Excavation Report

Roman Industrial Activity at Norman Way Industrial Estate Over, Cambridgeshire

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oxfordarchaeology east east east

May 2017

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Romano-British Industrial Activity at Norman Way Industrial Estate, Over, Cambridgeshire

Archaeological Excavation

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Client Name:	Universal Property Ltd.
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Summary

During November and December 2014, Oxford Archaeology East (OA East) carried out an archaeological excavation on 0.3ha of land at Norman Way Industrial Estate, Over, Cambridgeshire (TL 3790 6930). Iron Age activity was located in the southern half of the site in the form of two ditches, presumably forming part of a field system. After this period, relatively dense Roman archaeological activity was recorded in the north area of the site, where numerous sub-circular pits, a possible tank relating to brewing, a number of boundary ditches and two watering holes were excavated. The features relating to this period all had extensive amounts of crop processing waste in their backfills. These backfills comprised dark organic material, with large quantities of charred grain and chaff recovered from environmental samples. The fact that a significant number of the pits were intercutting and often shared the same backfill suggests intensive activity over a short period of time, where features were dug and backfilled in quick succession. These features are probably industrial activities undertaken as part of a larger settlement complex located to the north-east of the excavation area, where cropmarks of a presumed Roman settlement are known.

No significant post-Roman archaeology was found. Medieval or post-medieval furrows on a north-north-east to south-south-west alignment were recorded across site, along with post-medieval plough scarring.

A moderate finds assemblage was recovered from the excavation, including pottery dating from mid 1st through to the 4th century AD and a number of quern fragments. Other finds include two Roman coins, two pins (one bone, the other copper), a moderate amount of slag and a small assemblage of animal bone.

Environmental remains prove to be excellent, with a large quantity of charred chaff and spelt grain being recovered from the flots. Much of the charred grain shows evidence of germination – indicative of malting the grain for brewing. It is possible malting was taking place on site or in the near vicinity, and any waste from this process was being used a fuel source for other industrial activities nearby. Environmental evidence of this quality and scale is rarely seen in the archaeological record, and may be nationally significant evidence of a settlement focused on the cultivation and malting of spelt wheat on an industrial scale, the waste of which was used as fuel for other industrial activities.

The environmental and pottery assemblages are both similar to those recovered from Langdale Hale and The Camp Ground, excavated at Colne Fen near Earith, suggesting a possible economic link between the settlements.

1 Introduction

1.1 Location and scope of work

1.1.1 Between the 5th November and 5th December 2014, an excavation on 0.3ha of land at Norman Way Industrial Estate, Over (TL 3790 6930, Fig. 1) was undertaken by Oxford Archaeology East (OA East). This was prior to expansion of the industrial estate, where further units were to be built with associated parking and access. The investigation was undertaken on behalf of Universal Property Ltd (The Client).

1.1.2 OA East had carried out an archaeological evaluation of the site in 2009 (House 2009), in which a relatively dense amount of archaeology was recorded in the northern half of the site. Therefore excavation was deemed necessary by Cambridgeshire County Council Historic Environment Team (CCC HET) to mitigate any damage that would be caused to the archaeology by the development (Planning Application Ref. S/1431/13/FL).

1.1.3 The site archive is currently held by OA East and will be deposited with the appropriate county stores in due course.

1.2 Geology and topography

1.2.1 The subject site lies approximately 1km south-east of the Fen-edge. Much of the western half of Over is fen land lying at about 3mOD. The eastern half of the parish is on the higher ground of the fen-edge which largely comprises of Ampthill Clay overlain by Pleistocene Till (British Geological Survey: http://mapapps.bgs.ac.uk/geologyofbritain/home.html, accessed 05/01/15).

1.2.2 The highest point in the parish of Over lies near Hill Farm at about 18mOD. The subject site is located in the eastern half of the parish on the higher ground at approximately 11mOD. The River Great Ouse is located 3km to the north of the site and the Swavesey Drain, a meandering waterway that follows the parish boundary between Over and Swavesey, flows approximately 2km to the south of the site.

1.2.3 The site consisted of scrub land prior to excavation, with little plant coverage and a large amount of waste building material deposited across the area. It was noted that the land appeared to have been partially stripped previously, mainly in the northern-most half of site. This probably took place during the original construction of the industrial estate in the late 20th century. The water table was very high, at around 0.4m below the machine level.

1.3 Archaeological and historical background

1.3.1 This archaeological background is derived from information within the Cambridge County Council Historic Environment Record (CHER). For any site or findspot mentioned, the CHER number is given and locations of the sites can be found on Fig. 1 unless otherwise stated.

Prehistoric (2500 BC-AD 43)

1.3.2 Evidence of prehistoric remains near the site is limited. The majority of prehistoric sites and findspots are located to the north of the parish, closer to the River Great Ouse and over 1km from the site. Just over 1km to the north-west, a Bronze Age arrowhead was recovered when metal detecting the site of a possible Roman villa at Church End (MCB 16669). A single Iron Age coin was found in the late 19th century 1km to the north-west of site (CHER 03725; not illustrated) and a small amount of Iron Age archaeology was found 100m to the south-east during excavation of the guided busway route

(MCB19358). The finds from this site suggested a date for occupation from the Middle Iron Age to just after the Roman conquest.

1.3.3 Further afield, prehistoric sites are well known within the area. Approximately 2.6km to the north of the site, is located the Ouse Fen Bronze Age barrow group, some of which have been investigated (Evans & Knight 1997, CHER 11943; not illustrated). Further investigations took place in the same area, uncovering clusters of Late Neolithic pits and parts of a Middle Bronze Age field system (*ibid.,* CB15277; not illustrated). Similarly, excavations at Striplands Farm, West Longstanton recorded a later Bronze Age settlement, from which one of the region's largest later Bronze Age ceramic assemblages was recovered (Evans & Patten 2011).

1.3.4 Iron Age settlements are known throughout the landscape, with pre-conquest remains being located 6km to the north of the subject site, at The Camp Ground in Colne Fen (Evans 2013). A total of three enclosures were excavated along with a “scatter” of roundhouses outside of these enclosures. This was the only site excavated in the area where direct continuity of settlement was seen from the Iron Age through to the Roman period. Multiple other sites with Iron Age remains were excavated nearby (Sites 1 to 5 and Rhee Lakeside; Evans 2013, chapter 5). All these sites indicated relatively dense fen-edge settlement from the Middle through to the Late Iron Age.

1.3.5 Similarly, evaluations and excavations approximately 2.5km to the south-east of the site have recorded Iron Age settlements and occupation at Longstanton. Evaluation in 1996 (Evans *et al.* 2007) uncovered numerous Iron Age settlements, including a Middle to Later Iron Age “keyhole-shaped” enclosure (*ibid.*).

1.3.6 Other fieldwork in the area of Longstanton by Birmingham Archaeology recorded Iron Age remains with excavations prior to construction of Longstanton Bypass revealing a Middle Iron Age enclosure ditch with a number of pits and gullies within (Paul & Cuttler 2008).

Roman (AD 43-410)

1.3.7 The majority of sites and findspots within the area are of Roman date. The subject site is located near the south-western edge of the Roman fen (Hall 1996, 158 fig.88). This area was densely settled during the Roman period and Hall (1996, 159) remarks that “there were villas and the whole landscape was infilled with small rural settlements”. In the immediate vicinity of the subject site, finds of Roman date have been found including pottery and a fragment of tile (CHER 07724). These finds may be associated with a double rectangular enclosure which can be seen as a cropmark (Fig. 1, CHER 11133 & Hall 1996, 151 fig.84) directly to the north-east of the site. It is thought that the northern part of Over industrial estate has been built on part of this settlement. There are a number of other Roman settlement sites known in the vicinity (*e.g.* MCB9332, 13733, 13073; not illustrated). During the Roman period, the site would have been located on the upland, approximately 1km from the Fen-edge.

1.3.8 Hall mentions that other Roman sites are located 475m south-east of the cropmarks mentioned above. During fieldwalking for the Fenland project, sites found included an area where large quantities of pottery sherds including samian, colour-coated and “Cold Harbour Ware” type were recovered, along with other shelly fabric pottery. Box tile with plaster still attached was also found, indicating a building of some quality was once located there (Hall 1996, 151, Sites 8, 9 and 11; TL 393 698). Similarly, 1.5km to the east of site, at Cold Harbour Farm, pottery kilns have been discovered; a large depression and two pits were backfilled with ashy soil containing fragments of fire-bars,

kiln wall and pottery (Hall 1996, 151 fig. 84, Site 12 and Phillips, 1970, 189; TL 39335 69732).

1.3.9 Other cropmarks, located 650m to the west of the site, were found on satellite images during post-excavation work by the author, although no CHER number can be found attributed to them. A large palaeochannel running north-west to south-east towards the site can be observed, with large rectangular pits (approximately 10m long by 3m wide) and linear marks either side of the channel (TL 37414 69640). These features are undated, but a Roman date for them could be possible due to the close proximity of other Roman sites and findspots.

1.3.10 Other findspots nearby include a hoard of 50 copper coins, a single silver coin depicting Vespasian and a brooch (CHER 11683).

1.3.11 Further afield, Roman findspots and sites are common within the parish. Just over 1.2km to the south-east of site, cropmarks of a possible shrine are recorded (CHER 07718; not illustrated). Roman pottery has been recovered from the area, so the shrine is thought to be of this period. Approximately 1.2km to the north-east of site, a hoard of Roman coins was uncovered in the late 19th century (CHER 00277; not illustrated) near Cold Harbour farm, the location of Site 12 (Hall 1996 fig. 84). The hoard mostly consisted of coins depicting Constantine. At Church Farm House, roughly 1.5km north of site, Roman pottery and a single inhumation were excavated during construction work in the late 1980s (CHER 09836A; not illustrated).

1.3.12 Within the wider landscape, the study site is situated within an area rich in Roman settlement, industry and economic activity. Approximately 8km directly to the north of site is Colne Fen – an area investigated during the early 20th century by Tebbutt (1929) and more recently during excavations prior to mineral extraction (Evans 2013; MCB16969). Within this area numerous Roman settlements have been excavated such as Langdale Hale and 'The Camp Ground' (Evans 2013). These investigations indicated major Roman activity from the 2nd century through to the 4th.

1.3.13 Analysis by the Cambridge Archaeology Unit (CAU) indicated that Langdale Hale was a cereal-rich farmstead with significant agricultural production and processing. The nearby Camp Ground evolved to become a mercantile centre with a vibrant economic community and extensive trade links (Evans 2013).

1.3.14 Other important features in the landscape relating to the Roman period include the Old Tillage; a possible Roman Canal, approximately 3km to the east of the study site (CHER05405) and the Roman Small Towns of *Duroliponte* (Cambridge), 13km to the south-east, *Durovigutum* (Godmanchester), 13km to the west, Stonea Grange, 19km to the north-east and *Durobrivae* (Water Newton), 40km to the north-west. Roman roads criss-cross the landscape, the nearest of which to the site would have been part of the Via Devana running between *Durovigutum* and *Duroliponte*. Other roads include Akeman Street running towards Ely and the Fen Causeway which crossed the Fens north of March.

Saxon to Modern (AD 410-Present)

1.3.15 No Saxon remains are recorded nearby. Evidence of medieval and later remains within vicinity of the site is sparse. The majority of remains are located within the historic core of the village itself, which is over 1km from the site. Approximately 150m to the north-east, however, a small assemblage of medieval pottery (CHER 07724a) was recovered during fieldwalking within the vicinity of the Roman settlement mentioned in Section 1.3.7 above (CHER 07724).

1.3.16 Post-medieval remains have been found to the south-east of site, where a cluster of quarry pits was excavated and recorded during the excavation of the guided busway route (MCB18478).

1.3.17 Nearby listed buildings include Over windmill (CHER 03447) and Over Microwave Tower (MCB16574), both approximately 500m to the south-east of site.

Previous Phases of Work

1.3.18 During July 2009, OA East carried out an evaluation on the land at Norman Way Industrial Estate (House 2009, MCB18588). A total of three trenches were excavated and archaeological features and deposits dating to the Roman period were located across the proposed development area. The majority of activity was concentrated in the northernmost trench where at least two phases of activity were recorded. Charred seeds and other plant remains were abundant in the environmental samples and a small quantity of Roman pottery was recovered from the evaluation.

1.3.19 A Post-Excavation Assessment was undertaken once on-site work was complete, which assessed what further work was required on the finds assemblages and what research questions can be targeted during further research.

1.4 Acknowledgements

1.4.1 The author would like to thank the developer, Universal Property Ltd., who commissioned and funded the work and Don Proctor who helped the project develop. The site was visited and monitored by Kasia Gdaniec of the Cambridgeshire County Council Historic Environment Team (CCC HET). The site was managed by Stephen Macaulay. Fieldwork was directed by the author and excavation was undertaken by Emily Abrehart, Alex Cameron, Zoe Clarke, Andy Greef, Toby Knight, Malgorzata Kwiatkowska, Ted Levermore, Chris Swain and Daria Tsybaeva. Site survey was undertaken by the author and David Brown. Initial post-excavation digitising and illustrations were completed by Charlotte Davies and Robin Webb.

1.4.2 Thanks to the various specialists who contributed to the report: Paul Booth (Roman coins), Chris Howard-Davis (metalwork), Rachel Fosberry (environmental remains), Alice Lyons (Roman pottery), Sarah Percival (fired clay, ceramic building material, metalwork waste and worked stone) and Alexandra Scared (mollusca).

2 Aims and Methodology

2.1 Aims

2.1.1 The original aims of the project were set out in the Brief and Written Scheme of Investigation (Gdaniec 2014, Macaulay 2014) and further refined in the Updated Project Design and Post Excavation Assessment (Moan 2015).

2.1.2 The main aims of this excavation were

- To mitigate the impact of the development on the surviving archaeological remains. The development would have severely impacted upon these remains and as a result a full excavation was required, targeting the areas of archaeological interest highlighted by the previous phase of evaluation.
- To preserve the archaeological evidence contained within the excavation area by record and to attempt a reconstruction of the history and use of the site.

2.1.3 The aims and objectives of the excavation were developed with reference to National, Regional and Local Research Agendas. Any aims identified in *Research and Archaeology: A Framework for the Eastern Counties* (EAA Occ. Paper no. 8 and no. 24) are italicised below

2.2 Regional Research Aims

2.2.1 *Rural settlements and landscape:* Although no settlement evidence was recorded on site, the archaeology found evidently relates to industrial activity on the edge of a settlement. It may also be possible, with further research, to understand how the industrial activity and settlement fit within the Fen-edge landscape.

2.2.2 *Investigation of the adoption of an agrarian economy and changing patterns in agricultural production and consumption through full quantification and standardised reporting of environmental remains:* The environmental results from site are outstanding, and further analysis of the remains, and their comparison to other sites will help further understanding of changing patterns in Roman agricultural production and consumption.

2.2.3 *The Agrarian economy:* The evidence for industrial activity on site and the excellent survival of crop processing waste will help further current knowledge of the agrarian economy in the region.

2.3 Site Specific Research Objectives

2.3.1 *The determination of the relationship of the agricultural regime and any associated settlement with the local and regional economy:* The evidence of spelt malting on site is very important, and further analysis will make it possible to see how the settlement may have related to the regional economy.

2.3.2 *The creation of a model of land-use and organisation over time:* Further work on phasing and analysis of the extent and longevity of industrial activity on site will be set within the framework of existing knowledge of the archaeology of the area and will make a valuable contribution to ongoing local research.

2.4 Additional Research Objectives

2.4.1 The post-excavation assessment process also identified new objectives drawn from the regional research assessments and agendas. These are outlined below.

2.4.2 C*haracterisation of activities associated with crop cleaning, malting and storage. The scale and type of these activities provides a direct indication of the type of production (on a subsistence or market economy level):* The site at Over can contribute to this objective, as the evidence of malting is of high quality, and the amount recovered would suggest production for export. Further analysis and comparison to other sites is required (*e.g.* Tunbridge Lane, Bottisham; Newton 2014).

2.4.3 *In the later Roman period, major grain exports from Roman Britain to the Rhineland are referred to in primary sources. Did a disproportionate share of the export burden fall on the East Anglian civitates?:* Can analysis of the environmental evidence and comparisons to nearby sites suggest whether the crop processing on site was being undertaken for export by order of the Roman Empire?

2.4.4 *Can the Imperial Fen Estate be identified or should it be dismissed as a valid theory for understanding the Roman fenland?* Does the crop processing waste on site suggest an economic link to the theorised fenland 'Imperial Estate', with export to *Durobrivae* along the Car Dyke, with possible connections to the “Camp Grounds” located to the north-west.

2.5 Methodology

2.5.1 The methodology used followed that outlined in the Brief (Gdaniec 2014) and detailed in the Written Scheme of Investigation (Macaulay 2014).

2.5.2 Machine excavation was carried out by an 18 tonne tracked 360 type excavator using a 1.8m wide flat bladed ditching bucket under constant supervision of a suitably qualified and experienced archaeologist. The spoil was transported by a 6 tonne front-tip dumper and stored at the southern limit of the development area.

2.5.3 Spoil, exposed surfaces and features were scanned with a metal detector. All metal-detected and hand-collected finds were retained for inspection, other than those which were obviously modern.

2.5.4 All archaeological features and deposits were recorded using OA East's *pro-forma* sheets. Trench locations, plans and sections were recorded at appropriate scales and colour and monochrome photographs were taken of all relevant features and deposits.

2.5.5 Environmental bulk samples were taken from features across the site to aid the retrieval of plant remains and provide information on the palaeoenvironment. Attention was given to all deposits where preservation of ecofacts was apparent. Grid sampling was undertaken over approximately 10 square metres of the crop processing waste deposit, and column samples were taken through two sections of the watering holes, with samples being separated by fill, to give spatial data that can be analysed during post-excavation.

2.5.6 Weather conditions were generally overcast for the duration of the excavation. Heavy rain caused the ground conditions to deteriorate and become extremely waterlogged, with the clay geology holding water within all features and causing the water table to increase significantly. Wooden plank walkways had to be used to create access across site. Features were pumped out of water, though the pump had a limited effect, due to the quantity of water.

2.5.7 Because of this high water table, deeper features could not be hand excavated to their full depth and had to be augered, allowing for their profile and maximum depth to be ascertained.

3 RESULTS

3.1 Introduction

3.1.1 The excavation at Over Industrial Estate uncovered evidence of industrial activity dating to the Roman period (1st to 4th century) (Fig. 2), although some earlier and later remains were also evident. Significant amounts of burnt crop processing waste were recorded in a large number of the Middle Roman pits on site, and numerous features are interpreted as relating to industrial processes.

3.1.2 Results will be presented by period and described in stratigraphic order. A total of four periods have been identified during analysis, one of which (Romano-British) has been split into two sub-periods:

Period 1: Iron Age (800BC- AD43)

Period 2.1: Early Roman (AD43-150)

Period 2.2: Later Roman (AD150-300)

Period 3: Medieval to post-medieval(AD1066-1700)

Period 4: Modern (1700- Present)

3.1.3 All specialist reports can be found in the appendices, the results of which have been referenced in the results text. Figures and Plates are referenced within the text where appropriate.

3.1.4 Evaluation results have been amalgamated where possible, though certain features or deposits found during evaluation were not identified again during excavation. An alluvial layer was recorded by the evaluation through which Late Roman features were cut and which sealed Early Roman features. During excavation, this was found to have probably been the upper fills of several large pits. Any contexts from the evaluation discussed below can be identified by having an “E” prefix.

3.1.5 Features generally consisted of ditches, postholes and pits, with some large pits being interpreted as watering holes (Fig. 2). The fills of features were mostly formed by secondary silting, particularly in the Early Roman period. The Later Roman (late Hadrianic-Antonine) period fills were more varied, with many fills containing backfilled crop processing waste.

3.1.6 The topsoil (3) was a mid greyish brown clayey silt, varying in thickness from 0.1m to the north, to 0.2m to the south. Subsoil (2) was a mid grey silty clay of a variable thickness across site, from 0.05m to the north and 0.22m to the south.

3.2 Period 1 (Iron Age: 800 BC-AD 43)

3.2.1 Low levels of Iron Age activity were recorded on site (Fig. 3), comprising a pair of parallel intercutting ditches at the southern end of the excavation area (**270** and **272**), along with three pits (**277**, **287** and **289**). The ditches were aligned north to south, and the pits were located at the northern-most end of the ditches. These features were clearly truncated by the Early Roman features.

Pits

3.2.2 A group of pits (**277**, **287** and **289**) were truncated by the Iron Age and later ditches. Pit **287** was sub-circular in plan with gently sloping sides and a concave base. It measured 1m in diameter and 0.25m deep. The fill (288) was a mid yellowish brown silty clay with occasional flint and chalk inclusions.

3.2.3 Cutting this earlier pit, pit **289** was sub-circular in plan, with stepped sides and a flat base. It measured 1m in diameter and 0.4m deep. The fill (290) was a mid-greyish brown silty clay with occasional flint inclusions. Animal bone (121g) and a large stone fragment (SF11) was recovered from the fill.

3.2.4 Heavily truncated pit **277** was sub-rectangular in plan, 0.6m long, 0.5m wide and 0.18m deep with steeply sloping sides and a flat base. The fill (278) was a dark brownish grey silty clay with rare flint inclusions. Fragments of horse skull and vertebrae weighing 1615g were recovered from the fill.

Ditches

3.2.5 Ditch **272** (**360**) was slightly curvilinear in plan and aligned north to south. It measured between 0.6m and 0.86m wide and 0.3m to 0.46m deep. The fill (271, 361) was a mid greyish brown silty clay with occasional stone and chalk inclusions. The feature was truncated by ditches **235**, **281** and **306**, and truncated pit **289**.

3.2.6 Ditch **270** (**285**, **358**) was linear in plan recutting along the same alignment as ditch **272**. It measured between 0.4m to 0.6m wide and 0.1m to 0.4m deep. The sole fill (269, 286, 359) was a mid greyish brown silty clay with occasional small stone inclusions. A total of 29g of Iron Age pottery and 4g of animal bone was recovered from the fill. This ditch truncated earlier ditch **272**, pits **287** & **289**, and was truncated by ditches **235**, **281** and **306**.

3.3 Period 2 (Romano-British: AD43-AD410)

3.3.1 Most of the features on the site were dated to the Romano-British period (Figs 4 & 5). These features generally consist of ditches and pits, with some features appearing to have an industrial function.

Sub-Period 2.1: Early Roman

3.3.2 The Early Roman period of activity on site (Fig. 4) mainly consisted of the cutting of ditches, presumably to denote a “work area” for industrial activities taking place. The latter seems to have been limited to small amounts of metalworking and corn drying, clustered in an area near the western boundary. Towards the end of the Early Roman phase, large pits were dug near and over the top of the northern boundary ditch, presumably to extract clay to create the superstructures of nearby corn driers or possibly smelting furnaces.

Pits pre-dating Enclosure 1

3.3.3 Cut by the northern arm of Enclosure 1, pit **258** was 1.16m in diameter and 0.3m deep with gently sloping sides and a flat base. The fill (257) was a mid yellowish brown silty clay with occasional small stone inclusions. The feature was also truncated by pits **253** and **291** and the relationship with pit **262** was unclear. Another pit (**99**) was also cut by Enclosure 1 and was oval in plan, 1.64m in diameter, 0.5m deep, with a wide U-shaped profile. The sole fill (98) was a light greyish orange silty clay with occasional small stone inclusions.

3.3.4 Cut by the western arm of Enclosure 1, firepit **160** was located near the western baulk. The pit was circular in plan, 1.11m in diameter, 0.23m deep, with a wide U-shaped profile. Basal fill 161 was a light yellowish brown silty clay and 0.07m thick. The upper fill (162) was a mid reddish orange silty clay, 0.19m thick from which 435g of slag was recovered.

Enclosure 1

3.3.5 These ditches (**36**, **32**, **158**, **256** and **386**) were all on a north-north-west to south-south-east/north-north-east to south-south-west axis, roughly aligning with the layout of the settlement seen in cropmarks to the north-east (Fig. 1) and form part of an enclosure. Most were filled with a general mid greyish brown silty clay, though some have dumps of burnt material within the fills (particularly ditch **158**), presumably being deposited within the top of ditches from industrial activity nearby. The ditches were all truncated by pits from both the Early and Later Roman periods.

3.3.6 Forming the northern arm of this enclosure, ditch **36** (**61**, **111**) ran for 6.6m, was linear in plan, and aligned west-north-west to east-south-east. It measured 1.34m wide and 0.62m deep with a wide U-shaped profile. Basal fill 105 (255, 110) was a light brownish grey silty clay and 0.05m thick. Above this was fill 104; a mid yellowish brown sandy clay that was 0.2m thick. Secondary silting fill 103 (254) was a light brownish grey silty clay, 0.28m thick, with occasional stone and charcoal inclusions. The uppermost fill (102) was a light orangey grey silty clay with occasional charcoal and chalk inclusions. A total of 30g of Early Roman pottery and 18g of animal bone were recovered from the fills.

3.3.7 Directly south of, and on the same alignment as, ditch **36**, were abutting ditches **32** (**246**) and **256**. Ditch **32** ran for 10.9m and measured 0.7 to 0.75m wide, with a V-shaped profile. Its single fill (33, 245) was a mid brownish grey silty clay, with moderate charcoal inclusions from which a total of 118g of Early Roman pottery was recovered. Ditch **256** (**101**, **106**) was 1.34m wide and 0.62m deep with a wide U-shaped profile. Basal fill 105 (255) was a light brownish grey silty clay and 0.05m thick. Above this was fill 104; a mid yellowish brown sandy clay that was 0.2m thick. Secondary silting fill 103 (254) was a light brownish grey silty clay, 0.28m thick, with occasional stone and charcoal inclusions. The uppermost fill (100, 102, 104) was a light orangey grey silty clay with occasional charcoal and chalk inclusions. A total of 30g of Early Roman pottery and 18g of animal bone was recovered from the fill.

3.3.8 Forming part of the western arm of Enclosure 1, ditch **158** (**198**, **233**) was revealed for 17m on a north-north-east to south-south-west alignment. It was linear in plan, with steeply sloping sides and a flat base, measuring between 0.9m to 1.5m wide and 0.2m to 0.46m deep. The fills (159, 199, 390, 391) were generally a mid greyish brown silty clay with charcoal inclusions. A total of 60g of Early Roman pottery, 67g of animal bone, 199g of lava quern and 24g of oyster shell were recovered from the fills. The fills in slot **233** were more variable, with backfilled deposits of burnt material that had been dumped into the top of the ditch (fills 200 & 201), from which 143g of fired clay was recovered along with 20g of Early Roman pottery.

3.3.9 Also part of the western arm of Enclosure 1, ditch **386** was on the same alignment as **158** and located just to the south, with only half the width of the feature being within the excavation area. This ditch was exposed for a total of 24.4m and measured at least 1.6m wide and was 0.6m deep with a stepped side and uneven base. The three fills (287, 288 & 289) were all a mid to dark grey clayey silt with occasional stone inclusions. This feature was truncated by a Late Roman watering hole (**118**) at its northern extent.

Ditch Group 1

3.3.10 Ditch Group 1 consists of a group of curving ditches/gullies that were located within Enclosure 1, aligned roughly north-east to south-west before turning to run west-north-west to east-south-east towards the western arm of the enclosure. These shallow

features indicate multiple phases of drainage ditches being dug that may also have sub-divided Enclosure 1 to form separate 'work areas'.

3.3.11 These ditches (**235**, **237**, **238**, **241**, **243**, **248**, **250**, **252**, **279**, **281**, **283**, **306**, **309**, **311**, **313**, **315**, **317**, **319**, **335**, **412**) were variable in form, with a width ranging from 0.2m to 1.1m and a depth between 0.05m to 0.36m. The fills (234, 236, 239, 340, 240, 242, 244, 247, 249, 251, 280, 282, 284, 307, 310, 312, 314, 316, 318, 320, 334, 413) were generally a mid to dark greyish brown silty clay with occasional flint and charcoal inclusions. A total of 84g of mixed Roman pottery was recovered from the fills including a trimmed pot base possibly reused as a spindle whorl (Fig. 11, SF10, fill 280) along with 254g of animal bone and 6g of fired clay.

Pit Group 1

3.3.12 This group of intercutting pits was backfilled during the same period the nearby enclosure ditches were infilling. Pit Group 1 consisted of pits **208**, **212**, **214**, **220**, **222**, **225**, **228** and **230**, located at the northernmost limit of the excavation area truncating a spread of colluvium (308). These pits were probably dug to extract clay for use in the construction of industrial structures nearby.

3.3.13 A layer thought to be colluvium or a surviving palaeosoil (308), was 0.18m thick and consisted of a light yellowish brown silty clay with moderate flint inclusions. A total of 170g of Early Roman pottery and 25g of animal bone was recovered from the layer. It was truncated by pit group **207**. Colluvium is a deposit that accumulates at the base of slopes due to erosion, a process that is typically common on land that is ploughed, causing the erosion to happen much faster. As the site was relatively level, a palaeosoil may be more likely.

3.3.14 The earliest pit in the sequence (**212**) was sub-circular in plan, 1.4m in diameter and 0.7m deep with gently sloping sides and concave base. The sole fill (213) was a dark grey silty clay with occasional stone inclusions. Early Roman pottery (95g) was recovered from the fill.

3.3.15 Cutting pit **212** to the north was pit **208** which was also sub-circular in plan, 1.9m in diameter and 0.8m deep with steep sides and a flat base. Backfill 209 was a dark grey silty clay, 0.25m thick, with occasional stone inclusions. This was overlain by slump 210, a mid yellowish brown silty clay, 0.3m thick, with occasional stone inclusions. The main backfill (211) was a dark grey silty clay, 0.8m thick, with occasional stone inclusions. A total of 157g of pottery dating to the late 1st to early 2nd century and 26g of animal bone was recovered from this fill.

3.3.16 Located to the south and also cutting pit **212**, pit **214** was sub-circular in plan, 1.8m in diameter and 0.8m deep, with a wide U-shaped profile. The basal fill (215) was a mid grey silty clay, 0.15m thick, with occasional stone inclusions. Above this was fill 216, a mid yellowish brown silty clay, 0.05m thick, with occasional stone inclusions. This fill was sealed by 217, a mid grey silty clay that was 0.15m thick and contained 19g of Early Roman pottery. Backfill 218 was a mid yellowish brown silty clay, 0.07m thick, with occasional stone inclusions. The uppermost fill (219) was a mid grey silty clay, with occasional stone inclusions and was 0.34m thick. This feature had an unclear relationship with pit **212**.

3.3.17 At the southern edge of the group, pit **225** was circular in plan with fairly steep sides and a flat base. It measured 1.6m in diameter, 0.5m deep and had a rounded profile. The basal fill (226) was a mid yellowish brown silty clay, 0.1m thick, with occasional stone inclusions. Above this was fill 227, a mid grey silty clay with occasional charcoal and stone inclusions.

3.3.18 Truncating pit **225**, pit **222** was oval in plan, 1.2m in diameter and 0.6m deep with a wide U-shaped profile. Basal fill 223 was a mid greyish brown silty clay with occasional small stone inclusions and measured 0.15m thick. This was overlain by fill 224, a dark grey silty clay, 0.6m thick, with occasional stone inclusions. A total of 345g of Early Roman pottery, two iron nails (SFs 7 & 9) and a coin (Sestertius) of Faustina the younger (SF8; broadly dated AD 161-175) were recovered from the fill.

3.3.19 A sub-circular pit (**220**), 1.4m wide and 0.4m deep with gently sloping sides and a concave base cut pit **222**. The single fill (221) was a dark grey silty clay with occasional small stone inclusions and Early Roman pottery.

3.3.20 Pit **228** was sub-circular in plan with gently sloping sides and a flat base. The pit measured 1.1m in width and 0.14m deep. The sole fill (229) was a mid grey silty clay with occasional stone inclusions. The relationship between this pit and **220** was unclear.

3.3.21 The last feature in this group was pit **230** which was sub-circular in plan, 1.3m wide and 0.3m deep, with a wide U-shaped profile. Backfill 231 was a dark grey silty clay with occasional stone inclusions. Animal bone (6g) and 85g of Early Roman pottery was recovered from the fill.

Pit Group 2

3.3.22 A further area of intercutting pits, presumably for clay extraction was located to the south of Pit Group 1. This group of pits (Pit Group 2) truncated the northern arm of Enclosure 1 and consisted of pits **109**, **113**, **253**, **262**, **264**, **267**, and **291**; the latter cutting most of the former.

3.3.23 One of the largest pits of the group (**109**) was 4.06m in diameter and 0.3m deep, with no clear shape in plan. The sole fill (108) was a mid yellowish brown sandy clay with occasional stone and charcoal inclusions. This produced 336g of Early Roman pottery, 136g of ceramic building material and 18g of animal bone was recovered from the fill.

3.3.24 A small surviving section of pit (**264**) was located near the southern edge of the group and measured 0.58m wide, 0.5m deep with steeply sloping sides, a concave base and aligned north-east to south-west. The sole fill (263) was a light greyish orange silty clay with occasional chalk inclusions.

3.3.25 Located at the northern edge of the group, pit **113** was sub-circular in plan, 4.65m in diameter and 0.4m deep, with a wide U-shaped profile. Backfill 112 was a light yellowish grey silty clay with occasional stone inclusions. The feature was cut by later pit **291**.

3.3.26 To the south-east, pit **253** was 2.16m in diameter, 0.52m deep with a wide U-shaped profile. The sole fill (62) was a light yellowish brown silty clay with occasional stone inclusions. Another large pit (**262**) measured 3.28m in diameter, 0.78m deep with a wide U-shaped profile. The lower fill (261) was a mid yellowish brown silty clay, 0.4m thick, with occasional chalk and stone inclusions. This was overlain by a light brownish yellow silty clay with occasional stone and chalk inclusions (260). The uppermost fill (259) was a light grey silty clay, 0.12m thick. The features relationship with pit **253** was unclear.

3.3.27 Again, within the south-eastern part of the group, pit **267** was 3.14m in diameter, 0.74m deep, with a flat base and moderately sloping sides. The basal fill (266) was a mid yellowish brown silty clay, 0.28m thick, with occasional small stone inclusions. Above this was the uppermost fill (265), a light brownish yellow silty clay, 0.44m thick. The feature was truncated by later pit **291**.

3.3.28 The latest pit in the group was pit **291** (**292**). It was sub-circular in plan, 7.4m in diameter and between 0.2m and 0.48m deep. The fill (59, 107) was a very dark brownish grey clayey silt with occasional stone inclusions. A total of 116g of Early Roman pottery, 60g of fired clay, a fragment of sandstone roof tile (194g) and 145g of animal bone was recovered from the fill.

Industrial Zone 1

3.3.29 The first industrial 'zone' lay to the south-west near the western arm of Enclosure 1. This group consisted of a group of intercutting pits interpreted as possible steeping tank (**268**), pits **92**, **94**, **96**, **121**, **124**, **140**, **204**, **295 298 301 304**, corn drier **132** (**131**, **143**, **196**), postholes **126**, **128**, **130**, **134**, **136**, **206**, **410**, **423**, **425** and **427** along with windbreak **416** (**408**).

3.3.30 Located centrally within the group, pit or steeping tank **268** was 2.06m long, 1.86m wide and 0.59m deep, sub-circular in plan and with a stepped, U-shaped profile. The lower fill (293) was a mid greyish brown silty clay, 0.14m thick. This was overlain by backfill 294. This was a very dark grey clayey silt, 0.45m thick, with occasional stone inclusions. A single sherd of samian pottery (1g), 139g of fired clay and 4g of animal bone were recovered from the fill.

3.3.31 To the south, pit **304** was linear in plan, 0.2m wide and 0.12m deep with a U-shaped profile. The fill (305) was a mid yellowish brown silty clay with rare stone inclusions. The feature was truncated by pit **295** which was sub-circular in plan, 1.39m in diameter and 0.48m deep with steeply sloping sides and a concave base. The basal fill (296) was a mid yellowish brown silty clay, 0.12m thick with occasional stone inclusions. This was overlain by fill 297; a light greyish brown silty clay, 0.26m thick, with rare stone inclusions.

3.3.32 At the southern end of the group, pit **301 was** sub-circular in plan, 0.87m in diameter and 0.46m deep. It had steeply sloping sides and a concave base. Basal fill 302 was a light greyish brown clayey silt with rare stone inclusions and measured 0.21m thick. Above this was a mid yellowish grey silty clay (303) that measured 0.17m thick. This was cut by pit **298** which was sub-circular in plan, 1.19m in diameter and 0.52m deep with steeply sloping sides and a concave base. The lower fill (299) was a mid yellowish brown clayey silt, 0.29m thick, with regular stone inclusions. Above this was fill 300; a light greyish brown clayey silt with occasional small stone inclusions.

3.3.33 North of these intercutting pits was pit **204**. This pit was sub-circular in plan, 1.82m long, 1.46m wide and 0.14m deep with a bowl shaped profile. The sole fill (203) was a mid brownish grey silty clay with occasional stone and small fired clay inclusions, none of which were sizeable enough to retain. Directly adjacent to this pit was posthole **206**. This posthole was sub-circular in plan, 0.46m in diameter and 0.08m deep with a wide U-shaped profile. The fill (205) was a light greyish brown silty clay with occasional gravel and small fired clay inclusions, again too small to retain.

3.3.34 Directly north of these pits was a large sub-rectangular pit identified as a corn drier (**132, 143**, **196**, **197**). This feature was sub-rectangular in plan, 3.27m long, 0.84m wide and 0.8m deep with a U-shaped profile. The backfill (131, 141, 142, 195) was a very dark brownish grey silty clay with frequent charcoal and fired clay fragments throughout. A total of 81g of Early Roman pottery, 139g of slag and 796g of fired clay were recovered from the fill. Cut into the edge of this corn drier, posthole **134** was sub-circular in plan, 0.6m in diameter, 0.14m deep with a U-shaped profile. The sole fill (133) was a light brownish grey silty clay, from which slag (2g) was recovered. Posthole **136** was sub-circular in plan, 0.94m in diameter, 0.3m deep with a U-shaped profile.

The fill (135) was a mid brownish grey silty clay. Also cut into the end of corn drier **132**, pit **140** was sub-circular in plan, 0.6m in diameter, 0.08m deep, with a wide U-shaped profile. The sole fill (139) was a mid brownish grey clayey silt with occasional small stone inclusions. A total of 40g of fired clay was recovered from the fill.

3.3.35 Directly north of corn drier **132** were pits **94** and **96**. Pit **94** was circular in plan, 0.5m in diameter and 0.2m deep, with a rounded profile. Fill 95 was a mid brownish grey silty clay with occasional fired clay inclusions. A small amount of fired clay was recovered from the fill (9g). The feature was truncated by pit **96**. Pit **96** was sub-rectangular in plan, 1.02m in diameter with steep sides and a concave base. Fill 97 was a dark grey clayey silt with frequent charcoal and fired clay inclusions. Animal bone (4g), slag (75g), fired clay (75g) and an iron nail (SF4) were recovered from the fill.

3.3.36 East of corn drier **132** and pit **94** was pit **121**. This feature was sub-circular, 0.8m in diameter and 0.2m deep, with a wide U-shaped profile. Lower fill 120 was a light brownish grey silty clay with occasional pebble inclusions. This was overlain by fill 119, a dark grey silty clay with occasional chalk inclusions.

3.3.37 Adjacent to pit **121** was pit **124**, which was sub-circular in plan, 0.74m in diameter, 0.18m deep, with steeply sloping sides and a concave base. Lower fill 123 was a light brownish grey silty clay, 0.18m thick, with occasional small stone inclusions. Upper fill 122 was a dark grey silty clay, 0.1m thick.

3.3.38 Directly east of these two pits was a small group of three postholes (**126**, **128**, **130**). Posthole **126** was circular in plan, 0.3m in diameter, 0.19m deep, with a U-shaped profile. The sole fill (125) was a dark grey silty clay with occasional charcoal inclusions, from which 3g of animal bone was recovered. Posthole **128** was circular in plan, 0.36m in diameter, 0.14m deep, with gently sloping sides and concave base. Fill 127 was a dark grey silty clay with rare charcoal inclusions. A total of 13g of fired clay was recovered from the fill. Posthole **130** was circular in plan, 0.22m in diameter, 0.12m deep, with a U-shaped profile. The fill (129) was a dark grey silty clay with rare charcoal inclusions.

3.3.39 Pit **92** was the northernmost pit within this group and was sub-rectangular in plan, 0.6m in diameter, 0.32m deep, with a U-shaped profile. The fill (93) was a dark reddish grey clayey silt with frequent fired clay fragments. Fired clay (60g) and Roman pottery (2g) were recovered from the fill.

3.3.40 The final feature within the group is interpreted as a windbreak (**408**, **416**, Plate 1), which was curvilinear in plan, measuring 0.42m to 0.5m wide and 0.42m to 0.45m deep, with steeply sloping sides and a flat base. Post settings were observed (**418**, **421**, Plate 1) that had vertical sides and a flat base. Surrounding the post settings was 409 (417); a mid yellowish grey silty clay, from which 381g of fired clay and 21g of Early Roman pottery were recovered. The post setting fills (419, 422) was a mid brownish grey clayey silt with occasional charcoal, fired clay and stone inclusions. A total of 57g of fired clay, 67g of slag and 2g of Roman pottery were recovered from the fills. Two postholes were contemporary with this gully (**410**, **423**). Two other postholes (**425**, **427**) were also nearby and were possibly related. The windbreak **408** and all postholes were sealed by a layer (420, Period 2.2). Posthole **410** was sub-circular in plan, 0.6m in diameter and 0.25m deep with gently sloping sides and a flat base. The fill (411) was a mid greyish brown clayey silt with regular fired clay inclusions. Burnt clay was recovered from the fill. These features appear to be contemporary with windbreak **408**.

3.3.41 Posthole **423** was sub-square in plan with steeply sloping sides and a flat base. The feature measured 0.6m in diameter and 0.36m deep. The fill (424) was a mid greyish

brown clayey silt with rare small stone inclusions. Posthole **425** was sub-circular in plan, 0.42m in diameter and 0.24m deep, with moderately sloping sides and a flat base. The sole fill (426) was mid greyish brown clayey silt with rare stone inclusions. Posthole **427** was sub-circular in plan, 0.54m in diameter and 0.16m deep, with moderately sloping sides and a flat base. The fill (428) was a mid greyish brown clayey silt with occasional stone inclusions.

Industrial Zone 2

3.3.42 This zone was located by the western arm of Enclosure 1 and consisted of pits **148**, **190** and pit or corn drier **153**. Corn drier **153** had an unclear relationship ditch **158** (Enclosure 1). Pits **148** and **190** were both truncated by Late Roman pit **138**.

