

---

**ARCHAEOLOGICAL SOLUTIONS LTD**

**12 PIECES LANE, WATERBEACH, CAMBRIDGESHIRE**

**RESEARCH ARCHIVE REPORT**

Author: Andrew A. S. Newton MPhil PIFA Illustrations by: Kathren Henry	
NGR: TL 4994 6558	Report No. 3763
District: South Cambridgeshire	Site Code: AS 1276
Approved:	Project No. P3794
Signed:	Date: March 2011

This report is confidential to the client. Archaeological Solutions Ltd accepts no responsibility or liability to any third party to whom this report, or any part of it, is made known. Any such party relies upon this report entirely at their own risk. No part of this report may be reproduced by any means without permission.

Archaeological Solutions Ltd, 98 – 100 Fore Street, Hertford, SG14 1AB.  
Tel: 01992 558170 Fax: 01992 553359 E-mail: [info@ascontracts.co.uk](mailto:info@ascontracts.co.uk) Web:  
[www.archaeologicalsolutions.co.uk](http://www.archaeologicalsolutions.co.uk)  
Registered Number: 4702122

## CONTENTS

- 1 INTRODUCTION
- 2 SITE NARRATIVE
  - 2.1 Overview
  - 2.2 Background
  - 2.3 Phasing
  - 2.4 Phase 1: Middle Iron Age
  - 2.5 Phase 2: an introduction
  - 2.6 Phase 2, Sub-phase 1: Romano-British (early 2<sup>nd</sup> century AD)
  - 2.7 Phase 2, Sub-phase 2: Romano-British (early 2<sup>nd</sup> century AD)
  - 2.8 Phase 2, Sub-phase 3: Romano-British (early 2<sup>nd</sup> century AD)
  - 2.9 Phase 2, Sub-phase 4: Romano-British (early 2<sup>nd</sup> century AD)
  - 2.10 Phase 2, Sub-phase 5: Romano-British (early 2<sup>nd</sup> century AD)
  - 2.11 Phase 2, Sub-phase 6: Romano-British (early 2<sup>nd</sup> century AD)
  - 2.12 Phase 2, Sub-phase 7: Romano-British (early 2<sup>nd</sup> century AD)
  - 2.13 Phase 2, Sub-phase 8: Romano-British (early 2<sup>nd</sup> century AD)
  - 2.14 Phase 2, Sub-phase 9: Romano-British (early 2<sup>nd</sup> century AD)
  - 2.15 Phase 2, Sub-phase 10: Romano-British (early 2<sup>nd</sup> century AD)
  - 2.16 Phase 2, Sub-phase 11: Romano-British (early 2<sup>nd</sup> century AD)
  - 2.17 Phase 2, Sub-phase 12: Romano-British (early 2<sup>nd</sup> century onwards)
  - 2.18 Phase 2, Sub-phase not assigned
  - 2.19 Modern features
  - 2.20 Undated features
- 3 SPECIALISTS' FINDS AND ENVIRONMENTAL REPORTS
  - 3.1 The pottery
  - 3.2 The kiln furniture and lining
  - 3.3 The Small finds
  - 3.4 Faunal remains
  - 3.5 The Environmental Samples
- 4 DISCUSSION
  - 4.1 The middle Iron Age activity
  - 4.2 The Romano-British pottery production site
- 5 CONCLUSION

## ACKNOWLEDGEMENTS

## BIBLIOGRAPHY

Contents of accompanying CD:  
Appendix 1: Feature and context descriptions  
Appendix 2: Concordance of finds  
Appendix 3: Pottery and fired clay data  
Appendix 4: Appendix to Faunal report  
Appendix 5: Faunal data

## OASIS SUMMARY SHEET

<b>Project details</b>			
Project name	<i>12 Pieces Lane, Waterbeach, Cambridgeshire</i>		
<p><i>In June and July 2010, Archaeological Solutions Ltd (AS) conducted an archaeological excavation of land at 12 Pieces Lane, Waterbeach, Cambridgeshire. The primary objective of the project was to preserve the archaeological evidence contained within the site by record and to attempt a reconstruction of the history and use of the site.</i></p> <p><i>This small site represents a further addition to the fairly dense Roman period activity known in the area to the north of Cambridge. It provides confirmation of Roman occupation within the area of modern Waterbeach village, which has previously only been represented by two small gullies and a handful of spot-finds. Its main importance, however, is as yet further evidence of pottery production belonging to the Horningsea industry which appears to have been prevalent in this area.</i></p> <p><i>The results of the excavation help to demonstrate that there was not a uniform kiln type associated with the Horningsea industry. Slightly different products amongst the pottery assemblage in comparison to other Horningsea sites may reflect chronological progression in production of form types within the Horningsea industry and reflect the nature of production or specialisation of different potters or workshops within the Horningsea industry. The position of this site, located between the river Cam and the Car Dyke suggests that it was placed in order to take advantage of these communication routes into the fenland area</i></p>			
Project dates (fieldwork)	02/06 – 13/07/2010		
Previous work (Y/N/?)	N	Future work (Y/N/?)	N
P. number	<i>P3794</i>	Site code	AS 1276
Type of project	<i>Post-Excavation</i>		
Site status			
Current land use	<i>Overgrown garden plot</i>		
Planned development	<i>Construction of 9 dwellings</i>		
Main features (+dates)	<i>Middle Iron Age pits. 2<sup>nd</sup> century AD kilns with associated ditches and gullies</i>		
Significant finds (+dates)	<i>Middle Iron Age pottery. Romano-British pottery, mostly Horningsea ware produced in the kilns present at the site.</i>		
<b>Project location</b>			
County/ District/ Parish	<i>Cambridgeshire</i>	<i>South Cambridgeshire</i>	<i>Waterbeach</i>
HER/ SMR for area	<i>Cambridge Historic Environment Record (CHER)</i>		
Post code (if known)			
Area of site	<i>c.0.19ha</i>		
NGR	<i>TL 4994 6558</i>		
Height AOD (max/ min)	<i>4m AOD</i>		
<b>Project creators</b>			
Brief issued by	<i>Dan McConnell (CAPCA) Cambridgeshire County Council</i>		
Project supervisor/s (PO)	<i>Andrew A. S. Newton (Post-Excavation)</i>		
Funded by	<i>Hayler Developments Ltd</i>		
<b>Bibliography</b>			
Full title	<i>12 Pieces Lane, Waterbeach, Cambridgeshire; Research Archive Report</i>		
Authors	<i>Newton, A. A. S.</i>		
Report no.	<i>3763</i>		
Date (of report)	<i>February 2010</i>		

## **RESEARCH ARCHIVE REPORT FOR EXCAVATIONS AT 12 PIECES LANE, WATERBEACH, CAMBRIDGESHIRE.**

### **1 INTRODUCTION**

1.1 This report comprises the research archive for excavations on land at 12 Pieces Lane, Waterbeach, Cambridgeshire (NGR TL 4994 6558; Figs 1 - 2) carried out by Archaeological Solutions Ltd in June and July 2010. It has been compiled in accordance with EH MAP 2, Section 7 and Appendix 6. It follows the Interim Site Narrative (Newton and Barlow 2010) and the post-excavation Assessment and Updated Project Design (Newton 2010). The excavation was commissioned by Hayler Developments Ltd. The excavation was conducted in accordance with a brief issued by Cambridgeshire Archaeology Planning and Countryside Advice, Cambridgeshire County Council (CAPCA) (Kasia Gdaniec, dated 19/5/2010), and a specification issued by AS (dated 20<sup>th</sup> May 2010). The project complied with the document *Standards for Field Archaeology in the East of England* (Gurney 2003), and the Institute of Field Archaeologists' *Standard and Guidance for Archaeological Excavations* (revised 2008).

1.2 Part I of the report comprises the analytical reports which have arisen from post-excavation research. This is supported by Part II, which comprises finds catalogues and full archaeological descriptions of each of the recorded features.

### **2 SITE NARRATIVE**

#### **2.1 Overview**

2.1.1 In June and July 2010, Archaeological Solutions Ltd (AS) conducted an archaeological excavation of land at 12 Pieces Lane, Waterbeach, Cambridgeshire (NGR TL 4994 6558; Figs. 1 & 2). The excavation was commissioned by Hayler Developments Ltd and was required in compliance with a planning condition attached to planning approval for nine new residential dwellings with associated access and landscaping to be constructed on the site (Planning Ref. South Cambridgeshire Planning Application S/0276/07/F)

2.1.2 The excavation was conducted in accordance with a brief issued by Cambridgeshire Archaeology Planning and Countryside Advice, Cambridgeshire County Council (CAPCA) (Kasia Gdaniec, dated 19/5/2010), and a specification issued by AS (dated 20<sup>th</sup> May 2010). The project complied with the document *Standards for Field Archaeology in the East of England* (Gurney 2003), and the Institute of Field Archaeologists' *Standard and Guidance for Archaeological Excavations* (revised 2008).

2.1.3 The primary objective of the project was to preserve the archaeological evidence contained within the site by record and to attempt a reconstruction of the history and use of the site. The main research priorities of the project were: to

contribute towards an understanding of the character of Roman settlement in the Cam Valley; and, to carry out environmental reconstruction.

2.1.4 The excavation site comprised a widened area focussed on and incorporating the two trial trenches excavated during the preceding evaluation. The topsoil and undifferentiated subsoil were stripped using a mechanical excavator fitted with a toothless ditching bucket under close archaeological supervision. Exposed features were cleaned and planned electronically using a Leica TPS Total Station. Features and deposits were recorded by means of *pro forma* recording sheets, drawn to scale and photographed as appropriate. Excavated spoil was searched for archaeological finds.

## 2.2 Background

### *Description of the site*

2.2.1 Waterbeach is located c. 8km north of the centre of Cambridge and 15km south of Ely. The site lies on the northern side of Pieces Lane (to the rear of the existing No. 12), on the eastern edge of the village of Waterbeach. It comprises a long narrow rear plot, bounded by Saberton Close to the east and the rear plots of Hartley Close to the west.

### *Topography, geology and soils*

2.2.2 The Parish of Waterbeach is situated on the west bank of the river Cam. The site lies at an average of 4m AOD on Gault Clays mainly overlying Greensand with alluvial deposits around the river Cam. The surrounding area remains fairly flat, dropping gently to Ordnance Datum level at Swaffham Prior Fen only rising, to a height of 18m AOD at Church Hill to the north of Swaffham Prior, c. 7km to the east. The soils of the area are of the Adventurers' 1 association. These are described as deep peat soils associated with flat land (SSEW 1983). The village is located at the southern end of the parish, and the village lies to the west of the course of the Cam.

### *Archaeological and historical background (Fig. 3)*

#### Prehistoric

2.2.3 Neolithic stone axes and other tools have been found in the parish, and around Denny a Bronze Age burial mound and two ring ditches have been located. Prehistoric finds from within the area are fairly sparse but include a Mesolithic axe from near Waterbeach Station (CHER 06352; Fig. 3), an early Bronze Age handled Beaker and a flint dagger from near Bottisham Lock (CHER 06337 and 04356) and an undated wooden dugout canoe from beside the Car Dyke (CHER 05405). The closest prehistoric find spot comprises polished Neolithic stone axe heads found approximately 500 metres to the north-west of the site (CHER 0034).

2.2.4 Four sherds of Belgic pottery (CHER 05405a), no later than AD50 in date, have been recovered from the area of the Car Dyke, suggesting a *Terminus Post Quem* for the monument. This represents the only evidence, so far recorded, for Iron Age activity within a 1km radius of the excavation site. However, at Stony Hills, to the north, but still within Waterbeach parish, early and late Iron Age pottery has been recorded along with Roman occupational debris, comprising tile, stone, animal bone, oyster shell and pottery covering an area of 5.4ha on a low gravel peninsula just north of Denny (Hall 1996, 123). Iron Age archaeology has also been identified during work associated with the Histon to Waterbeach Cable (Dickens *et al* 2003), the Cottenham to Landbeach pipeline (Hall 1999) and along the Great Ouse gravel terrace (Masser 2000). Iron Age settlement is well represented in the area to the south of Waterbeach and to the north of Cambridge, especially around Milton.

## Roman

2.2.5 In the Roman period there was fairly widespread settlement in the area with concentrations to the south, where a large pottery industry was located around Horningsea, and to the north, around Denny and Stony Hills. Another Roman site lay in the approximate area of the airfield to the north of Waterbeach, indicated by coins, pottery and hypocaust tiles. The Akeman Street Roman road, 2 km to the west, ran in a south to north direction. The most important Roman archaeology within the immediately surrounding area is the Car Dyke (CHER 05405) which is a Scheduled Monument (DCB 264). The dyke is part of a long canal built in the early Roman period which bounded the western edge of the Fen and ran for 140km into Lincolnshire. Excavations in 1947 showed that by the 4<sup>th</sup> century it had stagnated and silted up. In 2004, an evaluation approximately 300 metres to the north-west of the site found gullies, containing Roman pottery, interpreted as enclosure boundaries (CHER MCB 17241). The site probably lies in an area reclaimed by the Romans although it is close to an area of Fen that was not reclaimed until c.1800.

2.2.6 The A10, which passes to the west of Waterbeach is thought to follow the route of Roman Akeman Street. To the north-west, in the area of the Waste Management Park at Ely Road, Waterbeach an evaluation in 2008 recorded the edge of two Romano-British enclosures with associated settlement and quarrying evidence (Ranson 2008). This added to an already well known Roman landscape in this area. A Roman temple to the north of the Waste Management Park has been identified on aerial photographs and coins and a votive axe have been recovered from the site of this temple and a Roman cremation cemetery has been identified adjacent to it (Cooper and Whittaker 2004). Cropmarks in the area surrounding the temple have been destroyed by quarrying but ditches and waterlogged pits containing a variety of artefacts were excavated. Previous investigations at the Waste Management site recorded Roman period settlement activity. Further quarrying and rural settlement evidence has also been recorded in this northern part of Waterbeach parish (Whittaker 1997; Dickens *et al* 2003; Hall 1999).

2.2.7 To the south of Waterbeach, Romano-British settlement, industrial activity and a cemetery has been identified between Horningsea and Clayhithe. A villa site



is known at Arbury and farmsteads and industrial activity have been identified at Milton (Conner 1999). A large well preserved settlement and field system has been recorded along the route of the Car Dyke (Browne 1977).

### Anglo-Saxon, medieval and later

2.2.8 Evidence for early Saxon settlement has been identified at three separate locations in the surrounding area, all 750 metres to 1km west of the site. In 1927 an excavation alongside the Car Dyke recorded occupation layers from three 'hut' floors containing pottery, fragments of glass bottles and beads, and a bone pin (CHER 05312). Further evidence was found to the south in 1996 during excavations ahead of the construction of the Cambridge Rowing Lake (CHER 09024). Here, part of an earth-fast post-built hall was found with other occupation layers containing pottery and bone. The third area, near Denny End, was subject to excavation in 1995 and this recorded early Saxon occupation including a *grubenhous* containing pottery and bone tools sealed beneath ridge and furrow (CHER CB 14602).

2.2.9 In the wetter historical periods Waterbeach was a true fen island, completely surrounded by land below the floodline. Waterbeach village, and the other parts of Waterbeach parish, Denny and Elmeney, which were settled at different times in the medieval period, formed a small fen archipelago. Each of the elevated sites was formed of a low deposit of gravel, sufficient to give a drier surface than the surrounding fen (Ravensdale 2008, 6).

2.2.10 In 1066 Waterbeach formed part of two manors which were united by 1086 by Picot the sheriff. The name Waterbeach is first recorded in 1086 as *Vtbech* and in 1236 as *Waterbech*. In c.1235 the manor passed by marriage to the Butler family and when Robert Butler died in 1281, his widow Denise gave the manor to the Franciscans to build a religious house. Waterbeach Abbey (CHER 05405) is a Scheduled Monument (DCB 352) and was founded as the Piety of St Mary and St Clare. In the 14<sup>th</sup> century the nuns and abbey burials were transferred to the re-founded Denny Abbey further north, which was dissolved in 1539. Waterbeach Abbey was described as desolate by 1349. The parish church of St John the Evangelist (CHER 05560) dates from c.1200 with rebuilding and renovation in the 15<sup>th</sup> and 19<sup>th</sup> centuries. An evaluation in 2000 found a 12<sup>th</sup> century ditch and post-medieval charnel pit.

## **2.3 Phasing**

2.3.1 Based upon analysis of the site's pottery assemblage and associated stratigraphic evidence, an assessment and refinement of the dating of on site activity was conducted as part of the project's post-excavation analysis.

2.3.2 Two clearly distinct phases of activity were identified. The first of these is activity of middle Iron Age date and this is represented by a small number of features and some pottery present as residual material in later features. The second phase of activity is dateable to the early 2<sup>nd</sup> century AD, the Trajanic/Hadrianic period. This comprises of inter-cutting features that have been

divided into 12 sub-phases based on stratigraphic relationships, and in a very small number of instances spatial relationships. Analysis of the pottery assemblage has been unable to provide any differentiation between the stratigraphically identifiable sub-phases of Phase 2, although certain features lacking in helpful stratigraphic relationships but containing pottery assemblages displaying elements possibly reaching beyond the core date for the assemblage have been tentatively assigned to the latest sub-phase.

Phase	Sub-phase	Date
1	-	Middle Iron Age (400-100 BC)
2	1	Romano-British (early 2 <sup>nd</sup> century AD)
2	2	Romano-British (early 2 <sup>nd</sup> century AD)
2	3	Romano-British (early 2 <sup>nd</sup> century AD)
2	4	Romano-British (early 2 <sup>nd</sup> century AD)
2	5	Romano-British (early 2 <sup>nd</sup> century AD)
2	6	Romano-British (early 2 <sup>nd</sup> century AD)
2	7	Romano-British (early 2 <sup>nd</sup> century AD)
2	8	Romano-British (early 2 <sup>nd</sup> century AD)
2	9	Romano-British (early 2 <sup>nd</sup> century AD)
2	10	Romano-British (early 2 <sup>nd</sup> century AD)
2	11	Romano-British (early 2 <sup>nd</sup> century AD)
2	12	Romano-British (early 2 <sup>nd</sup> century AD)

Table 1: Chronological phasing (see also Fig.4)

## 2.4 Phase 1: Middle Iron Age (Figs. 4, 5 and 6)

Middle Iron Age features were limited to the southern half of the excavated area. The four features that were assigned to Phase 1 comprised two intercutting pits (F2109 and F2111; Grid Square C8) and two discrete pits (F2131; Grid Square D4 and F2181; Grid Square C2) which lay further to the south.

Sub-circular Pit F2109, which contained small quantities of middle Iron Age pottery and animal bone, was truncated by the larger but shallower sub-rectangular Pit F2111. This also contained a small quantity of middle Iron Age pottery. It was cut to the east by the undated gully F2113 and, to the west, extended beyond the limits of the excavated area.

Eighteen metres to the south lay the regularly shaped Pit F2131, rectangular in plan with steep, near vertical, sides and a flat base. For a small feature (0.62 x 0.74 x 0.15m) it contained a large finds assemblage. A total of 1388g (84 sherds) of middle Iron Age pottery, a piece of fired clay (13g) and 476g of animal bone were recovered from this feature. Pit F2181 lay c. 13m to the south of F2131. It was circular in plan, with moderately sloping sides. Finds comprised 34g of middle Iron Age pottery and 315g of animal bone.

Iron Age pottery was also found as residual material in numerous features dated as Romano-British. Notable concentrations of residual Iron Age pottery occurred in Roman Ditches F2133, F2177 and F2066. This, and the large assemblage recovered from Pit F2131, suggests that there may have been a significant level of Iron Age activity at or close to this location and which may have been almost



completely destroyed by the fairly intense Roman activity that eventually succeeded it.

## **2.5 Phase 2: an introduction** (Figs. 4 and 5)

Phase 2 comprises those features that were dated as Romano-British. These features were mostly intercutting ditches but two pottery kilns were also present, one at the north and one at the south of the site. The identification of the layout of the site during Phase 2 is hampered by the small size of the excavated area and the truncation/obscuration of features due to the density in which Phase 2 features occurred. However, the close proximity and spatial relationships between a small number of Phase 2 ditches and the kilns suggest that they may have been used to access sub-surface flues or stoke-holes. Dumps of wasters, representing material raked from kiln interior following firing, in these ditches confirm their relationships with kilns.

The overwhelming majority of features recorded at the site were assigned to Phase 2. The pottery assemblage suggests a particularly short chronological range for the activity recorded here, probably focussed on the first quarter of the 2<sup>nd</sup> century AD. Stratigraphic relationships clearly indicated that not all of the Romano-British features were directly contemporary with one another. As the artefactual evidence offers little or no distinction in their dates, Phase 2 features have been split into sub-phases on the basis of their stratigraphic relationships.

## **2.6 Phase 2 Sub-phase 1: Romano-British (early 2<sup>nd</sup> century AD)** (Figs. 4, 5 and 6)

Sub-phase 1 features comprised the stratigraphically earliest features dateable as Romano-British. Although all of these features are clearly earlier than other Roman period features present at the site their direct contemporaneity with one another is not certain.

Gullies F2018 (Grid Square G15), F2050 (Grid Squares F14, G14), F2058 (Grid Square G14) and F2052 (Grid Squares F13, F12, G13, G12) ran broadly parallel to one another in the northern part of the site, possibly suggesting contemporaneity and shared or associated functions. Gullies F2050 and F2058 were similar in width and depth and had similar profiles with moderately sloping sides and flat or gently concave bases. Gully F2018 was of similar dimensions to these features, though was slightly wider, but had a more regular straight sided, flat based profile. Gully F2052 differed most from this pattern, being narrower, deeper and aligned at a slightly different angle.

Two small pits of indeterminate function, both containing small quantities of Roman pottery, and assigned to Sub-phase 1 of Phase 2 activity, were present in close proximity to these ditches.

At the very southern end of the site lay Ditch F2192 (Grid Squares A1-D1). It was curvilinear in plan and was initially aligned north-west to south-east before turning towards the north-east in the south-eastern corner of the site. It clearly extended

beyond the limits of the excavated area to the south and west but appeared to have terminated in the vicinity of Grid Squares C2 and D2. Its pattern of infill varied along its length. It displayed no spatial relationships with any other features assigned to Sub-phase 1 from which its function could be determined. However, it followed a similar alignment and was of similar shape in plan to Sub-phase 4 Ditch F2184 which was associated with Kiln S2171. This kiln appeared to have been the most recent in a series of kilns in this location, suggesting the possibility that Ditch F2192 may have had a similar relationship with a stratigraphically early kiln. Pit F2186 (Grid Square B2), which was located in close proximity to Ditch F2192, may have held such a kiln. This circular, steep-sided, flat-based pit contained pottery and fired clay. It was cut and sealed by Sub-phase 2 Pit F2148 which, despite a lack of kiln material, was identified as representing a pit to hold a kiln structure, and which may have been a precursor to the Sub-phase 4 Kiln S2171, contained within Pit F2146.

Ditch F2165 (Grid Squares E5-D7) was linear in plan and aligned north-west to south-east. Its northern end was cut by Sub-phase 4 Ditch F2117. To the south, it extended beyond the limits of the excavated area. It displayed no real spatial relationships with any other features of the same sub-phase from which its function could be elucidated but it did lie in close proximity to the Sub-phase 1 Ditch F2120. F2120 was aligned north-north-east to south-south-west. It is possible that these features may have formed a boundary, possibly enclosing the area to the south in which Sub-phase 1 Ditch F2192 and Pit F2186 are tentatively suggested to have formed an early precursor to Kiln S2171.

While most features assigned to Phase 2 Sub-phase 1 lay in fairly close proximity to other features assigned to this sub-phase, even if these spatial relationships were insufficient to suggest function, Pit F2156 (Grid Square D3) was comparatively isolated. The pit extended beyond the eastern limit of the excavated area and its southern part was truncated by Phase 2 Sub-phase 6 Gully F2135. An iron fragment was recovered from its upper fill; its lower fill contained animal bone and pottery. This pottery comprised an undiagnostic body sherd from a Horningsea ware vessel. All of the Roman pottery recovered from Sub-phase 1 features was identified as Horningsea ware (see Peachey, *below*).

## **2.7 Phase 2 Sub-phase 2: Romano-British (early 2<sup>nd</sup> century AD) (Figs. 4, 5 and 6)**

Sub-phase 2 features were those identifiable as occurring immediately stratigraphically following Sub-phase 1 features. Like features from all of the other stratigraphic sub-phases of Phase 2, these features were dated to the early 2<sup>nd</sup> century AD.

At the southern end of the site, Sub-phase 2 Ditch F2151 (Grid Squares B2-D1) and Pit F2148 (Grid Square B2) may represent a precursor to the Phase 5 arrangement of Kiln S2171 (contained within Pit F2146) and Ditch F2184. Pit F2148 and Ditch F2151 were clearly contemporary with one another. Oval Pit F2148 may have been used as a pit to contain a kiln, though no kiln material, only a small quantity of pottery and animal bone, was recovered from it. Waste material

from this kiln may have been raked out in to Ditch F2151 as has been demonstrated with the ditches associated with Kilns S2171 and S2020. Indeed, over 2kg of pottery was recovered from this ditch, although some of this was residual middle Iron Age pottery, indicating that material originating from earlier features somehow made its way into this feature. This quantity of material is, however, nowhere near as high as that found in Ditch F2184 which contained waste material from Kiln S2171, possibly still *in situ* where it had been raked from the kiln itself. This may indicate that, if F2151 was indeed associated with a kiln located in Pit F2148, it was cleared out prior to being filled in. Ditch F2151 and Pit F2148 cut Sub-phase 1 Ditch F2192 and Pit F2186 which were also considered to represent a precursor to Kiln S2171.

Towards the centre of the site was Ditch F2094 (Grid Squares D8-E9), which was linear in plan and aligned north to south. This ditch cut Sub-phase 1 Ditch F2120 and was cut by Sub-phase 3 Ditch F2117. It contained no finds but these stratigraphic relationships indicated that it belonged to Sub-phase 2. There was no obvious spatial relationship with the Sub-phase 2 features at the southern end of the site.

At the northern end of the site was spread/layer L2029. This comprised a light to mid greyish brown compact silty clay with very occasional small sub-angular stones and contained pottery and animal bone. L2029 overlay Sub-phase 1 features and on this basis is assigned to Sub-phase 2. However, as it had no clear relationships with any other feature earlier than Sub-phase 8 it could potentially belong to any sub-phase up to that. This layer was obscured by later features. During the preceding trial trench evaluation it was recorded as L1011.

## **2.8 Phase 2 Sub-phase 3: Romano-British (early 2<sup>nd</sup> century AD) (Figs. 4, 5 and 6)**

In the south-west corner of the site, Pit F2167 (Grid Square B2) may have held a kiln structure. Its basal fill was a dark red brown compact clay displaying evidence of burning and the feature was located in the same part of the site as the possible Sub-phase 2 Kiln F2148 and Sub-phase 4 Kiln S2171. Indeed, this feature was cut by the pit that contained S2171 and cut F2148. F2167 was dated by the Roman pottery recovered from its fills. The upper fill of the feature contained fired clay, possibly from the succession of kilns that was present in this area. Indeed, recognisable in the fired clay assemblage from this feature was a single large fragment of an integral pilaster that would have existed within a kiln, and further fragments of kiln lining. Its tertiary fill, L2196, a black brown compact silt with occasional small stones, contained a moderate quantity of charcoal. This is unlikely to represent material derived from the firing of the kiln that Pit F2167 contained, but such material in an area where three kilns are understood to have been constructed, one after the other, may be expected.

Two other features were assigned to Sub-phase 3. The first of these was Ditch F2098=F2133 (Grid Squares C6-D1), initially recorded as two separate features. Later, it was identified that these features represented a single ditch on the basis of morphology (both had moderately steep sides and concave bases) and certain

similarities of fill, although this did vary along the length of the feature. This feature ran on a broadly north to south alignment.

