried a significant risk of breaking it further (Willis 2005, sections 11.2 and 11.3). The rivets may have been to attach a 'wire frame or basket' around the circumference of the vessel to allow the vessel to be suspended, possibly as a crucible, lamp or candle holder, though there are no signs of burning. Alternatively the rivets may have been used to attach individual brackets/rings or hooks to connect a handle to construct some form of composite tool or utensil. It is not clear whether this alteration was made to a complete vessel or to just a portion (40-50%) of the vessel. If only a fraction of the vessel was incorporated into such a tool, it could feasibly have been some form of curved spatula used in shaping clay. The wear pattern on the vessel is conspicuous in that the top of the rim is very heavily worn (no slip remains), while the interior and exterior of the vessel are in relatively good condition, supporting the suggestion that a portion of the vessel was inverted and reused as a 'spatula', resulting in the repeated scraping and abrasion of the rim. However, while the exact function of this vessel remains unclear, it seems that it remained a valuable commodity in its secondary use, and possibly after it had been broken. High incidences of repaired samian vessels at rural sites in north Norfolk and Lincolnshire, including Winterton Roman villa, Snettisham and Holbeach St. Johns (Willis 2005, section 11.4), may differ slightly in function to this occurrence, but also serve to illustrate the manner in which samian was valued, perhaps because of its appearance, durability or versatility.

The Phase 4 samian comprises five sherds (51g), but the only diagnostic sherds are fragments of a Trier form 33 and a Rheinzabern form 31/31R, both from Pit F2150 (L2155 and L2151, respectively) that are either residual or long-lived survivals. The issue of the longevity of samian vessels is pertinent at Fosters End. It is highlighted by the reused cup in Phase 3 Posthole F2268, but it is clear that all the plain ware samian vessels are well-worn, with especially heavy ware on the bases of foot-rings and tops of rims increasing the likelihood that they remained in use throughout the 3rd century (and possibly longer) occupation of this site, long after their original exportation or after general exportation had ceased.

3.3.4 Local pottery type series

(Fabrics: all fabrics NAR RE1, unless stated, Forms: form codes are B=dish, C=bowl, G=jar, K=lid)

B1: Deep bead rim dish with a chamfered base (Fig. 36.10-36.11). No examples of this type were associated with the kilns. This vessel type is comparable to Brancaster type 137 (Andrews 1985). *Phases 2-4*

B2: Bead rim dish with chamfered base and slightly concave sides (Figs. 36.12-33.13). An example of this vessel type was recovered as a waster from Pit F2106

(L2549). Examples may be plain, burnished or decorated with a burnished lattice. This vessel type is comparable to Brancaster type 141 (Andrews 1985). *Phases 2-4*
B3: Shallow dish with delineated rim and chamfered base (Fig. 36.14). No examples of this vessel type were associated with the kilns. This vessel type is comparable to Brancaster type 153.3 (Andrews 1985). *Phases 2-4*
B4: Dish with slight bead rim (Fig. 36.15). No examples of this type were associated with the kilns and it was also present in BB2. This vessel type is comparable to Brancaster type 134 (Andrews 1985). *Phases 2 and 3*
B5: Imitations of samian form 36 (Fig. 36.16 – 36.17) present exclusively in GRS1. The vessel has a double groove on the base in place of where a foot-ring would be on the samian equivalent. Parallels for this vessel type are absent in local assemblages but can be closely matched to 3rd century Lower Nene Valley grey ware vessels at Water Newton (Perrin 1999, vessel 97), a fabric to whom the un-sourced GRS1 is probably closely related. *Phase 2*
B6: Dish with a rim delineated by two grooves (Fig. 36.18). No examples of this vessel type were associated with the kilns. This vessel type is comparable to Brancaster type 105 (Andrews 1985). *Phase 2*
B7: Dish with small bead and flange rim (Fig. 36.19). Only one example of this type was recorded and it was not associated with the kilns. This vessel type is comparable to Brancaster type 145 (Andrews 1985). *Phases 2 and 4*

C1: A semi-hemispherical bowl with and out-turned rim decorated with a single groove or a double groove, with or without impressed (?cord) decoration between the grooves. (Figs. 36.20–36.21). Wasters of this vessel type were recovered from Kiln F1170. A small rim sherd recorded at Brancaster (Andrews 1985, type 146) may have formed part of this type of vessel. Closely similar vessels have also been recorded at Scole (Rogerson 1977, vessels 74 and 79) in mid 2nd century features, although these vessels are probably later (late 2nd-3rd century). *Phases 2and3*
C2: A necked bowl with an internal groove approaching the base (Fig. 36.22). A waster of this vessel type was recovered from Kiln F2133 (L2144). The vessel type is comparable to Brancaster type 114 (particularly 114.11 and 114.30, Andrews 1985). *Phase 3*

G1: Everted rim jar with neck/shoulder cordon and usually with a slight grove under the rim. The cordon may be plain (Figs. 36.23-24) or decorated with inscribed vertical/oblique combing (Fig. 36.25) or burnished lattice (Fig. 37.27). Wasters of this vessel type were recovered from Kilns F1170 (14 examples) and F2133 (18 examples). All forms recorded in the kilns appear undecorated, but any pre-firing decoration may be obscured by lamination or over-firing of these 'waster' vessels. An identical rim profile was recorded at the other known kiln site in Blackborough End, Middleton (Gurney 1990, fig. 3.4). Similar cordoned jars have also been recorded at Brancaster (Andrews 1985, type 101) but these are typically decorated on a lower cordon with differing techniques. A comparable rim profile is also present on a jar at Gayton Thorpe (Atkinson, vessel 29) in a 'black sandy clay'; however the intact shoulder of the vessel suggests a vessel form similar to type G2. *Phases 2-4*
G2: Everted rim jar with bands of neatly or roughly incised decoration around the vessel (Fig. 37.28). Single examples of this vessel type were present in Kilns F2119 (L2128) and F2133 (L2144). This form has been recorded at Brancaster (Andrews 1985, type 100.15), Spong Hill (Gurney 1995, vessel 186) and Denver (Gurney 1986, vessel 370) in contexts ranging in date from the late 2nd/early 3rd to 4th centuries in a

variety of local/miscellaneous grey ware fabrics. These vessels are entirely in NAR RE1 however the potentially early limit of the date range for this vessel type, and others from the kiln, may a strong indicator of the earliest stages of the pottery industry in the Nar Valley. *Phases 2-3*

G3: Everted rim jar with a wide mouth and slightly elongated neck (Fig. 37.29). There is a single groove around the mid-body and a double groove near the base of the vessel. A waster of this vessel type was recovered from Kiln F2119 (L2128). A probable larger variant of this vessel, though not to storage jar proportions, was also recovered from F2110 (L2134) (Fig. 37.30), part of Kiln F2118. This vessel type is similar to jars recorded at Brancaster (Andrews 1985, type 100) and Spong Hill Gurney 1995, vessels 31, 74 and144) and while it does not have a precise equivalent probably belongs to the same general category of common jar. *Phase 3*

G4: Everted rim jar with possible poorly defined, plain cordons on the neck and body (Fig. 37.31). A highly fragmented waster recovered from Kiln F2119 (L2128); this may be a misshapen variant of G1 or the Brancaster 101 type jar (Andrews 1985). *Phase 3*

G5: Everted rim jars with probable plain bodies (Fig. 37.32-34). This type of jar is present as wasters in Pit F2106 (L2549, F2119 L2128) and Kiln S2110 (L2134) (part of F2118). This jar appears to be a plain variant of the Brancaster 100 type jar (Andrews 1985) and is a common variant in local fabrics on other sites in the region, although the small size of some fragments may mask the fact that some were decorated further down the body. *Phases 2-4*

G6: A jar with a stubby everted, lid-seated rim covered in a white slip (Fig. 37.35). This vessel is in NAR RE2 and is noticeably harder and slightly more granular than the NAR RE1 products from the kilns. The form is comparable to Brancaster 112 (Andrews 1985). Pit F2150 (L2152), dated to the first half of the 4th century, contained the only example of this form. *Phase 4*

G7: Everted rim jar with oblique lines of rustication on the shoulder and body (Figs. 37.36-38). This type of vessel was present in a NAR RE1 and NAR RE2 but was not found as a waster in any of the kilns. The vessel type is comparable with Blackborough End vessel 12 (Gurney 1990), Brancaster 100.1-3 and 100.14 (Andrews 1985), Spong Hill 208-9 (Gurney 1985) and Gayton Thorpe vessels 20 (Atkinson 1929). *Phases 2-4*

G8: Miscellaneous small everted rim fragments that could belong to several classes of jar (not illustrated). *Phases 2-4*

G9: Everted rim jar (Fig. 37.39). This vessel is present in NAR RE1 and NAR RE2 but is uncommon and not associated with the kilns. The vessel type is comparable to Brancaster 105 (Andrews 1985). *Phases 3-4*

G10: Necked jar/bowl (Fig. 37.40). This vessel type is only present in NAR RE2 and is uncommon. The illustrated vessel also exhibits an iron rivet inserted into the neck. This vessel is comparable to Brancaster 114.2 (Andrews 1985) and Hockwold-cum-Wilton vessel 116 (Gurney 1986). *Phase 4*

G11: Storage jar with strongly everted rim (Fig. 37.41 – 37.42). The vessel (rim) profile is not easily paralleled on local sites, and is very similar to storage jars produced at the Horningsea kilns, Cambridgeshire (Evans 1991, vessel no.1). This vessel type is present as a waster in Kiln S2133 (L2230) and is not common as quantified by R.EVE, although quantities of miscellaneous thick body sherds, probably derived from storage jars, were observed in Kilns S2119 and S2133. *Phases 2-3*

G12: Everted rim jar with neck/shoulder cordons, the upper of which is decorated with a burnished lattice (Fig. 38.43a). A base fragment decorated with an incised spiral was probably part of the same vessel (Fig. 38.43b). This vessel was found as a waster in Kiln S2133 (L2230) and is similar to G1. A vessel of similar form type was recovered from a securely dated late 2nd century context at Hockwold-cum-Wilton (Gurney 1986, vessel 83) and strongly suggests that the kilns at Blackborough End had started production by this time. Similar profile jars with a higher degree of burnished decoration have also been recorded at Brampton (Green 1977, vessel 8) in early 2nd century kilns and may represent precursors of this vessel type. *Phase 3*

G13: Everted, rolled rim jar with neck/shoulder cordons, the upper of which is decorated with a burnished zig-zag (Fig. 38.44). This type is broadly comparable to G12 and despite the rolled rim they should be considered an allied, if not single, type (both of which are similar to G1). This vessel was found as a waster in Kiln S2133 (L2230). *Phase 3*

G14: Everted rim jar, one example decorated with an incised wavy line (Figs. 38.45–46). Wasters of this vessel type were recovered from Kiln S2133 (L2144 and L2230). Similar vessels have been recorded at Spong Hill (Gurney 1995, vessel 90) and Hockwold-cum-Wilton (Gurney 1986, vessel 87). *Phase 3*

G15: Everted rim jar with neck/shoulder cordons, the lower of which is decorated with spaced, slightly oblique combed strokes (Fig. 38.47). This vessel type is very similar to G1, G12 and G13 and should be considered an allied type. A waster of this vessel was recovered from Kiln S2133 (L2144). This vessel type is comparable in profile, but not decoration, to Brancaster 101 (Andrews 1985). *Phase 3*

G16: Everted rim jar with crudely aligned rows of stabbed decoration (Figs. 38.48-49). This vessel type is present in NAR RE1 and NAR RE2. The NAR RE1 vessels were not recovered from the kilns and do not appear to be wasters, although they cannot be distinguished from the kiln products by fabric. The NAR RE2 vessel of this type is covered in a white slip and warped as if a waster, although this fabric was not recorded in any of the excavated kilns. Comparable vessels have been recorded at Ashill (Gregory 1977, vessel 29) and Brancaster (Andrews 1985, types 100.13 and 100.16). *Phases 2-3*

G17: Everted rim jars with rusticated decoration on the body (Fig. 38.50-51). This type has a less defined neck than G7 but is otherwise very similar and should be considered an allied type. No vessels of this type were recovered from the kilns. This vessel type is comparable to Brancaster 100.5 (Andrews 1985) and Gayton Thorpe 19 (Atkinson 1929). *Phases 2-3*

G18: Everted rim jar with a single shoulder cordon (Fig. 38.52). The shoulder cordon is decorated with an inscribed zig-zag bordered above and below with single rows of closely stabbed dots. A single example of this vessel is present in the assemblage and its presence is an anomaly (see discussion). The vessel is comparable to Brancaster 101.1 (Andrews 1985) with different decoration. *Phase 3*

G19: Storage jar with everted, rolled rim (Fig. 38.53) and cordons decorated with zig-zag comb strokes (Fig. 38.54). The rim profile of this vessel type is comparable to Brancaster type 99 (Andrews 1985) no comparison is present for the decoration. Like G11 the rim profile is also very similar to types produced at Horningsea (Evans 1991, vessels 9 and 10). Wasters of this vessel type were recovered from Kilns S2118 (L2134) and S2133 (L2144). Also present was a non-cross-joining base that probably belonged to this type of vessel (not illustrated). *Phase 3*

G20: Everted rim jar with a cordon decorated with poorly impressed rouletting and a burnished exterior body (Fig. 38.55). The only example of this vessel type was

recovered as a waster from Kiln S2118 (L2111). A similar vessel, without such a well defined neck/cordon, was recorded at Gayton Thorpe (Atkinson 1929, vessel 28). *Phase 3*

G21: Globular jar with stubby rim and a corrugated body (Fig. 39.56). The exterior of the vessel has been highly burnished but has been damaged during firing. A single example of this vessel type was recovered as a waster from Kiln S2133 (L2144). A small rim sherd from Brancaster (Andrews 1985, type 113) is comparable to this vessel type but is less complete and does not allow further comparison of the body. *Phase 3*

G22: A narrow-mouthed jar with a plain neck/shoulder cordon (Fig. 39.57). A single example of this vessel type was recovered as a waster from Kiln S2133 (L2144). Comparable rim sherds have been recorded at Brancaster (Andrews 1985, type 89) but all lack cross-joining body sherds. Similarities in form are especially evident with products of the Brampton kilns (Green 1977, vessels 7-9 and 34) and a vessel recorded at Spong Hill (Gurney 1995, vessel 64), although all these examples have a higher degree of decoration. *Phase 3*

K1: Lid with a slightly out-turned rim (Fig. 39.58). This vessel type was represented by three wasters recovered from Kiln S2119 (L2128). A comparable lid in Nar Valley ware has been recorded at Hockwold-cum-Wilton (Gurney 1986, vessel 152). *Phase 3*

3.3.5 Discussion

Phase 2

Phase 2 produced 1062 sherds (26,500g) of pottery that can be divided into concentrations associated with the droveway and enclosure and Well F1137, with a sparser scatter associated with the aisled building, rubbish pit and post alignments within the phase (Table 6). The first feature group comprises ditches and gullies that form the droveway and enclosure, and accounts for 57.34% of the Phase 2 pottery by sherd count (57.25% by weight). This group has a high average sherd weight of 24.91g and includes significant concentrations in Ditches F1033 (L1034C), F2168 (L2229), F2267 (L2303C and L2304C), F3003 (L3004 and L3005) and F3006 (L3008A and C). Well F1137 had a substantial concentration in L1269, with modest, but still significant quantities in its other fills. The remainder of the Phase 2 pottery was recovered in low quantities from ditches, pits and gullies.

Fabric Groups	**Feature Group**					
	Droveway and Enclosure		Well F1137		Other Features	
	sc	W	sc	w	sc	w
NAR RE1 and NAR RE2	559	13323	75	1381	226	5329
Other local/regional coarse wares	28	889	12	431	60	1136
Romano-British fine wares	43	734	37	1174	25	426
Imported (continental) fine wares	16	79	1	21	0	0
Samian ware	7	146	7	229	6	141
Amphorae	0	0	3	699	1	362
Total	*609*	*15171*	*135*	*3935*	*318*	*7394*

Table 6: Quantification of Phase 2 pottery (sc: Sherd Count, w: Weight (g))

The assemblage from features associated with the droveway and enclosure is comprised of 91.79% Nar Valley fabrics by sherd count (87.82% by weight), almost entirely NAR RE1. Nar Valley forms in the droveway and enclosure feature group are dishes B1, B2, B3, B4, B5, B7 and B8, bowl C1, and jars G1, G2, G5, G7, G8, G11, G16 and G17. This is a substantial element of the range of forms recorded as being produced in the later Phase 3 kilns on the site. With such a strong correlation, these pots probably represent products from these kilns, or others located very close by, that were broken post-firing (not dumped as wasters), possibly during domestic use or in transit, and then deposited as rubbish into the droveway and enclosure ditches, providing a strong and expected indicator that this Phase 2 group includes material from throughout the Romano-British occupation of the site. The concentrations of pottery in Ditches F1033 (L1034C) and F2267 (L2303C and L2304C) possibly reflect large-scale domestic clearing not directly associated with the kilns, as they were probably closed prior to when the excavated kilns began operating. Both ditches are in the vicinity, and formed the enclosure of the Phase 2 aisled building, supporting the theory that this may have been the source of substantial domestic deposition. Despite their large assemblages, both contained only low quantities of diagnostic sherds, suggesting scattered domestic debris rather than kiln associated material.

In contrast, the concentrations of Nar Valley fabrics in Ditch F2168 (L2229C) includes waster vessels probably associated with Kilns S2133 and S1170 (see Phase 3 kilns), suggesting that this feature may be associated with industrial deposition from the kilns (and therefore activity in Phase 3), rather than the seemingly domestic deposition associated with the other concentrations within the 'droveway and enclosure' group. Ditch F3006 (L3008A and C) also contains an over-fired waster vessel in the form of a G2 jar in association with fragments from two bead and flange rim dishes (Andrews 1985, types 147.7 and 147.9) whose form types are otherwise absent in the assemblage. Such dishes do not pre-date the late 3rd century AD, the latest terminal date of production for the excavated kilns, and are not present in any of the excavated kiln groups in this assemblage. Therefore they may indicate that this ditch deposit contains residual material (from the kilns) alongside later pottery or that the final products of the kilns may have included rare examples of bead and flange rim dishes.

The presence of the Nar Valley types both as domestic and industrial refuse is important because they were deposited with a range of regional and imported fine wares that allow an accurate and consistent date for the beginnings of Romano-British use of and production at the site to be defined. Fabric types other than Nar Valley fabrics account for a small proportion of the group: 16.89% by sherd count in the 'droveway and enclosure' group, 44.44% in Well F1137 and 29.49% in the 'Other Features'. In the two groups, these fabrics include samian ware, Cologne and Lower Nene Valley colour-coated ware, Central Gaulish black-slipped ware, Pakenham mica-dusted ware, Brampton white ware, West Stow and Parisian fine reduced ware, Wattisfield reduced ware and Lower Nene Valley type grey-slipped ware (GRS1). These diagnostic vessels consistently define a date in the late 2nd/early 3rd century AD for the earliest Romano-British deposits in Phase 2. Several of the vessels span the 3rd century AD, but there is only one, a Lower Nene Valley colour-coated mortaria, whose production extends into the early 4th century AD.

It is notable that despite the apparently open nature and longevity of the Phase 2 features, there are no fine wares present that began production after the mid 3rd century AD and none associated with the 4th century AD. Excluding the samian ware (see above), specific fine ware vessels in the 'Droveway and Enclosure' group can be discussed in two groups: those from the 'domestic refuse' in Ditches F2267 and F2068 and those from the 'industrial refuse' of Ditch F2168 (associated with Phase 3 activity). The former include beaker fragments from a Cologne colour-coated ware bag-shaped vessel with cornice rim (Camulodunum type 391, Bidwell and Croom 1999, 485) in Ditch F2267 (L2304), and body sherds from a barbotine and roulette decorated Lower Nene Valley colour-coated ware vessel in Ditches F2267 (L2403) and F2068 (L2074) (Perrin 1999, type 181); all associated with the late 2nd/early 3rd centuries AD. Ditch F2267 (L2304 and L2403) also included fragments of a foot-ringed base in Brampton white ware (from L2403) and non-cross-joining fragments of a narrow-neck jar in Parisian fine reduced ware (Fig. 37.59; from L2304). The latter has a flared rim and a decorative scheme including ring and dot stamps, rouletting and hairpin decoration. An incomplete vessel with comparable rim and neck sherds has been recorded at Old Sleaford (Elsdon 1982, fig.11.84) and the elements of the decorative scheme are typical on 'later Parisian wares' in the late 2nd/early 3rd centuries AD. 'Later Parisian wares' are mainly distributed between Humberside and central Lincolnshire, although vessels have been recorded at Great Casterton (Rutland), Water Newton (Cambs) and Ashton (Cambs) (Elsdon 1982, 6). Middleton is approximately 40 miles west of Ashton and must be considered on the south-eastern extreme of the distribution of this fabric, although the two regions are well connected by Roman roads. Ditch F2267 (L2329) contained a further two 3rd century AD dishes of uncertain origin. Both dishes are imitations of samian form 36 (Figs. 36.16-17) in fabric GRS1, probably a variant of Lower Nene Valley grey-slipped ware (see fabric description). Form 36 imitations are known to have been manufactured at Sibson (Howe *et al.* 1981, 14 and fig. 2.15) and have been recorded in 3rd century contexts at Orton Hall Farm (Perrin 1996, 153 and fig. 95.379), but do not precisely match these vessels. The full extent of the kilns producing Lower Nene Valley grey wares in the mid 2nd to early 3rd century AD is uncertain, after which the range of forms becomes more standardised and the centres, notably Sibson and Stibbington, become more certain (Perrin 1999, 78). These vessels may represent the products of a late 2nd/early 3rd century kiln site on the north-eastern fen edge

(west/south-west Norfolk) producing a micaceous fabric in the Lower Nene Valley grey-slipped ware tradition.

The late 2nd/early 3rd century start date of the fine ware in the group is also evident in the fine ware from four segments of Ditch F2168 (L2173, L2218, L2229 and L2569), despite the evidence for continued later deposition in F2168. Like the other enclosure ditches, Ditch F2168 contained vessels in samian ware, GRS1 (vessel type unknown), Parisian fine reduced ware, Cologne and Lower Nene Valley colour-coated ware. Also present are sherds from vessels in West Stow fine reduced ware and Pakenham mica-dusted ware. The Cologne colour-coated ware vessel comprises the lower body and base of a bag-shaped beaker with roughcast decoration (Camulodunum type 396, Bidwell and Croom 1999, 486) from L2229; while the Lower Nene Valley colour-coated ware sherds are derived from a mortaria, possibly reed-rimmed (Hartley 1985, 118-121: type 180 or 183), but the flange is incomplete. The remaining vessels are types of bowl. L2218 contained a bead and flange rim bowl in Pakenham mica-dusted ware (Fig. 39.60). The type is not recorded in the small range of vessels known from Pakenham, but is very similar to types from the Lower Nene Valley that are known to have been copied at the Pakenham kilns (Smedley and Owles 1961, 212; Perrin 1999, vessel 114). L2173 contained an incipient flange rim bowl in West Stow fine reduced ware comparable to late 2nd/early 3rd century AD vessels at West Stow (West 1990, vessel 228). L2569 also contained the base of a possible samian form 37 imitation bowl in Parisian fine reduced ware with a diamond-shaped cluster of four ring and dot stamps on the interior of the base (Elsdon 1982, 11: stamp C2).

The pottery group from Phase 2 Well F1137 includes a significant proportion of non-Nar Valley fabrics, accounting for 35.57% by sherd count (73.85% by weight). This proportion includes fine wares in the form of two beaker bases in Central Gaulish black-slipped ware and Great Casterton colour-coated ware from L1266 and a range of samian ware (LEZ SA2, RHZ SA and TRI SA; see *samian ware*) distributed throughout the fills of the well. The Central-Gaulish black-slipped ware was imported from the mid 2nd century to the early 3rd century AD and the East Gaulish samian to the mid 3rd century AD, and while both may have persisted in use for some time, it is unlikely to have extended beyond the mid/late 3rd century AD. Although Well F1137 may have continued in use, these imports suggest that the well was open from the late 2nd/early 3rd century AD, while the lack of any later chronological markers (HAR SH or diagnostic LNV CC forms) suggests that the lifespan of the well did not extend beyond the 3rd century AD. The most numerous non-Nar Valley fabric in Well F1137 is Brampton white ware, including body sherds of mortaria from L1140 and L1208 and body sherds from a jar or flagon with a zone of combed wavy lines from L1140 and L1267. Also present are low quantities of non-diagnostic Wattisfield reduced ware, locally produced sandy grey ware (GRS3), and an unstamped handle from a Dressel 20 Baetican amphora (from L1140). The only diagnostic Nar Valley form in Well F1137 is the G16 jar, also recorded in association with the Phase 2 'Droveway and Enclosure'. In Phase 2, this form is entirely present in the NAR RE1 fabric associated with the kilns, although an NAR RE2 example occurs in Phase 3.

The 'other features' in Phase 2 comprise pits and postholes that form the Phase 2 aisled building, rubbish pits and a posthole alignment. These features yielded a total of 318 sherds (7394g), but were characterised by low concentrations and a sparse

distribution and thus have been considered as one group. A small concentration was present in Pit F1087 and was dominated by Nar Valley products.

Other than the samian ware, the fine wares in this Phase 2 group are limited to colour-coated products from the Lower Nene Valley and Colchester. Due to the relatively small size of the groups, it is unclear whether the change in forms in the Lower Nene Valley colour-coated ware, and the presence of Colchester colour-coated ware, is reflective of a marginally later chronology. Colchester products were absent from Phase 3 and are present here in two adjacent postholes at the northern end of the Phase 2 aisled building: Posthole F1039 (L1040) contained a cornice rim beaker with a roulette decorated body (Camulodunum type 391, Bidwell and Croom 1999, 485), and Posthole F1051 (L1052) contained a beaker with a folded body (Camulodunum type 406, Bidwell and Croom 1999, 486). The beaker from Posthole F1039 went out of production in the late 2nd/early 3rd century and the beaker from Posthole F1051 in the mid 3rd century, indicating a date for the Phase 2 aisled building within the first half of the 3rd century AD. Lower Nene Valley colour-coated ware is more plentiful in these features than the other Phase 2 groups, but remains less diagnostic than the Colchester colour-coated ware that occurs alongside it. The diagnostic sherds in these fabrics do not contradict a date within the first half of the 3rd century AD. Phase 2 Pit F1148 (L1149), situated at the southern end of the Phase 2 aisled building, contained fragments of a Lower Nene Valley colour-coated ware beaker (Perrin 1999, 90: types 116 and 117) that was not produced after the mid 3rd century, while further fragments of Lower Nene Valley colour coated ware include a pedestal base from a beaker from Ditch F2510 (L2514) of the Phase 2 enclosure, and small sherds from a pentice-moulded beaker in Pit F1150.

With the exception of the Parisian fine reduced ware, the regional fine ware in the Phase 2 groups is limited to products from kiln sites within a 70km radius of the site. These kiln sites are all linked to the Nar Valley region by two major Roman roads, aligned north-north-west to south-south-east and east-north-east to west-south-west, that intersect just west of Middleton, Pentney and Shouldham (OS 2001). The Parisian fine-reduced ware production centres are also closely linked by road, via Water Newton, to the Nar Valley, which appears to have had access, albeit in small quantities, to a wide range of fine wares from across East Anglia as well as imported wares in Phase 2. A further transport network link in the region that may have been utilised for the import/export of pottery to the Nar Valley is the Roman canal network that has previously been associated with saltern sites in the region (Wallis 2002, 28) and given the Nar Valley's close association with salt production (Darling 2002), may also have served the pottery industry as a major route way to and through the fens.

A handle from a Baetican Dressel 20 amphora (BAT AM2) was recovered from Posthole F1047 (L1048) of the Phase 2 aisled building. The handle is stamped (Fig. 39.62), but is not associated with any body or rim sherds. The stamp is substantially abraded but may read QFAB (Fig. 39.62) (with retrograde F) comparable to Callender No. 1447 (Callender 1965, 224) and an example from Verulamium (Frere 1984, 279: fig. 117.9) that date to *c*. AD 140-160. This type of amphora was produced in the Gualdiquivir Valley region of southern Spain (Baetica) and is the most common variety of amphora imported to Britain, probably containing olive oil. The isolated occurrence of the handle may indicate that it was deliberately removed. A Baetican Amphorae handle was also recovered from Well F1137, but appears to be from a

different vessel. The buried Baetican amphora in Phase 4 Pit F2545 had had its handles removed, but the F1047 handle did not belong to the F2545 vessel.

The most common regional coarse wares in this group are Wattisfield reduced ware, limited to roulette decorated body sherds, and Brampton white ware, limited to basal and body sherds (including handle scars) probably derived from flagons. Occasional body sherds of Black-burnished ware 2 and un-sourced sandy grey ware (GRS3) are also present in very low quantities, as is a single, much-abraded sherd of shell-tempered pottery in Pit F1133 (L1134), probably from the Harrold, Beds kilns, but possibly from a Lower Nene Valley or Suffolk source. Like the other Phase 2 pottery group, this group is dominated by the Nar valley fabric associated with the Phase 3 kilns (70.51% by sherd count, 71.70% by weight). Nar Valley vessel types associated with pottery production on the site include types B1, B2, B7, G3, G7, G11 and G17. Jars with rusticated decoration (G7/G17) are the most common type of jar form in the Brancaster assemblage. However, Andrews (1985, 96) observes that "the impression gained is that a number of workshops were supplying these jars in a variety of fabrics each being associated with particular decorative motifs". It appears probable that rustication was either an absent or rare motif on the products in these Phase 2, and the later Phase 3, groups (all probably from the Phase 3 kilns). However, it is present on pottery from the other previously excavated kiln in Blackborough End (Gurney 1980, 89 and fig.3.8), which may be a possible source for this type of vessel. Like the G16 jar, the G7/G17 jars occur in the Phase 2 'Droveway and Enclosure' group. The fabric of the NAR RE1 rusticated jars is indistinguishable from that of the confirmed kiln forms, although, also like the G16 form, a G7 jar is also present in NAR RE2 in a later phase (Phase 4 Pit F2150).

Phase 3

Phase 3 features produced a total of 1438 sherds (57,972g) of Roman pottery (Table 7) or, excluding the near-complete amphora in Pit F2545, 1366 sherds (40,122g). Excluding the amphora from Phase 3 Pit F2545, pottery recovered from the fills of the four kilns (S1170, S2118, S2119 and S2133) comprises 80.90% of the Phase 3 assemblage by sherd count (89.53% by weight). The Phase 3 assemblage contains several further stratified groups, notably the reused amphora in Pit F2545, a single 'killed' vessel in Ditch Terminus F3019, and relatively low but informative quantities associated with Timber Building S2253 and Workshop S2251.

Fabric Groups	**Feature Group**					
	Kilns and Drying Oven		Buildings S2253 and S2251		Other Features	
	sc	W	sc	w	sc	w
NAR RE1 and NAR RE2	1103	35903	78	1211	150	2303
Other local/regional coarse wares			10	182	10	138
Romano-British fine wares	2	18	3	68	3	88
Imported (continental) fine wares					1	3
Samian ware			3	83	1	11
Amphorae			74	17964		

Total	1105	35921	168	19508	165	2543

Table 7: Quantification of Phase 3 pottery (sc: Sherd Count, w: Weight (g))

Phase 3 Kilns and drying oven

The groups from the four Phase 3 kilns (Table 8) vary considerably in quantity, preservation and diagnostic qualities, possibly reflecting the varying 'status' of the kilns at the cessation of production on the site. Kiln S1170 contained a relatively high quantity of pottery, but was the only kiln to contain imported sherds and therefore may represent the dumping of waste pottery, including waster vessels which may have come from another kiln, probably Kiln S2133. Kiln S2133 contained a high quantity of pottery, but this is entirely composed of Nar Valley fabrics with a very high mean sherd weight and a very high proportion of cross-joining sherds which suggest that the pottery in this kiln represents both an accumulation of debris from multiple firing and a final, abandoned load that may have been misfired. The pottery from Kilns S1170 and S2133 includes a high proportion of sherds that have become warped, laminated or fractured during firing. In contrast, Kilns S2118 and S2119 had mean sherd weights only marginally lower then Kilns S1170 and S2133, but contained only a fraction of the quantity of pottery. Kilns S2118 and S2119 contained re-fired sherds, suggesting multiple uses, but do not appear to have been abandoned and back-filled in the same manner as Kilns S1170 and S2133. However, Kilns S2133 and S2118 are linked by the presence of cross-joining fragments from a single vessel, which were present among the dumped material in S2133 and in a deposit overlying material raked out of the kiln in the stokehole of S2118, indicating that they went out of use at approximately the same time.

Kiln	**Sherd Count**	**Weight (g)**	**Mean Sherd Weight (g)**	**Total R.EVE**	**Minimum No. of Vessels**
S1170	499	14286	28.71	4.05	28
S2118	108	2469	22.86	1.32	8
S2119	150	2875	19.17	1.36	8
S2133	326	15696	48.15	5.68	33
S2105 (Drying Oven)	22	595	27.05	0.85	3
Total	*1105*	*35921*	*32.51*	*13.26*	*80*

Table 8: Quantification of NAR RE pottery recovered from the fills of the Phase 3 kilns and drying oven, including their associated rake pits

In addition to the Nar Valley fabric wasters, Kiln S1170 contained single sherds of Lower Nene Valley colour-coated ware in L1179 (5g) and Lower Nene Valley white ware in L1172 (13g). Both sherds are slightly abraded but neither has been burnt or re-fired. The Lower Nene Valley colour-coated ware sherd is a body sherd from a beaker with overslip barbotine scroll decoration. This type of decoration is rare and probably dates to around the middle of the 3rd century AD (Perrin 1999, 97). The range of Nar Valley wasters in Kiln S1170 (Table 9) is relatively limited, with the diagnostic potential inhibited by highly-fragmented rim sherds not associated with body sherds (hence a high proportion of miscellaneous jars), supporting the theory that this is a dump deposit and not vessels left in the kiln. The Kiln S1170 group is notable for the presence of the bowl type C1, which is not present in any of the other

kilns but was probably a product of Kiln S2133. The C1 bowl wasters in Kiln S1170 are comparable to the only other C1 wasters in the assemblage, from contemporary Ditch F2168 (L2229); the two features (Ditch F2168 and Kiln S1170) being equidistant to the east and west of Kiln S2133. The jar types in this kiln appear to be dominated by G1 types with examples exhibiting plain cordons or cordons decorated with comb marks and burnished lattice. However, non-cross-joining body sherds indicate that similar vessels must have been produced with cordons decorated with oblique slashes and slashed chevrons.

Vessel type	**Vessel type (single example unless stated)**	**Total No. Of vessels**	**Total R.EVE**
Bowl	C1 (2 examples)	2	0.18
Jar	G1 (12 examples), G5, G9, G13, G15	16	2.59
Misc. Jar	G8 (10 examples)	10	1.28
Total		*28*	*4.05*

Table 9: Waster vessel types in Kiln S1170

The pottery group from Kiln S2133 is the largest single group in the site assemblage and is entirely comprised of Nar Valley fabrics. This pottery group appears to represent a misfired and abandoned kiln load. It includes a high number of shattered but cross-joining fragments and a high number of partially oxidised and reduced misfired sherds, but no evidence that heat-shattered sherds have been re-fired. There are several partial but no complete vessels present, suggesting that there was an attempt to retrieve some vessels and rake out the kiln chamber before it was abandoned. The intended finish of the vessels appears to have been reduced (see fabric description: NAR RE1); however, several fragments of storage jar appear to be consistently oxidised and it remains unclear whether this is a deliberate result of the vessels position in the kiln or an accident of the misfiring. Andrews (1985, 90, fabric OW1) comments that different firing conditions for larger vessels may have resulted in the production of separate reduced and oxidised fabrics but the sherds here appear to be from a single firing, thus the only variable may be the relative kiln positions of the vessels.

Kiln S2133 contained a relatively wide range of vessels (Table 10) but one form, the G1 jar, with a characteristic but sometimes indistinct groove under the rim, is clearly dominant. Jar types G12 and G13, also present in the kilns, are probably related types with splayed rims rather than that of the G1 jar. The G1 jar type appears to be the 'signature' vessel of the kilns in this enclosure, with a minimum number of 30 vessels surviving in total in Kilns S1170 and S2133, and a further single example in Kiln S2119, but no surviving evidence of this form in the pottery from Kiln S2118. The G1 jar is comparable to rim sherds from the previously excavated kiln at Blackborough End (Gurney 1990, fig.3.4) and at the villa at Gayton Thorpe (Atkinson 1929, plate XV, vessels 27-29), both principally associated with 3rd century production/occupation. However, comparable vessel types are scarce in the very large assemblage from the shore fort at Brancaster. Brancaster jar type 103.1 has a similar rim profile and jar type 101 has a similar cordoned profile (Andrews 1985, 108; fig.57) but neither precisely matches the G1 vessel profile or decoration.

Notably, there are also no comparable jar types recorded in the early 4th century and later pottery groups associated with the saltern at Blackborough End (Darling 2002).

Vessel type	Vessel type (single example unless stated)	Total no. of vessels	Total R.EVE
Bowl	C2	1	0.5
Jar	G1 (18 examples), G2, G12, G13, G14 (2 examples) G15, G21, G22	26	4.18
Storage Jar	G11, G19 (2 examples)	3	0.3
Misc. Jar	G8 (2 examples)	2	0.25
?Non-waster jar	G18	1	0.45
Total		*33*	*5.68*

Table 10: Waster vessel types in Kiln F2133

The quantities of forms other than G1 (and variants) in Kiln S2133 are limited, with the most numerous comprising variants of everted rim ovoid jars and storage jars. The everted rim ovoid jars (G2, G3, G5, G14 and probably G8) in Kilns S2133 and S1170 are essentially variants of the Brancaster type 100 jar (Andrews 1985, fig.56-7). This was the most common jar form at Brancaster but the variations of the form from Kilns S2133 and S1170 demonstrate a narrower repertoire of decorative schemes limited to bands of rilling (G2) and inscribed wavy lines (G14). Although combing, burnishing, slashing and chevrons all appear on body sherds from these kilns, they all appear to be limited to the cordons of G1 and related jar types. Notably, the rusticated jars that are often seen as characteristic of the Nar valley industry do not appear to have been produced in Kilns S2133 and S1170, although they are present elsewhere in the assemblage (G7 and G17).

The storage jar wasters in Kiln S2133 (types G11 and G19) are directly comparable to types at Horningsea, Cambs. (Evans 1991, fig. 2.1 and fig. 3.10, respectively) and provide incontrovertible evidence that storage jar forms normally associated with the Horningsea pottery industry were being produced on the north-western, as well as the southern, fen-edge. Vessels 'reminiscent of Horningsea' have previously been recorded at Spong Hill (Gurney 1995, 107). It was noted at Spong Hill that the Horningsea pottery distribution did not appear to extend to fen-edge sites in west or central Norfolk (Gurney 1995, 107). This may be because the niche market for storage jars of this type, the main or most distinct export product of the Horningsea kilns, was already catered for by the Nar valley potters, potentially even by a migrant potter from Horningsea now operating in the Nar Valley, which would explain the uncanny similarities. Nar Valley ware storage jar rims were recorded at Brancaster (Andrews 1985, type 99) and Gayton Thorpe (Atkinson 1929, plate XVI vessels 30-2) and while their rims are generally not as strongly everted as the kiln wasters', they are broadly of the same form type. The Nar Valley industry does not appear to predate the late 2nd/early 3rd centuries AD; Kilns S2133 and S1170 appear to demonstrate production from this date, and probably no later than the late 3rd century. The Horningsea industry reached its floruit in the 3rd century and had been producing since the late 1st century (Evans 1991, 38); therefore, it may be expected that established potters would have migrated to newer production centres in order to diversify or exploit markets/demand.