3.3.43 Pit **148** (Plate 2) was sub-circular in plan, 1.07m in diameter and 0.79m deep with a U-shaped profile. The basal fill (149) was a mid yellowish brown silty clay, 0.09m thick, with frequent small stone inclusions. Early Roman pottery (32g) was recovered from the fill. Above this was fill 150, a dark greyish brown clayey silty, 0.16m thick, with rare stone inclusions. This was sealed by a mid yellowish brown silty clay (151), 0.3m thick with occasional stone inclusions. The uppermost fill (152) was 0.38m thick, a dark grey silty clay with occasional small stones. A total of 23g of Early to Middle Roman pottery, 127g of fired clay and 4g of animal bone were recovered from the fill.

3.3.44 To the north-east. pit **190** was sub-circular in plan, 1.83m wide, 0.64m deep with a U-shaped profile. The basal fill (191) was a mid yellowish brown silty clay 0.09m thick, with occasional chalk inclusions. Above this lay fill 192, a dark greyish brown silty clay, 0.06m thick with occasional chalk and stone inclusions. This was sealed by fill 193. This was a mid yellowish grey silty clay, 0.33m thick with occasional charcoal and stone inclusions. A total of 49g of Early Roman pottery, 80g of fired clay and 8g of animal bone were recovered from the fill. The uppermost fill (194) was a mid greyish brown silty clay, 0.24m thick with stone inclusions frequently.

3.3.45 Cutting pit **148**, pit/corn drier **153** (Plate 2) was sub-circular in plan, 2.39m in diameter, 0.76m deep, with steeply sloping sides and a concave base. The basal fill (154) was a mid yellowish brown silty clay, 0.09m thick, with frequent stone inclusions. Above this was fill 155; a mid greyish brown loamy clay, 0.06m thick, with occasional charcoal inclusions. This was sealed by 156, a black clayey silt, 0.12m thick with very rare stone inclusions. The uppermost fill (157) was a mid yellowish grey silty clay, 0.51m thick with occasional stone inclusions. Early Roman pottery (160g) and fired clay (63g) was recovered from the fill.

Miscellaneous Pits and Other Features

3.3.46 A number of other pits and deposits are phased to this sub-period, although they produced little useful data to interpret a function.

3.3.47 A thick, possibly colluvial, layer (406) was in the northern-most corner of the excavation and consisted of a mid brownish yellow silty clay, 0.5m thick, with occasional large flint inclusions. This was overlain by layer 407: a mid brownish grey silty clay with occasional small stone inclusions, 0.3m thick, from which a 145g of Early Roman pottery was recovered. These layers survived within a large natural hollow. As described above (Pit Group 1) the interpretation of the layers being colluvial may not be correct and the layers could also be a form of palaeosoil that has slumped into a natural hollow.

3.3.48 To the east of Industrial Zone 2, pit **5** was sub-oval in plan and measured 1.03m wide, 0.73m wide and 0.15m deep with an irregular profile. The sole fill (4) was a mid

brownish grey clay. A total of 5g of Early Roman pottery and 7g of metalworking debris was recovered from the fill.

3.3.49 Immediately south of Pit Group 2, pit **23** was sub-rectangular in plan, 3m long, 1.3m wide and 0.22m deep with a flat base and moderately sloping sides. The sole fill (24) was a dark yellowish brown silty clay with moderate charcoal inclusions, from which 2g of Early Roman pottery and 3g of metalworking debris were recovered. This pit was truncated by gully **83**.

3.3.50 In the southern part of the enclosure were a pit (**274**) and posthole (**276**). Posthole **276** was sub-circular in plan, 0.25m in diameter and 0.1m deep with a U-shaped profile. The fill (275) was a mid greyish brown silty clay. The feature was truncated by later pit **276**. Pit **274** was oval in plan, 0.7m in diameter and 0.25m deep, with gently sloping sides and a concave base. The fill (273) was a mid yellowish brown silty clay with rare stone inclusions. A total of 26g of Early Roman pottery was recovered from the fill. The pit truncated posthole **276**.

3.3.51 Adjacent to, and cutting, the western arm of Enclosure 1, pits **377**, **380** and **383** were found. Pit **377** was sub-circular in plan, 0.7m in diameter and 0.2m deep, with a wide U-shaped profile. The basal fill (378) was a light yellowish grey silty clay, 0.1m thick, with regular chalk inclusions. This was overlain by a dark yellowish grey clayey silt (379), 0.11m thick, with occasional stone inclusions. A total of 7g of Early Roman pottery, 15g of slag and 15g of animal bone were recovered from the fill.

3.3.52 Pit **380** was sub-circular in plan, 0.9m in diameter and 0.45m deep, with moderately sloping sides and a concave base. The basal fill (381) was a light greyish yellow sandy clay with occasional chalk inclusions. This was overlain by 382; a dark grey clayey silt with occasional stone inclusions. Truncating the pit was pit **383** which sub-circular in plan, 1.1m in diameter and 0.3m deep, with gently sloping sides and a flat base. The lower fill (384) was a mid greyish brown clayey silt, 0.05m thick, with occasional stone inclusions. Above this was backfill 385; a mid yellowish grey clayey silt, 0.3m thick, with occasional stone inclusions.

3.3.53 Elongated pit **392**, located next to the southern limit of excavation, was sub-rectangular in plan, 0.37m deep, with moderately sloping sides and a flat base. The sole fill (393) was a mid yellowish grey silty clay with rare stone inclusions. A total of 39g of Roman pottery and 21g fired clay was recovered from the fill.

3.3.54 A single gully at the southernmost limit of the excavation was unphased (**404**). Gully **414** was linear in plan, aligned north-west to south-east, with gently sloping sides and a concave base. It measured 0.64m wide and 0.2m deep. The sole fill (415) was a mid yellowish grey clay with occasional small stone inclusions.

Sub-Period 2.2: Later Roman

3.3.55 Activity increased significantly during the end of the Early and into the Middle Roman period (Fig. 5), with a shift towards significant industrial activity and associated crop processing waste being used as fuel and subsequently dumped into large pits and watering holes. Possible corn driers, tanks and other industrial features were also utilised.

Industrial Zone 3

3.3.56 Industrial Zone 3 was located centrally within the excavation area and consisted of a possible corn drier (pit **29** and postholes **26** & **31**), pits **20**, **38**, **40**, **54** and intercutting pits **13**, **17**, **19** and **429**.

3.3.57 The corn drier consisted of a central sub-rectangular pit (**29**) and two postholes either end of the pit (**26** and **31**). Pit **29** was 1.65m long, 1m wide and 0.2m deep with a square profile. Basal fill 28 was a mid greyish brown silty clay and 0.05m thick. Upper fill 27 was a mixed dark greyish brown silty clay with occasional stone inclusions. Early Roman pottery (24g) and fired clay (54g) was recovered from the fill. Posthole **26** was sub-circular in plan, 0.6m in diameter and 0,3m deep, with steep sides and uneven base. Fill 25 was a mid greyish brown silty clay with occasional small stone inclusions from which a single quern fragment (SF1), weighing 4816g, was recovered. Posthole **31** was 0.7m in diameter and 0,18m deep with a U-shaped profile. The backfill (30) was a mid greyish brown silty clay with frequent small stone inclusions.

3.3.58 East of this corn drier were two intercutting pits (**38** and **40**) and elongated pits **20** and **54**. Pit **40** was oval in plan, 1.54m long, 0.73m wide and 0.2m deep with a rounded profile. Fill 39 was a light yellowish grey silty sand with rare flint inclusions. A fragment of quern (SF2, 5740g) was recovered from the fill. Cutting this was pit **38**, sub-rectangular in plan, 2.08m long, 1.22m wide and 0.22m deep with moderately sloping sides and a flat base. The sole fill (37) was a dark greyish brown silty clay with frequent daub and occasional charcoal inclusions. Ceramic building material (15g) was recovered from the fill.

3.3.59 Located just to the north-east, pit **20** was sub-oval in plan, 1.4m long and 0.55m deep with steeply sloping sides and a concave base. Basal fill 21 was a very dark grey clayey silt, 0.2m thick, with very occasional small stone inclusions. Upper fill 22 was a black clayey silt, 0.4m thick, with rare stone inclusions. Animal bone (395g), Middle Roman pottery (1393g), fired clay (370g) and a bone pin shard (SF5) were recovered from the fill.

3.3.60 Directly east, elongated pit **54** was sub-rectangular in plan, 3.48m long, 0.74m wide, 0.47m deep with a U-shaped profile. The basal fill (55) was a mid orangey grey sandy clay, 0.14m thick, with occasional stone inclusions. Above this, was a light greyish orange sand (53), 0.1m thick, with rare charcoal inclusions. The uppermost fill (52) was a dark greyish brown clay, 0.33m thick, with occasional charcoal and stone inclusions. The fill contained 498g of slag and 12g of fired clay.

3.3.61 To the west of these features was another group of intercutting features that may have had an industrial function (pits **13** and **17**, **19** and **429**). Pit **17** was sub-circular in plan, 1.5m in diameter and 0.34m deep, with moderately sloping sides and a concave base. The basal fill (16) was a light orangey grey silty clay, 0.2m thick, with occasional stone and charcoal inclusions. The upper fill (15) was a very dark grey silt with occasional stone inclusions.

3.3.62 Pit **13** was sub-circular in plan, 0.86m in diameter, 0.44m deep with a wide U-shaped profile. The basal fill (12) was a light orangey grey silty clay and 0.1m thick, from which 23g of fired clay fragments were recovered. The upper fill (11) was a very dark grey silty clay, with very frequent charcoal inclusions.

3.3.63 Cutting pit **13** was a sub-rectangular pit (**19**) measuring 0.8m in diameter and 0.28m deep with a square profile. The sole fill (18) was a mid orangey grey silty clay with occasional stone inclusions.

3.3.64 Pit **429** was sub circular in plan, 0.6m in diameter, 0.26m deep with steeply sloping sides and concave base. The fill (14) was a mid brownish grey silty clay with very common large angular stone inclusions. This feature truncated pit **17**.

Pits

3.3.65 Directly west of Industrial Zone 3 was a dark brownish grey silty clay (420) with rare charcoal inclusions that measured 1.05m wide and 0.17m thick. This spread sealed Early Roman windbreak **408** and postholes **423**, **425** and **427** and was truncated by a large watering hole (**118, 394**), which also truncated Enclosure 1. This possible watering hole was sub-rectangular in plan, 5.1m in diameter and 2.17m deep, with near vertical sides. The basal fill (395) was a mid bluish grey clayey silt, 0.26m thick, with occasional waterlogged brushwood. Above this, fill 396 was a light yellowish grey silty clay, 0.18m thick, with occasional stone inclusions and moderate amounts of preserved brushwood. Animal bone (396g) was recovered from the fill. This was in turn overlain by 397, a light greyish yellow silty clay, 0.22m thick, with occasional chalk and gravel inclusions. Slumping fill 398 (117) was a dark greyish brown clayey silt, 0.25m thick, with occasional charcoal inclusions. In total, 369g of Roman pottery, 229g of fired clay and 167g of animal bone were recovered from the fill. Secondary silting fill 399 was a dark brownish grey silty clay, 0.38m thick, with moderate charcoal and fired clay inclusions. Late Roman pottery (773g), animal bone (1106g) and oyster shell (54g) were recovered from the fill. Above this was a light brownish yellow silty clay (400), 0.3m thick with occasional small stone inclusions. Early Roman pottery (20g) and animal bone (45g) were recovered from the fill. This was overlain by fill 401 (116), a dark brown grey clayey silt, 0.42m thick, with frequent charcoal and fired clay inclusions. Middle to Late Roman pottery (870g), ceramic building material (265g), fired clay (63g) and animal bone (128g; including a complete dog skull), along with a late 3rd century radiate (SF12) were recovered from the fill. Overlying this fill was 402 (115), a light brownish grey clayey silt, 0.44m thick, with occasional small stone inclusions. The final fill, 403 (114) was a dark greyish brown clayey silt with charcoal and rare small stone inclusions. Late Roman pottery (149g), ceramic building material (167g) fired clay (29g), animal bone (5g) and lava quern (SF16; 716g) were recovered from the fill.

Pit Group 3

3.3.66 Pit Group 3 consisted of a number of large pits (**E105**, **137 138**, **169**, **174**, **185=346**, **325**, **332**, **362**, **368**, **371** and **375**) along with watering hole **321** (**182**), which is described above.

3.3.67 The earliest pit in the group was revealed in Evaluation Trench 1 and was a 10m long and 4.1m wide sub-rectangular pit (**E105**) filled by complex layers of redeposited greyish yellow clays interleaved with lenses of black silt which contained large quantities of burnt cereal grains (evaluation samples 1 and 2). A lower fill contained one sherd of Early Roman pottery and another (E110) contained seeds of duckweed which must have derived from a waterlogged context. The uppermost black silt fill (E106, 357, 404) contained 53 large unabraded sherds of pottery dating to the mid 2nd to 3rd century. This upper fill was a dark grey silt with moderate fired clay inclusions and frequent organic remains. During the excavation phase, the upper fills of the pit were sampled in a grid pattern.

3.3.68 Within Pit Group 3 (Fig. 5) was one definite watering hole (**321, 182**; Fig. 6 S. 58 & Plates 3 & 4) which truncated earlier pit **E105**. This watering hole was sub-circular in plan, 8.47m in diameter and 2.2m deep, with steeply sloping sides. The feature was excavated to a depth of 1.3m and then augered to the base. The basal fill (399) was a very dark grey clay and 0.12m thick, with rare waterlogged wood fragments. Above this lay 340, a light grey clay, 0.46m thick. This was in turn overlain by 341, a light brownish grey clayey silt with moderate stone and frequent charcoal inclusions. A total of 273g of animal bone was recovered from the fill. Above this, fill 342 was a light greyish brown

clayey silt, 0.24m thick with moderate stone inclusions. Slump 343 was a light greyish yellow silty clay with occasional small stone inclusions which measured 0.1m thick. This was sealed by fill 344, a deposit consisting of light grey and black bands of clayey silt, 0.18m thick, with occasional shell and organic inclusions. Animal bone (3g) and fired clay (83g) were recovered from the fill. The uppermost fill (345) was 0.1m thick and a black silt mixed with light grey sandy silts. This feature was truncated by later pit **185** (**346**) whilst still being partially open, before both pits were then backfilled with the same sequence of fills (fills 349 to 353, described below).

3.3.69 Cutting the western edge of pit **185** (**346**) was sub-oval in plan, 4.08m long, 1.32m wide and 0.46m deep. It has steeply sloping sides and a flat base. The basal fill (347) was a light greyish yellow clayey silt with occasional stone inclusions. Above this lay fill 348, a light brownish grey clayey silt with moderate stone inclusions. Both pit **185** and **321** were then backfilled with fill 349 (187), which varied in thickness from 0.2m to 0.4m. This fill was a black silt, with an almost peaty consistency. Charcoal and grain were visible inclusions while 48g of Late Roman pottery along with 469g of fired clay was recovered from the fill. Overlying this was a light brownish yellow silty clay, 350 (183, 188), 0.34m thick, with occasional stone and common chalk inclusions. Early/middle 2nd century pottery (103g) was recovered from the fill. Slump fill 351 was a light brownish yellow silty clay, 0.06m thick with rare stone inclusions. Overlying both 350 and 351 was a light brownish grey silty clay (352, 184, 186), 0.3m thick, with occasional small stone inclusions. Late Roman pottery (173g), ceramic building material (510g) and animal bone (41g) was recovered from the fill. Backfill 353 was a dark brownish grey clayey silt, 0.24m thick, with organic and charcoal inclusions and contained 89g of 3rd to 4th century pottery and 127g of animal bone. The uppermost fill (354, 188) was a light brownish grey clayey silt, 0.2m thick, with moderate charcoal inclusions. A total of 678g of late 2nd century pottery, 566g of fired clay, 205g of animal bone and 19g of shell were recovered from the fill

3.3.70 To the north, pit **137** (Fig. 7 Section 31) was sub-rectangular, measuring 5.88m long, 2.7m wide and 1.1m deep with steep sides and a flat base. Basal fill 189 was a dark brownish grey sandy silt, 0.04m thick, with occasional small stones and preserved brushwood. Above this lay fill 163, a dark brownish grey silt, 0.06m thick with occasional small stone inclusions. A total of 26g of 2nd to 4th century pottery was recovered from the fill. This was overlain by fill 164, a mid brownish grey clayey silt, 0.34m thick, from which 63g of 2nd to 4th century pottery and animal bone was recovered. Overlying this was slump fill 165, a light brownish yellow clayey silt, 0.1m thick, with occasional chalk inclusions. This fill was lying underneath fill 166, a very dark grey peaty silt, 0.14m thick with occasional small stone inclusions. Fired clay (14g), 1st to 4th century pottery (36g) and animal bone (33g) was recovered from the fill. This was sealed by 167; a light bluish grey silty clay, 0.08m thick, with occasional small stone and charcoal inclusions. The uppermost fill (168) was a light brownish yellow silty clay, 0.26m thick with occasional stone and regular chalk inclusions.

3.3.71 Cutting pit **137** was a smaller pit (**169**; Fig. 7 S. 31) was 1.84m wide, 0.3m deep with a U-shaped profile. The basal fill (170) was a light brownish grey clayey silt, 0.1m thick, with occasional small stone inclusions. This was overlain by fill 171; a dark brownish grey clayey silt, 0.06m thick with occasional chalk and stone inclusions. Above this was fill 172; a light yellowish brown clayey silt, 0.04m thick with occasional small stone inclusions. The uppermost fill (173) was a dark brownish grey clayey silt with occasional small stone and fired clay inclusions. A total of 334g of fired clay was recovered from the fill.

3.3.72 Pit **174** (Fig. 7 S 31) cut both pits **137** and **169** and measured 2.8m wide, 1m deep with a square profile. The basal fill (175) was 0.51m thick and consisted of alternating bands of a dark greyish brown silt and a light brownish grey silty clay. Second century pottery (61g), ceramic building material (902g), fired clay (142g) and was recovered from the fill. Above this was fill 176, a dark brownish grey clayey silt, 0.08m thick, with occasional stone and fired clay inclusions. This was in turn overlain by backfill 177, a very dark brownish grey clayey silt, 0.1m thick, with occasional fired clay inclusions, from which 245g of ceramic building material was recovered. This fill was below a light brownish grey clayey silt (178), 0.06m thick with rare flint inclusions. Backfill 179 was above this, which consisted of a dark bluish grey clayey silt, 0.07m thick, with moderate fired clay inclusions. Sealing this was fill 180. This fill consisted of many laminations and tiplines of dark brownish grey silt with organic matter, 0.38m thick, with moderate fired clay inclusions. Slag (7g), Mid 2nd century pottery (719g), fired clay (1194g) and animal bone (145g) were recovered from the fill. A radiocarbon date was obtained from a charred spelt grain (*Triticum Spelta/dioccum*) recovered from sample 77, from fill 178. The results returned a date of AD144-385 (95.4%) and AD210-385 (91%) (Radiocarbon Age BP 1758 ± 34;SUERC-69253 (GU41840)). The certificate for the result can be found in Appendix E. A total of 15 spelt grains were also sent off for DNA testing at Manchester University, the results of which were poor, with no DNA being extracted (Terry Brown, pers. comm.).

3.3.73 Towards the southern extent of the group, pit **325** was sub-circular in plan, 3.53m in diameter and 1.1m deep with a wide, U-shaped profile. The basal fill (326) was a light brownish grey silty clay, 0.1m thick, with frequent stone inclusions. Above this was 327, a mid brownish yellow silty clay, 0.3m thick, with moderate stone inclusions. This was sealed by a band of dark brownish grey clayey silt (328), 0.1m thick, with rare flint inclusions. Backfill 329 was a mid brownish grey silty clay, 0.5m thick with occasional stone inclusions. Early to mid 2nd century pottery (664g), fired clay (74g) and animal bone (31g) was recovered from the fill. This was sealed by a mid yellowish brown silty clay (330), 0.15m thick, with occasional stone inclusions. The uppermost fill (331) was a dark brownish grey clayey silt, with rare flint inclusions. This feature was truncated by later pits **138**, **332** and **371**.

3.3.74 Just to the north of this, pit **362** (Fig. 6 S. 62, Plate 5) was 6.5m in diameter, sub-circular in plan and 1.3m deep with a wide U-shaped profile. Slump fill 364 was 0.8m wide and 1m thick. It consisted of a mid brownish yellow silty clay with rare stone inclusions. This was overlain by a light brownish grey silty clay (363), 0.4m thick, with common stone inclusions, from which 2nd century pottery (65g) and ceramic building material (216g) was recovered. This was overlain by 366; a dark brownish grey silty clay with occasional stone inclusions that measured 0.4m thick. Above this was a dark brownish grey clayey silt with a high organic content (365). It measured 0.5m thick and had occasional stone inclusions. Late 1st to early 2nd century pottery (26g), animal bone (200g), oyster shell and fired clay (8g) was recovered from the fill. Fill 367 lay above this and consisted of a mid brownish yellow silty clay, 0.2m thick with occasional chalk inclusions. A 65g sherd of samian pottery with a partial stamp along with 102g of animal bone was recovered from the fill. The uppermost fill (370) was a mid brownish grey silty clay, 0.4m thick. A total of 341g of 4th century pottery, 2514g of fired clay, 460g of ceramic building material, 94g of animal bone and 16g of shell was recovered from the fill.

3.3.75 Directly north and cutting pit **325**, pit **138** (Fig. 7 S. 29) was sub-circular in plan, 3.6m in diameter, 0.74m deep with steep sides and a concave base. Basal fill 144 was a mid yellowish brown sandy clay, 0.12m thick with small stone inclusions regularly. Overlying

this was fill 145; a dark greyish brown silty clay, 0.11m thick, with small stone inclusions rarely. The fill overlying this (146) was a mid yellowish grey silty clay, 0.65m thick, with occasional small stones and charcoal inclusions. A total of 494g of Middle Roman pottery and 288g of animal bone were recovered from the fill. The uppermost fill (147) was a dark grey silty clay, 0.13m thick, with rare small stone inclusions.

3.3.76 Located on the south-east edge of the group, pit **375** was sub-circular in plan, 1.03m in diameter and 0.37m deep with a wide U-shaped profile. The sole fill (376) was a mid greyish brown silty clay with occasional stone inclusions. 1st to 4th century pottery (24g), ceramic building material (12g) and slag (284g) was recovered from the fill. This pit was cut on its northern edge by pit **371**, which was sub-circular in plan, 1.68m in diameter and 0.45m deep with a U-shaped profile. Backfill 374 was a mid greyish brown silty clay, 0.36m thick, with rare stone inclusions. Above this was fill 372, a mid reddish brown silty clay with frequent fired clay inclusions. The uppermost fill (373) was a dark grey silty clay, 0.25m thick, with rare stone inclusions. This feature cut pits **325** and **375**.

3.3.77 Located west of pits **375** and **371**, pit **332** was sub-circular in plan, 1.2m in diameter, 0.35m deep with a U-shaped profile. The sole fill (333) was a mid brownish yellow silty clay with regular flint inclusions. Fired clay was recovered from the fill. This feature truncated earlier pit **325**.

3.3.78 Pit or corn drier **368** (Plate 5) was sub-rectangular in plan. It measured 1.68m in length, 1.22m wide and 0.4m deep with a near vertical eastern edge and gently sloping western edge. Backfill 369 consisted of a light brownish yellow silty clay with occasional stone, chalk and fired clay inclusions. Above this was pottery dump 58, located on the western edge of the feature. This dump consisted mostly of Horningsea wares (5798g) along with a small sherd (3g) of samian and 471g of ceramic building material, including an imbrex tile. This pit was cut directly into the top of pit **362**.

Pit Group 4

3.3.79 Pit Group 4 consisted of a possible tank (**67**, **9**) and eight pits (**45**, **57**, **64**, **73**, **75**, **77**, **79** and **81**), and located centrally within the excavation area, north of Industrial Zone 3. This group comprised a number of large intercutting pits, some of which were heavily truncated.

3.3.80 Pit **77** (Fig. 8 S. 15) was heavily truncated, only the very base surviving. The feature was seen for 0.25m in width and 0.5m depth in section, with a U-shaped profile. Basal fill 78 was a mid brown sandy clay and 0.15m thick. Above this was fill 88; a mid greyish brown silty clay, 0.08m thick, with occasional chalk inclusions. Sealing fill 88 was 89, a mid greyish brown silty clay, 0.3m thick, with occasional stone inclusions. This pit was truncated by tank **67** and pit **73**.

3.3.81 Feature **67** (**9**, Fig. 8 S. 15, Plates 6 & 7), the largest feature within the group, tentatively interpreted as a form of tank, was sub-rectangular in plan, 7.5m long, 4.68m wide and 1m deep. The feature had steeply sloping sides with a flat base. The basal fill (71), was a dark grey silty clay, 0.2m thick with moderate charcoal inclusions. Fill 70 was a dark grey silty clay, 0.21m thick, with occasional charcoal and chalk inclusions and contained 52g of Roman pottery (2nd to 3rd century) and 3g of fired clay. Fill 91 (not illustrated) was a mid yellowish brown silty clay, 0.21m thick, with occasional stone inclusions. Sealing fills 70, 71 and 91 was fill 69; a dark brownish grey silty clay, up to 0.4m thick, with occasional stone and charcoal inclusions. Fired clay (12g) and 10g of shell were recovered from the fill. Above this was fill 68, a dark grey silt, 0.2m thick, with occasional charcoal and daub inclusions. This fill was in turn overlain by 90 (not

illustrated), a dark grey silt, 0.3m thick, with occasional charcoal inclusions, from which 36g of fired clay was recovered.

3.3.82 Pit **64** (Fig. 8, S.13) was sub-circular in plan, 3m in diameter and 0.8m deep, with moderately sloping sides and a flat base. The basal fill (66) was a mid brownish grey silty clay, 0.4m thick, with occasional stone inclusions. Above this was fill 65, a very dark grey silt with occasional flecks of daub and regular charcoal inclusions. A total of 45g of Middle to Late Roman pottery and 291g of fired clay were recovered from the fill. Fill 85 slumped into the feature on top of fill 65. This fill was a mid yellowish brown silty clay, 0.2m thick, with occasional chalk and stone inclusions. Above this was fill 86, a very dark grey silt, 0.03m thick, with occasional daub flecks. This pit appeared to cut tank **67** although it wasn't clear in section.

3.3.83 These two pits (**64** and **67**) were sealed by capping layer 72 (Fig. 7, S.13); a mid yellowish brown silty clay, 0.35m thick with occasional chalk flecks. A large amount of fired clay (8021g) was recovered from this layer, some of which had crop processing waste impressions (Appendix B.9) along with 14g of Roman pottery (2nd to 3rd century).

3.3.84 At the western edge of the group, pit **79** was sub-circular in plan, 0.8m in diameter and 0.38m deep. The sole fill (80) was a mid orangey brown silty clay with rare chalk inclusions and contained 6g of 2nd century pottery.

3.3.85 To the east and cutting pit **77**, pit **75** was sub-circular in plan, 1.8m in diameter, 0.5m deep with gently sloping sides and concave base. Fill 76 was a mid brownish grey silty clay with occasional stone inclusions. Another pit (**73**) lay to the east and was sub-circular in plan, 1.5m in diameter, 0.42m deep with a bowl shaped profile. The sole fill (74) was a mid brownish grey silty clay with occasional stone and charcoal inclusions.

3.3.86 Pit **6** truncated the south-west corn of pit **67** and was sub-circular in plan, 1.3m in diameter, 0.36m deep with a wide U-shaped profile. The lower fill (7) was a mid brownish yellow sand clay with occasional stone inclusions. The upper backfill (8) was a dark brownish grey silty clay with occasional burnt clay inclusions. A total of 80g of 2nd century pottery was recovered, including a sherd of samian pottery (Drag 46 Cup).

3.3.87 Located on the south-eastern corner of tank **67**, pit **81** was sub-circular in plan, 1.2m in diameter and 0.25m deep, with gently sloping sides and a flat base. Fill 82 was a dark greyish brown clayey silt with occasional fired clay inclusions.

3.3.88 On the northern-eastern corner of pit **67**, pit **45** was sub-circular in plan, 1.65m in diameter, 0.95m deep, with vertical sides and an irregular base. The basal fill (50) was a dark greyish brown silty clay, 0.4m thick with occasional charcoal and stone inclusions. A copper pin (SF3) and 12g of Early/Middle Roman pottery was recovered from the fill. Above this, fill 44 was a mottled orangey brown silty clay, 0.55m thick, with occasional charcoal and redeposited natural lenses. Sealing this fill was backfill 43; a dark greyish brown silty clay, 0.2m thick, with occasional daub and charcoal inclusions. A band of redeposited natural (42) was above 43. This fill was a mid yellowish brown silty clay with moderate chalk inclusions. Tertiary fill 41 was a dark greyish brown silty clay, 0.1m thick, with rare daub inclusions. The feature truncated earlier pits **57** which was 1.4m in diameter, 0.5m deep with steeply sloping sides and a flat base. The sole fill (56) was a dark greyish brown silty clay with occasional small stone inclusions. The feature was heavily truncated by pit **45** and a geotechnical pit.

Other Features

3.3.89 Gully or beam slot **83** was linear in plan, aligned north-east to south-west and 0.5m wide, 0.11m deep with a bowl shaped profile. The sole fill (84) was a dark grey clayey silt with occasional fired clay and charcoal inclusions. The gully truncated earlier tank **67** in Pit Group 4 and pit **23**.

3.3.90 Pit **338** was isolated within the eastern portion of site, with no nearby features of the same period. This pit was sub-circular in plan, 1.6m in diameter and 0.24m deep with a wide U-shaped profile. The basal fill (337) was a very dark grey clayey silt with occasional gravel inclusions. A total of 237g of fired clay was recovered from the fill and the environmental sample was found to contain charred spelt. Above this was fill 336; a mid greyish brown silty clay with occasional flint inclusions.

3.4 Period 3 (medieval to post-medieval)

3.4.1 A total of five truncated furrows were recorded on site (Fig. 2), on a north-north-east to south-south-west alignment. No finds were recovered from the features, but they are presumed to be medieval or post-medieval in date. These furrows were extremely truncated. Where they did survive, they varied in width between 1.59m to 3.04m and had a maximum depth of 0.08m.

3.4.2 An area of what appeared to be plough scarring was also recorded on the same alignment as the furrows and covered the central area of the site. A single coin (SF6) was recovered from this truncation, dating to 1732.

3.5 Period 4 (Modern)

3.5.1 A total of two modern drain pipe cuts on a north-west to south-east alignment were recorded on site (Fig. 2), truncating features from all other periods. A small amount of modern disturbance was also recorded at the northern end of site – possibly related to the partial stripping of the site during the construction of the adjacent industrial estate.

3.6 Finds Summary

Introduction

3.6.1 A moderate finds assemblage was recovered from the site (Table 1), including pottery dating from the 1st through to the 4th century and a number of quern fragments. Other finds include two Roman coins, two pins (one bone, the other copper), a moderate amount of slag and a small assemblage of animal bone.

Material	*Object Name*	*Weight in kg*
Bone	Animal Bone	8.35
Bone	Pin	0.004
Ceramic	Ceramic Building Material	4.40
Ceramic	Fired clay	18.703
Ceramic	Vessel	17.906
Lava Quern	Lava Quern	0.915
Shell	Shell (various)	0.227
Slag	Metal-working debris	2.282
Stone	Artefact	22.302
Stone	Quern	5.74

Table 1: Bulk finds quantified by weight

Pottery

3.6.2 A total of 761 fragments of pottery were recovered, weighing 17906g. The majority of pottery was recovered from the pit clusters, with lesser amounts coming from the other features. The assemblage is primarily of local origin with dates ranging from the mid 1st to early/mid 2nd century and continuing into the later Roman period (3rd and 4th centuries). It is largely a utilitarian assemblage, although some imported finewares and traded specialist wares are also present. The assemblage can be stated to be typical of the type of pottery waste generated by a Romano-British fenland farmstead

Metalwork

3.6.3 A single copper strip (SF50) was recovered from pit **45** and has been identified as probably being a brooch pin.

3.6.4 Eight fragments of iron were also recovered, with six of these being nails along with a single fragment of an iron blade (SF17). An amorphous, unidentifiable lump of iron was also found.

Coins

3.6.5 Three coins were recovered of which two are Roman in date and the third is a halfpenny of George II from 1732. The earlier Roman coin (SF12) is a Sestertius of Faustina the younger, broadly dated to AD 161-175. The second Roman coin (SF8) is only identifiable as a radiate of the later 3rd century.

Metalwork Debris

3.6.6 A small assemblage of 36 pieces of metalworking debris (MWD), weighing 2282g was recovered. The majority of the assemblage comprises pieces of smithing slag including a possible hearth bottom along with pieces of vitrified hearth lining. A moderate amount of hammerscale was also recovered from the environmental samples taken on site.

Worked Bone

3.6.7 A single fragment of a worked bone pin was recovered. The bone is in good condition, although no diagnostic fragments survive, as only the central part of the shaft was present.

Worked Stone

3.6.8 A total of 48 pieces of worked stone were recovered, weighing 23.217kg, comprising fragments of quern or millstone and a stone roof tile. A total of 43 fragments of lava quern were recovered: all were highly abraded with no diagnostic features and weighed 0.915kg. The remaining fragments are of millstone grit, with one piece having a trace of hopper or spindle hole surviving. A single large fragment of millstone was recovered which has an unknown function, possibly being a door jamb.

Fired Clay

3.6.9 A total of 661 pieces of clay weighing 18703g was recovered from 37 contexts. The assemblage comprises daub and lining relating to superstructures for ovens or corn driers. The majority of the assemblage is consistent with debris from the demolition of these structures. Cereal grain and straw impressions were noted on some fragments (Fig. 12).

Ceramic Building Material

3.6.10 A total of 28 pieces of ceramic building material weighing 4400kg were recovered from 11 contexts. The Roman assemblage includes six fragments of imbrex and two pieces of flanged tegulae. This assemblage indicates a high status structure with a tiled roof was located somewhere nearby.

3.7 Environmental Summary

Introduction

3.7.1 Environmental remains are excellent, with a large quantity of charred chaff and spelt grain being recovered from the flots. A lot of the charred grain shows evidence of germination – indicative of malting the grain for brewing (Fig. 13).

Faunal Remains

3.7.2 A total of 8.35kg of faunal remains were recovered from site. Cattle is the dominant species represented, with smaller numbers of sheep/goat remains and scarce horse and dog remains. Single fragments of pig, bird, fish and frog were also recovered.

Mollusca

3.7.3 A total of 0.227kg of marine shell was recovered. Oyster shell dominates the assemblage, with only a single cockle being recovered.

Charred Plant Remains

3.7.4 Environmental samples taken from features on the site contained large amounts of spelt grain and chaff, with many of the grains having signs of germinating. This abundance of crop-processing waste is suggestive of industrial-scale agricultural activity nearby. The germinated grains would indicate spelt malting taking place, which is likely to have been common in the Roman period

4 Discussion and Conclusions

4.1 Introduction

4.1.1 The excavation at Norman Way Industrial Estate, Over, has uncovered significant remains focused on the edge of an Early to Middle Roman farmstead or settlement; the latter probably represented by cropmarks delineating an enclosure and other features to the immediate north-east (Fig. 1). Despite the small area investigated, both the archaeological and environmental evidence suggest that this was an area of intensive industrial activity, where metalworking, crop processing and spelt malting (as part of the brewing process) were taking place.

4.1.2 Although in general the features do not help in elucidating the nature of the industrial processes being carried out in the vicinity, a number of them may be interpreted as corn driers or tanks, possibly for steeping. Water would have been an important resource for activities such as metalworking and brewing and the waterholes and deep pits would have provided this water. Similarly, the nearby streams located on the Fen-edge to the west could also have provided water. No definite structural remains, such as oven superstructures or postholes forming clear building plans were identified, while the small area excavated makes it difficult to place the features within their wider settlement context. Interpretation is further hampered by the poor weather and ground conditions which prevented full investigation of some of the larger features. Despite these limitations, it has been possible to reconstruct a general picture of the development of the site against the backdrop of Late Iron Age and Roman land use in this important Fen-edge location.

4.2 Iron Age to Roman Transition

4.2.1 Limited evidence of Iron Age activity was revealed in the form of two small north-to-south aligned ditches in the southern half of the excavation area, along with some pitting. Despite the limited Iron Age remains recorded, their presence is indicative of nearby settlement which in turn suggests some continuity from the Iron Age through to the Roman period (within the settlement to the north-east of the excavation area). The different orientation to the subsequent Roman ditches indicates that the field system which the Iron Age ditches were part of had fallen out of use, or the fields surrounding the settlement were re-organised during the Early Roman period.

4.2.2 Interestingly, the faunal evidence suggests a number of practices that are generally thought to have been part of Iron Age traditions were still taking place here during the later (Roman) periods of activity, further indicating continuity between these periods. One example concerns the equid remains, which show signs of butchery. Eating horse flesh is known to have been relatively common in the Iron Age, and appears to have continued into the Early Roman period. Similarly, the deposition of a dog skull and mandible within waterhole **118** might be interpreted as an Iron Age trait, but these remains was recovered from a Later Roman context. This also hints at continuity rather than a radical change during these periods, particularly in terms of human-animal interactions.

4.3 The Late Iron Age and Roman Landscape

4.3.1 The site is positioned on the peat Fen-edge (Fig. 9), part of the south-western hinterland of the Fen-basin: an area rich in archaeological remains. Developer-led excavations and local research have revealed evidence for numerous settlements

spread across this landscape, many of which date to the Iron Age and Romano-British periods.

4.3.2 Just under 2km to the south of the site in Swavesey, excavations at Blackhorse Lane uncovered a Late Iron Age/ Early Roman pottery kiln together with a field system representing the fringes of a settlement (Willis 2008). Similarly, Early Roman remains were recorded during excavations for the guided busway, south of the excavation area (Fig. 1). A substantial pottery assemblage was recovered, indicative of nearby settlement (Dickins & Collins 2011). Two of the most important excavated sites nearby are Langdale Hale and 'The Camp Ground', both extensive settlements located near Earith on the River Great Ouse, 6.5km to the north of the site (Fig. 9). Excavations revealed a large farmstead at Langdale Hale, and the Camp Ground was interpreted as one of the country's only identified 'inland ports' (Evans 2013). Evidence from the two sites would suggest a possible relationship between them – with grain being traded between Langdale Hale to the Camp Ground. It is worth noting that the pottery assemblages from these sites are similar to those from Over, albeit typical of the region during the Early and Middle Roman periods.

4.3.3 North of Over, within the Fens, the River Great Ouse flows north-eastwards, beyond which a section of the Old Tillage extends northwards towards Lincolnshire, where it becomes known as the Car Dyke (Fig. 9). This Roman waterway has variously been interpreted as a catchwater, or part of drainage works for the Fenland 'Imperial Estate' (see below) and it has also been argued that it formed a political boundary (Mackreth 1996). The section of this waterway that passes through Cambridgeshire has various names: Cnut's Dyke, Colne Ditch and The Old Tillage and links the River Cam between Horningsea and Waterbeach via a tributary of the Great Ouse, The Old West. The settlement at Over would have had good links to this waterway, connecting it to numerous Roman settlements, including The Camp Ground at Earith and *Durovigutum* (Godmanchester) to the west, via the Great Ouse.

4.3.4 The Roman road network within this part of the country was extensive and settlements would have been well-connected to this via a series of secondary roads and unsurfaced tracks. Approximately 10km east of the site, Akeman Street, which passed through Cambridge to Ely and beyond to the Fen Causeway, would have been accessible to the settlement. Similarly, both the *Via Devana* and Ermine Street (Margary's Routes 24 and 26) would potentially have provided access to large swathes of the country via the nearby fort and later town at Godmanchester (*Durovigutum)*.

4.3.5 The Fenland Survey Project identified 15 Roman 'sites' within the Swavesey and Over parishes, one of which (Site 10, Fig. 1) is the farmstead located directly north-east of this excavation (Hall 1996, 150), and is presumably the settlement associated with the industrial activity revealed within the excavation area. The sites are all located on the gravel terraces and uplands, away from the Fen, the edge of which during the Roman period was approximately 800m west of the excavation.

4.4 Romano-British Activity at Over

4.4.1 Activity on the site clearly intensified during the Romano-British period, with a focus on industrial processes. The phasing used in this report is based on a sometimes arbitrary distinction between the Early and Later Roman features encountered, generally derived from stratigraphic relationships and pottery dating. Another major factor was the presence of crop processing waste, which was mostly found within the later features (in the largest quantities). These two phases of activity fit relatively well with the generally agreed dates for the Early (AD43-150) and Middle (AD150-300) Roman periods. At

Over, the Middle Roman period may have commenced slightly earlier, in the early-mid 2nd century; the Hadrian-Antonine period.

4.4.2 The remains appear to be fairly characteristic of Fen-edge archaeology of this date – a period of huge increase in settlement and economic activity. Until recently this had been interpreted as evidence for an 'Imperial Fenland Estate', but this model is now seen to have little supporting data (Evans *et al.* 2013, 15; Evans, Macaulay & Mills forthcoming). The purported rise in settlements is also probably an over-simplification of the evidence, with results from developer- led excavations and the Fenland Survey indicating that the Fen-edge was an already well-settled landscape during the Late Iron Age into the Early Roman period. It is more plausible that further settlements were founded during the 1st and 2nd centuries when land became more habitable in the wake of the decreasing threat of flooding (Taylor 2000).

Early Roman Features

4.4.3 During the post-Conquest period, an enclosure appears to have been dug on the same alignment as the enclosure around the cropmark settlement to the north-east (Fig. 1). From what was revealed within the excavation area, the ditches seem to have delineated a zone of 'non-domestic' activity located outside the main settlement area. Although specific evidence for the type of industrial activities being undertaken is limited, the presence of moderate amounts of flake and spheroidal hammerscale, particularly within the enclosure ditches and some features within Industrial Zone 1, is indicative of metalworking (smithing) taking place in the near vicinity. Crop processing waste was also recovered from some features within this period, suggesting this activity was being undertaken nearby, though not on the scale evident during the Later Roman period.

4.4.4 This early activity probably represents expansion of the settlement located to the north-east, within a wider area of field systems associated with arable or pastoral farming. Arable farming seems the most probable regime given the environmental evidence and the site's location. The siting of industrial activity in this area was presumably for practical reasons, being at a distance from the main focus of domestic settlement. Despite many features within Industrial Zone 1 having unclear functions, at least one (**132**) is interpreted as a possible corn drier, indicating on-site processing of a harvest. Some of the grains recovered from possible steeping tank **268** were also germinated, suggesting a cottage industry of malting was being undertaken in this period.

4.4.5 The Early Roman evidence suggests activity here was tied to the local economy and cottage industries, producing goods to be used by the community living within the settlement itself, with perhaps some localised trading.