Ditch F2117 (Grid Squares C8-E7) was recorded as F1033 in the preceding trial trench evaluation (Barlow and Thompson 2010). It was aligned east to west. F2117 was similar in form to Ditch F2098=F2133, with steep sides and a concave base. It was, however, considerably wider at a maximum of 4.56m and deeper at 2m. The alignments of Ditches F2098=F2133 and F2117 suggest that they would have converged at a point just beyond the western boundary of the site and formed a right angle with one another. This raises the possibility that these ditches may have formed part of an enclosure. The discrepancies in dimensions between these two features may indicate that F2117 was an enclosure boundary, while F2098=F2133 represented sub-division of the space within this enclosure.

## **2.9 Phase 2 Sub-phase 4: (early 2<sup>nd</sup> century AD) (Figs. 4, 5 and 7)**

Like features of the preceding sub-phase, Sub-phase 4 activity occurred only in the southern half of the excavated area. At the very southern end of the site Sub-phase 4 was represented by Pit F2146, which contained Kiln Structure S2171 (Plates 1 and 2), and the associated Ditch F2184. Pit F2146 (Grid Square B2) was ovoid in plan with moderate to steep sides and a flattish base. The basal fill, L2147, recorded as L2176 where it occurred within the kiln structure, was a dark brown to black compact clayey silt with moderate small stones and occasional charcoal. This contained pottery, fired clay, burnt stone and animal bone. This was overlain by L2172, which represented the demolished superstructure of Kiln S2171 and comprised a layer of mid brown orange compact burnt and fired clay. This in turn was overlain by a light brown grey compact silty clay (L2183) and a possible levelling layer, L2177, was identified overlying this. Pottery was present in only limited quantities in Kiln S2171, contained in Pit F2146 (L2147 and L2176). It is noticeable, however, that it contained the large complete base of a Horningsea storage jar that may have been re-used as a clay plate inside the kiln.

Ditch F2184 (Grid Squares B2-C1) was linear in plan and aligned east to west. It lay immediately adjacent to Pit F2146, to the south. It clearly functioned in conjunction with Kiln S2171 as the flue of the kiln opened out into this ditch. A large waster deposit, comprising 1129 pottery sherds (25599g), was recovered from Ditch F2184 (Seg. A) in the area that the two communicated. In addition to the significant quantities of kiln lining and fragments of kiln furniture recovered from Kiln S2171, including fragments of integral pilasters, such material was also present in the associated waster dump in Ditch F2184. A single integral pilaster, more complete than those recovered from the kiln itself, was present in the ditch as were 2 fragments (92g) of perforated clay plate that had probably been raked out of the kiln chamber along with the material present in this dump.

The remaining Sub-phase 4 features were Ditch F2100 (Grid Squares C5, C6), which was a recut of Sub-phase 3 Ditch F2098=F2133 and Pits F2198 and F2137 (Grid Square C4). Ditch F2100 was linear in plan and aligned north-west to south-east. Pottery and animal bone were recovered from this feature and it was cut by Ditches F2102 and F2106. The distribution of these features within the excavated

area offered no obvious spatial or functional relationships with the kiln and the ditch that was associated with it.

## **2.10 Phase 2 Sub-phase 5: (early 2<sup>nd</sup> century AD) (Figs. 4, 5 and 7)**

Sub-phase 5 features were those identifiable as occurring stratigraphically later than Sub-phase 4 features and earlier than Sub-phase 6 features. Two features were assigned to Sub-phase 5; the south-west to north-east aligned Ditch F2096 (Grid Squares B1-E11) and Ditch F2102 (Grid Squares B4-C6), which ran broadly parallel to F2096 before turning through 90° to the west.

The form of Ditch F2102 suggests that it may have been the corner of some kind of boundary or enclosure, though the area that it may have enclosed lay beyond the limits of the excavation. Horningsea ware pottery was recovered from this feature, along with residual middle Iron Age pottery. A bone awl and an Iron fragment were recovered from the upper and lower fills of Segment B of this feature, respectively. The middle fill of the tripartite fill sequence recorded in this part of the feature contained over 1kg of animal bone. The fill sequence differed along the length of this ditch, with only a single fill recorded in Segment A.

Ditch F2096 is of note as, with the exception of F2106, F2163 and F2135, was clearly later than the majority of features in the southern part of the site but clearly earlier than the majority of features in the northern part of the site. This may suggest that activity shifted to the north over the narrow period within the early part of the 2<sup>nd</sup> century AD that the Roman archaeology recorded at this site represents. The density with which features occurred at this site suggests that the constant cutting and then infilling of features necessitated this shift north to prevent new features being cut in to the recent, and possibly loose or unstable, fills of their predecessors. Ditch F2096 itself was linear and slightly irregular in form. This irregularity was reflected in its profile, which varied along its length.

## **2.11 Phase 2 Sub-phase 6: (early 2<sup>nd</sup> century AD) (Figs. 4, 5 and 7)**

Sub-phase 6 was represented by two features; the large curvilinear Ditch F2066 (Grid Squares D10-E15) and the curvilinear Gully F2135 (Grid Squares D3-C2), located at the southern end of the site. The two features were located in excess of 36m apart and no obvious spatial or functional relationship was observed. They were both assigned to Sub-phase 6 as they occurred next in the stratigraphic sequence following Sub-phase 5, both cutting Ditch F2096. However, as F2135 was cut by no other features it has no *Terminus Ante Quem* and, therefore, may conceivably be of any date up to Sub-phase 12.

F2066 was located on the western side of the excavated area, towards its northern end. It contained a complex sequence of fills which differed within each excavated segment of the feature (see Appendix 1). It was a large feature, measuring 26.00+ x 4.97 x 1.87m and had steep to moderately steep irregular sides and a concave to flat base. A feature of this size and shape may be best understood as a boundary or enclosure ditch, which must have enclosed or demarcated a parcel of land just



to the west of the excavated area. The irregularity in plan of Ditch F2066 within the excavated area would suggest that the area that it enclosed was somewhat amorphous. It contained a large finds assemblage including over 3kg of Romano-British pottery, residual middle Iron Age pottery (123g), several iron fragments (Small Finds 3-6), fired clay and burnt stone. Thirteen sherds of late 15<sup>th</sup> to 16<sup>th</sup> century pottery (225g) were recovered from fill L2088, the upper fill of F2066 in Segment D. The interface between L2088 and L2087, the underlying fill, did not appear to represent a cut and so L2088 is not considered to represent the fill of a later feature cutting Ditch F2066. It is possible that this layer represents the infilling of a residual depression occurring at the location of this substantial ditch. However, fill L2088 was almost identical to L2070, the upper fill present in Segment A of F2066. L2070 contained in excess of 1.5kg of Romano-British pottery, suggesting that the medieval material in L2088 was intrusive, where from, however, remains unknown as no medieval features were recorded at the site. No medieval remains are recorded by the Cambridgeshire HER within 400m of the site; the presence of this pottery, despite being intrusive, therefore indicates previously unknown medieval activity in this part of Waterbeach.

At the southern end of the site the curvilinear Ditch/Gully F2135 may be seen to have formed two sides of an irregular square. It is possible that this represents a small enclosure, c. 7m across. In addition to pottery, burnt flint and animal bone, this feature contained a copper alloy clasp or belt plate (Small Find 10) and a bone stylus (Small Find 15). The clasp or belt plate has four small-headed corner rivets and a dome-headed central rivet. Its surface is unusually dark and bears traces of decoration. It appears that it is an early Roman military belt plate. This may suggest that the site had military links.

## **2.12 Phase 2 Sub-phase 7: (early 2<sup>nd</sup> century AD) (Figs. 4, 5 and 7)**

Sub-phase 7 features comprised two narrow gullies, F2043 (Grid Squares E13-G13) and F2079 (Grid Squares D11-E12). Both of these gullies cut Ditch F2066 and were cut by Sub-phase 8 features, F2043 by Ditch F2006 and F2079 by Ditch F2075=F2064. F2079 was cut prior to the final infilling of Ditch F2066.

The two Sub-phase 7 features were very similar in plan and in section; both displayed moderately steep sides and concave bases. They differed slightly in dimensions, however, with F2079 having a greater maximum width of 0.80m and being deeper by 0.05m at 0.23m in depth. Their similarities in form and their proximity to one another (they lay c. 6m apart) suggest that shared a function, though the nature of this function remains unclear.

## **2.13 Phase 2 Sub-phase 8: (early 2<sup>nd</sup> century AD) (Figs. 4, 5 and 7)**

Gully/Ditch F2006 (Grid Squares G18-E13) was aligned north to south and cut Ditch F2066. It was the earliest dateable feature amongst a succession of intercutting ditches, also comprising F2008, F2010 and F2038 on this alignment at the northern end of the site. It is possible that this group of features represent successive replacements for each other.



To the south, lay Ditch F2075=F2064 (Grid Squares F9-E13). This feature entered the excavated area from the south and continued on the same alignment for a distance of c. 10m, cutting the substantial Sub-phase 6 Ditch F2066 and the narrow Sub-phase 7 Gully F2079. It gradually petered-out to the north and was not identified within excavated Segment A of F2066 (the terminus marked on Fig. xx is only hypothetical). Although they appeared to meet somewhere within Grid Square E13, it seems unlikely that F2006 and F2075=F2064 functioned as part of the same boundary; F2075=F2064 was wider and substantially deeper than F2006. Furthermore, as F2075=F2064 was not cut by any later features it has no identifiable *Terminus Ante Quem* and, therefore, could potentially be contemporary with features belonging to any Sub-phase from 8 onwards.

#### **2.14 Phase 2 Sub-phase 9: (early 2<sup>nd</sup> century AD) (Figs. 4, 5 and 7)**

Sub-phase 9 comprised a single feature; Ditch F2010 (Grid Squares F17-E15). No dateable pottery was recovered from this feature but it was clearly of Romano-British date as it cut Sub-phase 8 Ditch/Gully F2006 and was cut by Ditches F2008 (Sub-phase 10) and F2038 (Sub-phase 11), all of which were securely dated as Romano-British. It was very similar in depth to Gully/Ditch F2006, the western edge of which it cut. It was also very similar in profile. This may suggest that F2010 was created in order to fulfil the same function as F2006. The progressive order in which all four of the ditches in this area (also including F2008 and F2038) were cut may suggest that each was a replacement for its immediate stratigraphic predecessor. However, the two most recent features in this group differed significantly in profile from F2008 and F2010 and turned to the west close to their southern termini, cutting across the line of the earlier features.

#### **2.15 Phase 2 Sub-phase 10: (early 2<sup>nd</sup> century AD) (Figs. 4, 5 and 7)**

Like the preceding sub-phase, Sub-phase 10 was represented by only a single feature. Ditch F2008 (Grid Squares G18-E15) was one of the series of intercutting north-east to south-west aligned ditches at the northern end of the site, which also included F2010, F2006 and F2038. Its function is not obvious but it could possibly be a precursor of its recut F2038 which appears to have been excavated to allow access to the Kiln Structure S2020.

F2008 was significantly wider and deeper than F2006 and F2010, its immediate stratigraphic predecessors to the west. It also turned to the west and cut across the two earlier features. It is possible that F2010, F2006, F2008 and F2038 represent successive replacements of each other, all fulfilling the same function, possibly associated with an earlier kiln or kilns in the location of Kiln S2020, with which F2038 was clearly associated. However, the turn to the west that was displayed by both F2008 and F2038, and their greater depths, in comparison to F2006 and F2010, may be sufficient evidence to refute this suggestion.

## **2.16 Phase 2 Sub-phase 11: (early 2<sup>nd</sup> century AD) (Figs. 4, 5 and 8)**

Sub-phase 11 features take their phasing from their functional relationships with Ditch F2038 (Grid Squares F16-E14), which cut Sub-phase 10 Ditch F2008. In addition to this ditch, Sub-phase 11 features comprised those forming Kiln S2020 (Grid Squares F15, G15; Plates 3, 4 and 5), and a further ditch, F2047 (Grid Squares F14, G14), which like F2038, was directly associated with the kiln.

Pit F2030, recorded as F1020 in the preceding trial trench evaluation, formed the base into which Kiln S2020 was cut. F2021 lay within this pit and represented the actual construction cut for the kiln structure. It was lined with kiln lining L2022, a light pinkish white baked clay which was 0.10m thick. The interior of Kiln S2020 was filled with L2023, a black brown compact silty clay with occasional medium angular stones and a concentration of bluish yellow clay towards the upper reaches. Immediately adjacent to the south was the sub-rectangular Pit F2039 (Plate 3); this feature clearly communicated with the kiln structure and must have comprised a stokehole for the kiln. Leading from the kiln structure in a west-north-westerly direction, and communicating with Ditch F2038 was Flue Gully F2032. A second gully, F2027, lead to the east-south-east and would appear to have performed a similar function. In excess of 33kg of pottery were recovered from features forming Kiln S2020, the vast majority of this was Horningsea reduced or oxidised ware, though a very small quantity of imported pottery types was identified within this assemblage.

Ditch F2038 was located to the north-west of Kiln S2020. Ditch F2047 lay to the south of the kiln. During the preceding trial trench evaluation, two separate gullies, F1007 and F1009, were recorded in the location of this ditch. These were initially considered to represent two different features but the results of the excavation suggest that this was not the case and that both were part of Ditch F2047. Like Ditch F2184, which was associated with Sub-phase 4 Kiln S2171, Ditches F2038 and F2047 appear to have been excavated to allow access to, and aid operation of, the kiln with which they were associated. Flue Gully F2032 opened out into Ditch F2038 and Gully F2027 lay in very close proximity to Ditch F2047. Over 20kg of pottery was recovered from F2047 and a further 7kg was found in F2038; the vast majority of this was Horningsea ware and occurred primarily as waster deposits. Kiln lining and kiln furniture was also present amongst this material, especially in Segment A of Ditch F2047. This material would have been raked from the firing chamber of Kiln S2020 and was seemingly left in the ditch when the feature was infilled.

It is clear that this kiln was producing Horningsea ware pottery. The form types found within or associated with it were very similar to those recorded in association with Phase 2 Sub-phase 4 Kiln S2171, though they occurred in greater quantities. This indicates that the two kilns were producing similar output. The dates associated with these pottery types are very similar and Kiln S2020 can not have been functioning very long after Kiln S2171 went out of use. Indeed, as has been stated previously, the majority of the Roman activity represented at this site is likely to have occurred within the first quarter of the 2<sup>nd</sup> century AD.

## 2.17 Phase 2 Sub-phase 12: (early 2<sup>nd</sup> century AD onwards) (Figs. 4, 5 and 8)

Sub-phase 12 features were those that could be proven to be later than Sub-phase 11 features either through artefactual evidence, dateable to the 2<sup>nd</sup> century AD or later, or through direct stratigraphic relationships with Sub-phase 11 features.

Ditch F2060 (Grid Squares E14, E15) was linear in plan, it was aligned north-west to south-east and in section it had steep, almost vertical sides and a flat base. It was clearly stratigraphically later than Sub-phase 11 as it cut Ditch F2038, as well as the earlier Ditches F2008 and F2066. On this basis it was assigned to Sub-phase 12.

The remaining Sub-phase 12 features are very tentatively assigned to this sub-phase as they had no clear *Terminus Ante Quem* and contained pottery assemblages the date ranges for which potentially extended beyond the early 2<sup>nd</sup> century AD core date assigned to the assemblage as a whole.

Ditch F2106 (Grid Squares C5, D5) entered the excavated area from the east and terminated in Grid Square C5. It was recorded during the earlier evaluation (Barlow and Thompson 2010) as F1028. Pottery from this feature may have been as late in date in as late 2<sup>nd</sup> or early 3<sup>rd</sup> century (see accompanying CD). It was cut by Pit F2163 (Grid Square C5). Due to the tentative nature of F2106's assignment to Sub-phase 12 and its uncertain position with the site's stratigraphic sequence, F2163 is considered with features assigned to Sub-phase 12.

Narrow Gully F1018 and Pit F1022 were only identified within Trench 2 of the trial trench evaluation (Barlow and Thompson 2010). No trace of them was identified when the area was widened. They are tentatively assigned to Sub-phase 12 on the basis of containing pottery potentially later in date than the core date for the overall assemblage. Their lack of relationships with other features makes their position within the overall stratigraphic sequence of the site impossible to identify. Both were cut by the modern Gully F1016.

Hearth/Pit F2173 (Grid Square B4) was a discrete feature located within the southern part of the site. It was assigned to Sub-phase 12 as it contained pottery ranging in date from the 2<sup>nd</sup> to 4<sup>th</sup> century, therefore extending well beyond the core date for the assemblage. It was sub-rectangular in plan with steep, near vertical sides and a flat base. Its basal fill, a very dark grey brown firm charcoal-rich clay silt, contained worked stone and medium to large lumps of fired clay that appeared to have been arranged on the base of the feature so as to form a hearth. Burnt stone and animal bone were also recovered from this feature. These would appear to support the interpretation of this feature as hearth; food waste is often found in association with such features and the origins of the burnt stone are fairly obvious.

Sub-phase 12 is less well defined than the earlier Sub-phases. Ditch F2060 clearly post-dates Sub-phase 11, while the features considered to belong to Sub-phase 12 in the southern half of the site are assigned to this sub-phase on the basis that their finds assemblages suggest a potential for them to be late in date in comparison to the other Roman features recorded here. It is possible that these

features represent lingering Roman period activity in the vicinity of the site following the main period of occupation which would appear to end with Sub-phase 11. However, there is no certainty that all of these features were directly contemporary with one another and the possibility remains that they could in reality be contemporary with features of any sub-phase (Ditch F2106 and Pit F2163 can be no earlier than Sub-phase 6).

### **2.18 Phase 2, sub-phase not assigned** (Figs. 4, 5 and 8)

A small number of features recorded at the site were dateable as Romano-British but were discrete features or displayed insufficient stratigraphic relationships for them to be assigned to a particular sub-phase.

Many of these were small features containing only low quantities of dateable artefacts. Some of these features were notable for the finds assemblages which they produced, such as Pit F2056 which contained a large concentration of Roman pottery, possibly due to its proximity to Sub-phase 11 Kiln S2020. Other Phase 2 features which were not assigned to a particular sub-phase comprised F1003, F2016, F2034, F2056, F2062, F2124, F2159, F2161 and F2178 (for details see Appendix 1).

### **2.19 Modern features** (Figs. 4, 5 and 8)

Four features recorded during the preceding trial trench evaluation (Barlow and Thompson 2010) were identified as being modern in date. These features were identified in the trial trench evaluation but were not identifiable during full excavation of the site. F1014 and F1016 both lay within Grid Square D6. Gullies F1037 and F1039 both lay within the area of Ditch F2096; they were recorded as running east to west but some possibility remains that they were in fact misidentified portions of this larger, considerably earlier, ditch

### **2.20 Undated features** (Figs. 4, 5 and 8)

Fourteen features were not dateable. These were mostly discrete features or features containing no dateable finds and with insufficient stratigraphic relationships to assign them to a particular date or phase.

Pit F2014, was very similar in shape, location and alignment to Phase 2 Romano-British Pit F2016, suggesting a relationship between the two. Pit F1013 (Grid Square G16) and Gully F2115 (Grid Squares C6, D6), which were both cut by Phase 2 features could clearly have been of Romano-British date or earlier but they displayed no coherent spatial or functional relationships with features assigned to Phase 1 or Phase 2. Gully F2113 (Grid Squares C8, C9) cut Phase 1 and Phase 2 Sub-phase 3 features, indicating that it could have been of any date later than this. Its very regular form may, however, be more indicative of a modern date. Other features were discrete features containing no dateable finds and displaying no spatial relationships to confirm or refute a link to the identifiable Iron

Age and Roman period activity.

### 3 SPECIALISTS' FINDS AND ENVIRONMENTAL REPORTS

#### 3.1 The Pottery

Andrew Peachey

##### Introduction

Excavations (trial-trench and open-area) recovered a total of 8243 sherds (122803g), comprising 278 fragments (4082g) of middle Iron Age pottery, 7960 fragments (118699g) of Roman pottery and 5 fragments (22g) of post-medieval pottery. The middle Iron Age (Phase 1) pottery is largely accounted for by a concentration of sherds in a single pit, with the bulk of the remaining middle Iron Age pottery present as residual material in Roman features. The Roman (Phase 2) pottery was distributed in a series of inter-cutting features that could be subdivided into 12 stratigraphic sub-phases (Table 2). High concentrations of pottery in Phase 2 Sub-phases 4 and 11 were contained in kilns or as waster deposits associated with Horningsea ware production. Further small concentrations, notably in Phase 2 Sub-phases 1, 2 and 12 may be associated with truncated kilns or kilns beyond the excavated area. The bulk of the assemblage is comprised of Horningsea ware fabrics with occasional sherds of samian ware and regionally imported wares also present. The forms and fabrics within the assemblage indicate that the entirety of Phase 2 spans only the early 2<sup>nd</sup> century AD (Trajanic-Hadrianic period) and was associated with an intensely exploited industrial landscape focussed on pottery production. The production of Horningsea ware is well attested in the local area surrounding the Roman Car Dyke and Akeman Street, and this assemblage provides a further valuable contribution to the corpus of knowledge known about the industry.

Stratigraphic Phase	MIA Pottery			Roman Pottery		
	SC	W	R.EVE	SC	W	R.EVE
1	93	1449	1.00	0	0	0.00
2 Sub-phase 1	14	162	0.00	151	1377	0.63
2 Sub-phase 2	5	106	0.08	145	2580	0.72
2 Sub-phase 3	51	760	0.10	424	6006	1.27
2 Sub-phase 4	3	13	0.00	1198	27378	9.95
2 Sub-phase 5	10	188	0.20	52	533	0.00
2 Sub-phase 6	81	1161	0.05	335	4030	1.48
2 Sub-phase 7	9	25	0.00	53	393	0.00
2 Sub-phase 8	0	0	0.00	110	1136	0.68
2 Sub-phase 9	0	0	0.00	0	0	0.00
2 Sub-phase 10	0	0	0.00	137	1071	0.15
2 Sub-phase 11	8	165	0.30	4989	69059	18.69
2 Sub-phase 12	3	43	0.00	193	3662	0.32
Sub-phase not assigned (Phase 2)	1	10	0.00	173	2074	0.52
<i>Total</i>	<i>278</i>	<i>4082</i>	<i>1.73</i>	<i>7960</i>	<i>118699</i>	<i>34.41</i>

Table 2: Quantification of pottery in stratigraphic phase groups used for interim report by sherd count (SC), weight (W, in grams) and rim estimated vessel equivalence (R.EVE)



## Methodology

The pottery was quantified by sherd count, weight and rim estimated vessel equivalent (R.EVE). Fabrics were examined at x20 magnification and assigned alpha-numeric codes (see below) according to the systems developed for the Guidelines of the Prehistoric Ceramics Research Group (PCRG 1995) and the National Roman Fabric Reference Collection (Tomber & Dore 1998). All data was be entered into a Microsoft Excel spreadsheet that will form part of the site archive and conform to the Guidelines for the archiving of Roman pottery (Darling 2004).

### *Phase 1 and residual middle Iron Age pottery*

A total of 93 sherds (1449g) of middle Iron Age pottery were contained as *in situ* material in four Phase 1 pit features, while a further 185 sherds (2633g) of middle Iron Age pottery were contained as residual material in Phase 2 features, notably Ditches F2066 and F2117.

The middle Iron Age pottery occurs in two fabrics (Table 3): a sand-tempered variant (Q1) and a shell-tempered variant (S1) and although fragmented is in a generally un-abraded or slightly abraded condition. Both the sand- and shell-tempered fabrics are paralleled at Wardy Hill (Hill 2003, 166-7) where it was observed that the petrographic composition of the fabrics probably indicated they were manufactured locally exploiting alluvial Fenland clays for sand-tempered fabrics and Jurassic deposits, notably the Kimmeridge clay, for shell-tempered fabrics. Through the examination of clay sources at Wardy Hill and Haddenham V, it was estimated almost all middle Iron Age vessels consumed were manufactured using clay sourced from no more than 2km from the site (Hill 2003, 170). Sand-tempered fabrics, reflecting the local geology, are common in middle Iron Age assemblages across East Anglia, notably at Cambourne (Leivers 2009, 74) and West Stow (West 1990, 61-5). They are generally used to manufacture plain ware jars and bowls (often burnished, occasionally with scored or incised decoration) that characterise the ceramic tradition across East Anglia in the period. These sand-tempered fabrics are frequently supplemented by lesser quantities of shell-tempered fabrics, often associated with the 'East Midlands scored ware' ceramic tradition, which is more prevalent in north and north-west Cambridgeshire, including at Haddenham V (Hill and Braddock 2006). The Phase 1 pottery was entirely comprised of Q1 sherds, while S1 accounted for 6.49% of the residual middle Iron Age pottery by sherd count (9.84% by weight). Similar sparse quantities of shell-tempered fabrics were also recorded in association with the sand-tempered fabrics at Wardy Hill (Hill 2003, 167).



Fabric	Description	Sherd count	Weight (g)
Q1	Black to dark red brown surfaces with a very dark grey (tinged dark red) core. Inclusions comprise common moderately sorted medium sub-angular quartz (0.25-0.5mm), sparse-occasional rounded quartzite and flint (<1.25mm) and occasional linear charred organics/voids (0.25-5mm, occasionally larger) especially visible on the surface.	266	3823
S1	Dark grey brown to black throughout. Inclusions comprise common-abundant, poorly-sorted plate like shell (0.25-7mm).	12	259
<b>Total</b>		<b>278</b>	<b>4082</b>

Table 3: middle Iron Age fabric descriptions and quantification

The Phase 1 features include a concentration of 84 sherds (1388g) of Q1 in Pit F2131, while sparse non-diagnostic Q1 body sherds were also contained in Pits F2109, F2111 and F2181. Pit F2131 (L2132) contained the substantial portions of at least two Q1 vessels. The first is a jar or bowl with a plain slightly everted rim, a weak shoulder and a burnished exterior (Fig. 9.1), which is comparable to examples at Wardy Hill (Hill 2003: fig.76.3), Cambourne (Leivers 2009: fig.29.1) and West Stow (Martin 1990: fig.46.92). The second is a jar with an upright finger-nail impressed rim and a weak-shoulder (Fig. 9.2) comparable to examples at Wardy Hill (Hill 2003: fig. 75.1) and West Stow (West 1990: fig.62.77).

Of the 185 sherds (2633g) of residual middle Iron Age pottery contained in Phase 2 features, large curvilinear Ditch F2066 accounts for 74 sherds (1084g) and large Ditch F2117 accounts for 47 sherds (720g). The middle Iron Age pottery in Ditch F2066 includes 7 body sherds (116g) of S1, with the remainder comprising Q1. The Q1 in Ditch F2066 includes, in L2068 Seg.A a jar or bowl with a plain slightly everted rim, a weak shoulder and a burnished exterior (Fig. 9.3) closely comparable to the example in Phase 1 Pit F2131. L2068 Seg.A also includes basal sherds on which the exterior lower wall is decorated with incised lines similar to examples recorded at West Stow (West 1990: fig.48.119) and Stowmarket (Peachey *forthcoming*), although these sherds are too small to allow a decorative scheme to be discerned. The middle Iron Age pottery in Ditch F2117 includes 4 sherds (95g) of S1 including scored body sherds, with the remainder comprised of Q1 body sherds. Further residual diagnostic Q1 sherds include jars or bowls with finger-nail impressed rims and scored bodies (Figs. 9.4-9.5) contained in Phase 2 Ditches F2102 (L2144 Seg.B) and F2151 (L2152 Seg.B), comparable to examples at Wardy Hill (Hill 2003: figs.31.31 and 31.35) and West Stow (West 1990: fig.46.87); while a Q1 cup (Fig. 9.6) contained in the backfill of Kiln S2020 (L2023) is comparable to examples at West Stow (West 1990: fig.47.113). The only diagnostic sherd in S1, contained in Ditch F2102 (L2144 Seg.B), comprises a jar or bowl with an upright rim and a randomly scored body (Fig. 9.7) that is comparable to an example at the New Addenbrooke's site (Cra'ster 1969, 27) and characteristic of the East Midlands scored ware style.