The remaining vessel types from Kiln S2133 are limited in quantity and hence difficult to assess as part of the Nar Valley repertoire. The most notable other types are single examples of a substantially complete narrow-neck jar (G22) and a hemispherical, corrugated jar with a stubby rim (G21). Both vessel types are represented by small rim and neck fragments at Brancaster (Andrews 1985, types 84.1-3 and 113) and the wasters in Kiln S2133 considerably expand the known body profiles of the vessel types. The G22 vessel is patchily fired and its intended appearance is unclear, while the G21 vessel is consistently reduced to a very dark grey.

Kiln S2133 (F2143, L2144) contains an anomaly in the form of a portion of a jar (45%) that cross-joins with the remainder (55%) of the vessel in Kiln S2118 (F2110 L2134), approximately 50m away. Although the vessel is shattered, sherds from the respective halves of the vessel are not mixed. The vessel (G18, Fig. 38.52) is an ovoid jar with an everted rim, comparable to Brancaster type 101 (Andrews 1985, 108) but is unique by virtue of its decoration: a shoulder cordon with an inscribed zigzag bordered above and below by single bands of stabbing and burnishing. It is in a well-preserved Nar Valley fabric, reduced to black (but not burnt), comparable to that from the kilns, but is not a waster. The vessel is one of only two in the assemblage that had been deliberately deposited without a practical 'function' and probably with symbolic purpose (the other was in Phase 4 Pit F2190, see below). Kiln S2118, unlike Kilns S2133 and S1170, does not appear to have been abandoned following a misfired load or backfilled with wasters. While the precise function of this vessel (G18) remains uncertain, it can be suggested that the vessel was selected, split and deposited following the misfiring of Kiln S2133 and the last use of Kiln S2118 as a symbol of a connection between the two. It is possible that the decision to stop using Kiln S2118 was a result of the misfiring and consequent disuse of Kiln S2133.

Kilns S2118 and S2119 were distinguished from Kilns S2133 and S1170 by containing a fraction of the quantity of pottery and limited waster material (Tables 11 and 12), suggesting that they had fallen out of use prior to their abandonment. Although the range of jar wasters in Kilns S2118 and S2119 contains slight form variations (G3, G4, and G20), these are all related to, or derived from, the basic template of the G1 cordoned jar. As noted with Kiln S2133, several forms are scarce survivals in the range of kiln wasters, making the full repertoire of these kilns difficult to judge. The most notable addition to the range of forms is that of three slightly convex lids (K1) in Kiln S2119, despite the absence of any lid-seated vessels in any of the kilns. It is also apparent that there is a very limited range of bowls (types C1 and C2) and no dishes recorded from the four Phase 3 kilns, resulting in a heavily-biased ratio of forms present that extends throughout the assemblage.

Vessel Class	**Vessel type (single example unless stated)**	**Total No. Of vessels**	**Total R.EVE**
Jar	G1, G2, G3, G4, G5	5	1.05
Lid	K1 (3 examples)	3	0.31
Total		*8*	*1.36*

Table 11: Waster vessels in Kiln F2119

Vessel type	Vessel type (single example unless stated)	Total No. Of vessels	Total R.EVE
Jar	G3, G5, G10, G20	4	0.52
Storage Jar	G19	1	0.1
Misc. Jar	G8 (2 examples)	2	0.15
?Non-waster jar	*G18*	*1*	*0.55*
Total		*8*	*1.32*

Table 12: Waster vessels in Kiln F2118

Timber Building S2253 and Workshop S2251

The features of the rectangular timber building (S2253) produced 71 sherds (1149g) of pottery, excluding the amphorae in Pit F2545, of which 89.29% by sherd count is NAR RE1 (84.53% by weight). This group includes a high concentration of dishes, with three in Nar Valley fabrics (NAR RE1: types B1, B2 and B3) and one in black-burnished ware 2 (type B4), as well as a re-used samian cup (LEZ SA2) and a samian dish/bowl base (TRI SA) (see *samian ware*). Single, non-diagnostic fragments of Brampton white ware and Wattisfield reduced ware were also recovered. Although these vessels may indicate a domestic/recreational function for the building, the pottery from Timber Building S2253 clearly lacks the sparse but noticeable fine ware associated with the Phase 2 aisled building. A Dressel 20 Baetican amphora, buried upright, is also associated with the timber building, situated to its north-west, in Phase 3 Pit F2545. The amphorae had had the neck and handles removed and the resulting fracture filed smooth. Four holes had been drilled in close proximity near the base of the vessel, presumably to allow for drainage. The function of this vessel is almost certainly as a *pissoir* (or outside toilet) for the occupants of Timber Building S2253; this re-use of Baetican amphora is well attested at the mile castles along Hadrian's Wall and at Chester (Callendar 1965, 31-34).

Features associated with Workshop S2551 only produced 25 sherds (509g) of pottery, but these included Nar valley fabrics, Wattisfield reduced ware, Brampton and Colchester/Ellingham white ware and most notably London 555 amphora. The London 555 amphorae comprised two cross-joining fragments of handle (Fig. 39.63) embedded in Floor L2380. London 555 amphorae were used to import olives, possibly from Lyon, Vienne or further south in the Rhone Valley with production ceasing *c*. AD125/150 (Sealey and Tyers 1989, 63). Given the potential time from importation, continued use and re-use this amphorae could quite feasibly be contemporary with the construction of the building and, although no further London 555 body sherds were recorded, the fabric is very similar to the Baetican amphorae (BAT AM2) (Sealey and Tyers 1989, 63-5) that is scattered through the assemblage. In addition to London, similar examples of London 555 amphora have been recorded at Verulamium and Colchester, both potential sources for imports such as this. Also embedded in Floor L2380 were undiagnostic sherds of worn Colchester/Ellingham white ware mortaria. Further sherds of Colchester/Ellingham white ware mortaria were present in L2567, a sandy silt deposit between the carstone blocks and flint nodules in Foundation F2435 of the bath house. These sherds comprise a highly abraded rim fragment from a collared mortaria of Ellingham type 2E (Hartley and Gurney 1997, 13) produced from the late 2nd to 3rd centuries AD at Ellingham, the

probable (local) source of this vessel, though the form type and fabric were produced into the 4th century at Colchester.

The pottery from the Phase 3 'Other features' comprises a sparse distribution with a notable concentration, including a complete deliberately deposited vessel, associated with features that form part of modifications to the droveway. Further Phase 3 sherds were also contained in Ditch (F2507) and circular Structure (S2135).

Ditch Terminus F3019 (L3020) forms part of the Phase 3 droveway modification and contained a complete G7 jar in NAR RE1 that had been stabbed through the base prior to its deposition, thus 'killing' the vessel by rendering in useless as a container. This treatment of a vessel occurs twice in the assemblage, in this ditch terminus and in Phase 4 Pit F2190 (part of an unknown structure). In both cases the vessels selected for 'killing' are G7 rusticated jars in NAR RE1, with this vessel pierced through the base and the example in Pit F2190 pierced through the body. The practice of deliberately piercing vessels, commonly jars, and depositing them in pits is attested to throughout the Romano-British period. Many of these vessels are carefully drilled or pierced with small single or multiple holes that can be related to domestic food production or their use as timing devices (Fulford and Timby 2001, 293-5). However several appear to have been pierced in connection with the rite of deposition, possibly as part of a chthonic ritual (Fulford and Timby 2001, 295-6) associated with destruction or abandonment. The vessel in Ditch F3019 (L3020) may represent an offering made to represent the closure or abandonment of the enclosure following its successive phases of remodelling in Phases 2, 3 and possibly 4. The vessel's placement in a ditch terminus may indicate the route selected, literally or symbolically, as the gateway and exit from the site. With the exception of Pit F2382 - which contains 45 sherds (832g) - none of the remaining ditches, gullies, pits or postholes associated with the Phase 3 droveway modification contains more than 6 sherds of pottery. In these features the Nar Valley pottery is supplemented with samian (see above), and regionally imported fine and coarse wares. The colour-coated beakers in particular, indicate that a date before the late third century would be appropriate for these features; a date that would be consistent with the Phase 3 buildings and probably largely contemporary with Phase 2. Coarse wares include occasional sherds of Wattisfield reduced ware and Black-burnished ware 2 (dishes only, probably types B1-4), with the presence of a single vessel in fabric GRS2. The GRS2 vessel, in Pit F2382 (L2383), comprises a semi-hemispherical bowl with a bead and flange rim comparable to a late 2nd century AD vessel at Brampton (Green 1977, 73: vessel 123) and is probably a late 2nd/3rd century import from Brampton (50km East). Pit F2382 also contained the only NAR RE2 type G16 jar in the assemblage, as well as a small concentration of NAR RE1. Fragments from G16 jars are relatively common in Phase 3 features, most notably the kilns and are also present in the Phase 2 'Droveway and Enclosure' group and Well F1137. However, while all these G16 are in the NAR RE1 fabric associated with the kilns, this white-slipped NAR RE2 vessel in Pit F2382 suggests a degree of uniformity between forms produced in the two fabrics, and therefore with another workshop producing a separate, distinguishable fabric within the Nar Valley. The assemblage from this feature (located just south-east of the timber building) may represent domestic deposition rather than any activity connected to industrial processes on the site.

The remaining pottery from Phase 3 'other features' has limited informative value. The pottery in circular Structure S2135 is entirely NAR RE1 but despite being a small concentration is of little diagnostic value. Further sherds of diagnostic value include the base of a LNV CC flagon from Posthole F2235 (L2266) of the Phase 3 posthole alignment along the droveway edge, and a single sherd of Central Gaulish black-slipped ware in Phase 3 Ditch F2507 L2394. The limited diagnostic pottery in non-Nar Valley fabrics in the Phase 3 'other features' supports the theory that Phase 3 activity and pottery production began in the late 2nd/early 3rd century AD, and, on negative evidence, does not extend into the late 3rd/4th century.

Phase 4

Stratigraphic Phase 4 is represented by relatively small quantities of pottery, totalling 571 sherds (11606g) (Table 13) but these groups possess a markedly different composition to the Phase 3 groups, reflecting a date beginning in the late 3rd/early 4th century AD and ending by the mid 4th century AD. Notable concentrations of pottery from Phase 4 are present in Phase 4 Pit F2150 and in a group of Phase 4 pits and postholes distributed in the south-west of the site, including F1259 and F1272, several of which also contained evidence for iron smelting, although no bias was observed in the pottery from these pits and the remaining pits, postholes, gullies and ditches in the phase. These features probably represent the final stages of Romano-British occupation on the site. Small groups of predominantly Nar Valley pottery were also recovered from Phase 4 Layers L2374 and L2410, which accumulated over postholes of the timber building following the removal of their posts.

Fabric Groups	**Feature Group**					
	Pit F2150		Pit F2190		Other Phase 4 features	
	sc	w	sc	w	sc	w
NAR RE1 and NAR RE2	144	3939	47	613	218	4411
Other local/regional coarse wares	3	78			107	1162
Romano-British fine wares	12	309			33	1033
Imported (continental) fine wares	1	3			1	7
Samian ware	2	15			3	36
Total	*162*	*4344*	*47*	*613*	*362*	*6649*

Table 13: Quantification of Phase 4 Pottery (sc: Sherd Count, w: Weight (g))

Phase 4 Pit F2150 contains a total of 144 sherds (3939g) of Nar Valley ware, of which 14.58% by sherd count (22.44% by weight) is NAR RE2 including jar types G5, G6, G7, G8, G9, G10, as well as dish types B1and B2. In Phase 4, fabric NAR RE2, almost certainly not produced in the kilns on site, comprised a slightly larger portion of the Nar valley fabrics group, especially in Pit F2150, compared to its very scarce, minority presence in the earlier phases, further suggesting that Phase 4 post-dates the decline or closure of the Phase 3 kilns. With the exception of jar type G6 all of these vessels have parallels in NAR RE1, though jar type G7 and the dish types were not produced in the kilns. Jar type G6 has a stubby, lid-seated rim (white-slipped) comparable to Brancaster type 112 (Andrews 1985, 107 and 109). It is limited in this assemblage to a single vessel in Phase 4 Pit F2150 (L2152), and thus is probably

restricted in date to after the late 3rd/early 4th century AD. Further concentrations of NAR RE1, each associated with overall pottery concentrations in Phase 4, are present in Phase 4 Pits F1259 (L1260) and F1272 (L1273) and especially in Pit F2150, which includes laminated 'waster' body sherds and is in close proximity to Phase 3 Kiln S2119.

The most significant single occurrence in Phase 4 is a complete, deliberately deposited vessel in Posthole F2190. This vessel is the only pottery in Posthole F2190, which has several satellite postholes that contain no finds. The vessel is a G7 jar in NAR RE1 that displays a clear radial fracture on the mid-lower body, resulting from the vessel being stabbed or symbolically 'killed' before it was buried. The G7 vessel in Pit F2190 is the one of two vessels of its type in the assemblage (the other in Phase 2 Ditch Terminus F3019 (L3020), both selected to be deliberately 'killed'. Neither jar can be conclusively linked with the kilns on site; although the fabric of both suggests that these were where they were produced. As with the vessel in Phase 3 Ditch Terminus F3019 this vessel almost certainly formed part of a rite of deposition, possibly a chthonic ritual (Fulford and Timby 2001, 295-6) associated with destruction or abandonment. In this instance the vessel appears to have been deposited prior to the construction of the unknown structure that incorporated Pit F2190 and its associated postholes, but this may not rule out the role of this vessel in such a ritual. The unknown structure that includes Pit F2190 may have been built to be immediately destroyed, in a ritual that marked the either the end of pottery production or occupation on the site. Alternatively the unknown structure may have had a duration that spanned Phase 4 and the pot may have signified the 'beginning' or 'opening' of such a structure. In either case, the deliberated 'killing' and deposition of this vessel might indicate a privileged status for this structure, which may have possibly been a shrine.

The proportions of Nar Valley form and fabric types in Phase 4 differ only slightly from previous phases, however the presence and absence of other form and fabric types demonstrates a marked change. Previously absent in Phase 3, Harrold (South Midlands) shell-tempered ware accounts for 79.10% by sherd count (66.45% by weight) of the local/regional coarse wares (and 15.24% (7.10%) of the total pottery) in Phases 4. The range of diagnostic forms in Harrold shell-tempered ware is limited to triangular; drooping/slightly undercut-rim jars comparable to forms produced at Harrold in the late 3rd/early 4th centuries (Brown 1994, 62-63: Phase 4 types 174-8 and Phase 5 types 248-51). Body sherds indicate that some of these forms may have been rilled although the small sherd size and highly vesiculated preservation of the shell-tempered ware inhibits further identification of forms. The distribution of Harrold shell-tempered ware remains restricted to low quantities scattered in Phase 4 features except for concentrations in Phase 4 Pits F1259 (L1260) and F1272 (L1273). The remaining 20.9% by sherd count of the local/regional coarse wares in Phase 4 are non-diagnostic sherds of Wattisfield reduced ware, locally produced sandy grey wares (GRS3) and a single vessel in a locally produced black-surfaced ware (BSW). The BSW vessel, from Phase 4 Pit F1259 (L1260), is a facetted bowl with burnished leaf decoration in each facet (Fig. 39.61), comparable to two 'Romano-Saxon' vessels recorded at Caistor-on-Sea (Darling and Gurney 1993, 174: vessels 243-4). The evidence from Caistor-on-Sea, where a similar range of fine wares are present (see below), indicates that vessels such as these are consistent with a date around the mid

4th century; although they may occur slightly earlier depending on their (unknown) source (Darling and Gurney 1993, 211).

Although the Nar Valley fabrics and the local/regional coarse wares are all suggestive of a late 3rd/early 4th to mid 4th century AD date, the Romano-British fine wares include a range of forms that clearly define the chronology and group composition of the Phase 4 pottery. In addition to the Harrold shell-tempered ware and the black-surfaced ware vessel, Phase 4 Pit F1259 (L1260) contained one of the largest concentrations of fine wares in Phase 4, with sherds of Lower Nene Valley colour-coated ware, Oxfordshire red-slipped ware and Hadham oxidised ware all present. The Hadham oxidised ware sherds in Pit F1259 (L1260) are from the handle and body of a burnished flagon and the Oxfordshire red-slipped ware comprises a single small basal sherd with a rosette stamp (Young 1977, 130: fig. 39.15) on the interior. No one type of fine ware has a particularly frequent occurrence in Pit F1259. The apparent higher occurrence of Hadham oxidised ware is a biased representation caused by seven cross-joining sherds. In total the Romano-British fine wares account for 9.3% by sherd count (6.64% by weight) of the pottery in Pit F1259. There are no further diagnostic sherds of Oxfordshire red-slipped ware or Hadham oxidised ware in the total Phase 4 group, though Oxfordshire red-slipped ware accounts for 1.40% (0.25%) of the phase total, and Hadham Oxidised ware 1.75% (1.04%); neither of which are likely to have been imported before the late 3rd/early 4th century.

The remaining diagnostic sherds of Romano-British fine ware in the Phase 4 groups are limited to Lower Nene Valley colour-coated ware which comprises 3.50% by sherd count (5.31% by weight) of the total pottery in Phase 4. Phase 4 Pit F1150 (L1151) produced body sherds from the shoulder of a rouletted Lower Nene Valley colour-coated ware pentice-moulded beaker (Perrin 1999, 97: type 176) and Phase 4 Pit F2150 (L2152 and L2155) produced fragments from two funnel necked beakers, dated to the late 3rd to mid 4th century (Perrin 1999, 96-7: types 172-3 and 174). The same date range is also applicable to a bead and flange rim dish in Phase 4 Pit F1270 (L1271) and a samian form 38 imitation in Phase 4 Pit F1272 (L1273) (Perrin 1999, 102-3: types 260 and 247). Also associated with the fine wares in Phase 4, are scarce sherds from Brampton white ware flagons (comprising 0.53% (1.38%) of the phase total) and sherds of Lower Nene Valley white ware mortaria (comprising 0.70% (2.85%) of the phase total). The Brampton white ware flagon from Phase 4 Gully F1276 (L1277A) has a D-shaped rim comparable to a vessel recorded at Caistor-on-Sea (Darling and Gurney 1993, 171: vessel 188). In addition to this flagon, Gully F1276 contained a small pottery assemblage (12 sherds, 264g) including Nar Valley ware, Lower Nene Valley colour-coated ware, Oxfordshire red-slipped ware and Harrold shell-tempered ware. The Lower Nene Valley white ware mortaria comprises sherds from a single reed-rimmed vessel from Phase 4 Pit F2150 (L2152 and L2155), comparable to an example from Billing Brook (Durobrivae/Water Newton) dated to the late 3rd to 4th century (Hartley and Perrin 1999, 132: type M41), and further worn body sherds in Pit Phase 4 F1208. In addition to the Romano-British fine wares Phase 4 Pit F1272 contained a sherd of Central Gaulish black-slipped ware and Phase 4 Pit F2150 a sherd of Moselkeramik black-slipped ware.

Unphased Roman features

In the group of features that are dated Unphased Roman, there are two small concentrations of pottery in Pits F2106 (41 sherds, 757g) and F2148 (25 sherds, 200g). Both small concentrations are dominated by NAR RE1 however Pit F2106 also contains a single very small sherd of Oxfordshire red-slipped ware. Pit F2106 contains common jar forms G3, G5 and dish B2 however none are wasters.

18th century Private Enclosure ditches

The post-Roman features contained 95 sherds (2411g) of residual Romano-British pottery, principally Nar Valley fabric sherds with occasional sherds of other local/regional coarse wares including Wattisfield reduced ware and Harrold shell-tempered ware.

Discussion of production and supply

The Roman pottery production in the kilns at this site represents a very important insight into the relatively under-investigated Nar Valley pottery industry. The kilns do not represent the full chronological extent of the industry (into/to the end of the 4th century AD), but probably attest the beginning of organised industrial production in the area in the late 2nd/early 3rd centuries AD with production on the site ceasing in the mid/late 3rd century. If large scale production did commence on site, and indeed in the wider Nar Valley area, during the late 2nd/early 3rd centuries AD, then it may be no coincidence that during this period the fort at Brancaster was established (Hinchcliffe 1985, 180). Smaller scale, local potteries may have been present as precursors to this industry, but the establishment of the later Roman industry may have been an organised response to the orders of official authority or a commercial response to the close proximity of a lucrative Roman military market. These kilns further highlight the importance of Blackborough End, Middleton, as part of the Nar valley industry, adding to the chronology and vessel ranges attested at the previously excavated Blackborough End kiln (Gurney 1990) and salterns (Darling 2002). The range of forms produced at the kilns on this site, and at the other sites in Blackborough End, is a fraction of those present in the very large assemblage from the 3rd-4th century shore fort at Brancaster (Andrews 1985), but also includes forms not recorded at the shore fort. This may be a reflection of several factors including chronology, product specialisation and/or supply contacts (probably from the military). The absence of some forms, notably bead and flange dishes (Andrews 1985, 113: type 147) is clearly related to the chronological limits of this assemblage; but this cannot explain the lack of dish forms or limited range of relatively standardised jar forms being produced in the Phase 3 kilns. Clearly this range of vessels was being produced at Blackborough End for a purpose and, given the apparently narrow distribution of Nar Valley pottery, it appears logical that this was either for a specialised industrial/commodity market or for a specific niche consumer of pottery, i.e. the military, principally the Brancaster shore fort.

While the Brancaster shore fort clearly consumed vast quantities of pottery, Nar Valley pottery does have a wider distribution (Fig. 40). Distribution appears focussed on northwest Norfolk, with significant assemblages from Brancaster (Andrews 1985), Gayton Thorpe (Atkinson 1929) and Snettisham (Lyons 2004), and smaller groups present across Norfolk, including Hockwold-cum-Wilton (Gurney 1986), Caistor-on-Sea (Darling and Gurney 1993) and Thetford (Lentowicz 1999). However jars, with

the characteristic rim of type G1 and the rusticated decoration of types G7/G17, attributable to the Nar Valley, are present at Stonea (Cambs.) (Cameron 1996, 462: vessel 142) but remain undifferentiated from the general coarse wares. Thus it is likely that products from this industry did travel beyond Norfolk and the northeast fen edge, principally into the wider East Anglian region and potentially further but remain unidentified.

The chronology of the Nar Valley industry has long been problematic (Darling 2002, 209). This assemblage includes both stratigraphic sequences and discrete features with well-preserved pottery groups that contain Nar valley ware alongside a range of well dated regional imports, thus providing important chronological data. Phase 3 represents the main period of pottery production at this site from the late 2nd/early 3rd to mid/late 3rd centuries AD, with Phase 4 demonstrating continued occupation and possible industrial activity in the late 3rd to mid 4th centuries AD.

The individual characteristics of the phased pottery groups have been discussed under their respective sub-headings; however the changes in the supply and use of imported fabrics should also be noted. Samian ware (principally East Gaulish) was clearly readily available during the earliest Romano-British occupation of the site, but was then kept in circulation and subject to heavy ware and reuse for a considerable duration. Fine wares, principally drinking and table ware forms, were initially drawn from a wide range of sources including Cologne, Lincolnshire (Parisian ware), Pakenham, West Stow and the Lower Nene Valley. By Phase 4 the fine wares were dominated by Lower Nene Valley colour-coated ware with small quantities from Oxfordshire, Hadham, Central and East Gaul, demonstrating a high level of accessibility to fine wares for a rural industrial site. Other fabrics, such as Wattisfield reduced ware and Brampton white ware, maintain a low presence throughout the occupation of the site, while in Phase 4, low quantities of Harrold shell-tempered ware were imported but were limited to a small range of jars possibly indicating a product association. A low percentage of sandy grey wares not associated with pottery production on the site are also present and may have been produced else where in the Nar Valley, although other potential sources include Snettisham, Hevingham and Brampton.

3.4 Medieval and post-medieval pottery

Peter Thompson
See Section 5.4

A total of 12 (108g) medieval or post-medieval sherds were recovered from Excavation Phase 4. The pottery is in very poor condition, comprising small abraded to highly-abraded sherds. The wares present are tabulated below with their date range.

Site specific code	Ware name	Date range
EMSW	Early Medieval Sandy Ware	900-1200
MCW	Medieval Coarse Ware	1100-1500
MGW	Medieval Glazed Ware	1150-1400
LMGW	Late Medieval Glazed Ware	1300-1550
PMRE	Post Medieval Red Earthenware	1580-1900

Table 14: medieval pottery from EP4

Pit F1008 contained three small highly-abraded sandy sherds, one with faded green glaze suggesting a later 12th-13th century date, although it could be later. Pit F1021 also contained three abraded sherds, one glazed. A wheel-made unglazed triangular bowl rim indicates a 14th century date is probable. An unstratified late Grimston-type dark green glazed sherd in a pale grey sandy fabric was also recovered. Four highly-abraded post-medieval glazed red earthenware sherds came from the topsoil. A single sherd of Grimston ware (5g) was recovered from Ditch F2015 in Excavation Phase 3.

3.5 Romano-British ceramic building materials

Andrew Peachey
See Section 5.5

Introduction and methodology

The excavations produced a total of 927 fragments (88,653g) of Romano-British CBM (Table 15). There were no groups directly associated with any of the structures on the site. Significant groups were present in Phase 4 Pits F1208 and F2150 and may represent demolition deposits from the closure of the site, with smaller groups from other pits and ditches supplementing this evidence.

The CBM was quantified by fragment count and weight (g). Any extant dimensions were measured and form types were defined according to Brodribb (1987). The CBM was examined at x8 and x20 magnification and divided into fabric groups with descriptions included below. All recorded data was entered in to a MS Excel spreadsheet.

Phase	Fragment count	Weight (g)	Average fragment weight (g)
2	188	16598	88.29
3	81	8050	99.98
4	622	60065	96.57
Unphased Roman	12	12	1
18th century	6	1447	241.17
Undated/Unstratified	19	3277	172.47
Total	*927*	*88653*	*95.63*

Table 15: Quantification of Romano-British CBM by fragment count and weight (g) in phased groups

Fabric descriptions

Fabric 1 Red-orange with medium-coarse (<0.7mm, occasionally to 1.5mm) quartz and common iron rich inclusions (<0.4mm)

Fabric 2 Orange with fine (<0.3mm) quartz and common streaks of white-cream clay or silt

Fabric 3 Orange fabric that frequently has cream surfaces. Fine-medium (<0.5mm) white-clear quartz and red iron rich inclusions dominate as abundant with coloured quartz distributed sparsely.

Fabric 4 Dark red-dark orange/brown with smoothed surfaces and medium quartz (<0.5mm, occasionally larger)
Fabric 5 As Fabric 4 but yellow/brown in colour

Phase 2

Features in Phase 2 produced a total of 188 fragments (16,598g) of CBM (Table 16). 94.15% by fragment count (92.69% by weight) of this total is present in Fabric 1.

Features associated with the Phase 2 droveway and enclosure account for 63.83% (120 fragments) of the Phase 2 CBM by fragment count, 62.31% (10,342g) by weight (Table 16). The 'Droveway and Enclosure' group includes a single notable concentration in Ditch F1019 (L1020C), comprising 24 fragments (3897g). This concentration is in sharp contrast to the negligible or non-existent quantities in the other excavated segments of Ditch F1019, and may reflect a specific act of debris deposition related to an event of demolition/clearing of the hypocaust in the adjacent building (S2551). The CBM from Ditch F1019 (L1020C) includes box flue tile and 40mm thick brick, as well as miscellaneous fragments, but none that could be confirmed as roof tile (tegula or imbrex). The box flue tile includes fragments with partially-complete dimensions of 170 x ? x 23mm. These fragments also display two combed wavy lines forming an x-shape (corner to corner) made with a four-tooth comb (33mm wide) to aid the adhesion of plaster/cement. Box flue tile fragments from all phases display partial key marks that are recorded in the archive; however, this is the only near- complete box flue tile in the assemblage. Fragments of brick also allow partial dimensions of 200 x ? x 40mm to be measured, indicating that these fragments are probably derived from *bessalis* type bricks used to form the *pilae* in hypocaust systems. Further small concentrations in the Phase 2 'Droveway and Enclosure' group are present in Ditches F2003, F2068, F2267, F2510, F3003 and Gully F3045, but none of these exceed 1kg of CBM in a single section or context.

Form type	**Phase 2 'Droveway and Enclosure'**		**Phase 2 'Other features'**	
	Fragment count	Weight (g)	Fragment count	Weight (g)
Tegula	63	3890	8	465
Imbrex	1	132	0	0
Box flue tile	2	768	1	12
40mm brick	15	3831	0	0
50mm brick	1	253	0	0
Miscellaneous	38	1468	59	5779
Total	*120*	*10342*	*68*	*6256*

Table 16: Quantification of CBM form types in Phase 2

The CBM from the Phase 2 'Droveway and Enclosure' ditches is almost entirely composed of tegula roof tile and miscellaneous fragments, probably also derived from tegula roof tile. Other forms of CBM within this group are limited to those mentioned above in regard to Ditch F1019, and to fragments of 40mm and 50mm thick brick in Ditch F2068. Any relationship between these fragments and a nearby structure is

obscured by the location of Ditch F2068 on the north-eastern boundary of the site, adjacent to Kiln S2118 and potentially to a further enclosure immediately north-east of the excavated area (an extension of this theory is that the CBM suggests a further structure to the north-east). The source of the concentrations of CBM identified in the Phase 2 'Droveway and Enclosure' group can probably be attributed to the structures recorded in the excavated area, possibly reflecting small-scale renovation or repair rather than demolition, although alternative sources, such as further structures to the east of the site, cannot be eliminated.

Quantities of CBM in other Phase 2 features were very limited. Low quantities of CBM (in total 46 fragments, 4939g) were present in 18 pits and postholes that comprise structural features of the Phase 2 aisled building and probably represent post packing, rather than part of the building's construction. The only notable concentration of CBM in any of the features that comprise the Phase 2 aisled building was in Posthole F1049 (7 fragments, 2996g). Features associated with the Phase 2 post alignment, rubbish pits and well, also contained very low quantities of small fragments of CBM.

Phase 3

Phase 3 features produced 81 fragments (8050g) of CBM (Table 17) of which 95.06% by fragment count (83.44% by weight) is in Fabric 1. The distribution of CBM in Phase 3 was sparse, with only a single notable, yet small, concentration in Drying Oven S2105.

Form type	**Phase 3 Drying Oven S2105**		**Phase 3 'Other features'**	
	Fragment count	Weight (g)	Fragment count	Weight (g)
Tegula	18	1250	25	1576
Imbrex	0	0	4	96
Box flue tile	0	0	2	217
40mm brick	4	1108	7	2475
50mm brick	1	481	2	708
Miscellaneous	0	0	18	139
Total	*23*	*2839*	*58*	*5211*

Table 17: Quantification of CBM form types in Phase 3

The concentration of CBM in Phase 3 Drying Oven S2105 (including tegula, 40mm and 50mm thick brick) may be the remnants of a heated floor constructed on similar lines to a hypocaust. Also in Phase 3, Pit F2312 and Posthole F2256 contained fragments from 40mm thick bricks and tegula. Bricks of this thickness could be one of several types and cannot be defined further without other extant dimensions. The occurrence of these bricks and the associated tegula in these adjacent features may be related to the entranceway that Pit F2312 and Posthole F2256 may have constituted parts of.

Phase 4

Phase 4 features contained a total of 622 fragments (60,065g) of CBM, the highest quantity of CBM in any of the phase groups in the assemblage. Of this total, 84.08% by fragment count (87.02% by weight) was recovered from three pits (F1184, F1208 and F2150) associated with demolition debris on the site (Table 18).

Form type	**Phase 4 'Pits with demolition debris'**		**Phase 4 'Pits with metal working evidence'**		**Phase 4 'Other features'**	
	Fragment count	Weight (g)	Fragment count	Weight (g)	Fragment count	Weight (g)
Tegula	194	23413	9	1860	7	1262
Imbrex	25	2761	2	265		
Box flue tile	52	5924	6	346		
40mm brick	10	2456			1	1904
50mm brick	7	1192				
Miscellaneous	235	16520	73	2162		
Total	*523*	*52266*	*91*	*4633*	*8*	*3166*

Table 18: Quantification of CBM form types in Phase 4

Phase 4 Pit F1208 produced a total of 291 fragments (32,208g) of CBM, of which 84.88% by fragment count (81.15%) is in Fabric 1. All five fabrics are represented in the F1208 group, with Fabric 4 accounting for 6.8% by fragment count (11.35% by weight) of the group, the highest non-Fabric 1 occurrence in the assemblage; the remaining fabrics are present in negligible quantities. Fragments of tegula are present in Fabrics 1, 4 and 5, and fragments of imbrex in Fabrics 1 and 5. Brick fragments (of any type) were absent. Fragments of box flue tile are present in all five fabrics and account for 14.78% by fragment count (16.61% by weight) of the Pit F1208 group, a considerably higher proportion than in any other group, including Phase 4 Pit F2150. This possibly reflects the closer proximity of Pit F1208 to Structure S2551. F1208 did not contain any complete box flue tiles but it can be seen that at least four different combs of varying size (teeth and width) were used to score the tile in both wavy and linear patterns. One fragment in F1208 (L1216) is scored on one side and burnt on the other, suggesting it may have been situated at the base of a flue near the furnace.

Of the assemblage from Pit F2150, which contains 186 fragments (18,451g) of CBM, 96.24% of the group by fragment count (93.01% by weight) is comprised of Fabric 1 form types, with the remainder comprised of fragments of Fabric 5 tegula and box flue tile. The Fabric 1 form types are dominated by tegula, which account for 80.65% by fragment count (72.58% by weight) of the Phase 4 group. All other form types, especially the flue tile, are present in negligible quantities, in contrast to the Phase 4 Pit F1208 group. In comparison to the other Phase 4 'pits with demolition debris', Pit F1184 contained little CBM, with 47 fragments (1607g), including fragments of tegula, imbrex and flue tile.

Phase 4 also contained relatively low quantities of CBM in Layer L2374 (the only Phase 4 'other feature') and in five 'pits with metal working evidence'. The group from Layer L2374 includes fragments of tegula in Fabrics 1 and 5, and a fragment of Fabric 1 40mm thick brick with a width of 250mm. This fragment probably formed

part of a *pedalis* brick used as either the capping or footing for *pilae* (columns of *bessalis* bricks) in a hypocaust or heated oven floor. Of the 'pits with metal working evidence', Pits F1246 and F1256 contained small concentrations of CBM including tegula and flue tile fragments, while the remaining pits in this group produced negligible quantities of CBM.

Conclusions

The conclusions that can be drawn from this CBM assemblage are limited due to the spatial distribution of the CBM. The substantial groups in Pit F1208 and Pit F2150 are convincing demolition deposits, probably the result of the demolition and clearing of Structure S2551. This distribution bias and the general paucity in other features suggest that the site was deliberately and carefully levelled for an alternative purpose as occupation was relocated nearby, rather than the site being simply abandoned and left to fall derelict.

The sparsely-distributed brick and flue tile in the assemblage is consistent enough to indicate that there was a hypocaust or heated floor system (possibly a drying oven) within the enclosure, logically in S2551. It is also logical that the predominant CBM type, the tegula roof tile, was associated with this structure, with Pits F1208 and F2150 providing conveniently close receptacles for demolition debris when the building was demolished. The bulk of the CBM, Fabric 1, was probably manufactured on site or nearby in a short phase of production associated with the construction of the enclosure and its buildings in Phase 2, while the small quantities of the remaining fabrics probably represent small batches of CBM brought in from separate small local workshops for the purposes of repair or improvement in Phases 3 to 4.

3.6 Post-medieval ceramic building materials

Andrew Peachey
See Section 5.6

Excavation Phase 4 produced a total of nine fragments (2725g) of early post-medieval CBM from two features. The CBM is abraded and does not occur in any substantial quantities.

Ditch F1002 (L1003) contained three fragments (2272g) of abraded brick with dimensions of ?x115x55mm, no frog, slightly rounded arises, slightly irregular faces, straw/grass impressions on the base and striations on the upper surface. The fabric is oxidised red (2.5YR5/6), hard, with inclusions of common coarse sand, sparse iron rich inclusions (0.2-1mm) and sparse clay pellets (0.5-4mm). These characteristics are typical of bricks produced in the 15th to early 17th centuries.

Ditch F1008 (L1009) contained six fragments (453g) from a single abraded brick with a thickness of 35mm and no other extant dimensions. The brick is in a cream, much-vesiculated calcareous fabric with sparse inclusions of oxidised clay pellets (2-6mm), and may have been used as a flooring brick in the 16th-17th centuries.

In addition, a single piece of CBM (796g) was recovered from 18th century Ditch F1005 (L1006) in EP 1.

3.7 Small finds

Nina Crummy
See Section 5.7

Discussion

The assemblage is very small and ranges in date from early Roman to modern. The assemblage contains a high proportion of Roman domestic equipment, including two spoons, several quernstone fragments, and two spindlewhorls. A fragment of an iron handle with decorative twisting could also be from a household item, and a well-worn polishing stone may have had a domestic use but is more likely to be a craft tool. In contrast, there is only one certain Roman dress accessory, a functional category that is often the best-represented on Roman sites.

The presence of two spoons, a needle, spindlewhorls and quern fragments are evidence for domestic occupation in the immediate vicinity, although the latter may have been brought to the site for use as hardcore or building stone. Two Millstone Grit quern fragments were found in a posthole and were probably used as packing stones, while some fragments of lava quern are very small and abraded, a state typical of pieces that have been reused and perhaps exposed to the elements after first being discarded. The presence of both lava and Millstone Grit quern fragments is evidence for access to major provincial and inter-provincial trade links, the Millstone Grit being sourced from the Pennines and the lava querns from the Eifel Hills in Germany, a trade that began at the conquest and continued into the 2nd century AD if not throughout the later Roman period as well (Buckley and Major 1983, 75-6).

The round-bowled silver spoons (SF 1.2 and SF 3.6) date from the mid 1st into the 2nd century (Wilson 1968, 101). The form was introduced at the conquest, and, although generally presumed to have been used for eating, there is a growing body of evidence from the continent and from Britain that burials containing spoons of this type are usually those of women. Their occasional close association with jewellery and toilet equipment also implies that they may had some alternative function associated with the female toilette (for example, Biddle 1967, fig. 9, 19, 54-61; Down and Rule 1971, 81, fig. 5.16; de Laet *et al.* 1972, 115, pl. 69; Stead and Rigby 1989, 358, fig. 157, 8, 11-13; Philpott 1991, 282; Cool 2004, 28). As the earliest Roman activity at East Winch only dates to the late 2nd century, these items were clearly still in use at that time.

The needle (SF 3.1) is a late Roman form, distinguished by a groove above and below the eye (Crummy 1983, 67). Together with the spindlewhorls (SF 3.10 and that from Pit F1272), it implies that thread was spun and fabric worked into garments in the immediate area of the site, but, as is usual on Roman period sites, there are no loomweights or weaving tools to provide the evidence for weaving.