Later Roman Features

4.4.6 The latest Roman activity on the site took the form of clusters of large, deep watering holes/pits, containing significant amounts of crop processing waste (burnt chaff and cereal grains) alternating with redeposited natural clays. The enclosure established during Period 2.1 had clearly fallen out of use by the point these pits were dug, as the large group of intercutting pits and watering holes (Pit Group 3) truncated what would have been its north-west corner.

4.4.7 Industrial features identified during analysis include possible corn driers within Industrial Zone 3, located centrally within the excavation area. Environmental remains from these possibly represent the rake-out material from corn driers, and interestingly the rate of germination within these samples was low when compared to the results of deposits within the watering hole and other features in Pit Group 3. This suggests that

not all of the crop from a harvest was left to germinate, with some being dried and processed as normal, to be ground to flour or used as fodder.

4.4.8 Metalworking still appears to have been taking place within the vicinity of the site, with metalworking debris and hammerscale being recovered from some features, with the largest amount found in pit **54**, part of Industrial Zone 3.

4.4.9 One of the more intriguing elements was feature **67**, part of Pit Group 4. The function of this large sub-rectangular pit, which was located just south-east of Pit Group 3, remains unclear: it was initially interpreted as a corn drier, due to the large amount of fired clay recovered from the upper backfill. However, the environmental results contradict this interpretation, with duckweed seeds being found, suggesting the pit was wet when in use and therefore unsuitable for use as a corn drier. Similarly, no heat-affected clay was found around the feature's edges and the primary fill was relatively 'clean'. Another possible interpretation is that it was a steeping tank, used for soaking the grain to aid the beginning of germination. This seems a more probable function for the pit, and would add support to the idea that the grain was deliberately germinated for use in malting.

4.5 A Romano-British Malting Site on an Industrial Scale?

4.5.1 Clearly, the most significant results from the excavation relate to the palaeoenvironmental remains. The assemblage is comprised of hulled spelt wheat chaff with a large component of germinated grain (Fig. 13) and detached sprouts. An in-depth analysis of the assemblage is provided in Appendix D.3.

4.5.2 An abundance of burnt spelt chaff is indicative of the burning of crop processing waste, the end product from the processing of extremely large amounts of spelt wheat. This chaff was an excellent fuel and was commonly used to fire corn driers, malting ovens and metalworking hearths (activities which may all have been undertaken in the vicinity of the excavation area). The stratigraphic sequence of dark deposits of crop processing waste interspersed with layers of redeposited clays indicates that there were multiple deposition events, suggesting numerous episodes of burning the crop processing waste. This would support the idea that this is not evidence of a large-scale catastrophic loss of harvest, but in fact deliberate germination of the grain for malting, the waste of which was burnt as fuel and then deposited within the watering holes once they became redundant.

4.5.3 The significant evidence of crop processing waste being burnt and dumped within large watering holes is indicative of the burning of waste after crops were processed. The evidence of germinated grain suggests that at least part of the spelt harvest was being malted to produce beer or be sold as malt 'cakes'. The sheer quantity of environmental material indicates the product was an important part of the local agrarian economy, with enough surplus to have been traded locally, and possibly even nationally or to the continent, given that the site was linked with the Old Tillage and the possible inland port at The Camp Ground near Earith. Similarly, the goods could have potentially been transported via the River Great Ouse, to the nearby fort and town at *Durovigutum* (Godmachester) and beyond.

4.5.4 Equivalent and comparable environmental evidence has been found elsewhere. At Langdale Hale, near Earith, the rich environmental assemblage was interpreted as industrial scale agricultural activity, and the assemblage had a similar composition to that from Over, apart from the germinated grain (Ballantyne 2013, 143). Similar results to those at Over were also found at Elms Farm, Heybridge, Essex, where a large charred assemblage of spelt chaff and cereal sprouts were found within a

palaeochannel and was interpreted as representing large scale processing being undertaken on the periphery of the settlement, along with possible malting (Monckton 2015). Initial post-excavation assessment of results from the East Kettering developments (Gilmour forthcoming) have also uncovered very similar results, with an extensive spread of crop processing waste being recorded next to a large ditch diverting water from a nearby watercourse to an area with corn driers and a possible barn.

4.5.5 The sheer quantity of crop processing waste recovered during the Over excavation is indicative of industry as opposed to processing on a subsistence level. As mentioned above, due to the quantities, it is probable the end product was traded, though evidence for how and where it was transported remains elusive. The preliminary DNA test undertaken on a charred grain by Terry Brown of Manchester University was unsuccessful (Terry Brown pers. comm.), but if DNA is successfully extracted from charred grains, it would be possible to compare the DNA between grains from different sites to see if similar strains of wheat can be found. Similarly, isotope analysis on charred grain was deemed unlikely to be successful but if in the future this was possible, comparisons between charred grain recovered from sites locally, nationally and further afield (on the continent) may enable correlation between where the grain came from and was traded to.

4.5.6 Faunal remains recovered from the features also aid in understanding the local economy. Taxonomic composition of the assemblage suggests that the animal economy was heavily domestic, mainly based on cattle and sheep/goat. It is clear that cattle provided most of the animal-derived food to the site's inhabitants and milk exploitation of both taxa is likely. Interestingly, the recovered equid remains (predominantly horse) have evidence of butchery, suggesting equid meat was consumed at least occasionally, similar to the Iron Age period. An extremely low amount of pig bone was found in the assemblage, indicating pigs were not important in the site's economy. This is an aspect often seen in Iron Age sites of the region, with pig becoming more prevalent in the Roman period, although the discrepancy at the Over site could be due to the small size of the faunal assemblage.

4.5.7 The relatively large assemblage of fired clay recovered from many features, particularly the possible steeping tank, suggests that industrial features such as corn driers or ovens were in use nearby, despite few of these features being identified during the excavation. The assemblage is typical of debris related to these features and the fabrics of the assemblages suggest they were made from locally sourced clays. The fact the assemblage was found in pits and ditches rather than *in-situ* indicates that the superstructures formed by the fired clay were broken up once the ovens fell out of use and then subsequently disposed of in nearby features.

4.5.8 The utilitarian character of the pottery assemblage reflects the industrial nature of the site, located at some distance from the main domestic settlement. It is worthy of note that a relatively large proportion of the pottery assemblage (approximately 10%) is Horningsea ware storage jars. These jars often had internally scored surfaces, a characteristic that is currently not understood. It is possible that this design had a functional use in the storing of malted grain, although this is the subject of ongoing research.

4.6 Post-Roman

4.6.1 No evidence for Anglo-Saxon activity was found on the site, with the only post-Roman evidence seen in the form of truncated medieval or post-medieval furrows, indicating

the area was utilised as arable farmland for the duration of the Post-Roman into Modern period.

4.7 Significance

4.7.1 The evidence of malting and other industrial processes being undertaken on or nearby to the excavation is of potential regional significance. If the results from this excavation are considered along with other excavations where similar evidence has been found, the processes involved in Roman industrial activities such as brewing may become more clearly understood. The environmental remains from this excavation are excellent, and indicate vast amounts of crop processing waste were being burnt within the near vicinity and then dumped in the top of features during the Later Roman period. The process, scale and organisation of beer production during the Romano-British period is in general poorly understood, although the evidence from the current site clearly adds to a growing data set that demonstrates that this was an important part of the economy in Roman Britain.

4.8 Dissemination of the results of excavation

4.8.1 A publication proposal will be submitted to the Proceedings of the Cambridge Antiquarian Society (PCAS) with the aim of publishing a short note on the Roman settlement remains in the Institute's journal. The article to be published will be submitted by the end of 2019.

4.8.2 The publication note will concentrate on the analysis of the charred plant assemblage with relation to germination and malting in the Roman period.

4.8.3 The archive for the project will be deposited with CCC stores once publication is completed.

Appendix A. Context Inventory with Phasing

Evaluation

Trench 1						
General description					**Orientation**	N-S
Trench has seen a degree of truncation very little top soil, features observed below turf, there was also a sub soil, which also sealed features.					**Avg. depth (m)**	0.49
					Width (m)	2.10
					Length (m)	37.70
Contexts						
context	**type**	**Width (m)**	**Depth (m)**	**comment**	**finds**	**date**
E100	Fill	0.5	0.22	Fill of Pit E101	Pot, bone	MC1-MC2
E101	Cut	0.5	0.22	Cut of sub circular Pit	-	-
E102	Fill	0.7	0.5	Fill of Pit E103		-
E103	Cut	0.7	0.5	Cut of circular Pit		-
E104	Layer	-	0.23	?Flood deposit		-
E105	Cut	≥1.8	≥1.4	Cut of rectangular Pit	-	-
E106	Fill	≥2.62	0.9	Fill of Pit E105	Pot, bone	MC2-C3
E107	Fill	≥1.82	0.09	Fill of Pit E105		-
E108	Fill	≥0.65	0.02	Fill of Pit E105 Tipping lens		-
E109	Fill	≥0.89	0.08	Fill of Pit E105		-
E110	Fill	≥1.30	0.02	Fill of Pit E105 Tipping lens		-
E111	Fill	≥2.40	0.22	Fill of Pit E105		-
E112	Fill	≥0.96	0.08	Fill of Pit E105		-
E113	Fill	0.6	0.3	Fill of Pit E115		-
E114	Fill	0.4	0.2	Fill of Pit E115		-
E115	Cut	0.6	0.5	Cut of circular Pit	-	-
E116	Fill	1	0.18	Fill of Ditch E117	Pot	MC1-C4
E117	Cut	1	0.18	Cut of shallow Ditch	-	-
E118	Layer	1.6	0.2	Same As E104?		-
E119	Fill	1.6	0.2	Fill of Ditch E120		-
E120	Cut	1.6	0.4	Cut of shallow Ditch		-
E121	Fill	1.25	0.6	Fill of Ditch terminus E122		-
E122	Cut	1.25	0.6	Cut of Ditch terminus	-	-
E123	Fill	0.8	0.6	Fill of Pit E124	Pot	MC1-C4
E124	Cut	0.8	0.6	Cut of truncated Pit	-	-
E125	Fill	0.5	0.2	Fill of Ditch E126		-
E126	Cut	0.5	0.2	Cut of Ditch		-
E127	Fill	≥0.91	≥0.12	Fill of Pit E105		-
E128	Cut	1.22	0.5	Cut of truncated Pit	-	-
E129	Fill	1.22	0.5	Fill of Pit E128	Pot	MC1-MC2
E130	Cut	0.51	0.14	Cut of Pit / Post Hole	-	-

E131	Fill	0.51	0.14	Fill of Pit / Post Hole E130	-	-

Trench 2

General description	**Orientation**	N-S
Trench had a top soil and sub soil, but in the southern half of the trench there was a lot of modern truncation. In the area of the truncation, there was a lot of made ground.	**Avg. depth (m)**	0.82
	Width (m)	1.8
	Length (m)	50

Contexts

context	type	Width (m)	Depth (m)	comment	finds	date
E140	Fill	0.8	0.2	Fill of Pit E141		-
E141	Cut	0.8	0.2	Cut of oval Pit		-
E142	Layer	-	0.6	Top soil		-
E143	Layer	-	0.2	?Flood deposit		-
E144	Fill	1.3	0.4	Fill of Pit E145		-
E145	Cut	1.3	0.4	Cut of circular Pit		-
E146	Cut	0.95	0.43	Cut of Ditch	-	-
E147	Fill	0.95	0.43	Fill of Ditch E146	Pot, bone	MC1-C4
E148	Fill	≥1.05	-	Not Excavated	Pot	MC1-C4
E149	Cut	≥1.05	-	Not Excavated	-	-
E150	Cut	0.81	0.24	Cut of Ditch	-	-
E151	Fill	0.81	0.24	Fill of Ditch E150	Bone	-

Trench 3

General description	**Orientation**	E-W
Trench has high degree of truncation and made ground, top soil within the trench was varied.	**Avg. depth (m)**	1.05
	Width (m)	1.8
	Length (m)	40

Contexts

context	type	Width (m)	Depth (m)	comment	finds	date
E132	Fill	1.3	0.1	Fill of Furrow E133	None	-
E133	Cut	1.3	0.1	Cut of Furrow	-	-
E134	Fill	0.6	0.2	Fill of Pit E135	None	-
E135	Cut	0.6	0.2	Cut of circular Pit	-	-
E136	Layer	-	0.18	Made ground	-	Modern
E137	Layer	-	0.23	Made ground	-	Modern
E138	Layer	-	0.26	Made ground	-	Modern
E139	Layer	-	0.19	?Flood deposit	-	-

Excavation

Context	Cut	Category	Feature Type	Breadth	Depth	Shape in Plan	Profile	Colour	Fine component	Date Range	Phase
1		layer	natural						sandy clay		-
2		layer	subsoil						silt clay		-
3		layer	topsoil						loam		-
4	5	fill	pit	0.73	0.15			medium brownish grey	clay	MC1-C2	2.1
5	5	cut	pit	0.73	0.15	oval NE-SW	wide U-shape			MC1-C2	2.1
6	6	cut	pit	1.3	0.36	sub-circular	wide U-shape			C2	2.1
7	6	fill	pit	1.1	0.36			mid brownish yellow	sandy clay		2.1
8	6	fill	pit	1.1	0.36			dark brownish grey	silty clay	C2	2.1
9	9	cut	pit	0.6	0.2	sub-rectangular					2.1
10	9	fill	pit	0.6	0.2			mid brownish grey	silty clay		2.1
11	13	fill	pit	0.74	0.36			very dark blue black	silty clay		2.1
12	13	fill	pit	0.7	0.16			patchy light orange grey	silty clay		2.1
13	13	cut	pit	0.86	0.44	sub-circular					2.1
14	429	fill	pit	0.6	0.26			patchy mid orange grey	silty clay		2.1
15	17	fill	pit	0.9	0.17			very dark blue black	charcoally silt		2.1
16	17	fill	pit	1.34	0.2			light orange grey	silty clay		2.1
17	17	cut	pit	1.5	0.34	sub-circular					2.1
18	19	fill	pit	0.62	0.28			patchy mid grey and orange	silty clay		2.1
19	19	cut	pit	0.8	0.28	almost triangular with rounded corners					2.1
20	20	cut	pit	1.4	0.55	oval	rounded V-shape			E/MC3	2.2
21	20	fill	pit		0.2			mid blackish grey	clayey silt		2.2
22	20	fill	pit		0.4			black	clayey silt	E/MC3	2.2
23	23	cut	pit	1.3	0.22	sub-rectangular	wide U-shape			MC1-MC2	2.1
24	23	fill	pit	1.3	0.22			dark yellowish grey	silty clay	MC1-C2	2.1

Context	Cut	Category	Feature Type	Breadth	Depth	Shape in Plan	Profile	Colour	Fine component	Date Range	Phase
25	26	fill	post hole	0.65	0.3			mixed greyish and orange brown	silty sandy clay		2.2
26	26	cut	post hole	0.65	0.8	sub-circular	irregular				2.2
27	29	fill	pit	1	0.2			mixed dark greyish brown and mid orange brown	silty sandy clay	MC1-E/MC2	2.2
28	29	fill	pit	1	0.05			mid grey brown	silty clay		2.2
29	29	cut	pit	1	0.2	rectangular				MC1-E/MC2	2.2
30	31	fill	post hole	0.7	0.18			mid greyish brown	silty sandy clay		2.2
31	30	cut	post hole	0.7	0.18	circular					2.2
32	32	cut	ditch			linear	V-shaped			C1	2.1
33	32	fill	ditch					mid brownish grey	silty clay	C1	2.1
34	36	fill	ditch	1.48	0.46			dark brownish grey	clay	E/MC2	2.1
35	36	fill	ditch	1.75	0.08			mid greyish brown	clay	E/MC2	2.1
36	36	cut	ditch	1.75	0.48	linear	roughly U-shaped			E/MC2	2.1
37	38	fill	pit	1.22	0.22			dark blackish brown	sandy clay		2.2
38	38	cut	pit	1.22	0.22	sub-rectangular	wide U-shape				2.2
39	40	fill	pit	0.73	0.2			light yellowish grey	silty sand		2.2
40	40	cut	pit	0.73	0.2	sub-circular	wide U-shape				2.2
41	45	fill	pit	1.3	0.1			dark greyish brown	silty clay		2.2
42	45	fill	pit	1.1	0.25			mid yellowish brown	silty clay		2.2
43	45	fill	pit	1.35	0.2			dark greyish brown	silty clay		2.2
44	45	fill	pit	1.65	0.55			mottled orange brown	silty clay		2.2
45	45	cut	pit	1.65	0.95	sub-circular				C2	2.2
46		VOID	VOID								-
47		VOID	VOID								-
48		VOID	VOID								-
49		VOID	VOID								-
50	45	fill	pit	0.5	0.4			mixed dark orange brown and dark greyish brown	silty clay	C2	2.2

Context	Cut	Category	Feature Type	Breadth	Depth	Shape in Plan	Profile	Colour	Fine component	Date Range	Phase
51		VOID	VOID								-
52	54	fill	pit	0.74	0.33			dark greyish brown	clay		2.2
53	54	fill	pit					light greyish orange	sand		2.2
54	54	cut	pit	0.74	0.47	oval	U-shaped				2.2
55	54	fill	pit	0.23	0.14			medium orange grey	sandy clay		2.2
56	57	fill	pit	0.3	0.5			dark greyish brown	silty clay		2.2
57	57	cut	pit	0.3	0.5	sub-circular					2.2
58	368	fill	pottery dump							E/MC2	2.2
59	292	fill	pit	1	0.2			very dark brownish grey	humic clay	C2-C3	2.1
60	61	fill	ditch	0.76	0.32			patchy mid brown grey	silty clay	LC1-E/MC2	2.1
61	61	cut	ditch	0.76	0.32	linear				LC1-E/MC2	2.1
62	253	fill	pit	1	0.52			patchy light yellow orange	sandy clay		2.1
63		Master Number	Pit cluster								2.2
64	64	cut	pit	3	0.8	sub-circular	sub-rectangular			C2-C3	2.2
65	64	fill	pit	2.6	0.3			black	silt	C2-C3	2.2
66	64	fill	pit					mid brownish grey	silty clay		2.2
67	67	cut	pit		1	sub-rectangular	sub-rectangular			C2-C3	2.2
68	67	fill	pit		0.05			black	silt		2.2
69	67	fill	pit		0.4			dark brownish grey	silty clay		2.2
70	67	fill	pit		0.2			dark blackish grey	clayey silt	C2-C3	2.2
71	67	fill	pit		0.2			mid greyish black	silty clay		2.2
72	67	fill	pit	0.42				mid yellowish brown	silty clay	C2-C3	2.2
73	73	cut	pit	1.5	0.42	sub-circular	bowl shaped				2.2
74	73	fill	pit					mid brownish grey	silty clay		2.2
75	75	cut	pit	1.8	0.5	sub-circular	bowl shaped				2.2
76	75	fill	pit					mid brownish grey	silty clay		2.2
77	77	cut	pit	0.25		linear	sub-rectangualr				2.2

Context	Cut	Category	Feature Type	Breadth	Depth	Shape in Plan	Profile	Colour	Fine component	Date Range	Phase
78	77	fill	pit					mid brown	silty sandy clay		2.2
79	79	cut	pit	0.8	0.38	sub-circular	bowl shaped			C2	2.2
80	79	fill	pit	0.8	0.38			mid orangey brown	silty clay	C2	2.2
81	81	cut	pit	1.2	0.25	sub-circular	bowl shaped				2.2
82	81	fill	pit					dark greyish black	clayey silt		2.2
83	83	cut	ditch	0.5	0.1	linear	bowl shaped				2.2
84	83	fill	ditch					black	clayey silt		2.2
85	64	fill	pit					mid yellowish brown	silty clay		2.2
86	64	fill	pit					black	silt		2.2
87		VOID	VOID								
88	77	fill	pit		0.08			mid greyish brown	silty clay		2.2
89	77	fill	pit					mid greyish brown	silty clay		2.2
90	67	fill	pit					dark greyish black	silt		2.2
91	67	fill	pit					mid yellowish brown	silty clay		2.2
92	92	cut	pit	0.6	0.32	sub-rectangular	U-shaped			MC1-C4	2.1
93	92	fill	pit	0.6	0.32			dark purplish grey	clayey silt	MC1-C4	2.1
94	94	cut	pit	0.38		circular	wide U-shape				2.1
95	94	fill	pit	38				mid brownish grey	silty clay		2.1
96	96	cut	pit	1.02	0.33	sub-rectangular	wide U-shape				2.1
97	96	fill	pit	1.02	0.33			greyish black	clayey silt		2.1
98	99	fill	pit	1.64	0.5			light slightly grey orange	silty clay		2.1
99		cut	pit	1.64	0.5	not clear – poss sub-circular	wide U-shape				2.1
100	101	fill	ditch	0.9	0.52			light yellowish orange	silty clay		2.1
101	101	cut	ditch	0.9	0.52	linear	irregular				2.1
102	106	fill	ditch	0.96	0.3			light orange grey	silty clay	E/MC2	2.1
103	106	fill	ditch	1.32	0.28			light brown grey	silty clay		2.1
104	106	fill	ditch	0.96	0.2			mid brown orange	sandy clay		2.1
105	106	fill	ditch	0.54	0.05			light brown grey	silty clay		2.1
106		cut	ditch	1.34	0.62	linear	irregular			E/MC2	2.1
107	291	fill	pit	4.06	0.5			dark blue grey	silty clay		2.1

Context	Cut	Category	Feature Type	Breadth	Depth	Shape in Plan	Profile	Colour	Fine component	Date Range	Phase
108	109	fill	pit	1.73	0.3			mid yellow orange	sandy clay	E/MC2	2.1
109		cut	pit	4.06	0.78	not visible in plan	wide U-shape			E/MC2	2.1
110	111	fill	ditch	0.88	0.24			light grey	silty clay	M/LC1-E/MC2	2.1
111	111	cut	ditch	0.78	0.42	linear	imperceptible			M/LC2 – E/MC2	2.1
112	113	fill	pit	0.68	0.4			light grey orange	silty clay		2.1
113	113	cut	pit	1.75		pear shaped	irregular				2.1
114	118	fill	watering hole		0.6			mid greyish brown	silty clay	LC2-EC4	2.2
115	118	fill	watering hole	1.1	0.5			mid/light greyish brown	silty clay		2.2
116	118	fill	watering hole	1.1	0.4			light grey brown	silty clay	MC3-C4	2.2
117	118	fill	watering hole		1.2			mid greyish brown	silty clay	LC2-EC4	2.2
118		cut	watering hole	1.1	2.2	sub-circular	imperceptible			C3	2.2
119	121	fill	pit	0.8	0.1			dark grey	silty clay		2.1
120	121	fill	pit	0.76	0.14			light brownish grey	silty clay		2.1
121	121	cut	pit	0.8	0.2	sub-circular	U-shaped				2.1
122	124	fill	pit	0.3	0.1			dark grey	silty clay		2.1
123	124	fill	pit	0.7	0.18			light brownish grey	silty clay		2.1
124	124	cut	pit	0.7	0.18	sub-circular	wide U-shape				2.1
125	126	fill	post hole	0.3	0.19			dark grey	silty clay		2.1
126	126	cut	post hole	0.3	0.19	circular	U-shaped				2.1
127	128	fill	post hole	0.36	0.14			dark grey	silty clay		2.1
128	128	cut	post hole	0.36	0.14	circular	U-shaped				2.1
129	130	fill	post hole	0.22	0.12			dark grey	silty clay		2.1
130	130	cut	post hole	0.22	0.12	circular	U-shaped				2.1
131	132	fill	oven/ corn drier	0.86	0.32			mid blackish grey	silty clay	MC1-E/MC2	2.1
132	132	cut	over/ corn drier	0.86	0.32	sub-rectangular	U-shape			MC1-E/MC2	2.1
133	134	fill	post hole	0.6	0.14			light brownish grey	silty clay		2.1
134	134	cut	post hole	0.6	0.14	sub-circular	U-shaped				2.1
135	136	fill	post-hole	0.94	0.3			mid brownish grey	silty clay		2.1
136	136	cut	post hole	0.94	0.3	sub-circular	U-shape				2.1
137		cut	pit	2.7	1.1	elongated sub-	trapezoid			MC2-C4	2.2

Context	Cut	Category	Feature Type	Breadth	Depth	Shape in Plan	Profile	Colour	Fine component	Date Range	Phase
						rectangular					
138	138	cut	pit	3.6	0.74	sub-circular	U-shaped			E/MC2	2.2
139	140	fill	pit	0.6	0.08			mid brownish grey	clayey silt		2.1
140	140	cut	pit	0.6	0.08	sub-circular	wide U-shape, v shallow				2.1
141	197	fill	oven/ corn drier	0.9	0.22			mid blackish grey	silty clay	LC1-C4	2.1
142	143	fill	post hole	0.8	0.38			dark blackish grey	silty clay		2.1
143		cut	oven/ corn drier	1.06	0.46	sub-rectangular	U-shape				2.1
144	138	fill	pit	1.06	0.12			mid yellowish brown	sandy clay		2.2
145	138	fill	pit	1.68	0.11			dark greyish brown	silty clay		2.2
146	138	fill	pit	2.85	0.65			mid yellowish grey	silty clay		2.2
147	138	fill	pit	2.89	0.13			dark greyish black	silty clay		2.2
148		cut	pit	1.07	0.79	sub-circular	U-shape			MC1-C3	2.1
149	148	fill	pit	0.33	0.09			mid yellowish brown	silty clay	MC1-C3	2.1
150	148	fill	pit	0.76	0.16			dark greyish brown	clayey silt		2.1
151	148	fill	pit	0.93	0.3			mid yellowish brown	silty clay		2.1
152	148	fill	pit	0.77	0.38			dark greyish black	silty clay	C2-C3	2.1
153		cut	pit	2.39	0.76	sub-circular	U-shape			M/LC1-E/MC2	2.1
154	153	fill	pit	0.49	0.09			mid yellowish brown	silty clay		2.1
155	153	fill	pit	0.53	0.06			mid greyish brown	chalky clay		2.1
156	153	fill	pit	1.02	0.12			black	silty clay		2.1
157	153	fill	pit	2.39	0.51			mid yellowish grey	silty clay	M/LC1-E/MC2	2.1
158		cut	ditch	0.91	0.36	linear	U-shape			LC1-C2	2.1
159	158	fill	ditch	0.91	0.36			light yellowish grey	silty clay	LC1-C2	2.1
160		cut	pit	1.11	0.23	sub-circular	U-shaped				2.1
161	160	fill	pit	0.95	0.07			light yellowish brown	silty clay		2.1
162	160	fill	pit	1.11	0.19			mid orangey red	silty clay		2.1
163	137	fill	pit		0.06			dark brownish black	silty organic layer	C2-C4	2.2
164	137	fill	pit		0.34			mid brown grey	clayey silt	C2-C4	2.2
165	137	fill	pit		0.1			light brownish brown	clayey silt		2.2
166	137	fill	pit		0.14			dark greyish black	organic silt	LC1-C4	2.2

Context	Cut	Category	Feature Type	Breadth	Depth	Shape in Plan	Profile	Colour	Fine component	Date Range	Phase
167	137	fill	pit		0.08			light blueish grey	silty clay		2.2
168	137	fill	pit		0.26			light brown yellow	silty clay		2.2
169	0	cut	pit	1.84	0.3	unclear	wide U-shape				2.2
170	169	fill	pit		0.1			light brownish grey	clayey silt		2.2
171	169	fill	pit		0.06			dark brownish grey	clayey silt		2.2
172	169	fill	pit		0.04			light brownish yellow	clayey silt		2.2
173	169	fill	pit		0.12			dark brownish black	organic clayey silt		2.2
174		cut	pit	2.8	1	sub-rectangular	trapezoidal			MC2	2.2
175	174	fill	pit		0.5			1)dark brown black; 2)light brown grey	1)organic silt; 2)clayey silt	MC2	2.2
176	174	fill	pit		0.08			dark brown grey	clayey silt		2.2
177	174	fill	pit		0.1			dark brownish black	organic clayey silt		2.2
178	174	fill	pit		0.06			light brown grey	clayey silt		2.2
179	174	fill	pit		0.07			dark brownish grey	clayey silt		2.2
180	174	fill	pit		0.38			dark brownish black	organic clayey silt	MC2	2.2
181	174	fill	pit		0.08			dark brown	clayey silt		2.2
182	182	cut	pit			unknown	unknown				2.2
183	182	fill	pit		0.2			light yellowish brown	clayey silt		2.2
184	182	fill	pit		0.1			dark brown grey	clayey silt		2.2
185	0	cut	pit		0.48	sub-circular	wide U-shape			E/MC2	2.2
186	185	fill	pit		0.12			dark brown grey	silt y clay	C2	2.2
187	185	fill	pit		0.24			dark brownish black	clayey silt		2.2
188	185	fill	pit		0.11			light brownish yellow	clayey silt	E/MC2	2.2
189	137	fill	pit		0.04			dark brownish grey	sandy silt		2.2
190		cut	pit	1.83	0.64	sub-circular	U-shape			MC1-E/MC2	2.1
191	190	fill	pit	1.11	0.09			mid yellowish brown	chalky clay		2.1
192	190	fill	pit	1.37	0.06			dark greyish brown	silty clay		2.1
193	190	fill	pit	2.03	0.33			mid yellowish grey	silty clay	MC1-E/MC2	2.1
194	190	fill	pit	1.86	0.24			mid greyish brown	silty clay		2.1
195	196	fill	oven/ corn drier	1	0.8			mid blackish grey	silty clay	C1-C2	2.1
196	196	cut	oven / corn	1	0.8	rectangular	irregular - 'key			C1-C2	2.1

Context	Cut	Category	Feature Type	Breadth	Depth	Shape in Plan	Profile	Colour	Fine component	Date Range	Phase
			drier				hole' shape				
197	197	cut	oven/ corn drier	0.9	0.22	imperceptible – rectangular?	wide U-shape			LC1-C4	2.1
198		cut	ditch		0.45	sub-circular	wide U-shape			C1-C2	2.1
199	198	fill	ditch		0.25			light greyish brown	v silty clay		2.1
200	198	fill	ditch		0.25			dark greyish brown	silty clay	C1-C2	2.1
201	198	fill	ditch		0.1			reddish brown	burnt clay		2.1
202	198	fill	ditch		0.45			mid greyish brown	silty clay		2.1
203	204	fill	pit	0.82	0.14			mid brownish grey	silty clay		2.1
204	204	cut	pit	1.82	0.14	irregular	irregular				2.1
205	206	fill	post hole	0.46	0.08			light greyish brown	silty clay		2.1
206	206	cut	post hole	0.46	0.08	sub-circular	wide U-shape				2.1
207		master	pit cluster							LC1-E/MC2	2.1
208		cut	pit	1.9	0.8	sub-circular	sub-rectangular			LC1-E/MC2	2.1
209	208	fill	pit		0.25			dark grey	silty clay		2.1
210	208	fill	pit		0.3			mid yellowish brown	silty clay		2.1
211	208	fill	pit		0.8			dark grey	silty clay	LC1-E/MC2	2.1
212	212	cut	pit	1.4	0.7	sub-circular	wide U-shape			MC1-E/MC2	2.1
213	212	fill	pit		0.7			dark grey	silty clay	MC1-E/MC2	2.1
214		cut	pit	1.8	0.8	sub-circular	wide U-shape			C1-E/MC2	2.1
215	214	fill	pit		0.15			mid grey	silty clay		2.1
216	214	fill	pit		0.05			mid yellowish brown	silty clay		2.1
217	214	fill	pit		0.15			mid grey	silty clay	C1-E/MC2	2.1
218	214	fill	pit		0.07			mid yellowish brown	silty clay		2.1
219	214	fill	pit					mid grey	silty clay		2.1
220	220	cut	pit	1.4	0.4	sub-circular	wide U-shape				2.1
221	220	fill	pit					dark grey silty clay	occ stones		2.1
222	222	cut	pit	1.2	0.6	sub-circular	U-shaped			M/LC1-E/MC2	2.1
223	222	fill	pit					mid greyish brown	silty clay		2.1
224	222	fill	pit					dark grey	silty clay	M/LC1-E/MC2	2.1

Context	Cut	Category	Feature Type	Breadth	Depth	Shape in Plan	Profile	Colour	Fine component	Date Range	Phase
225		cut	pit	1.6	0.5	circular	flat based dish				2.1
226	225	fill	pit		0.1			mid yellowish brown	silty clay		2.1
227	225	fill	pit		0.25			mid grey	silty clay		2.1
228		cut	pit			sub-circular	bowl-shaped				2.1
229	228	fill	pit					mid grey	silty clay		2.1
230		cut	pit			sub-circular	bowl-shaped			MC2	2.1
231	230	fill	pit					mid grey	silty clay	MC2	2.1
232	233	fill	ditch	1.5	0.2			mid greyish brown	silty clay		2.1
233		cut	ditch	1.5	0.2	circular	wide U-shape			MC1-C4	2.1
234	235	fill	ditch terminus	0.92	0.36			mid brownish grey	silty clay		2.1
235		cut	ditch terminus	0.92	0.36	linear	U-shaped				2.1
236	237	fill	ditch terminus	0.32	0.14			light grey	silty clay		2.1
237		cut	ditch terminus	0.32	0.14	linear	U-shaped				2.1
238		cut	ditch	0.7	0.35	linear	U-shape				2.1
239	238	fill	ditch	0.1	0.1			mid yellowish grey	silty clay		2.1
240	238	fill	ditch	0.7	0.3			dark brownish grey	silty clay		2.1
241	241	cut	ditch	0.8	0.1	linear	wide U-shape				2.1
242	241	fill	ditch	0.8	0.1			mid brownish grey	silty clay		2.1
243	243	cut	ditch terminus	0.7	0.05	linear	bowl shaped				2.1
244	243	fill	ditch terminus	0.7	0.05			dark brownish grey	silty clay		2.1
245	246	fill	ditch terminus	0.75	0.44			patchy mid yellowish grey	silty clay		2.1
246	246	cut	ditch	0.75	0.44	linear with rounded end	U-shaped				2.1
247	248	fill	ditch terminus	0.5	0.1			mid grey	silty clay	C1-C2	2.1
248		cut	ditch terminus	0.5	0.1	linear	wide, flat U-shape			C1-C2	2.1
249	250	fill	ditch terminus	0.82	0.18			dark brownish grey	silty clay	LC1-C4	2.1
250		cut	ditch terminus	0.82	0.18	linear	wide, flat U-shape			LC1-C4	2.1
251	252	fill	ditch terminus	0.44	0.14			mid greyish brown	silty clay		2.1
252	252	cut	ditch terminus	0.44	0.14	linear	U-shape				2.1

Context	Cut	Category	Feature Type	Breadth	Depth	Shape in Plan	Profile	Colour	Fine component	Date Range	Phase
253		cut	pit		0.52	unknown, not visible in plan	wide, flat U-shape				2.1
254	256	fill	ditch terminus	0.88	0.24			light brown grey	silty grey		2.1
255	256	fill	ditch	0.94	0.1			mid patchy brown yellow	silty clay		2.1
256		cut	ditch terminus	1.2	0.32	linear	irregular U-shape				2.1
257	258	fill	pit	1.16	0.6			mid yellowish orange	silty clay		2.1
258		cut	pit		0.6	unknown	imperceptible				2.1
259		layer			0.12			light grey	silty clay		2.1
260	262	fill	pit		0.78			patchy light orange yellow	silty clay		2.1
261	262	fill	pit	1.38	0.4			mid brown orange	silty clay		2.1
262		cut	pit		0.78	unknown	irregular				2.1
263	264	fill	gully terminus	0.58	0.5			light pinkish orange	silty clay		2.1
264	264	cut	gully terminus	0.58	0.5	linear	U-shaped				2.1
265	267	fill	pit		0.44			light brown orange	silty clay		2.1
266	267	fill	pit		0.28			mid yellow orange	silty clay		2.1
267	267	cut	pit	0.64	0.74	unknown	irregular				2.1
268		cut	pit	1.86	0.59	sub-circular	U-shape			C2	2.1
269	270	fill	ditch	0.6	0.3			light to mid greyish brown	silty clay		1
270	270	cut	ditch	0.6	0.3	linear	U-shape				1
271	272	fill	ditch	0.6	0.3			light yellowish grey	silty clay		1
272	272	cut	ditch	0.6	0.3	linear	half U-shape				1
273	274	fill	pit	0.7	0.25			mid orange brown	silty clay	C1-EC2	2.1
274	274	cut	pit	0.7	0.25	sub-circular	irregular			C1-EC2	2.1
275	276	fill	post hole	0.25	0.1			mid greyish brown	silty clay		2.1
276	276	cut	post hole	0.25	0.1	sub-circular	U-shaped				2.1
277	277	cut	pit	0.5	0.18	sub-rectangular	U-shaped				1
278	277	fill	pit	0.5	0.18			dark greyish black	silty clay		1
279	279	cut	ditch	1.1	0.5	linear	U-shape			C3-C4	2.1
280	279	fill	ditch	1.1	0.5			dark blackish grey	silty clay	C3-C4	2.1

Context	Cut	Category	Feature Type	Breadth	Depth	Shape in Plan	Profile	Colour	Fine component	Date Range	Phase
281	281	cut	gully	0.45	0.1	linear	U-shaped				2.1
282	281	fill	gully	0.45	0.1			mid blackish grey	silty clay		2.1
283	283	cut	gully	0.4	0.1	linear	U-shaped				2.1
284	283	fill	gully	0.4	0.1			mid blackish grey	silty clay		2.1
285	285	cut	ditch	0.5	0.7	linear	U-shape			C2BC/MC1	1
286	285	fill	ditch	0.5	0.7			mid orangish brown	silty clay	C2BC-AD1C	1
287		cut	pit	1	0.25	sub-circular	U-shaped				1
288	287	fill	pit	1	0.25			mid yellowish brown	silty clay		1
289	289	cut	pit/ post-hole	0.1	0.4	sub-circular	U-shape				1
290	289	fill	pit/ post-hole	1	0.4			mid greyish brown	silty clay		1
291	291	cut	pit	3.9	0.48	irregular	irregular				2.1
292		cut	pit		0.2	irregular	bowl shaped			C2-C3	2.1
293	268	fill	pit	1.86	0.11			mid greyish brown	silty clay		2.1
294	268	fill	pit	1.52	0.45			black	clayey silt	C2	2.1
295		cut	pit	1.39	0.48	sub-circular	U-shaped				2.1
296	295	fill	pit	1.1	0.12			mid yellowish brown	silty clay		2.1
297	295	fill	pit	1.22	0.26			light greyish brown	silty clay		2.1
298		cut	pit	1.19	0.52	sub-circular	U-shape				2.1
299	298	fill	pit	1.02	0.29			mid yellowy-brown	clayey silt		2.1
300	298	fill	pit	1.19	0.12			light greyish brown	clayey silt		2.1
301		cut	pit	0.87	0.46	sub-circular	U-shaped				2.1
302	301	fill	pit	0.6	0.21			light greyish brown	clayey silt		2.1
303	301	fill	pit	0.66	0.17			mid yellowish grey	silty clay		2.1
304		cut	pit	0.2							2.1
305	304	fill	pit	0.2				mid yellowish brown	silty clay		2.1
306		cut	ditch	0.9	0.4	linear	U-shaped				2.1
307	306	fill	ditch	0.9	0.4			mid blackish grey	silty clay		2.1
308		layer	colluvial		0.18			light greyish brown	silty clay	MC1-EC2	2.1
309		cut	ditch	0.75	0.3	linear	bowl shaped				2.1
310	309	fill	ditch		0.3			mid grey	silty clay		2.1
311		cut	ditch	0.55	0.2	linear	bowl shaped				2.1

Context	Cut	Category	Feature Type	Breadth	Depth	Shape in Plan	Profile	Colour	Fine component	Date Range	Phase
312	311	fill	ditch	0.55	0.2			mid grey	silty clay		2.1
313		cut	gully	0.25	0.1	linear	irregular			C2-C3	2.1
314	313	fill	gully	0.25	0.1			mid brownish grey	silty clay	C2-C3	2.1
315		cut	ditch	0.4	0.3	linear	bowl shaped			MC1-C4	2.1
316	315	fill	ditch	0.4	0.3			mid brownish grey	silty clay	MC1-C4	2.1
317		cut	gully	0.2	0.01	linear	imperceptible			MC2-MC3	2.1
318	317	fill	gully	0.2	0.01			mid greyish brown	silty clay	MC2-C3	2.1
319		cut	ditch	0.5	0.05	linear	sub-rectangular				2.1
320	319	fill	ditch	0.5	0.05			mid greyish brown	silty clay		2.1
321		cut	pit/ water hole	8.3	2.2	v large sub-rectangular	wide U-shape			LC2-C4	2.2
322	324	fill	pit	0.6	0.1			dark grey brown	silty clay		0
323	324	fill	pit	0.6	0.2			mixed orange brown	silty clay		0
324		cut	pit	0.6	0.3	sub-circular	wide U-shape				0
325		cut	pit	2.8	1.1	sub-circular	U-shaped			E/MC2	2.2
326	325	fill	pit	1.4	0.1			light brownish grey	silty gravel		2.2
327	325	fill	pit	2.4	0.3			mid brownish yellow	silty clay		2.2
328	325	fill	pit	2.4	0.1			mid brownish grey	silty clay		2.2
329	325	fill	pit	2.6	0.5			mid brownish grey	silty clay	E/MC2	2.2
330	325	fill	pit	1.9	0.15			mid brownish yellow	silty clay		2.2
331	325	fill	pit	1.9	0.1			mid brownish black	silty clay		2.2
332		cut	oven/ corn drier	1.2	0.35	sub-circular	U-shaped				2.2
333	332	fill	oven/ corn drier	120	0.35			mid brownish yellow	silty clay		2.2
334	335	fill	ditch	0.52	0.18			patchy mid grey, brown and orange	silty clay		2.1
335		cut	ditch	0.52	0.18	linear	wide U-shape				2.1
336	338	fill	pit	1.38	0.12			mid greyish brown	silty clay		0
337	338	fill	pit	1.28	0.12			black	organic clayey silt		0
338	338	cut	pit	1.58	0.24	sub-circular	wide U-shape				0
339	321	fill	pit		0.12			v dark grey	clay		2.2