The composition of the assemblage in terms of fabric and form types conforms to known ceramic profile of the Cambridge and Ely area in the middle Iron Age with sand-tempered fabrics predominant but shell tempered fabrics also present and plain bowls or jars predominant with sparse vessels decorated with finger-nail impressions on the rim and/or scoring on the body. This pattern has been recorded at Wardy Hill (Hill 2003, 161) and Cambourne (Leivers 2009, 74-5) in deposits

dated to c.300BC-AD1, and exists with local variations throughout much of Cambridgeshire, Suffolk and Norfolk. The *in situ* Phase 1 pottery in this assemblage was entirely recovered from pit features, but the limited number and landscape context of these features does not allow the pottery to be related to any specific areas of occupation or activity, however, the concentrations of residual middle Iron Age pottery in Phase 2 features suggests further features that may have been created in Phase 1 have been truncated, or possibly re-cut, by subsequent Phase 2 (Roman) activity.

### *Phase 2: The Roman Pottery*

A total of 7960 sherds (118699g) of Roman pottery were recovered from Phase 2 features, distributed in 12 sub-phases, and is primarily comprised of well-preserved, fragmented Horningsea ware fabrics. Significant groups in Phase 2 Sub-phases 4 and 11 are associated with recorded kiln structures and associated waster deposits, while smaller groups in Phase 2 Sub-phases 1, 3 and 12 may be associated with truncated kilns. The Roman pottery from the remaining phases is probably associated with production at these kilns or with comparable activity in the immediate vicinity of the excavated area. The excavated area comprises an elongate rectangular strip that has exposed a narrow section through a Roman industrial landscape on the eastern side of the Car Dyke, associated with the Horningsea pottery industry. The recorded kilns (S2171 and S2020) are situated at the northern and southern ends of the excavated area with waster dump deposits in adjacent ditches, indicating the ditches may have been used to access sub-surface flues/stoke-holes, possibly situated to minimise wind interference thus allowing a more controlled firing. The ditches surrounding the kilns, and possibly the kilns themselves, exhibit a high degree of inter-cutting, but the range of Horningsea pottery form types present suggests that the 12 stratigraphic sub-phases in Phase 2 represent a relatively short chronological range. Characteristic form types in this assemblage include carinated bowl-jars with everted bead rims and plain neck cordons, jars with rilled decoration, and narrow-neck jars with plain neck cordons, while other jar types, storage jars, bowls, beakers, platters and lids are also present. These form types combined with sparse sherds of non-Horningsea pottery suggest that the pottery production encapsulated in Phase 2 occurred in the Trajanic to Hadrianic periods (c. AD98-138).

### *Fabric types*

#### Phase 2 Kiln Products

Both recorded kilns were producing Horningsea ware fabrics (Tomber and Dore 1998, 116) and sherds in these fabrics form the bulk of the assemblage, accounting for 99.61% of the Roman pottery by sherd count (99.49% by weight). No difference could be discerned in fabric composition between the products of the two kilns. Potential sub-divisions within Horningsea ware fabrics have been explored (Evans 1991, 35) but have been abandoned on the basis they represent no more than points on a continuum of inclusions, sorting and coarseness (Evans *et al* forthcoming, 28). The Horningsea ware vessels all appear to have been made

on a wheel, although the storage jars may have been coil-built before being finished on a wheel. The Horningsea ware fabrics in this assemblage have been divided into reduced (HOR RE1) and oxidised variants (HOR OX1), although this division is slightly arbitrary as many sherds have been misfired or repeatedly fired resulting in reduced surfaces with a contrasting oxidised core, or vice-versa.

- HOR RE1 Horningsea reduced ware. A reduced mid-grey core and darker reduced surfaces, and inclusions of common quartz (0.1-0.5mm) with sparse limestone and grog/ironstone (generally <2mm) and occasional flint (0.5-5mm).  
In total: 4113 sherds (65218g).
- HOR OX1 Horningsea oxidised ware, as HOR RE1 but occurring in oxidised pale to mid-orange tones.  
In total: 3816 sherds (52887g).

### Phase 2 Non-Horningsea Roman Fabrics

- LMV SA Les Martres-de-Veyre samian ware (Tomber & Dore 1998, 30).  
In total: 2 sherds (11g).
- LNV CC Lower Nene Valley colour-coated ware (Tomber & Dore 1998, 118).  
In total: 1 sherd (11g).
- COL CC2 Colchester (late) colour-coated ware 2 (Tomber & Dore 1998, 132).  
In total: 1 sherd (6g).
- ROB SH Roman shell-tempered ware (Tomber & Dore 1998, 212), potentially sourced from Harrold, Beds, the Lower Nene Valley, or Lakenheath, Suffolk.  
In total: 22 sherds (249g).
- UNS WH1 Surfaces are white-cream fading to a thin off-white to pale yellow-brown core. Inclusions comprise common well-sorted quartz (0.1-0.25mm) and sparse-common red/black iron rich grains or clay pellets. A hard fabric with slightly powdery surfaces. A Lower Nene Valley source (Tomber & Dore 1998, 117-9) seems probable, but a Cherry Hinton origin (Evans 1990, 24) remains possible.  
In total: 1 sherd (30g).
- UNS WS (M) White-slipped, fine oxidised mortaria. Orange surfaces with a thin white slip, with a slightly contrasting orange red core. Inclusions comprise common fine quartz (<0.1mm) with sparse angular red iron rich grains (0.5-3mm) and common silver mica. Trituration grits comprise well-sorted poly-crystalline quartz and angular red iron-rich grains (both 1.5-3mm), A smooth, hard fabric that has a slightly powdery feel when abraded. This fabric is probably a product of the Cherry Hinton kilns (Hartley 1960, 23-5; Evans 1990, 24) although other local and regional sources (i.e. the Lower Nene Valley) cannot be discounted.  
In total: 4 sherds (97g).

### *Horningsea Ware Form Types*

These form types comprise those present in this assemblage, and appear to

represent the products of Kilns S2171 and S2020, with the bulk of forms directly associated with kiln or waster dump deposits. The form classifications and alpha-numeric codes are drawn from the type series developed for the Horningsea industry (Evans *et al* forthcoming), which includes a much greater range of forms than is present in this assemblage. The type series makes comparisons with numerous sites in the Waterbeach area to establish overall form type chronologies, and while it has been attempted not to repeat these, additional comparisons with other potentially contemporary Trajanic-Hadrianic pottery groups in the region are made, notably those at Great Chesterford (Miller 1995) and Cambridge (Hull and Pullinger 1999). The occurrence of form types in individual Phase 2 sub-phases is summarised in Table 4 and discussed below, but the relevant entries in the type series are included with additional comment in this report to facilitate ease and brevity in the subsequent discussion of these sub-phases. Only a single platter or dish (D2.5) does not appear in this typology, while numerous fragments of everted plain or bead rim jars were too small to be assigned a specific type. All vessel types identified are illustrated as part of their respective Phase 2 sub-phase groups.

- B1.1** A carinated bowl or bowl-jar with an everted rim and neck cordon. The examples in this assemblage generally have a plain rim, although bead rims also occur. The cordon also generally appears plain with one example exhibiting a burnished lattice, although this may be an issue of preservation or over-firing resulting in the removal of decoration. In contrast to the examples in Evans *et al* (forthcoming) typology, the examples in this assemblage have an additional groove beneath the carination, effectively creating a plain shoulder cordon. The most common form in the assemblage, first occurring in Phase 2 Sub-phase 2, and present in both Phase 2 Sub-phase 4 Ditch F2185 (L2155 Seg.A) associated with Kiln S2171 and sub-phase 11 Kiln S2020. This type of vessel is extensively paralleled in late 1<sup>st</sup> to early 2<sup>nd</sup> century AD pit deposits at Great Chesterford (Miller 1995: vessels 22, 27, 29 and 34), as well as at Teversham (Pullinger and White 1991: vessels 62 and 104), and Cambridge (Hull and Pullinger 1999: vessels 364, 517 (plain), and 514 (with burnished lattice)).
- B2.1** A segmental bowl with a small bead and thick flange. One example has widely spaced rilling or grooves on the exterior. Occurs in Phase 2 Sub-phase 11 Gully F1009 (L1010), associated with Kiln S2020, and also in Phase 2 Sub-phase 12.
- B7.2** A bowl with splayed, slightly incurving sides and a bead rim, often slightly undercut. Occurs in, and associated with, sub-phase 2.11 Kiln S2020. This vessel is paralleled in late 1<sup>st</sup> to early 2<sup>nd</sup> century AD pit deposits at Great Chesterford (Miller 1995: vessel 10).
- CJ1.1** A constricted neck jar with a short everted/splayed plain rim and a neck cordon. The neck cordon is generally plain with one example exhibiting burnished vertical lines although this may be an issue of preservation or over-firing resulting in the removal of decoration. The form first occurs in Phase 2 Sub-phase 1 and is also present in Phase 2 Sub-phase 11 Kiln S2020. This vessel is paralleled at Cambridge (Hull 1999: vessel 426).



- CJ1.2** A constricted neck jar with an everted. Slightly cordoned rim and a neck cordon. Occurs in Phase 2 Sub-phase 4 Ditch F2184 (L2155 Seg.A), associated with Kiln S2171. This vessel is paralleled at Cambridge (Hull 1999: vessel 437).
- CJ1.5** A constricted neck jar with a horizontal flanged rim and either two grooves or a cordon on the neck (sherds are too small to define). Occurs in Phase 2 Sub-phase 4 Ditch F2184 (L2155 Seg.A), associated with Kiln S2171.
- CJ1.6** A constricted neck jar with a short everted/splayed bead rim and a neck cordon. The cordon on all examples in this assemblage is plain, although decoration may have been obscured by over-firing. This vessel is paralleled in a Claudian ditch at Cambridge (Hull and Pullinger 1999: vessel 268).
- D1.1** A shallow dish with a simple, slightly incurving rim. One example has two burnished concentric circles on the centre of the interior of the base. This form first occurs in Phase 2 Sub-phase 6 and is also present in Phase 2 Sub-phase 11 Gully F1009 (L1010), associated with Kiln S2020. This vessel is paralleled at Cambridge (Hull and Pullinger 1999: vessel 587).
- D8.1** A copy of a Gallo-Belgic platter with a slight offset at the junction of wall and base; may be white-slipped. Occurs in Phase 2 Sub-phases 3, 4 and 6, including in Phase 2 Sub-phase 4 Ditch F2184 (L2155 Seg.A), associated with Kiln S2171. This form type is extensively paralleled in early Roman deposits at Cambridge (Hull and Pullinger 1999: vessels 325, 340, 490 and 538).
- J1.1** A shouldered jar with a bifid rim. Only occurs in Phase 2 Sub-phase 4 Ditch F2184 (L2155 Seg.A), associated with Kiln S2171. This vessel type was recorded in the early Roman fort ditch at Cambridge (Hull and Pullinger 1999: vessel 405).
- J6.2** A jar with a down-turned bead rim, slight shoulder and straightish sides. Only occurs in Phase 2 Sub-phase 11 Kiln S2020.
- J6.4** A neckless, shouldered jar or beaker with a short, straight, pointed rim. Only occurs in Phase 2 Sub-phase 11 Ditch F2047 (L2049 Seg.A), associated with Kiln S2020. This form type was recorded in the Claudian ditch and early Roman palisade at Cambridge (Hull and Pullinger 1999: vessels 330 and 530), and was also produced at other local early Roman pottery production centres at Greenhouse Farm (Gibson and Lucas 2002: vessels 34-6) and Cherry Hinton (Evans 1990: vessel 8).
- J9.1** A necked jar with an everted swelling rim and a plain shoulder cordon. Occurs in Phase 2 Sub-phase 11 Ditches F2038 (L2026 Seg.D) and F2047 (L2049 Seg.A), both associated with Kiln S2020.
- J9.2** A necked jar with an everted swelling rim and a ridge-like shoulder cordon. The single example in this assemblage is significantly larger (diameter 30cm), than the typical entries in the type series (diameter 15cm). This form type only occurs in sub-phase 2.6 and is very similar to handmade, wheel-finished examples at Greenhouse Farm (Gibson and Lucas 2002: vessel 8).
- J9.3** A necked jar with a strongly everted, sometimes slightly hooked rim and a plain shoulder cordon. This form type occurs in Phase 2 Sub-

- phase 4 Ditch F2184 (L2155 Seg.A), associated with Kiln S2171, and in and associated with Phase 2 Sub-phase 11 Kiln S2020.
- J10.5** A necked jar with an everted plain or bead rim and rilled body. A relatively common form type in this assemblage, it first occurs in Phase 2 Sub-phase 2, and is also contained in both Phase 2 Sub-phase 4 Kiln S2171 and Sub-phase 11 Kiln S2020.
- J10.7** A necked jar with a slightly undercut, everted bead rim and a shoulder cordon. Most examples have a plain cordon, but one example is decorated with oblique comb strokes. This form type first occurs in Phase 2 Sub-phase 2, and was also contained in Phase 2 Sub-phase 4 Ditch F2184 (L2155 Seg.A), associated with Kiln S2171 and Phase 2 Sub-phase 11 Kiln S2020.
- J10.14** A necked jar with a plain everted rim and a slightly shouldered ovoid body, possibly a copy of a black-burnished ware form type. This form type occurs in both Phase 2 Sub-phase 4 Ditch F2184 (L2155 Seg.A), associated with Kiln S2171 and Phase 2 Sub-phase 11 Kiln S2020, as well as in Sub-phase 12.
- J15.1** A necked jar with an everted bead rim, plain shoulder cordon and mid-body rounded carination (not visible on the single example in this assemblage). This form type was only recorded in Phase 2 Sub-phase 2.
- L6.1** A lid with incurving sides and an internal bead phase. A single example of this form was recorded in Phase 2 Sub-phase 11 Kiln S2020.
- SJ1.1** A storage jar with a plain everted rim. This form type was only recorded in Phase 2 Sub-phase 11 Ditch F2047 (L2049 Seg.A), associated with Kiln S2020.
- SJ1.2** A storage jar with an everted bead rim. This form type was only recorded in Phase 2 Sub-phase 3.

#### Previously Uncategorised

- (D2.5)** (*Proposed type series code*). A shallow dish with slightly incurving sides and a small bead rim, probably a copy of samian form Drag. 18 or 18/31. Comparable dishes in reduced coarse wares have been recorded in a Claudian ditch in Cambridge (Hull and Pullinger 1999: vessel 347) and in a late 1<sup>st</sup> to early 2<sup>nd</sup> century AD pit at Great Chesterford (Miller 1995: vessels 9-10). Examples of this form type were contained in and associated with sub-phase 2.11 Kiln S2020.



Form	Stratigraphic sub-phase group										Total
	2.1	2.2	2.3	2.4	2.6	2.7	2.8	2.10	2.11	2.12	
B1.1		1	1	5	1		1		15		23
B2.1									2	1	3
B7.2									2		2
CJ1.1	1			3					1		5
CJ1.2				1							1
CJ1.5				2							2
CJ1.6				1					6		7
D1.1					1				1		2
D8.1			1	1	2						4
J1.1				1							1
J6.2									1		1
J6.4									1		1
J9.1									2		2
J9.2					1						1
J9.3				2					2		4
J10.5		1		7	1				3		12
J10.7		1		1					2		4
J10.14				4					3	1	8
J15.1		1									1
L6.1									1		1
SJ1.1									4		4
SJ1.2			1								1
misc. everted bead rim	2		5	15	4			2	27		55
misc. everted plain rim	1		4	23	1	1	2		56	2	90
pedestal base					1						1
Uncategorised (D2.5)									3		3
<i>Total</i>	4	4	12	66	12	1	3	2	132	4	239

Table 4: Quantification of Horningsea form types in Phase 2 sub-phases by minimum vessel

### Commentary on Sub-Phase Groups

#### Phase 2 Sub-Phase 1

The 151 sherds (1377g) of Roman pottery in Sub-phase 1 are entirely comprised of HOR OX1 and HOR RE1. A low concentration of 78 sherds (779g) was contained on Gully F2058, with a further 24 sherds (192g) contained in the associated Phase 2 Sub-phase 2.1 Pit F2045 and Gullies F2018 and F2050, which were heavily truncated by Phase 2 Sub-phase 11 Kiln S2020. These features and the pottery that they contain may represent the ephemeral deposits of the earliest pottery production within the excavated area, possibly representing traces of a kiln and associated ditches on an almost identical footprint to Sub-phase 11 Kiln S2020. The Horningsea ware in Gully F2058 (L2059) included a CJ1.1 constricted neck jar (Fig. 9.8), as well as miscellaneous everted bead and plain rims, and therefore is unlikely to pre-date the early 2<sup>nd</sup> century AD. Gully F2058 (L2059) also contained sparse fragments of kiln furniture (see Fired Clay). Further non-diagnostic Horningsea ware body sherds were also contained in Phase 2 Sub-phase 1 Pits F2054, F2156, F2186, Gully F2052, Ditches F2165 and F2192.

### Phase 2 Sub-Phase 2

The bulk of the pottery in Phase 2 Sub-phase 2 features: 114 sherds (2479g) is contained in Ditch F2151 and Gully F2148 which abut one another, and are truncated by features assigned to Phase 2 Sub-phases 3 and 4, including Kiln S2171. Sparse non-diagnostic Horningsea ware body sherds were also contained in Layer L2029 in the northern part of the site.

With the exception of a single body sherd of ROB SH in Ditch F2151 (L2154 Seg.A) the Phase 2 Sub-phase 2 pottery is entirely comprised of HOR OX1 and HOR RE1. L2152 Seg.B contained a J15.1 jar (Fig. 9.9), while L2154 contained a B1.1 bowl (Fig. 9.10), a J10.5 jar (Fig. 9.11) and a J10.7 jar with incised oblique comb strokes on the shoulder cordon (Fig. 9.12) that indicate Phase 2 Sub-phase 2 dates to the early 2<sup>nd</sup> century AD.

### Phase 2 Sub-Phase 3

Ditch F2117 and Gully F2133, assigned to Phase 2 Sub-phase 3, may form part of a single enclosure that is partially within the southern half of the excavated area. They are the stratigraphically earliest features to contain significant quantities of Roman pottery, in total 424 sherds (6006g). Both features contained low quantities of ROB SH, in total 7 sherds (191g) with Gully F2133 (L2134 Seg.B) containing a ROB SH channel-rim jar (Fig. 9.13) comparable to examples produced at Harrold, Beds in the late 1<sup>st</sup> to mid 2<sup>nd</sup> centuries AD (Brown 1994: vessels 41-3 and 116-9). The bulk of the Roman pottery in Sub-phase 2 is comprised of HOR OX1 and HOR RE1. The bulk of the Horningsea ware rim sherds in this group belong to miscellaneous jars or bowls with everted bead or plain rims, including very small fragments of SJ1.2 storage jar. However, Gully F2133 (L2134 Seg.B) also contained a B1.1 bowl (Fig. 9.14) and a white-slipped D8.1 platter (Fig. 9.15) with further white-slipped body sherds from jars, that collectively indicate a date in the early 2<sup>nd</sup> century AD.

### Phase 2 Sub-Phase 4

The Roman pottery from Phase 2 Sub-phase 4 features is entirely comprised of HOR RE1 and HOR OX1 sherds associated with Kiln S2171 (Table 5). The relatively sparse pottery from inside Kiln S2171, contained in Pit F2146 (L2147 and L2176) was limited to miscellaneous rim sherds of jars and bowl jars, the base of a storage jar and body sherds with burnished lattice decoration. The storage jar base (diameter 220mm) may represent waster material left in the kiln chamber, or may have been re-used as portable kiln furniture (i.e. a spacer or floor plate), or as a clay plate that formed part of the kiln superstructure. The bulk of this sub-phase group, including all the diagnostic sherds that could be assigned a form type were occurred as part of a waster deposit contained in Ditch F2184 (L2155 Seg. A) where the flue of the kiln opened out into the adjoining ditch. Including several jars and bowl jars (see below), at least 55 sherds (1614g) of Horningsea ware in L2155 Seg. A exhibited a white-slip, while further sherds may have had their slip removed by over-firing.

Feature/Group	SC	W	R.EVE
Kiln S2171	42	1418	0.30
Ditch F2184 (L2155 Seg.A)	1129	25599	9.65
Other segments if Ditch F2184	14	135	0.00
Other Ditch and Pit Features	16	239	0.00
<i>Total</i>	<i>1201</i>	<i>27391</i>	<i>9.95</i>

Table 5: Quantification of Roman pottery in Phase 2 Sub-Phase 4 features sherd count (SC), weight (W, in grams) and rim estimated vessel equivalence (R.EVE)

This group includes a minimum number of 66 vessels, of which 31 could be assigned a specific form type (Table 4). The most common forms are B1.1 carinated bowls or bowl jars (five examples), J10.5 rilled jars (seven examples) and J10.14 jars with plain everted rims and shouldered bodies. The bulk of the miscellaneous everted plain and bead rims present are probably also derived from these form types, although other jar types cannot be discounted. The B1.1 bowls or bowl jars contained in L2155 Seg.A vary in rim diameter between 12cm and 30cm, with four examples exhibiting a white-slip (Figs. 9.16-9.19) and one example remaining plain (Fig. 9.20) suggesting a diverse range of potential domestic uses. In contrast the J10.5 jars contained in L2155 Seg.A (Figs. 9.21-9.22, 10.23-10.26) exhibit a more standardised rim diameter of between 12cm and 16 cm, with shallow or poorly incised rilled decoration, that often exhibits traces or patches of white-slip. The production standards and quality of this form type appear to suggest a precise utilitarian function, possibly cooking pot, which may have been stacked at the bottom of the kiln load because its regular size provided uniform support and because aesthetics were not the most important consideration for the end vessel (i.e. slip dripping onto the jars from vessels above). The J10.14 jars in L2155 Seg.A (Figs. 10.27-10.30) occur with a comparable profile and size range as the J10.5 jars but with plain, undecorated bodies.

Other form types that occur as multiple examples in L2155 Seg.A comprise CJ1.1 constricted neck jars (Figs. 10.31-10.33), CJ1.5 constricted neck jars with white slip (Figs. 10.34-10.35), and J9.3 jars (Figs. 10.36-10.37). Form types in L2155 Seg.A limited to single examples comprise a D8.1 platter (Fig. 10.38), CJ1.2 constricted neck jar (Fig. 10.39), CJ1.6 constricted neck jar (Fig. 10.40), J1.1 jar (Fig. 10.41) and J10.7 jar with white slip (Fig. 10.42). Form types B1.1, J10.5 and D8.1 were produced from the late 1<sup>st</sup> century AD, while the remaining form types do not enter production until the early 2<sup>nd</sup> century AD. Conversely the D8.1 platter went out of production in the early 2<sup>nd</sup> century AD, indicating the waster deposit in Phase 2 Sub-phase 4 Ditch F2185 (L2155 Seg.A) was removed from Kiln S2171 in the early 2<sup>nd</sup> century AD (Trajanic-Hadrianic period).

### Phase 2 Sub-Phase 5

Low quantities of sparsely distributed, non-diagnostic HOR RE1 and HOR OX1 were contained in the fills of Ditches F2096 and F2102.

### Phase 2 Sub-Phase 6

The Roman pottery in Phase 2 Sub-phase 6 was predominantly contained in large curvilinear Ditch F2066, situated in the northern half of the site and passing close to Phase 2 Sub-phase 11 Kiln S2020 and associated features. Further non-diagnostic sherds were also contained in Gully F2135, in the southern half of the site close to Sub-phase 2.4 Kiln S2171. Although the total quantity of 226 sherds (2526g) of Roman pottery contained in Ditch F2066 is relatively substantial, these sherds are distributed between multiple fills of the four sections excavated through this large feature. The bulk of the Roman pottery in Ditch F2066 is comprised of HOR RE1 and HOR OX1, with rare body sherds of ROB SH in L2067 Seg. A and L2070.A, and four cross-joining basal sherds (97g) of UNS WS (M) also in L2070 Seg. A. These mortaria sherds exhibit heavily worn trituration grits that suggest the vessel was used in some form of food or material preparation and was not a product of the kilns. The presence of this mortaria may suggest that Ditch F2066 enclosed domestic activity to the west of the excavated area, or that the mortar had a purpose within what may have been a spatially distinct industrial area.

The form type of the Horningsea ware contained in Ditch F2066 suggest a date range comparable to Phase 2 Sub-phase 4, with the presence of two D8.1 platters that imitate Gallo-Belgic types in L2070 (Fig. 10.42A) and L2087 Seg. D (Fig. 10.43) suggesting the group does not post-date the early 2<sup>nd</sup> century AD. A further platter of D1.1 type with burnished concentric circles in the centre of the interior (Fig. 10.44) was also contained in L2070. Other vessel types in the group comprised a J9.2 jar in L2073 Seg.B (Fig. 10.45) and a J10.5 jar in L2069 Seg. A (Fig. 10.46), as well as numerous miscellaneous everted rims, but it is a pedestal base in L2070 (Fig. 10.47) that is notable, as like previous examples recorded at Horningsea (Evans 1991: fig.5.73-4) it cannot be assigned to a specific jar type.

### Phase 2 Sub-Phase 7

Phase 2 Sub-phase 7 Gullies F2043 and F2079 contained sparse un-diagnostic body sherds of HOR OX1 and HOR RE1.

### Phase 2 Sub-Phase 8

Sparse Sherds of HOR OX1 and HOR RE1 were contained in Ditch F2064 (=F2075) and Gully F2006, including a B1.1 bowl or bowl-jar in F2064 (L2065 Seg.A) and a plain everted rim of a miscellaneous jar or bowl-jar in F2006 (L2007 Seg.D).

### Phase 2 Sub-Phase 9

No Roman pottery was contained in any features assigned to Phase 2 Sub-phase 9

### Phase 2 Sub-Phase 10

Phase 2 Sub-phase 10 Ditch F2008 contained sparse sherds of HOR OX1 and HOR RE1 including in L2009 Seg. B two everted bead rims of miscellaneous jars

or bowl-jars.

### Phase 2 Sub-Phase 11

The Roman pottery contained in features assigned to Phase 2 Sub-phase 11 forms the largest single group in the assemblage, representing a minimum of 132 vessels (total R.EVE: 19.32). These vessels were primarily distributed in waster deposits contained in Kiln S2020, Ditch F2047 (L2049 Seg.A) adjacent to the flue of the kiln, and in other segments of Ditches F2047 and F2038 which were also adjacent to Kiln S2020 (Table 6). With the exception of four sherds (127g) the group is entirely comprised of HOR RE1 and HOR OX1, which include a significant proportion of warped or mis-fired sherds. Both the imported pottery (samian ware) and Horningsea ware forms suggest an early 2<sup>nd</sup> century AD date, probably within the first quarter of the century.