The iron socketed hook (SF 3.9) was probably used in agriculture or horticulture for pruning or cutting down plants, but the only other craft tool is a mudstone polishing stone from Pit F1282, which could have served a variety of purposes in a number of crafts, such as bone or woodworking, and was probably used in combination with an

abrasive agent such as sand. A domestic use for scouring or polishing is also possible.

Although small, the assemblage is evidence that the site had good trade links and the presence of a silver spoon suggests that at least some of the inhabitants enjoyed a degree of wealth and status.

3.8 Roman vessel glass

HEM Cool
See Section 5.8

Roman vessel glass was recovered from Phase 2 Posthole F1095 of the aisled building and Phase 2 - 4 Pit F1087, located within the aisled building. The former piece is a jug handle, although the type of jug cannot be identified with any certainty as this sort of handle was used on a variety of forms. The fragment from F1087 is from a prismatic, probably square, bottle of the later 1st to mid 3rd century (Price and Cottam 1998, 194-200).

The jug type of the handle fragment from the Phase 2 aisled building Pit F1095 cannot be identified with certainty as this sort of handle was used on a variety of forms. Based on the colour, it may date to the 1st to 3rd century. The fragment from Phase 3 Pit F1087 is from a prismatic, probably square, bottle of the later 1st to mid 3rd century (Price and Cottam 1998, 194-200).

3.9 Industrial residues

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See Section 5.9

3.9.1 Introduction

Industrial residues were recovered from 44 excavated features at the site, the total weight of the assemblage being 62,222g. None of the material was associated with any identified metalworking or other industrial features. The contexts of the residues were varied and included pits, ditches, wells, kilns and postholes.

3.9.2 Methodology and examination

All the material was examined visually, and some pieces were also examined under x16 magnification. The aim of the examination was to characterise the residues and identify the industrial processes from which they originated. Classification was primarily based on morphology, density, colour and vesicularity. The weight and identifications were recorded (Table 19). Category criteria were based on the English Heritage Centre for Archaeology Guidelines on Archaeometallurgy (Bayley *et al*. 2001). A few pieces were X-radiographed to confirm their identification. In addition, EDXRF (energy dispersive X-ray fluorescence) analysis was undertaken on selected samples.

3.9.3 Results

All identifiable residues were found to relate to ironworking, with the bulk of the material (76.5%) being tap slag derived from the primary ironworking process of smelting. Other types of residues identified were non-tap smelting slag, undiagnostic ironworking slag, furnace lining, cinder, iron ore, and fragments of other, possibly iron-rich, geology. From these results, it is clear that the smelting of ore was the dominant ironworking activity taking place at the site.

Residue type	**Weight all phases (g)**	**% of total**
Tap slag	47575	76.5
Geology	4967	8
Non-tap smelting slag and furnace lining	6879	11.1
Undiagnostic ironworking slag	932	1.5
Cinder	3	0.005

Table 19: Residue types by weight and % of total

3.9.4 Industrial processes

Primary ironworking or smelting

Smelting is the first stage of the ironworking process, involving extraction of the metal from the ore in a small, clay-built furnace, usually fired by charcoal. The ore is heated to separate the iron silicate slag from the iron bloom, the temperature being maintained by a continuous air stream produced by bellows. Smelting slag is mainly an iron silicate, incorporating impurities from the iron ore, the furnace lining and also the fuel used. A high temperature and a reducing atmosphere inside the furnace are required for the successful separation of slag and metal. Regulation of temperature is critical, as some of the iron must remain in the slag for it to be sufficiently viscous to separate properly from the metal (Tylecote 1976). If the temperature inside the furnace is too high and the slag becomes too runny, separation of slag and metal will not be successful.

In the Roman period, smelting slag was periodically tapped, or allowed to flow out of the furnace, through a hole or tuyere in the furnace wall, probably running into a pre-prepared hollow in the ground. Tapping meant that the smelt could continue for a longer period without a build-up of slag hindering the process. The resulting tap slag has a characteristic appearance, with a flowed and 'ropey' top surface, evidence of its semi-liquid origins. Its underside is usually rougher and more irregular and may reflect the contours of the ground surface onto which it flowed (e.g. F1272, F2054). Smelting slags which have formed in slightly cooler parts of the furnace may not show a flowed appearance, however, and this may also be true of slags found adhering to the remains of the clay furnace lining (e.g. F2031, F2150). Over 86% of the residues recovered from the site can be identified as related to primary ironworking.

Secondary ironworking or smithing and forging

Smelting of the iron ore results in an iron bloom - a spongy mass of metallic iron, still containing a high percentage of trapped slag. This slag must be worked (hammered) out of the bloom by smithing, during which the bloom is kept at a high temperature to facilitate slag expulsion. The expelled slag forms drips and small pools around the smithing hearth, which may consolidate into irregularly shaped lumps or form into the characteristic plano-convex shapes of smithing hearth bottoms. Accumulations of smithing slag would be periodically cleared out of the smithing hearth. No smithing slags were identified from the site.

Metallic bar iron with an acceptably low level of impurities is the product of the primary smithing process, which consolidates and removes excess slag from the bloom. The cleaned iron was used in the manufacture and repair of iron objects, the final part of the ironworking process. Smithing or forging of iron objects again produces some iron silicate slag, but quantities of hammerscale can predominate. Hammerscale comprises tiny flakes or spheroids of the iron oxide skin which forms on a heated iron bar, and which are forcibly removed from the surface by forging. The highly magnetic flakes or spheroids accumulate on the ground around the smithing hearth. Detection of these – usually by the application of a magnet to soil samples – can suggest the location of smithing activities when no other features have survived. No evidence for smithing slags or hammerscale was found in the material examined.

Iron ore

Ore for use in iron smelting needs to contain in excess of 80% iron oxide to be worth exploiting for iron production (McDonnell and Swiss, 2004). In his research into Roman shaft furnaces in Norfolk, Tylecote associated residues from iron smelting at the nearby site of Ashwicken with ores from the Lower Greensand Carstone (Tylecote 1962). Later researchers have arrived at the same origins for slags found at nearby Snettisham (Chirikure and Paynter 2002).

The total weight of possibly iron-rich geology recovered from the site was 4967g, and samples from three contexts were analysed by EDXRF. None of these proved to contain the necessary levels of iron oxide for a definite identification as iron ore.

3.9.5 Dating the industrial activity

Table 20 shows the different types of residue arranged by phase and by percentages of the total amount recovered. It is clear from this that the greatest quantity of most residues comes from Phase 4 and the Unphased Roman period.

Phase	**u/s (%)**	**2 (%)**	**3 (%)**	**4 (%)**	**Unph Rom (%)**	**5 (%)**
Geology	3.95	20	2.56	23.9	49.6	0
Tap slag	6.73	4.67	3.97	77.23	3.92	7.4
Non-tap smelting and furnace lining	0	0	0	64.1	35.9	0
Undiagnostic	0	42	0.75	54.8	3.1	0.2

Cinder	0	100	0	0	0	0

Table 20: Residue types by phase and %

Quantities of tap slag in particular, the most abundant class of residue recovered from the site, peak in Phase 4, with only small quantities found in other phases. It seems likely, therefore, that the most intense period of dateable iron smelting took place during Phase 4, between the late 3rd and the 4th centuries AD, a phase otherwise associated with abandonment and demolition of standing buildings at the site.

3.9.6 EDXRF analysis

Samples were taken from a range of residues for EDXRF (energy dispersive X-ray fluorescence) analysis. The samples were principally tap slags, but included possible iron ores and also a non-tap smelting slag.

The aim of the analysis was to look at the range of elements, both major and minor, present in the residues and also variability between samples. Comparisons were also made with analyses of similar material carried out by researchers elsewhere.

Methodology

Sub-samples of 5-10g were taken from the selected residues. The material was ground to a powder using an agate pestle and mortar in order to achieve greater analysis accuracy by homogenising the sample. The powder was then pelletised for analysis. No binders were used. An EDXRF method designed to detect a range of elements as oxides was used for the analysis. Results were normalised to 100%, and can be seen in Table 21.

The analyses of the eight samples of tap slag show some variability in the detected levels of their major and minor constituents, but also broad similarities. Iron ore is a natural material and will show some variability even when mined from the same source. Over time, it is likely that ironworkers would make use of ore from several different sources or different outcrops of the same source, either through choice or from necessity. Additionally, even under very controlled conditions, each smelt will produce slightly different results, with conditions inside the furnace and even the species of charcoal fuel used contributing to the composition of the resulting slag (Paynter 2006).

Tap slag

Table 21 shows the range and the average percentage for a selection of major and minor elements detected in the eight tap slag samples analysed.

Element	**Average detected level %**	**Min detected level %**	**Max detected level %**

SiO3	22.45	18.4	29.8
Fe2O3	67.34	57.54	74.15
P2O5	1.97	1.38	3.26
CaO	1.15	0.71	1.48
S	0.069	0.0439	0.1246
K2O	0.49	0.1	0.84
MgO	0.33	0.00	0.74

Table 21: Range of detected major and minor tap slag constituents

Several researchers have analysed Romano-British tap slags excavated in Norfolk (Tylecote 1962 and 1990, Chirikure and Paynter 2002, Paynter 2006), and their results show some concordance with the samples under consideration here. One piece of recent research found that '*Norfolk Lower Greensand Tap slags of Romano-British date from Ashwicken, and from Snettisham 15km further north, contain low levels of lime, magnesia and potash and 1–2 wt% phosphorus'* (Paynter 2006). These assertions are mainly borne out by the results presented here, supporting the view that the same ore source was probably exploited at the Fosters End Drove site.

Tylecote's research (Tylecote 1962) led him to conclude that the phosphorus content of Romano-British tap slags should be within the range of 0.1-0.9%. It can be seen that this limit is exceeded in the Fosters End Drove results. However, Tylecote goes on to specify that an exception to this rule was found in the results he obtained from Ashwicken, Norfolk, where levels of detected phosphorus were closer to those found in the Fosters End Drove samples. The elevated levels of phosphorus found in the Ashwicken tap slags were attributed by Tylecote to the use of local nodular iron ores, which had a relatively high phosphorus content compared to the low phosphorus ores which were the preferred type in use in Roman Britain. We may perhaps conclude that this was also the case for the ores used at Fosters End Drove, as the site is located less than two miles from Ashwicken.

Phosphorus levels have a bearing on the hardness of the iron, and also its suitability for subsequent carburisation (the addition of carbon to the wrought iron to create steel). Although the presence of phosphorus in iron ores was appreciated and sought by early ironworkers as it lent a natural hardness to the wrought iron, as more sophisticated ironworking techniques and requirements led to the creation of a greater quantity of carburised iron, sources of ore with a lower phosphorus level were preferred. Phosphorus restricts the diffusion of carbon through the iron structure, and makes it more difficult to produce an even carbon distribution in the metal (Ehrenreich, Hamilton and Nash 2005).

Apart from higher levels of phosphorus in the Fosters End Drove material, analysis results show it to be typical of well-produced tap slags of Romano-British date, and the analyses fit well into patterns of results obtained by other researchers. It was not possible from the number and range of samples analysed to show any evidence for changes in smelting practice during the period of iron production at the site.

Iron ores

Three samples of possible iron ore were analysed, from Features F1208, F1242 and F2015. Two of the samples did not contain the necessary level of iron oxides (80% +) to be considered worthy of exploitation. The third piece, from F1242, contained 70%

iron oxides. This level is still low, but it is possible that it is a piece of low-grade iron ore, which was intended for smelting.

It may be that the three pieces were all rejects from the iron smelters' ore stock, or they could simply be fragments of relatively iron-rich geology which have been burnt in circumstances possibly unrelated to ironworking.

3.9.7 Discussion

Distribution and disposal of the industrial residues

No structures associated with ironworking were excavated at the site and all industrial residues were recovered from features which could be interpreted as disposal contexts. Table 22 shows the range of residue-producing contexts and the weight and the percentage of the total stratified material recovered from them.

Context type	Total weight recovered (g)	%
Pit	34305	55
Ditch	12583	20
Pit/gully	10002	16
Topsoil	3201	5
Kiln	889	1.4
Well/pit	592	0.95
Posthole	502	0.8

Table 22: Types of context producing industrial residues

If the same information is looked at by phase, we see an increased tendency for residues to be recovered from pits rather than other types of context during Phase 4, the period of most intense iron smelting activity at the site (Table 23).

Context type	Phase 2	Phase 3	Phase 4	Unph Roman	Phase 5
Pit	2		11	2	
Ditch	7	2	2	3	1
Well/pit	1				
Pit/gully			2		
Kiln	0	3			
Posthole	1	4	3		
Total	*12*	*8*	*18*		*1*

Table 23: Number of contexts with residues, by phase

This could be interpreted as evidence of better-organised industrial activity during Phase 4, with the slag from iron smelting being systematically disposed of, perhaps alongside other waste, in pits dug for the purpose, rather than the more casual disposal suggested in earlier phases.

Most of the tap slag from the site appears to have been broken into small pieces in antiquity, before deposition - slag from primary ironworking (iron silicates) is stable and not usually prone to disintegration through corrosion following burial. When the slag is tapped from the furnace, it is likely to flow and set in a single solid lump.

Removal of the slag taps from the ground surface would be facilitated by first breaking them up *in situ*. It is also possible that the waste material was destined for other uses, such as road building, which would require it to be broken into more easily handled pieces.

Location and scale of the iron smelting

As no features associated with metalworking were found on site, the exact location for the industrial activity which produced more than 53kg of smelting slag remains unclear, and it seems likely that it lies beyond the limits of the excavated area.

The contexts producing smelting slags are somewhat dispersed, but tend towards the eastern/south-eastern part of the site. Perhaps the large Phase 4 pit (F2054), located on the extreme eastern edge of the excavated area, which produced the single largest deposit of tap slag, and whose base was described as appearing to be scorched, points towards the direction where smelting activity was probably concentrated. Scorching of the pit base, in conjunction with its fill of tap slag, suggests that the slag and associated material were deposited whilst still hot, and the manufacturing location was therefore probably somewhere fairly close to this pit.

With the exact location for the ironworking unknown, the scale of production at the site cannot be estimated. The total weight of tap slag recovered does not in itself point to a large-scale operation, but the excavated material may of course form only a small part of the total waste produced by smelting at the site.

Production output

Although the location and the scale of iron smelting at Fosters End Drove cannot be identified, there are some indications of the type of material produced by the smelting process. Low levels of sulphur were detected in the tap slags, suggesting that the fuel used was charcoal. Higher levels of sulphur are detected in slags which have been produced using coal. As suggested above, iron blooms produced at Fosters End Drove are likely to have had higher than usual levels of phosphorus because of the type of ore exploited in the area. This was not the most suitable iron for subsequent carburisation and production of high-quality edged tools and weapons. It is therefore likely that iron produced at the site was destined to be forged into a range of more everyday items which did not require the hardness of weaponry.

3.9.8 Comparative material

Fosters End Drove is located in an area in which ironworking residues have been recovered and analysed from several sites of a similar period, principally at Snettisham and Ashwicken. As noted above, results from analyses of smelting slags from these sites are comparable with the Fosters End Drove material, and detected phosphorus levels, in particular, strongly suggest exploitation of a similar source for the iron ores used at Fosters End Drove and Ashwicken.

The Fenland Project survey noted that insubstantial, but extensive, evidence of Iron Age/Romano-British ground disturbance and possible industrial activity has been revealed in advance of quarrying to the east of Blackborough End (Silvester 1988).

The area has produced evidence for several other pottery production sites, some situated very close to Fosters End Drove (Gurney 1990). The pottery kiln site excavated by David Gurney is of particular note, as it is situated on land which also regularly produces ironworking residues. Sites of the Romano-British period with evidence for both pottery and iron production have been found in several areas. Both industries share a need for a reliable and steady supply of good quality timber. Pottery production also requires a water supply, and there is some indication that iron production sites were also located close to waterways to facilitate the transport of their output (Halkon and Millett 1999).

3.10 Animal bone

Carina Phillips
See Section 5.10

3.10.1 Introduction

The excavations produced a total of 596 fragments of animal bone. The condition of the bone is poor. Brittleness has resulted in much modern fragmentation. Surface erosion is also common. This poor preservation is likely to have contributed to the amount of unidentifiable bone and may have obliterated evidence of butchery marks. The hand recovery technique used in excavation may also have been biased in favour of larger bones.

Bone was recovered from features dating to Phase 1 (middle Iron Age), Phases 2 to 3 (late 2nd to mid 3rd century AD) and Phase 4 (late 3rd to 4th century AD). Phase 1 included only one bone, a cattle molar; 12 fragments were recovered from post-medieval contexts and four were from undated features, these have been excluded from the following analysis.

3.10.2 Method

Bones were identified and recorded to species and element when possible. Unless it was possible to clearly identify the species sheep (*Ovis sp.)* or goat (C*apra sp.*), the category sheep/goat has been used. The category cattle *(Bos sp.)* has been used when it was not possible to differentiate between cows and bulls. Tooth wear for cattle, sheep and pig was recorded using the method of Grant (1982) and ages assigned following the method of Bourdillion and Coy (1980; Crabtree 1989). Measurements were taken when viable following the methods of Jones *et al.* (1976) and von den Driesch (1976), and are contained in the site archive. Height estimates were not possible for any species due to fragmentation of the bone. Fragments unidentifiable to a particular species were recorded under the categories of 'large-sized', consisting of cattle, large deer and horse *(Equus sp.*) sized fragments, and 'small-sized', consisting of sheep/goat, small deer, pig *(Sus sp.)* and dog *(Canis familiaris)* sized bone fragments. All other unidentifiable bone fragments were recorded as such. Evidence of burning, sawing, chopping, knife-cutting and gnawing was also recorded, as was smashed bone. The minimum number of individuals (MNI) of a species was

calculated from most frequent left or right skeletal element (minimum number of elements).

3.10.3 Results

Fifty percent of the entire animal bone assemblage came from features dating to Phases 2 to 3. Only 17% of the bone was identifiable to species; all but one identifiable bone came from domestic species. Cattle bones are most frequent in NISP counts, but sheep/goat have a higher MNI count; this may be a result of the small size of the assemblage. Four of the sheep/goat bones consist of the front leg bones (scapula, humerus, radius, and ulna) from an animal aged less than 6-8 months (based on bone fusion); these were recovered from F1058 (L1059). Two cattle mandibles provided tooth wear age estimates of 6-18 months and >4 years. Three sheep/goat mandibles date to Phases 2 to 3. They also indicate the presence of both immature and mature animals in the assemblage: coming from an individual aged less than 6 months, one aged 2-4 yrs and one aged 4-6 years at death. One pig mandible came from an individual aged 21-27 months at death. A hare scapula represents the only wild species in this chronological group.

Forty percent (120 fragments) of the Phase 2 to 3 animal bone assemblage came from features associated with the aisled building. This includes all species represented in the entire assemblage, including the only occurrence of hare (from Phase 2 Posthole F1060 L1061).

Species	**NISP**	**MNI**	**Chopped**	**Cut**	**Smashed**	**Gnawed**	**Burnt**
Cattle	31	1	1	1	0	1	1
Sheep/goat	15	2	0	0	0	0	0
Pig	4	1	0	0	0	0	0
Hare	1	1	0	0	0	0	0
Large sized	54	-	3	1	1	0	1
Small sized	40	-	0	0	0	0	1
Unidentifiable	155	-	2	1	0	0	2
Total	*300*	-	*6*	*3*	*1*	*1*	*5*

NISP-number of identified specimens/fragments, MNI-minimum number of individuals
Table 24: Late 2nd-mid 3rd century AD (Phases 2-3) animal bone

Phase 4 features contained 48% of the entire animal bone assemblage. Only 16% of the 280 fragments from this phase were identifiable to species. Cattle bones dominated the identifiable assemblage in both NISP and MNI counts. Domestic species sheep/goat, horse, pig and dog were present in small numbers. Red deer was the only wild species to be represented in this phase. Three cattle mandibles provided tooth wear age estimates. These came from both immature (6-18 months, 2½- 4 years old) and mature animals (> 4 years). This range of ages would imply a variety of uses, but the small number of aged elements and the broad date range of the assemblage inhibit any interpretation of the use and the kill-off pattern employed.

A horse maxilla was also recovered from this phase; it is from a *c*. 6 year old. The presence of a canine suggests that the horse was probably male; canines are usually absent or rudimentary in females, but very occasionally are present in mares (Sisson and Grossman 1953).

Species	NISP	MNI	Chopped	Cut	Smashed	Gnawed	Burnt
Cattle	36	3	1	0	0	1	3
Sheep/goat	2	1	0	1	0	0	0
Horse	2	1	0	0	0	0	0
Pig	1	1	0	0	0	0	0
Dog	1	1	0	0	0	0	0
Cat	1	1	0	0	0	0	0
Red deer	1	1	0	0	0	0	0
Large sized	100	-	5	0	5	0	0
Small sized	17	-	1	0	1	0	0
Unidentifiable	119	-	0	0	0	0	1
Total	*280*	-	*7*	*1*	*6*	*1*	*4*

NISP-number of identified specimens/fragments, MNI-minimum number of individuals

Table 25: Mid-late 3rd -4th century AD (Phase 4) animal bone

Both the Phase 2-3 assemblage and the Phase 4 assemblage contain small amounts of butchered, burnt and gnawed bone. Two of the three burnt cattle bones in Phase 4 are humeri; a similar burnt cattle humerus was also recovered from a Phase 2-3 context. Only a small number of other burnt bones were recovered from both phase groups. The evidence of burning on these particular skeletal elements could relate to some method of processing, perhaps the heating of this bones to liquidise bone marrow. A very small number of smashed bone fragments are also present, suggestive of bone marrow utilisation.

Sixteen of 30 cattle bones and six of the 15 sheep/goat bones in the Phase 2-3 assemblage consist of teeth; this is likely to be related to the poor preservation of a lot of the assemblage, as teeth have a higher survival rate than bone. Only six of the 37 cattle bones in Phase 4 are teeth, suggesting that differential survival rates may have affected the assemblages from each phase.

3.10.4 Discussion

Only tentative suggestions can be made concerning the animal bone assemblage due to its small size and poor condition. The identified bones suggest that cattle were more common in both Phases 2-3 and Phase 4; this is supported by the proportions of large and small-sized bone fragments. It is possible that this is a result of preservation biases, which result in a bias towards larger bones. However, it is noted that at other Roman sites in Norfolk it is common to find cattle in larger numbers than other domestic species (e.g. Caister-on-sea, Harman 1993; Burgh Castle, Grant 1983; Brancaster, Jones 1974; Scole, Jones 1977 and Brampton, Jones 1977). This may be because of the versatility of this species, which can provide milk, meat, traction and skins. Sheep/goat and pig were also present in Phases 2-3 and sheep/goat, pig, horse, dog and cat were present in Phase 4. Like cattle, sheep/goat can be exploited in a variety of ways. Horses are likely to have been primarily utilised for their speed and strength. It is usual to find horses in small numbers in comparison to the main domestic species: cattle, sheep/goats and pigs.

The identification of hare at East Winch is not unusual; specimens have been found at all the comparative Roman sites in Norfolk mentioned above. Two hare species are

present in the Britain, the mountain hare *(Lepus timidus),* which is found above 1200 feet, and the brown hare *(Lepus europaeus);* debate continues over whether brown hare is a native or introduced species (Yalden 1999). Identification of these hare species is impossible with most of the skeleton; however, the geography of East Winch suggests that brown hare was present. The brown hare was originally an inhabitant of plains and open woodland, but has since adapted to various environments (Dobroruka 1988, 142).

Red deer in Britain are historically associated with forests (Corbet 1991). However, their adaptable nature has allowed them to survive in the diverse habitat that we now associate with them, of open moorland, open parkland and arable land with small copses. It was not possible to tell if the antler fragment recovered from East Winch was cast or not. The presence of red deer antler could infer a wooded environment nearby.

Although problems with the assemblage preservation have limited analysis, it can be suggested that the animal bones from Fosters End, East Winch are typical of a Roman site in Norfolk.

3.11 Charred plant macrofossils and other remains

Val Fryer
See Section 5.11

3.11.1 Introduction and method statement

Samples for the retrieval of the plant macrofossil assemblages were taken from across the excavated area, and 68 were submitted for assessment. The samples were bulk floated and the flots were collected in a 500 micron mesh sieve. The dried flots were scanned under a binocular microscope at magnifications up to x16 and the plant macrofossils and other remains noted are listed in Section 5.10. Nomenclature within the tables follows Stace (1997). Identifications were made by comparison with modern reference specimens. All plant remains are charred. As none of the assemblages contain sufficient material for quantification, the approximate density of macrofossils within each assemblage is expressed in the tables (see 5.10) as follows: x = 1 – 10 specimens, xx = 10 – 50 specimens, xxx = 50 – 100 specimens and xxxx = 100+ specimens. Other abbreviations used in the tables are explained in Section 5.10.

Modern contaminants including fibrous roots, seeds and arthropod remains are present throughout and form a major component of a small number of assemblages.

3.11.2 Results: the middle Iron Age sample

The assemblage is largely composed of charcoal fragments, some of which are of a quite large size (>5mm). Oat (*Avena* sp.), barley (*Hordeum* sp.) and wheat (*Triticum* sp.) grains are also present, along with seeds of flax (*Linum usitatissimum*) and black bindweed (*Fallopia convolvulus*). Other remains are scarce, although a number of black porous fragments and globules of vitrified material (both probable residues of the combustion of organic remains at very high temperatures) are present. The origin

of the material within this assemblage is unclear, although the occurrence of cereal grains is possibly indicative of the presence of domestic hearth waste.

3.11.3 Results: the Roman samples

Cereal grains, chaff and seeds of common weeds and wetland plants are present at a low to moderate density in a number of the samples studied. Preservation is poor to moderate, with a significant proportion of the grains and seeds being puffed and distorted, probably as a result of combustion at very high temperatures.

Oat, barley and wheat grains are also present, with wheat occurring most frequently. Cereal chaff is very scarce, but double-keeled spelt wheat (*T. spelta*) type glume bases were recorded from thirteen assemblages. A single detached cereal sprout was noted within Sample 3.164 from Drying Oven S2105.

Weed seeds are exceedingly rare, with the majority of those recorded occurring as single specimens within an assemblage. Most are of common segetal species including brome (*Bromus* sp.), small legumes (Fabaceae), grasses (Poaceae), wild radish (*Raphanus raphanistrum*) and dock (*Rumex* sp.). Wetland plant macrofossils including seeds/fruits of sedge (*Carex* sp.), rush (*Juncus* sp.) and lesser spearwort (*Ranunculus flammula*) are present at a low density in a number of the assemblages studied, most particularly those from Kiln S1170.

Charcoal fragments, including rare pieces in excess of 5mm, were recorded at varying densities throughout. Although other plant macrofossils are rare, indeterminate heather (*Ericaceae*) florets are present in six of the eight assemblages from Kiln S1170 and from Posthole F1113 of the aisled building.

Other material types occur very infrequently. The fragments of black porous and tarry material are probable residues of the combustion of organic remains at very high temperatures. Small pellets of burnt or fired clay were noted within the kiln assemblages and fragments of bone were also recorded from a small number samples.

Phase 2 droveway and enclosure samples

Five samples were recovered from ditches of the Phase 2 droveway (F2003) and enclosure (F2267). With the exception of charcoal, plant macrofossils are very scarce, comprising individual grains, chaff fragments and weed seeds. The assemblages were almost certainly derived from material which was accidentally incorporated within the fills, probably in the form of scattered or wind-blown refuse.

Phase 2 well samples

Eight samples were taken from the fills of Well F1137. With the exception of L1142, which contains a low density of charred material of unknown origin, plant macrofossils are rare, with most probably being accidentally incorporated within the fills. Waterlogged/de-watered seeds are not present within any of the assemblages studied.

Phase 2 aisled building samples

The samples from the postholes of the aisled building generally contain low densities of material, although small charcoal fragments are present throughout. Exceptions to this are the samples from Postholes F1089 and F1113, which contain cereal grains and seeds of grasses and grassland herbs in concentrations high enough to suggest the deposition of small quantities of hearth waste. Wetland plant macrofossils, including sedge nutlets and seeds of lesser spearwort, are present in samples from Postholes F1089 and F1070, and tree/shrub macrofossils, including an elderberry (*Sambucus nigra)* seed and a hazel (*Corylus avellana*) nutshell fragment, were recorded from Postholes F1047 and F1113.

The assemblages from the postholes of the Phase 2 right-angled post alignment and pits associated with the aisled building are similar in composition to those from the building's postholes.

Samples from features associated with the Phase 3 modification of the droveway

Samples from a gully and four postholes associated with the modification of the droveway during Phase 3 contain very low densities of charcoal and weed seeds, suggesting accidental incorporation of wind-scattered debris.

Kiln and drying oven samples

A total of thirteen samples were taken: eight from Kiln S1170, two from Kiln S2133, two from Kiln S2118, and one from Kiln S2119. Cereal grains, chaff and weed seeds occur within all assemblages, but never at a high density, possibly indicating that the kilns were generally kept clean and clear to avoid the risk of accidental fire. The samples from Kiln S2118 were taken from deposits related to the post-use phase of the structure (L2111 and L2558), and it is perhaps not surprising that fewer macrofossils were recorded within these assemblages.

The composition of the assemblages from the kilns may indicate that cereal processing waste was being utilised as kindling or fuel within the structures, a practice which has a number of contemporary parallels, for example at Postwick near Norwich (Fryer 1997a) and Two Mile Bottom, Thetford (Fryer 1997b). It is further suggested that dried grasses/grassland herbs and wetland plants (the latter well represented in the material from Kiln S1170) were also used as kiln fuel at this site, although to a lesser extent.

A single sample was taken from the drying oven. The composition of the recovered assemblage is closely-paralleled by material from the kilns, probably indicating similar use of cereal processing waste as fuel.

Samples from postholes of the timber building and Pit F2382

Cereal grains, seeds of corn spurrey (*Spergula arvensis*) and sedge fruits are present in these samples, although their inclusion within the contexts may have been accidental. However, a number of very large fragments of charcoal/ charred wood noted within the sample from Posthole F2375 L2407 are thought to represent a post

burnt *in situ*; the configuration of this feature's fills appeared to support this interpretation.

Samples from the Phase 4 pits

Although cereal grains and other seeds are scarce in the samples taken from the Phase 4 pits in the south-western area of the site, charcoal and pieces of charred root/stem are abundant. As iron smelting debris was also recovered (F1235, F1227, F1246), it is suggested that the plant remains may be derived from the fuels utilised during this processes.

The assemblages from Pits F1208 and F2150 resemble those from the earlier kilns and the drying oven (see above), incorporating cereal grains, chaff and weed seeds. As these pits appear to have been used for the deposition of refuse during the later levelling of the site, it is unclear whether residual material from disturbed/ demolished features is present or whether the remains are contemporary and derived from fuels used in features outside of the excavated area.

Unphased contexts

A total of three samples were from unphased contexts. All the assemblages are small and paralleled by material within the Roman features.

3.11.4 Conclusions

In summary, the composition of the kiln assemblages may indicate that cereal processing waste was being used as kindling or fuel, a practise paralleled at other Roman sites where small-scale industrial activities were undertaken. It would appear that some or all of this chaff may have been imported onto the site specifically for use as fuel (after Van der Veen 1999), as the processing and/or consumption of grain appears to have been of little immediate local significance. Wood/ charcoal, which burn at a higher temperature than chaff, appear to have been the favoured fuels for iron smelting, though no *in situ* smelting features were found within the excavated area. Accurate interpretation of the later features is difficult as a result of the subsequent levelling of the site, which may have resulted in an unknown degree of context contamination.

II CATALOGUES AND OTHER RECORDS

4 FEATURE AND CONTEXT DESCRIPTIONS

4.1 Site deposit model

Deposit	

	Excavation Phase			
	1	2	3	4
Topsoil: Mid grey brown/ grey black silty sand/ loam; occasional flint nodules and carstone blocks.	L1001*	L1000	L2000	L1000
Subsoil: Mid orange brown loose silty sand; occasional flint nodules and carstone blocks.	L1002*	-	L2001	-
Natural sands: Yellow brown to orange yellow sand with patches of flint and gravel and frequent carstone, forming bands in Exc. Phase 1.	L1000	L1001	L2002	L1002

*mixed

4.2 Middle Iron Age pits and ditch (Phase 1)

EP	Feature	Context*	Type	Dimensions (m)**	Plan/ profile	Fill	Finds date***
4	F1010	L1015	Pit	2.84 x 2.24 x 0.50m	Oval/ near vertical sides, flat base	Dark, blackish brown silty sand	-
		L1014				Dark blackish brown sandy silt	MIA
		L1011				Mid orange brown sandy silt	MIA
3	F2436	L2437	Pit	1.10 x 1.20 x 0.45	Circular, steep sides, concave base	Mid brown yellow silty sand	-
		L2438				Mid brown grey yellow silty sand	-
		L2439				Mid yellow brown silty sand	MIA
3	F2219	L2220=L2222	Ditch	6+ x 1.17 x 1.05		Dark brown grey sandy silt	MIA
		L2221=L2223				Mid yellow brown silty sand	-

*In all feature description tables, multiple fills within a feature or excavated segment are described from the basal to the uppermost.
**In all feature description tables, dimensions are given as length x width x depth.
***In all feature description tables, finds dates are from pottery unless otherwise indicated.

4.3 Late 2nd to 3rd century droveway, enclosure and aisled building (Phase 2)

4.3.1 The droveway

EP	Feature	Context	Type	Dimensions (m)	Plan/ profile	Fill	Finds date
1	F1238	L1239	Ditch	60+ x 1.6 x 0.4	Linear/ gentle to moderate sides, concave to flat base	Mid grey brown silty sand.	LC2-MC4

3	F2003	L2004=L2006= L2033=L2062= L2064	Ditch	30+ x 1.09 x 0.39	Linear/ gentle to moderate sides, concave to flat base	Light yellow brown silty sand	LC2-MC4
		L2005=L2052= L2053=L2063= L2065=L2072= L2060				Mid yellow brown silty sand	LC2-MC4
3	F2035	L2045 (Seg. A)	Ditch	20.10+ x 1.62 x 0.53	Linear with right-angled bend/ moderate sides, flat to concave base	Mid grey brown silty sand	LC2-MC3+ and C3
		L2103 (Seg. B)				Light yellow brown sand	-
		L2046 (Seg. C)				Dark yellow brown silty sand	LC2-MC4
		L2036 (Seg. D)				Mid brown yellow silty sand	LC2-MC4
		L2088 (Seg. E)				Mid grey brown silty sand	-
3	F2043	L2044 (Seg. A)	Ditch	16.50 x 0.99 x 0.37	Linear with right-angled bend/ moderate sides, concave base	Dark grey brown sandy silt	-
		L2080 (Seg. B)				Dark red brown silty sand	-
		L2081 (Seg. B)					LC2-MC4
		L2047 (Seg. C)				Dark grey brown silty sand	LC2-MC4

		L2087 (Seg. D)				Dark brown black grey silty sand	-
3	F2068	L2069=L2073= L2083	Ditch	12.52 x 1.15 x 0.36	Linear/ moderate sides, concave base; square sectioned channel in base at some points.	Mid grey brown silty sand	M/LC2-E/MC3
		L2074=L2076= L2082				Dark grey brown silty sand	LC2-EC3 and LC2-M/LC3
3	F2323	L2324 (Seg. A)	Ditch	16+ x 1.46 x 0.39	Linear/ irregular moderate sides, irregular concave base	Light brown red silty sand	-
		L2336 (Seg. B)				Reddish brown silty sand	-
		L2348 (Seg. C)				Reddish brown silty sand	-
3	F2170	L2171 (Seg. A)	Ditch	14.43 x 85 x 0.24	Linear/ gentle to moderate sides, concave to flat sloping base	Dark brown black sandy silt	LC2-MC4
		L2172 (Seg. B)				Mid brown sandy silt; orange sand lenses	
		L2187 (Seg. C)				Mid brown silty sand; orange sand lenses	
		L2239 (Seg. D)				Mid-light brown silty sand	LC2-MC4
		L2224 (Seg. E)				Light brown silty sand	

4.3.2 The enclosure

EP	Feature	Context	Type	Dimensions (m)	Plan/ profile	Fill	Finds date
The initial enclosure							
1	F1033	L1034	Ditch	80+ x 1.3 x 0.2	Linear/ moderate sides, concave base	Dark grey brown silty sand	LC2-LC3
1	F1229	L1230	Ditch	35 x 1.7 x 0.4	Linear/ moderate sides, flat to concave base	Mid grey brown silt sand	Roman, LC2 and EC4
3	F2267	L2274 (Seg. A)	Ditch	48.72 x 2.61 x 0.47	Linear/ moderate sides, concave base	Brownish mid orange silty sand	
		L2275 (Seg. A)				Orangey dark brown sandy silt	LC2-MC4
		L2276 (Seg. A)				Orangey mid brown sandy silt	(?MC2)LC2/EC3 and LC3-MC4
		L2302 (Seg. B)				Mid brown silty sand	-
		L2303 (Seg. B)				Black silty sand	(?MC2)LC2/EC3
		L2304 (Seg. B)				Dark brown silty sand	MC2-LC2/EC3 and LC2-EC3
		L2309 (Seg. C)				Brownish mid orange silty sand	-
		L2310 (Seg. C)				Blackish mid brown sandy silt	C3-LC3
		L2311 (Seg. C)				Orangey mid brown sandy silt	C3-LC3
		L2402 (Seg. D)				Brownish light orange silty sand	
		L2403 (Seg. D)				Orangey mid brown sandy silt	M/LC2-C3
		L2467 (Seg F)				Dark brown silty sand	-
		L2329 (Seg. G)				Mid brownish greyish orange silty sand	C3
		L2390 (Seg. H)				Mid to light brown sandy silt	LC2-MC4

Expansion and subdivision							
3	F2168	L2169=L2173 = L2200=L2218 = L2228 (Segs A-E)	Ditch	28.82 x 1.10 x 0.26	Linear/ moderate sides, flat base	Light brown silty sand	MC2-LC2/EC3, C3-EC4, C3
		L2229 (Seg C)				Mid blackish brow silty sand	LC2-MC3
		L2569 (Seg F)				Dark greyish brown sandy silt	M/LC2-MC3
1	F1198	L1199	Ditch	17 x 1.5 x 0.3	Linear/ moderate sides, concave base	Mid grey brown silty sand	C2-4
1-3	F1019=F2510	L1020 (F1019)	Ditch	178+ x 1.7-2.49 x 0.4-1.33	Right angled/ moderate sides, flat or concave base	Mid grey brown silty sand	EC3 (LC2-MC3), LC2-C3, LC2-EC4, MC2-MC3 and C3-C4
		L2511=L2534 = L2541 (F2510)				Light grey green brown silty sand	-
		L2512=L2535 = L2542 (F2510)				Mid brown orange silty sand	-
		L2513=L2536 = L2543 (F2510)				Mid brown yellow silty sand	-
		L2514=L2537 = L2544				Mid orange brown silty sand	C3-MC4