Context	Cut	Category	Feature Type	Breadth	Depth	Shape in Plan	Profile	Colour	Fine component	Date Range	Phase
340	321	fill	pit		0.46			light grey	clay		2.2
341	321	fill	pit		0.38			light brown grey	clayey silt		2.2
342	321	fill	pit		0.24			light greyish brown	clayey silt		2.2
343	321	fill	pit		0.1			light grey yellow	clayey silt		2.2
344	321	fill	pit		0.18			mid light grey and black bands	clayey silt		2.2
345	321	fill	pit		0.1			dark black brown mixed with light grey	organic sandy silt		2.2
346	346	cut	pit	0.6	0.48	sub-circular					2.2
347	346	fill	pit		0.1			light grey yellow	clayey silt		2.2
348	346	fill	pit		0.24			light brownish grey	clayey silt		2.2
349	321	fill	pit		0.4			black	sandy silt (mainly organic)	C2-C3	2.2
350	321	fill	pit		0.34			light brown yellow	clayey silt		2.2
351	321	fill	pit		0.06			light brown yellow	clayey silt		2.2
352	321	fill	pit		0.3			light brown grey	silty clay	LC2-C3	2.2
353	321	fill	pit		0.24			dark brown grey	clayey silt	C3-C4	2.2
354	321	fill	pit		0.2			light brown grey	clayey silt	LC2	2.2
355	356	fill	gully	0.45	0.05			dark grey brown	silty clay		4
356		cut	gully	0.45	0.05	linear	bowl shaped				4
357		layer	spread	4.7							2.2
358		cut	ditch	1.04	0.43	linear	U-shape				1
359	358	fill	ditch	1.04	0.43			light yellowish brown	silty clay		1
360		cut	ditch	1.3	0.46	linear	U-shaped				1
361	360	fill	ditch	1.3	0.46			mid greyish brown	silty clay		1
362	362	cut	pit	6.5	1.3	sub-circular	U-shaped			LC1-C2 – C4	2.2
363	362	fill	pit	3.2	0.4			light brownish grey	silty clay	C2	2.2
364	362	fill	pit	0.8	1			mid brownish yellow	silty clay		2.2
365	362	fill	pit	5.2	0.5			dark brownish black	silty clay (almost like peat)	LC1-C2	2.2
366	362	fill	pit	3.4	0.4			mid brownish black	silty clay		2.2
367	362	fill	pit	5.5	0.2			mid brownish yellow	silty clay	E/MC2	2.2

Context	Cut	Category	Feature Type	Breadth	Depth	Shape in Plan	Profile	Colour	Fine component	Date Range	Phase
368	0	cut	oven/ corn drier	2.3	0.4	sub-rectangular	U-shaped			E/MC2	2.2
369	368	fill	oven/ corn drier	2.3	0.4			light brownish yellow	silty clay		2.2
370	362	fill	pit	5.8	0.4			mid brownish grey	silty clay	C4	2.2
371	0	cut	pit	1.68	0.45	sub-circular	U-shaped				2.2
372	371	fill	pit	0.97	0.23			mid reddish brown	silty clay		2.2
373	371	fill	pit	1.34	0.25			blackish grey	silty clay		2.2
374	371	fill	pit	0.33	0.36			mid greyish brown	silty clay		2.2
375		cut	post hole	1.03	0.37	sub-circular	U-shaped			LC1-C4	2.2
376	375	fill	post hole	1.03	0.37			mid greyish brown	silty clay	LC1-C4	2.2
377		cut	pit	0.7		sub-circular	bowl shaped			E/MC2	2.1
378	377	fill	pit					light yellowish grey	sandy chalky silt		2.1
379	377	fill	pit					dark yellowish grey	clayey silt	E/MC2	2.1
380		cut	pit	0.9	0.45	sub-circular	U-shaped				2.1
381	380	fill	pit					light greyish yellow	sandy chalky silt		2.1
382	380	fill	pit					dark grey	clayey silt		2.1
383		cut	pit	1.1	0.2	unknown					2.1
384	383	fill	pit		0.1			mid greyish brown	clayey silt		2.1
385	383	fill	pit		0.3			mid yellowish grey	clayey silt		2.1
386		cut	ditch		0.6	linear	imperceptible			MC1-C2	2.1
387	386	fill	ditch		0.15			dark grey	clayey silt		2.1
388	386	fill	ditch					dark greyish brown	clayey silt	MC1-C2	2.1
389	386	fill	ditch					mid grey	clayey silt		2.1
390	233	fill	ditch	1.2	0.58			dark brownish black	silty clay	MC1-C4	2.1
391	233	fill	ditch	1.2	0.58			mid brownish grey	silty clay		2.1
392		cut	pit	1.81	0.37	sub-linear	U-shaped			C2	2.1
393	392	fill	pit	1.81	0.37			mid yellowish grey	silty clay	C2	2.1
394		cut	watering hole	10	2.17	sub-rectangular				C3	2.2
395	394	fill	watering hole		0.26			mid blue grey	clayey silt		2.2
396	394	fill	watering hole		0.18			light yellowish grey	silty clay		2.2
397		fill	watering hole		0.22			light greyish yellow	silty clay		2.2
398	394	fill	watering hole		0.25			dark greyish brown	clayey silt		2.2

Context	Cut	Category	Feature Type	Breadth	Depth	Shape in Plan	Profile	Colour	Fine component	Date Range	Phase
399	394	fill	watering hole		0.38			dark brown grey	silty clay	C3	2.2
400	394	fill	watering hole		0.3			light brown yellow	clayey silt	E/MC2	2.2
401	394	fill	watering hole		0.42			dark brown grey	clayey silt	MC3	2.2
402	394	fill	watering hole		0.44			light brownish grey	clayey silt		2.2
403	394	fill	watering hole		0.38			mid greyish brown	clayey silt		2.2
404		layer	crop processing waste	4				dark greyish black	silt	MC1-E/MC2	2.2
405		cut	test pit		0.8						-
406	405	layer	colliuvial		0.5			mid brownish orange	silty clay		2.1
407	405	layer	colluvial		0.3			mid brownish grey	silty clay	MC1-E/MC2	2.1
408		cut	beam slot	0.5	0.45	linear	sub-rectangular			MC1-E/MC2	2.1
409	408	fill	beam slot	0.5	0.45			mid yellowish grey	clayey silt	MC1-E/MC2	2.1
410		cut	post hole	0.6	0.25	sub-circular	bowl-shaped				2.1
411	410	fill	post hole	0.6	0.25			mid greyish brown	clayey silt		2.1
412	412	cut	ditch terminus	0.45	0.22	linear	dish-shaped				2.1
413	412	fill	ditch terminus	0.45	0.22			dark blackish grey	clayey silt		2.1
414	414	cut	ditch	0.64	0.2	linear	U-shaped				0
415	414	fill	ditch	0.64	0.2			mid yellowish grey	clay		0
416	416	cut	windbreak gully	0.5	0.1	curvilinear	irregular				2.1
417	416	fill	windbreak gully	0.5	0.1			light greyish brown	clayey silt		2.1
418	418	cut	post-pipe	0.26	0.42		sub-rectangular				2.1
419	418	fill	post pipe	0.26	0.42			light brownish grey	clayey silt	MC1-C4	2.1
420		layer	trample	1.05	0.17			dark brown grey	silty clay	MC3-C4	2.2
421	421	cut	post pipe	0.25	0.45		sub-rectangular				
422	421	fill	post pipe	0.25	0.45			Light brownish grey	Silty clay		2.1
423	423	cut	post hole	0.6	0.36	sub-square	sub-rectangular				2.1
424	423	fill	post hole	0.6	0.36			mid grey brown	clayey silt		2.1
425	425	cut	post hole	0.42	0.24	sub-circular	wide U-shape				2.1

Context	Cut	Category	Feature Type	Breadth	Depth	Shape in Plan	Profile	Colour	Fine component	Date Range	Phase
						(unknown)					
426	425	fill	post hole	0.42	0.24			mid grey brown	clayey silt		2.1
427	427	cut	post hole	0.54	0.16	sub-circular	sub-rectangular				2.1
428	427	fill	post hole	0.54	0.16			mid greyish brown	clayey silt		2.1
429		cut	pit	6	26	sub-circular	U-shape				2.1

Appendix B. Finds Reports

B.1 Pottery

By Alice Lyons

Introduction and methodology

B.1.1 A total of 761 sherds, weighing 17906g (6.20 Estimated vessel equivalent (EVE)) of Latest Iron Age and Romano British pottery was recovered during the evaluation and excavation stages of this project, which represent a minimum of 213 fragmentary vessels (Table 2).

Site Type	*Site Code*	*Sherd Count*	*Weight (g)*	*EVE*	*Weight (%)*
EVALUATION	OVEINE09	70	1623	(not calculated)	9.06
EXCAVATION	OVEINE14	691	16283	6.20	90.94
Total		**761**	**17906**	**6.20**	**100.00**

Table 2: The Evaluation and Excavation Roman pottery quantified assemblages

B.1.2 Pottery was mostly recovered from multiple pits and pit clusters (47%), a single pottery dump from a pit (33%) and watering holes (12%), with small amounts of ceramic material recovered from other feature types (Table 3). Apart from a dump of Horningsea storage jars (268) the pottery was not deliberately placed, or deposited as whole vessels, but rather found its way into these features as dispersed midden material much of which has been protected from further post-depositional damage (such as ploughing) by being deposited in pits.

Feature	*Sherd count*	*Weight (g)*	*Weight (%)*
Pit	401	8454	47.21
Pottery dump	140	5832	32.57
Watering hole	97	2154	12.03
Ditch	77	698	3.90
Colluvial layer	22	314	1.75
Surface & Subsoil	7	186	1.04
Trample	4	115	0.64
Oven or corn drier	6	77	0.43
Post hole/post pipe	4	32	0.18
Gully	2	23	0.13
Beam slot	1	21	0.12
Grand Total	**761**	**17906**	**100.00**

Table 3: The Roman Pottery by feature

B.1.3 The assemblage consists largely of Early to Mid-Roman pottery (Table 4). The majority of the assemblage comprises utilitarian locally produced Horningsea and unsourced Sandy grey and shelly ware jars and storage jars. Fine wares are poorly represented (Table 5). The large number of substantial (but fragmentary) vessels has resulted in the assemblage having a relatively large sherd size of *c*. 24g.

Period	Features	Sherd Count	Weight (g)	EVE
Unstratified		5	159	0.00
1: Iron Age	Boundary ditches and some pitting, in NE area of site.	1	28	0.00
2.1: Early Roman	Small amount of industrial activity in SW corner of site, metalworking? Oven/kiln like feature, with a possible windbreak. Large Watering holes	350	4660	2.07
2.2: Early to Mid Roman		405	13059	4.13
Grand Total		**761**	**17906**	**6.20**

Table 4: The Roman Pottery by phase

Methodology

B.1.4 The Roman pottery was analysed following the guidelines of the Study Group for Roman Pottery (Barclay *et al*, 2016, 14-18). Both local (Monteil 2013) and national (Tomber and Dore 1998; Tyers 2006) publications were used for referencing the fabrics and forms.

B.1.5 The total assemblage was studied and a catalogue was prepared (Appendix C). The sherds were examined using a hand lens (x10 magnification) and were divided into broad fabric groups defined on the basis of inclusion types present. Vessel forms (jar, bowl) were also recorded. The sherds were counted and weighed to the nearest whole gram and recorded by context. Decoration, residues and abrasion were also noted.

B.1.6 Thanks to Stephen Wadeson who catalogued the evaluation material (Wadeson 2009) and identified the samian.

The Pottery

B.1.7 A total of thirteen fabric families were identified during the analysis of this assemblage (Table 5).

Fabric	*Reference*	*Abbreviation*	*Vessel form*	*Sherd Count*	*Weight (g)*	*EVE*	*Weight (%)*
Horningsea coarseware	Tomber and Dore 1998, 116	HORN GW	Storage jar, jar	178	8151	0.39	45.52
Sandy grey ware	Perrin 1999, 112-116	SGW	Bowl, dish, flanged dish, jar, storage jar	412	5451	4.37	30.44
Shell tempered ware	Perrin 1999, 116-126	STW	Jar, storage jar	80	2125	0.47	11.87
Nene Valley oxidised ware	Tomber and Dore 1998, 119; Perrin 1999, 108-112	NVOW	Mortaria	10	963	0.08	5.38
Nene Valley colour coat	Tomber and Dore 1998, 118; Tyers 1996, 173-175; Perrin 1999, 87-106	NVCC	Beaker (including hunt cups and folded types), jar, dish	25	366	0.06	2.04
Nene Valley grey ware	Perrin 1999, 78-87	NVGW	Dish, jar	7	286	0.34	1.60
Central Gaulish samian	Tyers 1996, 113; Webster 1996, 13-14	SAM CG	Bowl, cup, flanged bowl, dish, mortaria	14	190	0.41	1.06
Sandy oxidised ware		SOW	Flagon, beaker, jar, storage jar, dish, mortaria	15	144	0.00	0.80
Sandy coarse ware		SCW	Storage jar	6	116	0.00	0.65
Sandy red ware		SREDW	Flagon, jar, bowl, dish, storage jar	11	58	0.00	0.32
Grey ware with grog inclusions		GW(GROG)	Storage jar	1	23	0.00	0.13
Hadham grey ware		HADGW	Jar/bowl	1	21	0.08	0.12
Hadham red ware	Tyers 1996, 168-169	HADRW	Jar	1	12	0.00	0.07
Total				**761**	**17906**	**6.20**	**100**

Table 5: The pottery, listed in descending order of percentage of weight.

The Fabrics

Coarsewares

B.1.8 The earliest pottery within this assemblage comprised handmade GW(GROG) and SCW storage jar fragments, also various wheelmade GW wide mouthed jar/bowl forms. This style of pottery was introduced to south-east Britain before the Roman conquest (AD43) and is considered transitional between the Iron Age and Roman periods (Thompson 1982). These locally made Romanising vessels were produced in a poorly mixed fabric with common sand inclusions, also sparse flint and small amounts of grog. Moreover, the firing process was not consistent with the result that many vessels have a 'sandwiched' appearance (a red core with a grey to off-white surface). The jars were styled with cordons on their necks and with burnished surfaces. Similar vessels have been recorded nearby at Earith (Monteil 2013, 'Romanizing wares', p.93).

B.1.9 As the Roman period progressed, by the mid 2nd century, the production of SGW pottery fabric became more standardised and vessels were produced in a hard fired blue-grey fabric with few inclusions or temper other than sand. The SGW fabric was mainly used to produce a limited range of utilitarian jars and storage jars, although a small number of beakers, bowls and dishes were also found. The exact source of this material is not known but a local production centre is thought likely (Montiel 2013, 'Coarse Sandy Wares', 91).

B.1.10 Also found in a similar fabric, but fired in an oxidising atmosphere, were a small number of SOW and SREDW vessel fragments. Some of the gritty white ware material is consistent with production in the Verulamium area Tyers 1996, 132-134), while other oxidised material may have been produced more locally within the Lower Nene valley (Tomber and Dore 1998, 119).

B.1.11 Less common than SGW vessels, although still well represented, were jars and storage jars manufactured from clay containing fossilised shell fragments (STW). The Lower Nene Valley was known to have been a production centre for shell-tempered storage jars (Perrin 1996,119–20) between the late Iron Age and 3rd century AD and may have been the source of this material. It is worthy of note, however, that the jars are consistent with local production possibly at Earith on the eastern Fen-edge (Anderson 2013, p. 311) or another unknown local source (Monteil 2013, p. 93).

B.1.12 In the 3rd and 4th centuries AD small amounts of distinctive grey ware vessels were in use, originating in both the Lower Nene Valley (Tyers 1996, 173-175) and Hadham industries (Tyers 1996, 168-169).

Finewares

B.1.13 Imported finewares comprise fine red slipped table wares, referred to as samian, from Gaul which found their way to this site in small numbers between the late 1st and 2nd centuries (Webster 2005). The assemblage includes a range of cups (Dr33 & 35), bowls (Dr 27, 37 & 38) and a fragment of mortaria (Dr 43 or 45). Only one partial makers' stamps was found.

B.1.14 Other fine wares found include a small assemblage of Lower Nene Valley vessel fragments (Tyers 1996, 173-175; Tomber and Dore 1998, 118). Beakers of funnel necked type, including hunt cup and folded examples produced around the mid to late-2nd century were found, also some later jar fragments made between the 3rd and 4th centuries AD. A single fragment from a late Roman Hadham red ware jar was also found (Tyers 1996, 168-169). No Oxfordshire red wares were identified (Tyers 1996, 175-178).

Specialist wares

B.1.15 Although no imported amphora (Tyers 1996, 87-89) were found within the assemblage, a relatively large number of locally produced Horningsea storage jars were found. Production of large storage jars took place at Horningsea, only 16km to the south-east of Over, from the late 1st centuries AD (Evans, Macaulay & Mills, in prep; Monteil 2013, 91). These vessels may have been used to store local produce such as the corn or malted cereals that were being processed on site.

B.1.16 Mortaria, gritted mixing bowls (Tyers 1996, 116-135), were also found but only in very small numbers. With the exception of the samian example (see above), and a small abraded Verulamium white ware bead and flanged example (Tyers 1996, 132-134), the remainder were made in a white fabric with reeded rims and iron slag trituration grits consistent with production in the Lower Nene Valley (Tyers 1996, 127-129).

Type Series

B.1.17 The Roman type series is based on one originally designed by Jude Plouviez (Suffolk Archaeological Unit) and adapted by the author in this case to reflect regional typologies (Monteil 2013; Anderson 2013; Perrin 1996; 1999).

Narrow mouthed jars

2.1: Narrow-mouthed jar with rolled everted rim, rounded body and various cordons, with decoration on the neck, body and base of the vessel (Perrin 1996, 132; 222; 416; Perrin 1999, 328; Anderson 2013, 27).

Beakers

3.1: Funnel necked beaker (Perrin 1999, 173; Anderson 2013, 55); found in folded (Perrin 1999, 165-167) and hunt cup (Perrin 1999, 134) versions.

Medium mouthed jars and storage jars

4.5: medium-mouthed jar, short neck, rolled and generally undercut rim and globular body (Rogerson 1977, 43; 93; 115; 202; Perrin 1999, 36; Anderson 2103, 73).

4.8: medium-mouthed jar, everted rim that is hollowed or with projection underneath (bifid), globular body (Perrin 1996, 592; 583; Perrin 1999, 53; Monteil 2013, 58).

4.13: medium-mouthed jar, rounded body and simple everted rim (Perrin 1999, 47-48; Monteil 2013, 24).

4.14: large storage vessels, miscellaneous or indeterminate (Perrin 1999, 427; Anderson 2013, 139).

4.17: large storage jar with an everted rim (Evans and Macaulay fth).

Wide mouthed jars

5.3: rounded jar with a reverse ‘S’ profile and a cordon on the neck (Perrin 1999, 46; Monteil 2013; 8; 11).

Bowls

6.3: Carinated bowl with a flattish out-turned rim (Anderson 2013, 21).

6.15: Flanged rim bowl with curving sides, out-turned rim and foot-ring base (Perrin 1999, 244; Anderson 2013, 20).

6.17: Flanged rim straight-sided dishes with a flat base (Perrin 1996, 468; 469; 483. Perrin 1999, 256-261; Monteil 2013; 42).

6.18: Dish, straight-sided, flat-based, thickened everted 'triangular' rim (Perrin 1996, 417; 426; 449; 453; 455. Perrin 1999, 253-254; Anderson 2103, 150).

6.19: Dish, straight sides which may be upright or angled, plain rim or may have external groove just below the rim (Perrin 1996, 402; 403; 415; Darling and Gurney 1993, 642; 643. Perrin 1999, 231-234).

Mortarium

7.9: Reeded (Perrin 1999; M24-25)

Samian

Based on a type series largely designed by Dragendorff in 1895 and described by Paul Tyers (1996, 105-116; Webster 1996).

Dr18: a plate with a curved wall and beaded lip

Dr27: a cup with a double curved wall and a beaded rim

Dr31R: dish with a gentle angle between wall and floor

Dr33: conical cup with a foot ring. There are often grooves (or a groove) on the external vessel wall.

Dr35/36: a cup (35) and dish (36) with curving walls and overhanging rim – trailed leaves were normally applied to the rim

Dr37: a hemispherical decorated bowl.

Dr46: cup with flaring walls which are concave externally.

The Pottery by Feature Group

B.1.18 Where possible the features were grouped and the associated pottery characterised (see below). Most of the feature group pottery assemblages were small with the exceptions of IZ3, PG1 and PG3 (Table 6). The Assemblage from Pit Group 3 forms over half of the pottery assemblage because of a pottery dump weighing 5832g being recovered from one of the pits.

Feature Group	*Group*	*Sherd Count*	*Weight (g)*	*EVE*	*Weight (%)*
Ungrouped	0	437	5260	1.25	29.37
Ditch Group	DG1	7	80	0.00	0.45
Industrial Zone	IZ1	9	96	0.00	0.54
Industrial Zone	IZ2	21	287	1.00	1.60
Industrial Zone	IZ3	21	1397	0.00	7.80
Pit group 1	PG1	119	1140	0.15	6.37
Pit group 2	PG2	15	334	0.14	1.87
Pit group 3	PG3	124	9124	3.26	50.95
Pit group 4	PG4	8	188	0.40	1.05
Total		**761**	**17906**	**6.20**	**100**

Table 6: The pottery quantified by feature group

Early Roman (Period 2.1)

Pit Group 1: spot date mid-2nd century AD

B.1.19 A total of 119 sherds, weighing 1140g, was recovered from PG1. The pottery is severely abraded with an average sherd weight of only 9.5g. The majority of the assemblage consists of sandy grey ware wide mouthed cordoned jars (type 5.3), storage jars and dishes (type 6.21) – many are inconsistently fired and have 'sandwiched' appearance. Other locally produced coarsewares were found in smaller numbers and include shelly ware, sandy oxidised ware and groggy grey ware storage jar and jar pieces.

Fabric	*Form*	*Sherd Count*	*Weight (g)*
SGW	Dish (type 6.21), jar (type 5.3), storage jar	112	1023
STW	Jar, storage jar	3	57
SOW	Jar, storage jar	3	37
GW(GROG)	Storage jar	1	23
Total		**119**	**1140**

Table 7: PG1. The Roman pottery

Pit Group 2: Spot date early to mid-2nd century AD

B.1.20 A total of 15 sherds, weighing 334g, of pottery was recovered from PG2. The pottery is moderately abraded with an average sherd weight of 22g. The majority of the group are sandy grey ware jar fragments (type 5) and a single Horningsea storage jar fragment. It is noteworthy that one of the SGW jar fragments has been repaired with glue in antiquity – does this reflect a shortage of supply or a favourite pot repaired?

Fabric	*Form*	*Sherd Count*	*Weight (g)*
SGW	Jar (5)	14	241
HORN	Storage jar	1	93
Total		**15**	**334**

Table 8: PG2. The Roman Pottery

Industrial Zone 1 (IZ1): spot date early to mid- 2nd century AD

B.1.21 A small number of sherds (nine, 96g) were recovered from IZ1. The material is severely abraded with an average sherd weight of 10.6g. Most fragments are the remains of undiagnostic sandy grey ware jar/bowls, also a single piece of a sandy coarse ware storage jar. A tiny scrap of a central Gaulish samian dish was recovered, also the abraded remains of a Verulamium white ware bead and flange mortarium.

Fabric	Form	Sherd Count	Weight (g)
SGW	Jar	6	54
SCW	Storage jar	1	34
SAM CG	Dish	1	1
SOW (Verulamium)	Mortaria	1	7
Total		**9**	**96**

Table 9: IZ1. The Roman pottery

Industrial Zone 2 (IZ2): spot date early to mid- 2nd century AD

B.1.22 A total of 21 sherds, weighing 287g, were recovered from IZ2. The material is significantly abraded with an average sherd weight of 13.6g. The majority of this group are sandy grey ware wide mouthed cordoned jars, one of which is carinated. Although the majority of the cordons are plain, one is decorated with an incised cross-hatch motif. The sandy white wares are of Verulamium type and comprise undiagnostic jar pieces, one of which is externally fumed.

Fabric	Form	Sherd Count	Weight (g)
SGW	Wide mouthed cordoned jars (type 5.3)	15	210
SOW (Verulamium)	Jar	6	77
Total		**21**	**287**

Table 10: IZ2. The Roman pottery

Later Roman (Period 2.2)

Ditch Group 1 (DG1): spot date early to mid-3rd century AD

B.1.23 A small quantity (seven sherds, weighing 80g) of pottery was recovered from this group of ditches. The material was severely abraded with an average sherd weight of only 11g.

B.1.24 Small quantities (mostly single sherds) of local coarse wares including a Horningsea storage jar fragment, a sandy grey war jar, sandy red ware bowl and storage jars and a shell tempered ware jar were found. A single central Gaulish samian bowl fragment was found (Dr38), also a Nene Valley colour coated jar base that had been adapted or re-used with a single post-firing central perforation for use as a spindle whorl (SF10).

Fabric	Form	Sherd Count	Weight (g)
NVCC	Adapted jar base – spindle whorl (SF10)	1	35
HORN	Storage jar	1	20
SGW	Jar	1	10
SREDW	Bowl, storage jar	2	9
SAM CG	Flanged bowl (Dr38)	1	3
STW	Jar	1	3
Total		**7**	**80**

Table 11: DG1. The Roman pottery

Pit Group 3: spot date mixed Romano-British (mid 2nd to 4th century AD)

B.1.25 The feature group contained the largest amount of pottery totalling 124 sherds, weighing 3292g. The pottery is relatively well preserved with an average sherd weight of 26.5g. The majority of this group are Horningsea storage jar fragments (type 4.17) and locally produced sandy grey ware jar (type 2.1, 4.8, 5), dish (types 6.19; 6.21) and storage jar fragments. Other coarse wares include shelly ware jar (type 4.5) and storage jar (type 4.8) pieces, also sandy coarse ware storage jar pieces. A single piece from a sandy oxidised ware flagon was found.

B.1.26 Finer wares are represented by Nene valley colour coated beaker fragments (type 3.1). While imported material is represented five central Gaulish samian pieces were found which include bowl, cup (Dr 27; Dr35/36) and dish (Dr18) pieces.

B.1.27 Later Roman Nene valley grey ware dishes (type 6.19) and Hadham red and grey ware jar/bowl pieces were found.

B.1.28 Of note is a dump of pottery totalling 140 sherds, weighing 5832g, discovered in the top of pit **368** within this group. The vast majority of these pieces are Horningsea jar and storage jar body fragments with an external white slip and internal combed surfaces. Also found was a small amount of shelly ware jar and storage jar body pieces, one of which has a white deposit on its internal surface. An undiagnostic sandy grey ware fragment was found, also a tiny scrap of a central Gaulish samian dish fragment.

Fabric	*Form*	*Sherd Count*	*Weight (g)*
HORN	Storage jar (type 4.17)	26	1364
SGW	Dish (type 6.19, 6.21), jar (type 2.1; 4.8; 5), storage jar	59	990
STW	Jar (type 4.5), storage jar (type 4.8)	14	583
SAM CG	Bowl, cup (Dr27; Dr35/36), dish (Dr18)	5	124
SCW	Storage jar	5	82
NVGW	Dish (type 6.19)	2	68
NVCC	Beaker (type 3.1)	9	40
HADGW	Jar/bowl	1	21
HADREDW	Jar	2	17
SOW	Flagon	1	3
Totals		**124**	**3292**

Table 12: PG3. The Roman pottery

Fabric	*Form*	*Sherd Count*	*Weight (g)*
HORN	Jar, storage jar	134	5682
STW	Jar, storage jar	4	139
SGW	Jar/bowl	1	8
SAM CG	Dish	1	3
Totals		**140**	**5832**

Table 13: PG3, Pottery dump 58. The Roman Pottery

Pit Group 4: spot date 2nd century AD

B.1.29 Only eight sherds, weighing 188g, were recovered from this pit group. The material is only slightly abraded with an average sherd weight of 23.5g. The majority of this small group comprises Horningsea jar and storage jar fragments, one example of which is slipped and combed, another has internal finger swipe marks. Sandy grey ware wide mouthed cordoned jars (type 5.3) and jars with bi-fid rims (type 4.8) were also found. As well as a single shelly ware storage jar fragment. One worn central Gaulish cup fragment (Dr 46) was also found.

Fabric	*Form*	*Sherd Count*	*Weight (g)*
HORN	Jar, storage jar	3	94
SGW	Jar (type 4.8; 5.3)	3	42
STW	Storage jar	1	29
SAM CG	Cup (Dr46)	1	23
Total		**8**	**188**

Table 14: PG4. The Roman pottery

Industrial Zone 3 (IZ3): spot date early to mid 3rd century AD

B.1.30 A total of 21 sherds, weighing 1397g, were recovered from IZ3. The presence of several large vessels fragments has increased the average sherd size to 66g.

B.1.31 The majority of this small group consists of Horningsea jar and storage jar pieces, while sandy grey ware jar, storage jar and dishes (type 6.19) were also found, in addition a single sherd from a shelly ware jar. A large fragment from a white slipped Nene valley oxidised ware reeded rim mortaria was found (type 7.9). While finer material is represented by a small piece of a Nene Valley colour coated jar and a worn central Gaulish conical cup fragment (Dr33).

Fabric	*Form*	*Sherd Count*	*Weight (g)*
HORN	Jar, storage jar	9	799
NVOW	Mortaria (type 7.9)	1	458
SGW	Dish (type 6.19), jar, storage jar	8	115
NVCC	Jar	1	12
STW	Jar	1	7
SAM CG	Cup (Dr33)	1	6
Total		**21**	**1397**

Table 15: IZ3. The Roman pottery

Discussion

B.1.32 This assemblage is primarily of local origin with the majority of ceramic vessels in use from the Early to Mid Roman periods (2.1-2.2), with activity continuing into later Roman times on a smaller scale. It is largely a utilitarian pottery assemblage dominated by the presence of locally produced jars and storage jars, although small amounts of imported fine wares and traded specialist wares are also present. All the pottery is fragmentary and apart from a dump of Horningsea storage jars (268) was not deliberately placed. The majority of the pottery is therefore highly abraded and probably found its way into pits and other features as part of the rubbish disposal process.

B.1.33 Although a much smaller pottery assemblage than collected from the nearby sites at Langdale Fen (Monteil 2013) and The Camp Ground, Earith (Anderson 2013) the range of fabrics and vessel types are similar and are thought typical of the region at this time. Indeed, the assemblage is predominantly local in origin – in this case dominated by coarse wares and commonly Horningsea and Earith or Nene Valley shelly storage jars. Other locally produced Nene Valley products, including reeded rim mortaria, make a significant contribution to the assemblage. While imported wares make a minimal contribution to the ceramic group, with central Gaulish samian the only category with sufficient sherds to really register.

B.1.34 Both the archaeological and environmental evidence suggest that this was an area of industrial activity, where metal working, crop processing and spelt malting (as part of the brewing process) were taking place. The pottery assemblage certainly reflects a utilitarian centre of activity away from domestic settlement. The assemblage is dominated by Horningsea, sandy grey ware and shelly ware jars and storage jars. Clues to how they were used on site are, however, limited. Only one of the vessels is recorded as burnt and very few soot or lime deposits are present (although some surface residues may have been lost). Moreover, the coarse ware jars and storage jars appear to have been used in their original form and not adapted in any way as seen on other brewing sites in the region (Abrams and Ingham 2008, 63; Tester with Willet 2004, 38, fig 23. 19). It is also noteworthy that no crucibles or vessels associated with metal working were found. So it is difficult to interpret further than this is a 'working' assemblage that could have been used for a variety of industrial tasks.

B.1.35 It is worthy of note, however, that the Over pottery assemblage is very similar in composition to the pottery found at a contemporary Roman maltings site at Beck Row, Mildenhall – located *c*. 33km to the east – as both assemblages contain a large number of Horningsea storage jars (Tester with Willet 2004). The role of these storage jars and how they were used in the malting process, particularly if their internally scored surfaces had any practical purpose in this industry, will be a subject of ongoing research.

B.1.36 The presence of a relatively large amount of ceramic detritus suggests a significant rural settlement existed in the immediate vicinity – presumably related to the known settlement located directly to the north-east. This settlement would have been ideally located within the Roman Fen-edge landscape and infrastructure to have access to local markets and the ceramic products which form this assemblage.

B.2 Pottery Illustration Catalogue

See Figs 9-11 for pottery illustrations.

Coarse Wares

Jars

1. SGW(SANDW). Cordoned jar with fine burnished horizontal lines within the cordon (type 5.3). 108, fill of pit 109. PG2. Period 2.1.
2. SGW(BLUE). Carinated cordoned jar with burnished cross-hatch within the cordon (type 5.3). 157, fill of pit 153. IZ2. Period 2.1.
3. SOW(GRITTY). Jar with bi-fid rim (type 4.8). 329, fill of pit 325. PG3. Period 2.2.
4. SGW(BLACK SLIP). Jar with a simple everted rim (type 4.13). 117, fill of watering hole 118. Period 2.2.

Storage Jars

5. HORN. Storage jar with large rolled rim (type 4.14). 59, fill of pit 292. Period 2.1.
6. HORN. Storage jar with large cavetto rim (type 4.17). 146, fill of pit 138. PG3. Period 2.2.
7. STW. Storage jar with a bi-fid rim (type 4.8). 354, fill of pit 312. PG3. Period 2.2.

Dishes

8. SGW. Flanged dish (type 6.17). 401, fill of watering hole 394. Period 2.2.
9. SGW. Flanged dish (type 6.17). 401, fill of watering hole 394. Period 2.2.
10. NVGW. Straight-sided dish with triangular rim (type 6.18). 117, fill of watering hole 118. Period 2.2.
11. SGW. Straight-sided dish with triangular rim (type 6.18). 163, fill of pit 137. Period 2.2.
12. SGW. Straight-sided dish with a single fine groove under the rim (type 6.19). 353, fill of pit 321. PG3. Period 2.2.
13. NVGW. Shallow dish/platter (type 6.19). 354, fill of pit 321. PG3. Period 2.2.
14. SGW(BSRW). Dish with in-turned rim and a burnished exterior (type 6.21). (no fill number recorded). Pit cluster 207. PG1. Period 2.1.
15. SGW. Dish with in-turned rim (type 6.21). 180, fill of pit 174. PG3. Period 2.2.

Fine wares

16. SAM CG. Cup with wear marks on edges (Dr46). 8, fill of pit 6. PG4. Period 2.1.
17. SAM CG. Dish (Dr18), partial stamp – get SW to check. SF 18. 367, fill of pit 362. PG3. Period 2.2.
18. SAM. Decorated piece from bowl (Dr37). Potter X-2 Les Martres Central Gaul Dancer – 0345, Border – A24, bifid – G376. SF19. 370, fill of pit 377. Period 2.1.

Specialist wares

19. NVOW. Reeded rim mortaria (type 7.9). 22, fill of pit 20. IZ3. Period 2.2.

Adapted Vessels

20. NVCC. Jar base with large post-firing central hole drilled in base (16mm). Spindle whorl. SF10. 280, fill of ditch 279. DG1. Period 2.1.

B.3 Metalwork

By Chris Howard Davis

Introduction and methodology

B.3.1 A small assemblage of metalwork from Over Industrial Estate was submitted for assessment. Every fragment was examined, assigned a preliminary identification and, where possible, date range. An outline database was created, using Microsoft Access 2000 format, and the data recorded (context, small finds number, material, category, type, quantity, condition, completeness, maximum dimensions, outline identification, brief description, and broad date) serve as the basis for the comments below. The state of preservation (condition) was assessed on a broad four point system (namely poor, fair, good, excellent).

Copper Alloy

B.3.2 A single, well-preserved fragment of copper alloy (SF 3) was recovered from the earliest fill (50) of pit **45**. Although this object retains no chronologically distinctive features, it seems most probably to be the pin from a sprung bow brooch, for which the most-likely dating would be Romano-British. The presence in the fill of a small amount of Romano-British pottery would seem to corroborate such a date.

Ironwork

B.3.3 There were, in all, eight fragments of ironwork, all of which are in poor condition. The majority can be identified as hand-forged nails, with examples coming from fill 27 of corn drier **29** (Period 2.2: SF 15, SF 40), fill 72 of Tank **67** (Period 2.2: SF 20), pit **96** (Period 2.1: fill 97) (SF 4), and pit **222** (Period 2.1: fill 224) (SF 7, SF 9). As simple and easily made, functional items, such nails have remained relatively unchanged in appearance from Roman period until the present day, and are thus effectively undateable, although in most cases, supplementary evidence implies that they are of Roman date. Complete examples from the site are all between 50-60mm in length, and it is quite probable that the complete nail from pit 96 (SF 4) had been extracted from wood before deposition, perhaps suggesting demolition and the recycling of wood, although it must be stressed that the evidence is scant. Alternatively the presence of charcoal and fired clay within the pit fills might hint at the use of recycled wood for fuel.

B.3.4 A triangular fragment (SF 17) from capping layer 72, from pit **67** (Period 2.2) is probably part of a fairly substantial blade. Its upward-curving back suggests a Late Iron Age or Roman date, one obvious identification being a cleaver of Manning's type 1b (Manning 1985), thought to have developed from an Iron Age antecedent. A final fragment, SF 21 from a fill (240) of ditch 238 (ditch group 1, Period 2.1), is now reduced to an amorphous lump and remains unidentified.

B.4 Coins

By Paul Booth

Introduction and methodology

B.4.1 There are three coins from the site, two of Roman date from secured contexts and a halfpenny of George II dating to 1732 from post-medieval plough scarring.

B.4.2 The earlier Roman coin (SF7, fill 224 of pit **222**, Period 2.1) is a Sestertius of Faustina the younger, struck under Marcus Aurelius, dated broadly AD 161-175. This coin is quite heavily worn (which precludes distinction between two closely-related RIC types) and could easily have been in circulation in the 3rd century AD.

B.4.3 The second Roman coin is a radiate of the later 3rd century (SF12, fill 401 of watering hole **394**, Period 2.2). It is in poor condition with no extant legends. Consequently a date range of *c* AD 260-296 has been assigned. In view of its condition it is not possible to determine if the coin was an irregular issue, though this is quite possible. In this case a narrower date range of *c.* AD 275-296 is likely.

B.5 Metalwork Debris

By Sarah Percival

Introduction and methodology

B.5.1 A small assemblage of 36 pieces of MWD weighing 2,282g was recovered. The majority of the assemblage comprises pieces of smithing slag including a possible hearth bottom and pieces of vitrified hearth lining (Table 16). The complete assemblage was recorded by type by context. The MWD was scanned with a magnet to establish the presence of iron and was counted and weighed to the nearest whole gram.

Feature	*Context*	*Feature type*	*Type*	*Description*	*Quantity*	*Weight (g)*
5	4	Pit	Miscellaneous	Vitrified surface	1	7
23	24	Pit	Lining	Vitrified surface	1	3
36	35	Ditch	Smithing slag	Iron	8	174
54	52	Pit	Smithing slag	Iron	1	486
96	97	Pit	Miscellaneous	Iron	2	75
132	131	Oven/ corn drier	Smithing slag	Iron	1	139
134	133	Post hole	Miscellaneous	Vitrified surface	2	2
160	162	Pit	Smithing slag	Hearth bottom	1	435
174	180	Pit	Smithing slag	Iron	1	7
292	59	Pit	Lining	Vitrified surface	2	33
309	310	Ditch	Smithing slag	Iron	5	370
311	312	Ditch	Miscellaneous	Vitrified surface	1	3
375	376	Post hole	Smithing slag	Iron	3	384
377	379	Pit	Miscellaneous	Iron	1	15
386	388	Ditch	Smithing slag	Iron	5	82
418	419	Post pipe	Lining	Vitrified surface	1	67
Total					36	2282

Table 16: Quantity and weight of metal working debris by features

Assemblage Description

B.5.2 The assemblage comprises 36 pieces of iron smithing debris including 25 pieces of smithing slag weighing 2,077g and characterised by vacuous rusty conglomerated

lumps sometimes with pebbles or other debris adhering. These include one large curved fragment from the fill of pit 160, which is from a smithing hearth bottom.

B.5.3 Four pieces weighing 103g are formed of sandy highly baked clay with vitrified surfaces derived from the smithing hearth or its lining. The remaining seven fragments are of miscellaneous ferrous slag.

Discussion

B.5.4 No tapping slag indicative of iron smelting was found with only debris characteristic of smithing being present. This suggests that iron working rather than iron production was taking place at the site probably producing or repairing iron implements required for agricultural work.

B.5.5 The assemblage is small and widely dispersed through pits and ditches across the site. It is probable that the debris represents metal working in the Roman period but no structural evidence of smithing was found. A contemporary assemblage of 2.2kg of slag found at Langdale Hale, Earith from similarly redeposited contexts comprised undiagnostic iron working slag and hearth base fragments along with fuel ash slag (Clogg 2013, 115) suggesting small scale metal working was common within Roman agricultural communities.

B.6 Hammerscale

By Rachel Fosberry

Introduction and Methodology

B.6.1 Each of the bulk sample residues were scanned with a magnet for the retrieval of hammerscale. Both flake hammerscale and magnetic spheroids were retrieved from several of the Roman period samples. Hammerscale in the form of flakes and spheroids of iron oxide is produced during the repeated heating and hammering processes of iron smithing and is likely to become incorporated into the fills of features in the near vicinity of the blacksmithing anvil. Lumps of slag are more likely to be removed from the immediate area but are unlikely to travel far as they are usually heavy. Metalworking processes require huge quantities of fuel and crop processing waste would have been ideal for this purpose.

B.6.2 By plotting the distribution of the hammerscale onto the site plan it becomes apparent that there is an area of intense smithing activity within Period 2.1 ditch **36** and also in ditch **238**.

Cut No.	*Context No.*	*Sample No.*	*Phase*	*Date Range*	*Feature Type*	*Flake hammerscale*	*Spheroidal hammerscale*
338	337	47	0		Pit	+	+
238	240	44	2.1		Ditch	+++++	+
36	34	5	2.1	E/MC2	Ditch	+++	+
109	107	23	2.1		Pit	+++	0
292	59	16	2.1	C2-C3	layer	+++	+
6	8	1	2.1	C2	Pit	++	+
158	159	36	2.1	LC1-C2	Ditch	++	0
17	14	2	2.1		Pit	+	0
17	14	41	2.1		Pit	+	0
36	35	6	2.1	E/MC2	Ditch	+	0

Cut No.	Context No.	Sample No.	Phase	Date Range	Feature Type	Flake hammerscale	Spheroidal hammerscale
92	93	21	2.1	MC1-C4	Pit	+	0
96	97	22	2.1		Pit	+	0
121	119	26	2.1		Pit	+	0
197	141	29	2.1	LC1-C4	Pit	+	+
418	419	97	2.1	MC1-C4	Post hole	+	0
54	52	13	2.2		Pit	++++++	++
38	37	12	2.2		Pit	+++	0
54	52	43	2.2		Pit	+++	0
371	373	90	2.2		Pit	+++	+
20	22	3	2.2	E/MC3	Pit	++	+
22	27	4	2.2	MC1-E/MC2	Pit	++	0
45	41	14	2.2		Pit	+	0
64	65	20	2.2	C2-C3	Pit	+	+
64	72	28	2.2	C2-C3	Pit	+	+
64	65	17	2.2	C2-C3	Pit	+	0
67	90	31	2.2		Pit	+	+
137	163	34	2.2	C2-C4	Pit	+	+
148	152	39	2.2	C2-C3	Pit	+	0
174	175	80	2.2	MC2	Pit	+	0
174	175	83	2.2	MC2	Pit	+	0
174	175	85	2.2	MC2	Pit	+	0
174	175	86	2.2	MC2	Pit	+	0
321	349	49	2.2	C2-C3	Pit	+	+
321	353	48	2.2	C3-C4	Pit	+	0
321	341	50	2.2		Pit	+	0
321	353	66	2.2	C3-C4	Pit	+	0
321	352	67	2.2	LC2-C3	Pit	+	0
321	349	68	2.2	C2-C3	Pit	+	0
321	349	70	2.2	C2-C3	Pit	+	0
362	366	62	2.2		Pit	+	0
362	363	63	2.2	C2	Pit	+	0
394	399	93	2.2	C3	Watering hole	+	+
404	357	53	2.2		CPW spread	+	+
404	357	55	2.2		CPW spread	+	0

Table 17: Hammerscale recovered from environmental samples

B.7 Bone Artefact

By Chris Howard-Davis

B.7.1 A single small fragment of worked bone came from the upper fill (22) of pit **20** (Period 2.2). It is clearly from the shaft of a tapering object, presumably a pin, made from a

large splinter of long-bone. However, as neither the point, nor any head survives, it cannot be more closely identified.