Feature/Group	SC	W	R.EVE
Kiln S2020	2234	33449	8.7
Ditch F2047 (L2049 Seg.A)	1432	21175	5.48
Other segments of Ditch F2047	507	7100	3.29
Ditch F2038	816	6735	1.22
Other Ditch and Gully Features	78	878	0.63
<i>Total</i>	<i>4251</i>	<i>69337</i>	<i>19.32</i>

Table 6: Quantification of Roman pottery in Phase 2.11 features sherd count (SC), weight (W, in grams) and rim estimated vessel equivalence (R.EVE)

The non-Horningsea ware pottery in the Phase 2 Sub-phase 11 group includes continental imports in the form of single sherds of Les Martres-de-Veyre samian ware (LMV SA) in Pit F2030, part of Kiln S2020, and Ditch F2038, associated with Kiln S2020. The fragment contained in Pit F2030 (L2031) formed part of a Drag.18 platter with a 3mm post-firing hole drilled through the wall (Fig. 10.48). Les-Martres-de-Veyre samian ware was predominantly imported into Britain c. AD100-120, with Drag.18 platters typically dating towards the beginning of this range. The post-firing alteration or repair (via lead rivets) of this vessel suggests it had a secondary use, increasing the longevity of the platter's life span into the early 2<sup>nd</sup> century AD. This process of alteration or repair is more common on 'open' samian ware vessels such as platters than on closed vessels such as beaker or jars, as the functionality of the vessel (i.e. as a stand or plate rather than to hold liquids) did not tend to be compromised (Willis 2004a: 11.2). The LMV SA contained in Ditch F2038 (L2026 Seg. C) comprised a basal fragment of a Drag.18R platter, which has a comparable date range and lifespan to its Drag.18 counterpart. The remaining non-Horningsea sherds were also contained in Ditch F2038: a body sherd of ROB SH in L2026 Seg.D and a fragment of UNS WH1 bowl in L2025 Seg.C. The UNS WH1 bowl is hemispherical with a curved flange (Fig. 10.49) and comparable to form types produced in the Lower Nene Valley (Perrin 1999, 111: vessels 348-50) and Cherry Hinton (Evans 1990, 26). However, the form type was produced across East Anglia including at Colchester (Symonds and Wade 1999, 470: Cam.46/311) where this type was produced from the mid 1<sup>st</sup> century AD until the early 2<sup>nd</sup> century AD, and the exact source of the vessel remains uncertain.

The most common Horningsea ware form types found within or associated with Kiln S2020 mirror those recorded in association with Phase 2 Sub-phase 4 Kiln



S2171, though in greater quantities. The most popular of these forms by a significant and probably under-estimated margin is the B1.1 carinated bowl or bowl-jar with a plain shoulder cordon, which accounts for at least 15 vessels in the group and probably a large proportion of the miscellaneous everted rims. Examples from within Kiln S2020 include Figs. 10.50-10.52 and 11.53-11.55, with further examples in the Phase 2 Sub-phase 11 ditches immediately surrounding the kiln including Figs. 11.56, 11.58-11.64. Like the examples in Phase 2 Sub-phase 4, these B1.1 bowls or bowl-jars exhibit considerable variation in size with rim diameters ranging from 10cm to 24cm, but in contrast no examples in Phase 2 Sub-phase 11 exhibit any traces of white slip. The other form types in this group that are also present in or associated with Phase 2 Sub-phase 4 Kiln S2171 comprise a CJ1.1 constricted neck jar (Fig. 11.65), CJ1.6 constricted neck jars (Figs. 11.66-11.71), J9.3 jars (Fig. 11.72-11.73), J10.5 jars with rilled decoration (Figs. 11.74-11.76), J10.7 jars (Fig. 11.77-11.78), and J10.14 jars (Fig. 11.79-11.81). Of the 20 form types that could be assigned in or associated with Phase 2 Sub-phase 4 Kiln S2171 and Phase 2 Sub-phase 11 Kiln S2020, 7 form types (or 35%) are common to both groups. The remaining form types recorded in this group, comprising dishes, bowls, jars, storage jars and lids are represented by only one or two examples per form type, and with the exception of one dish type were only recorded in this group, therefore were either less prone to spoiling during firing or, produced in less volume or not produced prior to Sub-phase 11. Notably these include a platter type not previously categorised in the Horningsea form type series (proposed as D2.5) that appears to be imitating samian form Drag.18 or 18/31. Examples of these platters were recorded in Stokehole F2039 (L2040 Seg.C) of Kiln S2020 (Fig. 11.82), and in the waster deposit in Ditch F2047 (L2049 Seg.A) associated with Kiln S2020 (Fig. 11.83). Dish D1.1 (Fig. 12.84) was previously recorded in Phase 2 Sub-phase 6, while the remaining forms of bowls B2.1 (Figs. 12.85-12.86) and B7.2 (Figs. 12.87-12.88), jars J6.2 (Fig. 12.89), J6.4 (Fig. 12.90), J9.1 (Figs. 12.91-12.92) and Lid L6.1 (Fig. 12.93) first occur in Phase 2 Sub-phase 11. Small rim fragments of a storage jar were recorded in Phase 2 Sub-phase 3, and the base of a storage jar was contained in Phase 2 Sub-phase 4 Kiln S2171, but the most notable concentration of storage jar fragments occurs in the waster deposit contained in Ditch F2047 (L2049 Seg.A), associated with Kiln S2020 which contains fragments of at least four SJ1.1 storage jars, including Fig. 12.94. Storage jar fragments are relatively rare in this assemblage, possibly reflecting their robust nature which meant they were less likely to fracture during firing, in contrast to the likelihood of being broken on a domestic site.

The Roman pottery fabrics and forms in and associated with Phase 2 Sub-phase 11 Kiln S2020 indicate a date comparable to that associated with Phase 2 Sub-phase 4 Kiln S2171 in the early 2<sup>nd</sup> century AD, especially in the case of the LMV SA and UNS WH1 vessels, and the Horningsea ware B2.1 bowl which are unlikely to post-date the early 2<sup>nd</sup> century AD.

### Phase 2 Sub-Phase 12

The Roman pottery in features assigned to Phase 2 Sub-phase 12 included small groups associated with Gully F1018 and Hearth F2173 with sparse further sherds contained in Linear F2060, Ditch F2106, Pits F1022 and F2163. The pottery contained in Gully F1018 (L1019) comprises waster sherds of HOR RE1 and HOR

OX1, although no kiln was recorded in the immediate vicinity within the excavated area. The waster sherds include a B2.1 bowl with grooves or rilling on the exterior, seemingly identical to Fig. 9.85 recorded in association with Phase 2 Sub-phase 11 Kiln S2020 that does not post-date the early 2<sup>nd</sup> century AD. Also present amongst the waster sherds was a J10.14 jar (Fig. 12.95). The pottery contained in Hearth F2173 did not contain any obvious waster material despite the presence of fired clay pilasters and kiln lining, but did contain body sherds of ROB SH in L2174 and L2175, as well as a body sherd of LNV CC in L2175, suggesting the material dumped into the hearth when it was abandoned was not solely or directly from a kiln. Ditch F2106 (L2108 Seg.B) was also notable for containing the base of a COL CC2 bag-shaped beaker with roughcast decoration (Symonds and Wade 1999: Cam.391) that was not produced until the early 2<sup>nd</sup> century AD, in association with body sherds of ROB SH, HOR RE1 and HOR OX1.

### *The pottery assemblage in the context of the Horningsea ware pottery industry*

The production of Horningsea wares is already known at 19 kilns (Evans *et al* forthcoming) situated in the area of the intersection of the Roman Car Dyke and Akeman Street (present day Waterbeach, Landbeach, Horningsea and Milton). The two kilns recorded by this excavation and their associated products may be added to this group. The earliest Horningsea kilns were operating from the late 1<sup>st</sup> century (Flavian period) at the Eye Hall Farm site on the south side of the Car Dyke, with current evidence suggesting production began in the Waterbeach area to the north of the Car Dyke in the early/mid 2<sup>nd</sup> century AD (Antonine period), however, this assemblage expands the current interpretation and suggests Horningsea ware production had begun at Waterbeach by the early 2<sup>nd</sup> century AD (Trajanic/Hadrianic period).

The full extent, organisation and number of kilns involved in the Horningsea industry remains open to conjecture but further kiln sites on the land close to the Car Dyke and Akeman Street can be reasonably postulated, especially given the intensive degree of pottery production evident on this site and in this assemblage. Stratigraphically 12 sub-phases could be isolated within Phase 2 of this site, but despite significant quantities of pottery associated with seven of these sub-phases it was not possible to discern any form of progression in the pottery between sub-phases. The excavated area appears to represent a narrow window on to pottery production in the early 2<sup>nd</sup> century AD (Flavian/Trajanic period). Kilns and waster groups could be definitively identified in Phase 2 Sub-phases 4 and 11, and it remains possible other sub-phases, notably sub-phases 1, 2 and 12 may be associated with truncated kilns or kilns beyond the excavated area. The pottery groups from Phase 2 clearly characterise the intense degree of exploitation through industrial-scale pottery production of the land in the vicinity of the Car Dyke and Akeman Street in the early 2<sup>nd</sup> century AD. They suggest an unwillingness or inability to re-locate, although as the full scope of this landscape was not revealed by the elongate window the excavation area provided, this interpretation is by necessity limited.

The range of pottery products from the excavated kilns encompasses a range of utilitarian form types including platters, dishes, bowls, jars, storage jars and lids,

although several types can be identified as particularly characteristic of the two excavated kilns. The most common characteristic forms comprise the B1.1 carinated bowl and J10.5 rilled jar, while constricted neck jars CJ1.1 and CJ1.6 also frequently occur (Table 4). Other form types in the assemblage represented by more than two examples include B2.1 bowls, D2.5 and D8.1 dishes, J9.3, J10.7 and J10.14 jars, and SJ1.1 storage jars. However the identification and quantification of some bowl and jar form types may have been slightly biased by the varying degree of breakage that would have occurred on different form types during the firing process resulting in numerous everted bead and plain rims that were too fragmented to be assigned a form type.

The range of form types in this assemblage, associated with the early 2<sup>nd</sup> century AD Kilns S2171 and S2020, exhibits some broad similarities and key differences with the kiln recorded cut into the western bank of the Car Dyke at Waterbeach dated c. AD150-160 (Evans *et al* forthcoming, 13). As with Kilns S2171 and S2020, this kiln produced B1.1 carinated bowls and J10.5 rilled jars but in much lower quantities, where as in contrast the common products of the mid 2<sup>nd</sup> century kiln comprises jar types J10.1, J10.2, J10.4, J10.5, J10.9 and J10.12 which are absent in this assemblage. A further contrast exists in the absence of B2.1 and B7.2 bowls, D8.1 dishes (platters), and CJ1.1, CJ1.2, CJ1.5 and CJ1.6 constricted neck jars from the mid 2<sup>nd</sup> century AD kiln. These differences are almost certainly a reflection of the chronological progression in production of form types within the Horningsea industry from the early 2<sup>nd</sup> century AD (Kilns S2171 and S2020) to the mid 2<sup>nd</sup> century AD (Car Dyke, Waterbeach), but may also in part reflect the nature of production or specialisation of different potters or workshops within the Horningsea industry.

### *The post-medieval pottery*

The post-medieval pottery comprises occasional small sherds of stone ware and mocha ware contained in Gullies F1014, F1037 and Ditch F2066 (L2088 Seg. D - upper fill).

## **3.2 Kiln Furniture and Lining**

*Andrew Peachey*

### *Introduction*

Excavations (trial-trench and open-area) recovered a total of seven fragments of pre-fabricated kiln furniture (388g) and 667 fragments (28966g) of kiln lining, including integral pilasters. The kiln furniture and lining is entirely associated with the production of pottery on and in the vicinity of the site in the Roman period (Phase 2). The pre-fabricated kiln furniture is comprised of clay plates that may have been used to construct and insulate the dome of a kiln, or to form a temporary floor in a kiln, while the kiln lining was also used to form integral pilasters attached to the kiln wall that would have supported kiln furniture (i.e. clay plates or bars). The kiln furniture and lining can be viewed as an industrial by-

product of the firing process, at the end of which it is re-used, re-cycled, left *in situ* in the kiln chamber or raked out into a waster or refuse deposit. The kiln furniture and lining was distributed in a series of inter-cutting features, including 10 of the 12 stratigraphic sub-phases that Phase 2 could be sub-divided into, with a single intrusive fragment also contained in middle Iron Age (Phase 1) Pit F2131 (Table 7). Significant concentrations of kiln furniture and lining were contained in Phase 2 Sub-phases 4 and 11 associated with Kilns S2171 and S2020, while Phase 2 Sub-phase 12 also included a concentration in Pit F2173, possibly comprising a hearth or refuse pit associated with a kiln.

Stratigraphic Phase	Fired Clay (Kiln Lining)		Kiln Furniture (Clay Plates)	
	F	W	F	W
1	1	13	0	0
2.1	12	73	2	40
2.2	1	14	0	0
2.3	24	1570	0	0
2.4	258	9661	2	92
2.5	5	33	0	0
2.6	10	115	0	0
2.7	0	0	0	0
2.8	4	47	0	0
2.9	0	0	0	0
2.10	2	22	0	0
2.11	265	5267	3	256
2.12	64	11323	0	0
Unphased	21	828	0	0
<i>Total</i>	<i>667</i>	<i>28966</i>	<i>7</i>	<i>388</i>

Table 7: Quantification of fired clay and kiln furniture in stratigraphic phase groups used for interim report by frequency (F) and weight (W, in grams).

## Methodology

The kiln furniture and fired clay were quantified by fragment count (frequency) and weight (in grams). Fabrics were examined at x20 magnification and are described in the report. All data, including extant dimensions and characteristics of sufficiently intact fragments was entered into a Microsoft Excel spreadsheet that forms part of the site archive. Additional discussion of sub-phase groups is included where the kiln furniture and lining were of sufficient quantity or intrinsic interest.

## Fabric Descriptions

**Kiln Furniture** The clay plates in the assemblage were manufactured in a fabric that is a coarse variant of that used to produce Horningsea ware pottery (Tomber and Dore 1998, 116; Evans 1991, 35). This fabric typically exhibits occurs in oxidised dark red-brown or reduced dark grey tones with inclusions of common coarse quartz (0.1-1mm) with

sparse limestone and grog/ironstone (generally <2mm) and occasional flint (0.5-10mm). Clay plates in comparable fabrics were recorded in a kiln at the Car Dyke, Waterbeach (Evans *et al* forthcoming, 16: fabric D04). The similarities in raw material suggest the clay plates were manufactured on an *ad hoc* basis on site and in parallel with the production of Horningsea ware pottery.

#### Kiln Lining

Pale brown to pale oxidised tones (often mottled) throughout. Inclusions comprise sparse poorly sorted coarse quartz (0.25-1.5mm), sparse flint (generally <3mm, occasionally to 10mm) and occasional iron rich/clay pellets (0.25-2.5mm). Quite a soft, friable fabric (possibly reflecting preservation conditions). Comparable kiln lining was recorded at the Car Dyke, Waterbeach kiln (Evans *et al* forthcoming 16), and its use to construct integral pilasters (pillars) is well-attested at Eye Hall Farm (Walker 1912).

#### *Form Descriptions*

#### Kiln Furniture

The assemblage contained a total of 7 fragments (388g) of kiln furniture, entirely comprised of clay plates. In comparison to the assemblage from the kiln recorded at the Car Dyke, Waterbeach (Evans *et al* forthcoming) this is a limited quantity, but does present further useful data. The clay plates occur in association with Phase 2 Sub-phase 4 Kiln S2171 and Phase 2 Sub-phase 11 Kiln S2020, as well as in Phase 2 Sub-phase 1 whose features may be associated with the ephemeral remains of a kiln truncated by Kiln S2020.

The clay plates in this assemblage have a thickness of c. 10mm with slightly irregular, uneven surfaces, but unlike the examples from Eye Hall Farm do not exhibit any grass or cereal impressions (Walker 1912, 48). A fragment contained in Stoke Pit F2039 (L2040 Seg.C), part of Phase 2 Sub-phase 11 Kiln S2020 exhibits an extant curvilinear edge. Unfortunately the fragment is of insufficient size to indicate whether the clay plate was circular, ovoid or otherwise shaped. If the clay plate was circular it would have had a width of 44cm, significantly larger than examples previously recorded in association with Horningsea ware kilns, but identical to the dimensions of the base of a storage jar contained in Phase 2 Sub-phase 4 Kiln S2171, suggesting such a base may have been used as a template. A separate fragment contained in Phase 2 Sub-phase 1 Gully F2058 (L2059) exhibits a typically uneven 'upper' surface but is noticeably smooth and flat on the opposing side, suggesting that a storage jar base may even have been re-used as a crude mould or cutting block. Furthermore a fragment of clay plate contained in Phase 2 Sub-phase 4 Ditch F2184 (L2155 Seg.A), a waster deposit associated with Kiln S2171, exhibits a pre-firing circular hole or perforation 20mm wide.

The combination of these characteristics indicated that the clay plates in this assemblage may differ from those previously recorded in association with Horningsea ware kilns, although the low quantity and small size of fragments should be seen as a limiting factor in drawing this conclusion. The clay plates in other Horningsea ware kilns have had a width of 15-23cm wide with no



perforations, and have been interpreted as components of the kiln dome used to aid insulation and heat retention (Walker 1912, 46; Evans *et al* forthcoming, 16-17), and this remains a possible function for the clay plates in this assemblage. However, the larger size and perforation of the clay plates in this assemblage suggest they may have been components in a portable kiln floor, in which they were supported by integral pilasters and strategically placed portable pilasters or pots (possibly part of the kiln load or re-used waster vessels). In contrast to other Horningsea ware kilns, this assemblage did not include any evidence for prefabricated portable pilasters, clay bars or pedestal blocks supporting this conclusion. However the nature of these types of prefabricated kiln furniture dictates that they are portable and highly likely to be moved and re-used in successive kilns, almost certainly located in the intensive industrial area that extends beyond the excavated area. It may also be an indication that individual potters or workshops within the Horningsea industry utilised slightly different kiln technology, with varying shapes and pillar arrangements already noted at Eye Hall farm (Evans 1991, 43).

#### Kiln Lining, including Integral pilasters

The kiln lining comprises tempered wet clay that was applied to the kiln chamber, flue and dome prior to firing and where necessary was 'sculpted' to form integral pilasters attached to the kiln wall that would have supported pre-fabricated kiln furniture (kiln bars or clay plates). The kiln lining that was not used to form integral pilasters is typically <30mm thick and usually exhibits smearing marks on the 'interior' surface. Fragments in Phase 2 Pit F2141 (L2142) and Posthole F2190 (L2191) exhibit parallel rod impressions (15-20mm wide) spaced 10mm apart that indicate that the kiln dome was formed using a wattle frame, around which the kiln lining was packed. The principal concentrations of kiln lining, not associated with integral pilasters, is limited to Collapsed Superstructure F2171 of Phase 2 Sub-phase 4 Kiln S2171, and Clay Lining F2021 (L2022) and Stoke Pit F2039 (L2040) of Phase 2 Sub-phase 11 Kiln S2020.

The highest concentration of recognisable fragments of integral pilaster, sculpted by hand from the kiln lining, was contained in Phase 2 Sub-phase 12 Pit F2173 (L2174), and comprised a total of ten pilaster fragments (6817g) representing at least six individual pilasters. Further fragments of integral pilaster were contained in Collapsed Superstructure F2171 of Phase 2 Sub-phase 4 Kiln S2171 and in Phase 2 Sub-phase 11 Ditch F2047 (L2049 Seg. A), a waster deposit associated with Kiln S2020, while sparse fragments were also contained in Phase 2 Sub-phase 3 Pit F2167 (L2197) and Ditch F2133 (L2134 Seg. E).

The integral pilasters are all tongue-shaped and would have projected at an approximately perpendicular angle to the concave wall of the kiln chamber. The integral pilasters all appear to have a slightly concave or 'waisted' profile, and although the complete height is not preserved intact on any of the fragments, they appear to have stood at least 140mm high. The integral pilasters in Phase 2 Sub-phase 4 Kiln S2171, associated with Phase 2 Sub-phase 11 Kiln S2020 and contained in Phase 2 Sub-phase 3 Pit F2167 project 50-60mm from the kiln wall and are 110-120mm wide where they were fixed to the kiln wall. However, at least one example in Phase 2 Sub-phase 12 Pit F2173 appears to project 160mm and

have a width of 160mm, raising the possibility it was part of central (ovoid) pedestal or extended from the rear towards the centre of the kiln chamber as a tongue shaped pedestal. Like the smaller pilasters it was not pre-fabricated and was formed from the kiln lining. It remains unclear how many pilasters would have been used in either of the excavated kilns, although the kilns at Eye Hall Farm utilised between four and eight pilasters arranged as opposed pairs or diametrically opposed (Evans 1991, 43).

### *Commentary on Selected Sub-Phase Groups of Kiln Furniture and Lining*

#### Phase 2 Sub-Phase 1

Gullies F2050 and F2058 form part of an arrangement of features that are heavily truncated by Phase 2 Sub-phase 11 Kiln S2020 and associated features. Gully F2058 (L2059) contained two fragments (40g) of clay plate, while Gully F2050 (L2051) contained sparse small fragments of kiln lining. This material may be intrusive or re-distributed from Kiln S2020, but may also indicate that Gullies F2050 and F2058 (possibly with Pit F2045) represent the ephemeral traces of earlier kiln activity, either a separate kiln possibly incorporating these features or an earlier incarnation of Phase 2 Sub-phase 11 Kiln S2020. Occasional small fragments of kiln lining were also contained in other Phase 2 Sub-phase 1 ditches and pits.

#### Phase 2 Sub-Phase 3

Pit F2167 (L2197) contained a single substantial fragment (432g) of integral pilaster with further fragments of kiln lining. The pit was heavily truncated by Phase 2 Sub-phase 4 Kiln S2171, an earlier incarnation of which may be the source of this material, or may have truncated an earlier kiln whose remains are represented by Pit F2167. Ditches F2117 and F3133 form an enclosure in the southern half of the site and contain a sparse distribution of kiln lining including a fragment of integral pilaster in Ditch F2133 (L2134 Seg.E), that combined with Pit F2167 suggest kiln activity during this stratigraphic phase.

#### Phase 2 Sub-Phase 4

Kiln S2171 and the associated waster dump in Ditch F2184 (L2155 Seg. A) contained significant quantities of kiln lining and fragments of kiln furniture (Table 8). The bulk of the kiln lining (c. 80%) was, naturally, recovered from Collapsed Superstructure F2171 (L2172) of Kiln S2171 and included fragments of integral pilasters, but these were too fragmentary to deduce the number of pilasters or their size in the kiln chamber. A single more complete integral pilaster was contained in Ditch F2184 (L2155 Seg. A) as were 2 fragments (92g) of perforated clay plate that had probably been raked out of the kiln chamber. It is also notable that Pit F2146 (L2176 Seg. C), part of kiln S2171, contained the large complete base (but not body) of a Horningsea storage jar (diameter 220mm) that may have been re-used as a clay plate inside the kiln.

Feature/Group	Fired Clay (Kiln Lining)		Kiln Furniture (Clay Plates)	
	F	W	F	W
Kiln S2171	38	1451	2	92
Ditch F2184 (L2155 Seg.A)	219	8202	0	0
Other Pit Fetaures	1	8	0	0
<i>Total</i>	<i>258</i>	<i>9661</i>	<i>2</i>	<i>92</i>

Table 8: Quantification of fired clay and kiln furniture in stratigraphic sub-phase 2.4 by frequency (F) and weight (W, in grams).

### Phase 2 Sub-Phase 11

Kiln S2020 and the associated waster dump in Ditch F2047 (L2049 Seg. A) contained significant quantities of kiln lining and fragments of kiln furniture (Table 9). High concentrations of kiln lining were, expectedly, present within Clay Lining F2021 (L2022), Stoke Pit F2039 (L2040) and Flue Gully F2032 (L2033) of Kiln S2020 but did not include any integral pilasters that would indicate the internal structure of the kiln chamber. However, Stoke Pit F2039 (L2040 Seg. C) did contain three fragments (256g) of prefabricated, probably circular clay plate with a width of 44cm that had probably been raked out of the kiln chamber. The waster deposit contained in Ditch F2047 (L2049 Seg. A) also included a relatively large fragment (385g) of integral pilaster, also probably raked out of the kiln chamber.

Feature/Group	Fired Clay (Kiln Lining)		Kiln Furniture (Clay Plates)	
	F	W	F	W
Kiln S2020	168	3162	3	256
Ditch F2047 (L2049 Seg.A)	56	1751	0	0
Other Ditch F2047	5	117	0	0
Ditch F2038	36	237	0	0
<i>Total</i>	<i>265</i>	<i>5267</i>	<i>3</i>	<i>256</i>

Table 9: Quantification of fired clay and kiln furniture in stratigraphic sub-phase 2.11 by frequency (F) and weight (W, in grams).

### Phase 2 Sub-Phase 12

Pit F2173 contained a high concentration of large fragments of kiln lining, in total 55 fragments (11189g), while the remaining Phase 2 Sub-phase 12 contexts contained only sparse fragments. The kiln lining in Pit F2173 includes 10 fragments (6817g) of integral pilasters, with at least one fragment belonging to a large example which may have been attached to the kiln chamber wall or comprised part of a pedestal support. The fractures on the integral pilasters indicate the fragments have been re-fired, suggesting either the broken pilasters were not raked out of their original kiln before it was re-fired, or that the broken fragments were re-incorporated into the lining and superstructure of a second kiln and then re-fired, before eventually being discarded. The re-lining and re-use of kiln chambers is attested to at Kiln 6 at Eye Hall farm (Walker 1912, 25) but it was not recorded if any of the lining or superstructure was comprised of re-cycled material. The integral pilasters in Pit F2173 (L2174) may be related to a function of Pit F2173 as a hearth, oven or kiln, and although it does not appear to have constituted a kiln it cannot be discounted that an abandoned kiln chamber was

used as a rubbish pit or a collection point for raked out material to be recycled.

### 3.3 Small Finds

*Nina Crummy*

The objects in this small assemblage range from prehistoric to modern in date. The earliest piece is probably Fig. 13.1, SF 15, the lower end of a bone point found in gully F2135. Points made from a variety of bones are frequently found on both Iron Age and Anglo-Saxon sites, but this example is narrower than most (e.g. MacGregor 1985, 174; Sellwood 1985, 382-7; West 1985, fig. 55, 7, fig. 61, 12) and its stratigraphic association with a well-preserved early Roman military belt-plate suggests that it should be regarded as Late Iron Age or early Roman. A parallel may be drawn with a narrow point made from a sheep/goat radius from a late 1<sup>st</sup> century AD context in the military fort at Castleford, West Yorkshire (Greep 1998, 281, fig. 123, 171). The polish on the tips and up the shafts of many of these tools is usually taken as an indication that they were used as awls in leather-working. An alternative possibility for the more slender Waterbeach and Castleford points is that they were used in weaving (Crowfoot 1945; Wild 1970, 66, 133-4).

Also from gully F2135 is a copper-alloy rectangular plate from a pre-Flavian military belt (Fig. 13.2, SF 10). The surface is decorated to imitate the design on a legionary shield, with a small boss at the centre of a crossed thunderbolts-and-spears design, a motif that also occurs on narrower military belt-plates and in both more elaborate and more simplified forms has been described as candelabra-and-leaves (Grew and Griffiths 1991, 57-9, fig. 4, 1-7, 22; Crummy 2005, 98). As with all early military equipment and the range of post-conquest continental imported goods, the distribution of pre-Flavian belt-plates in Britain reflects the progress of the military advance westwards and northwards after the invasion of AD 43 and the establishment of the new provincial administration.

A second bone point, made from a solid piece of bone, came from the fill of ditch F2102 (Fig. 13.3, SF 13). Its point is narrow and rounded and the shaft is elliptical in section, both features that distinguish it from the sharp points of hairpins or needles and make it too blunt to be an awl. It is most likely to be either the end of a spoon handle, a spindle or a distaff and of Romano-British date.