		(F2510)					
6	F3006	L3007	Ditch	26m+ x 1.15m x 0.32 – 0.80m	Linear/ moderate straight sides. V-shaped base.	Light greyish brown compact silty sand; frequent flint gravel.	LC2-C4,
		L3008				Mid – dark greyish brown soft sandy silt; occasional flint gravel and callstone nodules.	
6	F3017	L3018	Ditch	3.0m+ x 0.50m x 0.23m	Linear terminus/ moderate straight sides, V-shaped base	Dark greyish brown soft sandy silt	

4.3.3 The aisled building and right-angled post alignment

EP	Feature	Context	Type	Dimensions (m)	Plan/ profile	Fill	Finds date
The north-western aisle posts							
1	F1128	L1129	Posthole	1.0m x 1.40 x 0.50	Sub-circular/ steep to near vertical sides, flat base	Mid orange brown silty sand	-
		L1132				Dark brown silty sand	-
1	F1062	L1063	Posthole	0.8m x 0.83 x 0.55	Circular/ near vertical sides, flat base	Orangey grey brown	-
1	F1060	L1061	Posthole	1.0 x 1.0 x 0.45	Circular. Near vertical sides, flat base	Grey brown silty sand	180/190-MC3
1	F1047	L1048	Posthole	1.0 x 1.0 x 0.60	Circular. Near vertical sides, flat base	Grey brown silty sand	MC2-EC3
1	F1091	L1092	Posthole	1.0 x 1.0 x 0.60	Circular/ near vertical sides (disturbed where cut by F1093), flat base	Light grey brown silty sand	Early Roman (from hairpin)
1	F1093*	L1094	Posthole	1.0 x 1.0 x 0.45	Circular/ moderate to vertical sides, concave base	Mid grey brown silty sand	-
1	F1043	L1044	Posthole	1.0 x1.10 x 0.45	Sub-circular/ steep sides, flat base	Mid grey brown silty sand	
1	F1051	L1052	Posthole	0.7 x 0.7 x 0.37	Circular/ near vertical sides, flat base	Brown grey sandy silt	MC2-EC3 C1-C2 (from spoon)

The north-western arcade posts							
1	F1166	L1167	Posthole	1.0 x 0.85 x 0.60	Sub-circular/ near vertical sides, flat base	Light grey brown silty sand	-
1	F1099	L1100	Posthole	1.16 x 0.95 x 0.40	Sub-oval/ moderate to steep sides, flat base	Mid brown silty sand	-
1	F1101*	L1102	Posthole	0.35 x 0.35 x 0.40	Circular/ moderate sides, concave base. Cut into top of F1099.	Brown black silty sand	-
1	F1095*	L1096	Posthole	1.20 x 0.90 x 0.63	Sub oval/ Steep sides (moderate where cut by F1097), flat base	Dark brown sandy silt	LC2-MC4 C1-C3 (from jug handle)
		L1125				Light green grey	-
1	F1097*	L1098	Posthole	1.10 x 0.65 x 0.63	Sub-oval/ moderate to steep sides, flat base	Dark black silty sand	LC2-MC4
1	F1103*	L1104	Posthole	1.10 x 1.10 x 0.30	Circular/ steep to near vertical sides, flat base	Brown black silty sand	LC2-MC4
1	F1105*	L1106	Posthole	0.42 x 0.42 x 0.2	Sub circular/ moderate sides, flat base	Not recorded	LC2-MC4
1	F1113	L1114	Posthole	1.50 x 1.50 x 0.98	Sub circular/ near vertical sides, flat base	Mid orangey brown silty sand	MC2-MC3
1	F1280*	L1281	Posthole	1.0 x 0.9 x 0.65	Sub oval/ near vertical sides, flat base	Dark brown silty sand	Roman
1	F1115*	L1116	Posthole	0.85 x 0.60 x 0.25	Oval/ moderate sides, flat base	Dark grey brown silty sand	LC2-LC3
1	F1117*	L1118	Posthole	0.55 x 0.67 x0.20	Oval/ moderate sides, flat base	Dark brown black silty sand	-
1	F1055	L1056	Posthole	1.20 x 0.60 x 0.65	Sub-rectangular/ vertical sides, flat base. Clear postpipe	Reddish brown grey silty sand	LC2-MC4
		L1057				Black sandy silt	-
1	F1053*	L1054	Posthole	1.0 x 0.6 x 0.30	Sub-rectangular/ steep sides flat base	Mid brown grey sand	-
1	F1058*	L1059	Posthole	1.0 x 0.85 x 0.55	Oval / steep sides, concave base	Reddish brown black sandy silt	-
1	F1035*	L1036	Posthole	1.4 x 1.4 x 0.7	Circular/ near vertical sides, flat base	Dark grey brown silty sand	-
1	F1041	L1042	Posthole	1.10 x 0.9 x 0.55	Oval/ near vertical sides, flat base	Light grey brown sandy silt	LC2-MC4
The south-eastern arcade posts							
1	F1159	L1160	Posthole	1.0 x 0.7 x 0.45	Oval/ stepped, gentle then moderate sides, concave base. Gentle upper sides consistent with disturbance.	Mid grey brown silty sand	MC4+

1	F1089	L1090	Posthole	2.20 x 1.0 x 0.30	Elongated oval/ moderate to steep sides, sloping base	Light grey brown silty sand	LC2-MC4
1	F1085	L1086	Posthole	1.55 x 1.45 x 0.52	Sub oval/ moderate sides, concave base	Grey reddish brown sandy silt	-
1	F1075	L1076	Posthole	0.35 x 0.35 x 0.35	Circular/ steep to moderate sides, flat base	Brown black silty sand	LC2-LC3
1	F1070	L1071	Posthole	2.2m x 1.5 x 0.90	Oval/ moderate, near vertical at base, stepped sides, flat base. Clear postpipe	Mid brown silty sand	LC2-EC4
		L1072				Mid brown black silty sand	EC2-EC3
1	F1073*	L1074	Posthole	*c.* 0.42 x 0.42 x 0.3	Circular/ steep sides, flat base	Not recorded	-
1	F1107	L1108	Posthole	1.6 x 1.60 x 1.10	Circular/ near vertical to vertical sides, flat base	Dark grey brown silty sand	LC2-MC4
The south-eastern aisle posts							
1	F1288	L1299	Posthole	1.0 x 0.95 x 0.67	Oval/ near vertical to vertical sides, flat base	Dark brown sandy silt	MC3-C4
1	F1168	L1169	Posthole	0.65 x.65 x 1.5	Circular/ moderate sides, concave base	Orangey brown silty sand	-
1	F1064	L1065	Posthole	0.88 x 0.88 x 0.40	Oval/ steep sides, flat base	Grey brown silty sand	
1	F1109	L1110	Posthole	1.0 x 0.75 x 0.30	Oval/ ?	Dark grey brown silty sand	LC2-MC4
1	F1083*	L1084	Posthole	0.45 x 0.45 x 0.45	Circular/ vertical sides, flat base	Mid grey brown silty sand	LC2-MC4
1	F1066*	L1067	Posthole	*c.* 0.6 x 0.6 x 0.2	Circular/ moderate sides, flat base	Not recorded	160-EC3
1	F1079	L1080	Posthole	0.9 x 1.3 x 0.43	Oval/ steep to vertical sides, flat base	Mid brown grey silty sand	LC2-MC3
1	F1081*	L1082	Posthole	0. 7 x 0.7 x 0.55	Circular/ steep sides, slightly concave base	Mid grey brown sandy silt	LC2-MC4
1	F1045	L1046	Posthole	1.0 x 1.0 x 0.75	Sub circular/ verticals ides, slightly concave base	Mid grey brown silty sand	-
1	F1077	L1078	Posthole	0.9 x 0.7 x 0.3	Oval/ moderate sides, concave base	Mid brown grey silty sand	C2-C4
End storey posts and sill beam slot							
1	F1068	L1069	Posthole	1.35 x 1.25 x 0.32	Oval/ moderate sides, concave base	Mid brown grey silty sand	-
1	F1037	L1038	Posthole	0.88 x 0.88 x 0.15	Circular/ moderate ides, slightly concave base	Dark grey brown	-
1	F1157	L1158	Posthole	0.25 x 0.70 x 0.50	Sub oval/ near vertical stepped sides, flat base	Grey brown silty sand	-

1	F1155	L1156	Gully/ slot	7.0 x 1.0 x 0.15	Linear/ moderate sides, flat to concave base	Grey brown silty sand	LC2-C3
Out-building							
1	F1049	L1050	Posthole	0.95 x 0.95 x 0.60	Oval/ near vertical sides, concave base	Brown grey sandy gravel	M/LC3-C4
1	F1039	L1040	Posthole	1.0 x 1.0 x 0.65	Circular/ steep to near vertical sides, flat base	Mid grey brown silty sand	MC2-MC3
Internal features							
1	F1111	L1112	Stakehole	0.20 x 0.30 x 0.14	Circular/ steep sides, V-shaped base	Dark grey brown silty sand	-
1	F1119	L1120	Stakehole	0.25 x 0.20 x 0.12	Circular/ near vertical sides, narrow concave base	Mid red brown silty sand	-
1	F1121	L1122	Stakehole	0.25 x 0.20 x 0.20	Circular/ near vertical sides, slightly concave base	Reddish pink brown silty sand	C3-C4
1	F1123	L1124	Stakehole	0. 20 x 0.40 x 0.13	Circular/ moderate to steep sides, concave base	Reddish pink brown silty sand	-

*Props, repairs and replacements.

4.3.4 Rubbish pits behind the south-west end of (and inside) the aisled building

EP	Feature	Context	Type	Dimensions (m)	Plan/ profile	Fill	Finds date
1	F1161	L1162	Pit	2 x 1 x 0.4	Elongated/ moderate sides, flat base	Light grey brown silty sand	C3-C4
1	F1133	L1134	Pit	2.85 x 2.85 x 0.62	Oval/ steep sides, flat base	Mid brown black sandy silt	C3-C4, MC2-MC3, LC2-C3
1	F1135	L1136	Pit	2.0 x 2.5 x 0.3	Oval/ moderate sides, flat base	Dark brown silty sand	LC2-MC3
1	F1152	L1153	Pit	4 x 3.75 x 0.86	Oval/ moderate sides, flat base	Mid orange brown silty sand	-
		L1154				Dark orange brown silty sand	LC2-C3
1	F1150	L1151	Pit	2.3 x 1.25 x 0.8	Oval/ moderate sides, flat base	Orange pink brown silty	LC2-MC4

						sand	
1	F1148	L1149	Pit	1.3 x 0.95 x 0.15	Oval/ gentle to moderate sides, flat base	Dark grey brown silty sand	C3
1	F1146	L1147	Pit	1 x 0.85 x 0.3	Oval/ moderate sides, flat base	Grey brown silty sand	-
1	F1144	L1145	Pit	1 x 1.1 x 0.37	Oval/ moderate sides, concave base	Pink grey silty sand	-
1	F1126	L1127	Pit	1.2 x 1 x 0.65	Oval/ moderate sides, flat base	Mid brown grey silty sand	LC3-C4
1	F1087	L1088	Pit	2.6 x 2.6 x 0.42	Circular/ gentle to moderate sides, flat base	Mid grey brown sandy silt	C3-LC3

4.3.5 The right-angled post alignment beyond the end of the aisled building

EP	Feature	Context	Type	Dimensions (m)	Plan/ profile	Fill	Finds date
1	F1130	L1131	Posthole	1.0 x 0.7 x0.45	Oval/ near vertical stepped sides, flat base	Mid brown grey	MC2-MC3
1	F1290	L1291	Posthole	1.0 x 0.7 x 0.45	Oval/ near vertical sides, flat base	Mid brown grey silty sand	-
1	F1223	L1224	Posthole	0.66 x 0.66 x 0.43	Circular/ moderate to steep sides, slightly concave base	Mid brown sandy silt	-
1	F1221	L1222	Posthole	1.10 x 1.10 x 0.46	Oval/ moderate to steep sides, concave base	Mid brown sandy silt	-
1	F1186	L1187	Posthole	1.60 x 1.60 x 0.45	Circular/ steep sides, concave base. Clear postpipe.	Light brown sandy silt	LC2-C3
		L1188				Not recorded.	-
1	F1189	L1190	Posthole	0.70 x 0.70 x 0.33	Oval/ near vertical stepped sides, flat base	Light yellow brown sandy silt	LC2-C3
1	F1191	L1192	Posthole	0.50 x 0.50 x 0.29	Circular/ near vertical sides, flat base	Light brown sandy silt	LC2-MC4
1	F1194	L1195	Posthole	0.70 x 0.70 x 0.60	Oval/ near vertical sides, slightly concave base	Mid brown silty sand	C2-C4
1	F1196	L1197	Posthole	0.45 x 0.45 x 0.50	Circular/ vertical sides, slightly concave base	Mid brown grey silty sand	C2-C4
1	F1200	L1201	Posthole	1.0 x 1.25 x 1.0	Oval/ near vertical sides, flat base	Dark grey brown silty sand	C2-C4
1	F1193	L1204	Posthole	1.90 x 1.10 x 0.36	Circular/ near vertical sides, slightly concave base	Light pink brown silty sand	LC2-MC4
1	F1202	L1203	Posthole	1.80 x 1.35 x 0.30	Oval/ near vertical sides, flat base	Dark grey brown silty sand	-

4.3.6 The well

EP	Feature	Context	Type	Dimensions (m)	Plan/ profile	Fill	Finds date
The well-pit							
1	F1137	M1139	Well-pit	3.5 x 3.2 x 3.0	Sub circular/ near vertical sides, slight stepping, flat base.	Carstone lining	-
		M1261				Flint cobbles	-
		L1264				Mid orange yellow sand	-
		L1263				Light brown orange silty sand	-
		L1262				Mid orange yellow sand	-
		L1138				Light grey brown sandy silt	LC2-C4
1		L1265	Well-shaft	0.55-0.65 x 0.55-0.65 x 3.0	Vertical sided, flat based circular shaft	Dark brown black peaty clay sand	-
		L1266				Light orange grey silty sandy clay	M-LC2
		L1267				Light blue grey silty sandy clay	MC2-EC3
		L1268				Light grey yellow silty sand	MC2-EC3
		L1269				Mid grey yellow silty sand	M-LC2
		L1142				Mid grey brown silty loam	LC2-MC3
		L1141				Dark grey brown silty loam	C2-4
		L1140				Mid grey brown silty loam	LC2-MC3

4.3.7 Other Phase 2 Features

EP	Feature	Context	Type	Dimensions (m)	Plan/ profile	Fill	Finds date
6	F3014	L3015	Pit	1.18m x 1.12m x 0.44m	Circular with steeply sloping, bowed sides and broad concave base	Mid orange brown soft silty sand with frequent flint gravel	LC2-C4
		L3016				Mid greyish brown soft sandy silt with occasional flint and callstone nodules	
6	F3026	L3043	Pit	0.20m x 0.20m x 0.15m	Circular/ steep straight sides, concave base, truncates F3042	Mid yellowish brown soft sandy silt	LC2-C4
6	F3044	L3027	Posthole	1.10m x 0.90m x 0.14m	Circular/ gentle concave sides, flat base	Dark black brown soft sandy silt; frequent charcoal	LC2-C4
		L3028				Dark greyish orange brown soft sandy silt; occasional flint gravel and charcoal	
6	F3045	L3046	Ditch	7.4m x 0.68m x 0.11m	Curvilinear terminus/ gentle concave sides, concave base	Mid greyish brown compact silty sand; occasional flint gravel	LC2-C4

4.4. Late 2nd to 3rd century enclosure and droveway modification, kilns, well and corndrier (Phase 3)

4.4.1 Modification of the north-western droveway edge

EP	Feature	Context	Type	Dimensions (m)	Plan/ profile	Fill	Finds date
Original line of posts							
3	F2231	L2232	Posthole	0.62 x 0.48 0.24	Oval/ near vertical sides, flat base	Mid brown orange silty sand	LC2-MC4
3	F2235	L2236	Posthole	0.64 x 0.45 x 0.21	Oval/ near vertical sides, irregular base	Mid orange brown silty sand	LC2-E/LC3

3	F2185	L2186	Posthole	0.70 x 0.30 x 0.31	Oval/ steep sides, concave base	Mid brown silty sand	-
3	F2254	L2255	Posthole	0.60 x 0.70 x 0.38	Sub circular/ steep sides, concave base	Mid orange brown silty sand	-
3	F2201	L2202	Posthole	0.60 x 0.43 x 0.25	Oval/ near vertical sides, concave base	Mid brown silty sand	-
3	F2203	L2252	?Posthole	0.65 x 0.65 x 0.30	Circular/ steep sides, concave base	Light grey brown silty sand	LC2-MC4
		L2204				Mid brown orange silty sand	LC2-MC4
3	F2256	L2257	Posthole	0.75 x 0.60 x 0.47	Oval/ steep sides, concave base	Mid orange brown silty sand	LC2-MC4
3	F2312	L2313	?Posthole	1.80 x 1.70 x 0.83	Sub circular/ near vertical sides, concave base	Mid grey brown silty sand	-
		L2314				Mid brown sandy silt	LC2-MC4
3	F2317	L2318	Gully	0.60 x 0.70 x 0.28	Oval/ vertical sides, flat base	Mid brown orange silty sand	LC2-MC3+
3	F2337	L2338	Posthole	0.83 x 0.82 x 0.40	Oval/ vertical sides, flat base	Mid orange brown silty sand	-
3	F2341	L2342	Posthole	1.20 x 0.83 x 0.32	Oval/ near vertical sides, flat base	Mid orange brown silty sand	LC2-MC4
3	F2343	L2344	Posthole	1.10 x 0.58 x	Oval/ near vertical sides, flat base	Mid orange brown silty	LC2-MC4

				0.43		sand	
3	F2388	L2389	Posthole	0.68 x 0.75 x 0.27	Sub circular/ steep sides, flat base	Mid grey brown silty sand	LC2-MC4
3	F2391	L2392	Posthole	0.60 x 0.58 x 0.35	Sub circular/ steep sides, concave base	Mid orange brown silty sand	-
3	F2417	L2418	Posthole	0.70 x 0.58 x 0.45	Oval/ steep sides, irregular base	Mid brown silty sand	LC2-MC4
3	F2415	L2416	Posthole	0.64 x 0.75 x 0.32	Oval/ steep to near vertical sides, concave base	Mid orange brown silty sand	-
3	F2419	L2420	Gully	5.80 x 0.80 x 0.12	Linear/ gentle sides, concave base	Mid brown yellow	LC2-MC4
3	F2398	L2399	Posthole	0.95 x 0.70 x 0.43	Oval/ steep sides, narrow concave base	Mid orange brown silty sand	LC2-MC4
3	F2448	L2449	Posthole	0.45 x 0.70 x 0.30	Oval/ near vertical sides, concave base	Mid brown orange silty sand	LC2-MC4
3	F2453	L2454	Posthole	0.70 x 0.73 x 0.45	Sub square/ steep sides, flat base	Mid brown orange silty sand	-
3	F2450	L2451	Posthole	0.80 x 1.21 x 0.30	Oval/ near vertical stepped sides, flat base	Mid brown orange silty sand	-
		L2452				Mid brown sandy silt	-

Props							
3	F2233	L2234	Posthole	0.25 x 0.20 x 0.12	Sub circular/ near vertical sides, flat base	Light brown orange silty sand	-
3	F2188	L2189	Posthole	0.18 x 0.16 x 0.23	Circular/ vertical sides, concave base	Dark brown silty sand	-
3	F2440	L2441	Posthole	0.35 x 0.40 x 0.17	Sub circular/ steep sides, concave base	Mid brown orange silty sand	-
Repairs							
3	F2315	L2316	Posthole	0.40 x 0.41 x 0.66	Circular/ near vertical sides, flat base	Dark brown silty sand	LC2-MC4
3	F2321	L2322	Posthole	0.65 x 0.55 x 0.42	Oval/ near vertical stepped sides, flat base	Mid orange brown silty sand	LC2-MC4
3	F2339	L2340	Posthole	0.60 x 0.53 x 0.36	Sub circular/ near vertical sides, flat base	Mid orange brown silty sand	-
3	F2385	L2386	Posthole	0.80 x 0.63 x 0.40	Oval/ near vertical sides, narrow concave base	Light yellow brown silty sand	-
3	F2413	L2414	Posthole	0.60 x 0.57 x 0.28	Circular/ near vertical sides, concave base	Mid brown silty sand	LC2-MC4
3	F2400	L2401	Posthole	1.00 x 0.50 x 0.33	Sub-rectangular/ steep to near vertical side, flat base	Mid orange brown silty sand	-
3	F2396	L2397	Posthole	0.49 x 0.48 x	Circular/ near vertical sides, concave base	Light brown orange silty	LC2-MC4

				0.44		sand	
3	F2442	L2443	Posthole	0.75 x 0.70 x 0.38	Sub circular/ steep sides, flat irregular base	Mid orange brown silty sand	-
		L2444				Mid brown silty sand	LC2-MC4
3	F2445	L2446	Posthole	0.75 x 0.80 x 0.40	Sub circular/ vertical sides, concave base	Light red brown silty sand	-
		L2447				Mid brown orange silty sand	
3	F2455	L2456	Posthole	0.25 x 0.19 x 0.40	Oval/ near vertical sides, concave base	Mid brown silty sand	-
3	F2457	L2458	Posthole	0.45 x 0.52 x 0.35	Oval/ near vertical sides, concave base	Light brown orange silty sand	-
		L2459				Mid brown silty sand	-

4.4.2 Modification of the south-eastern droveway edge

EP	Feature	Context	Type	Dimensions (m)	Plan/ profile	Fill	Finds date
1	F1244	L1245	Ditch	40 x 0.7 x 0.3	Linear/ moderate sides, concave base	Light grey brown silty sand	LC2-MC4 and C3 EC4
3	F2007	L2008=L2034= L2039=L2066= L2067=L2070= L2071	Ditch	26.4 x 0.83 x 0.4	Linear/ moderate to steep sides, variable base	Light to mid brown orange silty sand	LC2-MC4
3	F2050= F2025	L2026=L2092= L2093=L2094= L2095=L2051=	Ditch	37.14 x 1.1 x 0.25	Linear/ moderate sides flat or concave base	Mid brown/ greyish brown sandy silt	-

		L2061=L2075= L2084=L2085					
3	F2013	L2014=L2101= L2102= L2096	Ditch	5.4+ x 1.5 x 0.42	Linear/ moderate sides, concave base	Mid yellow brown silty sand	-
3	F2023	L2024	Ditch	6+ x 1.6 x 0.3	Linear/ gentle sides, uneven base	Mid orange brown silty sand	-
6	F3033	L3034	Ditch	15m x 0.50m x 0.10-0.28m	Linear /moderate straight sides. V-shaped base.	Mid yellowish orange brown soft sandy silt, moderate flint gravel.	
		L3035				Mid greyish brown soft sandy silt	
6	F3019	L3020	Pit	1.50m x 1.40m x 0.27m	Moderate, flat base, concave sides.	Mid greyish orange brown compact silty sand silt with occasional flint gravel	LC2-MC4
		L3021				Dark greyish brown soft sandy silt	

4.4.3 The workshop

EP	Feature	Context	Type	Dimensions (m)	Plan/ profile	Fill	Finds date
1/3	F2563=F1213	M2566 ?=M1214	Foundation	22* x 0.8-1.0 x 0.24 (max). (building dimensions excl. F2435 protrusion: 12 x 6m)	Rectangular with apse at one corner and perpendicular internal subdivision. Steep/ near vertical sides, flat base.	Sub angular, unfinished carstone blocks with occasional rounded flint nodules.	-
		L2568 ?=L1215				Dark orangey brown silty sand	LC2-MC4
3	F2435	M2332=M2434	Foundation	17.8* x 0.8-1.0 x 0.2 (max) (F2435 outer dimensions: 5 x 3.2m)	Rectangular with perpendicular internal subdivision. Vertical sides, flat base	Sub angular, unfinished carstone blocks with occasional rounded flint nodules.	-
		L2567				Dark orangey brown silty sand	MC2-C3+
3	-	L2380	Floor	6 x 6 x 0.2 (max)	Sub-square	Pale to mid grey green grey clay (near whiter when dry)	-
3	-	M2378	Wall	?	Linear (not seen over its presumed full extent)	Rounded flint nodules	-

*Total perimeter length

4.4.4 The rectangular timber building

EP	Feature	Context	Type	Dimensions (m)	Plan/ profile	Fill	Finds date
Postholes of the north-west wall							
3	F2345	L2346	Posthole	0.61 x 0.73 x 0.57	Sub oval/ steep sides, concave base	Light yellow brown silty sand	-
		L2347				Mid brown orange silty sand	-
3	F2479	L2480	Posthole	1.02 x 1.74 x 0.82	Sub rectangular/ steep to near vertical sides, flat base	Mid yellow grey silty sand	-
		L2481				Mid yellow brown silty sand	-
		L2483				Dark brown black silty sand	-
		L2482				Dark brown black silty sand	-
3	F2468*	L2469	Posthole	1.01 x 1.02 x 0.52	Sub rectangular/ steep then moderate sides, flat base	Mid orange brown silty sand	-
		L2470				Mid orange brown silty sand	-
		L2471				Dark brown grey silty sand	-
		L2472				Dark brown black silty sand	-
3	F2473	L2474	Posthole	1.01 x 1.00 x 0.98	Sub square/ vertical sides, flat base	Mid yellow brown silty sand	LC2-MC4
		L2475				Mid yellow grey silty sand	-

		L2476				Mid yellow grey silty sand	-
		L2477				Dark brown black grey silty sand	-
		L2478				Dark brown black silty sand	-
3	F2484	L2485	Posthole	1.16 x 1.18 x 1.10	Sub square/ vertical to near vertical sides, flat base	Mid yellow orange silty sand	LC2-MC4
		L2486				Mid yellow grey silty sand	-
		L2487				Light yellow brown silty sand	-
		L2488				Dark brown orange silty sand	-
		L2489				Dark brown black silty sand	-
3	F2356	L2357	Posthole	1.47 x 0.81 x 1.08	Sub rectangular/ near vertical sides, concave base	Mid grey yellow silty sand	-
		L2358				Mid brown yellow silty sand	-
		L2359				Mid yellow brown silty sand	-
		L2360				Dark yellow brown silty sand	-
3	F2361*	L2362	Posthole	1.43 x 0.70 x 0.73	Sub rectangular	Mid brown yellow silty sand	-
		L2363				Light yellow brown silty sand	-
		L2364				Mid brown sandy silt	-

3	F2393	L2527	Posthole	0.73 x 1.58 x 1.07	Sub rectangular/ near vertical sides, flat base	Mid yellow brown silty sand	-
		L2528				Light yellow brown silty sand	-
		L2529				Mid brown yellow silty sand	-
		L2530				Mid yellow brown silty sand	-
Postholes of the south-east wall							
3	F2460	L2461	Posthole	1.52 x 1.54 x 1.11	Sub circular/ near vertical sides, flat base	Mid brown yellow silty sand	LC2-MC4
		L2462				Mid yellow brown silty sand	-
		L2463				Mid yellow orange silty sand	-
		L2464				Mid yellow orange silty sand	-
		L2465				Dark brown orange silty sand	-
		L2466				Dark brown black silty sand	-
3	F2375	L2405	Posthole	1.10 x 0.9 x 1.0	Sub square/ steep to vertical sides, concave base	Light brown orange silty sand	-
		L2406				Mid brown orange silty sand	-
		L2407				Dark brown orange silty sand	LC2-MC4
3	F2376*	L2408	Posthole	0.4 x 0.3 x 0.35	Sub rectangular/ steep to vertical sides, concave base	Mid brown orange silty sand	-
		L2409				Mid orange brown silty sand	-

3	F2354	L2365	Posthole	2.05 x 0.69 x 1.06	Sub square/ near vertical to vertical sides, flat base	Orangey dark brown sandy silt	LC2-MC4
		L2366				Brownish light orange silty sand	LC2-MC4
		L2367				Brownish mid orange silty sand	-
		L2368				Brownish mid orange silty sand	-
		L2369				Brownish light orange silty sand	-
		L2370				Orangey dark brown sandy silt	-
		L2371				Brownish mid orange silty sand	-
3	F2355	L2372	Posthole	0.7 x 0.6 x 0.3	Sub circular/ moderate sides, concave base	Mid brown orange silty sand	?C3
		L2373				Dark brown orange silty sand	LC2-MC4
3	F2268	L2269	Posthole	1.56 x 0.86 x 0.79	Oval/ steep sides, flat base (dipped for postpipe)	Dark brown black silty sand	M/LC2-C3
3	F2421	L2422	Posthole	1.2 x 0.77 x 1.0	Sub rectangular/ steep to vertical sides, flat base	Mid brown orange silty sand	-
		L2423				Light brown orange silty sand	-
		L2424				Dark brown orange silty sand	LC2-MC4
3	F2425*	L2426	Posthole	1.5 x 1.4 x 0.8	Sub square/ steep to vertical sides, flat base	Mid brown black silty sand	-
		L2427				Mid brown orange silty sand	-
		L2428				Light brown orange silty sand	-

		L2429				Dark orange brown silty sand	LC2-MC4
3	F2495	L2496	Posthole	1.12 x 1.94 x 1.09	Sub rectangular/ near vertical sides, flat base (dipped for postpipe)	Mid yellow brown silty sand	LC2-MC4
		L2497				Mid yellow orange brown silty sand	-
		L2498				Mid brown yellow silty sand	-
		L2499				Dark brown black grey silty sand	-
3	F2491*	L2492	Posthole	0.62 x 0.96 x 0.34	Sub rectangular/ near vertical sides, concave base	Mid yellow orange silty sand	-
		L2493				Dark brown black silty sand	-
		L2494				Dark brown grey silty sand	-
Postholes of the north-east gable end							
3	F2522	L2523	Posthole	1.22 x 04 x 0.37	Sub rectangular/ steep sides, concave base (dipped for postpipe)	Mid brown yellow silty sand	-
		L2524				Light brown yellow silty sand	-
		L2525				Mid yellow brown silty sand	-
3	F2500	L2501	Posthole	0.87 x 1.12 x 0.36	Sub rectangular/ steep sides, concave base (dipped for postpipe)	Mid yellow orange silty sand	-
		L2502				Light yellow orange brown silty sand	-
		L2503				Mid brown grey silty sand	-
		L2504				Mid brown grey silty sand	-

Postholes of the south-west gable end							
3	F2297	L2298	Posthole	0.66 x 1.11 x 0.42	Oval/ Near vertical sides, concave base	Light yellow orange silty sand	LC2-MC4
		L2299				Mid brown grey silty sand	-
3	F2270	L2271	Posthole	0.6 x 0.99 x 0.32	Oval/ steep sides, flat base	Mid orange brown silty sand	-
3	F2325	L2326	Posthole	0.54 x 1.0 x 0.62	Oval/ steep sides, concave base (dipped for postpipe)	Light orange brown silty sand	LC2-MC4
		L2327				Mid grey brown silty sand	-
3	F2377	L2411	Posthole	1.1 x 0.88 x 0.65	Oval/ steep sides, concave base	Dark orange brown silty sand	-
		L2412				Dark brown black silty sand	LC2-MC4
Postholes of the porch							
3	F2349	L2350	Posthole	0.46 x 0.5 x 0.23	Oval/ moderate to steep sides, V-shaped base	Reddish silty sand	-
		L2351				Not recorded	-
		L2353				Not recorded	-
3	F2334	L2335	Posthole	0.4 x 0.37 x 0.29	Circular/ undercut sides, sloping base	Mid orange brown silty sand	-
3	F2265	L2266	Posthole	0.28 x 0.39 x 0.15	Sub circular/ stepped sides, concave base	Light orange brown silty sand	-
3	F2330	L2331	Posthole	0.46 x 0.35 x 0.23	Oval/ moderate sides, concave base	Mid pink clayey sand	-
		L2332				Blackish grey silty sand	-
3	F2263*	L2264	Posthole	0.2 x 0.29 x 0.11	Sub rectangular/ moderate sides, flat base wit dip	Light orange brown silty sand	-
3	F2261	L2262	Posthole	0.24 x 0.68 x 0.26	Oval/ steep sides, flat base with dip	Mid brown orange silty sand	-
3	F2258	L2259	Posthole	0.46 x 0.73 x 0.43	Oval/ steep sides, irregular base	Light to mid orange brown sandy silt	-
		L2260				Mid to dark orange brown sandy silt	-
Pit F2545							
3	F2545	L2546	*Pissoir*	0.74 x 0.72 x 0.34	Sub square/ steep sides, concave base	Mid brown green silty sandy clay	-
		L2547				Dressel 20 Baetican amphora	C3
		L2565				Dark brown black silty sand. Disturbed by root/ animal action and mixed with sub soil.	-

*Stratigraphically later postholes.

4.4.5 The kilns and drying oven

EP	Feature	Context	Type	Dimensions (m)	Plan/ profile	Fill	Finds date
Kiln S1170							
1	F1170	L1171	Construction pit and clay lining	4.1 x 1.5 x 0.7	Elongated, rounded ends. Lined to form kiln as described in text (Section 2.4.2)	Straw-tempered greyish red black burnt clay (10mm thick)	
		L1183	Pilasters			Light grey fired clay (0.17 x 0.1m)	
		L1175	Firing shelf			Mid orange brown fired clay (0.55 x 0.85 x 0.2m)	C3-EC4
		L1172	Kiln fill			Mid grey brown silty sand	EC3-EC4
		L1173	Kiln fill			Dark grey brown fine silty sand	LC2-MC4
		L1174	Kiln fill			Dark blackish brown fine silty sand	LC2-MC4
		L1176	Kiln fill			Brown grey black sandy silt	LC2-MC4
		L1177	Kiln fill			Black silt	LC2-LC3
		L1178	Kiln fill			Dark grey black silty sand	LC2-MC4
		L1179	Kiln fill			Mid grey brown silty sand	EC3-EC4
		L1180	Kiln fill			Dark brown black sandy silt	C3-EC4
		L1181	Kiln fill			Dark brown black silty sand	C3-EC4
		L1182	Kiln fill			Mid grey brown sandy silt	C3-EC4
		L1205	Kiln fill			Light grey black sandy silt	C3-EC4
		L1206	Kiln fill			Blackish grey sand	LC2-MC4
		L1297	Kiln fill			Dark brown black sandy silt	LC2-MC4
Kiln S2133							
3	F2143	L2564	Construction pit and clay lining	2.66 x 1.44 x 0.81	Elongated, wider around firing chamber, narrowed around flue, lined to create their walls.	Straw tempered fired clay.	-
		L2230	Kiln fill			Dark black brown silty sand	LC2-LC3
		L2144	Kiln fill			Dark black brown silty sand	LC2-LC3
		L2240	Pilaster			Mid grey green brown fired clay	-
Kiln S2119							
3	F2126	L2127	Firing pit and clay lining	2.23 x 0.85 x 0.28	Oval firing chamber with linear flues as described in text (Section 2.4.2).	Mid brown grey orange red fired clay	-
		L2128	Kiln Fill			Dark brown black silty sand	(?LC2)C3-C4
		L2129	Pilasters			Mid grey green brown fired clay	-

	F2130	L2131	Stoke hole	1.24 x 1.30 x 0.23	Circular	Light red yellow sandy silt	-
		L2132				Dark brown black sandy silt	LC2-C3
Kiln S2118							
3	-	L2562	Firing chamber	1.62 x 1.53 x 0.45	Circular/ moderate sides, flat base	Firing chamber base: red/brown fired clay	-
		L2177				Kiln lining/ support for firing floor: fired clay with grey/brown surfaces and red/grey core.	-
		L2559				Dark brown black charcoal rich sandy silt	LC2-MC4
		L2558				Mid brown silt with charcoal flecks	LC2-MC4
		L2526				?earlier firing floor: red/grey fired clay	-
		L2176				Solid fired clay vent-holed firing floor.	-
		L2178				Rubble of collapsed oven roof: bricks and pink/red and grey fired clay.	-
	-	L2174	Flue	0.68 x 0.56 x 0.61	Linear/ flat based arch	Red fired clay structure	-
		L2175				Very dark grey brown charcoal stained sandy silt	LC2-MC4
	F2110	L2134=L2333	Stoke hole	2.85 1.65 x 0.63m	Sub oval/ moderate sides, flat base	Very dark grey brown sandy silt with charcoal	LC2-C3
		L2111				Mid grey brown sandy silt	LC2-MC4
		L2112				Mid grey brown silt with yellow sand mottling	-
Drying Oven S2015							
3	F2553	L2557	Pottery drying oven	4.96 x 3.68 x 0.45	T-shaped/ near vertical sides, flat base	Light grey clay floor	-
		L2554				Wall of carstone and re-used tegula and brick in grey clay matrix	-
		L2555				Dark orange brown silty sand	(?LC2)-C3
		L2556				Dark brown black silty sand	C3

4.4.6 Other Phase 3 features

EP	Feature	Context	Type	Dimensions (m)	Plan/ profile	Fill	Finds date
S2135							
3	F2138	L2139=L2140= L2141=L2142	Penannular gully	11.15 x 1.2-0.26 x 0.22 (3.55m diameter)	Penannular/ Steep sides (irregular on outer gully edge), irregular base	Mid orange grey silt sand	LC2-MC4
3	F2136	L2137	Posthole	0.57 x 0.55 x 0.26	Oval/ steep sides, concave base	Dark orange grey silty sand	-
3	F2161	L2162	Posthole	0.22 x 0.22 x 0.2	Sub circular/ near vertical irregular sides, narrow concave base	Light yellow brown silty sand	-
		L2163				Mid orange grey silty sand	-

4.5 Late 3rd to 4th century abandonment, demolition and iron smelting (Phase 4)

4.5.1 Pits with demolition debris

EP	Feature	Context	Type	Dimensions (m)	Plan/ profile	Fill	Finds date
1	F1208	L1220	Pit	3.5+ x 3.5 x 1.86	Oval/ vertical to undercut sides, ?slightly concave base	Orange grey sand	-
		L1219				Dark grey brown sandy silt	C3-EC4
		L1218				Light orange brown sand	-
		L1217				Dark grey brown silty sand	C3-EC4
		L1216				Light orange grey brown silty sand	LC2-MC4
		L1212				Mid orange yellow sand	-
		L1211				Mid grey brown silty sand	-
		L1210				Dark grey brown sandy silt	C3-EC4 and LC2-MC4
		L1209				Light grey brown sandy silt	LC2-MC3 and C3-EC4
1	F1184	L1185	Pit	4.5 x 2.5 x 1.2	Oval/ near vertical sides, flat base	Dark pinkish prey brown silty sand	LC3-C4, LC2-MC4, LC2-C3-EC4 and (?M)C3 364-378 (coin)
3	F2150	L2151	Pit	4.91 x 4.24 x 1.59	Sub circular/ steep to near vertical sides, concave base	Orangey brown silty sand	-
		L2152				Dark brown silty sand	E-MC4, LC3-C4 and EC4
		L2153				Yellowish range silty sand	-

		L2154				Dark brown sandy silt	C4
		L2155				Dark brown sandy silt	LC3-C4, LC3-MC4 and E-MC4

4.5.2 Accumulations post-dating the timber building

EP	Feature	Context	Type	Dimensions (m)	Plan/ profile	Fill	Finds date
3	-	L2410	Accumulation over F2375 and F236	1.2 x 0.1 x 0.3	-	Orangey dark brown silty sand	LC2-MC4
3	-	L2374	Accumulation over F2354 and F2355	-	-	Orangey mid brown sandy silt	C3-LC3