B.8 Worked Stone

By Sarah Percival

Introduction and methodology

B.8.1 A total of 47 pieces of worked stone were recovered. These comprise fragments of quern or millstone and a stone roof tile.

Feature	*Context*	*Phase*	*Group*	*Feature type*	*Lithology*	*Type*	*Quantity*	*Weight (g)*
26	25	2.2	Industrial Zone 3	Post hole	Millstone grit	Millstone	1	4816
40	39	2.2	Industrial Zone 3	Pit	Millstone grit	Millstone	1	5720
118	114	2.2	-	Watering hole	Lava	Quern	28	716
158	159	2.1	Enclosure 1	Ditch	Lava	Quern	15	199
290	289	2.1	Pit Group 2	Pit	Cambridge Greensand	Uncertain	1	11351
291	107	2.1	Pit Group 2	Pit	Fine micaceous sandstone	Roof tile	1	194
321	354	2.2	Pit Group 3	Pit	Millstone grit	Quern	1	221
Total							**47**	**23217**

Table 18: Worked Stone

B.8.2 A full catalogue was prepared of the total assemblage. Each piece was examined using a hand lens (x20 magnification) and the basic lithology recorded. The pieces were counted and weighed to the nearest whole gram. Type and form were observed. For saddle querns grinding surface, wear angle, thickness, secondary re-use and tooling were recorded. For rotary shape, collar width, collar depth, hopper diameter, hopper shape, hopper depth, handle attachment, handle socket height above grinding surface, handle socket angle, spindle notch and diameter of feed were recorded. Spindle material, use wear, secondary re-use and tooling were also noted. The typological variables were selected to aid identification of the chronology and form of the quern, the petrological examination was undertaken to distinguish possible imports and locate the source of supply of stone to the site. OAE curate the assemblage and archive.

Results

Quern and Millstones

B.8.3 Fragments of quern or millstone were found in two stone types. Forty three pieces of lava weighing 915g are too small and abraded to be identified to form comprising only rounded scraps with no surviving surfaces. The lava was found in watering hole **118** and ditch **158**, and had clearly been subject to a high degree of post discard attrition.

B.8.4 The remaining fragments are made of millstone grit. A large fragment weighing 4,816g is 98mm thick with one smooth and one opposing pecked surface. The fragment was found in posthole **26** and may have been reused as post packing. A second fragment weighs 5,720g and is 110mm thick again with one smoothed and one pecked surface. Traces of a hopper or spindle hole survive. This piece of stone was found in the fill of pit **40**. A third smaller piece of millstone grit weighing 221g from pit **321** (Pit Group 3), is 25mm thick with one surviving smoothed surface.

B.8.5 A single large fragment of stone was recovered from the base of pit **289** (SF11, Period 1). This partially shaped block, probably of Cambridge Greensand which weighs 11.35kg, has two parallel sides, some of which are smoothed, whilst the remaining edges are fresh and show no signs of use wear or working. It is possible the block functioned as a postpad but no evidence for use survives archaeologically.

Roof Tile

B.8.6 A solitary roof tile fragment 11mm thick made of fine micaceous sandstone was found in pit **291**.

Discussion

B.8.7 Millstones or querns were being supplied to the site from two sources, the lava being imported from the Rhineland whilst the millstone grit came from quarries in Derbyshire, both perhaps being transported to the site along the Ouse. Both millstone grit and lava quern fragments were also found at Langdale Hale (Appleby 2013, fig.2.56) and are present at contemporary sites such as Loves Farm, St Neots (Percival, forthcoming) and nearby Little Paxton.

B.8.8 The presence of stone tile in addition to the ceramic roof tile fragments recovered from the site indicates that buildings with several types of roofing were once present in the environs of the site.

B.9 Ceramic Building Material

By Sarah Percival

Introduction and methodology

B.9.1 A total of 28 pieces of ceramic building material weighing 4.4kg were collected from eleven excavated contexts and from unstratified surface collection. Unstratified material forms 7% of the total assemblage. Twenty four fragments are Roman including tile and roof tile fragments, three fragments are post-Roman and one is modern. The CBM is fragmentary and mostly small and poorly preserved.

B.9.2 The CBM was counted and weighed by form and fabric and any complete dimensions measured. Abrasion, re-use and burning were also recorded following guidelines laid down by the Archaeological Ceramic Building Materials Group (ACBMG 2002). Terminology follows Brodribb (1987).

Fabric

B.9.3 Seven fabrics were identified (Table 19). Roman fabrics are sandy in a range of pink to orange colours with a mix of grog, clay pellets, chalk/shelly limestone and flint inclusions. Three fragments in yellow vacuous fabric are post Roman. A single piece of hard-fired fine sandy orange tile is modern.

Fabric Description	Quantity	Weight (g)
Fine pink orange sandy with rare flint and common rounded grog (includes one post Roman).	8	1505
Fine pink orange sandy with rare chalk inclusion	8	1057
Fine orange sandy	7	911
Fine orange sandy with rare chalk inclusion and large flint	1	376
Pale yellow with common sub-rounded vacuoles (post Roman)	3	306
Fine pink orange sandy with rare chalk inclusion, red clay pellets	1	245
Total	**28**	**4400**

Table 19: Quantity and weight of CBM by fabric

B.9.4 The Roman fabrics compare with those identified within the contemporary building material assemblage from Colne Fen, Earith (Appleby 2013). The presence of chalk/ shelly limestone within the fabrics suggests that the material was probably made locally utilising the underlying Jurassic clay bedrock.

Forms

B.9.5 The Roman assemblage includes six fragments of imbrex and two pieces of flanged tegulae. The imbrices are between 17mm and 20mm thick whilst the tegulae are all 20mm thick measured close to the flange. One fragment of tegula has a finger swirled signature and three imbrices have smeared fingertip impressions. The remaining undiagnostic tile fragments are between 13mm and 30mm thick suggesting that they derive from a range of roof tiles and other building material with the thickest perhaps representing wall tiles or bricks.

B.9.6 The post Roman and modern pieces comprise flat roof tiles fragments with no diagnostic features surviving.

Spotdate	Type	Form	Quantity	Weight (g)
Roman	Roof tile	Imbrex	6	1231
		Tegula	2	353
	Tile		15	2227
	Uncertain		1	245
Post Roman	Roof tile		3	306
Modern	Roof tile		1	38
Total			**28**	**4400**

Table 20: Quantity and weight of CBM by form

Deposition

B.9.7 Roman CBM was recovered from four pits, a watering hole and with a dump of Roman pottery in pit **59** (Pit Group 3). All these features also contained Roman pottery, mostly of mid to late 2nd century date. The post Roman roof tile fragments came from subsoil. A small piece of modern roof tile was found in fill 354 of watering hole **321** (Pit Group 3) and may be intrusive.

Feature	Context	Feature Type	Feature Date (pot)	Spotdate	Type	Form	Quantity	Weight (g)
0	2	Subsoil	C2(PMED)	Post Roman	Roof tile		3	306
109	108	Pit	E/MC2	Roman	Tile		1	136
118	116	Watering hole	MC3-C4	Roman	Roof tile	Tegula	1	155
					Tile		1	105
174	175	Pit	MC1-E/MC2	Roman	Roof tile	Imbrex	1	113
					Tile		1	89
	177				Uncertain		1	245
	180				Roof tile	Imbrex	1	166
						Tegula	1	198
321	352	Pit	LC2-C3	Roman	Roof tile	Imbrex	2	510
	354		LC2	Modern	Roof tile		1	38
				Roman	Roof tile	Imbrex	1	66
					Tile		2	628
362	363	Pit	C2	Roman	Tile		1	216
	365		LC1-C2	Roman	Tile		5	498
	370		C4	Roman	Tile		1	460
368	58	Pottery dump	E/MC2	Roman	Roof tile	Imbrex	1	376
					Tile		3	95
Total							**28**	**4400**

Table 21: Quantity and weight of CBM by feature

Discussion

B.9.8 The presence of several fragments of flanged tegulae and imbrices indicates a high status structure with a tiled roof somewhere in the vicinity and there is also some suggestion amongst the assemblage of the use of tile for flooring and walls. However all are either reused or discarded and none was found *in situ*, most fragments probably being used as convenient hardcore for backfilling unwanted holes and rubbish pits.

B.10 Baked Clay

By Sarah Percival

Introduction and methodology

B.10.1 A total of 661 pieces of clay weighing 18,703g were collected from 37 contexts. The assemblage comprises daub and lining, the majority probably derived from the Roman ovens or corn driers found at the site.

B.10.2 The complete assemblage was analysed and the baked clay recorded by context, grouped by form and fabric, and counted and weighed to the nearest whole gram. Diameter of withy or round wood impressions was noted where available. Surface treatment and impressions were recorded along with the form and number of surviving surfaces. Fabrics were identified following examination using a x10 hand lens and are classified by major inclusion present. The archive is held by OAE.

Fabrics

B.10.3 Ten fabrics were identified (Table 22). Five contain pale rounded grog or clay pellets which represent deliberate additions the clay perhaps to improved workability and resistance to thermal shock and mostly represent daub or superstructure. Sandy fabrics with rounded quartz are denser and chunkier and were probably used in construction of hearth and flue lining.

B.10.4 Four fabrics contain vegetable inclusions in the form of elongated voids or impressions which are visible on the surfaces and into the body of the clay fragments. Analysis of these impressions shows the inclusions to be composed of crop processing waste, chiefly stem fragments of cereal straw and rare spelt wheat spikelets with the presence of silica suggesting that 'the fired clay was formed on site with the incorporation of charred cereal processing waste' (R. Fosberry, Appendix B.9). It is probable that running repairs carried out to the ovens between firings would have involved patching the structure and superstructure of the oven with plant material, in the form of crop processing waste, added to make the clay more robust when working.

Fabric	*Quantity*	*Weight (g)*
Common vegetable inclusions, sparse angular flint >4mm, rounded pale grog or clay pellets	477	12652
Common vegetable inclusions, sparse chalk, rounded pale grog or clay pellets	7	2000
Sandy orange fabric with sparse quartz	136	1795
Pale orange with common small angular chalk	19	979
Chalk sparse sub-rounded, common vegetable inclusions, sparse angular flint >4mm, rounded pale grog or clay pellets	4	469
Large fresh grey and white flint in orange sandy clay	8	360
Fine clay with common grey grog or clay pellets	2	327
Chalk common and sub-rounded; moderate angular quartz >5mm	1	62
Orange and cream poorly mixed with moderate rounded clay pellets	6	54
Pale common vegetable inclusions	1	5
Total	**661**	**18703**

Table 22: Quantity and weight of baked clay by fabric

Forms

B.10.5 The assemblage comprises 123 pieces weighing 2,334g which have smoothed exterior surfaces and wattle or rod impressions on the exterior characteristic of daub or superstructure. The diameter of the rod impressions varies, measurable examples being 3mm, 6mm and 8mm in diameter.

B.10.6 A total of thirty two pieces weighing 3,597g are thick and chunky, sometimes with one smoothed surface and represent hearth or flue lining. The remaining 506 pieces (12,772g) are undiagnostic.

Deposition

B.10.7 Almost all of the assemblage is redeposited in the fills of pits and ditches. The exception is material from corn driers/ ovens **132**, **196** and **197**. Two of these features contained modest quantities of baked clay lining used to construct the sub-surface flues or hearths, whilst oven **197** contained daub from demolished superstructure.

Feature	*Context*	*Feature type*	*Pot date*	*Form*	*Quantity*	*Weight (g)*
0	357	Spread			2	7
13	12	Pit			2	22
20	22	Pit	E/MC3	Lining	4	19
					3	351
29	27	Pit	MC1-E/MC2		6	54
36	34	Ditch	E/MC2(PMED)		10	22
38	37	Pit			7	62
45	41	Pit			2	3
54	52	Pit			2	12
64	65	Pit	C2-C3		5	291
67	69	Pit			3	12
	70	Pit	C2-C3	Daub	2	3
	72	Pit	C2-C3	Daub	2	56
					170	7965
	90	Pit	C2-C3		2	36
92	93	Pit	MC1-C4		45	240
94	95	Pit	MC1-C4		3	9
96	97	Pit			23	76
118	114	Watering hole	MC1-C2		1	29
	116	Watering hole	MC3-C4		7	63
	117	Watering hole	LC2-EC4		9	229
128	127	Post hole			1	13
132	131	Oven/ corn drier	MC1-E/MC2	Lining	3	69
137	166	Pit	LC1-C4	Daub	4	14
140	139	Pit		Daub	7	40
143	142	Post hole		Daub	3	68
					8	36
148	152	Pit	C2-C3		3	127
153	157	Pit	M/LC1-E/MC2		3	63
169	173	Pit		Daub	3	334
174	175	Pit	MC1-E/MC2	Lining	4	692
					9	142
	179	Pit	MC1-E/MC2		2	1

Feature	Context	Feature type	Pot date	Form	Quantity	Weight (g)
	180	Pit	MC1-E/MC2	Daub	1	37
				Lining	14	2271
					81	886
190	193	Pit	MC1-E/MC2	Daub	4	80
196	195	Oven/ corn drier	C1-C2	Lining	3	77
197	141	Oven/ corn drier	LC1-C4	Daub	30	428
					10	118
198	200	Ditch	C1-C2	Daub	2	10
198	201	Ditch			21	133
268	294	Pit	C2	Daub	7	41
					25	108
279	280	Ditch	C3-C4		1	6
292	59	Pit	C2-C3		2	60
321	343	Pit			1	3
	344	Pit		Daub	4	83
	349	Pit	C2-C3	Lining	4	469
325	329	Pit	E/MC2		4	75
338	337	Pit		Daub	11	237
362	365	Pit	LC1-C2	Daub	1	8
	370	Pit	LC1-C2	Daub	26	514
					19	1430
375	376	Post hole	LC1-C4		1	10
392	393	Pit	C2		8	21
408	409	Beam slot	MC1-E/MC2	Daub	16	381
418	419	Post pipe	MC1-C4		5	57
Total					661	18703

Table 23: Quantity and weight of Baked Clay by feature

Discussion

B.10.8 The baked clay assemblage is consistent with debris from the demolition of clay built agricultural structures, such as corn driers or ovens, the sub-surface remains of which partially survived *in situ*. Only a small quantity of the baked clay was found in association with the surviving structures most being distributed in the fills of pits and ditches.

B.10.9 The permanent sub-surface remains of the possible ovens or driers are made of sandy clay fabrics with fresh, unburnt flint or chalk inclusions. This suggests that the hearth linings for these features were mostly made of un-prepared local chalk marls which overlie the Ampthill Clays and commonly contain flint and chalk inclusions (BGS Sheet 187 Drift Edition). The vegetable tempered fabrics, which include pieces with rod and batten impressions from possible superstructures, are made of more carefully prepared fabrics which lack the large naturally occurring inclusions but have had plant material added to improve strength and durability without adding weight. The superstructure fragments are found in pit and ditch fills. This suggests that the above ground, impermanent elements of the structures were broken up after use and disposed of by being dumped into open pits and ditches. The organic tempered fabrics compare well with fabrics 2 and 3 from Earith and appear to have performed a similar range of structural tasks (Appleby 2013, 113).

B.11 Plant Impressions within the Baked Clay

By Rachel Fosberry

Introduction and Methodology

B.11.1 Plant impressions were noticed on several fragments of the fired clay from Norman Way Industrial estate during processing and assessment. Impressions form when vegetative matter is deliberately included in the clay fabric (as grog temper) or when it becomes incorporated accidentally during moulding and drying of the clay during formation. The vegetative material rarely survives unless it was carbonised (burnt) prior to incorporation or if the material becomes desiccated through the absorption of the water content by the clay fabric. In most cases the vegetation decays or is burnt out leaving a void or impression that can often identify the original component providing indirect evidence of plant use.

B.11.2 The fired clay assemblage from 49 contexts was examined using a stereo-binocular microscope at x8-x60 magnification. The presence of impressions of straw, cereal grains and chaff elements was recorded qualitatively according to the following categories.

= 1-5, ## = 6-10, ### = 11-50, #### =51-100, ##### = 100+ impressions

B.11.3 Occasionally the presence of fine silica skeletons were noticed in the voids. These have also been recorded.

Results

Feature	*Context*	*Feature type*	*Spikelets*	*Glume bases*	*Grain*	*Straw*	*Silicates*
13	12	pit				#	
20	22	pit				#	
64	65	pit				#	
Pit cluster 63	72	pit		# (faint)		##	
197	141	oven/ corn drier				# #	
143	142	post hole				###	
148	152	pit				#	
137	166	pit				#	
169	173	pit		#		####	###
174	175	pit				##	
	180	pit				#####	##
190	193	pit				##	
196	195	oven/ corn drier				##	
338	337	pit				#	
321	344	pit			# (faint)	####	
346/185/321	349	pit				#####	
362	365	pit	Possible (faint)			##	
362	370	pit	#	###	##	#### +m	##

Table 24: Fired Clay with Plant Impressions

B.11.4 Straw impressions are frequent on at least some of the fired clay fragments in most of the larger assemblages from a variety of features over the site (Fig. 12). Most of the fired clay that contained other plant impressions was recovered from the fills of pit group 3 which was a large group of intercutting pits and watering holes located in the north-west of the site. Plant impressions were found on assemblages from deposits from both lower fills and upper spreads of material in the pit group. Spread 72 from pit cluster 63 produced a large assemblage of fired clay but preserved impressions were rare or too poorly preserved for detailed identification.

Discussion

B.11.5 The majority of the identifiable impressions are of stem fragments of cereal straw characterised by size and visible striations. The results of the environmental samples have shown that cereal processing waste was abundant on this site with spelt (*Triticum spelta*) wheat identified as the major component. The charred assemblages do not contain much evidence of straw due to differential preservation. This occurs because the cereal processing waste was preserved by carbonisation, a process which favours the survival of certain parts of the cereal plant such as glume bases and grain over the more combustible element of the stems (straw) (Boardman and Jones 1990, 6). The numerous impressions of straw in the fired clay assemblages are proof that straw was present and utilised on site, probably as fuel. This is important evidence as the lack of straw in a charred spelt wheat assemblage could be interpreted as the use of cleaned spikelets rather that whole sheaves. Fractionation of a piece of fired clay recovered from the lower fill 349 of intercutting pits **346**/**185**/**321** revealed particularly well-preserved stem fragments that appear to have been at least partially preserved by waterlogging.

B.11.6 Impressions of the individual components of the spelt wheat spikelets are relatively rare occurring mainly as impressions of the glumes (outer husk components) and grains. There may be under-representation of whole spikelets. Impressions were noted during fracturing of larger fired-clay fragments but the resultant halves of an impression did not produce a void that would be recognisable as a spikelet.

B.11.7 Microscopic white silica skeletons are visible in many of the voids, particularly those revealed by fresh fractionation. Silica is considered to be the final product of combustion of cereal chaff, noticeably forming the 'ash' after a burning event Boardman and Jones ibid). Silicates were identified in the charred cereal assemblages and are present in the burnt deposits on the fired clay surfaces (where they have gathered in the voids) and also in some fragments that have been fractured to reveal burnt material within the actual fabric. This indicates that the fired clay was formed on site with the incorporation of charred cereal processing waste that was clearly present in enormous quantity over much of the excavated area. Additionally silicates were noted in freshly fractured voids that did not contain charred material. This suggests that the silica may be deposited through desiccation of the organic material.

Appendix C. Pottery Catalogue

Context	Cut	Phase	Group	Category	Feature Type	Era	HM/WM	Fabric Family	Fabric	Dsc	Form	Type	Quantity	Weight (g)	Diameter	EVE	Abrasion	Decoration
2	0	-	0	layer	subsoil	RB	WM	SAM CG	SAM CG	U	MORT		1	4				
2	0	-	0	layer	subsoil	RB	WM	SGW	SGW	UB	JAR		3	128			SEVERE	
2	0	-	0	layer	subsoil	RB	WM	SGW	SGW(SANDW)	D	SJAR		1	27				COMBED
4	5	2.1	0	fill	pit	RB	WM	HORN	HORN GW	D	WJAR		1	8				CORDON ON NECK; BURNISHED
8	6	2.1	PG4	fill	pit	RB	WM	SAM CG	SAM CG	P	CUP	Dr46	1	23	12	20	WORN ON RIM AND BASE	
8	6	2.1	PG4	fill	pit	RB	WM	SGW	SGW	R	JAR	5.3	2	30	18	7		
8	6	2.1	PG4	fill	pit	RB	HM	STW	STW	U	SJAR		1	29				
22	20	2.2	IZ3	fill	pit	RB	WM	HORN	HORN CW	U	SJAR		1	24				
22	20	2.2	IZ3	fill	pit	RB	WM	HORN	HORN GW	UB	JAR/SJAR		8	775				
22	20	2.2	IZ3	fill	pit	RB	WM	NVCC	NVCC	U	JAR		1	12				
22	20	2.2	IZ3	fill	pit	RB	WM	NVOW	NVOW	P; SPOUT	MORT	7.9	1	458				WHITE SLIP
22	20	2.2	IZ3	fill	pit	RB	WM	SAM CG	SAM CG	B	CUP	Dr33	1	6			WORN	
22	20	2.2	IZ3	fill	pit	RB	WM	SGW	SGW	R	DISH	6.19	1	43				DOUBLE GROOVE UNDER RIM
22	20	2.2	IZ3	fill	pit	RB	WM	SGW	SGW	UB	JAR		4	47				BLACK SLIP
22	20	2.2	IZ3	fill	pit	RB	WM	STW	STW	U	JAR		1	7				
24	23	2.1	0	fill	pit	RB	WM	SGW	SRW	D	WJAR		1	4				CORDON ON NECK; BURNISHED CROSS-HATCH
27	29	2.2	IZ3	fill	pit	RB	WM	SGW	SGW(SANDW)	UB	JAR/SJAR		3	25				
33	32	2.1	0	fill	ditch	ERB	HM	STW	STW	RU	SJAR	4.5.2	11	119	34	4		
33	32	2.1	0	fill	ditch	LIA/ERB	HM	STW	STW(ORG)	RUB	WJAR	4.5.2	11	118	26	5		
34	36	2.1	0	fill	ditch	RB	WM	SGW	SGW	RU	JAR/BEAK		5	8				
34	36	2.1	0	fill	ditch	RB	WM	SGW	SGW	RU	SJAR		4	33	30	3		
34	36	2.1	0	fill	ditch	RB	WM	SGW	SGW(OX SURFACES)	U	JAR		1	5				
34	36	2.1	0	fill	ditch	RB	WM	SREDW	SREDW	U	FLAG		1	4				
34	36	2.1	0	fill	ditch	RB	WM	SREDW	SREDW	D	WJAR(MIN)	5.3	1	4				
34	36	2.1	0	fill	ditch	RB	WM	SREDW	SREDW(COARSE)	D	SJAR		1	4				COMBED

Context	Cut	Phase	Group	Category	Feature Type	Era	HM/WM	Fabric Family	Fabric	Dsc	Form	Type	Quantity	Weight (g)	Diameter	EVE	Abrasion	Decoration
34	36	2.1	0	fill	ditch	RB	WM	SOW	WW	U	FLAG/BEAK		1	1				
35	36	2.1	0	fill	ditch	RB	WM	SGW	SGW	RU	SJAR	4.5.2	6	93	26	11		
35	36	2.1	0	fill	ditch	RB	WM	SGW	SGW(OX SURFACES)	D	JAR/BOWL		1	5				DOUBLE GROOVE ON NECK
35	36	2.1	0	fill	ditch	RB	WM	SOW	WW	B	DISH		1	4				
50	45	2.2	0	fill	pit	RB	WM	HORN	HORN GW	D	WJAR		1	12				
50	45	2.2	0	fill	pit	RB	WM	SOW	SOW	D	FLAG/BEAK		1	4			SEVERE	GREY SLIP
58	368	2.2	0	fill	pottery dump	RB	WM	HORN	HORN CW	UDB	SJAR		133	5667				EXTERNAL WHITE SLIP; INTERNAL COMBED
58	368	2.2	0	fill	pottery dump	RB	WM	HORN	HORN GW	U	JAR		1	15				BURNISHED
58	368	2.2	0	fill	pottery dump	RB	WM	SAM CG	SAM CG	R	DISH	6.15	1	3				
58	368	2.2	0	fill	pottery dump	RB	WM	SGW	SGW(OX SURFACES)	U	JAR/BOWL		1	8				
58	368	2.2	0	fill	pottery dump	RB	WM	STW	STW	U	JAR		2	17				
58	368	2.2	0	fill	pottery dump	RB	HM	STW	STW	U	SJAR		2	122				
59	292	2.1	0	fill	pit	RB	WM	HORN	HORN CW	R	JAR	4.14	1	72	28	9		GREY SLIP
60	61	2.1	0	fill	ditch	RB	WM	SGW	SGW	U	JAR		1	15				
60	61	2.1	0	fill	ditch	RB	WM	SREDW	SREDW	U	JAR/BOWL		1	1			SEVERE	
60	61	2.1	0	fill	ditch	RB	SW	SGW	SRW(FLINT/ORG)	U	JAR/BOWL		1	8				
65	64	2.2	PG4	fill	pit	RB	WM	HORN	HORN CW	U	JAR		2	40				GREY SLIP; COMBED
70	67	2.2	PG4	fill	pit	RB	HM/WM	HORN	HORN CW	D	SJAR		1	54				INTERNAL FINGER SWIPE
72	67	2.2	PG4	fill	pit	RB	WM	SGW	SGW	R	JAR	4.8	1	12	16	13		
80	79	2.2	0	fill	pit	RB	WM	HORN	HORN GW	D	WJAR		1	7				CORDON ON NECK
93	92	2.1	IZ1	fill	pit	RB	WM	SGW	SGW	U	JAR		1	1				
100	101	2.1	0	FILL	PIT	RB	WM	SGW	SGW	U	JAR		10	167				
102	106	2.1	0	fill	ditch	RB	WM	SGW	SGW(OX SURFACES)	D	BOWL	CARINATED	3	29				WHITE SLIP
106	105	2.1	0	FILL	PIT	RB	WM	SAM CG	CGSAM	U	BOWL	Dr31R	1	15				
106	105	2.1	0	FILL	PIT	RB	WM	NVCC	NVCC	UB			4	37				
106	105	2.1	0	FILL	PIT	RB	WM	NVOW	NVOW	URB	MORT		4	395				

Context	Cut	Phase	Group	Category	Feature Type	Era	HM/WM	Fabric Family	Fabric	Dsc	Form	Type	Quantity	Weight (g)	Diameter	EVE	Abrasion	Decoration
106	105	2.1	0	FILL	PIT	RB	WM	SGW	SGW	RU	BOWL	CARINATED	1	132				
106	105	2.1	0	FILL	PIT	RB	WM	SGW	SGW	URB	DISH		1	66				
106	105	2.1	0	FILL	PIT	RB	WM	SGW	SGW	URB	DISH		3	96				
106	105	2.1	0	FILL	PIT	RB	WM	SGW	SGW	U	JAR/BOWL		1	2				
106	105	2.1	0	FILL	PIT	RB	WM	SGW	SGW	UB	JAR/BOWL		3	31				
106	105	2.1	0	FILL	PIT	RB	WM	SGW	SGW	UR	JAR/BOWL		4	11				
106	105	2.1	0	FILL	PIT	RB	WM	SGW	SGW	U	JAR/BOWL		9	49				
106	105	2.1	0	FILL	PIT	RB	WM	SGW	SGW	U	JAR/BOWL		3	5				
106	105	2.1	0	FILL	PIT	RB	WM	STW	STW	U	SJAR		19	541				
108	109	2.1	PG2	fill	pit	RB	WM	HORN	HORN SGW(SANDW)	U	SJAR		1	93				
108	109	2.1	PG2	fill	pit	RB	WM	SGW	SGW	UB	JAR		6	136				
108	109	2.1	PG2	fill	pit	RB	WM	SGW	SGW(SANDW)	RU	WJAR	5.3	8	105	18	14		
110	111	2.1	0	fill	ditch	RB	WM	SGW	SGW(BLUE)	RU	BOWL	6.3	6	46	18	8		
114	118	2.2	0	fill	watering hole	RB	WM	SGW	SGW	RU	JAR/SJAR	4.5	9	122	18	6		
114	118	2.2	0	fill	watering hole	RB	WM	SREDW	SREDW	U	FLAG		1	5				
114	118	2.2	0	fill	watering hole	RB	SW/WM	STW	STW	U	SJAR		1	24				
116	118	2.2	0	fill	watering hole	RB	WM	NVCC	NVCC(CHUNCKY)	B	BEAK		1	22				
116	118	2.2	0	fill	watering hole	RB	WM	NVCC	NVCC(CHUNCKY)	B	DISH		1	57				
116	118	2.2	0	fill	watering hole	RB	WM	SGW	SGW	R	DISH	6.17	1	41	18	15	SEVERE	
116	118	2.2	0	fill	watering hole	RB	WM	SGW	SGW	RU	JAR		5	66			SEVERE	
116	117	2.2	0	FILL	DITCH	RB	WM	SGW	SGW	RB	JAR		2	15				
116	118	2.2	0	fill	watering hole	RB	WM	SOW	SOW(GRITTY)	U	JAR/FLAG		1	11				
116	118	2.2	0	fill	watering hole	RB	WM	SREDW	SREDW	U	JAR/BOWL		1	3			SEVERE	
117	118	2.2	0	fill	watering hole	RB	WM	NVGW	NVGW	R	DISH	6.18	1	96	20	21		
117	118	2.2	0	fill	watering hole	RB	WM	NVOW	NVOW	R	MORT	7.9	3	83	34	8		
117	118	2.2	0	fill	watering hole	RB	WM	SGW	SGW	U	JAR		5	138				

Context	Cut	Phase	Group	Category	Feature Type	Era	HM/WM	Fabric Family	Fabric	Dsc	Form	Type	Quantity	Weight (g)	Diameter	EVE	Abrasion	Decoration
117	118	2.2	0	fill	watering hole	RB	WM	SGW	SGW	R	MJAR	4.13	1	34	13	15		
117	118	2.2	0	fill	watering hole	RB	WM	STW	STW	R	JAR	4.5	1	18	14	18		
123	124	2.1	IZ1	FILL	PIT	RB	WM	SGW	SGW(MICA)	U	JAR/BOWL		1	11				
129	128	2.1	IZ1	FILL	PIT	RB	WM	SGW	SGW	U	JAR/BOWL		1	20				
131	132	2.1	IZ1	fill	oven/ corn drier	RB	WM	SGW	SGW(SANDW)	U	JAR		3	22				
131	132	2.1	IZ1	fill	oven/ corn drier	RB	WM	SOW	SOW(VER)	R	MORT		1	7			SEVERE	
141	197	2.1	0	fill	oven/ corn drier	RB	WM	SGW	SGW	B	JAR		1	14				
146	138	2.2	PG3	fill	pit	RB	WM	HORN	HORN SGW(SANDW)	RU	SJAR	4.17	6	316	30	22		
146	138	2.2	PG3	fill	pit	RB	WM	SCW	SCW	UDB	SJAR		3	67				COMBED
146	138	2.2	PG3	fill	pit	RB	WM	SGW	SGW	RU	WJAR	5	3	28	21	14		
146	138	2.2	PG3	fill	pit	RB	WM	SGW	SGW(BLUE)	U	JAR		3	67				
147	146	2.2	PG3	FILL	DITCH	RB	WM	SGW	SGW	U	JAR/BOWL		1	3				
148	149	2.1	IZ2	FILL	NOT EXCAVATED	RB	WM	SOW	OW(GRITTY)	U	?DISH		1	21				
148	149	2.1	IZ2	FILL	NOT EXCAVATED	RB	WM	SGW	SGW	U	JAR/BOWL		1	6				
149	148	2.1	IZ2	fill	pit	RB	WM	SOW	SOW(GRITTY)	U	JAR/FLAG		2	32			SEVERE	WHITE SLIP
152	148	2.1	IZ2	fill	pit	RB	WM	SGW	SGW(FLINT)	D	JAR		1	20				FINE HORIZONTAL COMBING
157	153	2.1	IZ2	fill	pit	RB	WM	SGW	SGW(BLUE)	RUDB	WJAR	5.3(CARINATED)	9	135	18	81		CORDON OF INCISED CROSS HATCH
157	153	2.1	IZ2	fill	pit	RB	WM	SGW	SGW(SANDW)	R	WJAR	5	1	19	18	6		
157	153	2.1	IZ2	fill	pit	RB	WM	SOW	SOW(VER)	U	JAR		1	3				
159	158	2.1	0	fill	ditch	RB	WM	SGW	SGW	U	JAR		1	6				
159	158	2.1	0	fill	ditch	RB	WM	SGW	SGW(CALC)	U	SJAR		2	16				
163	137	2.2	0	fill	pit	RB	WM	SGW	SGW	R	DISH	6.18	1	27	18	10		
164	137	2.2	0	fill	pit	RB	WM	SGW	SGW	U	JAR		6	62				
166	137	2.2	0	fill	pit	RB	WM	SGW	SGW(BLUE)	RU	JAR	4.5	3	36	24	4		
175	174	2.2	PG3	fill	pit	RB	WM	NVCC	NVCC	B	BEAK		1	8				
175	174	2.2	PG3	fill	pit	ERB	WM	SGW	SGW(SANDW)	UB	SJAR		1	56				

Context	Cut	Phase	Group	Category	Feature Type	Era	HM/WM	Fabric Family	Fabric	Dsc	Form	Type	Quantity	Weight (g)	Diameter	EVE	Abrasion	Decoration
180	174	2.2	PG3	fill	pit	RB	WM	HORN	HORN SGW(SANDW)	U	SJAR		5	118				
180	174	2.2	PG3	fill	pit	RB	WM	NVCC	NVCC	RD	BEAK	3.1(FUNNEL NECKED)	2	3	8	6		CC; WHIE PAINT WITH A FINE RED LINE
180	174	2.2	PG3	fill	pit	ERB	HM	SCW	SCW	U	SJAR		2	15				
180	174	2.2	PG3	fill	pit	RB	WM	SGW	SGW	P	DISH	6.21	6	206	22	49		BURNISHED
180	174	2.2	PG3	fill	pit	RB	WM	SGW	SGW	U	JAR/BOWL		7	60				
180	174	2.2	PG3	fill	pit	RB	WM	SGW	SGW(OX SURFACES)	U	JAR		1	3				
180	174	2.2	PG3	fill	pit	RB	WM	SGW	SGW(SANDW)	U	JAR		1	35				
180	174	2.2	PG3	fill	pit	RB	WM	STW	STW	UB	JAR		6	89				
180	174	2.2	PG3	fill	pit	RB	HM/SW	STW	STW	U	SJAR		4	129				
186	185	2.2	PG3	fill	pit	RB	WM	SAM CG	SAM CG	B	DISH/BOWL		1	22				
188	185	2.2	PG3	fill	pit	RB	WM	HORN	HORN SGW(SANDW)	U	SJAR		1	16				
188	185	2.2	PG3	fill	pit	RB	WM	SGW	SGW(BLUE)	RU	NJAR	2.1	4	19	9	16		
188	185	2.2	PG3	fill	pit	RB	WM	SGW	SGW(SANDW)	U	JAR		2	14				
188	185	2.2	PG3	fill	pit	RB	WM	STW	STW	RU	MJAR	4.5	2	49	26	9		
193	190	2.1	IZ2	fill	pit	ERB	WM	SGW	SGW	R	WJAR	5.3	1	10	13	13		
193	190	2.1	IZ2	fill	pit	ERB	WM	SGW	SGW(OX SURFACES)	U	WJAR	5.3	1	12				EMPTY CORDON
193	190	2.1	IZ2	fill	pit	ERB	WM	SGW	SGW(SANDW)	U	WJAR		1	8				EMPTY CORDON
193	190	2.1	IZ2	fill	pit	RB	WM	SOW	SOW(VER)	U	JAR		2	21				
195	196	2.1	IZ1	fill	oven/ corn drier	RB	WM	SCW	SCW	U	SJAR		1	34				
200	198	2.1	0	fill	ditch	ERB	WM	SREDW	SREW	D	SJAR		1	20				COMBED
207	0	2.1	PG1	master	pit cluster	RB	WM	SGW	SGW	RU	WJAR		3	39				
207	0	2.1	PG1	master	pit cluster	ERB	WM	SGW	SGW(BSRW)	R	SDISH	6.21	1	43	14	15		
207	0	2.1	PG1	master	pit cluster	ERB	WM	SGW	SGW(BSRW)	RU	WJAR	5.3	22	303				
207	0	2.1	PG1	master	pit cluster	RB	WM	SGW	SGW(SANDW)	U	JAR		2	17				
207	0	2.1	PG1	master	pit cluster	RB	WM	SOW	SOW(VER)	U	JAR		2	30				
211	208	2.1	PG1	fill	pit	ERB	WM	SGW	SGW	U	JAR		2	52				
211	208	2.1	PG1	fill	pit	ERB	WM	SGW	SGW(BSRW)	RUB	JAR/SJAR		10	103				
211	208	2.1	PG1	fill	pit	ERB	WM	STW	STW	U	JAR		1	6				
213	212	2.1	PG1	fill	pit	RB	WM	SGW	SGW(BLUE)	U	JAR		1	4				
213	212	2.1	PG1	fill	pit	ERB	WM	SGW	SGW(SANDW)	UB	JAR/SJAR		9	62			SEVERE	

Context	Cut	Phase	Group	Category	Feature Type	Era	HM/WM	Fabric Family	Fabric	Dsc	Form	Type	Quantity	Weight (g)	Diameter	EVE	Abrasion	Decoration
213	212	2.1	PG1	fill	pit	ERB	HM	STW	STW	B	SJAR		1	30				
217	214	2.1	PG1	fill	pit	ERB	SW/WM	SGW	SGW(BSRW)	U	JAR		1	20			SEVERE	
224	222	2.1	PG1	fill	pit	ERB	WM	SGW	SGW(BSRW)	RUB	JAR/SJAR	5.3	18	145				
224	222	2.1	PG1	fill	pit	ERB	WM	SGW	SGW(OX SURFACES)	U	JAR/SJAR		16	70				
224	222	2.1	PG1	fill	pit	ERB	WM	SGW	SGW(SANDW)	U	JAR/SJAR		24	130				
231	230	2.1	PG1	fill	pit	RB	WM	GW(GROG)	GW(GROG)	U	SJAR		1	23				
231	230	2.1	PG1	fill	pit	RB	WM	SGW	SGW	B	DISH		1	21				
231	230	2.1	PG1	fill	pit	RB	WM	SGW	SGW	U	JAR		1	4				
231	230	2.1	PG1	fill	pit	ERB	WM	SGW	SGW(BSRW)	D	WJAR		1	10				RAISED CORDON
231	230	2.1	PG1	fill	pit	RB	WM	SOW	SOW(FLINT)	U	SJAR/AMPH		1	7				
231	230	2.1	PG1	fill	pit	RB	WM	STW	STW	U	SJAR		1	21				
247	248	2.1	DG1	fill	ditch terminus	ERB	WM	SREDW	SREW	D	SJAR		1	3				COMBED
249	250	2.1	DG1	fill	ditch	RB	WM	SGW	SGW(BLUE)	U	JAR		1	10				
273	274	2.1	0	fill	pit	ERB	SW/WM	SGW	SGW(BSRW)	U	WJAR	5.3	9	27				BURNISHED; RAISED CORDON
280	279	2.1	DG1	fill	ditch	RB	WM	NVCC	NVCC(CHUNCKY)	B	JAR/BEAK		1	35				
280	279	2.1	DG1	fill	ditch	ERB	WM	SREDW	SREDW	U	BOWL		1	6			SEVERE	
286	285	1	0	fill	ditch	IA	HM	STW	STW	B	SJAR		1	28				
294	268	2.1	IZ1	fill	pit	RB	WM	SAM CG	SAM CG	U	DISH		1	1				
308	0	2.1	0	layer	colluvial	ERB	WM	SGW	SGW(BSRW)	RUDB	JAR/BOWL		18	171	30	4		
314	313	2.1	DG1	fill	gully	RB	WM	HORN	HORN SGW(SANDW)	U	SJAR		1	20				
316	315	2.1	DG1	fill	ditch	RB	WM	STW	STW	U	JAR		1	3				
318	317	2.1	DG1	fill	gully	RB	WM	SAM CG	SAM CG	F	FBOWL	Dr38	1	3				
329	325	2.2	PG3	fill	pit	RB	WM	HORN	HORN SGW(SANDW)	RUDB	SJAR	4.17	3	514	32	8		
329	325	2.2	PG3	fill	pit	RB	WM	SAM CG	SAM CG	R	CUP	Dr27	1	6	14	9		
329	325	2.2	PG3	fill	pit	RB	WM	SGW	SOW(GRITTY)	RU	MJAR	4.8	6	143	13	16		
349	321	2.2	PG3	fill	pit	RB	WM	HORN	HORN SGW(SANDW)	U	SJAR		1	48				
352	321	2.2	PG3	fill	pit	RB	WM	HADGW	HADGW	R	JAR/BOWL		1	21	24	8		BURNISHED
352	321	2.2	PG3	fill	pit	RB	WM	NVCC	NVCC	RUDB	BEAK	FUNNEL	3	8				BARBOTINE
352	321	2.2	PG3	fill	pit	RB	WM	NVGW	NVGW	B	DISH		1	44				
352	321	2.2	PG3	fill	pit	RB	WM	SGW	SGW	UB	JAR/DISH		6	70				