Most of the remaining objects in the assemblage are nails or nail shank fragments from a range of features. Where the head survives most are of the common round flat or slightly convex form, and the shanks are less than 150 mm in length. This is Manning's Romano-British Type 1b (1985, 134), but not all the examples from Waterbeach need necessarily be of that date, as the type differs little if at all from nails made in the Iron Age and in the medieval and post-medieval periods. Without dating evidence from associated finds such nails cannot be closely dated. More certain to be Romano-British are two nails from the clay lining of kiln F2171. They are of Manning's more unusual Type 2, with an upright lozenge-shaped head the same thickness as the shank, allowing the nail to be driven fully into timber when the head is aligned with the grain of the wood (Manning 1985, 134-5, fig. 32, 2).

The most recent items in the assemblage are a ?post-medieval sherd of glass from

ditch F2117, and a modern iron or steel screw from gully F2006.

Fig. 13.1, SF 15. (2136), fill of gully F2135. Bone point fragment, made from a narrow hollow bone, probably a sheep/goat radius. The upper end has broken off. The point was made by cutting across the shaft of the bone at an angle and sharpening the long side. Both the point and the lower end of the shaft are polished from use-wear. Length 82 mm.

Fig. 13.2, SF 10. (2136), fill of gully F2135. Rectangular copper-alloy military belt-plate with worn inlaid niello decoration, traces of tinning and a small central boss. There are four integral corner rivets and one central one on the underside. Length 40 mm, width 17 mm. The length of the rivets gives a minimum belt thickness of 4 mm.

Fig. 13.3, SF 13. (2143), fill of ditch F2102. The point of a bone tool, with the tip worked from each side to a narrow rounded point. The broken upper end is elliptical in section. Length 89 mm, maximum width of upper end 7 mm, width of point 3 mm.

SF 3. (2070), fill of ditch F2066. Iron nail with small round head and clenched shank. Length 23 mm.

SF 4. (2070), fill of ditch F2066. Iron nail with small round head. Length (incomplete) 20 mm.

SF 5. (2070), fill of ditch F2066. Iron nail shank fragment. Length 27 mm.

SF 6. (2070), fill of ditch F2066. Iron nail with round head. Length (incomplete) 33 mm.

SF 7. (2097), fill of ditch F2096. Iron nail with square head. Length (incomplete) 37 mm.

SF 11. (2154), fill of ditch F2151. Small iron rivet. Length 13 mm.

SF 14. (2172), clay lining of kiln F2171. Iron nail with lozenge-shaped head. Length 91 mm.

SF 16. (2172), clay lining of kiln F2171. Iron nail with lozenge-shaped head. Length 85 mm.

SF 12. (2175), fill of hearth F2173. Iron nail with round head. Length (incomplete) 44 mm.

SF 9. (2157), fill of pit F2156. Iron nail shank fragment. Length 11 mm.

SF 17. (2119), fill of ditch F2117. Sherd of post-medieval translucent green glass from a large jar, bowl or similar vessel with curved body. 30 by 23 mm.

SF 2. (2007), fill of gully F2006. Iron nail with round head. Length 45 mm.

SF 1. (2007), fill of gully F2006. Modern iron or steel screw shank fragment. Length 44 mm,

### **3.4 Faunal remains**

*Julie Curl*

#### *Introduction*

Nearly 24kg of faunal remains were recovered from excavations at 12, Pieces Lane. Seven species of bird and mammal were identified. Remains show extensive butchering, along with some evidence for hornworking.



## *Methodology*

All of the bone studied in this assemblage was hand-collected, and no environmental samples were examined. The mammal bones were recorded using a modified version described in Davis (1992). The following were always recorded: all upper and lower teeth, scapula (glenoid articulation), distal humerus, distal radius, proximal ulna, distal metacarpal, carpal 2-3, pelvis, distal femur, distal tibia, calcaneus, lateral part of the astragalus, cuboid, distal metatarsal. For all of these bones, at least 50% of the given part had to be present.

For the birdbone, the following was always recorded: distal tarso-metatarsus, distal tibio-tarsus, distal femur, distal humerus, proximal coracoid, proximal ulna, proximal carpo-metacarpus and scapula (articular end). Measurements (listed in the appendix) were taken where appropriate, generally following Von Den Driesch (1976). Humerus BT and HTC and metapodial "a" and "b" are recorded as suggested by Davis (1992).

Horncores were recorded when present and the following measurements were taken: greater length, maximum base width and minimum base width. The horncores were only measured when at least one of the complete measurements could be taken.

Any butchering was also recorded, noting the type of butchering, such as cut, chopped or sawn and locations of butchering. A note was also made of any burnt bone. Relevant pathologies (for example due to husbandry, age, diet) were also recorded with the type of injury or disease, the element affected and the location on the bone. Other modifications were also recorded, such as any possible working, working waste or animal gnawing.

Weights and total number of pieces counts were also taken for each context, along with the number of pieces for each individual species present (NISP) and these appear in the appendix (see accompanying CD).

All information was recorded directly into an Excel database for analysis. A catalogue is provided in the appendix giving a summary of all of the faunal remains by context with all other quantifications. Measurements and tooth records are also presented in table form in the appendix (see accompanying CD). A complete catalogue with measurements is available in the digital archive (see accompanying CD).

## *The faunal assemblage*

### Quantification, provenance and preservation

A total of 23,832kg of faunal remains, consisting of 2128 pieces, was recovered from the excavation at 12, Pieces Lane, Waterbeach. Remains were recovered from ninety-eight contexts. The bulk of these remains were recovered from ditch fills (77.6%), the rest of the bone was found in a variety of features, such as kilns, gullies, pits and a posthole fill. Quantification of the faunal assemblage by feature

type can be seen in Table 10.

Feature Type	Quantification by feature type		Percentage of assemblage (by weight)
	Number of elements	Weight	
Ditch	1493	18,504kg	77.6%
Flue gully	1	0.014kg	0.06%
Gully	134	1,718kg	7.2%
Hearth	127	1.259kg	5.3%
Kiln	10	0.313kg	1.3%
Kiln or pit	1	0.006kg	0.02%
Kiln/Stoke pit	1	0.002kg	<0.01%
Linear	23	0.273kg	1.2%
Pit fill	269	1,504kg	6.3%
Posthole	1	0.007kg	0.02%
Slump	55	0.202kg	0.84
Spread	13	0.030kg	0.12%
<b>Totals</b>	<b>2128</b>	<b>23,832kg</b>	<b>-</b>

Table 10. Quantification of the excavation faunal material by feature type.

The majority of the faunal remains (just over 83%) were found in features of a Roman date, with the bulk of this bone produced from ditch fills of a Romano-British date. Over 11% of the assemblage was yielded from ditch and pit fills and found in association with Middle Iron-Age ceramics. Just over 2% of the remains were found with 15<sup>th</sup> to 16<sup>th</sup> century finds and a little over 3% of the bone is of an uncertain date. Quantification of the animal bone, from the main excavation, by date and feature can be seen in Table 11.

Feature Type	Date								Feature Weight
	E/M2-4 AD	L15th-16 <sup>th</sup> C	L1-E2 AD	L1-M2 AD	M1-E2 AD	MIA	RB	Undated	
Ditch		528	1608	2852	488	1907	11113	8	18,504kg
Flue gully				14					14g
Gully				84			1213	421	1,718kg
Hearth	273						986		1,259kg
Kiln				263				50	313g
Kiln or pit							6		6g
Kiln/Stoke pit				2					2g
Linear							273		273g
Pit fill						808	432	264	1,504kg
Posthole								7	7g
Slump							202		202g
Spread							30		30g
<b>Total date by</b>	<b>273g</b>	<b>528g</b>	<b>1608g</b>	<b>3215g</b>	<b>488g</b>	<b>2715g</b>	<b>14255g</b>	<b>750g</b>	<b>23,832kg</b>

Table 11. Quantification of the excavation faunal assemblage by context spot-dates/ceramic dates.

The bone is generally in a good, but fragmented condition, with little variation in

condition across the assemblage. Much of the bone had been butchered to some degree. Further fragmentation from gnawing was seen occasionally throughout the assemblage. This gnawing was particularly evident in some fills, such as in the ditch fill (2166) where cattle, sheep/goat and equid bones had been quite heavily gnawed. Here gnawing was seen on lower limb bones in all cases, perhaps suggesting that some skinning waste was available for dogs or scavengers, perhaps these waste bones were given to domestic or working dogs.

Nine contexts produced burnt bone: four of these were ditch fills, two were pit fills and three hearth fills yielded burnt remains. Most of this bone consisted of fragments of ribs and pieces of good quality meat-bearing bones. Over half of the bone fragments in the hearth fill (2174) had been burnt, varying in colour from brown with light burning through to fragments of a grey to white colour, indicating burning for a longer period and at higher temperature. Burnt bone in a hearth fill is to be expected, with waste conveniently disposed of in fires, or even used as fuel. The burnt remains in the ditch and pit fills are likely to be waste cleared from hearths and disposed of in these features.

### General Butchering

Much of the assemblage is highly fragmented, largely due to extensive butchering. Many foot and lower limb bones showed fine knife cuts that would have occurred from skinning. Heavier chops were seen on larger bones (upper limb, scapula and pelvis) in particular where the animals were dismembered and jointed. Some splitting of vertebrae was seen where carcasses had been cut into halves. Additional fine knife cuts were seen on many of the good quality meat bearing bones (for example, humeri, pelvic bones) in particular where meat was removed from the bone. Some bones show fine cuts and scrapes from meat removal. Many bones have also been smashed, presumably for removal of the marrow and perhaps for use in soups and stews.

### Working waste

Small amounts of hornworking were noted from three ditch fills, such as in L2145, F2102, where a large sheep horncore was seen with a heavy chop to the base where it was removed from the skull, a finer cut was also seen on this core that may have occurred when the outer horn sheath was removed from the core during processing. The ditch F2151 also produced two horncores that have been chopped/cut; a sheep horncore was recovered from fill L2152 and a cattle horn from the fill L2154.

### Species, pathologies, modifications –observations and discussion

At least seven species were identified in this assemblage, five of which are mammal, two of bird. Most species were distributed through the pit and ditch fills. Quantification of species (NISP) by feature type is presented in Table 12.

Type	Species									Feature Totals
	Bird	Fowl	Goose	Cattle	Dog/Wolf	Equid	Mammal	Pig/boar	Sheep/goat	
Ditch	1			182	16	11	1158	37	119	1524
Flue/gully						1				1
Gully				6		21	95	1	9	132
Hearth				9	3		109		6	127
Kiln				2			5		3	10
Kiln or pit							1			1
Kiln/Stoke pit							1			1
Linear				2			18		3	23
Pit fill	49	29	3	11	1		142	4	30	269
Posthole									1	1
Slump				1			23		2	26
Spread				1			12			13
<b>Species Totals</b>	<b>50</b>	<b>29</b>	<b>3</b>	<b>214</b>	<b>20</b>	<b>33</b>	<b>1564</b>	<b>42</b>	<b>173</b>	<b>2128</b>

Table 12. Quantification of species (NISP) by feature type.

All seven species identified in this assemblage were seen in Romano-British fills, with some species restricted to the Roman fills alone. Cattle and sheep were seen in all periods and in the undated material. Distribution of species over the date ranges can be seen in Table 13.

Species	Date								Species Total
	MIA	L1-E2	L1-M2	M1-E2	E/M2-4	RB	L15th-16 <sup>th</sup> C	Undated	
Bird						50			50
Fowl						29			29
Goose						3			3
Cattle	5	16	25	4	2	151	7	4	214
Dog/Wolf					3	9	8		20
Equid		2	5			18		8	33
Mammal	140	79	189	69	25	969	47	46	1564
Pig/boar	3	2	6	3		24	4		42
Sheep/goat	27	5	20	2	6	104	2	7	173
<b>Total by date</b>	<b>175</b>	<b>104</b>	<b>245</b>	<b>78</b>	<b>36</b>	<b>1357</b>	<b>68</b>	<b>65</b>	<b>2128</b>

Table 13. Quantification of the faunal assemblage by species and date.

The most frequently identified species is cattle, with sheep/goat found in slightly lower numbers. The cattle remains consisted of a range of ages from juveniles through to one mature animal in the Roman fills, although most were from adult animals. No significant pathologies were seen, suggesting a healthy stock in this assemblage. Metrical data shows different breeds in this collection, including a short-horn type cattle from the MIA ditch fill L2192 and a Long-Horn specimen in

the Roman fill L2151; the former being the typical cattle in Celtic Britain. Much of the cattle bone had been butchered and evidence included skinning, fine cuts on an inner mandible suggest removal of the tongue for meat. One relevant pathology was noted with the cattle bone in the form of arthritic growth on a proximal phalange, with more growth around the distal end of the bone. Such a pathology is likely to arise in older animals or those used for traction.

The remains of sheep/goat were predominately found in Roman fills, with just sparse remains in MIA and post-medieval features. Most of the remains were from adult animals, although frequent juveniles were seen; one neonatal specimen was found in the Roman ditch fill L2066, which suggests on-site breeding. A range of elements were seen, with a higher number of the main meat-bearing bones. Butchering of the ovicaprids included skinning, dismemberment and meat removal, along with small quantities of horn removal, presumably for working. A sheep/goat metacarpal from L2108B showed fine cuts along the length of the front shaft which would suggest some inexperienced skinning of this animal. A sheep/goat mandible in L2068 showed some swelling that would suggest a tooth or gum infection, possibly from wear on the teeth.

Pig/boar were found in much lower numbers than cattle. While described as pig/boar, none of the remains in this assemblage strongly suggested Wild Boar, although, given the earlier dates, this cannot be ruled out. The lower number of pig in relation to cattle and sheep/goat is not surprising as these animals are primarily kept/hunted for meat and have little secondary use, other than for skins, fat and some bone working.

Twenty bones were identified as dog/wolf, which were distributed amongst seven fills. The contexts of six of Roman date produced sparse remains of dog/wolf, with metrical data indicating the remains of medium to large canids in these fills. Eight bones were found in one fill of 15<sup>th</sup> to 16<sup>th</sup> century date, these remains are from a medium to large, sub-adult animal. No butchering was seen on any of the canid bones present, although this does not necessarily rule out killing and consumption. Three of the bones were found in the E/M2-4<sup>th</sup> centuries hearth fill (2173), although the remains were not burnt; it is possible these were waste from skinning or consumption.

Equid bones were identified from eight contexts, all of Roman date. The majority of remains were from adult animals with one sub-adult animal present. Metrical data from an equid in the Roman ditch fill (2152) indicates an animal of around 13.5 to 14 hands high, suggesting a large pony. Measurements from equid remains in the Roman ditch fill (2166) suggests an animal a little over 12 hands high, well within the range for a native pony. One pathology was noted on a proximal tibia that would indicate an animal under physical strain, suggesting a traction animal.

Bird bone was recovered from two fills. The Romano-British ditch fill (0268) produced a single fragment of an ulna, which is too worn to identify to species with certainty. The Romano-British pit fill (2199) produced over seventy bones. The remains in pit [2198], fill (2199) consisted of elements from two chicken/pheasants and bones from one goose. The fowl remains comprised of a range of bones that were not butchered and would perhaps suggest the disposal of complete bird. The



fowl remains in this pit were from one adult and one sub-adult. The bone of goose, a femur and two tibiotarsus, which had been butchered. One of the fowl bones, a femur, from (2199) showed a small amount of additional growth on the proximal end around the trochanter; this growth is most likely to have occurred from an infection or injury.

### *Conclusions and comparisons with other sites*

The range of species in this faunal assemblage is dominated by domestic mammals and birds, with only goose, boar and wolf as any possible evidence of wild species, although these may well have been domestic stock. There is lack of deer and wild bird in this assemblage, there is also an absence of smaller wild mammals such as badger and fox, which are also often found in Roman remains as a result of the use of their pelts. The lack of obvious wild species might suggest hunting was not that important (or necessary) for this site and that they could be sustained largely on their domestic stock. The range of elements and butchering seen suggests waste from processing and consumption. The small quantity of hornworking waste might suggest small scale production of horn items such as spoons, lanterns or combs.

The bird remains are likely to be from domestic stock. Domestic fowl have been found to be the most popular species of poultry on several Roman sites in Britain (Maltby, 1979). These fowl, along with the goose, would have been kept for a supply of eggs and feathers, as well as for meat and, in the case of the goose, fat. The pathological fowl bone may suggest poor standards of husbandry for the chickens with a risk of injury and subsequent infection.

The assemblage from Waterbeach compares well with assemblages such as the remains from excavations at the High Street in Colchester (Wade, 2002) where the species range from Roman fills was the same and the only wild species were from less securely dated fills. The much larger Roman assemblage at Snettisham, Norfolk (Curl, 2004) shows only sparse remains of deer, hare, fox, polecat and wild birds, so the lack of wild species at this site in Waterbeach is not that surprising.

## **3.5 Environmental Samples**

*Lisa Gray*

### *Introduction*

The aims of this report are to identify and interpret the plant macrofossils in three samples highlighted during the assessment as being able to provide information about food crops, feature use and activities at the site (Gray 2011). The excavation took place on an overgrown garden plot at 12 Pieces Lane, Waterbeach, Cambridgeshire (TL 4994 6558) and revealed Middle Iron Age features and Romano-British ditches and a kiln.

The samples the selected for analysis produced many uncharred

(intrusive/modern) seeds and, where present, very low numbers of charred grains per volume of sampled soil. These were considered to be contexts where preservation had been very poor or that charred remains had been added to their final destinations within backfill and, as such, would not be able to provide much useful information.

However, it is useful to reflect on these less productive samples at this stage ( as recommended in Van der Veen *et al* 2007, 207) so their contents have been tabulated (Table 15). As the plant macrofossils in these samples have not been counted they are given as presence/absence only. It should also be noted that the taxa listed for these samples will not be a complete record because only those that were most frequently observed were noted during the assessment. It is hoped, however, that this helps the reader to see how the selected samples compare with the rest of the archaeobotanical data.

## *Methodology*

### Sampling and Processing

Sampling, flotation and residue sorting was carried out by the client. The sampling strategy was based on a combination of pre-planning and judgement with advice sought from the English Heritage Regional Science Advisors (*pers comm.* Sarah Bultz).

Processing was carried out by using a flotation tank with a 500 micron mesh sieve for the coarse residue and 250 micron mesh used to collect the flot. Initial processing was of 50% of each sample to allow assessment for potential before processing the remainder (*pers comm.* Sarah Bultz).

Once with the author each sample was examined using a binocular stereo-microscope with magnifications of between 10 and 40 times. Plant material was identified as closely as their quality of preservation allowed. Charred remains were counted and fragments of charcoal and uncharred remains were given estimated levels of abundance as follows:- + =1-10, ++ =11-50, +++ = 51-150, ++++ = 150-250 and +++++ = >250.

### Identification

Identifications were made using modern reference material and reference manuals (such as Beijerinck 1947; Cappers *et al.* 2006). Identifications were made to species level where possible and genus and family where diagnostic features were less clear. For the identification of charred cereal grains and chaff, modern reference material was used along with reference guides (such as Charles 1984; Fuller 2007; Hillman 1976, 1983; Jacomet 2006). Nomenclature for wild plants has been taken from Stace (Stace 2010) and for the cereals from Jacomet (Jacomet 2006). Full Latin names are given in the tables with abridged Latin names used once in the text and the common names used there after. The term 'seed' should be considered to mean 'seed' , 'achene' and 'nutlet'.

Results (see Tables 14 to 18)

### Preservation Quality and Type

These plant macrofossils were preserved by charring. Charring of plant macrofossils occurs when plant material is heated under reducing conditions where oxygen is largely excluded (Boardman and Jones 1990, 2; English Heritage 2002, 12). These conditions can occur in a charcoal clamp, the centre of a bonfire or pit or in an oven or when a building burns down with the roof excluding the oxygen from the fire (Reynolds, 1979, 57). Charring leaves a carbon skeleton resistant to biological and chemical decay (English Heritage 2002, 12).

Uncharred seeds were found in low numbers in each sample and were accompanied by uncharred root/rhizome fragments so are probably intrusive.

### Notes on Identification

#### *Cereal grains:*

Identification of the grains was based on their morphology. Charring can cause differential preservation and distortion of cereal components (Boardman and Jones 1990, 9-10; Braadhaart 2008, 165; van der Veen 1989, 313) making identification and interpretation difficult.

Grains of oat (*Avena* sp.), barley (*Hordeum* spp.), rye (*Secale cereale* L.) and wheat (*Triticum* spp.) were present. The oat grains were not very well-preserved. Straight and twisted barley grains were present. For the wheat grains those identified as spelt (*T.spelta* L.) had flat ventral surfaces, no dorsal ridge and the widest part of the grain below or near the middle. Emmer (*T.dicoccum* L.) grains had a dorsal ridge with the highest point near the embryo. Grains of naked free-threshing type wheat (*T.aestivum* L.) were round, with steep embryos, no dorsal ridge and with bulbous ventral surfaces. Variations between these cereals have been indicated in the table.

#### *Cereal chaff:*

Wheat glume and spikelet bases with very little glume surviving or clearly distorted or damaged have been identified to genus only. Glume bases, glumes and spikelet forks with faint primary and secondary keels have been identified as spelt. The barley rachis fragment in Sample 27 was not well preserved enough to be identified to species.

#### *Legumes:*

These were poorly preserved with the testa cell structure missing. This has meant that identifications have relied upon the general shape of the seed and the position and length of the hilum.

#### *Seeds:*

Most of the charred and uncharred seeds could be identified to species. Where a taxon has been identified to genus it is because there is too much similarity between it and other species within its genus for a species identification to be made based on the seed alone. Unfortunately many of the grass seeds were too

poorly preserved to be identified beyond family or genus level.

### Sample Contents

#### *Romano-British Kiln Pit 2167 –fill 2196, sample 22*

This sample was dominated by cereal grains. Most of these grains were those of free-threshing type, spelt and indeterminate wheat. Two of the spelt grains had malted. A small number of indeterminate wheat and spelt wheat chaff fragments were recovered. Low numbers of charred seeds were also present mostly those of grasses and other segetals such as black bindweed (*Fallopia convolvulus*) and common/curled/broad-leaved dock (*Rumex acetosa/crispus/obtusifolius*). This assemblage of grains and seeds of a similar size to the grain is likely to be waste from corn drying.

#### *Undated Pit 2146, fill 2176, sample 23 (Area A)*

This flot contained more seeds and chaff fragments than grains. Where grains were present they included straight and twisted barley grains as well as free-threshing, indeterminate and spelt wheat. The seeds were dominated by grass seeds, some identifiable as rye-grass/brome (*Lolium/Bromus* sp.) and fescue (cf. *Fescue* sp.). This assemblage is likely to be hearth waste with sieving waste used as fuel. The barley grains may simply be those small enough to pass through a sieve.

#### *Undated Pit 2146, fill 2147, sample 27*

This sample is similar to Sample 27 in having an assemblage dominated by chaff and seeds. A small number of detached sprouted embryos were found in this sample and neither of the other two. No barley grains were found but the other grains and seeds were the same as those in Sample 23. This flot is also likely to be hearth waste with sieving waste used as fuel.

### *Interpretation*

The charred assemblages seem to be those from the latter stages of processing with clean grain being most frequent and seeds of similar size to the grain and heavier chaff being present in lower numbers.

All of the seeds in these samples were smaller than, or the same size as, the grains and likely to be fine sieving waste or acceptable contaminants in crops ready for parching and milling (Hillman 1981, 10; Jones & Halstead 1995, 113). Sample 22 from the kiln pit was dominated by spent and free-threshing type wheat grains and could be waste from the drying of cereal. Samples 23 and 27, with higher numbers of seeds and chaff fragments could have sieving waste been used as kindling for drying kilns (Jones, 1981,107; Hillman 1982 & 1983,4).

Drying grain before storage was necessary in areas where summers were cool and moist (Gibson 1989, 219) meaning harvests were damp (Edwards, 1990, 62; Monk 1986, 34) and that grains needed to be dried to prevent spoilage by germination or insect damage (Van der Veen 1989, 303; ). Another reason for drying grain would have been to harden it prior to milling (Edwards 1990, 62) because soft grain can

clog up querns (Van der Veen 1989, 303; Johnson *et al.* 2009,20).

Malted grains and detached sprouts have been observed in sites where parching of germinated grain prior to storage is likely to have taken place (Van der Veen 1989, 305). The malted grain in Sample 22 and detached sprouts in Sample 27 could indicate the sterilization of stored grain by parching (see Hillman 1981 and Van der Veen 1989).

These food crops represented in these samples are typical of Romano-British samples (Jones 1991) and have been observed in other sites in Eastern England (Stevens and Clapham 2008). Oat and barley could have been grown in more marginal ground with higher rainfall and poorer soils (Edwards 1990, 60). Barley can tolerate saline soils (Clayton and Renvoize 1986, 154). Wheat can tolerate heavier, poorly drained soils more efficiently than barley or oat as long as flooding does not occur (SARE 1985, 20). Emmer and spelt wheat can grow in light, dry soils (Jones 1981, 106).

There are limits to what the charred seeds can reveal about the types of field in which the crops were grown. Any comment in this section needs to acknowledge the fact that seeds found among cereal remains where successive crops may have been processed or stored cannot be directly linked to any particular crop (Moffett 1994, 57-58). All that can be offered here are general suggestions of possible soil types used for growing crops. It is also likely that some of these seeds, particularly those found in the pits, were originally from plants used as hay, thatching (see De Moulins 2007; Letts 1999), fodder or flooring.

A search of Environmental Archaeology Database (EAB 2008) revealed no archaeobotanical work on Romano-British remains near Waterbeach. It was also not possible at the time of writing to gain access to work carried out at Ely (Carruthers 2003).

However, it was possible to access archaeobotanical work on samples taken from a Romano-British field system, enclosure and driveway at Prior's Gate, Eaton Socon, approximately 12 miles to the west of Waterbeach, revealed evidence interpreted as small-scale piecemeal processing cereal stored in their spikelet's and the cultivation of a mixture of soils types (Stevens and Clapham 2008). At Piece's Lane and at Prior's Gate seeds of stinking chamomile, black bindweed and spikerush were found. Stinking chamomile indicates fresh, wet, nutrient rich humus, waterlogged loams and the cultivation of clay soils (Hanf, 1983, 229; Stevens and Clapham 2008). At Prior's Gate the possible cultivation of wetter soils was suggested by spikerush seeds as may be the case for the cereals recovered from Piece's Lane.

If one assumes that the seeds are associated with the cereal remains then the Piece's Lane crops were infested with grasses and arable weeds. During experimental archaeological work at Butser it was observed that black bindweed tended to curl around the stalks of cereals to wrap itself 'inextricably' about the spikelet (Reynolds 1981, 116). Black bindweed seeds are the same size as many grains and can be ground harmlessly into flour (Reynolds 1981, 116). On the other hand corncockle, a weed of winter and spring cereals, preferring nitrogen rich



moderately acid to alkaline loamy soils (Hanf 1983, 211) is poisonous to humans and livestock (Pollington 2000, 112) and would need to be picked out by hand.

### *Concluding Summary*

These charred plant remains in conjunction with the finds of features interpreted as kilns and hearths seem to be evidence of the final stages of processing of cereals. At Piece's Lane cereals seem to have been brought in for final processing prior to drying, storage or consumption.