4.5.3 Possible Shrine F2190 and associated features

EP	Feature	Context	Type	Dimensions (m)	Plan/ profile	Fill	Finds date
3	F2190	L2191	Posthole	1.55 x 1.26 x 0.56	Oval/ vertical sides, concave base	Light brown orange silty sand	(?C3)-MC4
		L2192				Mid to dark brown grey silty sand	-
		L2193				Light brown yellow silty sand	-
		L2195				Mid/ dark brown/ black silty sand	-
3	F2205	L2206	Posthole	0.15 x 0.32 x 0.14	Oval/ near vertical sides, concave base	Mid brown orange grey silty sand	-
3	F2207	L2208	Posthole	0.15 x 0.23 x 0.1	Oval/ near vertical sides, sloping base	Mid brown orange silty sand	-
3	F2209	L2210	Posthole	0.12 x 0.28 x 0.1	Oval/ steep sides, concave base	Mid brown orange silty sand	-
3	F2211	L2212	Posthole	0.15 x 0.29 x 0.12	Oval/ moderate to near vertical sides, sloping base	Mid brown orange silty sand	-
3	F2213	L2214	Posthole	0.07 x 0.21 x 0.6	Oval/ moderate sides, concave base	Light to mid brown silty sand	-
3	F2245	L2246	Pit	0.32 x 1.33 x	Sub rectangular/ moderate	Light brown silty sand	-

				0.31	to steep sides, uneven base		

4.5.4 Pits with metalworking evidence in the south-west of the site

EP	Feature	Context	Type	Dimensions (m)	Plan/ profile	Fill	Slag?	Finds date
1	F1242*	L1243	Pit	2.5 x 1.5 x 0.24	Circular/ gentle sides, concave base	Not recorded	X	M/LC3-C4
3	F2054	L2055= L2057	Pit	4.2+ x 3.6 x 0.52	Oval/ gentle to moderate sides, flat base	Dark brown silty sand	X	LC2-MC4
		L2056= L2058				Loose yellow brown sandy silt		LC2-MC4
1	F1259	L1260	Posthole	0.7 x 0.7 x 0.4	Circular/ steep sides, flat base with clear post depression	Dark grey yellow silty sand	X	M-LC4
1	F1270	L1271	Posthole	05 x 05 x 0.33	Circular/ steep side, flat base	Dark grey orange silty sand	X	LC3-C4
1	F1272	L1273	Pit/ gully	2.02 x 0.6 x 0.45	Sub rectangular/ near vertical sides, flat base	Dark grey orange silty sand	X	M/LC3-C4
1	F1274	L1275	Posthole	0.4 x 0.4 x 0.3	Sub rectangular/ steep sides, flat base	Mid orange brown silty sand	X	C3-4
1	F1276	L1277	Pit/ gully	2.3 x 0.4 x 0.17	Sub rectangular/ steep sides, concave base	Mid orange grey silty sand	X	C4+
1	F1235	L1236	Pit	1.8 x 1.6 x 0.4	Oval/ moderate sides, flat base	Black charcoal		-
		L1237				Dark orange brown silty sand	X	LC3-C4
1	F1233	L1234	Posthole	0.65 x 0.65 x 0.2	Circular/ gentle sides, concave base	Mid orange brown silty sand		-
1	F1256	L1257	Pit	2.5 x 1.2 x 0.35	Oval/ moderate sides, concave base	Dark grey yellow silty sand	X	MC3-C4
1	F1254	L1255	Pit	1.1 x 0.8 x 0.25	Oval/ moderate sides, flat base	Mid grey yellow silty sand		-
1	F1246	L1247	Pit	3.5 x 3.0 x 0.2	Oval/ gentle sides, flat base	Brownish black silty sand	X	C3
		L1248				Not recorded		-
1	F1225	L1226	Pit	2.5 x 1.3 x 0.58	Oval/ moderate stepped sides, flat base	Mid to dark grey yellow	X	MC3-C4
1	F1227	L1228	Pit	1.9 x 1.1 x 0.04	Oval/ gentle sides, concave base	Blackish red yellow silty sand	X	-
1	F1231	L1232	Pit	1.82 x 1.77 x 0.3	Oval/ gentle sides,	Brownish black silty sand	X	Roman

					concave base			
1	F1240	L1258	Pit	2.5 x 0.5 x 0.9	Sub circular/ moderate stepped sides, flat base	Light grey brown sand		-
		L1241				Mid brown grey silty sand		MC3-C4
1	F1249	L1250	Pit	3.0 x 2.5 x 0.15	Sub oval/ gentle sides, concave base	Mid grey brown silty sand		LC2-MC4
1	F1282	L1283	Posthole	0.28 x 0.25 x 0.28	Circular/ steep sides, flat base	Dark grey orange silty sand; large flint nodule in base		Roman
1	F1284	L1285	Posthole	0.3 x 0.25 x 0.32	Oval/ near vertical to vertical sides, concave base	Dark grey orange silty sand		LC2-MC4
1	F1286	L1287	Posthole	0.28 x 0.25 x 0.28	Circular/ near vertical sides, flat base	Dark grey orange silty sand		-
1	F1278	L1279	Ditch	18+ x 1.4 x 0.4	Linear/ moderate sides, concave base	Mid grey brown silty sand	X	MC3-C4

*Located south-east of droveway

4.6 Unphased Roman features

4.6.1 Features with undiagnostic Roman pottery

EP	Feature	Context	Type	Dimensions (m)	Plan/ profile	Fill	Finds date	Comment
1	F1251	L1253	Ditch	15+ x 1.9 x 0.45	Linear/ moderate sides, concave base	Light grey brown silty sand	C3-C4	Parallel to droveway in SW part of EP 1. Cut by C18 Ditch F1003.
		L1252				Mid grey brown silty sand	LC2-MC4	
3	F2120	L2121	Pit	0.76 x 0.56 x 0.25	Oval/ moderate sides, concave base	Mid brown orange grey silty sand	LC2-MC4	Close to Kiln S2119, extending into droveway.
3	F2124	L2125	Pit	0.7 x 1.18 x 0.45	Oval/ steep to vertical sides, flat base	Dark brown orange silty sand	LC2-MC4	Close to Kiln S2119, extending into droveway. Contained a nail.
3	F2122	L2123	Pit	1.8 x 1.2 x 0.3	Oval/ moderate sides, irregular base	Light red brown silty sand	-	Close to Kiln S2119, extending into droveway. Strong spatial association with F2120 and F2124.
3	F2247	L2248	Pit	1.35 x 1.35 x 0.91	Circular/ steep to near vertical sides, flat base	Mid green brown silty sand	-	Close to Kiln S2119, extending into droveway. Contained slag and a
		L2249				Mid brown silty sand	-	

		L2250				Dark brown silty sand	LC2-EC3	spindlewhorl made from the base of a colour coated beaker (SF 3.10). Despite date, could not be specifically associated with any of Phases 2-4.
3	F2160	L2159	Pit	1.56 x 2.4 x 1.2+	Oval/ near vertical sides, base not reached	Light brown grey sand	-	Contained a slag and spindlewhorl made from the base of a colour-coated beaker.
		L2158				Light orangey brown sand	-	
		L2157				Dark black sand	Roman	
		L2156				Dark blackish brown silty sand	-	
3	F2148	L2149	Pit	2.12 x 1.52 x 0.17	Sub rectangular/ gentle to moderate sides, irregular base	Dark brown silty sand	LC2-MC4	1.5m north-west of Pit F2150.
3	F2225	L2226	Pit	3.6 x 1.32 x 0.31	Rectangular/ steep to near vertical sides, flat base	Mid brown orange silty sand	LC2-MC4	Cut Phase 3 Ditch F2168.
		L2227				Mid grey brown orange silty sand	-	
3	F2515	L2516	Pit	0.94 x 1.22 x 0.3	Oval/ moderate to steep sides, sloping base	Mid yellow brown silty sand	-	Close to corner of enclosure formed by Phase 4 Ditch F2507. Close to Phase 1 Pit F2437.
		L2517				Mid brown yellow silty sand	LC2-MC4	
3	F2518	L2519	Pit	1.14 x 1.12 x 0.46	Circular/ moderate to steep sides, flat base	Mid yellow brown silty sand	-	Close to corner of enclosure formed by Phase 4 Ditch F2507. Close to Phase 1 Pit F2437.
		L2520				Light orange yellow silty sand	-	
		L2521				Mid yellow brown silty sand	LC2-MC4	

4.6.2 Putative Roman land division south-east of the droveway

EP	Feature	Context	Type	Dimensions (m)	Plan/ profile	Fill	Finds date	Comment
3	F2023	L2024	Ditch	6+ x 1.6 x 0.3	Linear/ gentle sides, uneven base	Mid orange brown silty sand	-	Cut by C18 Ditch F2021. Extensive root damage.
3	F2013	L2014= L2101= L2102= L2096	Ditch	5.4+ x 1.5 x 0.42	Linear/ moderate sides, concave base	Mid yellow brown silty sand	-	Cut by Ditch F2011. Contained slag.

3	F2009	L2010 (Seg. A)	Ditch	3.9+ x 0.95 x 0.28	Linear/ gentle to moderate sides, concave base	Mid yellow brown silty sand	-	
		L2086 (Seg. B)				Dark brown sandy silt	-	
3	F2031	L2032	Ditch	2.7 x 0.88 x 0.28	Linear/ moderate sides, flat to concave base	Mid yellow brown sandy silt	-	Contained slag.
1	F1292	L1293	Pit	2.4 x 1.2 x 0.24	Sub rectangular/ steep sides, concave base	Not recorded	-	Cut by Phase 5 Gully F1244.
3	F2011	L2012=L2042= L2059=L2104	Ditch	11.4 x 0.92 x .19	Linear/ moderate sides, flat base	Mid yellow brown silty sand	-	Parallel to and SE of Ditch F2050=F2025
3	F2040	L2041=L2048= L2097	Ditch	7.5 x 0.4 x 0.14	Linear/ moderate sides, flat base	Mid grey brown silty sand	-	Parallel to and SE of Ditch F2007. Cut Pit F2054
3	F2106	L2548	Pit	1.09 x 1.07 x 0.26	Circular/ steep sides, flat base	Mid yellow green brown clay	-	Close to Drying Oven S2105
		L2549				Mid green/ grey clay	(?C3)E-MC4	
3	F2552	L2550	Pit	2.4 x 1.6 x 0.52	Sub rectangular, bulbous to north-west/ steep to gentle sides, flat base with 'hump' at south-east end	Mid brown grey silty sand	-	Close to Drying Oven S2105. Cut by F2106.
		L2551				Mid grey green brown silty clay sand	-	

4.7 18th century Private Enclosure ditches (Phase 5)

EP	Feature	Context	Type	Dimensions (m)	Plan/ profile	Fill	Finds date
1	F1003	L1004	Ditch	1.20+ x 1.85 x 0.48	Linear/ moderate sides, flat to concave base	Light pinkish brown silty sand	LC2-LC3 and Roman
1	F1005	L1006	Ditch	40+ x 1.2 x 0.45	Linear/ moderate sides, concave base	Grey brown silty sand	Post medieval/ modern*
3	F2021	L2022= L2089= L2272= L2387= L2430= L2531	Ditch	121+ x 0.72 x 0.13	Linear/ moderate sides, uneven base	Mid brown orange silty sand	-
		L2273 (Seg. D) = L2431 (Seg. E)				Orangey mid brown sandy silt	LC2-MC4
3	F2015	L2016= L2098= L2099= L2100	Ditch	120+ x 1.27 x 0.25	Linear/ moderate sides, concave to flat base	Mid grey brown silty sand	LC2-MC4 and C12-C14
4	F1002	L1003	Ditch	21+ x 2.28 x 0.44	Linear/ moderate side,	Mid reddish brown silty	-

					concave base	sand	
4	F1008	L1018 (Seg D only)	Ditch	58.6+ x 1.95 x 0.52	Linear/ moderate sides, concave to flat base	Mid orange brown silty sand	-
		L1009				Mid orange brown silty sand	1150-1300/1400AD

*date from wine bottle

4.8 Undated features

4.8.1 Archaeological features

EP	Feature	Context	Type	Dimensions (m)	Plan/ profile	Fill	Comment
1	F1021	L1022	Pit	0.8 x 0.8 x 0.17	Circular/ moderate sides, concave base	Grey brown silty sand	Cut by Ditch F1019 and C18 Ditch F1003
1	F1029	L1030	Pit	1.8 x 0.6 x 0.3	Sub rectangular/ moderate sides, concave base	Grey brown silty sand	Adjacent to Pit F1021
1	F1031	L1032	Pit	1.75 x 2 x 0.97	Sub rectangular/ steep sides, flat base	Light grey brown silty sand	Cut Ditch F1019
1	F1023	L1024	Pit	0.7 x 0.4 x 0.12	Oval/ gentle sides, concave base	Mid black brown silty sand	Adjacent to C18 Ditch F1003 in north of EP 1
1	F1007	L1008	Pit	1.8 x 1.8 x 0.14	Circular/ gentle sides, irregular concave base	Light grey brown silty sand	In north of EP 1
1	F1009	L1010	Pit	1.1 x 0.8 x 0.12	Oval/ gentle sides, concave base	Light grey brown silty sand	In north of EP 1
1	F1011	L1012	Pit	0.45 x 0.45 x 0.12	Circular/ gentle sides, concave base	Grey brown silty sand	In north of EP 1
1	F1013	L1014	?Posthole	0.5 x 0.5 x 0.1	Circular/ moderate sides, flat base	Black silty sand	In north of EP 1
1	F1025	L1026	?Pothole	0.3 x 0.3 x 0.25	Circular/ steep sides, flat base	Dark grey brown sand silt	In north of EP 1
1	F1027	L1028	Pit	0.98 x 0.98 x 0.2	Circular/ moderate sides, concave base	Not recorded	1m NW of Ditch F1019
1	F1015	L1016	Pit	1.2 x 1.1 x 0.18	Oval/ gentle to moderate sides, concave base	Mid grey brown silty sand	3m SE of Ditch F1019, adjacent to Pit F1017
1	F1017	L1018	Pit	0.8 x 0.8 x 0.17	Sub circular/ gentle sides, concave base	Grey brown silty sand	3.6m SE of Ditch F1019, adjacent to Pit F1015
1	F1163	L1164	Pit	1.2 x 2.2 x 0.28	Sub rectangular/ near vertical sides, flattish base	Light grey brown silty sand	3.6m west of Kiln S1170
3	F2538	L2539	Ditch	2.54+ x 0.89 x	Linear/ moderate sides,	Mid yellow brown silty sand	On same line as and cut by

		L2540		0.41	concave base	Mid yellow brown silty sand	Ditch F2510. May be an earlier version of the same boundary.
3	F2198	L2199	Pit	1.80 x 0.50 x 0.15	Sub oval/ flat base, sides truncated	Dark orange brown silty sand	In E of EP3, within large enclosure. Contained dumped kiln lining.
3	F2505	L2506	Pit	0.66 x 0.68 x 0.21	Circular/ near vertical sides, flat base	Mid brown grey silty sand	In E of EP3, within large enclosure.
3	F2113	L2117	Pit	2.09 x 1.76 x 0.52	Sub oval/ moderate sides, flat base, both irregular	Dark brown black silty sand	In enclosure at SE edge of EP3, close to kiln S2118
		L2116				Mid brown red silty sand	
		L2115				Light red brown silty sand	
		L2114				Mid red brown silty sand	
3	F2077	L2078	Pit	2.31 x 1.64 x 0.67	Oval/ moderate sides, concave base, both irregular	Dark black brown sandy silt	Cut by Ditch F2035
		L2079				Mid red brown sandy silt	
3	F2107	L2108	Pit/ posthole	0.8 x 0.65 x 0.29	Sub rectangular/ steep sides, concave base	Mid grey brown sandy silt with yellow and mottling	Cuts edge of Pit F2110, stoke hole of Kiln S2118. L2108 is very similar to fill L2112 of F2110.
		L2109				Dark grey brown sandy silt	
3	F2215	L2216	Pit	0.64 x 0.36 x 0.5	Sub oval/ steep sides, concave base	Mid orange grey brown silty sand	Cuts edge of Pit F2106
		L2217				Mid grey brown silty sand	
3	F2029	L2030	Posthole	0.63 x 0.32 x 0.08	Oval/ gentle sides, flat base	Mid yellow brown silty sand	Between C18 Ditches F2021 and F2015 at their SE ends
3	F2090	L2091	Pit	2.35 x 1.48 x 0.42	Oval/ steep sides, flat base	Mid orange brown silty clay	Close to SE end of C18 Ditch F2021
3	F2300	L2301	Pit	1.13 x 0.41 x 0.32	Sub oval/ moderate sides, concave base	Dark reddish brown sandy clay	Part of undated cluster between Ditches F2267 and F2168
3	F2305	L2306	Pit	0.94 x 0.96 x 0.22	Sub oval/ moderate sides, concave base	Reddish brown sandy clay	Part of undated cluster between Ditches F2267 and F2168
3	F2307	L2308	Pit	0.86 x 0.66 x 0.15	Sub oval/ moderate sides, flat base	Mid brown red grey silty sand	Part of undated cluster between Ditches F2267 and F2168
3	F2241	L2242	Pit	1.22 x 0.93 x 0.42	Oval/ moderate stepped	Mid red orange silty sand	One of only two features to

					sides, concave base		be cut in centre of droveway. Strongly suggests non-Roman date
3	F2243	L2244	Posthole	0.42 x 0.2 x 0.19	Oval/ steep to near vertical sides, flat base	Mid brown silty sand	Cut into top of Pit F2241
3	F2017	L2018	?Posthole	0.52 x 0.52 x 0.2	Circular/ steep sides, uneven concave base	Mid brown sandy silt	One of only two features to be cut in centre of droveway. Strongly suggests non-Roman date
3	F2237	L2238	Posthole	0.68 x 0.5 x 0.3	Oval/ near vertical sides, slightly concave base	Mid brown orange silty sand	Cut by Ditch F2170. Contained LC2-MC4 pottery.
3	F2196	L2197	Posthole	0.69 x 0.52 x 0.17	Oval/ near vertical sides, concave base	Dark brown black silty sand	Cut Phase 5 Pit F2150 adjacent to droveway
3	F2145	L2146	Pit	1.55 x 1.33 x 0.56	Oval/ steep sides, flat base	Mid brown silty sand	1.8m N of Kiln S2119
		L2147				Mid red brown silty sand	
3	F2164	L2165	Pit	1.9 x 0.88 x 0.41	Sub oval/ moderate sides, concave base	Mid red brown silty sand	3m E of Posthole F2190. Similar to nearby Pit F2181
3	F2166	L2167	Posthole	0.35 x 0.21 x 0.27	Oval/ vertical to undercut sides, flat base	Mid grey orange silty sand	Cut into top of Pit F2164
3	F2181	L2182	Pit	2.5 x 0.8 x 0.3	Sub oval/ irregular sides, concave base	Mid red brown silty sand	6m E of Posthole F2190. Similar to nearby Pit F2164
3	F2183	L2184	Posthole	0.38 x 0.2 x 0.14	Dark grey brown silty sand	Dark grey brown silty sand	Cut into top of Pit F2181
2	F1016	L1017	Pit	0.9 x 0.4 x 0.2	Oval/ moderate sides, concave base	Mid to dark brown silty sand	In NW of EP2
2	F1042	L1043	Pit	0.55 x 0.55 x 0.2	Circular/ vertical sides, flat base	Dark greyish brown sand with grey silt patches	In NW of EP2
2	F1058	L1059	Pit	1.14 x 0.7 x 0.17	Oval/ irregular sides and base	Mid to dark brown silty sand	In NW of EP2. Contained lightly degraded wood, suggesting a modern date.
4	F1021	L1022	Pit	0.7 x 0.7 x 0.3	Sub oval/ steep sides, concave base	Dark black orange brown silty sand	Contained three small and abraded medieval pot sherds (1200-1400) which may have been residual.
6	F3024	L3025	Ditch	47.0+m x 0.48m x 0.14m	Linear/ moderate concave sides, flat base	Mid greyish brown soft sandy silt	-
6	F3029	L3030	Ditch	20.0m+ x 0.80m x 0.12m	Linear/ moderate concave sides, concave base	Mid to light greyish brown soft sandy silt; frequent flint	-

						gravel	
6	F3039	L3040	Ditch	55.0m+ x 0.84m x 0.12m	Linear/ gentle concave sides, concave base	Mid greyish orange brown soft sandy silt; occasional flint gravel	-
6	F3042	L3041	Ditch	21.0m x 0.92m x 0.41m	Linear/ moderate concave sides, concave base	Mid greyish brown soft sandy silt; moderate flint gravel	-
6	F3051	L3052	Ditch	4.20m x 2.03m x 0.13m	Linear/ gentle concave sides, flat base	Mid greyish brown soft sandy silt; occasional flint gravel	-
6	F3055	L3056	Ditch	5.0+m x 1.16m x 0.41m	Linear/ moderate concave sides, flat base	Mid greyish brown soft silty sand; occasional flint gravel, moderate callstone gravel	-
6	F3009	L3010	Pit	0.32m x 0.30m x 0.28m	Circular/ steep concave sides, concave base	Mid greyish brown soft sandy silt; occasional flint and callstone nodules	-
6	F3011	L3012	Pit	1.10m x 1.07m x 0.31m	Circular/ moderate concave sides, concave base	Mid orange brown soft silty sand; frequent flint gravel	-
		L3013				Mid greyish brown soft sandy silt; occasional flint gravel and callstone nodules	-
6	F3022	L3023	Pit	0.92m x 0.75m x 0.18m	Oval/ moderate concave sides, concave base	Dark greyish brown soft sandy silt; occasional charcoal, flint gravel and callstone nodules	-
6	F3048	L3049	Pit	0.54m x 0.52m x 0.13m	Sub-circular/ moderate concave sides, concave base	Dark greyish black-brown soft sandy silt; occasional flint gravel and charcoal	-
6	F3049	L3050	Pit	1.60m x 1.10m x	Circular/ moderate	Mid reddish orange brown	-

				0.38m	concave sides, concave base	soft sandy silt; occasional flint gravel, moderate charcoal	
6	F3053	L3054	Pit	1.08m x 0.95m x 0.21m	Circular/ moderate concave sides, concave base	Dark reddish orange brown compact sandy silt	-

4.8.2 Natural features

EP	Feature	Context	Type	Dimensions (m)	Plan/ profile	Fill
2	F1002	L1003	Tree hollow	0.72 x 0.62 x 0.3	Oval/ irregular sides and base	Dark brown/ black burnt sand and charcoal
2	F1004	L1005	Tree hollow	0.8 x 0.6 x 0.08	Oval/ irregular sides and base	Mid-dark grey slightly silty sand
2	F1006	L1007	Tree hollow	0.85 x 0.95 x 0.08	Oval/ irregular sides and base	Dark grey / black slightly silty sand
2	F1008	L1009	Tree hollow	1.85 x 1.35 x 0.27	Oval/ moderate sides, concave base	Dark brown black silty sand
2	F1010	L1011	Tree hollow	0.52 x 0.50 x 0.21	Oval/ not recorded	Dark grey / black burnt sand, ash and charcoal
2	F1012	L1013	Tree hollow	0.72 x 0.64 x 0.07	Oval/ irregular sides and base	Dark grey / black burnt sand and charcoal
2	F1014	L1015	Tree hollow	2.8 x 1 x 0.15	Oval/ irregular sides and base	Dark grey / black sand / grit and charcoal
2	F1018	L1019	Tree hollow	1.7 x 0.8 x 0.26	Oval/ irregular sides and base	Dark grey / black burnt sand with charcoal
2	F1020	L1021	Tree hollow	1 x 0.9 x 0.17	Oval/ irregular sides and base	Dark grey / black burnt sand and charcoal
2	F1022	L1023	Tree hollow	1.6 x 1.52 x 0.25	Oval/ moderate sides, irregular base	Mid brown black silty sand with charcoal flecks
2	F1024	L1025	Tree hollow	0.6 x 0.5 x 0.05	Oval/ not recorded	Dark grey / black slightly silty sand
2	F1026	L1027	Tree hollow	1.2 x 1.1 x 0.1	Oval/ irregular sides and base	Dark grey / black burnt sand, silt and charcoal
2	F1028	L1029	Tree hollow	0.5 x 0.5 x 0.04	Oval/ irregular sides and base	Dark grey / black slightly silty sand
2	F1030	L1031	Tree hollow	0.6 x 0.28 x 0.03	Oval/ irregular sides and base	Dark brown / black silty sand

2	F1032	L1033	Tree hollow	0.25 x 0.2 x 0.08	Not recorded	Mid-dark black slightly silty sand
2	F1034	L1035	Tree hollow	1.6 x 1.3 x 0.45	Oval/ irregular sides and base	Mid-grey brown sandy silt
2	F1036	L1037	Tree hollow	0.69 x 0.28 x 0.02	Oval/ irregular sides and base	Dark brown / black mottled silty sand
2	F1038	L1039	Tree hollow	0.95 x 0.9 x 0.13	Oval/ irregular sides and base	Mixed light grey / yellow and black slightly silty sand and charcoal
2	F1040	L1041	Tree hollow	0.9 x 1.1 x 0.12	Oval/ irregular sides and base	Mixed light brown / grey and black slightly silty sand and charcoal
2	F1044	L1045	Tree hollow	0.9 x 0.7 x 0.09	Oval/ irregular sides and base	Mid grey / black flecks slightly silted sand and charcoal
2	F1046	L1047	Tree hollow	1.0 x 0.9 x 0.12	Oval/ irregular sides and base	Mid grey / brown slightly silty sand,
2	F1048	L1049	Tree hollow	1.4 x 1.35 x 0.24	Oval/ very irregular sides and base	Dark grey / black lightly silted burnt sand and charcoal
2	F1050	L1051	Tree hollow	1.02 x 1.02 x 0.16	Oval/ moderate sides, concave base	Mid brown / grey black silty sand
2	F1052	L1053	Tree hollow	0.9 x 1.2 x 0.13	Oval/ irregular sides and base	Mixed light brown / orange and black slightly silty sand and charcoal
2	F1054	L1055	Tree hollow	1.4 x 1.3 x 0.08	Oval/ irregular sides and base	Dark grey / black burnt slightly silty sand and charcoal
2	F1056	L1057	Tree hollow	0.35 x 0.45 x 0.07	Oval/ irregular sides and base	Mixed light brown / orange and black slightly silty sand and charcoal
2	F1060	L1061	Tree hollow	0.7m x 0.95 x 0.1	Oval/ moderate sides, concave base	Mixed light brown / orange and black slightly silty sand and charcoal
2	F1062	L1063	Tree hollow	0.62 x 0.62 x 0.01	Oval/ irregular sides and base	Mid brown silty sand, occasional small sub rounded pebbles
3	F2179	L2180	Tree hollow	0.8 x 0.75 x 0.2	Oval/ moderate to steep sides, concave base	Mid orange brown silty sand
4	F1004	L1005	Tree hollow	0.75 X 0.48 X 0.15	Oval/ gentle sides, irregular base	Reddish brown silty sand with frequent black charcoal patches.
4	F1012	L1013	Tree hollow	0.35 x 0.34 x 0.20	Circular/ irregular sides and base	Dark brown black silty sand and charcoal.
4	F1016	L1017	Tree hollow	0.67 x 0.60 x 0.30	Oval/ moderate sides, irregular, flattish base	Mid orange brown silty sand
4	F1019	L1020	Tree hollow	0.70 x 0.70 x 0.30	Sub-circular/ moderate sides, irregular base	Dark brown orange silty sand with heavy black patching and charcoal
4	F1023	L1024	Tree hollow	1.60 x 1.50 x 0.22	Sub-circular/ irregular sides and base	Dark blackish orange silty sand and charcoal
4	F1006	L1007	Burrow	1 x 0.23 x 0.17	Irregular/ near vertical	Mid orange brown sandy silt

					sides, flat base	

5 ARTEFACT AND ENVIRONMENTAL CATALOGUES AND DATA

5.1 Archaeomagnetic dating

Cathy M. Batt and Assunta Trapanese

A large amount of detailed data and explanatory material accompanies the report on archaeomagnetic dating. This has not been reproduced for this report but can be found in the site archive.

5.2 Worked flint

Martin Tingle

Throughout Section 3.2, the term 'cortex' refers to the natural weathered exterior surface of a piece of flint, while 'patination' denotes the colouration of the flaked surfaces exposed by human or natural agency. Following Andrevsky (1998, 104), dorsal cortex is divided into four categories; the term 'primary flake' refers to those with cortex covering 100% of the dorsal face, while 'secondary flakes' have cortex on between 50% and 99% of the dorsal face. 'Tertiary flakes' have cortex on 1% to 49% of the dorsal face, while flakes with no dorsal cortex are referred to as 'non-cortical'.

5.3 Middle Iron Age and Roman pottery

Andrew Peachey

All pottery discovered on site was recorded on an Excel database designed for use on a computer screen and cannot effectively be reproduced on paper. This database can be found on the accompanying CD.

5.4 Medieval pottery

Peter Thompson

All pottery discovered on site was recorded on an Excel database designed for use on a computer screen and cannot effectively be reproduced on paper. This database can be found on the accompanying CD.

5.5 Romano-British ceramic building materials

Andrew Peachey

Ceramic building materials recovered during EP1 and EP3 were recorded on an Excel database designed for use on a computer screen and cannot effectively be reproduced on paper. This database can be found on the accompanying CD.

5.6 Post-medieval ceramic building materials

Andrew Peachey

The post-medieval CBM from EP4 was not formally catalogued but is fully quantified in the report (Section 3.6).

5.7 Catalogue of small finds and miscellaneous items

Nina Crummy

The assemblage is very small, and ranges in date from early Roman to modern (Figs 28-29). The assemblage contains a high proportion of Roman domestic equipment, including two spoons, several quernstone fragments, and two spindlewhorls. A fragment of an iron handle with decorative twisting could also be from a household item, and a well-worn polishing stone may have had a domestic use but is more likely to be a craft tool. In contrast there is only one certain Roman dress accessory, a functional category that is often the best represented on Roman sites.

The presence of two spoons, a needle, spindlewhorls and quern fragments are evidence for domestic occupation in the immediate vicinity, although the latter may have been brought to the site for use as hardcore or building stone. Two Millstone Grit quern fragments were found in a posthole and were probably used as packing stones, while some fragments of lava quern are very small and abraded, a state typical of pieces that have been reused and perhaps exposed to the elements after first being discarded. The presence of both lava and Millstone Grit quern fragments is evidence for access to major provincial and inter-provincial trade links, the Millstone Grit being sourced from the Pennines and the lava querns from the Eifel Hills in Germany, a trade that began at the conquest and continued into the 2nd century AD if not throughout the later Roman period as well (Buckley and Major 1983 75-6).

The round-bowled silver spoons (SF 1.2 and SF 3.6) date from the mid 1st into the 2nd century (Wilson 1968, 101). The form was introduced at the conquest, and, although generally presumed to have been used for eating, there is a growing body of evidence from the continent and from Britain that burials containing spoons of this type are usually those of women. Their occasional close association with jewellery and toilet equipment also implies that they may had some alternative function associated with the female toilette (for example, Biddle 1967, Fig. 9, 19, 54-61; Down and Rule 1971, 81, Fig. 5.16; de Laet *et al* 1972, 115, pl. 69; Stead and Rigby 1989, 358, Fig. 157, 8, 11-13; Philpott 1991, 282; Cool 2004, 28). As the earliest Roman activity at East Winch only dates to the late 2nd century, these items were clearly still in use at that time.

The needle (SF 3.1) is a late Roman form, distinguished by a groove above and below the eye (Crummy 1983, 67). Together with the spindlewhorls (SF 3.10 and that from Pit F1272), it implies that thread was spun and fabric worked into garments in the immediate area of the site, but, as is usual on Roman period sites, there are no loomweights or weaving tools to provide the evidence for weaving. In the preceding Iron Age and the succeeding early Anglo-Saxon period, loomweights from warp-weighted looms are frequent site finds, and their absence from Roman sites implies the commercial, rather than domestic, production of cloth, and also the use of the vertical two-beam loom in either setting.

The iron socketed hook (SF 3.9) was probably used in agriculture or horticulture for pruning or cutting down plants, but the only other craft tool is a mudstone polishing stone from Pit F1282 which could have served a variety of purposes in a number of crafts, such as bone or woodworking, and was probably used in combination with an

abrasive agent such as sand. A domestic use for scouring or polishing is also possible.

Although small, the assemblage is evidence that the site had good trade links and the presence of a silver spoon suggests that at least some of the inhabitants enjoyed a degree of wealth and status.

Catalogue

Middle Iron Age

EP4. Pit F1010 (L1014) middle Iron Age pit fill. a) Strip fragment. Length 48 mm, width 25 mm. Too little survives for function to be identified. b) Three ferruginous 'cokey' fragments may be either waste debris from iron-working or from a fire using nailed wood as fuel. Total weight 32 g.

Roman

Coins

EP1. SF 1.3 Pit F1184 (L1185), Phase 4 (not illustrated). House of Valentinian, reverse very worn, probably *Gloria Romanorum*, as Carson and Kent 1972, no 275. Date: AD 364-78.

EP3. SF 3.25. Subsoil L2001 (not illustrated). Very worn and illegible *semis*, *quadrans*, or *antoninianus*, 1st to 3rd century. Oval, diameter 19/21.5 mm. Weight 5 g.

Copper-alloy and silver

EP1. SF 1.1 Posthole F1091 (L1092), Phase 2 aisled building (Fig. 41.1). Copper-alloy hairpin with a dark blue glass bead fixed onto the top of the head above a short decorated square-section element marked on each face by a cross between transverse grooves. Length 114mm (slightly bent). Pins with glass heads belong to Cool's 4th century AD Group 16, but the form of this example is very different to catalogued Group 16 pins while both the use of cobalt blue glass and the length of the pin suggest an early Roman date (Cool 1990, 165, 173, Fig. 10, 1-3, 8).

EP1. SF 1.2 Posthole F1051 (L1052), Phase 2 aisled building (Fig. 41.2). Fragment of a copper-alloy spoon with simple round bowl and plain stem. Diameter of bowl 27mm, surviving length 49mm. The form is early Roman, belonging to the 1st and 2nd century (Wilson 1968, 101). Many, if not all, were originally plated with white metal.

EP3. SF 3.6 Pit F2150 (L2155), Phase 4 (Fig. 41.3). Round silver spoon bowl with only a short part of the handle remaining. Length 38 mm, diameter 26 mm.

EP3. SF 3.1 Subsoil L2001 (Fig. 41.4). Copper-alloy needle with the tip and one side of the eye missing. The form is Colchester Type 3, with a groove above and below the eye, and dates to the late Roman period (Crummy 1983, 67, Fig. 70, 1993).

EP3. SF 3.12 Pit F2150, Phase 4 (L2152) (not illustrated). Small fragment of a copper-alloy shaft, perhaps from a pin or needle. Length 18 mm.

Iron

EP3. SF 3.9 Pit F2150 (L2152), Phase 4 (Fig. 41.5). Large iron open socket or U-shaped sheathing with no identifiable nail holes for attachment. A hook rise from the bottom of the U at one end and curves away at right angles to the line of the socket. The end of the hook has broken off. Length 215 mm, diameter of socket 55 mm. The date and function of this object are unknown, but socketed hooks in general could be used in a variety of ways (Manning 1985, 104). Possibly post-Roman.

EP3. Kiln S2118, F2110 (L2111), Phase 3 (not illustrated). Narrow iron bar or rod, possibly a punch. Length 113 mm, width 10 mm.

EP3. SF 3.20 Ditch F2267 (L2403), Phase 2 (not illustrated). Narrow iron bar with one end bent into a short hook. The other bent in the opposite direction but broken on the bend. Possibly post-Roman. Length 238 mm.

EP1. Pit F1246 (L1248), Phase 4 (Fig. 41.6). Fragment of a tapering square-section handle, twisted at the thicker end, which is broken. Length 126mm, maximum thickness 11mm. Handles of this type, with a barley-sugar twist near the midpoint, occur in the Roman period on items such as fire-shovels, lamp-hangers, cauldron chains and flesh-hooks (Manning 1985, 13, 99, 100-102, 104-5).

Bone

EP3. SF 3.8. Pit F2150 (L2152), Phase 4 (not illustrated). Two bone straight tapering shaft fragments, probably part of pins, needles or spoon handles. Lengths 55 and 36 mm.

Ceramic

EP3. SF 3.10 Pit F2160 (L2157), Unphased Roman (Fig. 41.7). Ceramic spindlewhorl made from the base of a colour-coated beaker. The junction of wall and base has been ground smooth and even, and the inner surface, although spalled, is also mainly smooth. The hole for the spindle is worn around the edges. Diameter 42 mm, thickness 8 mm; diameter of spindle hole 6 mm.

EP1. Pit F1272 (L1273), Phase 4 (Fig. 42.1). Spindlewhorl made from the base of a colour-coated vessel. The wall has been trimmed off level internally to form the disc. The central spindle hole was drilled from both sides, producing a characteristic figure-of-eight shape, and its edges are worn on both sides. Diameter of whorl 52.5mm, thickness 11mm. Diameter of spindle hole 6mm. Weight 36 g.

Stone

EP3. SF 3.22 Posthole F2375 (L2406), Phase 3 rectangular timber building. Two fragments from Millstone Grit rotary quernstones, probably used as packing in the

feature. 1) Fragment of an upper-stone with part of a square hopper hole remaining. The grinding (lower) surface is smooth but retains faint traces of worn concentric circular grooves. The upper surface has a deep groove near the outer (not original) edge. This edge has been trimmed straight. Maximum surviving diameter 176 mm, maximum thickness at rim 68 mm. 2), not illustrated. No original edges survive and the fragment is featureless apart from some slight grooves, only one probably original, on the grinding surface. Length 103 mm, width 75 mm, thickness 67 mm. Total weight 2830 g.

EP3. Kiln S2118, F2110 (L2111), Phase 3 (not illustrated). Three abraded fragments of lava quern with no surviving original features. Total weight 59 g.

EP3. Ditch F2168 (L2218), Phase 2 (not illustrated). Two abraded fragments of lava quern with no surviving original features. Total weight 129 g.

EP1. Posthole F1282 (L1283), Phase 4 (Fig. 42.3). Polishing stone made from banded mudstone. All the faces are worn, but three of the long sides and the two ends appear to have been worn by handling rather than rubbing. The piece is shaped to fit a small hand. The working face, which lies across the bands, is the longest; one end is rounded to fit into the palm of the hand, the other angles upwards and has a slightly off-centre worn depression where the forefinger rested; the upper face also has a worn depression from rubbing against the base of the forefinger; both the left and right sides are worn where the thumb and middle finger rested respectively. Maximum dimensions: length 93mm, width 29mm, height 29.5mm.

EP1. Posthole F1280 (L1281), Phase 2 aisled building (Fig. 42.4). Weight 815 g. Fragment from the rim of an upper-stone from a Mayen lava rotary quern. The upper surface has a wide rim and is very worn, with only faint traces of tooling; the edge is similarly worn, with vertical tooling only faintly visible. The grinding surface is worn smooth, but is slightly concave as if it saw secondary use as a saddle quern. Minimum diameter 400mm, thickness at rim 41mm.