Context	Cut	Phase	Group	Category	Feature Type	Era	HM/WM	Fabric Family	Fabric	Dsc	Form	Type	Quantity	Weight (g)	Diameter	EVE	Abrasion	Decoration
352	321	2.2	PG3	fill	pit	RB	WM	SOW	SOW	U	FLAG		1	3				BURNISHED
353	321	2.2	PG3	fill	pit	RB	WM	HORN	HORN SGW(SANDW)	D	SJAR		1	19				COMBED
353	321	2.2	PG3	fill	pit	RB	WM	NVCC	NVCC(CHUNCKY)	D	BEAK		3	21				
353	321	2.2	PG3	fill	pit	RB	WM	SGW	SGW	RB	DISH	6.19	2	42	14	14		
353	321	2.2	PG3	fill	pit	RB	WM	SGW	SGW	U	JAR		1	5				
354	321	2.2	PG3	fill	pit	RB	WM	HORN	HORN SGW(SANDW)	D	SJAR		1	24				COMBED INTERNALLY
354	321	2.2	PG3	fill	pit	RB	WM	NVGW	NVGW	R	DISH	6.19	1	24	24	7		
354	321	2.2	PG3	fill	pit	RB	WM	SAM CG	SAM CG	U	BOWL		1	22				
354	321	2.2	PG3	fill	pit	RB	WM	SGW	SGW	UB	JAR		7	145				
354	321	2.2	PG3	fill	pit	RB	WM	SREDW	SREDW	U	DISH		1	5				
354	321	2.2	PG3	fill	pit	RB	WM	STW	STW	R	SJAR	4.8	1	287	34	11		
363	362	2.2	PG3	fill	pit	RB	WM	HORN	HORN SGW(SANDW)	D	SJAR		3	56				COMBED INTERNALLY
363	362	2.2	PG3	fill	pit	RB	WM	SAM CG	SAM CG	U	CUP	Dr35/36	1	9				
365	362	2.2	PG3	fill	pit	RB	WM	SGW	SGW	U	JAR		1	13				
365	362	2.2	PG3	fill	pit	RB	WM	SGW	SGW(OX SURFACES)	D	SJAR		1	16				COMBED
367	362	2.2	PG3	fill	pit	RB	WM	SAM CG	SAM CG	P	DISH	Dr18	1	65	15	12		
370	362	2.2	PG3	fill	pit	RB	WM	HADREDW	HADREDW	U	JAR		1	12				BURNISHED
370	362	2.2	PG3	fill	pit	RB	WM	HORN	HORN SGW(SANDW)	UD	SJAR		5	253				COMBED
370	362	2.2	PG3	fill	pit	RB	WM	SGW	SGW	RUB	NJAR	2.1	5	43	7	25		BURNISHED
370	362	2.2	PG3	fill	pit	RB	HM	STW	STW	U	SJAR		1	29				
376	375	2.2	PG3	fill	post hole	RB	WM	SGW	SGW	U	JAR/SJAR		1	22				
379	377	2.1	0	fill	pit	RB	WM	SAM CG	SAM CG	D	DBOWL	Dr37	1	8				
388	386	2.1	0	fill	ditch	RB	WM	SGW	SGW(BSRW)	U	JAR		6	18				
390	233	2.1	0	fill	ditch	RB	WM	SGW	SGW	UB	JAR		2	38				
393	392	2.1	0	fill	pit	RB	WM	SGW	SGW	U	JAR		3	18			SEVERE	
393	392	2.1	0	fill	pit	RB	WM	SREDW	SREDW	D	JAR/BOWL		1	3				FINGERNAIL INCISED
399	394	2.2	0	fill	watering hole	RB	WM	NVCC	?NVCC	D	BEAK		1	4				ROULETTED
399	394	2.2	0	fill	watering hole	RB	WM	NVCC	NVCC(CHUNCKY)	B	BEAK		1	102				
399	394	2.2	0	fill	watering hole	RB	WM	NVCC	NVCC(CHUNCKY)	U	JAR/BEAK		1	9				

Context	Cut	Phase	Group	Category	Feature Type	Era	HM/WM	Fabric Family	Fabric	Dsc	Form	Type	Quantity	Weight (g)	Diameter	EVE	Abrasion	Decoration
399	394	2.2	0	fill	watering hole	RB	WM	NVGW	NVGW	RUB	WJAR	5	4	122	20	6		
399	394	2.2	0	fill	watering hole	RB	WM	SGW	SGW	RUB	JAR		13	147	14	6		
399	394	2.2	0	fill	watering hole	RB	HM	STW	STW	U	SJAR		3	234				
399	394	2.2	0	fill	watering hole	RB	WM	STW	STW	D	SJAR		2	143				COMBED
400	394	2.2	0	fill	watering hole	RB	WM	SAM CG	SAM CG	U	CUP	DR33	1	3				
400	394	2.2	0	fill	watering hole	RB	WM	SGW	SGW(OX SURFACES)	U	JAR		2	19				
401	394	2.2	0	fill	watering hole	RB	WM	NVCC	NVCC	U	FBEAK		3	35				FOLDED
401	394	2.2	0	fill	watering hole	RB	WM	NVCC	NVCC	D	HCUP		2	13				BARBOTINE
401	394	2.2	0	fill	watering hole	RB	WM	NVOW	NVOW	U	MORT		1	9				
401	394	2.2	0	fill	watering hole	RB	WM	NVOW	NVOW(ORANGE)	U	MORT		1	18				
401	394	2.2	0	fill	watering hole	RB	WM	SGW	SGW	R	FDISH	6.15	1	20	24	10		
401	394	2.2	0	fill	watering hole	RB	WM	SGW	SGW	R	FDISH	6.17	3	81	20	30		
401	394	2.2	0	fill	watering hole	RB	WM	SGW	SGW	R	FDISH	6.17	1	102	24	15		
401	394	2.2	0	fill	watering hole	RB	WM	SGW	SGW	UB	JAR		18	291				
401	394	2.2	0	fill	watering hole	RB	SW/WM	STW	STW	U	SJAR		7	82				
407	405	2.1	0	layer	colluvial	RB	HM/SW	SGW	SGW(FLINT)	RUDB	SJAR	4.14	4	143	28	7		CROSSED COMBING
409	408	2.1	0	fill	beam slot	RB	WM	SGW	SGW(FLINT)	B	JAR		1	21				
419	418	2.1	0	fill	post pipe	RB	WM	SGW	SGW	U	JAR		3	10				
420	0	2.2	0	layer	trample	RB	WM	SGW	SGW	R	FDISH	6.17	1	38	20	10		
420	0	2.2	0	layer	trample	RB	WM	SGW	SGW	U	JAR		2	36			SEVERE	
420	0	2.2	0	layer	trample	RB	WM	SGW	SGW	U	SJAR		1	41				

Appendix D. Environmental Reports

D.1 Faunal Remains

By Angelos Hadjikoumis

Introduction

D.1.1 The size of the faunal assemblage is small, with only 137 specimens identified to some degree and recorded. This total includes primarily macromammalian remains (NISP= 128), but also small quantities of amphibian (NISP= 5), avian (NISP= 2), micromammal (NISP= 1) and fish remains (NISP= 1). The bulk of the assemblage was recovered through hand collection, but few specimens (all amphibian, fish, micromammal and some avian) were also recovered in the residues of bulk samples processed through water flotation. The assemblage chronologically covers mainly the Early-Middle Roman period (NISP= 129), while few remains were recovered in contexts attributed to the Iron Age (NISP= 6) and the post-Medieval period (NISP= 2).

D.1.2 The overall aim of this study is to identify and describe, to the degree allowed by the small sample size, the human-animal interactions that took place at the site in the Early-Middle Roman period.

D.1.3 The faunal material was processed at the facilities of Oxford Archaeology East in Bar Hill. During data recording, obvious new breaks were refitted in an effort to improve identifiability and enhance quantification. Identification of anatomical element and species (or more general taxonomic category) was attempted on each specimen with the aid of published osteological atlases for mammals (e.g. Barone 1976; Pales and Garcia 1981; Schmid 1972) and birds (e.g. Bochenski and Tomek 2009; Cohen and Serjeantson 1996; Tomek and Bochenski 2009, 2000), as well as a small collection of reference specimens. Micromammal, fish and amphibian remains were quantified only on a general level, as the author is not a specialist in their taxonomic identification and analysis. The most generic level of taxonomic identification for mammals involved the identification into large (*e.g.* cattle, equids, red deer), medium (*e.g.* sheep/goat, pig, fallow deer) and small (*e.g.* cat or smaller) mammal. With a similar logic, bird remains that were not identifiable to species or family, were assigned to one of four size categories (i.e. size 1: sparrow/songthrush, size 2: pigeon/crow, size 3: chicken/pheasant and size 4: goose/peafowl).

D.1.4 Distinguishing between sheep and goat was attempted on postcranial remains following Boessneck *et al*. (1964) and on mandibular cheek teeth following Halstead *et al*. (2002) and Payne (1985). The distinction between equids (horse, donkey, etc.) was based on criteria from several authors summarised in Johnstone (2004: 165, table 4.1).

D.1.5 Age-at-death was estimated based on dental eruption and wear, as well as the epiphyseal fusion state of selected postcranial elements. Eruption and wear of mandibular teeth were recorded following Payne (1973; 1987) for sheep/goat, Grigson (1982) and Halstead's (1985) adaptation of Payne for cattle, and Grant (1982) and Bull & Payne (1982) for pig. Age-at-death based on epiphyseal fusion follows Silver (1969) for sheep, goat, cattle and pig. Each specimen was also recorded in terms of sex, pathological conditions, butchery marks and biometric information. Taphonomic information (mainly carnivore/rodent gnawing and burning) was also recorded to enable an understanding of the processes that affected the formation of the assemblage prior to its excavation and study. The extent of erosion/abrasion on bone surfaces was graded from 0 (unaffected) to 5 (heavy erosion across whole surface) using Brickley &

McKinley's scheme for human remains (2004, 14-15) adapted to reflect the degree of visibility on bone surfaces.

Quantification

D.1.6 All identifiable specimens contributed to the Number of Identified Specimens (NISP), which is the main quantification unit for all analyses, except those involving age-at-death. Minimum Number of Individuals (MNI) was calculated based only on specimens identifiable to a taxonomic level more specific than size categories (*i.e.* large, medium, small) and taking into account the most abundant anatomical element, side and fusion state.

D.1.7 Beyond NISP, certain anatomical elements were also recorded in terms of Minimum Anatomical Units (MinAU) and Maximum Anatomical Units (MaxAU) according to Halstead (2011). MinAU and MaxAU are more suitable units to explore age-at-death and other data, as well as serving as a check on NISP. The units systematically recorded with this method were: horncore/antler bases; mandible/loose cheek teeth; atlas; axis; scapula; proximal and distal halves of humerus, radius, femur, tibia, metapodia (only III and IV in pigs); proximal half of ulna; pelvis; astragalus; calcaneum and phalanges 1-3 (excluding lateral phalanges of pigs). These anatomical elements were selected for their durability and identifiability, as well as their potential to yield archaeologically useful data. Hand-collected and wet-sieved samples were quantified separately before being pooled together, in order to provide an estimation for small animals, the remains of which are underestimated in hand-collected samples.

Results

D.1.8 The raw data extracted during the study of this assemblage are available in electronic form (Access database). Overall, the preservation condition of the assemblage was quite good as most specimens were recorded as grade 2 (i.e. most bone surface well-preserved). Before the presentation of the results on the Early-Middle Roman main component of the sample, the few faunal remains from other periods are briefly presented for the sake of completeness. More specifically, two cattle specimens (a femur and a metatarsus fragment) derived from a post-Medieval context. Moreover, six more specimens (3 cattle and 3 'large mammal') were recovered in in Iron Age contexts.

D.1.9 The Early-Middle Roman sample is the result of the combination of the material of phases 2.1 (Early Roman, NISP= 18) and 2.2 (Early-Middle Roman, NISP= 100), an action dictated by the overall small size of the assemblage. In terms of types of contexts, this sample derives almost exclusively from fills of ditches, pits and watering holes. Due to the small sample size and the near-absence of relevant cases, no corrections were applied to the taxonomic composition in order to account for anatomical differences between taxa. Only a sheep/goat horncore from phase 2.2 could have been excluded, with the logic that not all taxa present possess such a body part, but instead no action was taken as it does not affect taxonomic composition in a significant way.

D.1.10 Concerning macromammals, the Early-Middle Roman sample is characterised by high cattle (45.6%) and sheep/goat (34.2%) percentages (Table 25). Within the sheep/goat taxonomic category (36.6%), only sheep remains were identified, which can be viewed as an indication that the goat was either absent or scarce at the site. An important component of the assemblage were the equids (11.4%). Horse remains were definitely identified among the equid remains but it remains unknown whether other species of equids were present.

D.1.11 Dog remains were also present (6.3%) at the site and they all derive from context 401 (the fill of a watering hole **118**). Maxillae and mandibles from the same dog were recovered in the same context (including the corresponding skull) but it cannot be confirmed whether they were deliberately deposited there. Among the canid remains, a small radius was recorded, which could belong to either a red fox or a small breed of dog. Moreover, the role of pigs was marginal as indicated by its particularly low frequency (2.5%). The proportions of large and medium mammals (Table 25, bottom section) broadly correspond with the overall taxonomic composition.

D.1.12 Besides macromammals, four bird remains (two hand-collected and two from water flotation residues). All four belong to size 3 (see 'Methods' section) galliforms, two of which were identified specifically as domestic chicken. Moreover, a rodent (house mouse size) humerus, five amphibian and a small fish specimen were also recorded in the residue of different bulk samples processed through water flotation.

Phases 2.1-2.2 (Early-Middle Roman)							
Taxon	Hand collection		Flotation		Combined		
	NISP	NISP%	NISP	NISP%	NISP	NISP%	MNI
Cattle	36	46.2%	0	0.0%	36	45.6%	5
Equids	9	11.5%	0	0.0%	9	11.4%	2
Sheep/goat	26	33.3%	1	100.0%	27	34.2%	3
Pig	2	2.6%	0	0.0%	2	2.5%	1
Dog	5	6.4%	0	0.0%	5	6.3%	2
Total	78	100.0%	1	100.0%	79	100.0%	13
Large mammal	23	67.6%	0	0.0%	23	59.0%	N/A
Medium mammal	11	32.4%	5	100.0%	16	41.0%	N/A
Total	34	100.0%	5	100.0%	39	100.0%	N/A

Table 25: Taxonomic composition of mammalian remains of phases 2.1-2.2 (Early-Middle Roman period).

D.1.13 Beyond the analysis on the taxonomic composition of the assemblage presented above, no additional analyses were conducted due to the small datasets available. Concerning the age-at-death of the most abundant taxa (i.e. cattle and sheep/goat), several unfused elements were recorded, including the remains of newborn animals, thus suggesting that there was some mortality among immature cattle and sheep. Data on dental eruption and wear are even less conclusive due to even less available data.

D.1.14 Most equid postcranial elements were fused and mandibles contained the permanent dentition, thus indicating mostly adult animals, but the presence of an unfused ulna and a mandible with permanent dentition only slightly worn also point to the presence of few immature animals at the site. As far as the dog remains are concerned, the only indication on age-at-death is a mandible of an adult dog with no dentine exposed and another mandible with deciduous dentition present (dP4 in wear and M1 in crypt). This indicates some dog mortality, unknown whether natural or human-caused, among young adult and immature dogs.

D.1.15 All four galliform specimens were recorded in a fused state thus indicating that they belonged to adult birds.

D.1.16 As the sample cannot support any further analysis due to its small size, a few observations are briefly mentioned here. Cattle, sheep/goat and equid remains were

recorded bearing butchery marks. It is reasonable to assume that pigs were also butchered at the site but evidence for it was not observed due to the scarcity of pig remains. Dog remains, also few in number, did not bear butchery marks. Moreover, gnawing marks were recorded on cattle, sheep/goat, equid and pig, but not dog, remains. Burning marks were recorded only on two large mammal ribs and a vertebra as well as a calcined galliform scapula.

Discussion

D.1.17 The analysis of the assemblage produced some insights into human-animal interactions in the Early-Middle Roman period, although its small sample size rendered it unsuitable for analyses beyond taxonomic composition.

D.1.18 Taxonomic composition (Table 25) suggests that the animal economy was heavily domestic with little interaction with wild animals. Animal husbandry at the site was mainly based on cattle and sheep/goat (predominantly sheep). When body weight is taken into account, it is clear that cattle provided most of the animal-derived food to the site's inhabitants. The presence of some neonatal and immature cattle and sheep/goat remains raises the possibility of milk exploitation for both taxa. Another product that all domestic animals produced was manure and, although without direct evidence, it is reasonable to assume that it was used to enhance the fertility of fields. Little more can be mentioned on the management strategies employed for cattle and sheep/goat.

D.1.19 Beyond the main roles of cattle and sheep husbandry, equids (predominantly or exclusively horses) were also quite common and played important roles. The presence of butchery marks on equid remains suggests that equid meat, was consumed, at least occasionally. The main roles that equids were kept for, however, were more likely related with transportation, long distance travel and, possibly, agricultural work and social status. The consumption of horse meat was common in the Iron Age but appears to have continued into the Roman period. The exact meaning of hippophagy and the social connotations of horse ownership in the Iron Age and Roman period cannot be addressed with the data at hand but it is raised as an interesting issue to be resolved.

D.1.20 The extremely low pig percentages in the assemblage (Table 25) indicate that pig husbandry was an activity of low overall economic importance at the site, which is a characteristic commonly found in Iron Age assemblages from Cambridgeshire. In general, pig percentages are higher in the Roman period but this slight discrepancy can be attributed to the small sample size and/or local economic and environmental adaptations. Whatever their exact frequency, however, domestic pigs constituted an additional source of meat for the site's inhabitants, which enhanced diversity and safety in food production. The management regime for the site's pigs remains unknown in the absence of reliable age-at-death and sex data.

D.1.21 Besides the importance of animal husbandry and each species in particular, the study of this assemblage also produced insights into other aspects of the human-animal relationship at the site. The deposition of a dog skull and mandibles in context 401, is reminiscent of relevant Iron Age practices (*cf*. Morris 2008). Dog skulls specifically, have been interpreted as 'special' deposits (*e.g.* Cunliffe & Poole 2000) and the dog skull and mandibles recovered at this site may be viewed as part of that general Iron Age practice that possibly continued into the Roman period. In general, the results generated by the study of this assemblage and other assemblages of Late Iron Age and Early/Middle Roman period in the same area are pointing more towards continuity than radical disruption and change, at least in terms of human-animal interactions.

D.2 Mollusca

By Alexandra Scard

Introduction and Methodology

D.2.1 A total of 0.227kg of marine shell was recovered from nine different contexts during excavations on the site. The shell was quantified and examined in order to assess the diversity and quantity of the ecofacts, as well as their potential to provide useful data as part of archaeological investigation.

Species	Common name	Habitat	Total weight (Kg)	Total number of contexts
Ostrea edulis	Oyster	Estuarine and shallow coastal water.	0.227	9
Cerastoderma edule	Cockle	Intertidal, salt water.	-	1

Table 26: Quantified Shell

D.2.2 This assemblage is the result of shell collected by hand on site, as well as recovered during the processing of environmental samples.

D.2.3 Only shell apices were counted in order to obtain the minimum number of individuals (MNI) present for each species, noting that, with regards to most species, each individual originally had two apices. With this in mind, the MNI was arrived at by different means, depending on the species.

D.2.4 Oysters (*Ostrea edulis)* have a defined left and right valve. The left is more concave in shape and displays radiating ribs on the outer surface. The right is generally more flat and lacks the formerly described ribs, though concentric growth rings are often visible (Winder 2011, 11). To obtain the MNI for oyster shell, the number of left and right valves were counted. The largest number was then taken as the MNI.

D.2.5 All bivalve shells were unhinged. Apices were noted on shells in seven of the contexts, along with the number of left and right oyster valves. The left and right valves were not observed to be matching in any of the contexts.

D.2.6 In the case of cockles (*Cerastoderma edule)*, it is much more difficult to identify the left and right valves and so the MNI would be calculated by taking the full amount of valves and then halving it. In this instance, only one very small cockle shell was recovered.

D.2.7 In order to obtain the average size of shell per species, the length of each shell from its apex to the outer edge has been measured, the average measurement per context and species has then been recorded.

D.2.8 Size is significant with regards to shell, as it can be telling of the age of each species upon harvest. Using oysters as an example, if the oyster shell is found to be of uniform size it would suggest that they were harvested at the same time. The larger the oysters, the longer they have been left before harvesting. Smaller oysters might suggest a greater need for food and perhaps a period of bad harvest.

D.2.9 Details of interest, for example man-made damage or evidence of parasitic activity, such as polychaete worm infestation (PWI), have also been noted.

Results

D.2.10 With all but one shell recovered being oyster shell, it is this species which predominates the assemblage. Table 26 provides a breakdown of the quantification of the shell recovered.

Context	*Cut*	*Feature Type*	*Weigh t (Kg)*	*Apices/MNI*	*Species*	*Oyste r left valve*	*Oyster left valve (kg)*	*Oyster right valve*	*Oyster right valve (kg)*	*Average size (cm)*	*Comments*
69	67	Pit	0.010	1	Oyster	0	0	1	0.010	5	PWI present.
159	158	Ditch	0.023	2	Oyster	2	0.023	0	0	5.2	
163	137	Pit	-	2	Cockle & oyster	?	?	?	?	0.4	One apex of a tiny cockle and one tiny piece of oyster apex.
310	238	Ditch	0.013	1	Oyster	0	?	0	?	-	No apices present, though fragments of shell were observed more from the left valve than the right.
341	321	Watering hole	0.021	1	Oyster	0	0	1	0.021	7.1	A little PWI evident.
354	346	Pit	0.017	1	Oyster	0	0	1	0.017	6	PWI present.
370	362	Pit	0.017	1	Oyster	1	0.017	0	0	5.5	Small amount of evidence for PWI.
399	118	Watering hole	0.048	1	Oyster	1	0.026	1	0.022	7.3	Potential shucking evidence on left valve.
401	118	Watering hole	0.078	2	Oyster	1	0.039	2	0.039	7.8	Shucking and PWI evident on left valve. Right valve contains a mark measuring c.3.3cm long from the outer edge inwards, c.0.4cm wide. Has left mark through to outer side of valve, quite possibly a result of shucking.

Table 27: Shell quantification and comments

D.2.11 Regarding the shell size within the assemblage, the majority of the oyster shell was at least 5cm in length, with the largest valve measuring 9.4cm, from context 401 (see Table 27). On average, the oyster valves reached around 7/7.5cm in size (Winder 2011). This reflects older oysters, suggesting that they had been left to fully grow and develop, before harvesting. This makes consumption all the more probable.

D.2.12 In comparison, the only cockle retrieved was just 0.4cm in size. This, combined with its solitary presence within the assemblage, is evidence that this species was not

harvested or consumed, but simply an unintentional inclusion within the back-fill of pit **137**.

D.2.13 On the whole, the assemblage is moderately preserved, with no clear taphonomic damage. As shown in the table above, some of the oyster valves did present evidence of PWI, as well as a few of the shells showing signs of shucking: the process of prising open an oyster, to obtain the meat for consumption. There was no other evidence of man-made marks, nor any signs of modification for ornamentation.

Discussion

D.2.14 Oyster shell completely predominates the assemblage, with few other species of marine mollusc being recovered. That being said, the oyster shell assemblage was not recovered in abundance, thus cannot be interpreted as evidence for feasting. Instead, given the size of those shells found and the evidence of shucking (discussed below), one can hypothesise that the oyster was consumed, but that they were sporadically consumed and discarded, both over time and across the site.

D.2.15 Some of the oyster shell recovered showed evidence of PWI, a common occurrence on marine molluscs such as oysters. Further more, there were, on some occasions, rather clear signs of shucking.

D.2.16 One of the right valves recovered from 401, a fill within Roman watering hole **118** had a rather noticeable 'cut' measuring c.3.3cm long, from the outer edge inwards and c.0.4cm wide. It was clearly made from the outside of the right valve, as it has left a protruding 'ridge' on the inner side. This is evidence, again, of shucking and is fairly fitting with the mark a knife would make on such an ecofact. This could provide further indication that, whilst not evidence of feasting, the oyster shells were harvested for consumption.

D.3 Charred Plant Remains

By Rachel Fosberry

Introduction and Methodology

D.3.1 Ninety-five bulk samples were taken during excavations at the Norman Way Industrial Estate, Over, Cambridgeshire. Sub-samples processed during the excavation revealed rich assemblages of charred cereal grain, chaff and associated weed seeds and there was substantial evidence of germination of grain suggesting malting was taking place. Consequently grid samples were taken from areas of dark soil with known spelt chaff inclusions to investigate spatial distribution. Assessment of the samples indicated that the black deposits consisted of charred spelt remains, predominantly chaff in the form of glumes bases and spikelet forks along with a smaller component of charred grains, many of which showed evidence of germination. The density of this material clearly indicates the burning of large quantities of crop processing waste, presumably on an industrial scale. The evidence of germination of a large proportion of the grain is either indicative of the deliberate malting of spelt wheat for brewing or of a catastrophic spoiling of a crop caused by climatic conditions.

D.3.2 The aims of the analysis were as follows:

- To characterise individual assemblages through quantification of individual elements and calculation of grain:chaff:weed seed ratios.
- To calculate the percentage of germinated grain and coleoptiles to confirm spelt malting to also include the measurement of coleoptiles and comparison to modern reference material subjected to controlled germination experiments to determine if there is uniformity within and between assemblages.
- A detailed comparison with other sites in which there is evidence of large-scale production of crop-processing waste and/or evidence of malting:

D.3.3 The samples were processed by tank flotation using modified Siraff-type equipment. The floating component (flot) of the samples was collected in a 0.25mm nylon mesh and the residue was washed through 10mm, 5mm, 2mm and a 0.5mm sieve. The dried residues were subjected to a secondary flotation as significant amounts of charred material did not float during the initial process. Addition of the dried residue to clean water resulted in the charred material immediately floating to the top of the container and this method was effective for maximum recovery. It is interesting to note that the second flots were frequently much larger in volume than the primary flots. The dried flots were subsequently sorted using a binocular microscope at magnifications up to x 60.

D.3.4 Identification of plant remains is with reference to the *Digital Seed Atlas of the Netherlands* and the authors' own reference collection. Nomenclature is according to Stace (1997). Carbonized seeds and grains, by the process of burning and burial, become blackened and often distort and fragment leading to difficulty in identification. Plant remains have been identified to species where possible. The identification of cereals has been based on the characteristic morphology of the grains and chaff as described by Jacomet (2006).

D.3.5 Germinated grain has been identified as such by the presence of attached coleoptiles (sprouts) or, where the coleoptile has broken off, and a deep longitudinal groove (scar) on the dorsal side of the grain that is caused as the coleoptile grows. Many of the grains also have shrunken sides.

Quantification

D.3.6 The results of a scan of each of the ninety-five samples have been included in this report (Tables 28 and 29). Selected samples have been quantified with Individual cereal grains, chaff elements and seeds counted and recorded on Table 30. Quantification of assemblages in which there is a large chaff component is problematic as counting of individual items in small sub-samples with subsequent multiplication leads to inaccurate representation of some items and omission of others. An attempt to produce a more meaningful interpretation has been achieved by counting the number of chaff elements in a 1ml sub-sample, multiplying by the flot volume and dividing by the number of litres of original sample to calculate an estimate of the number of chaff elements per litre of soil. This methods allows for a comparison of samples from individual deposits but does not account for spatial variation within a deposit or the original volume of the deposit (which on this site is several hundred litres of soil). Some of the larger samples have had a proportion of the flot sorted. An estimation of the ration of cereals to chaff to weed seeds has also been estimated.

D.3.7 Quantification of cereal grains can also be problematic due to the tendency of the material to break into small pieces. The methods used are as recommended by (Jones 1990 after Hillman 1984) and fragmented cereal grains have been counted if over half of the grain has survived or if the embryo ends of smaller fragments are present.

D.3.8 Items that cannot be easily quantified such as charcoal has been scored for abundance according to the following criteria:

+ = rare, ++ = moderate, +++ = frequent, ++++ = abundant

Results

Period 2.1: Early Roman

D.3.9 The earliest period of activity is dated to the early Roman period during which an industrial area is enclosed.

Boundary Ditches

D.3.10 The ditches that form the northern (**36**) and western (**158**) boundary to the main area of activity appear to be relatively sterile apart from a deliberate deposit of charred material in the upper fill of ditch **158**. Two slots from this ditch were excavated approximately 2m apart: Fill 200 of ditch slot **198** (Sample 40) is equivalent to fill 390 of ditch slot **233** (Sample 91). Both samples contain charred hulled wheat grain (*Triticum spelta/dicoccum*) with virtually no chaff present. The assemblages are so similar that they are likely to represent a single large deposit with an average grain concentration of 23 grains per litre of soil and approximately 73% of the grains were germinated.

Pit Group 2

D.3.11 A large group of inter-cutting pits (**267**) was located on the northern limit of the possible enclosure, truncating boundary ditch **36**. Pit **109** (Sample 23) contains a charred assemblage that is comprised of abundant chaff (approximately 3375 glume bases per litre of soil) with several detached sprouts, occasional charred germinated spelt grains and weed seeds. The assemblage is poorly preserved with most of the glume bases being indeterminate to species level although there are occasional items that are clearly identifiable as emmer wheat glume bases through the prominence of both the main keel and secondary nerve. The charred grains present are fragmented and abraded but this may be due to fagility caused by germination. Of the 77 grains within the flot, 26 could be identified as germinated grains, whilst the remainder were too poorly preserved for identification but are likely to have germinated. This assemblage also contains a

significant weed seed component in which rye-grass (*Lollium* sp.) and bromes (*Bromus cf. secalinus*) predominate along with occasional specimens of dock (*Rumex* sp.) and goosefoots (*Chenopodium* sp.).

Industrial Zone 2

D.3.12 A group of numerous pits and postholes in the south-west of the site are thought to be of industrial use in an area that was possibly sheltered by a windbreak. Pit or steeping tank **268** (fill 294, Sample 45) contains a charred assemblage which is almost identical to the contemporary deposits in Pit Group 2 in which spelt chaff is abundant with occasional germinated cereal grains and a moderate component of bromes and dock seeds. Preservation of plant remains in this sample is also poor with a high level of degradation. Pit **143** contains large amounts of spelt chaff whereas pits **92, 96** and **124** are more grain dominant (although quantities are low) and pit **418** (fill 419, Sample 97) contains occasional grains and chaff.

Sample no.	*Ctxt no.*	*Cut no.*	*Feature type*	*Feature Group*	*Volume processed (l)*	*Flot vol. (ml)*	*Cereal*	*Germinated grain*	*Detached sprouts*	*Chaff*	*Weed seeds*	*Silicates*
5	34	36	Ditch	Boundary ditch	6	10	#	0	0	#	#	0
6	35	36	Ditch	Boundary ditch	1	2	0	0	0	#	#	0
40	200	198	Ditch	Boundary ditch	7	15	##	##	0	0	0	0
92	390	233	Ditch	Boundary ditch	10	40	##	#	#	##	#	##
91	390	233	Ditch	Boundary ditch	8	30	###	##	0	#	0	0
44	240	238	Ditch	Ditch group 1	10	1	#	0	0	0	0	0
21	93	92	Pit	Industrial zone 1	8	1	#	0	0	0	0	0
22	97	96	Pit	Industrial zone 1	10	15	##	0	0	#	##	0
26	119	121	Pit	Industrial zone 1	8	10	##	0	0	##	#	0
27	122	124	Pit	Industrial zone 1	10	20	##	0	0	0	0	0
24	125	126	Post hole	Industrial zone 1	10	10	0	0	0	0	0	0
25	129	130	Post hole	Industrial zone 1	4	10	0	0	0	0	0	0
30	142	143	Pit	Industrial zone 1	10	20	##	0	0	###	#	0
29	141	197	Pit	Industrial zone 1	8	10	#	0	0	#	0	0
45	294	268	Pit	Industrial zone 1	8	20	#	0	0	###	##	0
97	419	418	Post hole	Industrial zone 1	8	10	#	#	0	#	#	0
38	156	153	Pit	Industrial zone 2	8	1	0	0	#	##	##	0
36	159	158	Ditch	Industrial zone 2	6	2	#	0	#	#	0	0
37	162	160	Pit	Industrial zone 2	6	1	#	#	0	0	0	0
23	107	109	Pit	Pit group 2	10	30	##	0	#	###	###	0
7	59	292		Pit group 2	0.5	2	#	0	#	###	#	0
16	59	292	Layer	Pit group 2	8	30	##	0	#	###	##	0

Table 28: Bulk samples from Early Roman deposits

D.3.13 Sub-Period 2.2: Later Roman

D.3.14 The later Roman deposits were extensively sampled due to the obvious black charcoal-rich material that contrasted with the pale natural clay. Sixty-nine samples were taken which included several grab samples that were processed to assess the distribution of material within the dark layers.

Industrial Zone 3

D.3.15 Industrial Zone 3 was located centrally within the excavation area, focused around a corn drier (**26**, **29**, **31**) and pits **38**, **54** and **20** which may have been associated with the feature. The main fill (27) of the corn drier produced a large flot volume (115ml from 7L sample) that is primarily composed of fine abraded chaff fragments that are the lighter chaff elements that surround the grain (palea and lemma), along with brome seeds and occasional grain. Preservation of the cereal grains are poor; of the 30 cereal grains recovered, 13 are germinated, four are not and 13 are indeterminate. The chances of survival of lighter chaff elements is much less that of cereal grains and it is probable that the two components have different origins. Pit **38** (fill 37) produced an assemblage that is comprised almost entirely of charred grain (115 grains per litre soil) with only occasional chaff contaminants. The grains are extremely abraded and most have lost their embryo end and, as such, the grains do not display evidence of germination that is characteristic in most of the other assemblages from this site. Pit **54** (fill 52) contains spelt grains and chaff and pit **20** (fill 22) contains spelt and oat (*Avena* sp.) grains.

D.3.16 Pits **13**, **17** and **19** and **429** were also intercutting and formed a cluster to the west of the industrial zone. The fills of pits **429** and **17** each produced similar assemblages of abundant spelt glume bases with only a minor component of charred grain whereas pit **13** is more grain-dominant. Detached embryos noted in all of the samples are indicative of germination. Pit **19** truncated pit **13** and the relative scarcity of plant remains in this feature may indicate that it was a post hole rather than a pit. The fills of pits **13** and **17** are recorded as being orange in colour which may indicate a fired-clay content (that has subsequently dissolved) and these features may also have been ovens/corn driers.

D.3.17 The charred plant remains recovered from the features within Industrial Zone 3 could represent the burnt remains raked from corn driers and it is interesting to note that the level of germination is low within all of these deposits suggesting that the features have not been predominantly used for malting activities. Hammerscale and slag was also retrieved from these features and it is possible that their function is related to metalworking and that the charred plant remains are evidence of the use of crop processing waste as fuel for this activity.

Watering Holes

D.3.18 A large waterhole **118** (**394**) was located in the west of the site truncating ditch **158** close to the significant Period 2.1 deposit of charred germinated grain in ditch slots **198** and **233**. Samples were taken from two of the eight fills; both basal fill 399 (Sample 93) and secondary fill 396 (Sample 94) contain occasional charred grains, chaff and weed seeds that are mixed with seeds preserved by waterlogging. The waterlogged material includes seeds of plants that would be expected to be growing on scrub-land or in hedgerows such as burdock (*Arctium lappa*), elderberry (*Sambucus nigra*), bramble (*Rubus* sp.) and nettles (*Urtica dioica* and *U. urens*) in addition to seeds of hemlock (*Conium maculatum*) which grows on damp soils and sedges (*Carex sp.*) which was most likely growing in the wet margins of the watering hole. The charred component of the assemblage is mainly germinated spelt grain and there may have been some mixing of material with the ditch fills.

Pit Group 3

D.3.19 A large group of inter-cutting pits and waterholes (Pit Group **3**) were cut into the corner of the earlier enclosure ditches **158** and **36**. Three bulk samples and eleven 1L grab samples was taken from Waterhole **321** (the two lowest fills were not sampled due to the level of the water table). Two samples were taken from tertiary fill 341; Sample 74 taken from the south-east end of the section contains only occasional chaff whereas Sample 50, the only sample to be taken from the opposite end of the feature, contains abundant spelt chaff, occasional spelt grains and a moderate assemblage of germinated oat grains. This suggests that the distribution of charred remains within this thick, extensive deposit is not uniform. Subsequent fills 342 (Sample 73), 343 (Sample 72), 344 (Sample 71) and 349 (Samples 48, 68, 69 and 70) contain broadly similar assemblages of abundant spelt chaff with occasional grains, some of which are germinated, and occasional weed seeds, predominantly bromes. The samples from fill 349 produced the most diverse assemblage that included the most germinated grains and detached sprouts. Each of these five fills are rich in silicates and also contain seeds of duckweed (*Lemna* spp.). Samples from the uppermost fills 352 (Sample 67), 353 (Sample 48 and 86) and 354 (Samples 64 and 65) vary in content with 353 containing more chaff than the fills between which it is sandwiched indicating different depositional events.

D.3.20 Also included within this cluster of features that make up Pit Group 3 are pits **137, 138, 174, 325, 346** and **362.** Lower fills 163 (Sample 34) and 189 (Sample 35) of pit **137** contains plant remains preserved by both carbonisation and waterlogging. The charred component is mainly spelt and emmer chaff and occurs in greater quantity in fill 163 which also includes culm nodes (cereal stems) and germinated grains. Lower fill 189 contains plant remains preserved by both carbonisation and waterlogging. The charred component is mainly spelt chaff with occasional detached sprouts noted. Waterlogged roots and stems are frequent and preserved seeds include sainfoin (*Onobrychis viciifolia*), buttercup (Ranunculus acris/repens, bulbosus), stinging nettle (*Urtica diocia*), docks and sedges (*Carex* spp.). Obligate aquatics such as pond weed (*Potamogeton* spp.) and water crowfoot (*Ranunculus* subgenus *batracium*) represent plants that would have been growing in the water within the feature. It is evident that only robust seeds have survived and the fragile taxa have been lost through degradation.

D.3.21 Fifteen samples were taken from pit **174** which truncated pit **137** and was about the same depth (1m) although there was no evidence of waterlogging within the lower fills. Duckweed is present as the only indicator that these pits originally held water. The lowest fill 175 was comprised of numerous lenses of which were extensively sampled in 1L volumes and mostly produced small flots of around 1ml. In many of the samples the entire volume of the flot is comprised of spelt chaff with occasional grains, detached coleoptiles and weed seeds including corncockle (*Agrostemma githago*), bromes (several of which have germinated) and members of the dock family (*Rumex/Polygonum* sp.). A single oat floret in sample 77 with a preserved articulation scar can be identified as the wild oat variety *Avena fatua*. Samples 76 and 77 produced larger flots of about 20ml and these samples also contain well-preserved spikelets of spelt in which the grains can be seen to have germinated whilst still in the glumes. Samples 76 and 83 have a significant proportion of detached coleoptiles considering the small volumes processed.

D.3.22 Of the three samples taken from pit **362**, the lowest fill 363 (Sample 63) contains occasional spelt chaff and an abundance of duckweed seeds preserved by waterlogging but no other organic material. Fills 365 (Sample 61) and 366 (sample 62)

contain similar assemblages of abundant spelt chaff with brome seeds, numerous detached coleoptiles and occasional germinated grains. The preservation of charred remains is best in Sample 62.

D.3.23 Fill 329 of pit **325** produced a very different assemblage that is predominantly charred spelt grain that is severely abraded. There is no evidence of germination but this may be due to the level of degradation of the grain. Duckweed seeds are present as an indication that this feature held water.

Pit Group 4

D.3.24 Pit group 4 was located centrally within the excavation area and consisted of tank **67** (**9**) and several associated pits (**45**, **49**, **57**, **64**, **73**, **75**, **79** and **81).**

D.3.25 Five samples were taken from tank **67** that was thought to have an industrial function due to the morphological characteristics of the deposits. The lower fills consisted of puddling clays that contain duckweed seeds and occasional charred grains. Samples 18 (fill 69) and 19 (fill 70) were taken from an area that looked darker and were comprised of wood charcoal whereas Sample 32, taken from a different area of fill 69, contained far less charcoal. Fill 65 was sampled in three places; Samples 11 taken from the north-west end of the pit produced a chaff rich assemblage with evidence of germination whereas Samples 17 and 20 from the south-eastern end is more grain-dominated. The densities of the charred plant assemblages within this pit cluster are far more varied in than in contemporary features and the lower fills were notably lacking in charred material.

D.3.26 The original interpretation of the main rectangular feature (**67**) as a corn-drier seems unlikely as the primary fills of such features usually contain the remains of the final firing prior to disuse. The nature of the puddling clays and the presence of duckweed suggests that this feature contained water which may be integral to the function, possibly as a steeping vat. Iron nails recovered may be a tentative indication that the feature was covered. The cluster of features were all sealed with a natural clay layer measuring 0.42m thick from which fired clay was recovered, many fragments of which had grain impressions. Further investigation of the impressions, through the use of silicone casts, has the potential to identify the species and possibly add to the interpretation of this enigmatic feature.