Area			?	A	C
Date			Roman o- British	Undate d	Undate d
Feature			Kiln Pit	Pit	pit
Feature number			2167	2146	2146
Context			2116	2176	2147
Sample			22	23	27
Charred Grains	Common Name	Item			
cf. <i>Avena</i> sp.	oat	grain	3	-	-
<i>Hordeum/Triticum</i> sp.	poorly preserved barley/wheat	grain	-	3	-
<i>Hordeum distichon/vulgare</i>	two/six rowed barley	straight grain	-	32	-
<i>Hordeum</i> sp.	poorly preserved barley	grain	-	2	-
<i>Hordeum</i> sp.	poorly preserved barley	grain fragments	-	4	-
<i>Hordeum vulgare</i> L.	six-rowed barley	twisted grain	-	6	-
cf. <i>Secale cereale</i> L.	rye	grain	3	-	-
<i>Triticum</i> sp.	wheat	poorly preserved grain	40	10	6
<i>Triticum</i> sp.	wheat	poorly preserved grain fragments	40	30	-
cf. <i>Triticum dicoccum</i>	emmer	grain	4	-	-
<i>Triticum spelta</i> L.	spelt	grain	54	11	7
<i>Triticum spelta</i> L.	spelt	germinated grain	-	-	-
<i>Triticum spelta</i> L.	spelt	grain fragments	4	-	-
<i>Triticum spelta/aestivum</i>	spelt/bread wheat	grain	8	-	-
<i>Triticum aestivum</i> L.	bread wheat	grain	96	15	17
<i>Triticum aestivum</i> L.	bread wheat	grain fragments	83	8	10
cf. <i>Triticum aestivum</i> L.	bread wheat	grain	3	-	-
cf. <i>Triticum aestivum</i> L.	bread wheat	grain fragments	1	-	-
indeterminate	cereal	grain	-	1	7
indeterminate	cereal	grain fragments	-	40	35
Charred Seeds	Common Name	Item			
<i>Lapsana communis</i> L. Ssp. <i>communis</i>	nipplewort	seed	-	-	1
<i>Anthemis cotula</i> L.	stinking chamomile	seed	-	1	4
<i>Anthemis cotula</i> L.	stinking chamomile	seed fragments	-	1	-
Poaceae	indeterminate grass	seeds (1x3mm)	7	11	12
Poaceae	indeterminate grass	seed fragments (1x3mm)	4	24	11
<i>Lolium/Bromus</i> sp	rye/grass/loium	seed	-	7	5
<i>Lolium/Bromus</i> sp	rye/grass/loium	seed fragments	-	23	7
cf. <i>Lolium</i> sp.	rye-grasses	seed	-	-	1
cf. <i>Festuca</i> sp.	fescue	seed	-	27	-
cf. <i>Festuca</i> sp.	fescue	seed fragments	-	4	-
cf. <i>Bromus</i> sp.	brome	seed fragment	2	-	-
Fabaceae	indeterminate legume	2x2 cotyledon	1	-	-
<i>Rubus</i> cf. <i>idaeus</i> L.	raspberry	seed	-	1	-
<i>Eleocharis palustris</i> (L.) cf. <i>Fallopia convolvulus</i> (L.)A.Love ( <i>Polygonum convolvulus</i> L.)	common spike-rush black bindweed	seed	1	-	-
<i>Rumex acetosa/crispus/obtusifolius</i>	common/curled/broad- leaved dock	seed	1	3	4
<i>Agrostemma githago</i> L.	corncockle	seed	-	2	-
Charred Chaff	Common Name	Item			
<i>Hordeum</i> sp.	poorly preserved barley	rachis	-	-	1
<i>Triticum</i> sp.	wheat	spikelet base	7	9	15
<i>Triticum</i> sp.	wheat	glume	6	-	-
<i>Triticum</i> sp.	wheat	glume base	7	31	61
<i>Triticum spelta</i> L.	spelt	glume base	9	45	30
<i>Triticum spelta</i> L.	spelt	spikelet base	4	-	2
Poaceae	grass family	stem fragment	1	1	-
indeterminate	cereal	germinated embryo	-	-	5

Area			?	A	C
Date			Roman o- British	Undate d	Undate d
Feature			Kiln Pit	Pit	pit
Feature number			2167	2146	2146
Context			2116	2176	2147
Sample			22	23	27
<b>Charred Miscellaneous</b>	<b>Common Name</b>	<b>Item</b>			
wood fragments	unidentified	fragments	+++++	++++	+++++
indeterminate	plant/grain tissue	fragments	+++	-	-
<b>Uncharred Seeds</b>	<b>Common Name</b>	<b>Item</b>			
<i>Lamium</i> sp.	dead-nettle	seed	+	+	+
<i>Sambucus nigra</i> L.	elder	seed	+	+	+
<i>Chenopodium album</i> L. ( <i>C. reticulatum</i> Aellen, <i>C. album</i> ssp. <i>reticulatum</i> (Aellen) Beauge ex Grueter & Burdet)	fat hen	seed	+	+	-
<b>Uncharred Miscellaneous</b>	<b>Common Name</b>	<b>Item</b>			
indeterminate	root/rhizome fragments		++	+++	+++

Table 14: Contents of Samples Selected for Analysis

Area			A	B
Feature			ditch fill	ditch fill
Feature number			2192	2102
Context			2193	2144
Sample			33	17
Charred Grains	Common Name	Item		
cf. <i>Avena</i> sp.	oat	grain	A	A
cf. <i>Avena</i> sp.	oat	grain fragment	A	A
<i>Hordeum/Triticum</i> sp.	poorly preserved barley/wheat	grain	A	A
<i>Hordeum distichon/vulgare</i>	two/six rowed barley	straight grain	A	A
<i>Hordeum</i> sp.	poorly preserved barley	grain	A	A
<i>Hordeum</i> sp.	poorly preserved barley	grain fragments	A	A
<i>Hordeum vulgare</i> L.	six-rowed barley	twisted grain	A	A
<i>Secale cereale</i> L.	rye	sprouted grain	A	A
cf. <i>Secale cereale</i> L.	rye	grain	A	A
<i>Triticum</i> sp.	wheat	poorly preserved grain	P	P
<i>Triticum</i> sp.	wheat	poorly preserved grain fragments	A	A
cf. <i>Triticum dicoccum</i>	emmer	grain	A	A
<i>Triticum spelta</i> L.	spelt	grain	A	A
<i>Triticum spelta</i> L.	spelt	germinated grain	A	A
<i>Triticum spelta</i> L.	spelt	grain fragments	A	A
<i>Triticum spelta/aestivum</i>	spelt/bread wheat	grain	A	A
<i>Triticum aestivum</i> L.	bread wheat	grain	A	A
<i>Triticum aestivum</i> L.	bread wheat	grain fragments	A	A
cf. <i>Triticum aestivum</i> L.	bread wheat	grain	A	A
cf. <i>Triticum aestivum</i> L.	bread wheat	grain fragments	A	A
indeterminate	cereal	grain	A	A
indeterminate	cereal	grain fragments	A	A
Charred Seeds	Common Name	Item		
<i>Lapsana communis</i> L. Ssp. <i>communis</i>	nipplewort	seed	A	A
<i>Anthemis cotula</i> L.	Stinking chamomile	seed	A	A
<i>Anthemis cotula</i> L.	Stinking chamomile	seed fragments	A	A
Poaceae	indeterminate grass	seeds (1x3mm)	A	A
Poaceae	indeterminate grass	seed fragments (1x3mm)	A	A
<i>Lolium/Bromus</i> sp	rye/grass/loium	seed	A	A
<i>Lolium/Bromus</i> sp	rye/grass/loium	seed fragments	A	A
cf. <i>Lolium</i> sp.	rye-grasses	seed	A	A
cf. <i>Festuca</i> sp.	fescue	seed	A	A
cf. <i>Festuca</i> sp.	fescue	seed fragments	A	A
cf. <i>Bromus</i> sp.	brome	seed fragment	A	A
Fabaceae	indeterminate legume	2x2 cotyledon	A	A
<i>Rubus fruticosus/idaeus</i> .	blackberry/raspberry	seed	A	A
<i>Eleocharis palustris</i> (L.)	common spike-rush	seed	A	A
<i>Polygonum amphibium</i> (L.) Delabre ( <i>Polygonum amphibium</i> L.)	amphibious bistort	seed	A	A
<i>Polygonum/Persicaria</i> sp.	knotgrass/knotweed	seed	A	A
cf. <i>Fallopia convolvulus</i> (L.)A.Love ( <i>Polygonum convolvulus</i> L.)	black bindweed	seed	A	A
<i>Rumex acetosa/crispus/obtusifolius</i>	common/curled/broad-leaved dock	seed	A	A
<i>Agrostemma githago</i> L.	corncockle	seed	A	A
<i>Hordeum</i> sp.	poorly preserved barley	rachis	A	A
<i>Triticum</i> sp.	wheat	spikelet base	A	A
<i>Triticum</i> sp.	wheat	glume	A	A
<i>Triticum</i> sp.	wheat	glume base	A	A
<i>Triticum spelta</i> L.	spelt	glume base	A	A
<i>Triticum spelta</i> L.	spelt	spikelet base	A	A
Poaceae	grass family	stem fragment	A	A
Cereal	indeterminate	germinated embryo	A	A

Area			A	B
<b>Feature</b>			ditch fill	ditch fill
<b>Feature number</b>			2192	2102
<b>Context</b>			2193	2144
<b>Sample</b>			33	17
<b>Charred Miscellaneous</b>	<b>Common Name</b>	<b>Item</b>		
wood fragments	unidentified	fragments	P	A
indeterminate	plant/grain tissue	fragments	A	A
<b>Uncharred Seeds</b>	<b>Common Name</b>	<b>Item</b>		
<i>Hyoscyamus niger</i> L.	henbane	seed	A	A
<i>Solanum nigrum</i> L.	black nightshade	seed	A	A
<i>Stachys</i> sp.	woundwort	seeds	A	A
<i>Lamium</i> sp.	dead-nettle	seed	A	A
<i>Carduus/Cirsium</i> sp.	thistles	seed	A	A
<i>Sambucus nigra</i> L.	elder	seed	A	A
<b>Charred Seeds</b>	<b>Common Name</b>	<b>Item</b>		
<i>Juncus</i> sp.	rush	seed	A	A
<i>Rubus idaeus/fruticosus</i>	raspberry/bramble	seed fragment	A	A
<i>Atriplex/Chenopodium</i> sp.	orache/goosefoot	seed	A	A
<i>Urtica dioica</i> L.	stinging nettle	seed	A	A
cf. <i>Bryonia dioica</i> Jacq ( <i>B.cretica</i> L. ssp. <i>Dioica</i> (Jacq) Tutin)	?white bryony	seed	A	A
<i>Rumex acetosa/crispus/obtusifolius</i>	common/curled/broad-leaved dock	seed	A	A
<i>Chenopodium album</i> L. ( <i>C.reticulatum</i> Aellen, <i>C.album</i> ssp. <i>reticulatum</i> (Aellen) Beauge ex Grueter & Burdet)	fat hen	seed	A	P
<b>Uncharred Miscellaneous</b>	<b>Common Name</b>	<b>Item</b>		
indeterminate	root/rhizome fragments		P	P
Rosaceae	rose family	thorn	A	A

Table 15: Presence/Absence Data for Samples not Selected for Analysis – Iron Age Samples



Area			?	?	?	A	B
Feature			kiln fill	stoke fill for kiln [2020]	hearth fill	pit fill	pit fill
Feature number			2020	2039	2173	2146	2030
Context			2023	2040	2174	2183	3031
Sample			4	5	29	24	11
Charred Grains	Common Name	Item					
cf. <i>Avena</i> sp.	oat	grain	A	A	A	A	A
cf. <i>Avena</i> sp.	oat	grain fragment	A	A	A	A	A
<i>Hordeum/Triticum</i> sp.	poorly preserved barley/wheat	grain	A	A	A	A	A
<i>Hordeum distichon/vulgare</i>	two/six rowed barley	straight grain	A	A	A	A	A
<i>Hordeum</i> sp.	poorly preserved barley	grain	A	A	P	A	A
<i>Hordeum</i> sp.	poorly preserved barley	grain fragments	A	A	A	A	A
<i>Hordeum vulgare</i> L.	six-rowed barley	twisted grain	A	A	A	A	A
<i>Secale cereale</i> L.	rye	sprouted grain	A	A	A	A	A
cf. <i>Secale cereale</i> L.	rye	grain	A	A	A	A	A
<i>Triticum</i> sp.	wheat	poorly preserved grain	A	A	P	P	A
<i>Triticum</i> sp.	wheat	poorly preserved grain fragments	A	A	A	A	A
cf. <i>Triticum dicoccum</i>	emmer	grain	A	A	A	A	A
<i>Triticum spelta</i> L.	spelt	grain	A	A	A	A	A
<i>Triticum spelta</i> L.	spelt	germinated grain	A	A	A	A	A
<i>Triticum spelta</i> L.	spelt	grain fragments	A	A	A	A	A
<i>Triticum spelta/aestivum</i>	spelt/bread wheat	grain	A	A	A	A	A
<i>Triticum aestivum</i> L.	bread wheat	grain	P	A	A	A	A
<i>Triticum aestivum</i> L.	bread wheat	grain fragments	A	A	A	A	A
cf. <i>Triticum aestivum</i> L.	bread wheat	grain	A	A	A	A	A
cf. <i>Triticum aestivum</i> L.	bread wheat	grain fragments	A	A	A	A	A
indeterminate	cereal	grain	A	A	A	A	A
indeterminate	cereal	grain fragments	A	A	A	A	A
Charred Seeds	Common Name	Item					
<i>Lapsana communis</i> L. Ssp. <i>communis</i>	nipplewort	seed	A	A	A	A	A
<i>Anthemis cotula</i> L.	stinking chamomile	seed	A	A	A	A	A
<i>Anthemis cotula</i> L.	stinking chamomile	seed fragments	A	A	A	A	A
Poaceae	indeterminate grass	seeds (1x3mm)	A	A	A	A	A
Poaceae	indeterminate grass	seed fragments (1x3mm)	A	A	A	A	A
<i>Lolium/Bromus</i> sp	rye/grass/lolium	seed	A	A	A	A	A
<i>Lolium/Bromus</i> sp	rye/grass/lolium	seed fragments	A	A	A	A	A
cf. <i>Lolium</i> sp.	rye-grasses	seed	A	A	A	A	A
cf. <i>Festuca</i> sp.	fescue	seed	A	A	A	A	A

Area			?	?	?	A	B
Feature			kiln fill	stoke fill for kiln [2020]	hearth fill	pit fill	pit fill
Feature number			2020	2039	2173	2146	2030
Context			2023	2040	2174	2183	3031
Sample			4	5	29	24	11
Charred Seeds	Common Name	Item					
cf. <i>Festuca</i> sp.	fescue	seed fragments	A	A	A	A	A
cf. <i>Bromus</i> sp.	brome	seed fragment	A	A	A	A	A
Fabaceae	indeterminate legume	2x2 mm cotyledon	A	A	A	A	A
<i>Rubus fruticosus/idaeus</i> .	blackberry/raspberry	seed	A	A	A	A	A
<i>Eleocharis palustris</i> (L.)	common spike-rush	seed	A	A	A	A	A
<i>Polygonum amphibium</i> (L.) Delabre ( <i>Polygonum amphibium</i> L.)	amphibious bistort	seed	A	A	A	A	A
<i>Polygonum/Persicaria</i> sp.	knotgrass/knotweed	seed	A	A	A	A	A
cf. <i>Fallopia convolvulus</i> (L.) A. Love ( <i>Polygonum convolvulus</i> L.)	black bindweed	seed	A	A	A	A	A
<i>Rumex acetosa/crispus/obtusifolius</i>	common/curled/broad-leaved dock	seed	A	A	A	A	A
<i>Agrostemma githago</i> L.	corncockle	seed	A	A	A	A	A
Charred Chaff	Common Name	Item					
<i>Hordeum</i> sp.	poorly preserved barley	rachis	A	A	A	A	A
<i>Triticum</i> sp.	wheat	spikelet base	A	A	A	A	A
<i>Triticum</i> sp.	wheat	glume	A	A	A	A	A
<i>Triticum</i> sp.	wheat	glume base	A	A	A	A	A
<i>Triticum spelta</i> L.	spelt	glume base	A	A	A	A	A
<i>Triticum spelta</i> L.	spelt	spikelet base	A	A	A	A	A
Poaceae	grass family	stem fragment	A	A	A	A	A
indeterminate	cereal	germinated embryo	A	A	A	A	A
Charred Miscellaneous	Common Name	Item					
wood fragments	unidentified	fragments	A	A	A	P	A
indeterminate	plant/grain tissue	fragments	A	A	A	A	A
Uncharred Seeds	Common Name	Item					
<i>Hyoscyamus niger</i> L.	henbane	seed	A	A	A	A	A
<i>Solanum nigrum</i> L.	black nightshade	seed	A	A	A	A	A
<i>Stachys</i> sp.	woundwort	seeds	A	P	A	A	A
<i>Lamium</i> sp.	dead-nettle	seed	A	A	A	A	A
<i>Carduus/Cirsium</i> sp.	thistles	seed	A	A	A	A	A
<i>Sambucus nigra</i> L.	elder	seed	A	P	A	A	A
<i>Juncus</i> sp.	rush	seed	A	A	A	A	A
<i>Rubus idaeus/fruticosus</i>	raspberry/bramble	seed fragment	P	P	A	A	A
<i>Atriplex/Chenopodium</i> sp.	orache/goosefoot	seed	P	A	P	A	A
<i>Urtica dioica</i> L.	stinging nettle	seed	A	A	A	A	A
cf. <i>Bryonia dioica</i> Jacq ( <i>B. cretica</i> L. ssp. <i>Dioica</i> (Jacq) Tutin)	?white bryony	seed	A	A	A	A	A
<i>Rumex</i>	common/curled/	seed	A	A	A	A	A

<i>acetosa/crispus/obtusifolius</i>	broad-leaved dock						
-------------------------------------	-------------------	--	--	--	--	--	--

Feature			kiln fill	stoke fill for kiln [2020]	hearth fill	pit fill	pit fill
<b>Feature number</b>			2020	2039	2173	2146	2030
<b>Context</b>			2023	2040	2174	2183	3031
<b>Sample</b>			4	5	29	24	11
<b>Uncharred Seeds</b>	<b>Common Name</b>	<b>Item</b>					
<i>Chenopodium album</i> L. ( <i>C. reticulatum</i> Aellen, <i>C. album</i> ssp. <i>reticulatum</i> (Aellen) Beauge ex Grueter & Burdet)	fat hen	seed	A	A	A	A	A
<b>Uncharred Miscellaneous</b>	<b>Common Name</b>	<b>Item</b>					
indeterminate	root/rhizome	fragments	P	P	A	P	P
Rosaceae	Rose family	thorn	A	A	A	A	A

Table 16: Presence/Absence Data for Samples not Selected for Analysis – Romano British Samples (Kiln, Hearth and Pit fills)



<i>Triticum spelta</i> L.	Spelt	germinated grain	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
<i>Triticum spelta</i> L.	Spelt	grain fragments	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
<i>Triticum spelta/aestivum</i>	spelt/bread wheat	grain	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
<b>Area</b>			?	?	?															
<b>Feature</b>																				
<b>Feature number</b>			2047	2050	2184	2008	2043	2052	2066	2066	2066	2032	2117	2133	2102	2151				
<b>Context</b>			2049	2051	2155	2009	2044	2053	2067	2067	2068	2033	2119	2134	2145	2152				
<b>Sample</b>			7	8	19	2	6	10	12	13	13	9	15	16	18	30				
<b>Charred Grains</b>	<b>Common Name</b>	<b>Item</b>																		
<i>Triticum aestivum</i> L.	bread wheat	grain	A	A	A	A	A	A	A	A	P	A	A	A	A	A				
<i>Triticum aestivum</i> L.	bread wheat	grain fragments	A	A	A	A	A	A	A	A	A	A	A	A	A	A				
cf. <i>Triticum aestivum</i> L.	bread wheat	grain	A	A	A	A	A	A	A	A	A	A	A	A	A	A				
cf. <i>Triticum aestivum</i> L.	bread wheat	grain fragments	A	A	A	A	A	A	A	A	A	A	A	A	A	A				
indeterminate	Cereal	grain	A	A	A	A	A	A	A	A	A	A	A	A	A	A				
indeterminate	Cereal	grain fragments	A	A	A	A	A	A	A	A	A	A	A	A	A	A				
<b>Charred Seeds</b>	<b>Common Name</b>	<b>Item</b>																		
<i>Lapsana communis</i> L.	Nipplewort	seed	A	A	A	A	A	A	A	A	A	A	A	A	A	A				
<i>Anthemis cotula</i> L.	stinking chamomile	seed	A	A	A	A	A	A	A	A	A	A	A	A	A	A				
<i>Anthemis cotula</i> L.	stinking chamomile	seed fragments	A	A	A	A	A	A	A	A	A	A	A	A	A	A				
Poaceae	indeterminate grass	seeds (1x3mm)	A	A	A	A	A	A	A	A	A	A	A	A	A	A				
Poaceae	indeterminate grass	seed fragments (1x3mm)	A	A	A	A	A	A	A	A	A	A	A	A	A	A				



Lolium/Bromus sp	rye/grass/lolium	seed	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Lolium/Bromus sp	rye/grass/lolium	seed fragments	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
cf. Lolium sp.	rye-grasses	seed	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
cf. Festuca sp.	Fescue	seed	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
cf. Festuca sp.	Fescue	seed fragments	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
cf. Bromus sp.	Brome	seed fragment	P	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A

Area			?	?	?	A	A	A	A	A	A	A	A	A	A	A	A	B	B
Feature			ditch fill	gully fill	ditch fill	2008	2043	2052	2066	2066	2032	2117	2133	2102	2151				
Feature number			2047	2050	2184	2008	2043	2052	2066	2066	2032	2117	2133	2102	2151				
Context			2049	2051	2155	2009	2044	2053	2067	2068	2033	2119	2134	2145	2152				
Sample			7	8	19	2	6	10	12	13	9	15	16	18	30				
Charred Seeds	Common Name	Item																	
Fabaceae	indeterminate legume	2x2 cotyledon	A	A	P	A	A	A	A	A	A	A	A	A	A				
Rubus fruticosus/idaeus.	blackberry/raspberry	seed	A	A	A	A	A	A	A	A	A	A	A	A	A				
Eleocharis palustris (L.)	common spike-rush	seed	A	A	A	A	A	A	A	A	A	A	A	A	A				
Polygonum amphibium (L.) Delabre (Polygonum amphibium L.)	amphibious bistort	seed	A	A	A	A	A	A	A	A	A	A	A	A	A				
Polygonum/Persicaria sp.	knotgrass/knotweed	seed	A	A	A	A	A	A	A	A	A	A	A	A	A				
cf. Fallopia convolvulus(L.)A.Love (Polygonum convolvulus L.)	black bindweed	seed	A	A	A	A	A	A	A	A	A	A	A	A	A				

Table 17: Presence/Absence Data for Samples not Selected for Analysis – Romano British Samples (Ditch and Gully fills)

Area			?	?	?	?	?	?	?	?	A	C	C	C
Feature			pit fill	ditch fill	pit fill	pit fill	posthole fill	gully fill	ditch fill	pit fill	ditch fill	pit fill	ditch fill	C
Feature number			2014	2165	2146	2146	2190	2006	2117	2146	2006	2117	2146	2151
Context			2015	2166	2185	2177	2191	2007	2118	2183	2007	2118	2183	2154
Sample			3	20	25	26	31	1	21	28	1	21	28	32
<b>Charred Grains</b>	<b>Common name</b>	<b>Item</b>												
cf. <i>Avena</i> sp.	oat	grain	A	A	A	A	A	A	A	A	A	A	A	A
cf. <i>Avena</i> sp.	oat	grain fragment	A	A	A	A	A	A	A	A	A	A	A	P
<i>Hordeum/Triticum</i> sp.	poorly preserved barley/wheat	grain	A	A	A	A	A	A	A	A	A	A	A	A
<i>Hordeum distichon/vulgare</i>	two/six rowed barley	straight grain	A	A	A	A	A	A	A	A	A	A	A	A
<i>Hordeum</i> sp.	poorly preserved barley	grain	A	P	A	A	A	P	A	A	A	A	A	A
<i>Hordeum</i> sp.	poorly preserved barley	grain fragments	A	A	A	A	A	A	A	A	A	A	A	A
<i>Hordeum vulgare</i> L.	six-rowed barley	twisted grain	A	A	A	A	A	A	A	A	A	A	A	A
<i>Secale cereale</i> L.	rye	sprouted grain	A	A	A	A	A	A	A	A	A	A	A	A
cf. <i>Secale cereale</i> L.	rye	grain	A	A	A	A	A	A	A	A	A	A	A	A
<i>Triticum</i> sp.	wheat	poorly preserved grain	A	P	A	A	A	A	A	A	A	A	A	A
<i>Triticum</i> sp.	wheat	poorly preserved grain fragments	A	A	A	A	A	A	A	A	A	A	A	A
cf. <i>Triticum dicoccum</i>	emmer	grain	A	A	A	A	A	A	A	A	A	A	A	A
<i>Triticum spelta</i> L.	spelt	grain	A	A	A	A	A	A	A	A	A	A	A	A
<i>Triticum spelta</i> L.	spelt	germinated grain	A	A	A	A	A	A	A	A	A	A	A	A
<i>Triticum spelta</i> L.	spelt	grain fragments	A	A	A	A	A	A	A	A	A	A	A	A
<i>Triticum spelta/aestivum</i>	spelt/bread wheat	grain	A	A	A	A	A	A	A	A	A	A	A	A
<i>Triticum aestivum</i> L.	bread wheat	grain	A	A	A	A	A	A	A	A	A	A	A	A
<i>Triticum aestivum</i> L.	bread wheat	grain fragments	A	A	A	A	A	A	A	A	A	A	A	A
cf. <i>Triticum aestivum</i> L.	bread wheat	grain	A	A	A	A	A	A	A	A	A	A	A	A
cf. <i>Triticum aestivum</i> L.	bread wheat	grain fragments	A	A	A	A	P	A	A	A	A	A	A	A
indeterminate	cereal	grain	A	A	A	A	A	A	A	A	A	A	A	A
indeterminate	cereal	grain fragments	A	A	A	A	A	A	A	A	A	A	A	A
<b>Charred Seeds</b>	<b>Common name</b>	<b>Item</b>												
<i>Lapsana communis</i> L. Ssp. <i>communis</i>	nipplewort	seed	A	A	A	A	A	A	A	A	A	A	A	A
<i>Anthemis cotula</i> L.	stinking chamomile	seed	A	A	A	A	A	A	A	A	A	A	A	A
<i>Anthemis cotula</i> L.	stinking chamomile	seed fragments	A	A	A	A	A	A	A	A	A	A	A	A
Poaceae	indeterminate grass	seeds (1x3mm)	A	A	A	A	A	A	A	A	A	A	A	A
Poaceae	indeterminate grass	seed fragments												
<i>Lolium/Bromus</i> sp	rye/grass/loium	seed (1x3mm)	A	A	A	A	A	A	A	A	A	A	A	A
<i>Lolium/Bromus</i> sp	rye/grass/loium	seed	A	A	A	A	A	A	A	A	A	A	A	A
<i>Lolium/Bromus</i> sp	rye/grass/loium	seed fragments	A	A	A	A	A	A	A	A	A	A	A	A





## **4 DISCUSSION**

### **4.1 The Middle Iron Age activity**

Iron Age activity is poorly represented in the area surrounding the site; the Cambridgeshire HER only records the findspot of four sherds of Belgic pottery, at the Car Dyke, within a 1km radius. However, slightly further afield there is plentiful evidence for Iron Age activity. Iron Age field systems, that continued in use into the Roman period, have been excavated during work associated with the Histon to Waterbeach Cable (Dickens *et al* 2003), the Cottenham to Landbeach pipeline (Hall 1999) and along the Great Ouse gravel terrace (Masser 2000). Iron Age settlement, burials and field systems have also been identified in the Milton area to the south (Diez 2005, Conner 1999).