EP1. Pit F1208 (L1217), Phase 4 (not illustrated). Small weathered fragment of Mayen lava from a quern. No original faces remain. Weight 71 g.

Well F1137 (L1268), Phase 2 (not illustrated). Several hundred small weathered Mayen lava fragments from a quern. A few retain one or more original faces, worn smooth. Weight 2.899kg.

EP1. Pit F1272 (L1273), Phase 4 (not illustrated). Small weathered fragment of Mayen lava from a quern. No original faces remain. Weight 35 g.

Nails

Thirty eight Roman iron nails were recovered, mostly from postholes and pits related to the Phase 2b aisled timber building and the Phase 4 kiln (S2106). Most nails were bent or had damaged heads, or were recovered as shank fragments. The majority are of Manning's Type 1b, with round, flat or slightly convex, head (1985, 134).

EP	SF	Context	Feature	Phase and context description	Description	Length (mm)
1	-	L1012	F1011	Unphased posthole fill	Irregular flat head, only very slightly corroded, post-medieval to modern	63
1	-	L1020	F1019	Phase 2 ditch fill	Type 1b	77.5
1	-	L1020	F1019	Phase 2 ditch fill	Type 1b, clenched, tip missing	63
1	-	L1046	F1045	Phase 2 posthole fill	Type 1b	93
1	-	L1050	F1049	Phase 2 posthole fill	Type 1b, tip missing	78
1	-	L1056	F1055	Phase 2 posthole fill	Type 1b	77
1	-	L1071	F1070	Phase 2 posthole fill	Shank fragment, tip slightly bent	55.5
1	-	L1076	F1075	Phase 2 posthole fill	Type 1b with damaged head, or Type 4	55.5
1	-	L1088	F1087	Phase 2 pit fill	Shank fragment	34
1	-	L1090	F1089	Phase 2 posthole fill	Type 1b, head damaged, shank bent	36
1	-	L1102	F1101	Phase 2 posthole fill	Type 1b, lower shank bent	76
1	-	L1104	F1103	Phase 2 posthole fill	Type 1b, head damaged, most of shank missing	30
1	-	L1114	F1113	Phase 2 posthole fill	Shank fragment	73
1	-	L1127	F1126	Phase 2 pit fill	Type 1b, tip missing	60
1	-	L1134	F1133	Phase 2 pit fill	Type 1b, tip missing	55
1	-	L1154	F1152	Phase 2 pit fill	Shank fragment	45
1	-	L1156	F1155	Phase 2 slot fill	a) shank fragment b) shank fragment	53 29
1	-	L1158	F1157	Phase 2 posthole fill	Type 1b, shank bent at acute angle midway down length	50 approx
1	-	L1160	F1159	Phase 2 posthole fill	Shank fragment, bent at each end	40
1	-	L1248	F1246	Undated pit fill	Type 1b, tip missing	39
3	3.4	-	S2105	Phase 3 pottery drying oven	Type 1b	60
3	3.5	-	S2105	Phase 3 pottery drying oven	Type 1b	66
3	3.13	L2549	F2106	Unphased Roman unidentified feature fill	Type 1b	29 (inc)
3	3.14	L2549	F2106	Unphased Roman unidentified feature fill	Type 1b	53
3	3.15	L2549	F2106	Unphased Roman	Type 1b	47

				unidentified feature fill		
3	3.16	L2549	F2106	Unphased Roman unidentified feature fill	Type 1b, clenched	40 (bent)
3	-	L2125	F2124	Unphased Roman pit fill	Type 1b	57
3	3.7	L2155	F2150	Phase 4 pit fill	Type 1b	66
3	3.11	L2152	F2150	Phase 4 pit fill	Type 1b, shank fragment	85 (bent)
3	3.17	L2269	F2268	Phase 3 posthole fill	Type 1b	65
3	-	L2314	F2312	Phase 3 posthole fill	Type 1b, ?shank fragment with coiled tip	28 (inc), 40
3	-	L2318	F2317	Phase 3 gully fill	Type 1b	57 (inc)
3	3.23	L2412	F2377	Phase 4 posthole	Type 1b	85
3	-	L2444	F2442	Phase 3 posthole fill	Type 1b	41
3	-	L2395	F2507	Phase 3 ditch fill	a) Type 1b b) Type 1b	72, 40 (inc)
3	3.19	L2374	-	Phase 4silt layer	Type 1b	50 (inc)
3	3.21	L2410	-	Phase 4 silt layer	Type 1b, shank fragment	19 (bent)
4	-	L1000	-	Topsoil	Cuboid head, clenched tip. Modern.	28
4	-	L1000	-	l	Shank tip, clenched. Modern.	26

Table 26: Iron nails from Fosters End Drove (Excavation Phases 1, 3 and 4).

Medieval and later

EP3. Topsoil L2000 (not illustrated). Irregular U-section strip, probably iron-working debris and modern. Length 60 mm, maximum width 31 mm.

EP3. Subsoil L2001. (Fig. 42.5). The upper plate of a medieval folded buckle-plate with a marginal groove and five rivet holes set in a quincunx. The upper surface is gilded. Length 41 mm, width 13.5 mm. Similar plates come from 13th to early 14th century contexts at London and York (Egan and Pritchard 1991, Fig. 6, 314, Fig. 72, 3499; Ottaway and Rogers 2002, Fig. 1473, 14340).

EP1. Posthole F1159 (L1160) Phase 2 aisled building (not illustrated). Half a button with integral cast loop for attachment. Diameter 18mm, maximum thickness at loop 4mm. Post-medieval to modern, intrusive.

EP4. Topsoil (L1000) (not illustrated). More or less axe-shaped object but with blunt edge to the 'blade' and rounded back. The section is triangular across the 'blade' and tapers on both axes towards one corner. A block-shaped terminal at one end is slightly thicker than the 'blade'. Length 212 mm, maximum width 79 mm. Either an unfinished axe, or an machine part, possibly agricultural. Modern.

EP4. Topsoil (L1000) (not illustrated). Delaminating object, consisting of a strip of metal fixed between two other strips that are joined together on the upper edge by a third narrow strip, curved at the outer end. There is also hooked projection near the centre of the upper edge. Both ends are damaged. Length 131 mm, maximum width 26 mm. Modern.

EP4. Topsoil (L1000) (not illustrated). Seven sheet and strip fragments. 63 by 44 mm; 36 by 32 mm; 33 by 23 mm; 54 by 19 mm; 33 by 16 mm; 62 by 16 mm; 51 by 13 mm. Modern.

EP4. Topsoil (L1000) (not illustrated). Four fragments of wire. Lengths 92, 74, 72 and 71 mm. Modern.

EP4. Topsoil (L1000) (not illustrated). Clay pipe stem fragment. Length 50 mm; stem bore 3.5 mm.

Natural

Ditch F2040 L2041 (not illustrated). Small non-magnetic spheroid, probably a natural flint formation. Diameter 8 mm.

5.8 Catalogue of Roman vessel glass

Hilary E.M. Cool

Posthole F1095 (L1096) (not illustrated). Jug; blue/green handle fragment. Part of angular triple-ribbed handle. Handle section 21 x 5.5mm.

Pit F1087 (L1088) (not illustrated). Prismatic bottle; blue/green body fragment.

5.9 Industrial residues catalogue

Jennifer Jones and Philip W. Clogg

Feature/Context	Cont Type	Phase	Weight (g)	Identification	Comments	EDXRF
u/s			196.4	iron-rich geology	burnt	
L2000	topsoil		3200.6	tap slag	4 pieces smashed in antiquity; 1 large elongated plano-convex, 200mm + diam, 56mm thick	Yes
F1033 L1034 SEG A	ditch	2	17	tap slag		
F1087 L1088	pit	2	745	iron-rich geology	a burnt agglomeration of iron-rich earth, pebbles and flint	
F1097 L1098	posthole	2	2.7	cinder		
F1135 L1136	pit	2	16	tap slag		
F1137 L1268	well-pit	2	387.5	tap slag	smashed into fragments in antiquity	
F1137 L1269	well-pit	2	204.2	undiagnostic dribbled slag		
F1229 L1230 SEG A	ditch	2	64.1	tap slag	very small pieces, smashed in antiquity	
F1229 L1230 SEG A	ditch	2	1.8	tap slag		
F1229 L1230 SEG B	ditch	2	246.6	tap slag	small pieces, smashed in antiquity	
F1229 L1230 SEG L	ditch	2	74.3	tap slag	smashed into fragments in antiquity	
F1238 L1239	ditch	2	30.2	undiagnostic slag	undiagnostic slag and fused earth	

Feature/Context	Cont Type	Phase	Weight (g)	Identification	Comments	EDXRF
SEG D						
F2003 L2006	ditch	2	1375.3	tap slag	3 large pieces, inc one elongated plano-convex 200mm + diam	Yes
F2003 L2006	ditch	2	39.6	tap slag	small pieces smashed in antiquity	
F2003 L2006	ditch	2	49.6	stone	some iron content	
F2035 L2045	ditch	2	148.3	undiagnostic ironworking slag		
F2068 L2074	ditch	2	49.9	stone	natural, burnt	
F2068 L2082	ditch	2	36.1	iron-rich geology		
F2133 L2144	kiln	2	58.3	iron-rich geology		
F2170 L2171	ditch	2	53.1	stone	some iron content	
F1170 L1172	kiln	3	304.6	tap slag		
F2007 L2008	ditch	3	726.8	tap slag	small pieces smashed in antiquity	
F2013 L2014	ditch	3	171.4	tap slag		
F2013 L2014	ditch	3	127.3	pos iron-rich geology		
F2110 L2121	kiln	3	48	?slag covered nail	X-radiographed (XR 5663) for id	
F2110 L2134	kiln	3	478	tap slag	2 pieces, smashed in antiquity	
F2203 L2204	?posthole	3	77.3	tap slag	one piece	
F2235 L2236	posthole	3	6.7	undiagnostic ironworking slag		
F2442 L2444	posthole	3	53.7	tap slag		
F2484 L2485	posthole	3	77.3	tap slag	1 piece	

Feature/Context	Cont Type	Phase	Weight (g)	Identification	Comments	EDXRF
F1184 L1185 SEG A	pit	4	48.2	iron-rich geology	burnt and agglomerated with grit	
F1208 L1209 QUAD A	pit	4	73.8	iron-rich geology	burnt	
F1208 L1210	pit	4	454.8	iron ore	burnt	Yes
F1208 L1217 QUAD A	pit	4	188	iron-rich geology	burnt and agglomerated with grit	
F1225 L1226	pit	4	42.2	tap slag	small pieces, smashed in antiquity	
F1227 L1228	pit	4	556.8	tap slag		
F1227 L1228	pit	4	19.2	iron ore	3 small fragments	
F1231 L1232	pit	4	287.2	tap slag		
F1231 L1232	pit	4	6.4	iron-rich geology	burnt	
F1235 L1237	pit	4	205.7	tap slag	smashed into fragments in antiquity	
F1242 L1243	pit	4	185.8	iron ore	4 fragments; burnt	Yes
F1246 L1247	pit	4	562.1	tap slag	1 large fragment	
F1246 L1248	pit	4	516.8	tap slag	small pieces, smashed into fragments in antiquity	
F1256 L1257	pit	4	73.2	tap slag	smashed into fragments in antiquity	
F1259 L1260	posthole	4	78.3	tap slag	smashed into fragments in antiquity	
F1270 L1271	posthole	4	146.8	tap slag	small pieces, smashed into fragments in antiquity	
F1272 L1273	pit/gully	4	9385	tap slag	mostly dense with flowed surface, but some pieces dense with no flowed surface, reflecting first moments of tap or raking out of furnace; smashed into fragments in antiquity	Yes
F1274 L1275	posthole	4	59.6	tap slag		

Feature/Context	Cont Type	Phase	Weight (g)	Identification	Comments	EDXRF
F1276 L1277 SEG A	pit/gully	4	616.6	tap slag	single large piece with very flat top; surface patterning reflects dendritic structure	
F1278 L1279 SEG A	ditch	4	10.3	tap slag	1 fragment, smashed in antiquity	
F1278	ditch	4	138	tap slag	small pieces, smashed into fragments in antiquity	
F2054 L2055	pit	4	1380.4	furnace lining	16 frags, some with adhering ironworking slag, some vitreous inner surfaces, varying thickness, possibly reflecting sides and base of furnace; no original edges	
F2054 L2055	pit	4	461.9	undiagnostic ironworking slag	4 frags, some traces of haematite on surfaces – burning after formation	
F2054 L2055	pit	4	22	iron-rich geology		
F2054 L2055	pit	4	19868	tap slag	very large quantity, smashed into mainly small pieces in antiquity; some have slightly convex face indicating tapping into hollow	Yes
F2054 L2056	pit	4	3696.3	tap slag	mainly small pieces, smashed in antiquity; largest piece 115mm diam, 50mm thick, plano-convex	Yes
F2054 L2056	pit	4	24.4	undiagnostic ironworking slag and fused sand		
F2054 L2057	pit	4	437.1	tap slag	smashed in antiquity	
F2054 L2057	pit	4	30.1	iron-rich geology	fused sand on one face	
F2054 L2057	pit	4	158.5	iron-rich geology	poss. burnt	
F2150 L2155	pit	4	3029.6	smelting slag and furnace lining	misshapen hemispherical piece 185mm + diam	

Feature/Context	Cont Type	Phase	Weight (g)	Identification	Comments	EDXRF
F2150 L2155	pit	4	59.9	tap slag		
F2507 L2394	ditch	4	24.2	undiagnostic ironworking slag	1 piece	
F2015 L2016	ditch	Unph Rom	1946.9	stone	some iron content	Yes
F2031 L2032	ditch	Unph Rom	2469.3	smelting slag	large piece, accumulated in the base of the furnace, 200mm diam, dense around edges, vesicular inside	Yes
F2031 L2033	ditch	Unph Rom	591.3	tap slag		
F2031 L2033	ditch	Unph Rom	101.5	?tap slag	?slag solidified at tapping hole; X-radiographed (XR5661/62) for identification	
F2031 L2033	ditch	Unph Rom	517.9	stone	some iron content	
F2106 L2549	pit	Unph Rom	29.1	undiagnostic ironworking slag	1 piece	
F2247 L2250	pit	Unph Rom	1127.2	tap slag	mainly small pieces, smashed in antiquity	
F2510 L2514	ditch	Unph Rom	46	tap slag		
F1003 L1004 SEG L	ditch	5	336.5	tap slag	some with fused vitrified earth	
F1003 L1004	ditch	5	3187.3	tap slag	small pieces, smashed in antiquity	Yes

Feature/Context	Cont Type	Phase	Weight (g)	Identification	Comments	EDXRF
SEG M						
F1003 L1004 SEG M	ditch	5	2.4	undiagnostic slag	X-radiographed (XR 5663) for id	

Table 27: Fosters End Drove industrial residues by phase

Context	Phase	Type	Na2O	MgO	Al2O3	SiO2	P2O5	S	Cl	K2O	CaO	TiO2	V	MnO	Fe2O3	Co	Ni	Cu	Zn
F1003	5	TS	2.0687	0.7016	4.5223	21.0356	2.3086	0.0627	0.6279	0.6602	1.4181	0.1322	0.0156	0.7217	65.1493	0.1182	0.0206	0.0421	0.0304
F1229	2a	TS	3.4080	0.7383	5.0049	26.5564	2.6506	0.0777	0.6907	0.6283	1.3803	0.1618	0.0176	0.6649	57.5365	0.0952	0.0187	0.0178	0.0170
F1272	3c	TS	0.3299	0.3704	5.1206	29.8023	1.4562	0.0538	0.5832	0.8390	0.8608	0.1676	0.0050	0.5221	59.3202	0.1077	0.0215	0.0258	0.0177
L2000	x	TS	1.4444	0.0000	3.2378	20.5167	1.4687	0.0439	0.5178	0.5153	0.7105	0.1174	0.0098	0.5605	70.2392	0.1363	0.0290	0.0486	0.0240
F2003	2a	TS	0.7199	0.1551	1.6901	17.6584	3.2616	0.0902	0.2864	0.1080	1.4128	0.0607	0.0000	0.3554	73.6022	0.1228	0.0272	0.0447	0.0266
F2031	?3b	TS	0.4002	0.3331	2.3886	25.1830	1.7746	0.1246	0.2602	0.2786	1.4804	0.0765	0.0007	0.4146	66.8019	0.1135	0.0249	0.0264	0.0123
F2054 L2055	?3b	TS	0.3561	0.3102	2.8642	20.4254	1.3824	0.0510	0.2406	0.4601	0.8912	0.0982	0.0048	0.4240	71.9754	0.1221	0.0263	0.0299	0.0193
F2054 L2056	?3b	TS	0.6193	0.0000	2.1992	18.4417	1.3880	0.0479	0.1566	0.4121	1.0731	0.0997	0.0096	0.3946	74.1452	0.3126	0.0680	0.0440	0.0316
F2031 L2032	?3b	FB	0.3867	0.0547	1.2763	13.3759	0.8920	0.0852	0.0371	0.0519	0.4932	0.0443	0.0000	0.0966	82.5860	0.1491	0.0392	0.0111	0.0049
F1208	3b	?Ore	0.0000	0.5211	4.7658	31.4704	4.3972	0.0770	0.0006	0.3985	1.6704	0.1314	0.0269	1.4824	54.4336	0.0909	0.0152	0.0082	0.0277
F1242	3b	?Ore	0.2119	0.3807	6.4226	19.7627	0.9240	0.0372	0.0049	0.4064	0.3264	0.1741	0.0116	0.4061	70.2685	0.1456	0.0269	0.0127	0.0138
F2015	5	Stone	1.5404	0.1002	2.7711	52.2552	0.7232	0.1078	0.8330	0.3152	0.1857	0.0888	0.0211	0.1639	40.5987	0.0781	0.0187	0.0136	0.0218

Table 28: EDXRF analysis of residue samples (TS: tap slag; FB: furnace bottom)

5.10 Animal bone

Carina Phillips

The animal bone was recorded on an Excel database designed for use on computer screen and cannot be effectively shown on paper. The database can be found on the accompanying CD.

5.11 Charred plant macrofossils and other remains

Val Fryer

x = 1 = 10 specimens; xx = 10 – 50 specimens; xxx = 50 – 100 specimens; xxxx = 100+ specimens; b = burnt; cf = compare; PH = post-hole

Sample no	**4.2**
Context no	**L1014**
Feature no	**F1010**
Context type	**Pit**
Cereals	
Avena sp. (grains)	X
Hordeum sp. (grains)	X
Triticum sp. (grains)	X
Cereal indet. (grains)	XX
Herbs	
Fallopia convolvulus (L.)A.Love	X
Linum usitatissimum L.	X
Other plant macrofossils	
Charcoal <2mm	XXX X
Charcoal >2mm	XXX X
Charcoal >5mm	X
Charred root/stem	X
Indet. seeds	X
Other items	
Black porous material	XX
Bone	Xb
Vitrified material	XX
Sample Volume (litres)	
Volume of flot (litres)	**0.4**
% flot sorted	**25%**

Table 29: Samples from Phase 1 features

Sample No.	**3.1**	**3.2**	**3.3**	**3.93**	**3.123**
Context No.	**L2006**	**L2004**	**L2004**	**L2310**	**L2402**
Feature No.	**F2003**	**F2003**	**F2003**	**F2267**	**F2267**
Feature type	**Ditch**	**Ditch**	**Ditch**	**Ditch**	**Ditch**
Cereals					
Triticum sp. (grains)		X			

T. spelta L. (glume bases)	X				
Cereal indet. (grains)	X				
Herbs					
Fabaceae indet.			X		
Stellaria media (L.)Vill					X
Other plant macrofossils					
Charcoal <2mm	XXX	XXX	XXX	XXX	X
Charcoal >2mm	X	X	X	X	X
Charred root/stem	X			X	X
Indet.seeds		X			
Other materials					
Black porous 'cokey' material	X		X		X
Black tarry material			X		
Bone				Xb	
Sample volume (litres)	**30**	**30**	**30**	**15**	**15**
Volume of flot (litres)	**<0.1**	**<0.1**	**<0.1**	**0.1**	**<0.1**
% flot sorted	**100%**	**100%**	**100%**	**100%**	**100%**

Table 30: Samples from Phase 2 droveway and enclosure ditches

Sample No.	**1.1**	**1.2**	**1.27**	**1.26**	**1.28**	**1.29**	**1.30**	**1.31**
Context No.	**1141**	**1140**	**1268**	**1265**	**1269**	**1142**	**1267**	**1266**
Feature No.	**1137**	**1137**	**1137**	**1137**	**1137**	**1137**	**1137**	**1137**
Context type	**Well**	**Well**	**Well**	**Well**	**Well**	**Well**	**Well**	**Well**
Cereals								
Cereal indet. (grains)		X				X		
Hordeum sp. (grains)						X		
Triticum sp. (glume bases)		X						
T. spelta L. (glume bases)			X					
Herbs								
Asteraceae indet.						X		
Cerastium sp.		Xcf						
Fallopia convolvulus (L.)A.Love						X		
Medicago/Trifolium/Lotus sp.				Xcf				
Malva sp.		X			Xcf	XX		
Stellaria sp.						XX		
Tripleurospermum inodorum (L.)Shultz-Bip						X		
Other plant macrofossils								
Charcoal <2mm	X	XX	X	XX	XX	XX	X	XX
Charcoal >2mm		X			X	X		
Charred root/rhizome/stem		X		X		X		X
Indet.seeds	X	X						
Other material								
Black porous 'cokey' material		X						
Black tarry material		X						
Burnt/fired clay	X							
Mineralised soil concretions				XXX				

Sample volume (litres)	**15-20**	**15-20**	**15-20**	**15-20**	**15-20**	**15-20**	**15-20**	**15-20**
Volume of flot (litres)	**<0.1**	**<0.1**	**<0.1**	**<0.1**	**<0.1**	**<0.1**	**<0.1**	**<0.1**
% flot sorted	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

Table 31: Samples from Phase 2 Well F1137

Sample No.	**1.3**	**1.5**	**1.40**	**1.36**	**1.41**	**1.42**	**1.43**	**1.45**	**1.46**	**1.49**	**1.34**	**1.37**	**1.4**	**1.38**	**1.39**
Context No.	**1078**	**1114**	**1114**	**1072**	**1048**	**1096**	**1048**	**1281**	**1090**	**1080**	**1108**	**1084**	**1167**	**1036**	**1057**
Feature No.	**1077**	**1113**	**1113**	**1070**	**1047**	**1095**	**1047**	**1280**	**1089**	**1079**	**1107**	**1083**	**1166**	**1035**	**1055**
Context type	**PH**	**PH**	**PH**	**PH**	**PH**	**PH**	**PH**	**PH**	**PH**	**PH**	**PH**	**PH**	**PH**	**PH**	**PH**
Cereals															
Avena sp (awn frags.)			X												
Cereal indet. (grains)			X		X	X	X		X			X	X		
(detached embryos)			X												
(sprout frags.)			X												
Hordeum sp. (grains)			X		Xcf				X						
(rachis nodes)			X												
Triticum sp. (grains)					Xcf		X		X						
Triticum sp. (glume bases)		X	XX												
(spikelet bases)			X												
(rachis internodes)			X												
T. spelta L. (glume bases)		X	XX												
Herbs															
Asteraceae indet.										X					
Bromus sp.			X										Xcf		
Cerastium sp.	Xcf														
Chenopodiaceae indet.						X									
Chenopodium album L.			X						X						

Fallopia convolvulus (L.A.Love)									X						
Malva sp.						X			X						
Medicago/Trifolium/Lotus sp.									X			Xcf	Xcf		
Persicaria maculosa/lapathifolia													X		
Plantago lanceolata L.				X									X		
Small Poaceae indet.	X	X				X	X		X				X		
Large Poaceae indet.		X	X												
Polygonum aviculare L.						Xcf						X			
Polygonaceae indet.						X			X	X					
R. acetosella L.	X														
Rumex sp.						X									
Rumex/ Carex sp.													X		
Silene sp.									X						
Spergula arvensis L.									X			X			
Vicia/Lathyrus sp.															X
Wetland plants															
Carex sp.				X											
Ranunculus flammula L.									X						
Tress/shrubs															
Corylus avellana L.			Xcf												
Sambucus nigra L.					X										
Other plant macrofossils															
Charcoal <2mm	X	X	XXX	XX	X	XX	X	XX	XXX	XX	X	XX	XXX	X	XXX
Charcoal >2mm			X	X			X					X	X		XX
Charred root/rhizome/stem			X	X	X	X	X						X	X	X

Ericaceae indet. (florets)			X												
Indet.buds		X													
Indet.seeds		X		X		X	X	X	X	X		X	X		
Other material															
Black porous 'cokey' material	X		X	XX		XX	XXX	XXX	XX	X		X	XXX	X	XX
Black tarry material				X		X	X			X	X		XX		X
Bone									Xb		X				
Small mammal/amphibian bone							X								X
Burnt/ fired clay								X			X	X			
Vitrified material		X		X			XX	X	X	X			X		XX
Sample volume (litres)	**15-20**	**15-20**	**15-20**	**15-20**	**15-20**	**15-20**	**15-20**	**15-20**	**15-20**	**15-20**	**15-20**	**15-20**	**15-20**	**15-20**	**15-20**
Volume of flot (litres)	**<0.1**	**<0.1**	**<0.1**	**<0.1**	**<0.1**	**<0.1**	**<0.1**	**<0.1**	**<0.1**	**<0.1**	**<0.1**	**<0.1**	**<0.1**	**<0.1**	**<0.1**

Table 32: Samples from the postholes of the Phase 2 aisled building

Sample No.	**1.32**	**1.33**	**1.35**
Context No.	**1192**	**1195**	**1201**
Feature No.	**1191**	**1194**	**1200**
Context type	**PH**	**PH**	**PH**
Cereals			
Cereal indet. (grains)		X	
Hordeum sp. (grains)	Xcf		
Triticum spelta L. (glume bases)	X		
Herbs			
Medicago/Trifolium/Lotus sp.			X
Rumex sp.	Xcf		
Silene sp.		X	
Wetland plants			
Carex sp.			X
Ranunculus flammula L.		X	
Other plant macrofossils			
Charcoal <2mm	XX	XX	XX
Charcoal >2mm	X		
Charred root/rhizome/stem	X	X	
Other materials			
Black porous 'cokey' material		X	X
Black tarry material	X		X
Burnt/fired clay	X		
Vitrified material		X	
Sample volume (litres)	**15-20**	**15-20**	**15-20**
Volume of flot (litres)	**<0.1**	**<0.1**	**<0.1**
% flot sorted	**100%**	**100%**	**100%**

Table 33: Samples from postholes of the Phase 2 right-angled post line

Sample No.	**1.44**	**1.48**
Context No.	**1088**	**1153**
Feature No.	**1087**	**1152**
Context type	**Pit**	**Pit**
Cereals		
Cereal indet. (grains)	X	X
Triticum sp. (grains)	X	
Herbs		
Cirsium sp.	Xcf	
Small Poaceae indet.	X	X
Silene sp.		X
Spergula arvensis L.	X	
Other plant macrofossils		
Charcoal <2mm	X	X
Indet.seeds	X	
Other material		
Black porous 'cokey' material		X

Burnt/fired clay	X	
Sample volume (litres)	**15-20**	**15-20**
Volume of flot (litres)	**<0.1**	**<0.1**
% flot sorted	**100%**	**100%**

Table 34: Samples from the Phase 2 pits associated with the aisled building

Sample No.	**3.129**	**3.157**	**3.68**	**3.70**	**3.109**	**3.128**
Context No.	**L2420**	**L2204**	**L2236**	**L2232**	**L2342**	**L2414**
Feature No.	**F2419**	**F2203**	**F2235**	**F2231**	**F2341**	**F2413**
Feature type	**Gully**	**PH**	**PH**	**PH**	**PH**	**PH**
Herbs						
Papaver sp.						X
Rumex sp.	X					X
Stellaria media (L.)Vill						
Other plant macrofossils						
Charcoal <2mm	XX	X	X	X	X	X
Charcoal >2mm						
Charred root/stem			X			
Indet.seeds	X					
Other materials						
Black porous 'cokey' material	X			X		
Bone						X
Sample volume (litres)	**15**	**15**	**15**	**15**	**15**	**15**
Volume of flot (litres)	**<0.1**	**<0.1**	**<0.1**	**<0.1**	**<0.1**	**<0.1**
% flot sorted	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

Table 35: Samples from Phase 3 droveway modification features

Sample No.	**1.7**	**1.8**	**1.10**	**1.12**	**1.13**	**1.14**	**1.15**	**1.16**
Context No.	**1173**	**1174**	**1177**	**1179**	**1180**	**1081**	**1182**	**1175**
Feature No.	**1170**	**1170**	**1170**	**1170**	**1170**	**1170**	**1170**	**1170**
Context type	**Kiln**	**Kiln**	**Kiln**	**Kiln**	**Kiln**	**Kiln**	**Kiln**	**Kiln**
Cereals								
Avena sp. (awn frags.)		X	X			X		
Cereal indet. (grains)	X				X	X		
(detached embryos)	X	X		X	X	X		X
(sprout frags.)		X		X	X			X
(rachis internode frags.)		X						
Hordeum sp. (grains)	X					X		
Triticum sp. (grains)	Xcf							
(glume bases)	X	XX	XX	XX	X	XX	X	X
(spikelet bases)					X			
(rachis internodes)	X	X		X		X		
T. dicoccum Schubl. (glume bases)			Xcf					
T. spelta L. (glume bases)	X			X		X	X	

Herbs								
Atriplex sp.	Xcf		X					
Brassicaceae indet.				X			X	
Bromus sp.		X						
Chenopodium album L.	X		XX	X	X	X		X
C. ficifolium Sm.				X				
Chenopodiaceae indet.	X		X	X	X	X	X	X
Small Poaceae	X		X	X		X	X	X
Polygonum aviculare L.					Xcf			
Rumex/Carex sp.					X			X
Rumex acetosella L.		Xcf	X					X
Stellaria sp.			X					
Tripleurospermum inodorum (L.)Schultz-Bip						X	X	
Wetland plants								
Carex sp.			X		X			X
Juncus sp.						Xcf		X
Ranunculus flammula L.	X		X					
Other plant macrofossils								
Charcoal <2mm	XXX	X	X	XX	XX	XX	XX	XX
Charcoal >2mm	X				X			
Charred root/rhizome/stem	X	X	X	X	X			X
Ericaceae indet. (florets)		X	X	X	X		X	X
Indet.inflorescence frags.		XXX	XX	X	X			
Indet.seeds	X	X		X	X	X		
Other materials								
Black porous 'cokey' material	X			X				X
Burnt/fired clay					X	X		
Sample volume (litres)	**15-20**	**15-20**	**15-20**	**15-20**	**8**	**15-20**	**15-20**	**15-20**
Volume of flot (litres)	**<0.1**	**<0.1**	**<0.1**	**<0.1**	**<0.1**	**<0.1**	**<0.1**	**<0.1**
% flot sorted	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

Table 36: Samples from Phase 3 Kiln S1170

Sample No.	**3.32**	**3.34**	**3.43**	**3.62**	**3.168**	**3.164**
Context No.	**L2111**	**L2128**	**L2144**	**L2230**	**L2558**	**L2556**
Feature No.	**S2118 F2110**	**S2119 F2126**	**S2133 F2143**	**S2133 F2143**	**S2118 -**	**S2105 F2553**
Feature type	**Kiln**	**Kiln**	**Kiln**	**Kiln**	**Kiln**	**Dryin g oven**
Cereals						
Hordeum sp. (grains)			X	X		X
Triticum sp. (grains)	X	X	X	X		X
(glume bases)	X	X		X		X
(spikelet bases)		X				
T. spelta L. (glume bases)		XX		X		
Cereal indet. (grains)		X	X	X		X

(detached sprouts)						X
Herbs						
Bromus sp.		X	Xcf			X
Chenopodium album L.	X					
Fabaceae indet.	X		X			X
Fallopia convolvulus (L.)A.Love		X				
Persicaria maculosa/lapathifolia		X				
Small Poaceae indet.			X		X	X
Raphanus raphanistrum L. (siliqua frags.)		X		X	X	X
Rumex sp.		X				X
Wetland plants						
Ranunculus flammula L.				X		
Other plant macrofossils						
Charcoal <2mm	XX	XXX	XXX	X	XXX	XXX
Charcoal >2mm		X				X
Charred root/stem	X		X			
Indet.seeds			X			
Other materials						
Black porous 'cokey' material		XX	X	X		
Bone						Xb
Burnt/fired clay		XX			X	
Small mammal/amphibian bone			Xpmc			
Sample volume (litres)	**30**	**30**	**30**	**30**	**30**	**15**
Volume of flot (litres)	**<0.1**	**<0.1**	**<0.1**	**<0.1**	**<0.1**	**<0.1**
% flot sorted	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

Table 37: Samples from Phase 3 Kilns S2133, S2118 and S2119 and Drying Oven S2105

Sample No.	**3.117**	**3.118**	**3.122**	**3.131**
Context No.	**L2383**	**L2384**	**L2407**	**L2424**
Feature No.	**F2382**	**F2382**	**F2375**	**F2421**
Feature type	**Pit**	**Pit**	**PH**	**PH**
Cereals				
Triticum sp. (grains)	X			
Cereal indet. (grains)		Xcf		X
Herbs				
Spergula arvensis L.		X		
Wetland plants				
Carex sp.		X		
Other plant macrofossils				
Charcoal <2mm	XXX	XX	XXX	X
Charcoal >2mm	X	X	XX	
Charcoal >5mm			X	
Charred root/stem	X	X		
Other materials				
Black porous 'cokey'	X			X

material				
Sample volume (litres)	**30**	**15**	**15**	**15**
Volume of flot (litres)	**<0.1**	**<0.1**	**<0.1**	**<0.1**
% flot sorted	**100%**	**100%**	**100%**	**100%**

Table 38: Samples from Phase 3 Pit F2382 and the rectangular timber building

Sample No.	**1.22**	**1.21**	**1.24**	**1.25**	**3.40**	**1.20**	**1.47**
Context No.	**1236**	**1228**	**1247**	**1248**	**L2151**	**1220**	**1219**
Feature No.	**1235**	**1227**	**1246**	**1246**	**F2150**	**1208**	**1208**
Context type	**Pit**	**Pit**	**Pit**	**Pit**	**Pit**	**Pit**	**Pit**
Cereals							
Avena sp. (grains)					X	Xcf	
Cereal indet. (grains)					XX	X	X
Hordeum sp. (grains)					Xcf	X	Xcf
Triticum sp. (grains)					X		
(rachis internodes)			X				
T. spelta L. (glume bases)					X		
Herbs							
Anagallis arvensis L.							Xcf
Bromus sp.			Xcf		X		
Fallopia convolvulus (L.) A.Love					X	X	
Malva sp.		X					
Medicago/Trifolium/Lotus sp.							Xcf
Persicaria maculosa/lapathifolia						X	
Plantago lanceolata L.						X	
Ranunculus sp.							X
Small Poaceae indet.		X					
Large Poaceae indet.				X	X		
Polygonaceae indet.	X						
Rumex sp.				X			
Other plant macrofossils							
Charcoal <2mm	XXX	XX	XXX	XXX	XXX	XXX	XXX
Charcoal >2mm	XXX		X	X	XX	XX	X
Charred root/rhizome/stem		X	X	X	X		X
Indet.buds				X			
Indet.seeds				X		X	X
Other material							
Black porous 'cokey' material		X	X			X	X
Black tarry material							X
Bone					**X**	X	X
Burnt/ fired clay			X				X
Vitrified material							X
Sample volume (litres)	**15-20**	**15-20**	**15-20**	**15-20**	**30**	**15-20**	**15-20**

Volume of flot (litres)	**<0.1**	**<0.1**	**<0.1**	**<0.1**	**0.1**	**<0.1**	**<0.1**
% flot sorted	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

Table 39: Samples from Phase 4 pits

Sample No.	**3.60**	**3.69**	**4.1**
Context No.	**L2226**	**L2238**	**L1005**
Feature No.	**F2225**	**F2237**	**F1004**
Feature type	**Pit**	**PH**	**Tree hollow**
Cereals			
T. spelta L. (glume bases)		X	
Herbs			
Small Poaceae indet.	X		
Other plant macrofossils			
Charcoal <2mm	XX	X	XXX
Charcoal >2mm	X		XXX
Charred root/stem	X		
Indet seeds			X
Other materials			
Small coal frags.	X		
Sample volume (litres)	**30**	**15**	
Volume of flot (litres)	**<0.1**	**<0.1**	**0.1**
% flot sorted	**100%**	**100%**	**100%**

Table 40: Samples from Unphased and undated features

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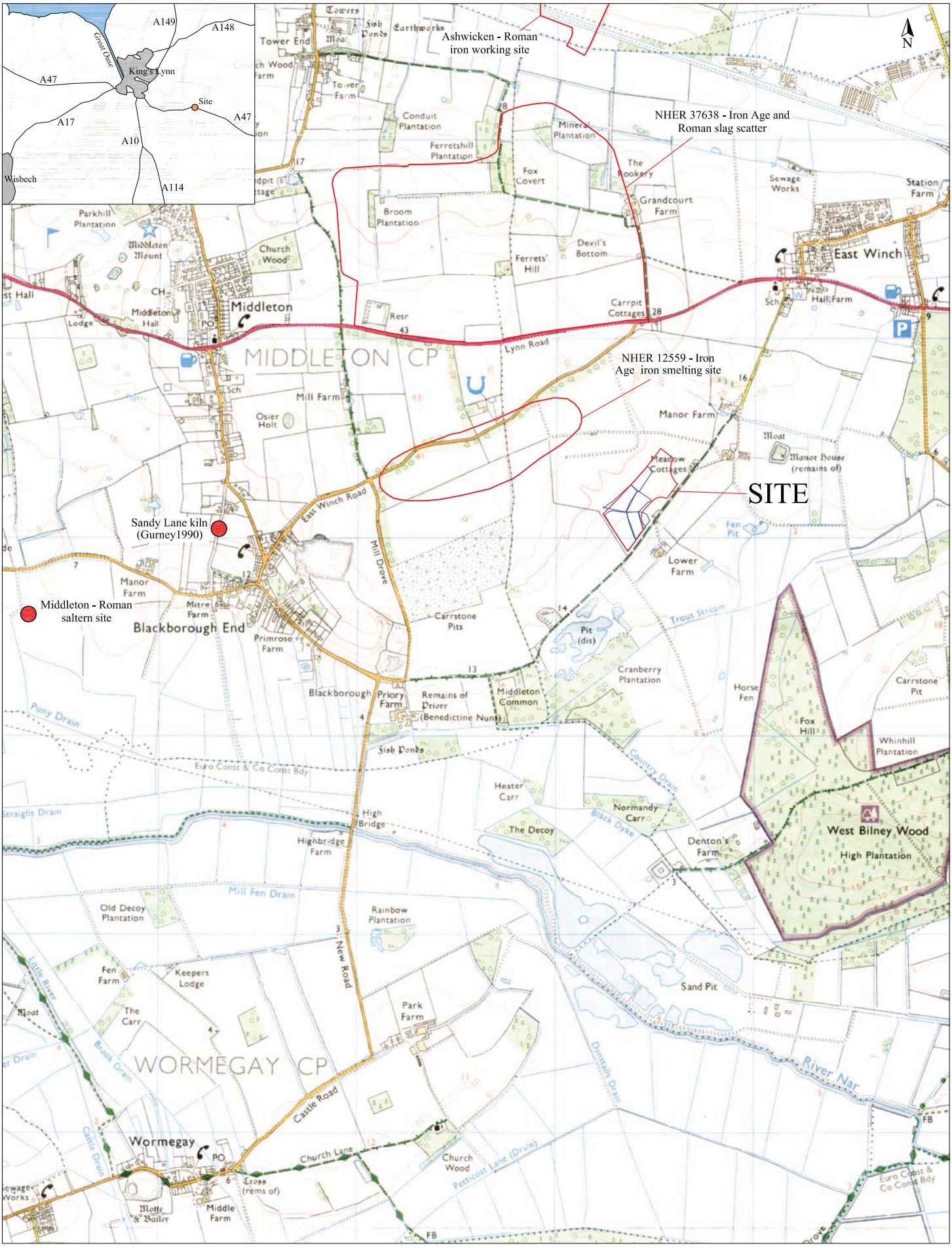