Sample No.	*Context No.*	*Cut No.*	*Feature group*	*Volume processed (L)*	*Flot Volume (ml)*	*Cereals*	*Germinated grain*	*detached sprouts*	*Chaff*	*Weed Seeds*	*Duckweed*	*silicates*
10	11	13	Industrial zone 3	0.5	5	##	0	0	####	#	0	0
42	18	19	Industrial zone 3	8	10	##	#	0	#	0	0	0
3	22	20	Industrial zone 3	8	10	##	0	0	##	#	0	+++
4	27	22	Industrial zone 3	6	25	#	#	0	0	#	0	0
12	37	38	Industrial zone 3	10	50	####	0	0	#	0	0	0
13	52	54	Industrial zone 3	7	15	##	0	0	###	#	0	0
43	52	54	Industrial zone 3	1	1	0	0	0	0	0	0	0
2	14	429	Industrial zone 3	8	50	##	#	#	####	#	0	++++
34	163	137	Pit group 3	8	50	##	##	##	####	#	#	0
35	189	137	Pit group 3	6	120	0	0	#	##	#	#	0
39	152	148	Pit group 3	10	50	#	#	#	####	##	0	0
79	175	174	Pit group 3	0.4	1	0	0	0	#	#	0	0
80	175	174	Pit group 3	1	1	0	0	0	#	#	#	0
81	175	174	Pit group 3	1	1	0	0	0	#	#	0	0

Sample No.	Context No.	Cut No.	Feature group	Volume processed (L)	Flot Volume (ml)	Cereals	Germinated grain	detached sprouts	Chaff	Weed Seeds	Duckweed	silicates
82	175	174	Pit group 3	0.7	1	#	0	#	##	#	0	0
83	175	174	Pit group 3	0.6	1	#	#	##	###	#	#	0
84	175	174	Pit group 3	1.3	2	#	#	#	####	#	0	0
85	175	174	Pit group 3	1	1	0	0	0	#	0	0	+++
86	175	174	Pit group 3	10	1	0	0	#	###	#	##	+++
87	175	174	Pit group 3	1	1	0	0	0	###	0	0	0
88	175	174	Pit group 3	0.6	1	0	0	0	0	0	0	0
78	176	174	Pit group 3	1	1	#	0	#	##	#	0	0
77	177	174	Pit group 3	1	30	0	#	#	####	##	0	+++
76	178	174	Pit group 3	1	25	0	##	##	####	##	0	++
75	179	174	Pit group 3	1.3	30	0	#	#	#	##	0	+++
33	180	174	Pit group 3	8	30	##	0	0	##	#	0	0
50	341	321	Pit group 3	7	50	#	#	0	####	#	####	0
74	341	321	Pit group 3	1	2	0	#	0	#	0	##	0
73	342	321	Pit group 3	1.2	30	0	#	#	####	#	##	++
72	343	321	Pit group 3	1	40	0	#	#	####	##	#	+++
71	344	321	Pit group 3	1	40	0	##	#	####	##	##	++++
49	349	321	Pit group 3	10	80	##	#	##	####	##	#	0
68	349	321	Pit group 3	1	40	0	#	##	####	##	0	0
69	349	321	Pit group 3	1	60	0	##	#	####	##	0	0
70	349	321	Pit group 3	1	30	0	##	##	####	#	0	++++
67	352	321	Pit group 3	1.4	1	0	0	0	#	#	0	0
48	353	321	Pit group 3	7	25	##	#	#	###	##	0	0
66	353	321	Pit group 3	1	1	0	0	0	##	0	0	0
64	354	321	Pit group 3	1.5	1	0	0	0	##	0	0	0
65	354	321	Pit group 3	1.4	1	#	0	0	#	0	0	0
46	329	325	Pit group 3	8	25	###	#	0	0	0	##	0
63	363	362	Pit group 3	6	5	0	0	0	#	0	###	0
61	365	362	Pit group 3	10	60	##	#	##	####	0	0	0
62	366	362	Pit group 3	9	140	##	#	##	####	0	0	0
89	372	371	Pit group 3			0	0	0	0	0	0	0
90	373	371	Pit group 3	9	40	###	#	0	##	#	#	0
51	357	404	Pit group 3	1	10	#	#	#	###	###	0	0
52	357	404	Pit group 3	0.7	1	0	0	0	##	#	0	0
53	357	404	Pit group 3	0.9	1	0	0	0	##	#	0	0
54	357	404	Pit group 3	1	2	0	0	#	##	#	0	0
55	357	404	Pit group 3	10	2	0	0	#	###	#	0	0
56	357	404	Pit group 3	1	1	0	0	0	#	0	0	0
57	357	404	Pit group 3	0.8	1	0	0	0	##	0	0	0
58	357	404	Pit group 3	1	1	0	0	0	##	0	0	0
59	357	404	Pit group 3	1	1	0	0	#	##	0	0	0
60	357	404	Pit group 3	0.8	1	0	0	0	#	0	0	0
1	8	6	Pit group 4	7	15	#	0	##	###	#	0	0
14	41	45	Pit group 4	6	20	#	0	0	##	#	0	0
17	65	64	Pit group 4	10	5	###	#	#	0	0	0	0
20	65	64	Pit group 4	10	20	#	#	0	###	0	0	0
28	72	64	Pit group 4	10	1	0	0	0	#	0	0	0
11	65	67	Pit group 4	0.5	25	##	#	#	####	#	0	0
18	69	67	Pit group 4	8	40	0	0	0	0	0	0	0
32	69	67	Pit group 4	8	5	##	#	0	0	##	0	0

Sample No.	Context No.	Cut No.	Feature group	Volume processed (L)	Flot Volume (ml)	Cereals	Germinated grain	detached sprouts	Chaff	Weed Seeds	Duckweed	silicates
19	70	67	Pit group 4	2	25	0	0	0	0	0	0	0
31	90	67	Pit group 4	10	10	##	0	0	##	#	0	0
9	114	118	Watering hole	0.5	1	0	0	0	#	0	0	0
96	395	394	Watering hole	2		0	0	0	0	0	0	0
94	396	394	Watering hole	7	70	##	##	#	##	#	0	0
95	396	394	Watering hole			0	0	0	0	0	0	0
93	399	394	Watering hole	8	60	#	0	0	#	0	#	0

Table 29: Bulk samples from Period 2.2 deposits

Discussion

D.3.27 The preserved plant remains recovered from excavations at Over Industrial Estate provide tantalising clues to the interpretation of the site. It was obvious during excavation that there was a significant quantity of charred plant remains spread over large areas and present as thick layers and deposits within many of the features. Extensive sampling has shown that crop processing waste is present in such large quantities that the scale of production of such material, and the subsequent burning and disposal of it, has to relate to an industrial process of some importance. Local sites at Langdale Hale and 'The Camp Ground' (Evans 2013) indicated major Roman activity from the 1st century through to the 4th century AD with large-scale cereal production that is similar to the cereal processing remains recovered from this site.

The Over Assemblage

D.3.28 The Over assemblages are comprised of hulled wheat chaff with a significant component of either germinated grain or detached sprouts (that signify grain germination (Fig. 13)). Spelt wheat predominates and has been identified by the characteristic morphology of the grains and, more accurately, through the chaff elements. Emmer wheat chaff has also been identified as a minor component of most of the assemblages. It is probably present as a relict of earlier cultivation and would have been an accepted contaminant. Barley has been noted in a few of the assemblages but it is scarce and usually present as single charred grain or small rachis fragments. It is clearly not a crop that was being utilised on this site. Similarly oats occur rarely and may be included as a weed rather than a cultivated crop. Charred weed seeds are notably low in density and diversity in the Over assemblages. The general paucity of these seed contaminants is interesting and may be an indication of the methods of harvesting the cereal crop. The cereals may have been broken just below the ear, which would explain the lack of culm nodes (that indicate the cereal straw) and the relatively common find of the lower rachis fragments. Reaping high also means that low-growing crops such as clover would not be harvested but weeds such as bromes, docks and corn cockle are all tall enough that they may have been collected as seed heads with the wheat ears. The low density of weed seeds is also an indicator that the wheat was stored as spikelets. Bromes are a common component of the charred assemblages at Over and this plant species is recognised as a frequent contaminant of spelt wheat (Godwin 1975, 403) that was probably introduced with imported grain in the Later Iron Age. The seeds are a similar size to the wheat grains which would prevent them being removed by sieving. They probably would have been a tolerated crop contaminant as their presence would not have greatly affected the quality of flour (if the wheat was destined for milling) or the malt. There is evidence at Over of brome seeds germinating along with the spelt grains.

D.3.29 Spelt wheat remains predominate throughout both periods and over the entire site. Evidence of germination is found in both periods of activity and in most deposits. The initial assessment of the flots revealed that germinated grain or detached sprouts were found spread over the entire site and it is only through detailed analysis and further examination of the material that there are subtle variations in the distribution of this material that may relate to areas of activity. The stratigraphic layers of burnt material interspersed with sterile clay deposits indicates that there are several deposition events and the enormity of the 'black spread' signifies the deposition of huge amounts of burnt material that can only be described as 'industrial scale'.

D.3.30 Spelt is the main type of wheat grown in the later Iron Age and Roman period and is found on most sites of this date in East Anglia (Moulins & Murphy 1997, Greig 1981). The agricultural regime of the Late Iron Age in this region continued into the Early Roman period with spelt wheat being the favoured wheat variety despite the gradual introduction of bread wheat. As signified by its name, bread wheat produces a flour that has a higher gluten content that produces better bread than spelt wheat. This raises the question of why spelt was still mass produced with the possibility that it was favoured because of it's use for brewing beer? Spelt is a hulled wheat in which the grain is tightly enclosed in spikelets that each contain (normally) two grains and snap off easily from the rest of the ear. When the grains are held within the spikelets they are more resistant to insect attack and to accidental germination through exposure to moisture. Hulled wheats, both spelt and emmer, require a number of processing stages in order to release the grain (caryopsis) from the tough outer chaff of the spikelet. This is best described by Hillman (1981) and Wilkinson and Stevens (2003, 195) and involves stages including harvesting, fine sieving, parching and pounding, threshing, winnowing and finally course-sieving to produce clean grain suitable for grinding/milling into flour. Each of these stages produces characteristic plant product and waste assemblages with different ratios of grain:chaff:weed seeds.

Sample No.		**40**	**91**	**45**	**23**	**4**	**94**	**34**	**62**	**76**	**69**	**11**	**35**	**47**
Context No.		**200**	**390**	**294**	**107**	**27**	**396**	**163**	**366**	**178**	**349**	**65**	**189**	**337**
Cut No.		**198**	**233**	**268**	**109**	**22**	**394**	**137**	**362**	**174**	**321**	**67**	**137**	**338**
Phase		**2.1**	**2.1**	**2.1**	**2.1**	**2.2**	**2.2**	**2.2**	**2.2**	**2.2**	**2.2**	**2.2**	**2.2**	**0**
Feature Type		Pit	Ditch	Pit	Pit	Pit	Watering hole	Pit	Pit	Pit	Pit	Pit	Pit	Pit
Feature group		Boundary ditch	Boundary ditch	Industrial zone 1	Pit group 2	Industrial zone 3	Watering hole	Pit group 3	Pit group 3	Pit group 3	Pit group 3	Pit group 4	Pit group 3	Isolated pit
Volume processed (L)		7	8	8	10	7	7	6	7	1	1		6	7
Flot volume (millilitres)		15	40	18	75	115	50	350	300	30	35	15	120	48
% flot sorted		100	100	100	100	100	100	25	10	100	100	100	100	100
Grain:chaff:weed		103:1:2.5	251:2:1	1:450:13	1:27450:1	1:3:2.5	1:3:1	2:1521:1	1:1610:5	1:8:3	1:13:1	3:38:1		1:249:8
grains per litre		29	31	1	7	4	6	5	3	53	95	112	0	
Estimated chaff per litre		0.2	0.25	394	3375	14	18	12425	4371	450	1260	660	18	747
CHARRED CEREAL GRAIN														
Triticum cf. *spelta* L. caryopsis	Spelt wheat grain	72	19	6		4	3	68	1	4	9	11		11
Triticum cf. *spelta* L. germinated caryopsis	Sprouted spelt wheat grain	60	127		26	13	35	17	11	35	45	32		3
Triticum cf. *spelta* L.fragmented caryopsis	Fragmented spelt wheat grain	74	105	1	51	13	4	12	7	14	41	13		70
CHARRED CEREAL CHAFF														
Hordeum vulgare L. rachis internode	domesticated Barley chaff													
Triticum spelta L. spikelet	Spelt Wheat grain in chaff						1	1		5	1			
Triticum spelta L. spikelet fork	Spelt Wheat chaff	1		16	42	24	5	48	1000s	12	51			1000s
Trititcum spelta L. glume base	Spelt Wheat chaff	1	2	10000s	1000s	41		10000s	10000s		1000s	100s		10000s
Trititcum dicoccum L. glume base	Emmer wheat chaff			100s	225			100s	100s	62				100s
Trititcum dicoccum L. spikelet fork	Emmer wheat chaff				1									
Trititcum dicoccum/spelta L. glume base	Emmer/spelt glume base			10000s	1000s	13		10000s	10000s	100s	100s		100s	10000s
Triticum spelta lower rachis internode	free-threshing Wheat chaff					13	3	20			7		4	
Detached sprouts <2mm								42		5	4			17
Detached sprouts 2-4mm					28	1	1	37	27	3	47	6	8	63
Detached sprouts >4mm				3		6	9	68	19	30	56		20	44
cf. cereal indet. culm node	Cereal stem-joint [indicates straw]							6						
CHARRED WILD SEEDS AND FRUITS														
Aethusa cynapium L. kernel	Fool's Parsley						1w							
Agrostemma githago L. seed	Corncockle									1				
Anthemis cotula L. achene	Stinking Chamomile									2				
Brassica cf. nigra seed	mustard										1	1		
Bromus spp. caryopsis	Bromes	5	1	72	36	76	6	25	85	107	49	9	9	43
Bromus spp. Germinated caryopsis	sprouted brome				4		18		1		19	4		
Bromus sp. pedicel	Brome chaff						2							
Carduus/Cirsium sp. achene	Thistles						1w							
Chenopodium sp. seed	Goosefoots			6	3		3		1	14	1			19
Chenopodium album seed							1w	2		7			3w	70
Conium maculatum L. mericarp	Hemlock						8w							
Fallopia convolvulus (L.) Á. Löve achene	Black-bindweed									3				1
Lapsana communis L. achene	Nipplewort						1						1	
Lithospermum arvense L. nutlet	Field Gromwell										1			
Lolium cf. *temulentum* L. caryopsis	Darnel							6	11		22			
Picris echioides L. seed	Bristly ox-tongue												1w	
Plantago lanceolata L. seed	Ribwort Plantain						1							
small Poaceae indet. [< 2mm] caryopsis	small-seeded Grass Family			1										

Sample No.		**40**	**91**	**45**	**23**	**4**	**94**	**34**	**62**	**76**	**69**	**11**	**35**	**47**
Context No.		**200**	**390**	**294**	**107**	**27**	**396**	**163**	**366**	**178**	**349**	**65**	**189**	**337**
Cut No.		**198**	**233**	**268**	**109**	**22**	**394**	**137**	**362**	**174**	**321**	**67**	**137**	**338**
Phase		**2.1**	**2.1**	**2.1**	**2.1**	**2.2**	**2.2**	**2.2**	**2.2**	**2.2**	**2.2**	**2.2**	**2.2**	**0**
medium Poaceae indet. [3-4mm]	medium-seeded Grass Family				19									
Polygonaceae indet. achene	Dock Family													4
Polygonum aviculare L. achene	Knotgrass									1				
Ranunculus cf. acris L./repens L./bulbosus L. achene	cf. Meadow/Creeping/Bulbous Buttercup												8w	
Rubus subgen. *Rubus* seed	Brambles												5w	
Rumex sp. achene	small-seeded Docks			14	2	1	1	13	3	5		1	1	8
Rumex cf. *crispus* achene					3		2			8	2		5w	
Rumex cf. *acetosella* achene					2									
Rumex cf. *conglomeratus* achene													4w	
Onobrychis viciifolia Scop. Fruit	Sainfoin												4w	
Stachys sylvatica L./ palustris L. nutlet	Hedge/Marsh Woundwort						1							
Sonchus asper L. Hill achene	Prickly sow-thistle						1w							
small Trifolium spp. [<1mm] seed	small-seeded Clovers													1
Tripleurospermum inodorum (L.) Sch. Bip. achene	Scentless Mayweed								3			1		28
Urtica dioica L. seed	Common Nettle						66w						4w	
WETLAND PLANT SPECIES														174
Carex spp. nut	Sedges						1w							
cf *Carex* bud							9							
Eleocharis palustris (L.) Roem. & Schult./ *uniglumis* (Link) Schult. nut	Spike rush												1w	
Juncus sp. seed	Rushes											1		
Ranunculus subgenus *Batrachium* L. achene	Water-crowfoot						6w						8w	
Lemna sp. Seed	Duckweed					1w	13w		56w				23w	
OTHER CHARRED MACROFOSSILS										148				
Denticles cf. Caryophyllaceae	Pink family capsule fragments				2			3	2				1	
ashy silliceous material [grey]									+++					
waterlogged plant material							+++				+++		+++	

Table 30: Analysis of selected samples

D.3.31 Recovery of cereal processing waste from archaeological deposits is dependent on preservation. This is usually through the waste products being carbonised through accidental or deliberate burning and there are several reasons why cereal grain needed to be exposed to fire (after van der Veen 1989, Hillman 1982, 1984, et al):

- parching of hulled wheat spikelets prior to processing (de-husking) so that the outer chaff becomes brittle and easier to remove. Similarly hulled barley would need to be de-husked for human consumption.
- drying of whole spikelets that have been harvested wet,
- drying and hardening of fully processed grain prior to storage and milling
- parching to kill any insect infestation
- exposure to heat in a kiln to halt germination of grain that has sprouted either accidentally due to spoilage or deliberately as part of the malting process.

D.3.32 Corn driers are considered to be multi-functional features with their main use for drying grain. It grain was harvested before it had fully dried in the ear it would soon spoil. The quality of the harvest has always been weather-dependent but it is interesting to note that corn driers are often found inserted into existing villa buildings in the mid-late Roman period at a time when there was a deterioration in climatic conditions.

D.3.33 The Over assemblages are exceptional in the amount of evidence of spelt germination. This is seen through the presence of grains that have an altered morphology that is characteristic of germination alongside the recovery of detached sprouts (coleoptiles). Quantification of the proportion of germinated grain has proved difficult due to the level of preservation of the grain (which was frequently fragmented) and the variability of the evidence which is often in the form of detached sprouts.

D.3.34 At Springhead Roman town in Kent, a sample from an occupation layer was comprised of detached cereal sprouts mixed with spelt wheat chaff and cereal grains that was interpreted as the waste products or 'comings' of spelt malting (Smith 2011, 37). At Catsgore Romano-British village in Somerset, an assemblage from within a kiln contained 'hundreds of thousands' of detached sprouts, spelt chaff (mainly glume bases and spikelet forks) and a relatively small number of germinated cereal grains (Hillman 1982, 138) which was attributed to spelt malting.

D.3.35 Evidence of germination is found in most of the deposits at Over which is in contrast to a spelt malting site at Nonington, Kent where the germinated spelt was restricted to within a structure and contrasting chaff-rich assemblages were recovered from contemporary deposits (Carruthers & Helm 2011, 362).

Cereal Processing Waste

D.3.36 The abundance of the burnt spelt chaff at Over is indicative of the burning of waste that has resulted from large scale processing of spelt wheat. The resultant chaff was considered as excellent fuel and commonly used to fire corn driers, malting ovens and metalworking hearths (van der Veen 1999, 221) all of which are possibly activities that were taking place at this site. The preservation of the cereal processing waste is also dependent on how it was burnt and whether the temperature and oxygen levels were conducive to carbonisation. These conditions determine the survival chances of the different cereal elements, for example high charring temperatures would result in the destruction of the finer chaff and sprouts with a bias towards the survival of grain (Boardman and Jones 1990). The recovery of so much chaff indicates lower burning temperatures such as those required for parching or malting.

D.3.37 The processing of the grain may have taken place in the near vicinity of the site although the value of chaff may have resulted in it being imported from elsewhere for the use as fuel for the specific activities taking place at this site (van der Veen, ibid 213). The interpretation of industrial-scale agricultural activity at neaby Langdale Hale, Colne Fen was based on the rich assemblages comprised mainly of spelt chaff with only moderate amounts of grain and chaff (Ballantyne 2013, 143). These assemblages are similar in composition to those at Over with the exception of the absence of germinated grain at Langdale Hale. Similarly at Glinton, Peterborough, extensive spreads of black-soils were comprised of rich assemblages of crop processing waste (Kemp 2003) thought to relate to large-scale processing of agricultural surplus for exportation.

D.3.38 Evidence at Over is from large black spreads of material and tip fills in extraction pits, all of which indicates the disposal of large amounts of burnt waste in this particular area. At Elms Farm (Monkton 2015) a similar large charred assemblage of spelt chaff and cereal sprouts found dumped into a palaeochannel was interpreted as evidence of large-scale processing being carried out on the periphery of the settlement with possible malting.

Malting Process

D.3.39 In order for grain to germinate it has to be exposed to moisture. This can occur through natural processes through which grain becomes spoiled or through deliberate action is which grain is steeped in water to induce germination as part of the malting process for beer production. The processes involved in malting start with the steeping of the grain in water and then spreading the grain onto a malting floor with gentle heat to induce germination. This activates enzymes to convert the stored starches within the grain to sugar and is a stage that needs to be carefully controlled. It is artificially halted by roasting the malted grain in a kiln (probably using cereal processing waste as fuel). The next stage of the brewing process would be to add water to the malted grain and heat the mash in a vessel suspended over a fire. The extract drawn from the mash is known as the wort which is left to ferment into beer, usually with the addition of some sort of flavouring.

Spelt Wheat Malting

D.3.40 Spelt was intensively cultivated in the Roman period and there is increasing evidence of germinated grain from all periods of Roman occupation. In a study by Parks (2012, 129) germinated spelt grains occur often within large assemblages of burnt spelt processing waste giving rise to the theory that these deposits represent the by products of the cleaning of malt. Germinated grain is not considered sufficient evidence of spelt brewing unless there are associated features such as corn driers and malting floors.

D.3.41 Excavations at Stebbing Green, Essex (Murphy 1989) produced spelt malt combined with large quantities of 'fine-sieving by-products' and a building measuring a maximum of 12m x 11m was interpreted as a 'malt-house' due to the presence of oven flues containing sprouted grain. There was also an adjacent rectangular pit that could have been used to steep the grain. It is possible that some of the features excavated at Over may similarly relate to steeping pits and there are certainly features that are likely to have been used as corn-driers but there is no evidence of and large structures that could be described as a malting floor.

D.3.42 Finding the evidence of spelt malting is usually tentative; germinated spelt was found at the Roman town at Wixoe in Suffolk (Fosberry 2015) and at Itter Crescent Roman villa in Peterborough (Fosberry 2015) but not is such quantities as has been found at Over.

D.3.43 Excavations at a more local sites at Stebbing Green, Essex (Murphy 1989) and Culver Street (Murphy 1992) have recovered sprouted spelt grain that has similarly been interpreted as spelt malting and recent excavations at Kettering, Northants have produced significant evidence of spelt malting in relation to surviving archaeological structures.

D.3.44 Studies by Van der Veen (1989, 305) have suggested that assemblages that are likely to be produced by the roasting of germinated grain for malting would consist of grains that show evidence of germination (dorsal groove and shrunken sides) and numerous coleoptiles (cereal sprouts) that would have broken off in the process. Furthermore, if the grains had been allowed to germinate in their spikelets, chaff consisting of glume bases and spikelet forks would also be present in the assemblage. The recovery of complete spikelets from pit **174** in which the enclosed grain has clearly germinated is conclusive proof of this. Experimental studies (by the author) on modern spelt wheat have shown that the characteristic dorsal groove is only formed if the grain germinates within the spikelet. The outer chaff prevents the shoot from its normal trajectory which is away from the grain, pointing upwards. Most of the germinated grains at Over display the dorsal groove as further evidence of spikelet malting. Another indication that germinated grain was due to malting is even-sized sprouts. The sprout size in the Over assemblages have been categorised by length (Table 30) and appear to be pretty uniform. Length of over 4mm are common with the longest sprout recorded as 7mm.

D.3.45 Most of the charred, germinated spikelets at Over contain just one grain rather than the usual pair of grains. This phenomenon was also noted at Langdale Hale (Ballantyne *ibid*, 151) where single-grained spikelets, immature spikelets and lower rachis internodes were interpreted as the cereal crop having been harvested whilst 'still green' or that it could relate to a period of physiological stress during growth. Modern spelt wheat grown by the author was attacked by rabbits in June with much of the green foliage consumed. The crop recovered and produced a late harvest in September. The ears were less than half the size of a normal ear and all of the spikelets were single-grained. This supports the theory of physiological stress however, a traditional cultivar/landrace variety of spelt wheat obtained from the John Innes Centre in August 2015 (*Triticum spelta* T1220017- 'Grey Spelt') is an awned-variety that typically has single-grained spikelets on the lowest part of the ear. Several of the Over assemblages contain the lower rachis internodes of the cereal ear which are particularly 'short and stumpy' and are therefore likely to survive being burnt. The Over assemblages also contain awn fragments (often surviving as silica skeletons) and it is therefore plausible that the single-grained spikelets are also from the lower stem fragments and, being smaller that the two-grained spikelets, they would pass through a sieve.

D.3.46 It seems probable that the spelt at Over was deliberately allowed to germinate whilst still in the spikelet and then subjected to roasting to halt the malting process. It would then have been necessary to release the germinated grain (wort) from the spikelets by pounding. This could explain why so many of the embryos have become detached from the grain (although flotation could have caused some damage) and could also explain why so many of the grains have broken transversely. The by-products of this process would be chaff (glume bases and spikelet forks) that had been made brittle by heating and could then be used as tinder, possibly as fuel to repeat the process.

Accidental Germination

D.3.47 Without the supporting archaeological evidence of brewing, an alternative explanation for the presence of germinated grain is through natural spoilage of the crop through exposure to moisture. Experiments by the author have shown that harvested spelt

spikelets germinate after 3-4 days when exposed to moisture whereas threshed grain germinates within 24-36hrs. If the crop had started to germinate due to, for example, wet weather, it is probable that it would have been immediately harvested and dried followed by threshing and sieving. This would have resulted in assemblages in which glume bases would predominate but the amount of germinated grain preserved by carbonisation would be less. It has been assumed that accidental germination would result in assemblages in which germination of individual grains is variable and without unconformity of sprout length. In the experiments carried out with ears of modern spelt it was discovered that the rate of germination varies considerably along the length of the ear and even within the two grains in a spikelet. Uniformity of sprout length cannot therefore be used to distinguish between accidental and deliberate germination.

Spelt Beer

D.3.48 Wine is the most common beverage associated with the Romans, and was imported throughout the period of occupation in Britain. It would never have been of sufficient quantity to have been the sole source of beverage and so beer would have been a popular thirst-quencher. Enigmatic series of 'cultivation strips' found on numerous early Roman sites in the East of England may have been an attempt at viticulture with poor results resulting in the need to find an alternative drink. Beer is traditionally brewed from barley but spelt wheat would have been an adequate alternative and would have produced a brew with a distinctive flavour that may have been preferred by the Romans who named their beer '*cerevisia*' after the goddess of agriculture, Ceres. In Vindolanda tablet 343, the writer Octavius states that he has '119 *modii* of threshed *bracis'* which Mattingley (2006, 220) interprets as a cereal type that is specifically for brewing. The Vindoanda tablets frequently refer to wheat as '*frumentum*' and barley as '*hordeum*' so bracis (also written as braces) could be the generic name for malted grain.

D.3.49 It is possible that spelt brewing originated from the Germanic tribes. In his *De origine et situ Germanorum* (About the Location and Origins of the Germans) Tacitus commented that "*Potui humor ex hordeo aut frumento, in quandam similitudinem vini corruptus*." Translated as 'A liquor for drinking is made out of barley or other grain, and fermented into a certain resemblance to wine'. Similarly in Gaul there are references to the consumption of 'wheat beer prepared with honey' (Athenaeus 4.36 cited in Hillman 1982, 140).

D.3.50 Once the malt had been roasted to halt germination, it could then be stored for several months, either in the form of 'malt cakes' in which the malted spikelets are lumped together and dried, or the outer chaff (and sprouts' are removed by parching and pounding and the cleaned grain (now known as grist) is stored until required (Campbell 2016). It seems practical that the malt would have been transported for mashing and brewing, as required, at the destination. Transport of the malt would have been through the established route-ways provided by roads and the Car Dyke Roman canal, a mid 2nd Century economic construct.

Waterlogged Plant Remains

D.3.51 It was apparent during excavation that the site was low-lying with a high water-table. The deep clay extraction pits would have filled with water, at least partially and/or seasonally, and the presence of duck weed is evidence of this. The accessibility of a clean water source is crucial to the steeping process in which the grain is soaked in water to induce germination. The clean water supply would also have been required for the brewing process although there is no archaeological evidence of this. Steeping of the grain could have taken place in vats, barrels or wooden tanks that would leave no

trace and there are a number of 'blank' spaces within the Over enclosure that would have been working areas.

D.3.52 Deposits that have remained waterlogged have the potential for the preservation of plant remains that would have become trapped in the deposit having blown in from surrounding plants. Several of the deep extraction pits had waterlogged deposits but only a few were accessible for sampling. The waterlogged plant species recovered indicate that there is differential preservation that is biased towards plant taxa that produce seeds that have a tough outer coat (testa). There is evidence at Over of local disturbed ground that would be expected in a working area. None of the plant species recovered can be related to the malting activities that are suspected to have been taking place at this site.

Conclusions

D.3.53 The charred plant remains recovered from Over consist of cereal processing waste that has been burnt, probably as fuel for a large-scale industrial process. The inclusion of germinated grain and detached cereal sprouts indicates either the accidental spoilage or deliberate malting of spelt wheat. The abundance of evidence of germination on this site infers deliberate malting for brewing but, without supporting archaeology, this conclusion can only be tentative. The corn driers could have been used to roast the malt although they are small in size and would implicate repeated use requiring scrupulous cleaning (without which a catastrophic fire is probable). The spent fuel (cereal processing waste) would have been disposed of in any convenient pit or ditch in the vicinity resulting in accumulations of charred deposits within these features.

D.3.54 The limited area of excavation precludes full interpretation of the site but cropmarks in the surrounding fields hint at a settlement site within a known area of Roman occupation and industrial enterprise. The nearby Camp Ground evolved to become a mercantile centre with a vibrant economic community and extensive trade links (Evans 2013) and analysis by the Cambridge Archaeology Unit (CAU) indicated that Langdale Hale was a cereal-rich farmstead with significant agricultural production and processing. The scale of the disposal of cereal processing waste at Over is also indicative of large-scale cereal production in this region. The questions then arise as to who are these cereals being cultivated by, for whom are they intended and what logistics were required for transport. Were they destined for urban settlements and local administrative centres such as. Stonea Camp or for feeding the Roman army or for exportation? The provinces of Britain and the The Rhineland were the frontier of Roman expansion and their roles were to regulate contact between the interior and exterior of the Roman empire (Filean 2006, 2). There is evidence of increased agrarian productivity in the south-east of Britain with agricultural surplus production either the result of taxation or trade. Britain's contribution to the Imperial Roman economy was through the exportation of grain to other areas within the north-western provinces through a system of trade networks. Stallibrass and Thomas (2008, 146-169) discuss the logistics of surplus cereal production for feeding the Roman Army, bearing in mind that the 'army' was comprised not just of the soldiers but also their families, servants and animals. It is considered probable that they initially brought supplies such as seed corn with them and local farms were used to cultivate and process the cereals. Accounts exist of grain being exported to the Rhineland in the mid fourth-century AD (Taylor 1999; Mattingly 2006: 505 cited in Parks ibid 22).

D.3.55 Evidence of the increased production of spelt wheat is most easily visible through the burnt remains of the processing waste, the chaff, which preserves so well in the archaeological record. The large quantities recovered from Norman Way, Over has

provided unparalleled evidence of spelt germination in this locality, contributing significantly to the emerging evidence of large-scale agricultural production and surplus in the Roman period.

Appendix E. Radiocarbon Date Results

Scottish Universities Environmental Research Centre

Rankine Avenue, Scottish Enterprise Technology Park, East Kilbride, Glasgow G75 0QF, Scotland, UK
Director: Professor R M Ellam Tel: +44 (0)1355 223332 Fax: +44 (0)1355 229898 www.glasgow.ac.uk/suerc

RADIOCARBON DATING CERTIFICATE

05 October 2016

Laboratory Code	SUERC-69253 (GU41840)
Submitter	Rachel Fosberry Oxford Archaeology East 15 Trafalgar Way Bar Hill Cambs. CB23 8SQ
Site Reference	OVEINE14
Context Reference	178
Sample Reference	76
Material	Charred cereal grain : Triticum spelta/dicoccum
$\delta^{13}C$ relative to VPDB	-21.8 ‰
Radiocarbon Age BP	1758 ± 34

N.B. The above ^{14}C age is quoted in conventional years BP (before 1950 AD). The error, which is expressed at the one sigma level of confidence, includes components from the counting statistics on the sample, modern reference standard and blank and the random machine error.

The calibrated age ranges are determined from the University of Oxford Radiocarbon Accelerator Unit calibration program (OxCal4).

Samples with a SUERC coding are measured at the Scottish Universities Environmental Research Centre AMS Facility and should be quoted as such in any reports within the scientific literature. Any questions directed to the Radiocarbon Laboratory should also quote the GU coding given in parentheses after the SUERC code. The contact details for the laboratory are email Gordon.Cook@glasgow.ac.uk or telephone 01355 270136 direct line.

Conventional age and calibration age ranges calculated by :- Date :- 05/10/2016

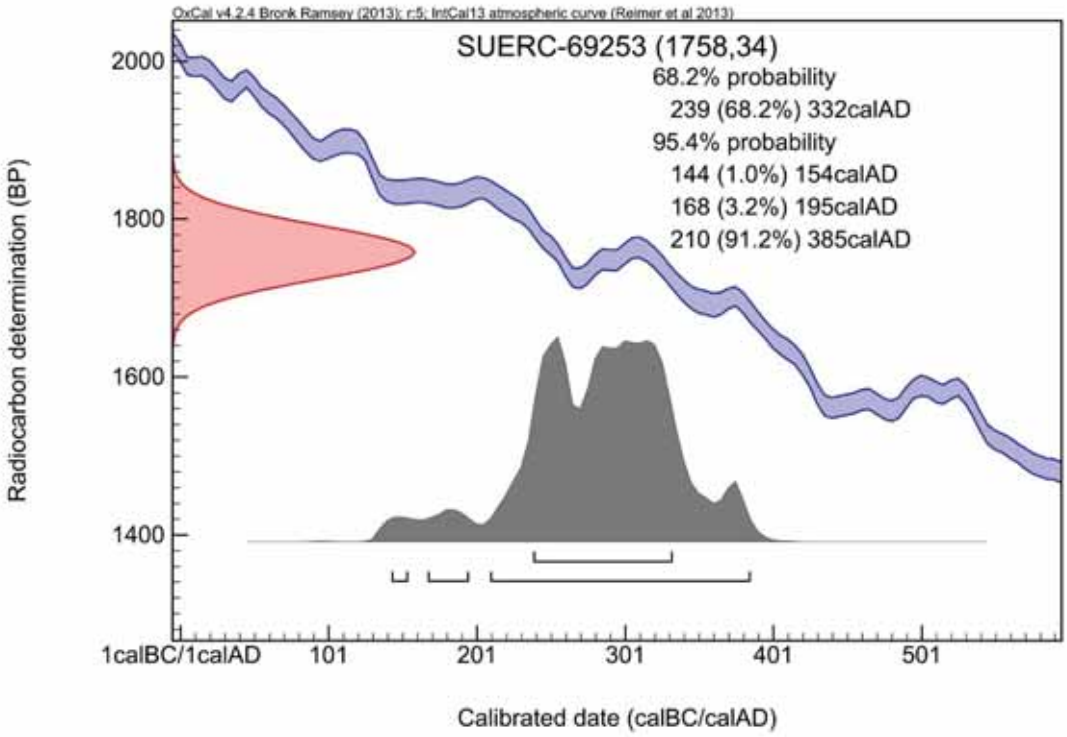
Checked and signed off by :- E. Dunbar Date :- 05/10/2016

University of Glasgow

The University of Glasgow, charity number SC004401

The University of Edinburgh is a charitable body, registered in Scotland, with registration number SC005336

Calibration Plot



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Appendix G. OASIS Report Form

All fields are required unless they are not applicable.

Project Details

OASIS Number	oxfordar3-282682		
Project Name	Excavation at Norman Way Industrial Site, Over		
Project Dates (fieldwork) Start	05-11-2014	Finish	05-12-2014
Previous Work (by OA East)	Yes	Future Work	No

Project Reference Codes

Site Code	OVEINE14	Planning App. No.	S/1431/13/FL
HER No.	ECB4283	Related HER/OASIS No.	oxfordar3-199052

Type of Project/Techniques Used

Prompt: Direction from Local Planning Authority - PPS 5

Please select all techniques used:

☐ Field Observation (periodic visits)	☐ Part Excavation	☐ Salvage Record
☐ Full Excavation (100%)	☐ Part Survey	☐ Systematic Field Walking
☐ Full Survey	☐ Recorded Observation	☐ Systematic Metal Detector Survey
☐ Geophysical Survey	☐ Remote Operated Vehicle Survey	☐ Test Pit Survey
☒ Open-Area Excavation	☐ Salvage Excavation	☐ Watching Brief

Monument Types/Significant Finds & Their Periods

List feature types using the NMR Monument Type Thesaurus and significant finds using the MDA Object type Thesaurus together with their respective periods. If no features/finds were found, please state "none".