The identification of middle Iron Age activity within the village of Waterbeach itself is of note as very little activity of this date has been recorded within a 1km radius of the site at Pieces Lane. In terms of the wider Waterbeach parish and the general fen edge area to the north of Cambridge, the identification of Iron Age archaeology is not at all unexpected. The Iron Age represents one of the wetter periods in the history of the fenland; by 700BC there was extensive seawater flooding in the central areas, salt marsh and mudflats encroached onto peat and previously dry-land and the southern fen became a large expanse of freshwater wetland (Coles and Hall 1998, 41). Ravensdale (2008, 5) indicates that during the wetter periods, the drier parts of Waterbeach parish, equating to the settlements of Waterbeach, Denny and Elmeney, comprised a fenland archipelago. Therefore, the identification of Iron Age activity on this fen island is in keeping with the results of the Fenland Survey, which state that, despite the increasing wetness, there was widespread extension of settlement around the fen edge and on to islands (Coles and Hall 1998, 48).

The evidence for Iron Age activity at the Pieces Lane site is restricted to just four features and not inconsiderable quantities of residual Iron Age pottery present in Roman features. The density of Roman features suggests that further Phase 1 features may have been truncated or destroyed as a result of Iron Age activity and this may be considered to be supported by the presence of the residual Iron Age pottery within some of these Roman features.

Small scale Iron Age rural and domestic sites abound on the fen edge and the southern Islands (Coles and Hall 1998, 47). For example, late Iron Age activity at Bannold Lodge, Chittering was characterised by a small ceramic assemblage associated with a roundhouse and a hearth (Whittaker 1997, 15), though later work would appear to suggest a more extensive settlement pattern comprising field systems in the area to the north-west of the current site. The evidence from Pieces Lane would appear to conform to this pattern of small scale sites. The faunal remains from the Iron Age contexts represent almost exclusively domestic species and the pottery assemblage suggests domestic activity. The form and distribution of the small number of features of this date reveals little about the character of the Phase 1 activity. It is possible that the vertical sided, flat based F2131 represents a storage pit. Flat-based and bell-shaped pits (with overhanging sides at the top) or



with straight vertical slides have, since the work undertaken by Gerhard Bersu at Little Woodbury in the late 1930s, often been interpreted as subterranean granaries (Bersu 1940, 60-64; Cunliffe 1992, 70). Experiments carried out at the Butser Ancient Farm have demonstrated that this is a viable explanation (Reynolds 1979, 74-76). The presence of such a feature would clearly point to rural/domestic activity. However, the shallow depth of F2131 suggests that it would not have functioned in this way, although, of course, given the wet conditions and high watertable of the fenland area in the Iron Age period, storing grain at the depths characteristic of subterranean granaries recorded elsewhere may have been counter-productive. Given the artefact assemblages recovered from these features it is perhaps more likely that they were excavated simply as refuse pits.

Although the presence of residual Iron Age pottery in Phase 2 features indicates that the Phase 1 activity at this location was more extensive than just the four identified features of this date, there is no evidence to suggest large, or even moderate, scale occupation at this time. No evidence for structures has been identified and none of the features can be considered to relate to enclosures, boundaries or field systems. In addition to the density of Phase 2 features, which must have obliterated further middle Iron Age features, the understanding of the extent of Phase 1 activity is hampered by the very narrow window on to the archaeology that the size and shape of the excavated area affords. It seems clear that further features of this date must exist beyond the limits of excavation; indeed, F2111 clearly extended beyond the baulk. It is possible that the limited evidence recorded here represents the marginal areas of an unenclosed settlement; Romano-British pottery production sites have been identified sited on the marginal zones of preceding Iron Age activity in Cambridgeshire, such as at Greenhouse Farm, to the east of Cambridge, and Longthorpe, near Peterborough (Gibson and Lucas 2002; Dannel and Wild 1987). However, the extent of any Iron Age occupation in the area of modern Waterbeach village would have been limited due to the wet conditions in the fenland area during the Iron Age (Coles and Hall 1998, 48). Further support for the notion that the Iron Age occupation represented here was limited in extent may be gathered from the lack of further Iron Age remains known from the immediately surrounding area. This, however, may be the result of a lack of archaeological intervention in the area.

Gibson and Lucas (2002, 112-113) suggest that early Roman pottery production at Longthorpe, Rushden and the War Ditches, Cherry Hinton was, in part, established at these locations as they had previously been of economic significance during the Iron Age as 'redistributive nodes'. Several other sites in the region display Roman period occupation following Iron Age activity. As Evans *et al* (2008, 191) suggest, the kind of direct Iron Age to Roman continuity identified at the Hutchison site at Addenbrooke's Hospital is entirely typical. On the Isle of Ely, early Roman sites have been identified as occurring only on previous Iron Age settlements (Evans *et al* 2007, 71). Evans *et al* (2007), however, go on to suggest that the Conquest was unlikely to have comprised merely a shift in outlook of the native population and a general uptake of rectilinear field systems and buildings. Indeed, as Dürrwächter (2009, 40-41) states, the process of Romanisation, which in reality began at least as early as Caesar's campaigns in Britain and was due to increased links between Britain and Roman Gaul prior to the Conquest, occurred through a combination of threats, promises and military action which gradually won people over. South-

eastern Britain, including the East Anglian region, was, in comparison to other parts, more urbanised and developed and thus provided infrastructure for the Romans to adopt for their own use in the administration of the new province (Dürrwächter 2009, 41). This is what appears to have occurred at Longthorpe, Rushden and Cherry Hinton.

Although there is clearly evidence for Iron Age activity preceding Roman pottery production at the Pieces Lane site, the key differences between this site and those discussed above is that the Iron Age activity here is middle Iron Age. Therefore, occupation appears not to have been present at this location at the time of the Conquest. Furthermore, the limited evidence suggests in no way that the area of Waterbeach village was a 'redistributive node' in the Iron Age. The presence of 2<sup>nd</sup> century AD Roman activity in the same location as middle Iron Age activity may, therefore, be nothing more than coincidence, though it is clear that the area of Waterbeach village has been attractive to settlement throughout history. The presence of the Roman activity at the Pieces Lane site is more likely to be due to infrastructure established by the Romans themselves in the area; Akeman Street and the Car Dyke as well as the naturally occurring communication route along the river Cam.

## **4.2 The Romano-British pottery production site**

### *The nature of the Roman activity*

The Romano-British archaeology recorded at this site appears to represent a pottery production site dating to the early 2<sup>nd</sup> century AD. There appears to have been no domestic occupation within the excavated area, though the presence of small quantities of imported pottery, clearly not produced in the site's kilns, and an animal bone assemblage comprising mostly domestic species suggests that such activity may have occurred nearby. The pottery assemblage is indicative of industrial scale pottery-production. With the identification of the two kilns, in which much of this pottery was produced, it is considered that the Roman archaeology represents a solely industrial site.

Peña (2007, 32) states that there were three basic distinct models for the manufacture of pottery in the Roman world. These range from individual potters working on a part-time basis within the context of rural households producing small amounts of cookwares and utilitarian wares for both domestic use and for sale at market; to, small urban, suburban and rural workshops staffed by a few full-time craftsmen manufacturing a wide array of products for local markets; to, very large urban and suburban workshops staffed by large numbers of highly specialised workers engaged in the intensive production of goods for a mass market. From the quantity and extent of Horningsea ware found at this site it would appear most likely that the site at Pieces Lane conformed to the second of these models. Indeed, from what is known of the other sites belonging to the Horningsea industry, it would appear that they all conform to the second of Peña's (2007, 32) models.

The density of intercutting Phase 2 features suggests constant remodelling of the site within what Peachey (*this report*) has suggested was a very short time frame,

probably around 25 years in length. It is possible that Sub-Phase 1 features at the northern end of the site may have been associated with a kiln at this location. However, the earlier identifiable kilns were at the southern end of the site. Kiln S2171 appears to have been the most recent in a sequence of kilns in this approximate location. The focus of activity appears to have eventually shifted to the northern end of the site, though it is impossible to be certain how accurate this apparent shift is as developments outside of the excavated area remain unknown. Kiln S2020, at the northern end of the site, may not have been the first in this part of the site. The Sub-phase 11 Ditch F2038 appears to have been excavated in order to allow access to the kiln for operation and/or maintenance. This ditch, however, is the latest in a sequence of similar ditches all running on the same approximate alignment. It is possible that all of these features had a similar function, suggesting that there may have been earlier kilns in this area. Indeed, there is evidence to suggest that there may have been a kiln at the northern end of the site during Sub-phase 1.

The density of features and apparently regular remodelling of the site appears not to have occurred at other sites at which kilns producing Horningsea ware have been identified. Despite Friend's (1999, 45) assertion that it comprised 'intense Roman occupation', a similar density of features was certainly not recorded at Penfold Farm, Milton where a clay floor, two separate ditches, a hearth, some possible foundations and two 'depressions' were the only features recorded in the area surrounding the kiln. Walker (1912) despite identifying several kilns and a Roman building appears not to have identified at Eye Hall Farm, or at least did not record, anything like the density of features identified at Pieces Lane. Excavation at the Car Dyke (Macauley 1997; Evans *et al* forthcoming, 12-13) identified several phases of Roman activity with kilns and a possible warehouse or industrial building but the intercutting features and constant remodelling characteristic of the Pieces Lane site were not represented at this site.

Reasons for the apparent shift in the focus of activity at the site and the constant remodelling of the site layout during Phase 2 are difficult to identify. The geological conditions of the site, lying on Gault clays, should not have made the ground unstable for the construction of kilns and any associated structures that may have lain in the vicinity, beyond the limits of the excavated area. Neither should the high fenland water table been a problem as during the Roman period the water table was generally lower than during the Iron Age (Coles and Hall 1999, 49). Indeed, if either of these factors were problems at this location, it seems more likely that the Phase 2 activity would not have reached the density that it did.

Due to the shape and size of the excavated area it has been impossible to gain a complete picture of many of the Phase 2 features at the site as they extended beyond its limits. Given the industrial nature of the site, it seems most likely that the majority of the ditches represent features, like F2184, F2038 and F2047, created to allow access to the subterranean parts of kilns or as boundary or enclosure ditches surrounding kilns or marking divisions within the wider site.

### *The socio-economic status of the pottery production site*

The recovery of a copper-alloy early Roman military belt-plate may be entirely coincidental, given its early date it may already have been antique by the time it was deposited in Gully F2135, but it may suggest that the site had military links. The Roman military did organise their own production and supply of pottery and other materials (Dark and Dark 1998, 126). This is demonstrated at Longthorpe, near Peterborough, where a pottery production site is considered to have formed part of the Claudio-Neronian military complex located here (Dannell and Wild 1987, 61). Military production, however, tended to be short-lived. When frontier zones were stabilised, supplies could be brought safely from non-military sources in the surrounding area (Greene 1999, 13). Military potteries dating to after the early 2<sup>nd</sup> century are rare in Britain (Welsby 1985, 137). In light of the degree of Roman control over the province of Britannia at the time that pottery production at Pieces Lane appears to have been established, it is more likely that it was of the civilian sphere of society.

Horningsea ware pottery production is known from 19 kilns (Evans *et al* forthcoming, 12) situated in the area of the intersection of the Roman Car Dyke and Akeman Street (present day Waterbeach, Landbeach, Horningsea and Milton). The two kilns recorded at Pieces Lane may be added to this group. The clustering of kiln sites in this way could lead to whole areas being given over to mass production, forming industrial landscapes. Such landscapes were common in late Roman Britain and are associated with all of the major pottery industries in Britain (Oxfordshire ware, Nene Valley ware, black-burnished ware, New Forest ware, and Crambeck ware) (Dark and Dark 1998, 126-127).

Unless a vast quantity of new evidence comes to light the area in which the Horningsea industry appears to have been located cannot be said to have reached the extent of the industrial landscapes referred to above. The identified Horningsea kilns were not all operational at the same time. The earliest were operating from the late 1<sup>st</sup> century at the Eye Hall Farm site on the south side of the Car Dyke, with current evidence suggesting production began in the Waterbeach area to the north of the Car Dyke in the early/mid 2<sup>nd</sup> century AD. Production at the Pieces Lane site appears to have occurred in the early 2<sup>nd</sup> century AD. The number of kilns in this area does, however, suggest that the Horningsea pottery industry was an important part of the local economy. In general, the (civilian) pottery industry appears to have been in the hands of small producers, manufacturing primarily for local markets, but from the 1st century onwards, mergers appear to have led to production increasingly being carried out by larger firms, whose products ranged more widely (Wacher 1978, 203). It has already been suggested (above) that the Pieces Lane site, and quite possibly the other Horningsea ware sites, may have been a rural workshop staffed by a few full-time craftsmen manufacturing a wide array of products for local markets (c.f. Peña 2007, 32). The importance of local markets to the Horningsea industry is indicated by the high number of Horningsea ware storage jars at Bannold Lodge (Whittaker 1997) which reflect the position of this site on the trade routes into the Fens (Akeman Street and the Cam) where these storage jars were heavily marketed (Hartley and Hartley 1970, 168). Evans (1991, 37) states that the main distribution of Horningsea ware would appear to be throughout the Fenland, as far as Wisbech and Downham Market, to the south as



far as Great Chesterford and to the west as far as Godmanchester. Although it did not reach the same scale, it may be reasonable to postulate that the Horningsea industry developed along similar lines to the larger, better known pottery industries. Some considerable settlements developed in association with the pottery industry, perhaps the best example being Water Newton, at the heart of the Nene Valley industry (Wacher 1978, 93; Dark and Dark 1998, 127-128). It is possible that the development Roman settlement activity in evidence to the west (Whittaker 1997, Dickens *et al* 2003, Hall 1999, Ranson 2008) was economically associated with the development of the Horningsea pottery industry.

The relative status of the pottery workers themselves within society was probably low. That potters were free individuals, able to move and set up workshops at any suitable place in the Empire appears to be a widely held view (Buckland *et al* 2001, 87). It has, for example, been suggested that potters voluntarily migrated from central Gaul to work for the Rhine army during the Augustan period (Dannell and Wild 1987, 62). However, Roman society was slave-owning at all levels, and before the Conquest Britain had been a slave-owning society, therefore the purchase of slaves, skilled as potters, may be seen to be just as likely as the purchase of pots themselves (Buckland *et al* 2001, 87; Wacher 1978, 166). The evidence from which the social status of the potters at Pieces Lane can be elucidated is minimal, though this is probably to be expected as it is an industrial site; artefacts reflecting their relative social standing and/or wealth are more likely to be recovered from the areas in which they were accommodated and these have not been identified. The faunal assemblage contained butchering and meat waste primarily from domestic species, mostly representing consumption but with some evidence for small-scale hornworking. Some domestic items were present amongst the small finds assemblage, but with the exception of the military belt-plate were not particularly indicative of status. In addition to the pottery that was produced at the site, the pottery assemblage contained samian ware, which although a good quality tableware was a ubiquitous type of pottery, and a repaired Drag. 18 platter. The repair of this platter may suggest that it belonged to household unable to afford to replace, or buy as new, such an item. The artefactual assemblage, therefore, offers limited information regarding the status of the potters working at this site. It may be seen to be even less representative when the possibility that at least some of this material may have originated from refuse deposits imported to the site as infill material is considered.

#### *Technological aspects of the pottery production site*

The limited size of the excavated area and the density of the Phase 2 features affords a less than clear picture of much of the Roman archaeology. The main research importance of the site is, therefore, the kilns and their output and the contribution that they make to furthering understanding of the Horningsea pottery industry. Peachey (*this report*) discusses these aspects in detail.

Peachey (*this report*) has presented evidence to suggest that the types of kiln furniture, and therefore the kilns themselves, used at this site differed from those used at other site associated with Horningsea ware pottery. Kilns at Eye Hall Farm have been identified as varying in their internal arrangements (Evans 1991, 43).



The prefabricated kiln furniture used at the Pieces Lane site would have been portable and may have been used several times over in different kilns. This type of kiln technology fits well with the stratigraphic evidence which suggests the regular replacement of kilns at fairly short intervals, often in approximately the same location, as was suggested by Kiln S2171 and the features which preceded it.

Regularly spaced parallel rod impressions in fragments of kiln lining from this site indicate that the kiln dome was formed using a wattle frame, around which the kiln lining was packed. This would suggest a permanent or semi-permanent kiln dome. At Eye Hall Farm, however, Walker (1912, 47) suggested that the kiln dome was formed from layers of grass, straw and reeds, and then a layer of roughly circular clay plates. This sequence may have been repeated and then covered with earth or clay. This would form a temporary kiln dome that Walker (1912, 47) states was intended to 'retain the heat, to colour the vessels by means of the fumes from the fuel, and to permit the dome to be taken easily after each firing to remove the pottery without destroying the kiln'.

The relationships between Kiln S2020 and Ditches F2038 and F2047 and Kiln S2171 and Ditch F2184, where the sub-surface flues of the kilns opened out into the adjoining ditches, are further aspects of the Pieces Lane kilns that do not appear to have been identified at other site of belonging to the Horningsea industry. The use of a partially backfilled ditch as a stokepit for a battery of three kilns is attested at Kelvedon in Essex (Rodwell 1988, 26) but the ditches directly associated with the kilns at Pieces Lane appear to have been purposefully cut to allow access to the sub-surface portions of them. The Kelvedon examples appear to make opportunistic use of a pre-existing ditch whereas the ditches associated with the Pieces Lane kilns may be considered to be deliberately created features forming part of the overall kiln structure.

These examples would appear to indicate that individual potters or workshops within the Horningsea industry utilised slightly different kiln technologies. Evans (1991) used kilns from Brampton, with central pilasters and a permanent vent-holed floor, (see Swan 1984, 121) as a model for the internal arrangement of the Horningsea kilns. Evans *et al* (forthcoming, 27) state that evidence from the Waterbeach Car Dyke excavation casts considerable doubt on this. The kilns at Pieces Lane would also appear not to conform to this model. Overall, the differences in kilns structures at the various Horningsea sites may not be unusual; within Romano-British pottery industries, a variety of kiln structures are often present (Peachey, *pers. comm.*).

The range of form types present in the pottery assemblage, associated with the early 2<sup>nd</sup> century AD Kilns at this site, exhibit some broad similarities and key differences with assemblage from the kiln recorded cut into the western bank of the Car Dyke at Waterbeach dated c. AD150-160 (Evans *et al* forthcoming, 13). These differences are almost certainly a reflection of the chronological progression in production of form types within the Horningsea industry from the early 2<sup>nd</sup> century AD (Pieces Lane) to the mid 2<sup>nd</sup> century AD (Car Dyke, Waterbeach), but may also in part reflect the nature of production or specialisation of different potters or workshops within the Horningsea industry. These explanations may also be proposed for the apparent variations in kiln types between production sites

belonging to the Horningsea industry.

*The Pieces Lane site and Roman settlement in the Cam valley*

With the exception of the Roman Car Dyke, recorded Roman activity within the immediate vicinity of the Pieces Lane site is limited to the identification of two gullies at a site c. 650m to the north-west (CHER MCB 17241) and a scatter of spot-finds, including pottery (CHER 09024a and 05309a) a coin (CHER 02296) and a disc brooch (CHER 09702). To the west, however, the A10, is considered to follow the course of Roman Akeman Street. Significant Roman activity has been recorded in close proximity to this. Approximately 4km to the north-east of the Pieces Lane site, an excavation at the Waste Management Park has exposed the edge of two Romano-British enclosures with associated settlement and quarrying evidence ranging in date from the 2<sup>nd</sup> to the 4<sup>th</sup> century (Ranson 2008). The extent of one of these enclosures has been further traced during archaeological work that also identified evidence for a prehistoric field-system and pits of late Bronze Age to early Iron Age and Iron Age date (Slater 2009). Extensive Roman activity had previously been recorded in the area surrounding the Waste Management Site. A Romano-British temple was identified on aerial photographs in an area to the north. This was destroyed by quarrying in the 1980s but coins and a votive axe were recovered. Pottery, metal working debris and a leather shoe were recovered from ditches and waterlogged pits in areas to the south and west of the temple (Taylor 1980). A late Roman cremation cemetery has been excavated adjacent to the temple (Cooper and Whittaker 2004). At Bannold Lodge, c. 3.5km to the north of the Pieces Lane site, Roman enclosures and artefactual evidence suggesting human occupation of 2<sup>nd</sup> to 4<sup>th</sup> century date has been recorded (Whittaker 1997). Late Roman pottery, coins, hypocaust tiles and nails, suggesting a relatively high status building of buildings for the fens, have been recorded at the airfield to the north-west (Taylor 1998, 91).

Archaeological work undertaken in the vicinity of the stretch of the Car Dyke that is situated c. 1km to the south of the Pieces Lane site has confirmed the importance of the fen edge in terms of Roman industrial activity. Horningsea pottery production and an associated warehouse have been identified here (Macauley 1997). Only slightly further south than this site is Eye Hall Farm, the location of the Horningsea kilns first identified by Walker (1912). Indeed, the Fenland Survey noted that much of the known archaeology in Horningsea is Roman in date, stating 'nearly all Horningsea sites are Roman' (Hall 1996, 114). A similar statement is made about sites in the parish of Landbeach, 'nearly all [of] the archaeological remains at Landbeach are Roman' (Hall 1996, 127). The production activity associated with the Horningsea industry has also been recorded in the parish of Milton, to the south-west of Waterbeach, though much of the evidence for this and its associated habitation was discovered and then destroyed in large quantities as a result of post-war quarrying in the area (Taylor 1998, 63).

It can therefore be seen that, despite only limited Roman archaeology having been identified within Waterbeach village itself, the presence of Roman activity in the area of the Pieces Lane site is in no way unexpected due to the extensive Roman landscape known in this area. Having been identified as a site of Horningsea ware

pottery production, which appears to have been a moderately sized industry, supplying a wide area but not of the same scale as some of the better known Romano-British pottery industries, the Pieces Lane site was clearly an important part of the local economy. Its importance within the Horningsea industry remains unknown as the full extent of the pottery production site has not been revealed due to the limited size of the excavated area. It was positioned in an ideal location to take advantage of the transport links supplied by the Cam to the east and the Car Dyke to the west. River transport was seen as an integral part of trade and communications in the Roman period (Greene 1986, 30). Water transport is the most suitable form of transport for pottery as pottery is bulky, heavy and fragile (Wacher 1978, 94). Certainly the distribution pattern of Horningsea ware (Evans 1991, 37) suggests that it may have been traded along these routes.

The logistically convenient position occupied by the Pieces Lane site may indicate careful consideration in the choice of location, rather than just opportunistic exploitation of a suitable piece of land; such careful planning may, by extension, suggest an extensive pottery production site but this can only be speculation, and may indeed have resulted in a greater quantity of spot-finds and unexpected identification of Roman remains than has actually occurred. Nevertheless, the identification of this part of the pottery production site adds to the corpus of known Roman industrial activity in the Cam valley and fen edge area to the north of Cambridge and indicates that further evidence of Roman activity may be expected within the village of Waterbeach. It is likely that domestic/occupation activity and possibly further industrial activity exists in the surrounding area.

## **5 CONCLUSION**

This small site represents a further addition to the fairly dense Roman period activity known in the area to the north of Cambridge. It provides confirmation of Roman occupation within the area of modern Waterbeach village, which has previously only been represented by two small gullies and a handful of spot-finds. Its main importance, however, is as yet further evidence of pottery production belonging to the Horningsea industry which appears to have been prevalent in this area.

Although interpretations regarding many of the Roman features at the site are hampered by the small size of the excavated area and the density with which features of this date occur within it, this site clearly witnessed industrial activity. It provides important information regarding kiln form and structure and kiln produce to be added to the corpus of information already gathered regarding the Horningsea industry. The results of the excavation help to demonstrate that there was not a uniform kiln type associated with the Horningsea industry. Slightly different products amongst the pottery assemblage in comparison to other Horningsea sites may reflect chronological progression in production of form types within the Horningsea industry but may also in part reflect the nature of production or specialisation of different potters or workshops within the Horningsea industry. The position of this site, located between the river Cam and the Car Dyke, and also of a date broadly contemporary with the construction of the Roman canal, is further indication that the sites at which Horningsea pottery was produced appear to have

been placed in order to take advantage of the communication routes into the fenland area where their products, especially storage jars, were heavily marketed (Hartley and Hartley 1970, 168) and where Evans (1991, 37) has demonstrated their main distribution to be.

## **ACKNOWLEDGMENTS**

Archaeological Solutions would like to thank Hayler Developments Ltd for their co-operation and funding of the archaeological excavation, in particular Mr Derek Haylock and Mr Barry Fuller. AS would also like to acknowledge the assistance of Mr Chris Anderson. Thanks to Sally Thompson at Cambridge HER and staff at Cambridge Record Office. AS is pleased to acknowledge the input and advice of Mr. Daniel McConnell and Ms Kasia Gdanic of Cambridgeshire County Council's Cambridgeshire Archaeology Planning and Countryside Advice (CAPCA).

Andrew Peachey would like to gratefully acknowledge Elizabeth Popescu, Jeremy Evans, Phil Mills and Steven Macauley for their advice and assistance regarding previous work and forthcoming publications on the Horningsea pottery industry.

## **BIBLIOGRAPHY**

Archaeological Solutions 2009. *21-25 School Lane, Welwyn, Hertfordshire: Specification for and Archaeological Excavation and Archaeological Monitoring and Recording.*

Barlow G. and Newton A.A.S. 2010. 12, Pieces Lane, Waterbeach, Cambridgeshire: Archaeological Excavation Interim Report. Archaeological Solutions Ltd. Unpublished report no. 3682

Beijerinck, W, 1947. *Zadenatlas der Nederlandsche Flora.* Veenman and Zonen, Wageningen.

Bersu, G. 1940 'Excavation at Little Woodbury, Wiltshire. Part 1: The settlement as revealed by excavation' *Proceedings of the Prehistoric Society* 6, 30-111

Boardman, S, and Jones, G, 1990. Experiments on the effect of charring on cereal plant components, *Journal of Archaeological Science* 17, 1-11.

Buckland, P., Hartley, K. and Rigby, V. 2001 'The Roman Pottery Kilns at Rossington Bridge, Excavations 1956-61', *Journal of Roman Pottery Studies* 9

Bradhaart, F.2008. 'Carbonisation and morphological changes in modern dehusked and husked *Triticum dicoccum* and *Triticum aestivum* grains.', *Vegetation History and Archaeobotany*, 17, 155-166.

Brown, A. 1994 'A Romano-British Shell-Gritted Pottery and Tile Manufacturing Site at Harrold, Bedfordshire,' *Bedfordshire Archaeology* 21, 19-107

Browne, D. M. 1977, *Roman Cambridgeshire*, Oleander Press, Cambridge

Cappers, R.T.J., Bekker, R.M. and Jans, J.E.A. 2006. *Digitale Zadenatlas.*: Barkhuis Publishing and Groningen University Library, Groningen

Carruthers W J. 2003. 'Charred plant remains.' In Atkins R and Mudd A. 2003. 'An Iron Age and Romano-British settlement at Prickwillow Road, Ely, Cambridgeshire: excavations 1999-2000'. *Proceedings of the Cambridge Antiquarian Society.* 92. 44-48.

Charles, M, 1984. 'Introductory remarks on the cereals.' *Bulletin on Sumerian Agriculture* 1, 17-31.

Clayton W.D. & Renvoize S.A. 1986. *Genera Graminum: Grasses of the World.* HMSO Publications Centre, London

Cohen, A and Serjeanston, D. 1996. *A manual for the identification of bird bones from archaeological sites.* Archetype Publications.