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Fig. 1 Site location plan

Scale: 1: 25,000 at A4

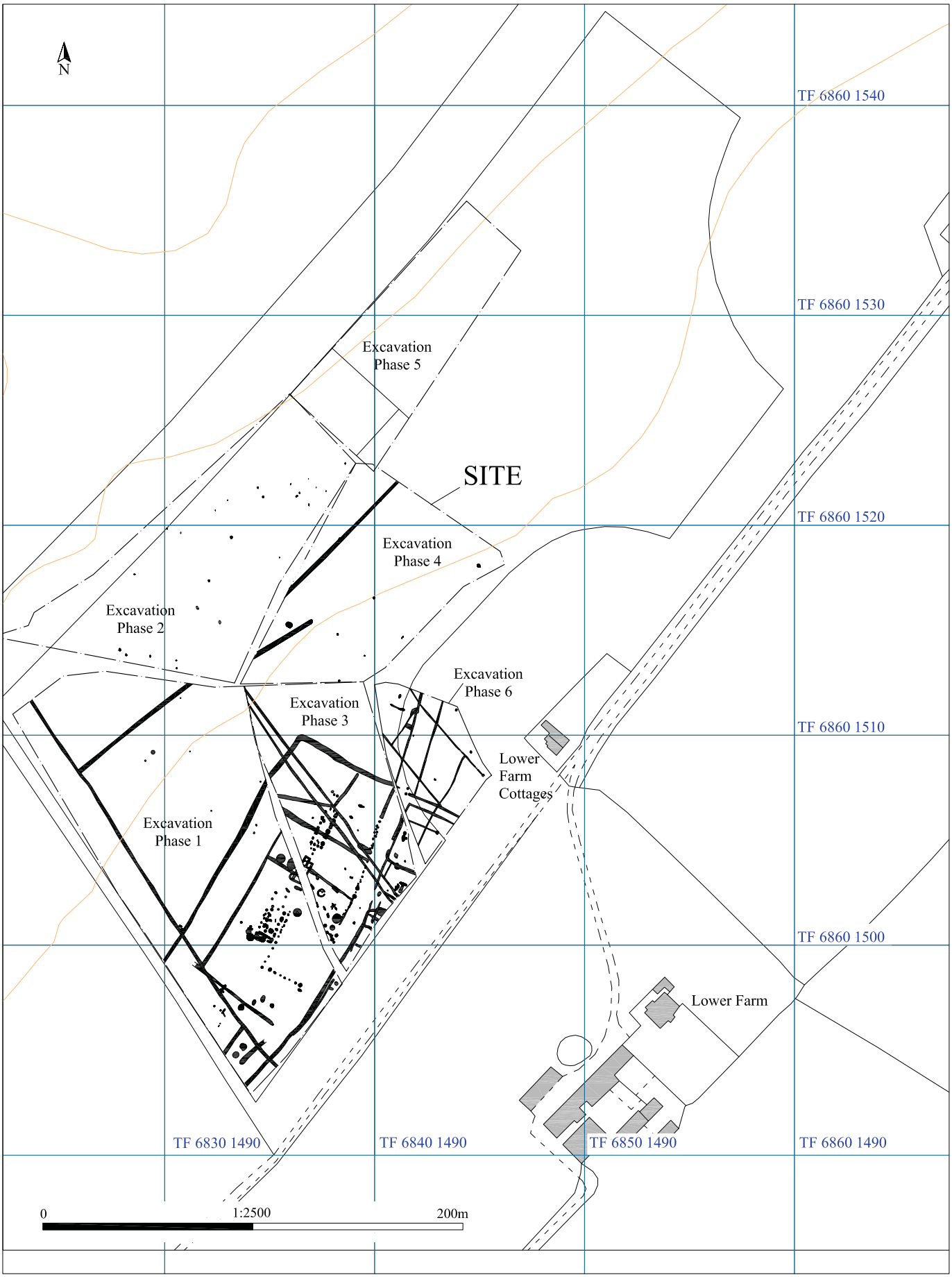

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Fig. 2 Detailed site location plan

Scale 1:2500 at A4

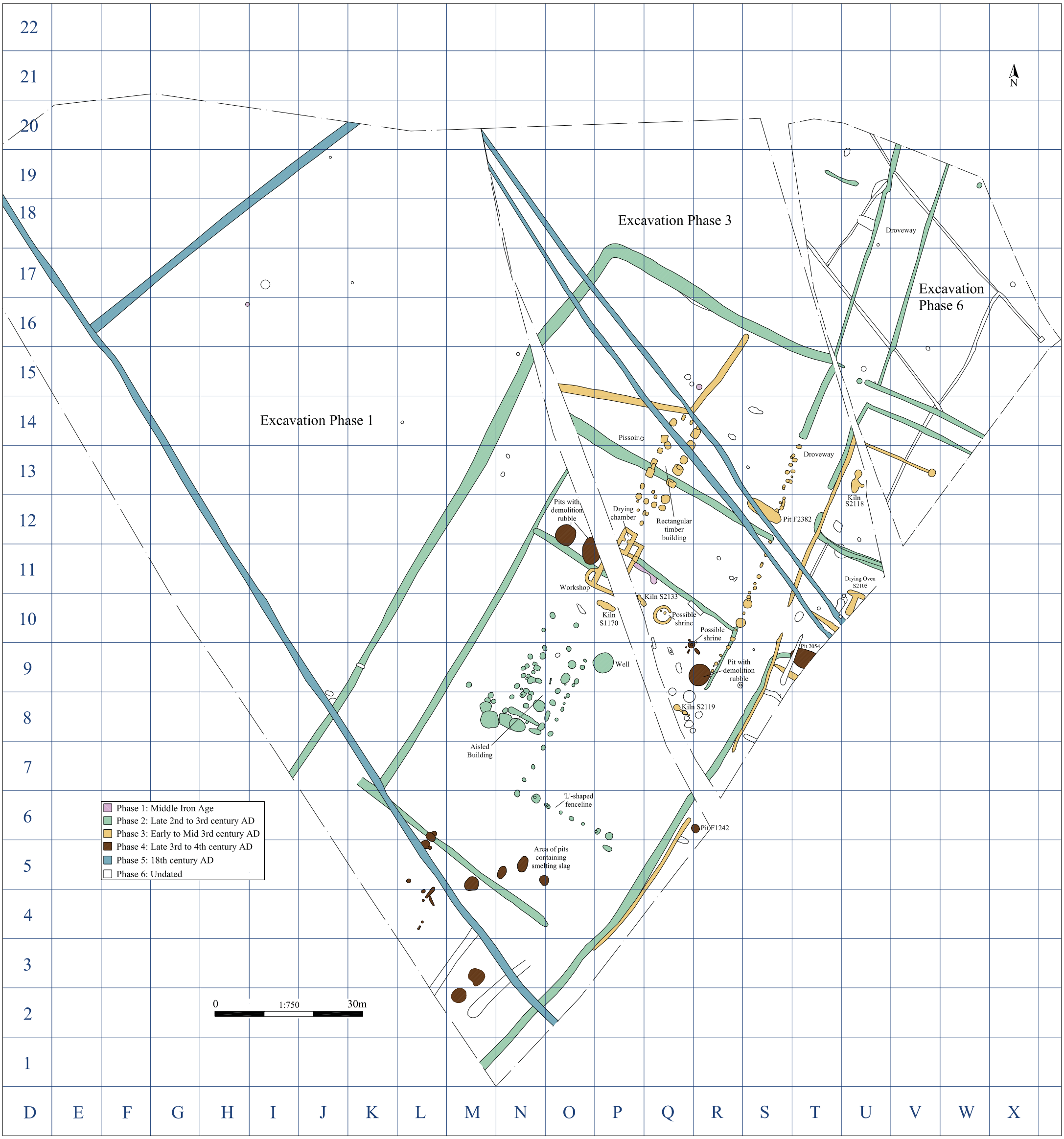

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Fig. 3 Phase plan (EP1, EP3 & EP6)

Scale 1:750 at A3

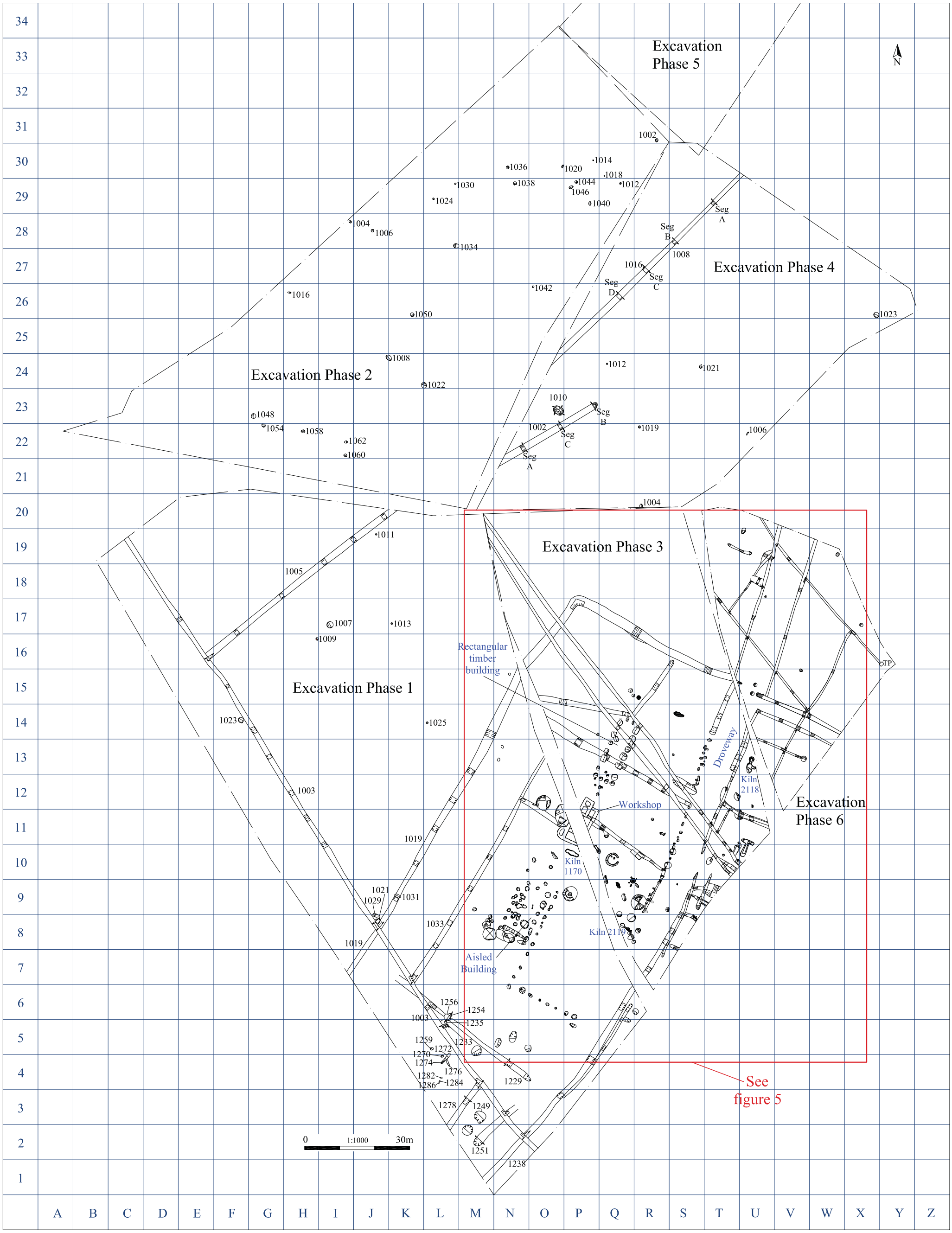

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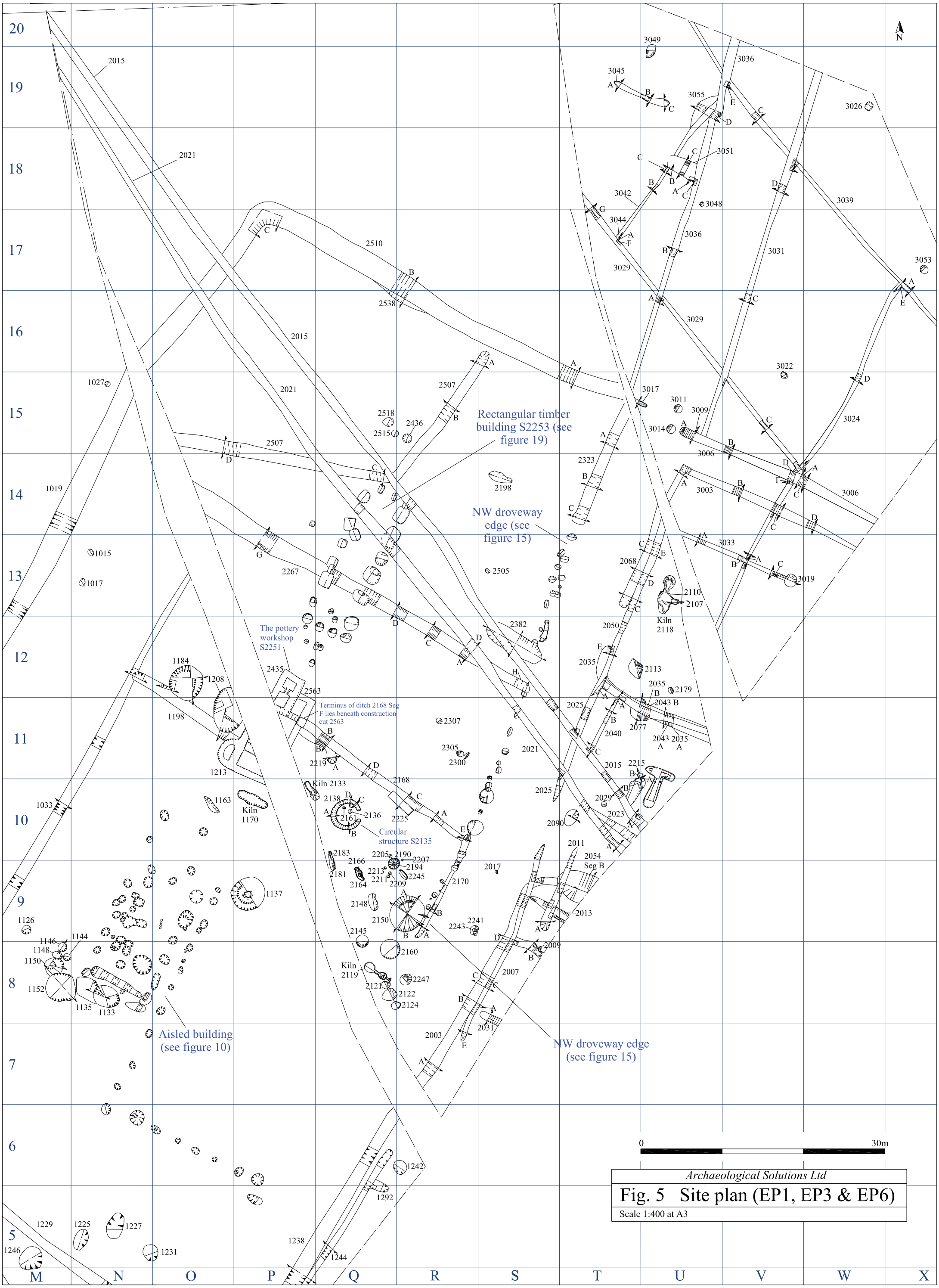
Fig. 4 Site plan

Scale 1:1000 at A3


N
Rectangular timber building S2253 (see figure 19)
NW droveway edge (see figure 15)
The pottery workshop S2251
Terminus of ditch 2168 Seg F lies beneath construction cut 2563
Circular structure S2135
Aisled building (see figure 10)
NW droveway edge (see figure 15)
Kiln 2133
Kiln 1170
Kiln 2118
Kiln 2119
2015
2021
2510
2538
2507
2518
2515
2436
2198
2323
3049
3045
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Seg B
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2009
2007
2031
2003
2017
2170
2241
2243
2150
2148
2145
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30m
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Fig. 5 Site plan (EP1, EP3 & EP6)
Scale 1:400 at A3

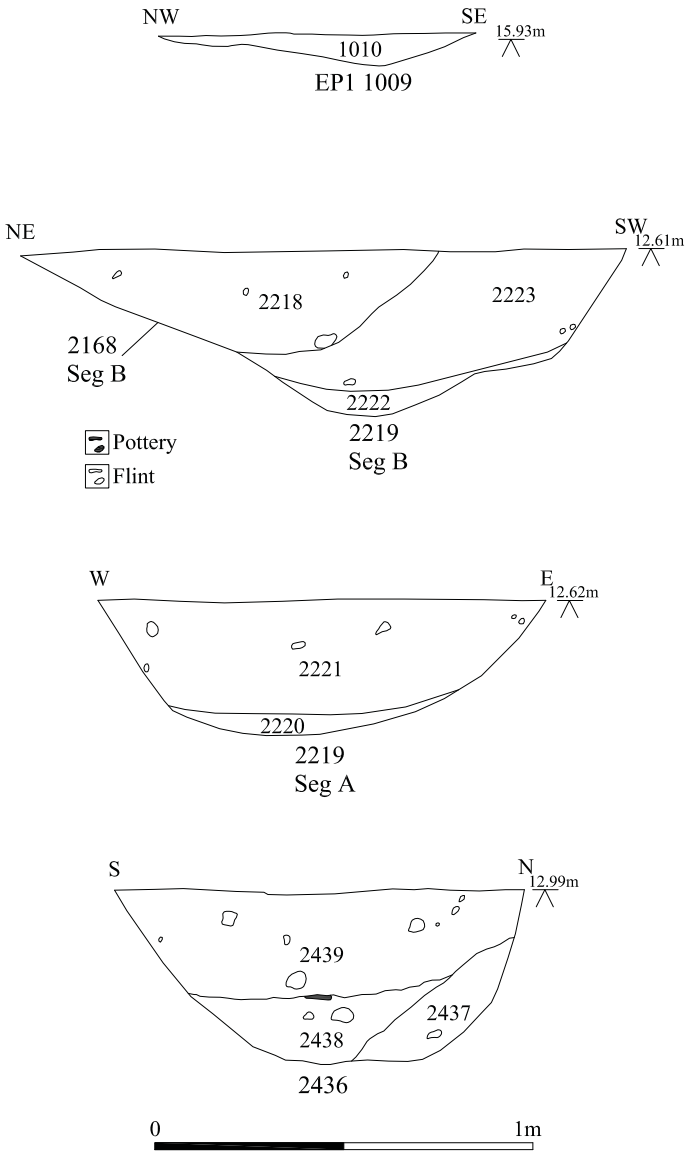

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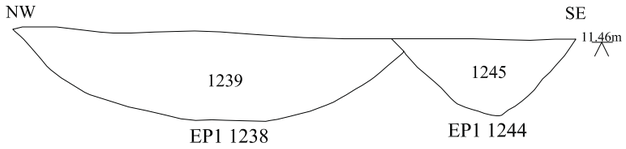
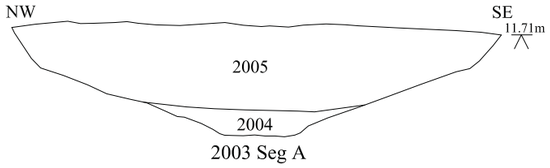
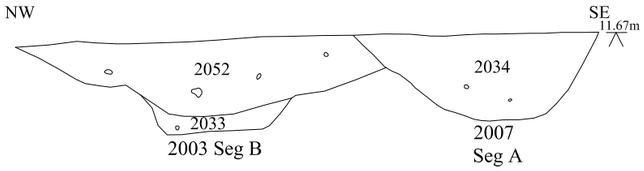
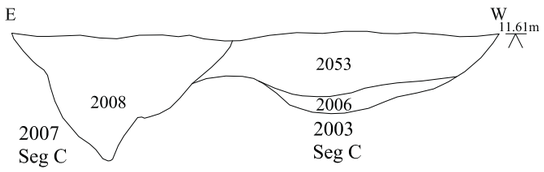
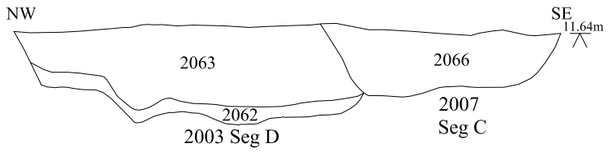
Fig. 6 Phase 1 sections
Scale 1:20 at A4

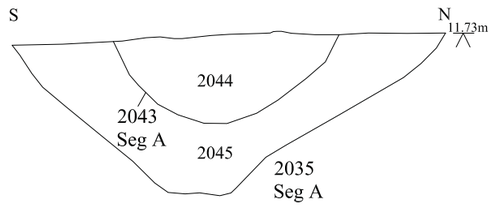


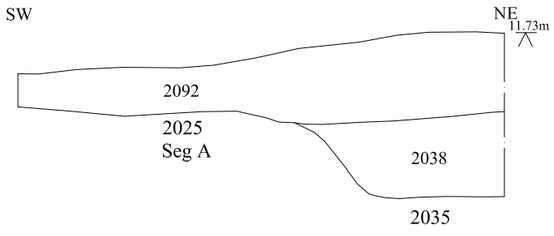


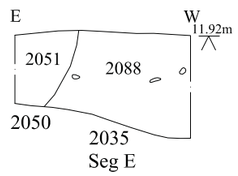


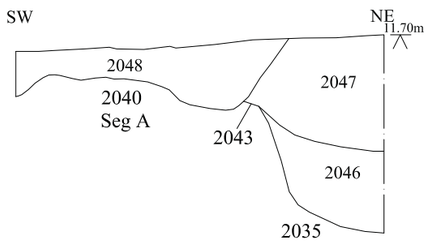


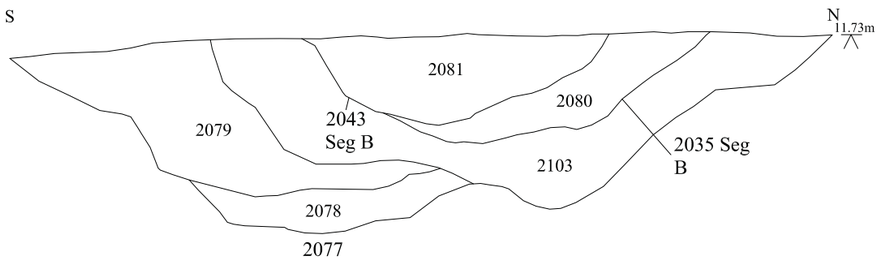


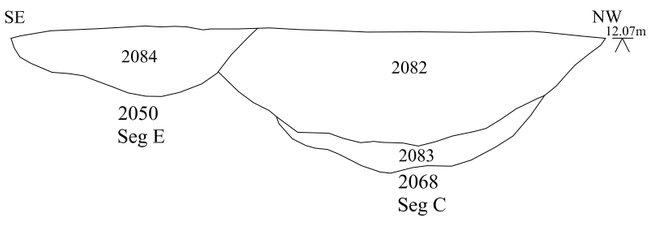


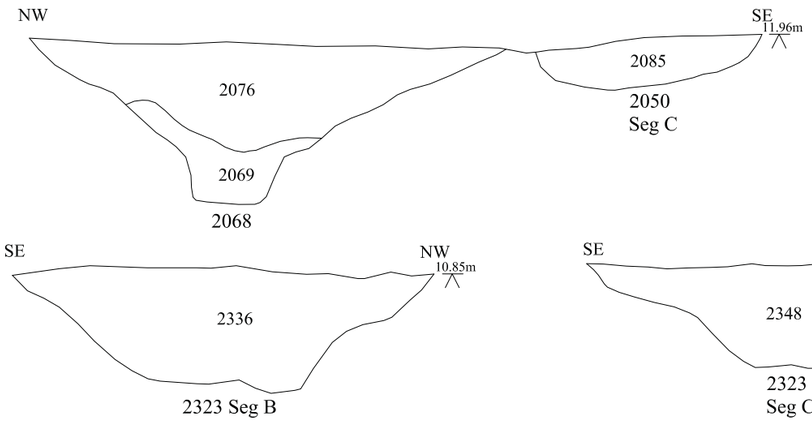


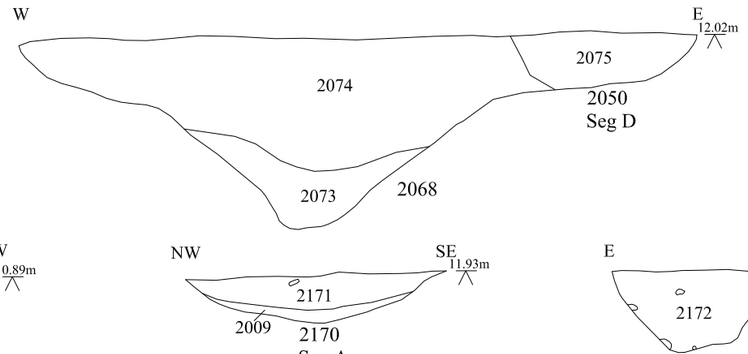


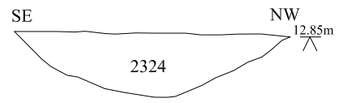


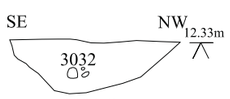


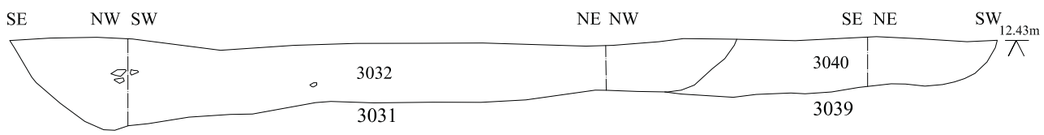


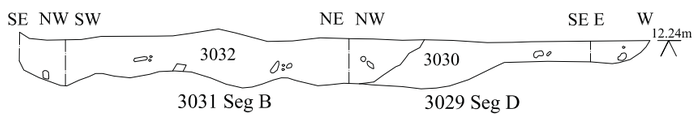


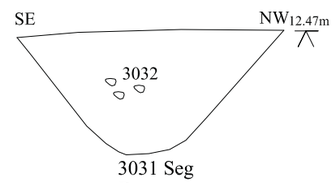


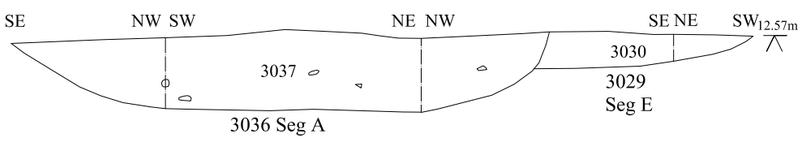


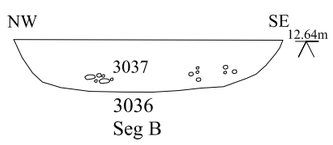


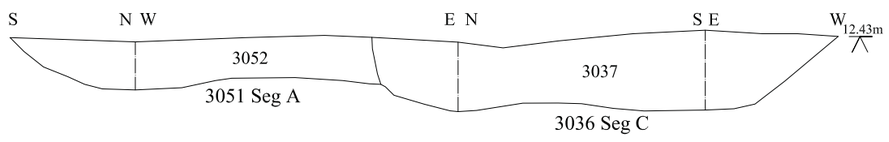


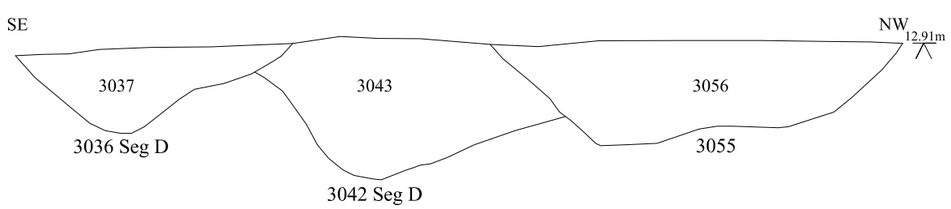












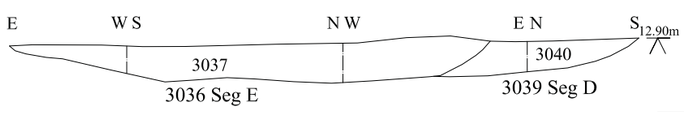


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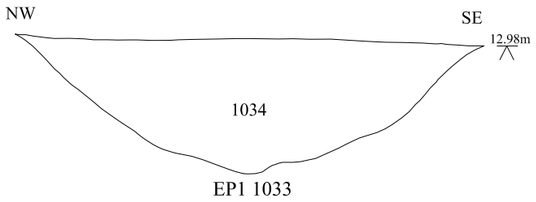
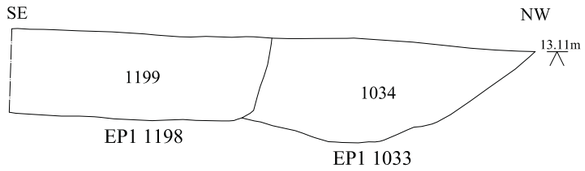
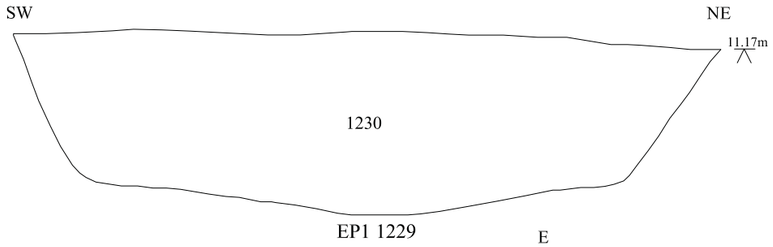
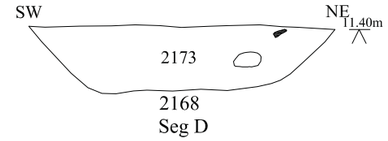
Fig. 7 Phase 2 sections - the droveway

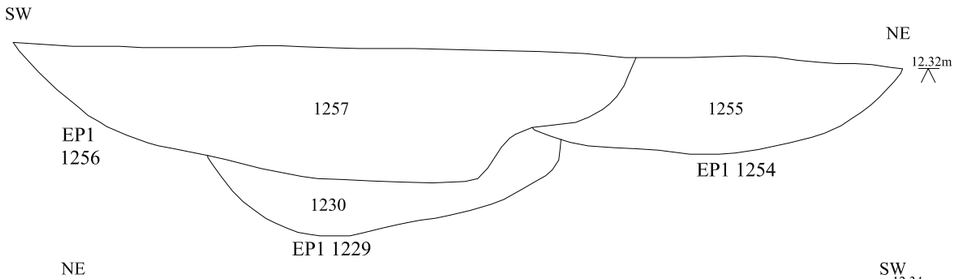
Scale 1:20 at A3

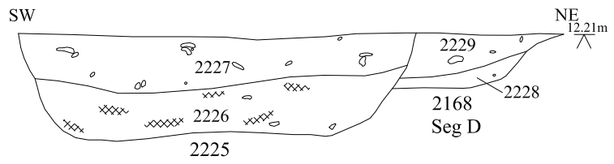


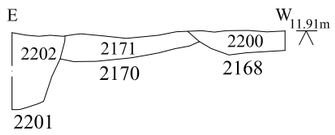


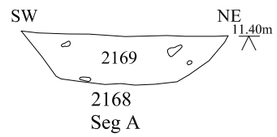


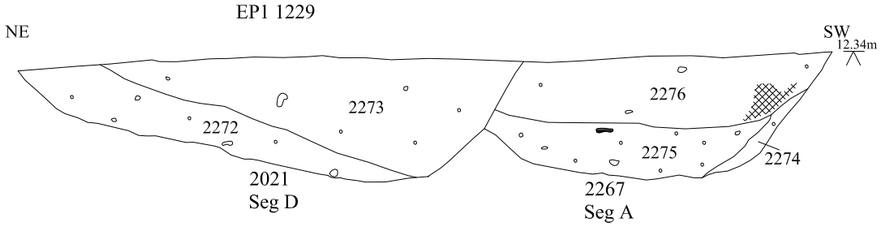


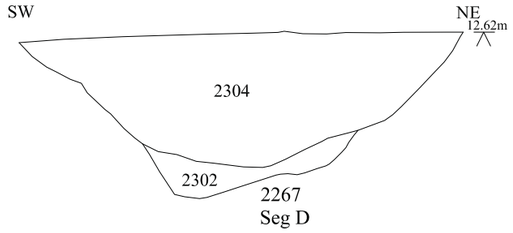


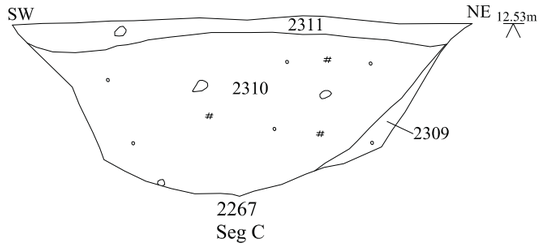


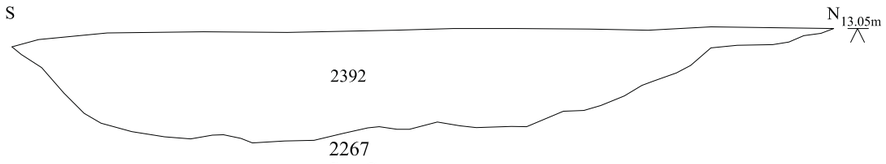


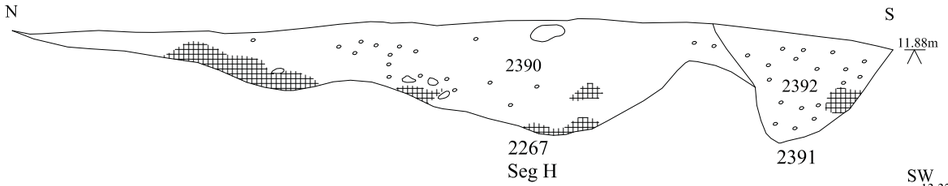


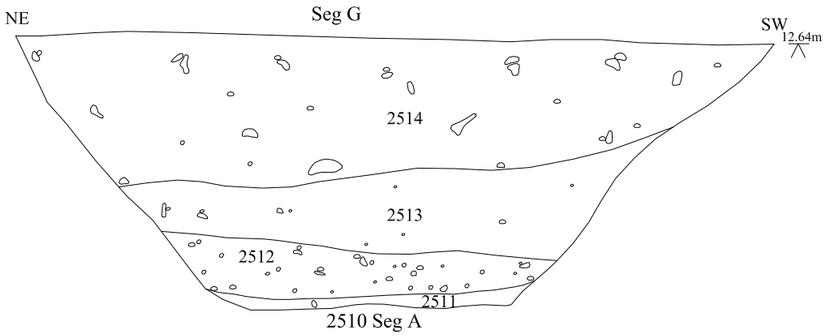


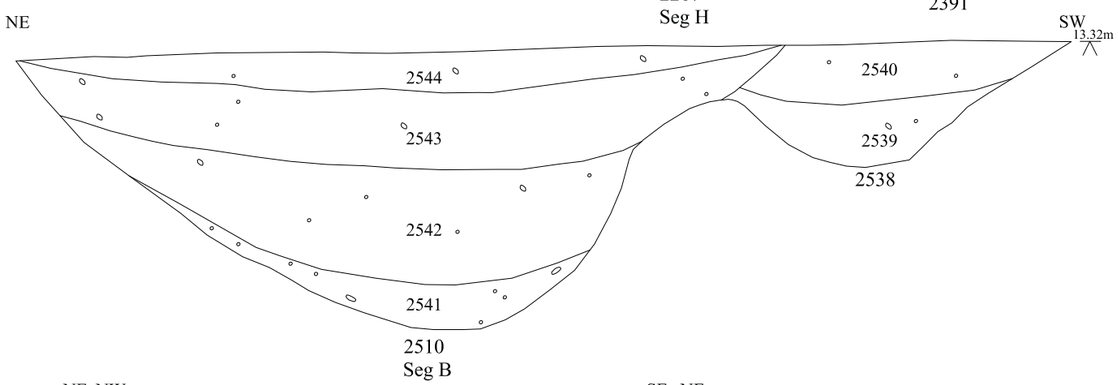












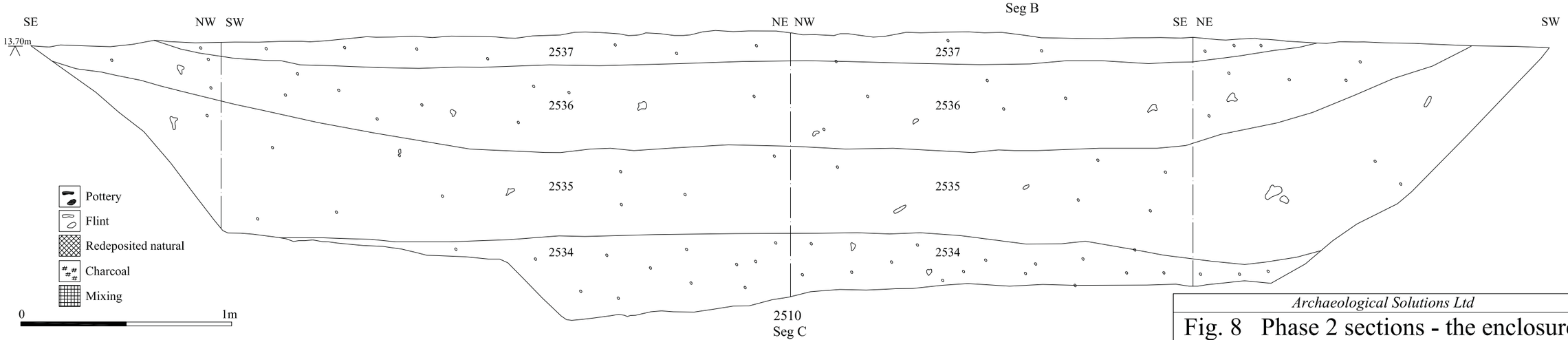


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Fig. 8 Phase 2 sections - the enclosure