Monument	Period	Object	Period
watering hole	Roman 43 to 410	pottery	Roman 43 to 410
boundary ditch	Roman 43 to 410	coin	Roman 43 to 410
pits	Roman 43 to 410	germinated grain	Roman 43 to 410

Project Location

County	Cambridgeshire	Site Address (including postcode if possible)	
District	South Cambridgeshire	Norman Way Industrial Estate Over Cambridgeshire	
Parish	Over		
HER	Cambridgeshire County Council		
Study Area	0.3ha	National Grid Reference	TL 3790 6930

Project Originators

Organisation	OA EAST
Project Brief Originator	Kasia Gdaniec
Project Design Originator	Stephen Macaulay
Project Manager	Stephen Macaulay
Supervisor	Pat Moan

Project Archives

Physical Archive	Digital Archive	Paper Archive
CCC Stores	OA East	CCC Stores
OVEINE14	OVEINE14	OVEINE14

Archive Contents/Media

	Physical Contents	Digital Contents	Paper Contents
Animal Bones	☒	☐	☐
Ceramics	☒	☐	☐
Environmental	☒	☐	☐
Glass	☐	☐	☐
Human Bones	☐	☐	☐
Industrial	☐	☐	☐
Leather	☐	☐	☐
Metal	☒	☐	☐
Stratigraphic		☐	☐
Survey		☐	☐
Textiles	☐	☐	☐
Wood	☐	☐	☐
Worked Bone	☒	☐	☐
Worked Stone/Lithic	☒	☐	☐
None	☐	☐	☐
Other	☐	☐	☐

Digital Media	Paper Media
☒ Database	☐ Aerial Photos
☒ GIS	☒ Context Sheet
☐ Geophysics	☐ Correspondence
☒ Images	☐ Diary
☒ Illustrations	☐ Drawing
☐ Moving Image	☐ Manuscript
☐ Spreadsheets	☐ Map
☒ Survey	☐ Matrices
☒ Text	☐ Microfilm
☐ Virtual Reality	☐ Misc.
	☐ Research/Notes
	☒ Photos
	☒ Plans
	☒ Report
	☒ Sections
	☐ Survey

Notes:

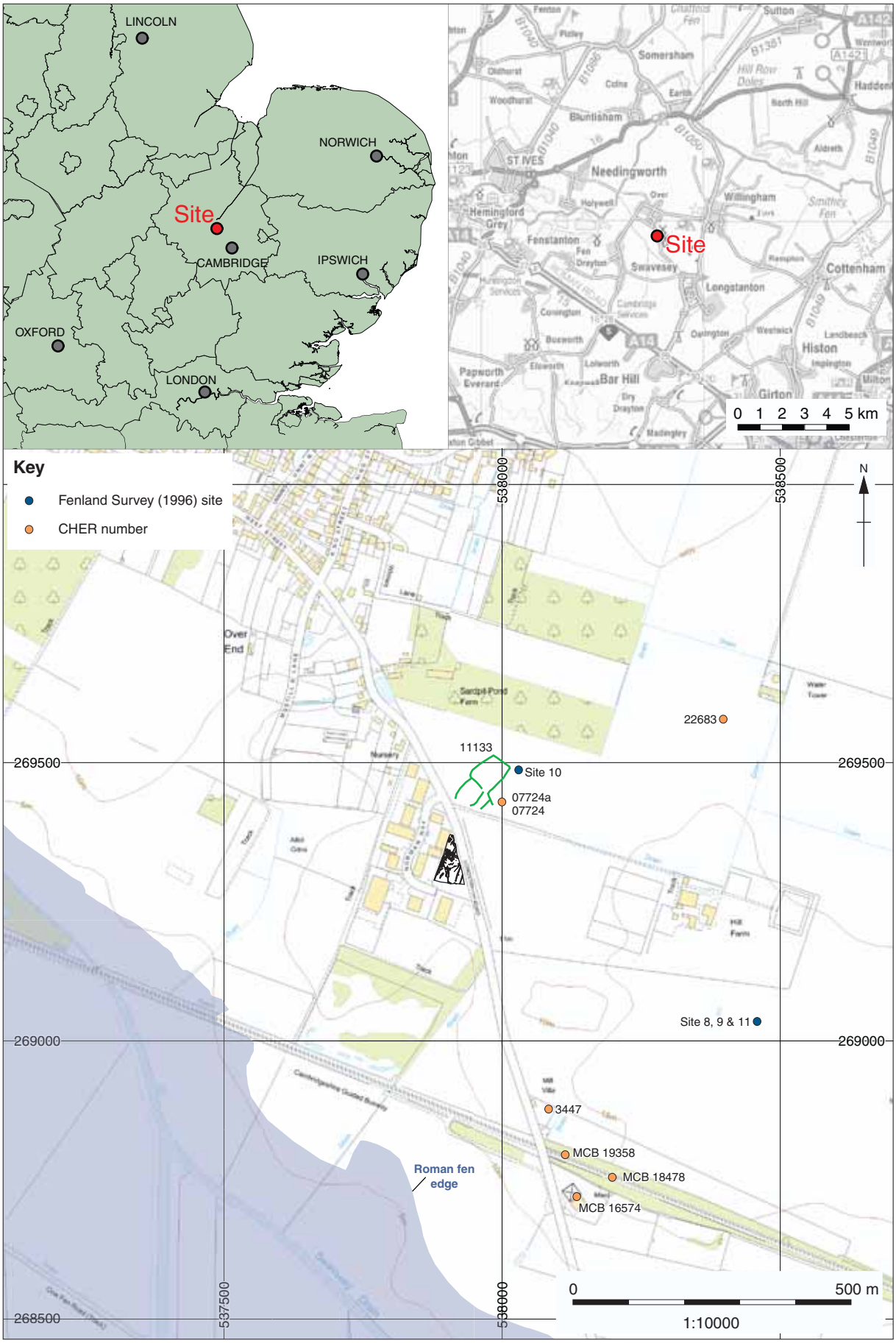


Figure 1: Site location with nearby cropmarks (green)

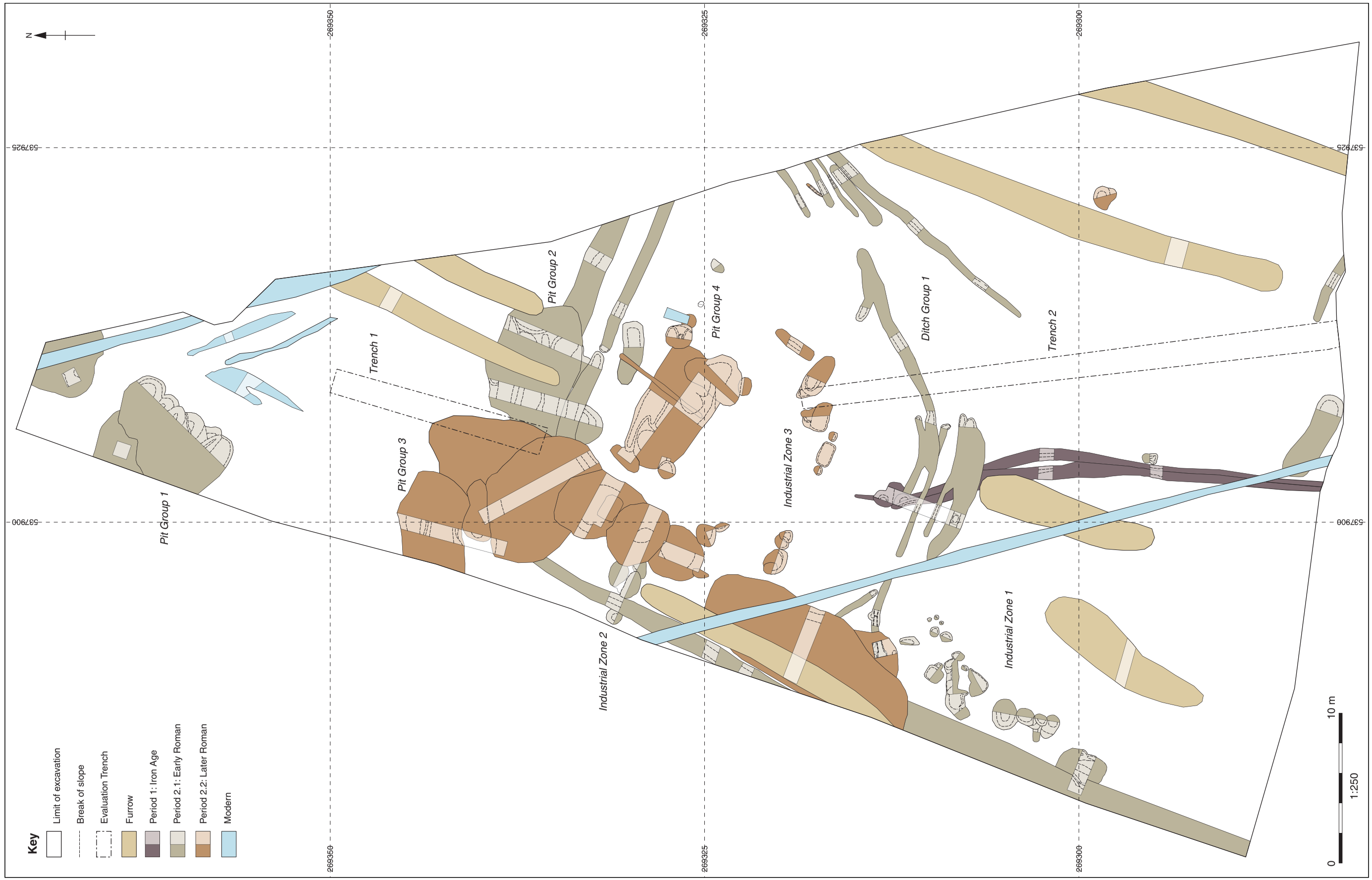


Figure 2: Multi-Period Site Plan

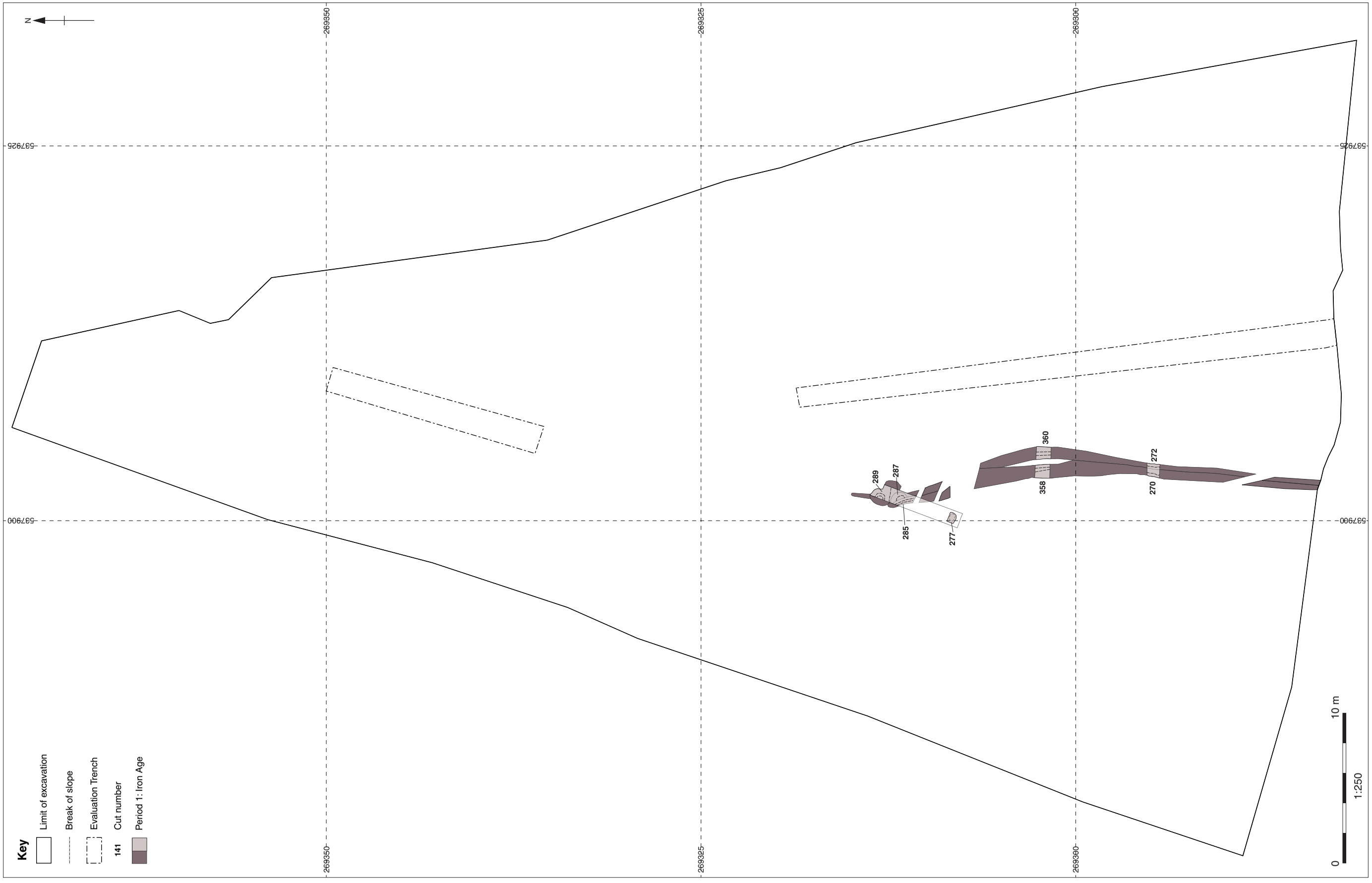


Figure 3: Period 1 - Prehistoric plan

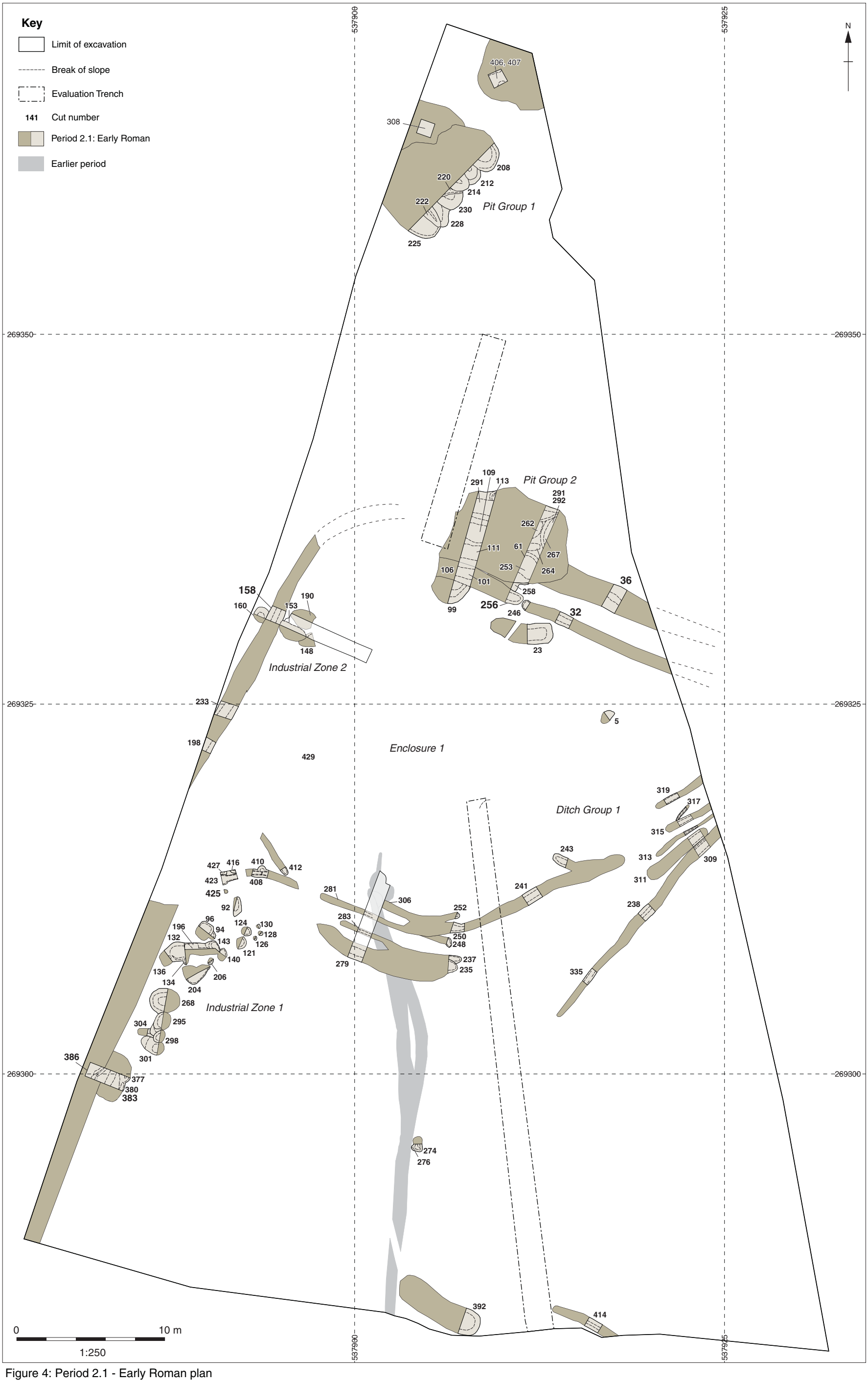


Figure 4: Period 2.1 - Early Roman plan

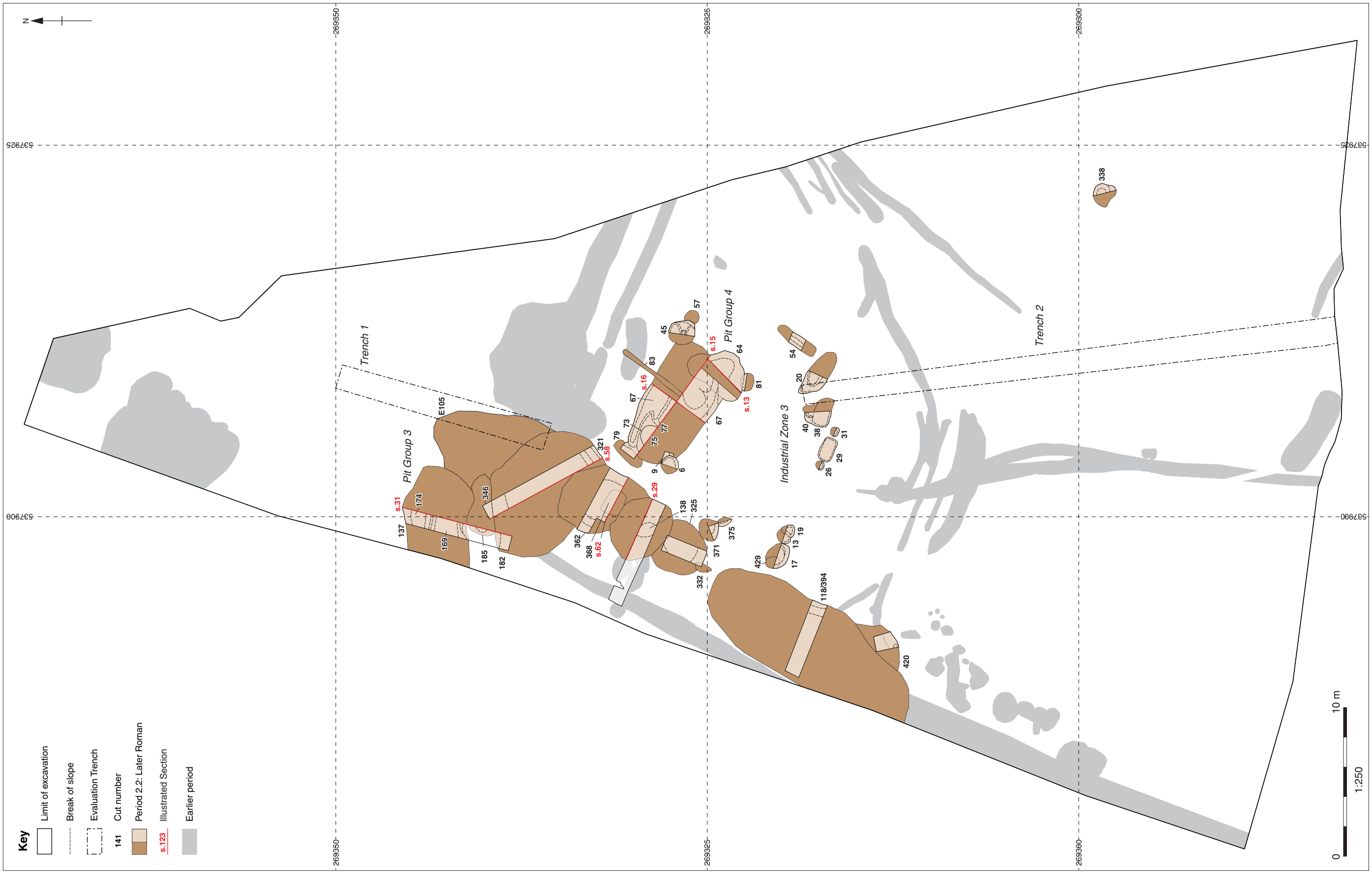


Figure 5: Period 2.2 - Later Roman plan

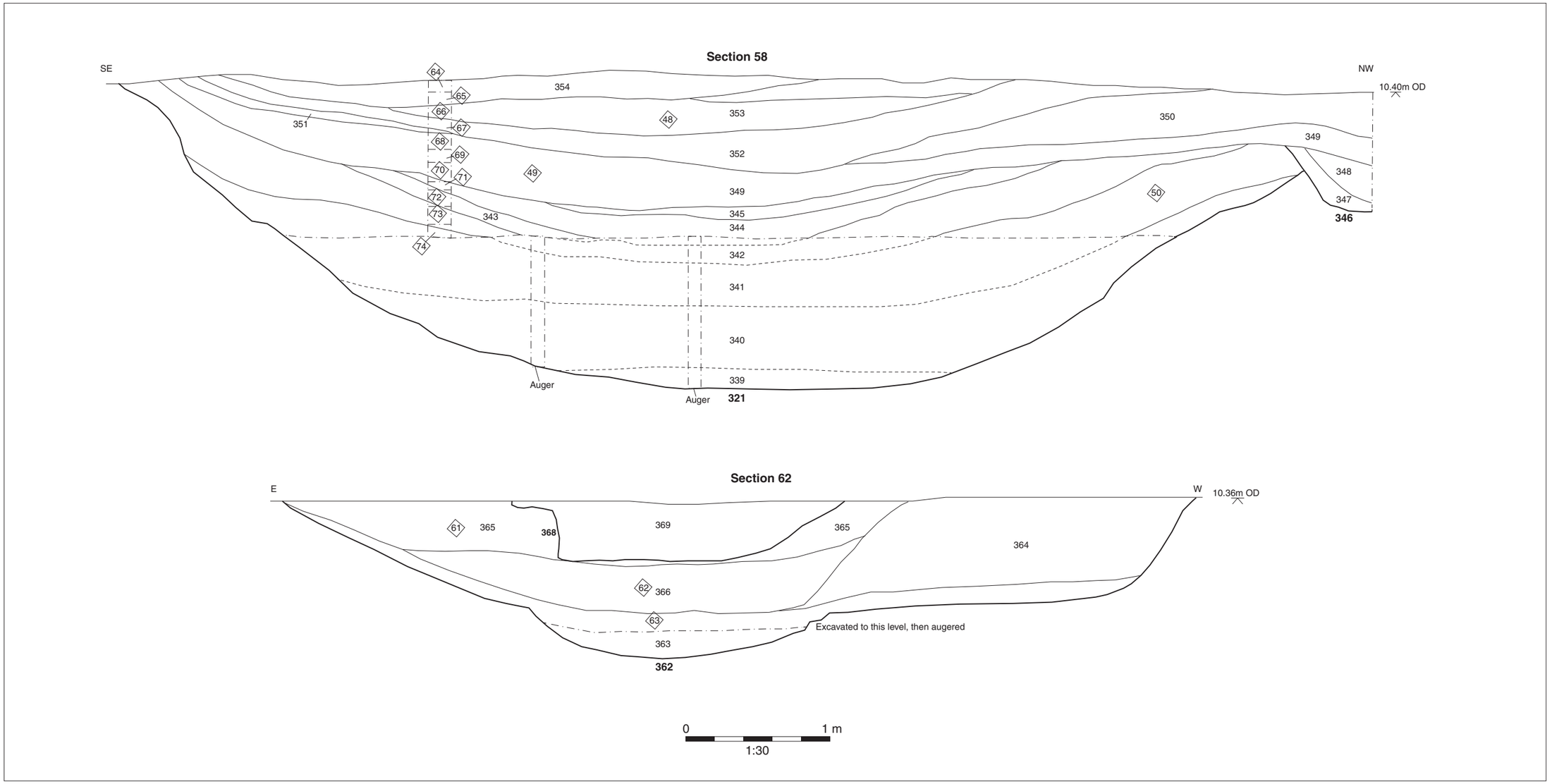


Figure 6: Sections 58 and 62 of Period 2.2 pits 321 and 362 (Pit Group 3)

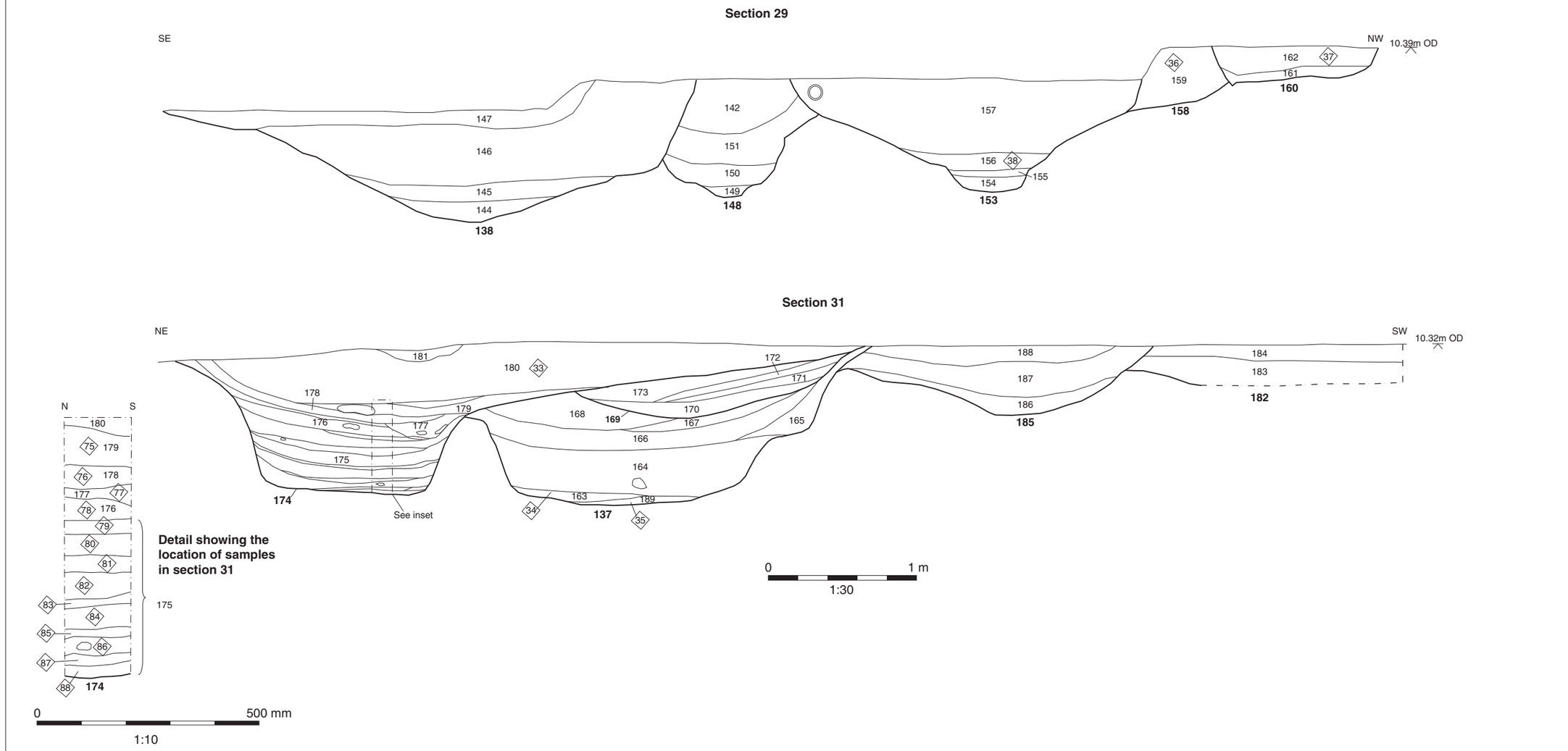


Figure 7: Section 29 & 31, Pit Group 3

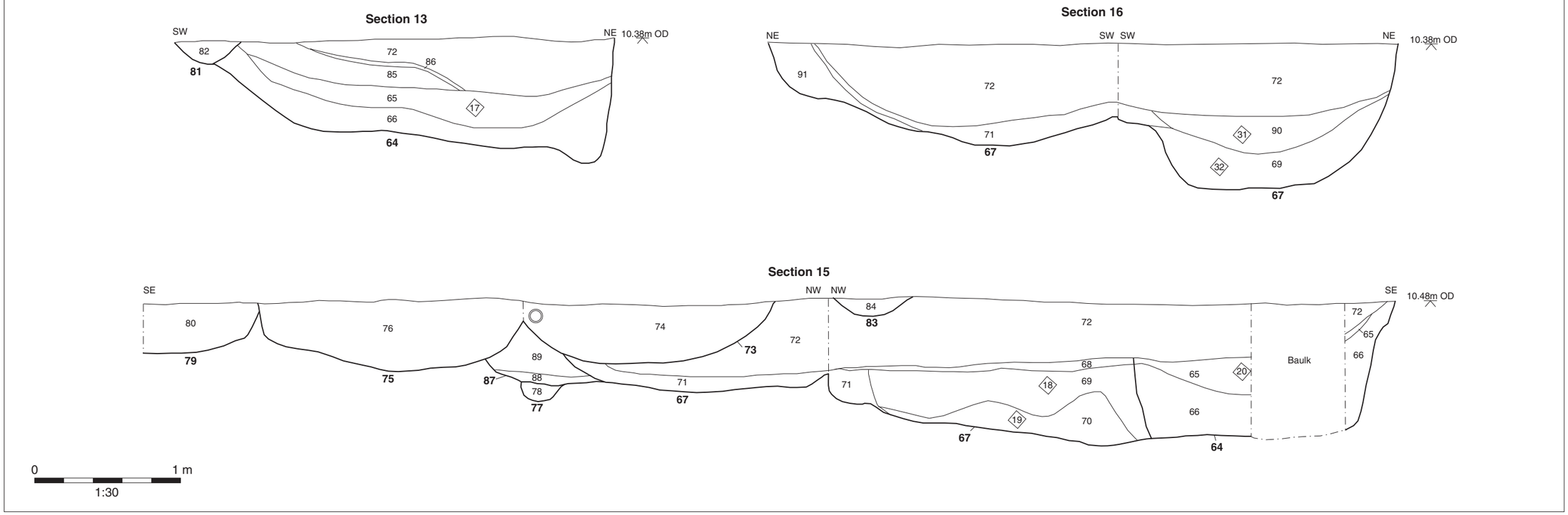


Figure 8: Sections 13, 15, and 16 of pits 64, and 67 (Pit Group 4)

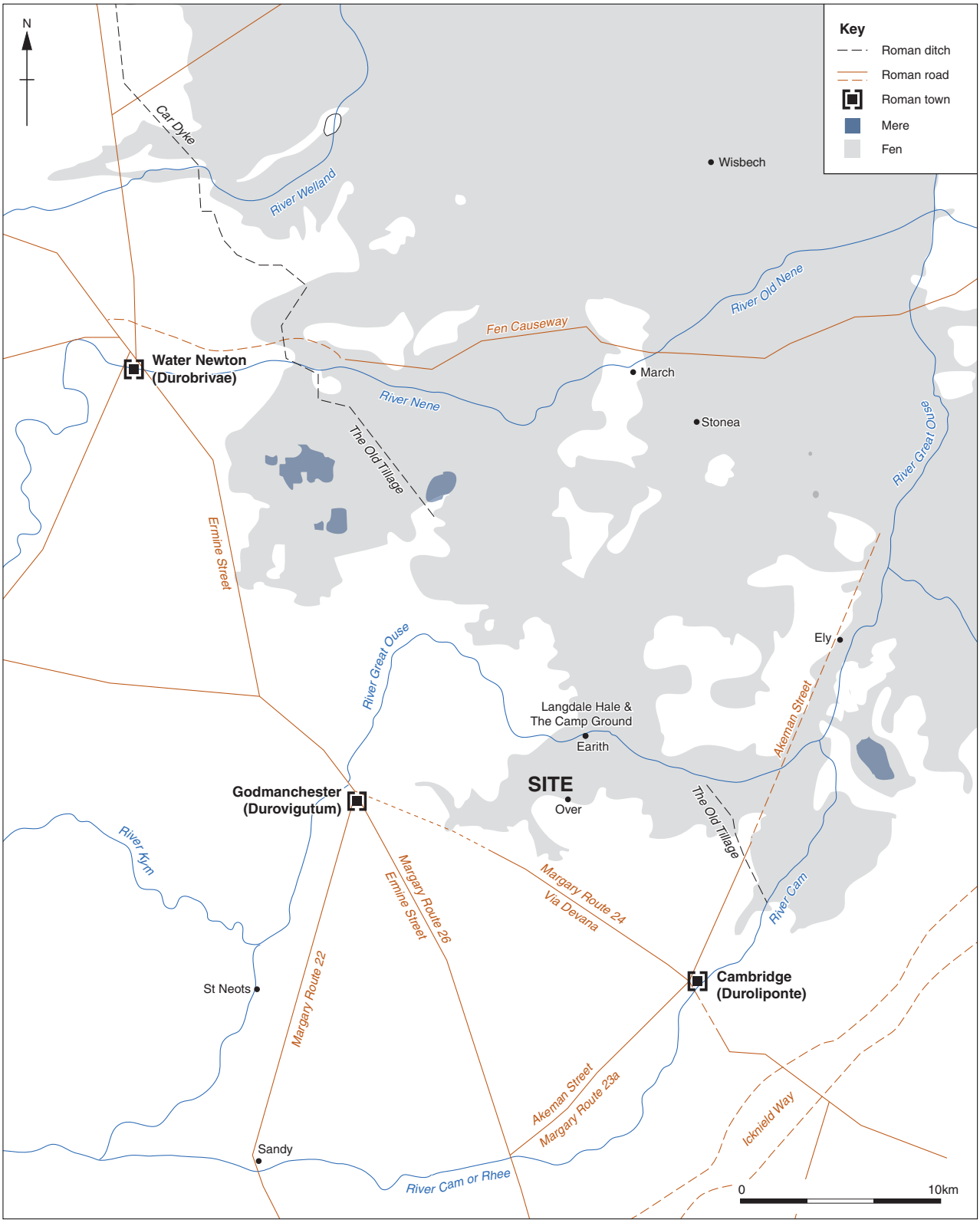


Figure 9: The site situated within the Roman landscape

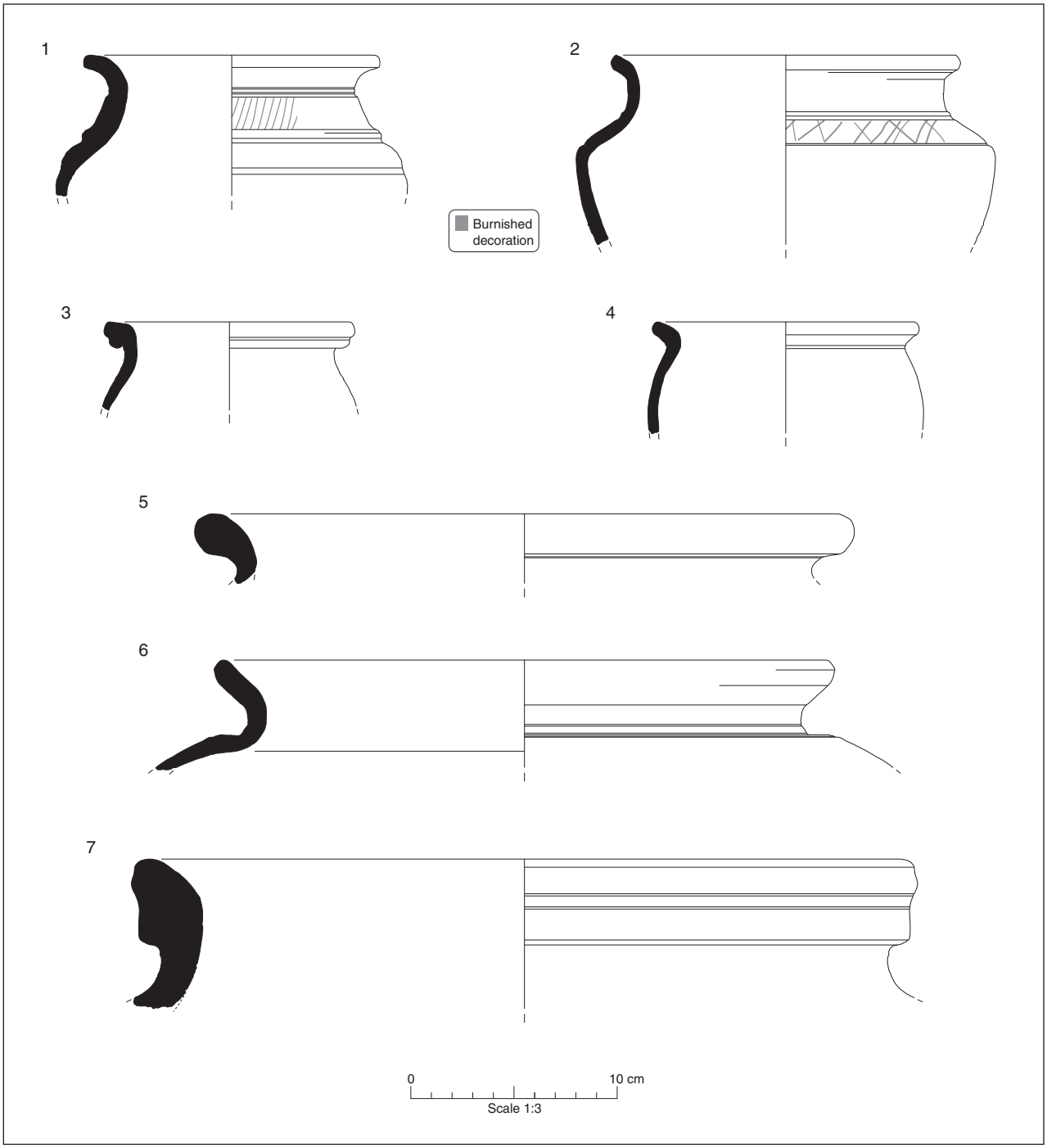


Figure 10: Pottery illustrations 1 to 7

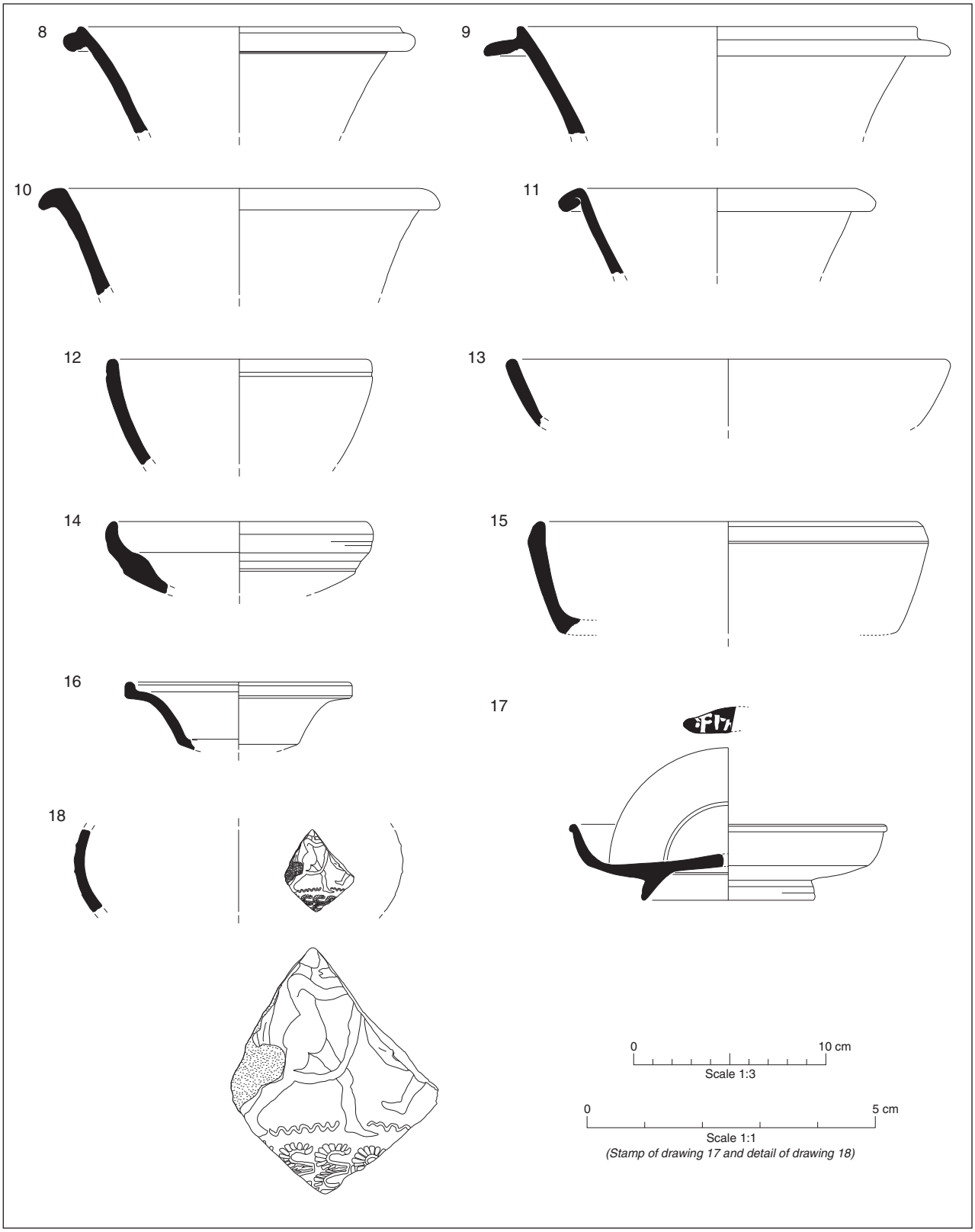


Figure 11: Pottery illustrations 8 to 18

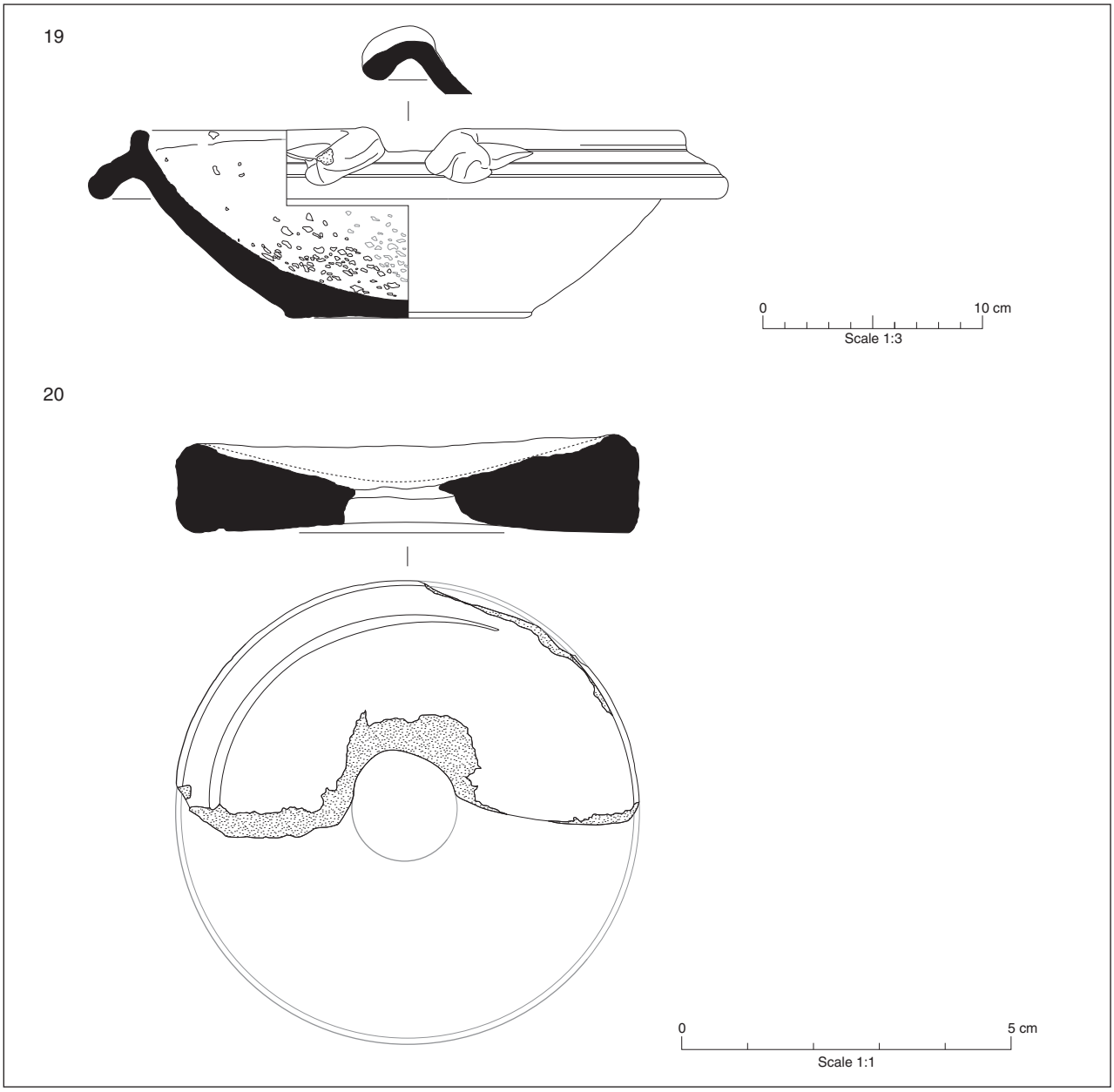
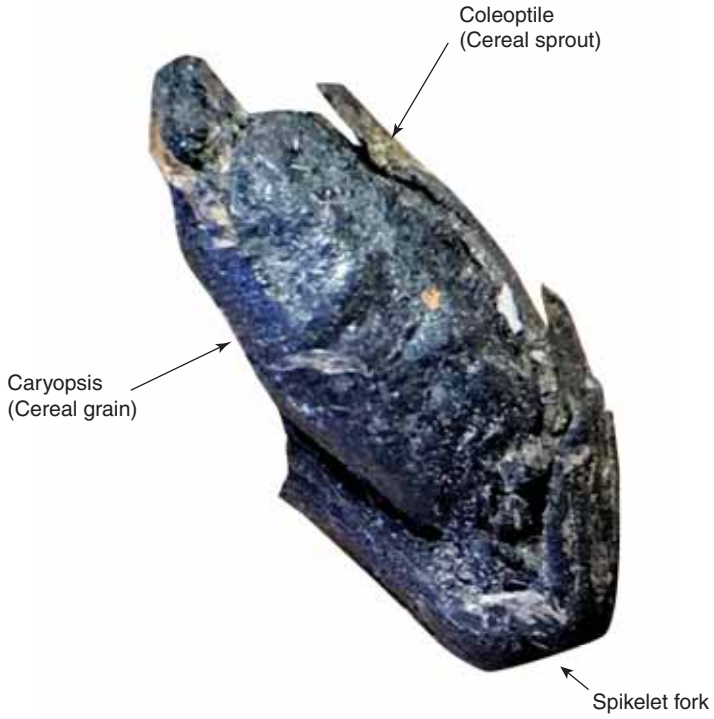


Figure 12: Pottery illustrations 19 and 20

Figure 13: Fired clay with charred cereal straw impressions

Germinated Spelt Grain

A



B

Figure 14: Example of partially germinated charred grain

Plate 1: Windbreak **408**, looking east

Plate 2: Pits **148** & **153**, looking south-south-west

Plate 3: Period 2.2, Pit Group 3, Watering hole **321**, looking west

Plate 4: Pit Group 3, looking south

Plate 5: Pit **368** truncating pit **362**, looking south-west

Plate 6: Pit Group 4, looking south-east

Plate 7: Pit Group 4, looking north-east

Plate 8: Site during excavation, looking south-east

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