Scale 1:20 at A3

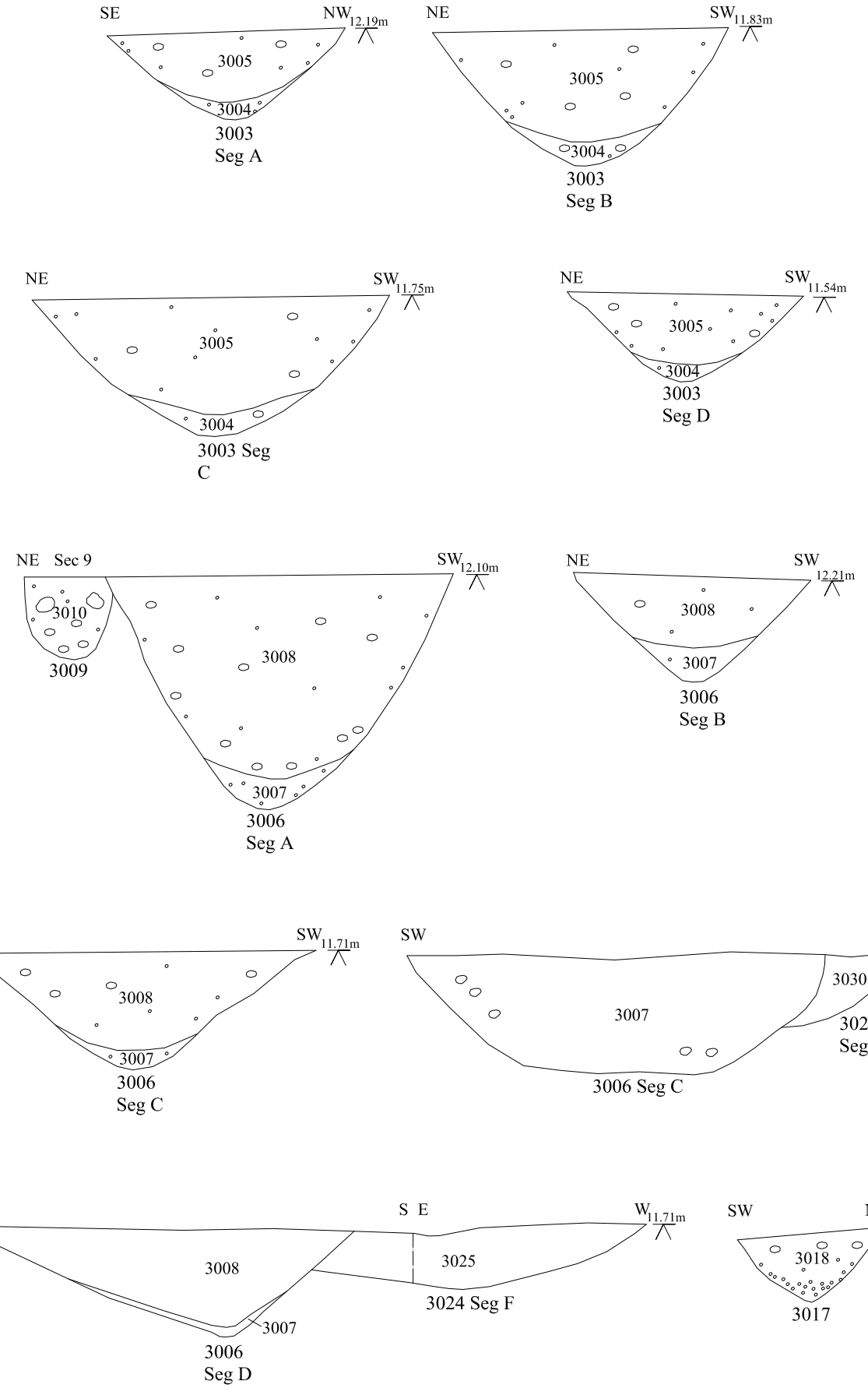

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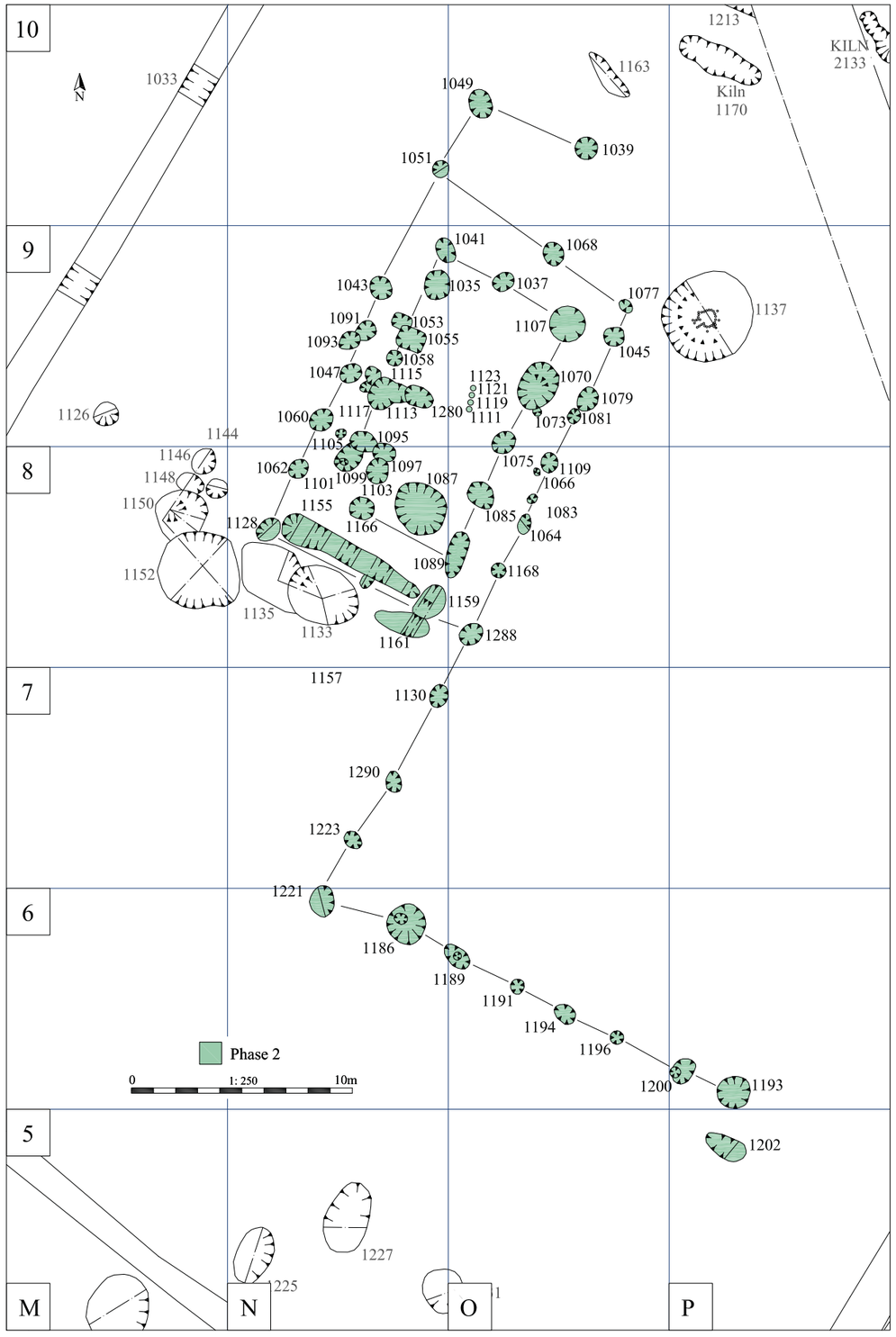
Fig. 9 Phase 2 sections - the enclosure
Scale 1:20 at A4



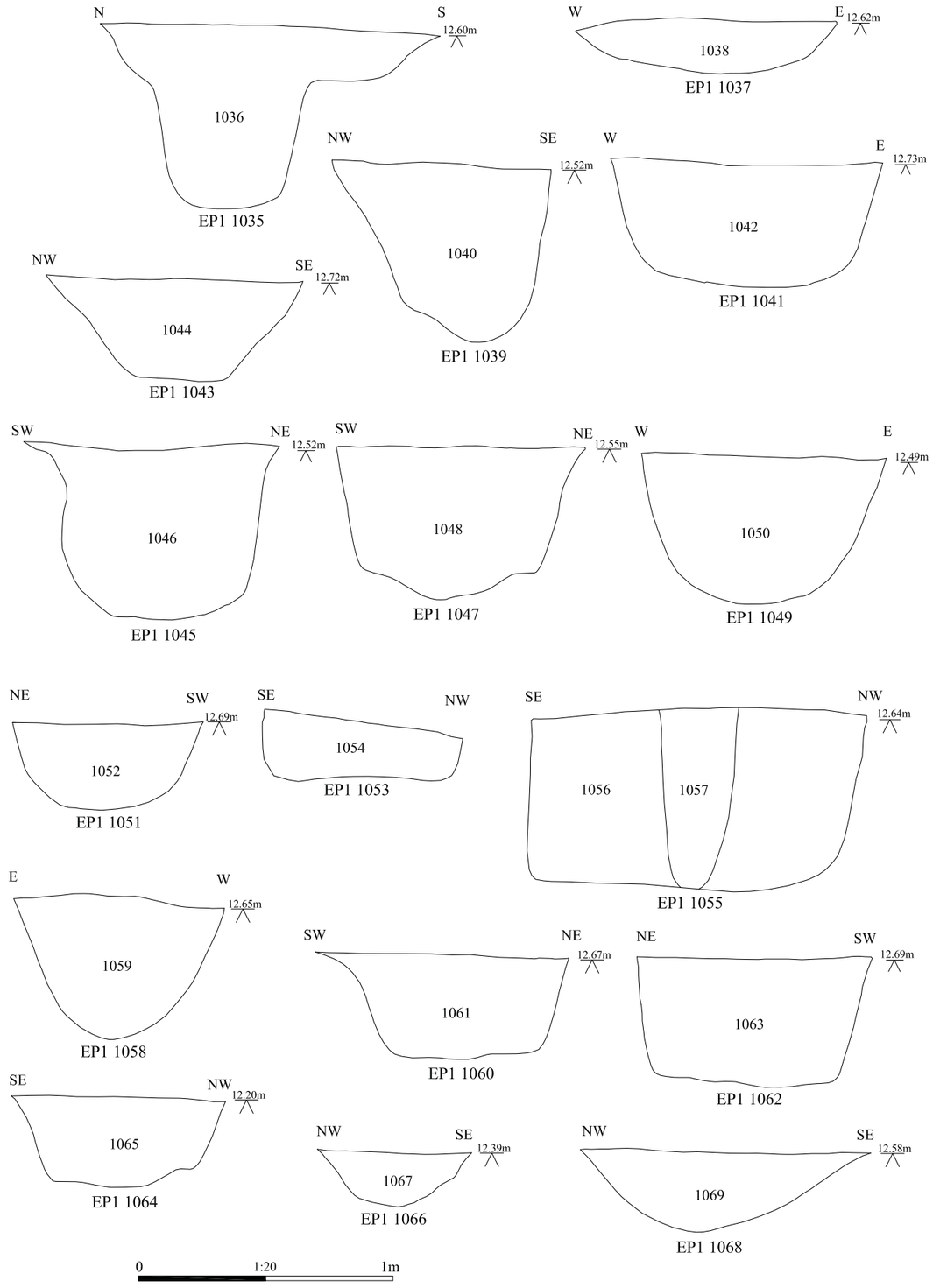


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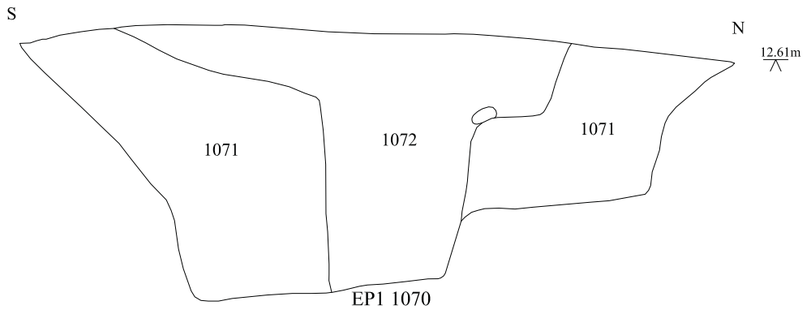
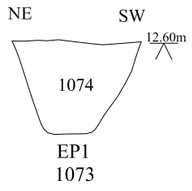
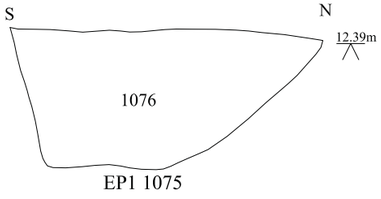
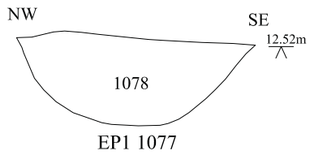
Fig. 10 Phase 2 aisled building and right angled post alignment

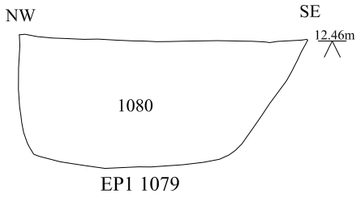
Scale plan 1:250; sections 1:20 at A3

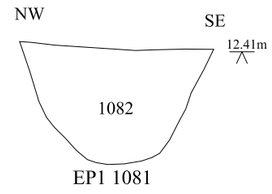


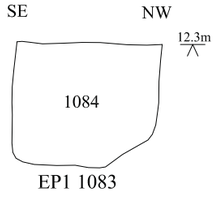


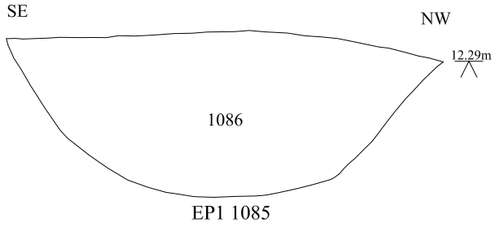


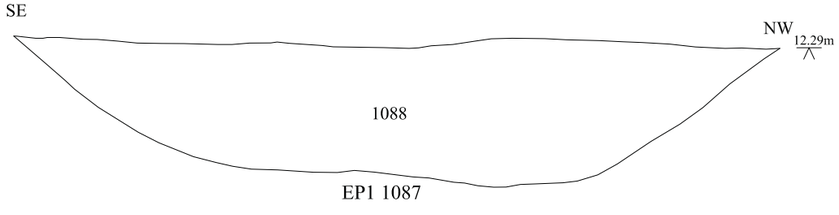


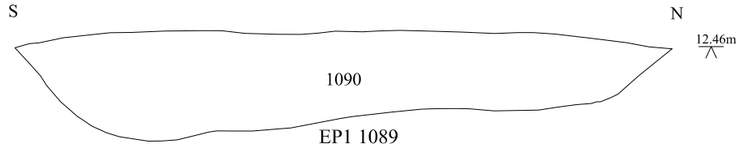


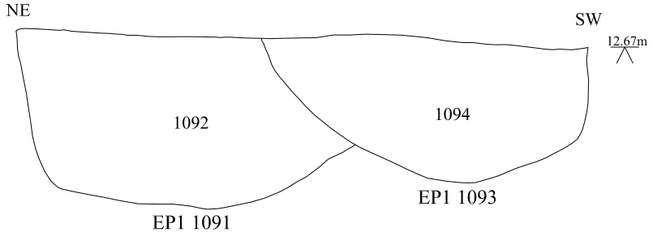


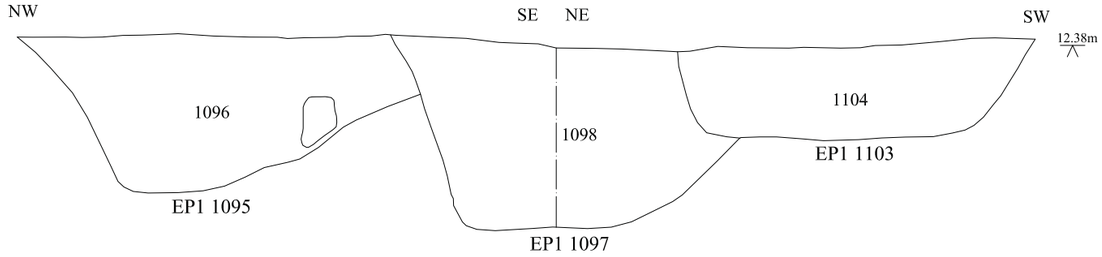


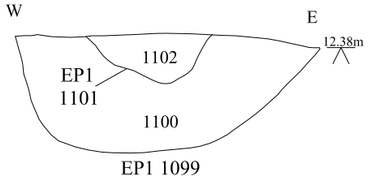


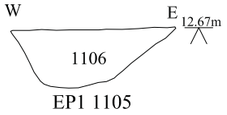


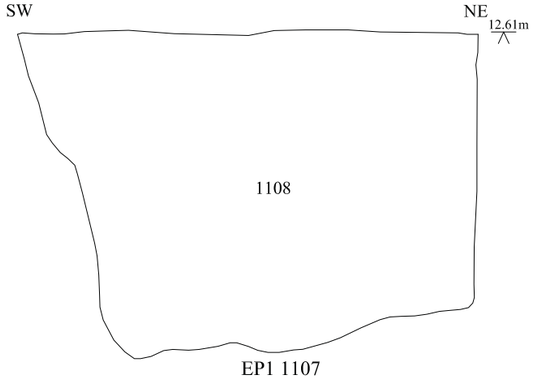


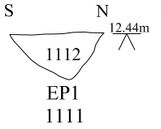


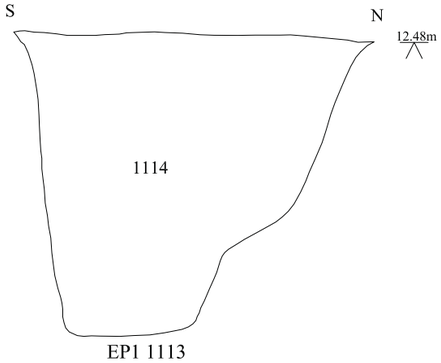


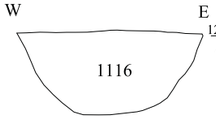


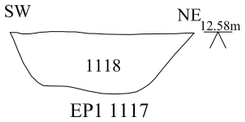


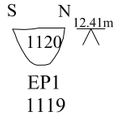


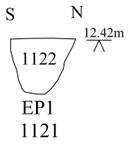


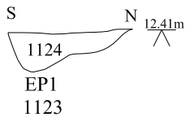


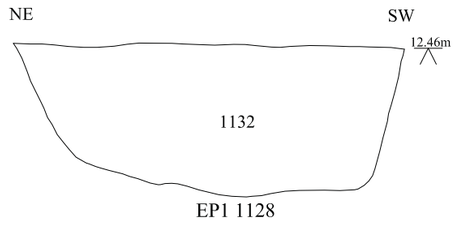


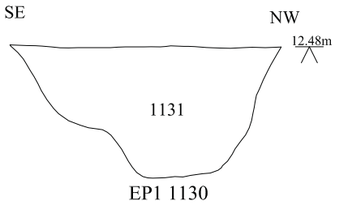


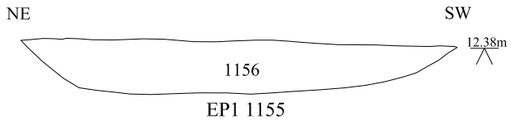


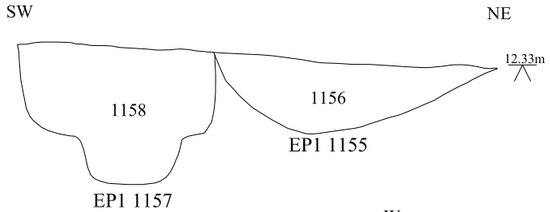


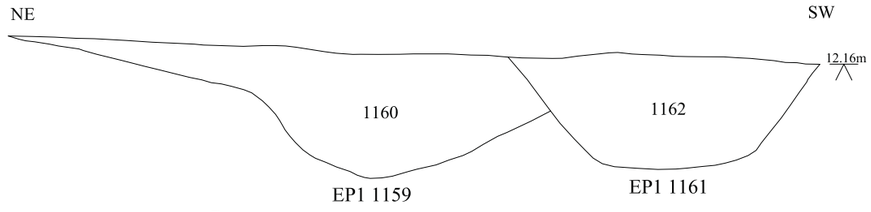


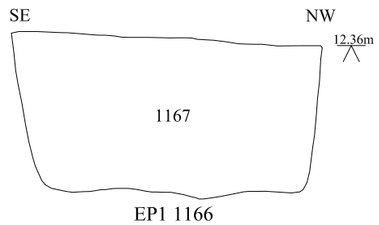


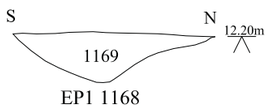


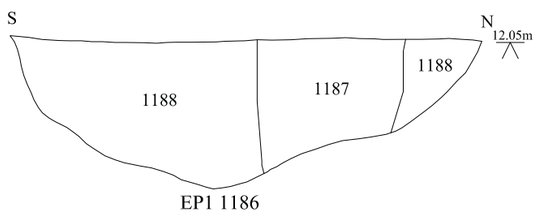












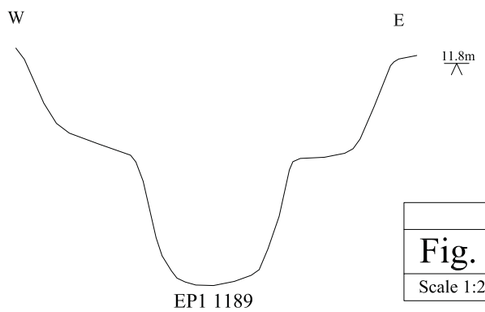


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Fig. 11 Phase 2 sections - aisled building

Scale 1:20 at A3

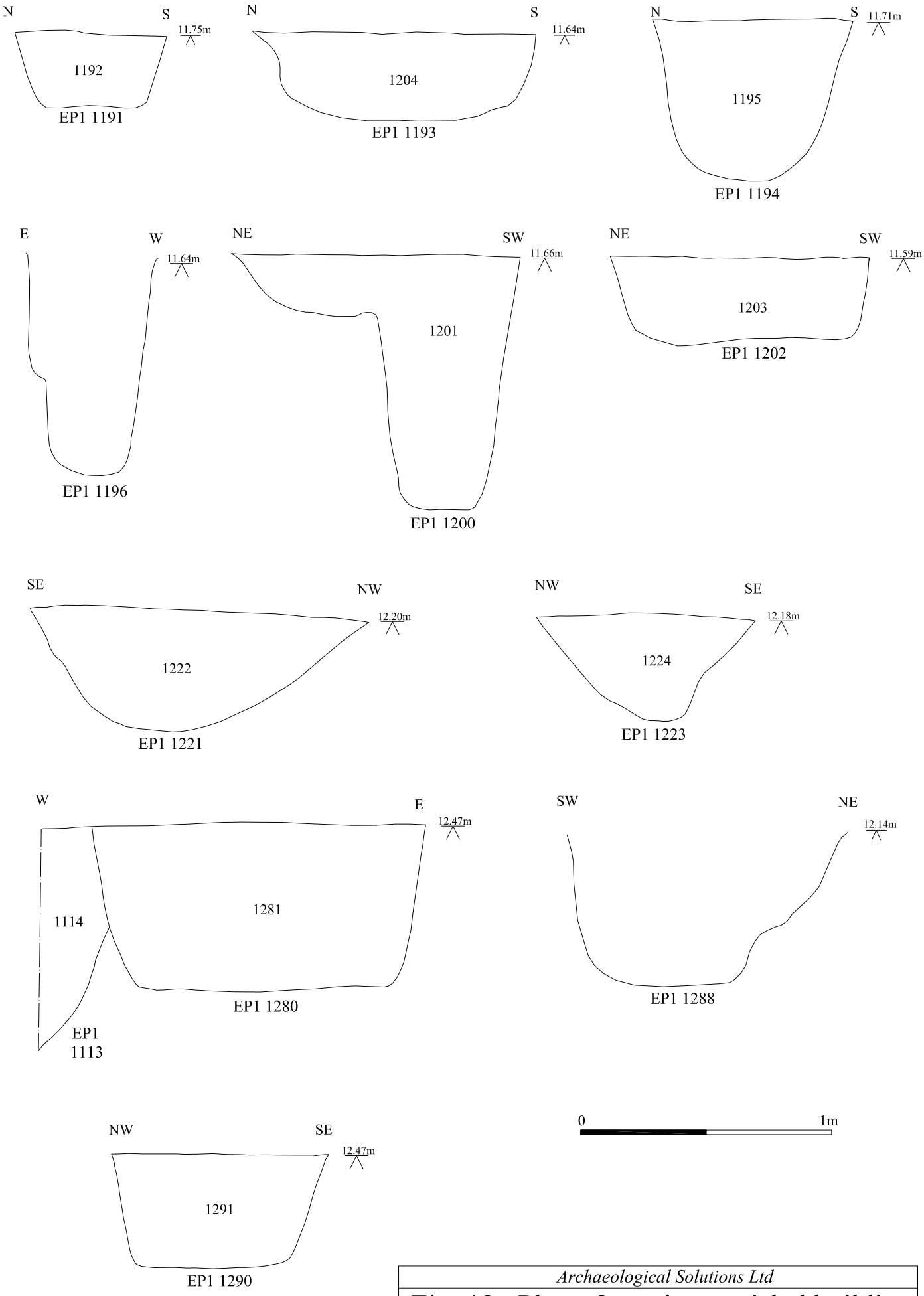

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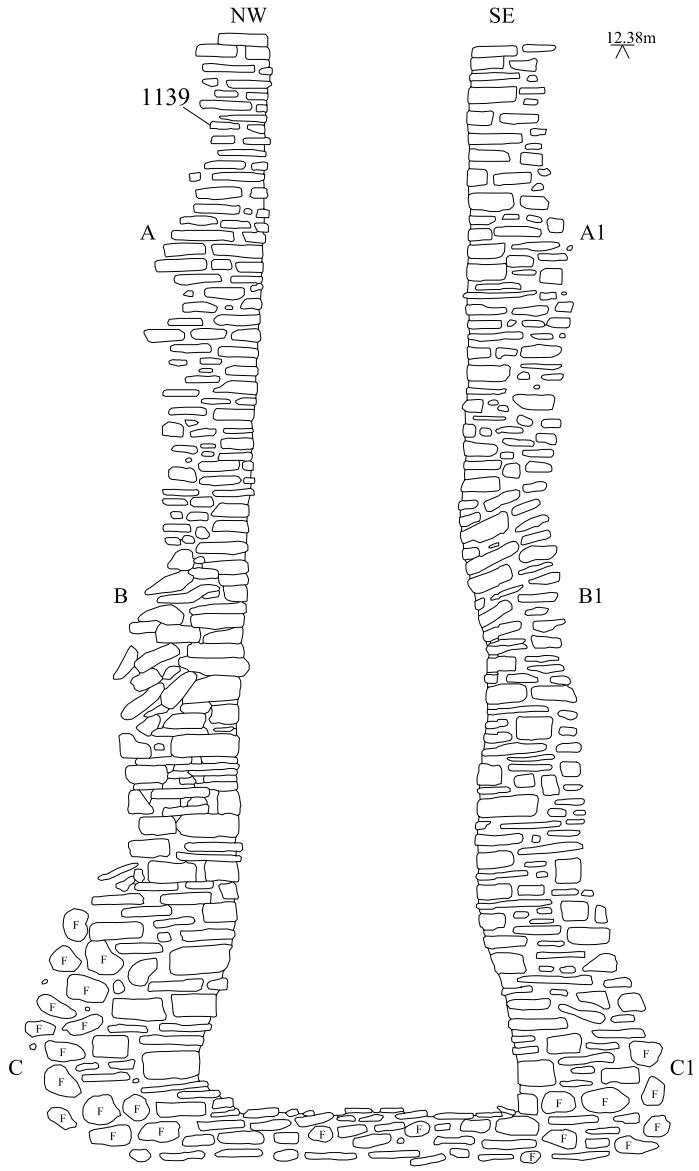
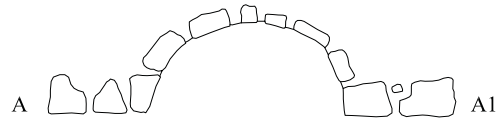
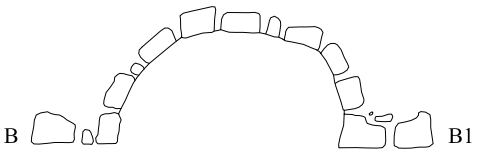
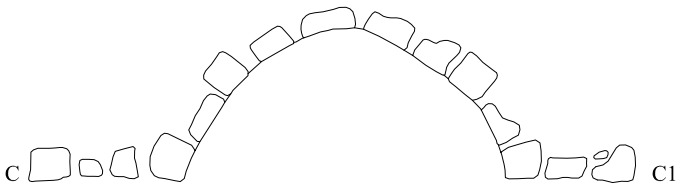
Fig. 12 Phase 2 sections - aisled building

Scale 1:20 at A4



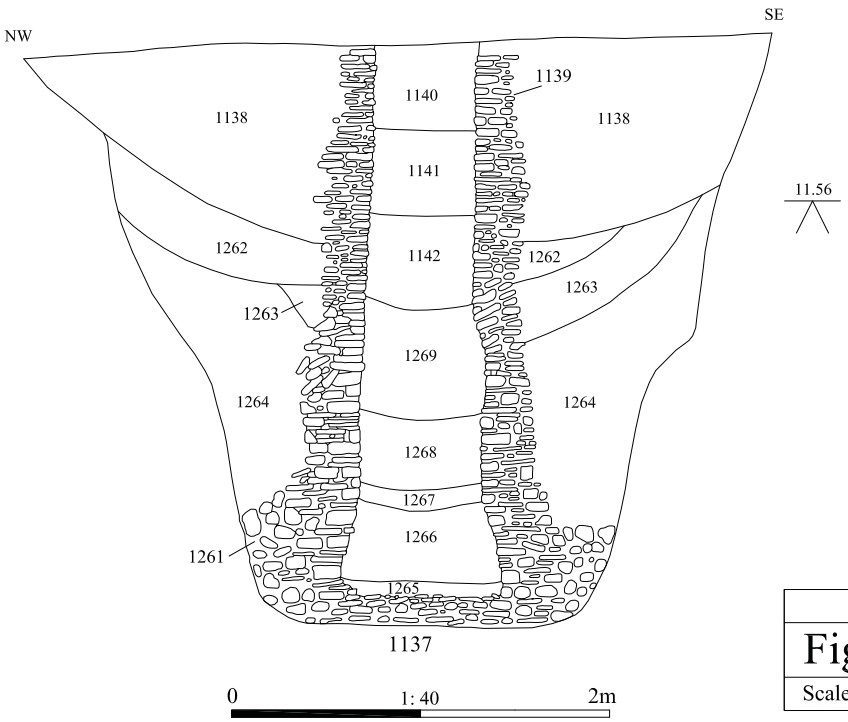






0 1:20 1m

F Flint



0 1: 40 2m

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Fig. 13 Well 1137 (grid square P9)
Scale section 1139 & plans 1:20 at A4 Section 1137 1:40 at A4

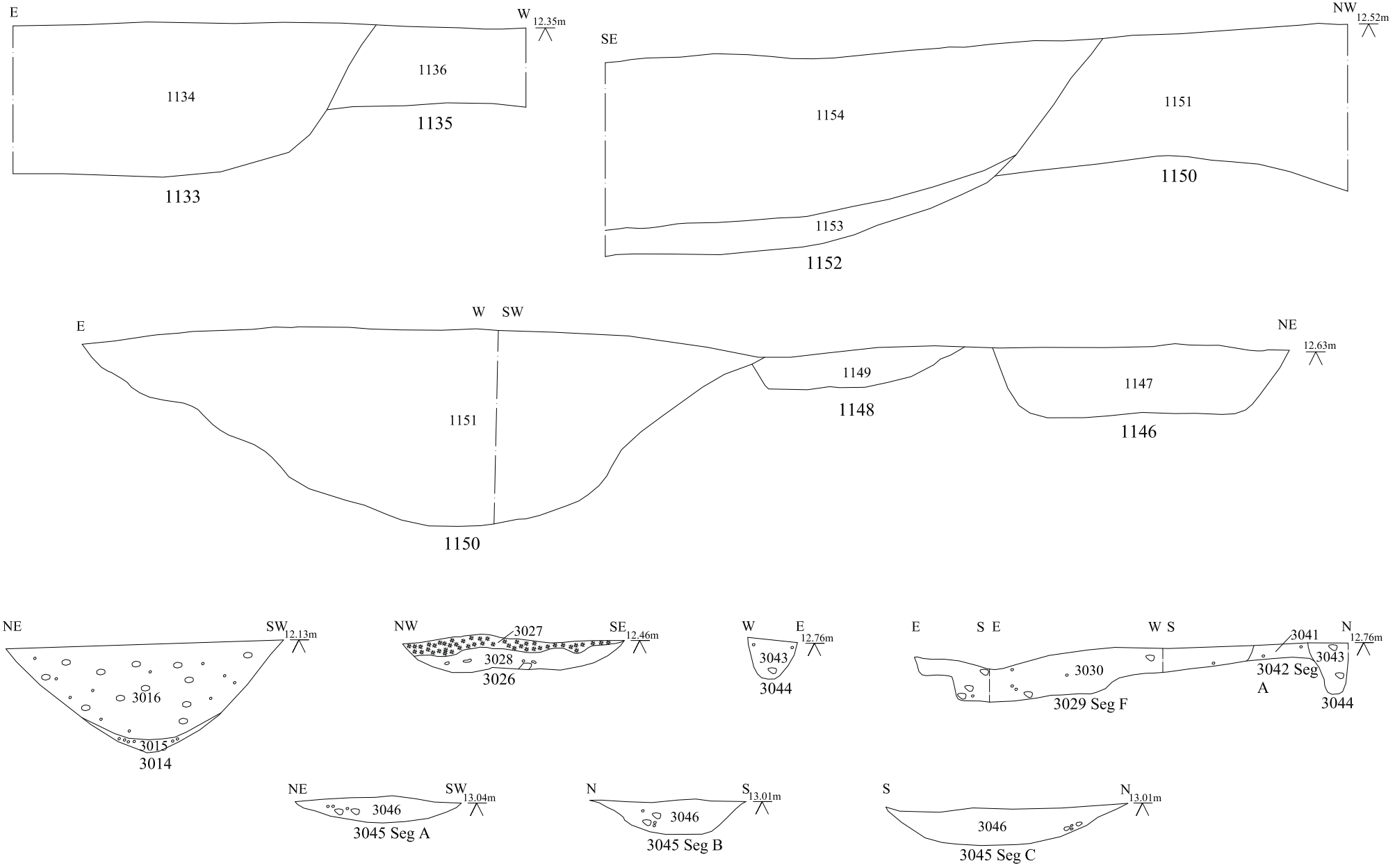

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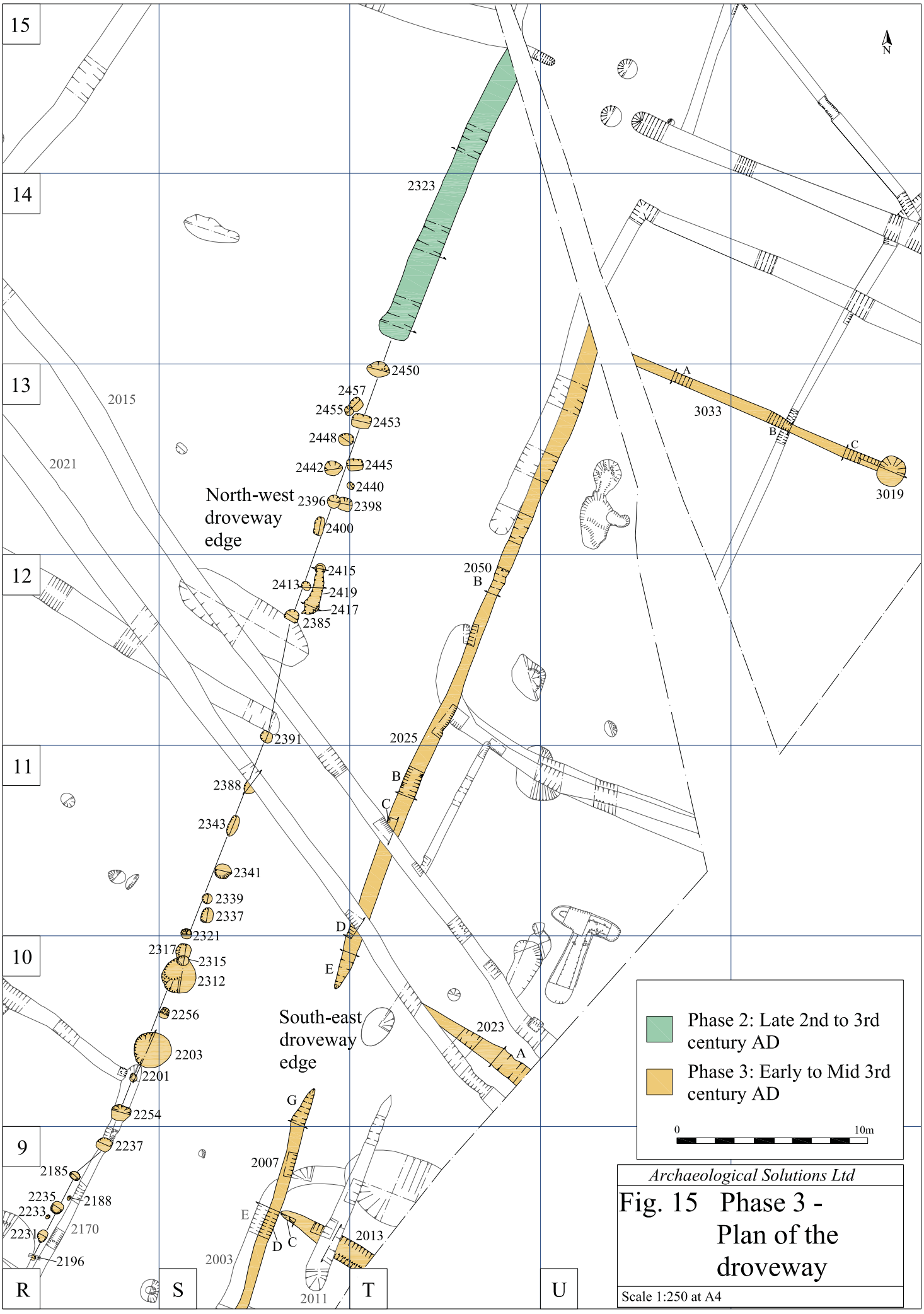
Fig. 14 Phase 2 sections - other features

Scale 1:20 at A4


15
14
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2323
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2457
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2453
2448
2442
2445
2440
2396
2398
2400
North-west
droveway
edge
2415
2413
2419
2417
2385
2391
2388
2343
2341
2339
2337
2321
2317
2315
2312
2256
2203
2201
2254
2237
2185
2235
2188
2233
2231
2170
2196
2015
2021
2050
B
2025
B
C
D
E
South-east
droveway
edge
G
2007
E
D
C
2003
2011
2013
2023
A
3033
A
B
C
3019
Phase 2: Late 2nd to 3rd century AD
Phase 3: Early to Mid 3rd century AD
0
10m
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Fig. 15 Phase 3 - Plan of the droveway
Scale 1:250 at A4