Coles, J and Hall, D 1998, *Changing Landscapes: The Ancient Fenland*, Cambridgeshire County Council/Wetlands Archaeological Research Project

Conner, A. 1999 *Iron Age settlement and agriculture at Butt Lane, Milton: Training Excavation 1998*, Cambridgeshire County Council Archaeological Field Unit report number 157

Cooper, A. and Whittaker, P. 2004 *Integrated Waste Management Centre, Ely Road, Waterbeach. Archaeological Investigation*, Cambridge Archaeological Unit report number 652

Cra'aster, M. 1969 'New Addenbrooke's Iron Age Site, Long Road, Cambridge' *Proceedings of the Cambridgeshire Antiquarian Society* LXII, 21-28

Crowfoot, E. 1945, 'The bone 'gouges' of Maiden Castle and other sites', *Antiquity* 19.45 (September 1945), 157-8

Cunliffe, B. 1992 'Pits, preconceptions and propitiation in the British Iron Age', *Oxford Journal of Archaeology*. 11(1), 69-83

Curl, J. 2004. *Environmental Evidence: The Animal and Bird Bone* in Lyons, A. 2004. *Romano-British industrial activity at Snettisham, Norfolk. Archaeological investigations at Strikland Avenue and Station Road*. East Anglian Archaeology. Occasional Paper No. 18, 2004. Norfolk Museums and Archaeology Service.

Dannell, G. B. & Wild, J. P. 1987 *Longthorpe II, The Military Works-Depot: An Episode in Landscape History*. Britannia Monograph Series. 8

Dark, K and Dark, P 1998, *The Landscape of Roman Britain*, Sutton Publishing, Stroud

Darling, M. 2004 'Guidelines for the archiving of Roman Pottery,' *Journal of Roman Pottery Studies* 11, 67-74

Davis, S. 1992. *A rapid method for recording information about mammal bones from archaeological sites*. English Heritage AML report 71/92

Dickens, A. Patten, R and Swaysland, C. 2003 *Histon to Waterbeach Cable, Cambridgeshire: an archaeological evaluation and watching brief*, Cambridge Archaeological Unit report

Diez, V. 2005 *Cambridge Rowing Lake, The Storage Lake, Milton, Landbeach and Waterbeach, Cambridgeshire: Archaeological Evaluation Report*, Oxford Archaeological Report, Issue No 1

Driesch, A. von den. 1976. *A guide to the measurements of animal bones from archaeological sites*. Peabody Museum Bulletin 1, Cambridge Mass., Harvard University.



Dürnwächter, C. 2009, *Time, Space and Innovation: an Archaeological Case Study on the Romanization of the North-Western Provinces (50 BC to AD 50)*, BAR International Series 2011

EAB 2008. 'Search Results Retrieved on 2<sup>nd</sup> March 2011 from World Wide Web: [http://ads.ahds.ac.uk/catalogue/specColl/eab\\_ah\\_2004/fullrecord.cfm?site\\_no=4491&cty=post96](http://ads.ahds.ac.uk/catalogue/specColl/eab_ah_2004/fullrecord.cfm?site_no=4491&cty=post96)

Edwards, N. 1990. *The Archaeology of Early Medieval Ireland*. B.T. Batsford Ltd, London

English Heritage 2002. *Environmental Archaeology: A guide to the theory and practice of methods, from sampling and recovery to post-excavation*. English Heritage, Swindon

Evans, C., Knight, M. and Webley, L. 2007 'Iron Age Settlement and Romanization on the Isle of Ely: The Hurst Lane Reservoir Site', *Proceedings of the Cambridge Antiquarian Society* 96, 41-78

Evans, C., Mackay, D. and Webley, L. 2008 *Borderlands: The Archaeology of the Addenbrooke's Environs, South Cambridge*, CAU Landscape Archives: New Archaeologies of the Cambridge Region Series) Oxford: Oxbow Books

Evans, J. 1990 'The Cherry Hinton Finewares' *Journal of Roman Pottery Studies* 3, 18-29

Evans, J. 1991 'Some Notes on the Horningsea Roman pottery' *Journal of Roman Pottery Studies* 4, 33-43

Evans, J., Macaulay, S., and Mills, P. forthcoming *The Horningsea Pottery Industry: A Study of Roman Pottery in Southern Cambridgeshire*. East Anglian Archaeology forthcoming volume

Fuller, D. 2007. 'Cereal Chaff and Wheat Evolution' Retrieved on 12th February 2010 from World Wide Web: <http://www.homepages.ucl.ac.uk/~tcrndfu/archaeobotany.htm>

Gibson, A 1989 'Medieval corn-drying kiln at Capo, Kincardineshire and Abercairny, Perthshire', *Proceedings of the Society of Antiquaries of Scotland*, 219-229.

Gibson, D. & Lucas, G. 2002 'Pre-Flavian Kilns at Greenhouse Farm and the social context of early Roman pottery production in Cambridgeshire,' *Britannia* XXXIII, 95-128

Going, C 1997 'Roman' in Glazebrook, J. *Research and Archaeology: a Framework for the Eastern Counties 1, resource assessment*. East Anglian Archaeology Occasional Paper 3, 35-46

Greene, K. 1986, *The archaeology of the Roman economy*, Batsford, London

Greene, K. 1999 *Roman Pottery*, University of California Press/British Museum

Greep, S. 1998, 'The bone, antler and ivory artefacts' in H. E. M. Cool and C. Philo (eds), *Roman Castleford. Excavations 1974-85 I: the small finds*, Yorkshire Archaeology 4, West Yorkshire Archaeology Service, Wakefield, 267-85

Hall, C. 1999 *Archaeological Investigations of the Anglia Water Cottenham to Landbeach Sewage Pumping Main*, Cambridge Archaeological Unit Report 345

Hanf, M. 1983. *The Arable Weeds of Europe*. BASF UK Ltd., Ludwigshafen

Hartley, B. 1960 'Notes on Pottery from some Romano-British Kilns in the Cambridgeshire Area,' *Proceedings of the Cambridge Antiquarian Society* LIII, 23-8

Hartley, B and Hartley K 1970 'Romano-British Pottery in the Fenland' in Phillips, C. W., *The Fenland in Roman times*, Royal Geographical Society Research Series 5, London

Hill. J.D. 2003 'Iron Age and Roman Pottery' in Evans, C. Power and Island Communities: Excavations at the Wardy Hill Ringwork, Coveney, Ely. *East Anglian Archaeology* 103

Hill, J.D. and Braddock, P. 2006 'Iron Age Pottery' in Evans, C. and Hodder, I. *The Haddenham Project Vol.2: Marshland Communities and Cultural Landscapes*. MacDonald Institute Nonograph, 148-94

Hillson, S. 1996. *Teeth*. Cambridge Manuals in Archaeology. Cambridge University Press.

Hillson, S. 1992. *Mammal bones and teeth*. The Institute of Archaeology, University College, London.

Hillman, G.C. 1976. 'Criteria useful in identifying charred Wheat and Rye Grains.' Unpublished versions of notes likely to have entered publication in some form and given to the author by Gordon Hillman during the course of her MSc in 1995-1996.

Hillman, G, 1981. 'Reconstructing Crop Husbandry Practices from Charred Remains of Crops' in Mercer R (eds) *Farming Practice in Prehistory*. Edinburgh: Edinburgh University Press, 123-192.

Hillman, G. 1982. 'Evidence for Spelting Malt.' In Leech, R. (ed) *Excavations at Catsgore 1970-73. A Romano-British Village*. Bristol: Western Archaeological Trust Excavation Monograph 2, 137-41.

Hillman, G.C. 1983. 'Criteria for Distinguishing Rachis Remains of Naked (i.e. free-threshing) 4x and 6x wheats.' Unpublished versions of notes likely to have entered publication in some form and given to the author by Gordon Hillman during the

course of her MSc in 1995-1996.

Hull, M.R 1999 'Roman Pottery' in Roman Cambridge: Excavations on Castle Hill 1956-1988. *Proceedings of the Cambridge Antiquarian Society* LXXXVIII, 209-250

Hull, M.R. and Pullinger, J. 1999 'The Roman Pottery' in Roman Cambridge: Excavations on Castle Hill 1956-1988, *Proceedings of the Cambridge Antiquarian Society* LXXXVIII, 141-208

Jacomet, S. 2006. *Identification of cereal remains from archaeological sites - second edition*. Basel University Archaeobotany Lab IPAS, Basel

Johnson D., Martlew R., Carroll P, Carroll P 2009. 'Report on the Excavations of a Corn Drying Kiln on Kilnsey Green, Kilnsey, North Yorkshire, Upper Wharfedale Heritage group Publication.' Retrieved on 2nd June 2010 from the World Wide Web: [http://www.uwhg.org.uk/CDK08report\\_Final\\_ATW-hyperlink\\_ver.pdf](http://www.uwhg.org.uk/CDK08report_Final_ATW-hyperlink_ver.pdf)

Jones M. 1991. 'Food Production and Consumption – Plants' In Jones R.F.J ed. *Britain in the roman Period: Recent Trends*. Sheffield: J.R. Collis Publications, 21-27.

Jones, G, 1981 'Crop Processing at Assiros Toumba – a Taphonomic Study.' In *Zeitschrift für Archäologie* Berlin , 15 (1), 105-111.

Jones, G., and Halstead, P., 1995. 'Maslins, Mixtures and Monocrops: on the Interpretation of Archaeobotanical Crop Samples of Heterogeneous Composition.' In *Journal of Archaeological Science*. 22, 103-114.

King, A. 2004. *The Mammal and Bird Bones* in Blagg, T., Plouviez, J. and Tester, A. 2004. *Excavations at a large Romano-British settlement at Hacheston, Suffolk in 1973-4*. East Anglian Archaeology Report No. 106

Leivers, M. 2009 'Later prehistoric material culture' in Wright, J., Leivers, M., Seager Smith, R. and Stevens, C.J. *Cambourne New Settlement: Iron Age and Romano-British settlement on the clay uplands of west Cambridgeshire*. Wessex Archaeology Report No.23, 74-78

Letts, J. 1999. *Smoke Blackened Thatch –A unique source of late medieval plant remains from Southern England*. London and Reading: English Heritage Ancient Monuments Laboratory and University of Reading.

Lucas, G. 1994 'The pottery from the excavation of the Roman site at Wimpole, Cambs, 1989', in Horton, W., Lucas, G. and Wait, G. 'Excavation of a Roman site near Wimpole, Cambs, 1989', *Proceedings of the Cambridge Antiquarian Society* 83, 48-60

MacGregor A. M. 1985, *Bone, antler, ivory and horn. The technology of skeletal materials since the Roman period*, Croom Helm Ltd, Beckenham

Maltby, M. 1979. *The Animal Bones from Exeter 1971-1975*. Exeter Archaeological

Reports – Volume 9 (1979).

Manning, W. H. 1985, *Catalogue of the Romano-British iron tools, fittings and weapons in the British Museum*, British Museum Press, London

Masser, P 2000 *The Cambridge centre for recycling, Ely Road, Waterbeach: archaeological evaluation of Gravel's Field, The Undertakers, Websters Field and the IWM Park*, Cambridge Archaeological Unit Repor 403

Medlycott, M. and Brown, N. (eds) 2008 *Revised Research Framework for the Eastern Region*. Website: <http://www.eaareports.org.uk/index.html>

Miller, T. 1995 'The Romano-British temple precinct at Great Chesterford, Essex,' *Proceedings of the Cambridge Antiquarian Society* 84, 15-58

Millett, M. 1980 'Appendix 5A: The Romano-British Pottery' in Christie, P.M. and Coad, J.G. 'Excavations at Denny Abbey' *The Archaeological Journal* Vol.137, 248-252

Moffett, L. 1994. 'Charred cereals from some ovens/kilns in late Saxon Stafford and the botanical evidence for the pre-burh economy.' In Rackham, J. ed. *Environment and Economy in Anglo-Saxon England: a Review of Recent work on the Environmental Archaeology of Rural and Urban Anglo-Saxon Settlements in Southern England. Proceedings of a Conference held at the Museum of London, 9-10 April 1990 (York, 1994)* C.B.A. Research Report No. 89. 55-64.

Monk, MA, 1986. Evidence from macroscopic plant remains for crop husbandry in prehistoric and early historic Ireland, *Journal of Irish Archaeology*, 3, 31-36.

Peachey, A. *forthcoming* 'The late Iron Age and Roman Pottery' in Nicholson, K. The late Iron Age and Roman settlement at Cedars Park, Stowmarket, Suffolk. *East Anglian Archaeology* volume TBC

Peña, J. T. 2007, *Roman pottery in the archaeological record*, Cambridge University Press, Leiden

Perrin, R. 1999 'Roman Pottery from Excavations at and near to the Roman Small Town of Durobrivae, Water Newton, Cambridgeshire, 1956-58' *Journal of Roman Pottery Studies* 8

Prehistoric Ceramics Research Group (PCRG) 1995 *The study of later prehistoric pottery: general policies for analysis and publication*, Occasional Papers 1-2

Pollington, S. 2000. *Leechcraft Early English Charms Plantlore and Healing*. Hockwold-cum-Wilton: Norfolk.

Pullinger, E.J. and White, P.J. 1991 *Romano-British Sites at Hinton Fields, Teversham, Cambs*. Privately Published

Ranson, C. 2008 *The Waste Management Park, Ely Road, Waterbeach*,

*Cambridge: An archaeological excavation*, Cambridge Archaeological Unit report number 835

Ravensdale, J. R. 2008, *Liable to Floods: Village landscape on the edge of the fens AD 450-1850*, Cambridge University Press, Cambridge

Reynolds P. 1981. 'Dead Stock and Livestock', In Mercer R ed. *Farming Practice in British Prehistory*. Edinburgh University Press, Edinburgh 97-122.

Reynolds, P. J. 1979 *Iron Age Farm; the Butser Experiment*, Colonnade Books/British Museum Publications, London

Rodwell, K. A. 1988 *The prehistoric and Roman settlement at Kelvedon, Essex* Council for British Archaeology Research Report 63/Chelmsford Archaeological Trust Report 6

SARE 2007. 'Managing Cover Crops Profitably, 3rd Edition -Winter Wheat - Triticum Aestivum' Retrieved on 6th June from World Wide Web: [http://www.sare.org/publications/covercrops/winter\\_wheat.shtml](http://www.sare.org/publications/covercrops/winter_wheat.shtml)

Sellwood, L. 1985, 'Objects of bone and antler' in B. Cunliffe, *Danebury: an Iron Age hillfort in Hampshire 2: the excavations in 1969-70, the finds*, Council for British Archaeology Research Report 52, Council for British Archaeology, London, 371-95

Slater, A. 2009 *Further archaeological investigations at the Waste Management Park, Waterbeach, Cambridgeshire*, Cambridge Archaeological Unit report number 872

Stace, C. 2010 *New Flora of the British Isles*, 3<sup>rd</sup> Edition, Cambridge University Press, Cambridge.

Stevens C.J. and Clapham A. 2008. 'A Romano-British Rural site at Eaton Socon, Cambridgeshire: Specialist Report Charred and Waterlogged Plant Remains.' Retrieved on 20/4/11 from World Wide Web: [http://www.wessexarch.co.uk/system/files/49013\\_eaton-socon-plant-remains.pdf](http://www.wessexarch.co.uk/system/files/49013_eaton-socon-plant-remains.pdf)

Swan, V. 1984 *The Pottery Kilns of Roman Britain*. Royal Commission on Historical Monuments Supplementary Series 5

Taylor, A 1980 'Notes' *Proceedings of the Cambridge Antiquarian Society* LXX

Tomber, R. & Dore, J. 1998 *The National Roman Fabric Reference Collection*. Museum of London, London

Van der Veen M., Livarda A. and Hill A. 2007. 'The Archaeobotany of Roman Britain: current state and identification of research priorities.' *Britannia*, 181-210.

Van der Veen, 1989. 'Charred grain Assemblages from Roman-period Corn Driers in Britain.' *Archaeological Journal* 146, 302-359



Wacher, J. 1978, *Roman Britain*, J. M. Dent and Sons Ltd, London

Wade, A. 2002. *The Faunal Remains* in Brooks, H. 2002. *An archaeological excavation and watching brief at 22-24, High Street, Colchester, in 2000*. Journal of the Colchester Archaeological Trust, Volume 2 (for the year 2002). Colchester Archaeological Trust Ltd. 2004.

Walker, F. 1912 'Roman Pottery Kilns at Horningsea, Cambridgeshire,' *Proceedings of the Cambridge Antiquarian Society* LXIV, 14-70

Webster, P. 1996 *Roman Samian Pottery in Britain*. CBA Practical Handbook in Archaeology 13

Welsby, D. A. 1985 'Pottery Production at Muncaster, Eskdale in the Second Century AD' *Britannia* XVI, 127-140

West, S. with Martin, E. 1990 'The Iron Age Pottery' in West, S. *West Stow: The Prehistoric and Romano-British Occupations*. East Anglian Archaeology 48, 60-68

West, S. 1985, *West Stow. The Anglo-Saxon Village*, East Anglian Archaeology Report 24, Suffolk County Council, Ipswich

Whittaker, P. 1997 *Excavations at Bannold Lodge, Chittering, Cambridgeshire*, Cambridge Archaeological Unit report number 226

Wild, J. P. 1970, *Textile manufacture in the northern Roman provinces*, Cambridge University Press, Cambridge

Willis, S. 2004a (Winter) *Samian Pottery, a Resource for the Study of Roman Britain and Beyond: the results of the English Heritage funded Samian Project. An e-monograph*. Internet Archaeology 17

Willis, S. 2004b 'The Study Group for Roman Pottery Research Framework Document for the Study of Roman Pottery in Britain, 2003,' *Journal of Roman Pottery Studies* 11, 1-20



## PLATES



**Plate 1:** Kiln S2171, mid-excavation. View E



**Plate 2:** Kiln S2171 and stratigraphically earlier features. View E

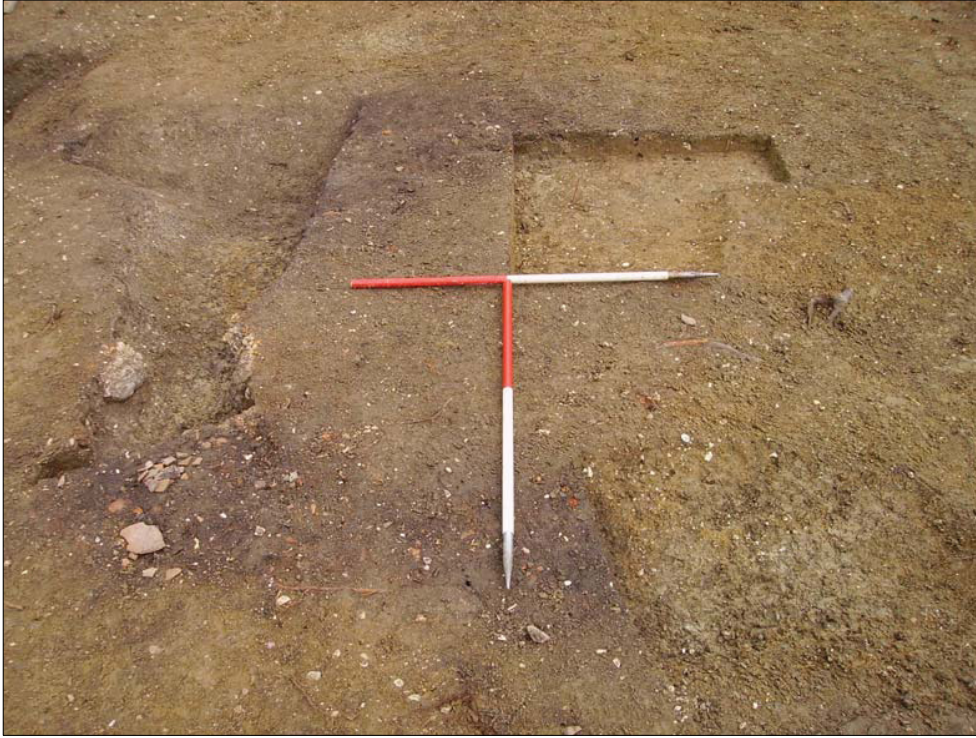




**Plate 3:** Pit F2039 and Kiln S2020. View NW

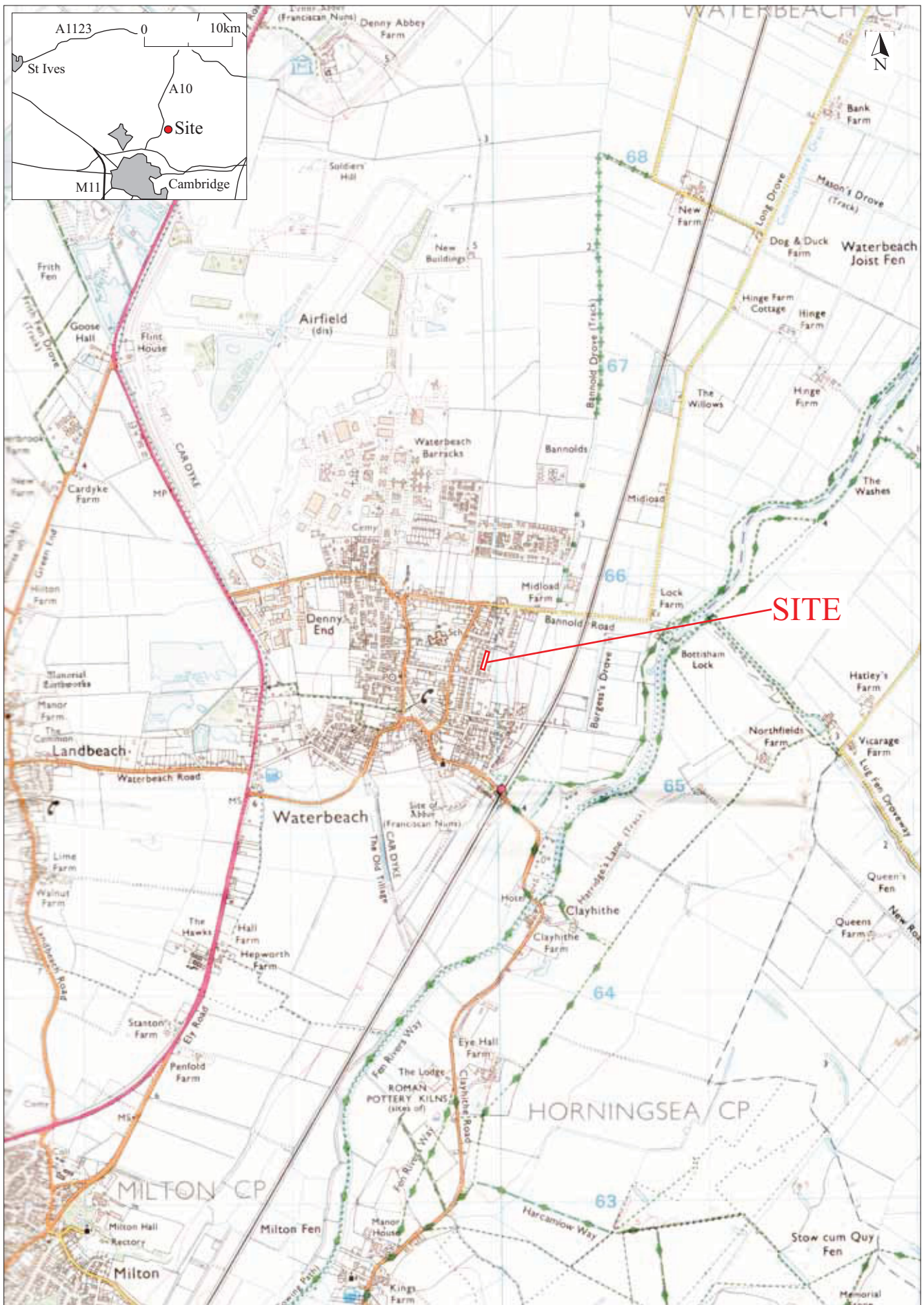


**Plate 4:** Features comprising Kiln S2020. View W



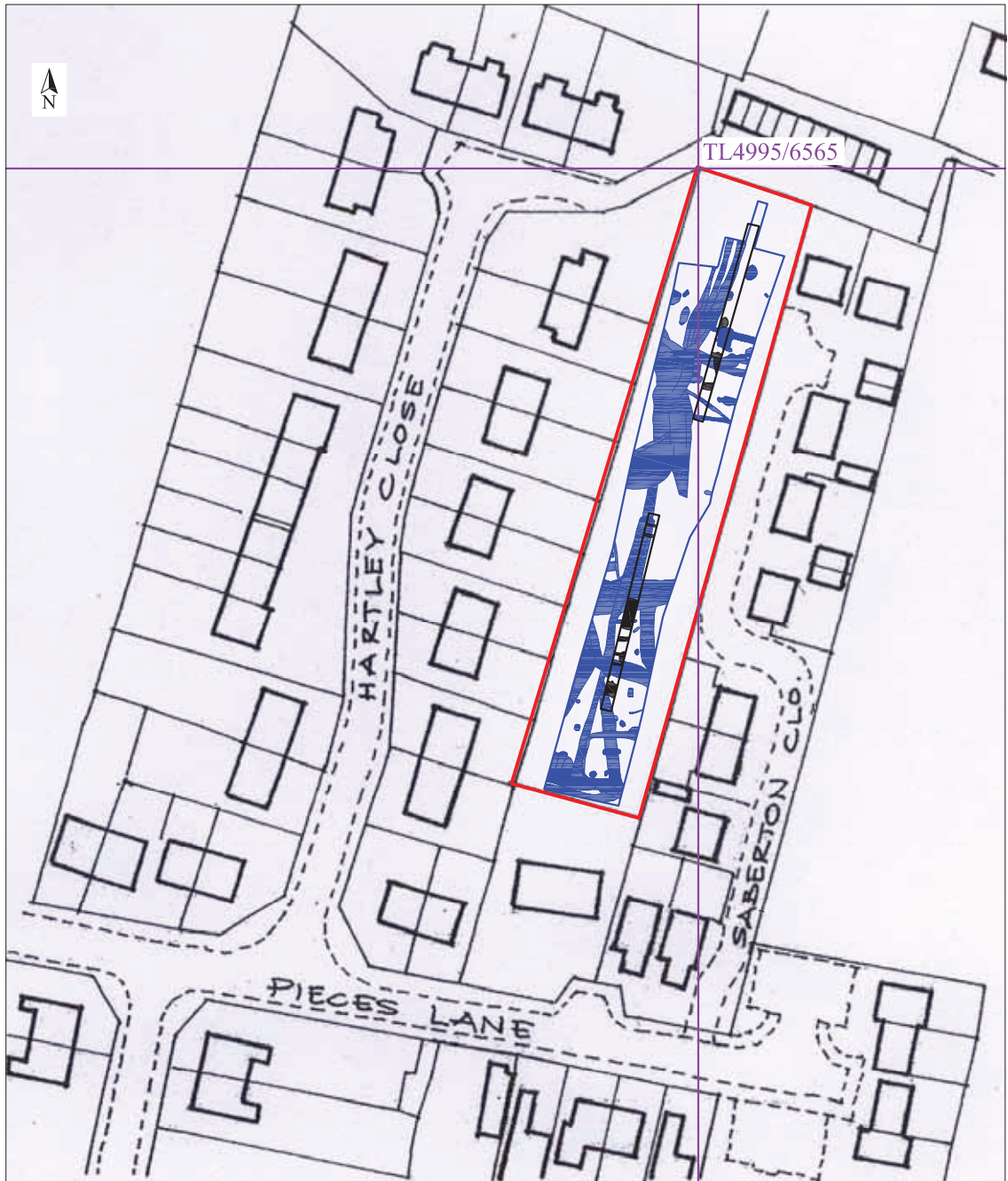
**Plate 5:** Features comprising Kiln S2020. View N





Reproduced from the 1999 Ordnance Survey 1:25000 map with the permission of Her Majesty's Stationery Office. © Crown copyright Archaeological Solutions Ltd Licence number 100036680

Archaeological Solutions Ltd  
**Fig. 1 Site location plan**  
 Scale 1:25,000 at A4



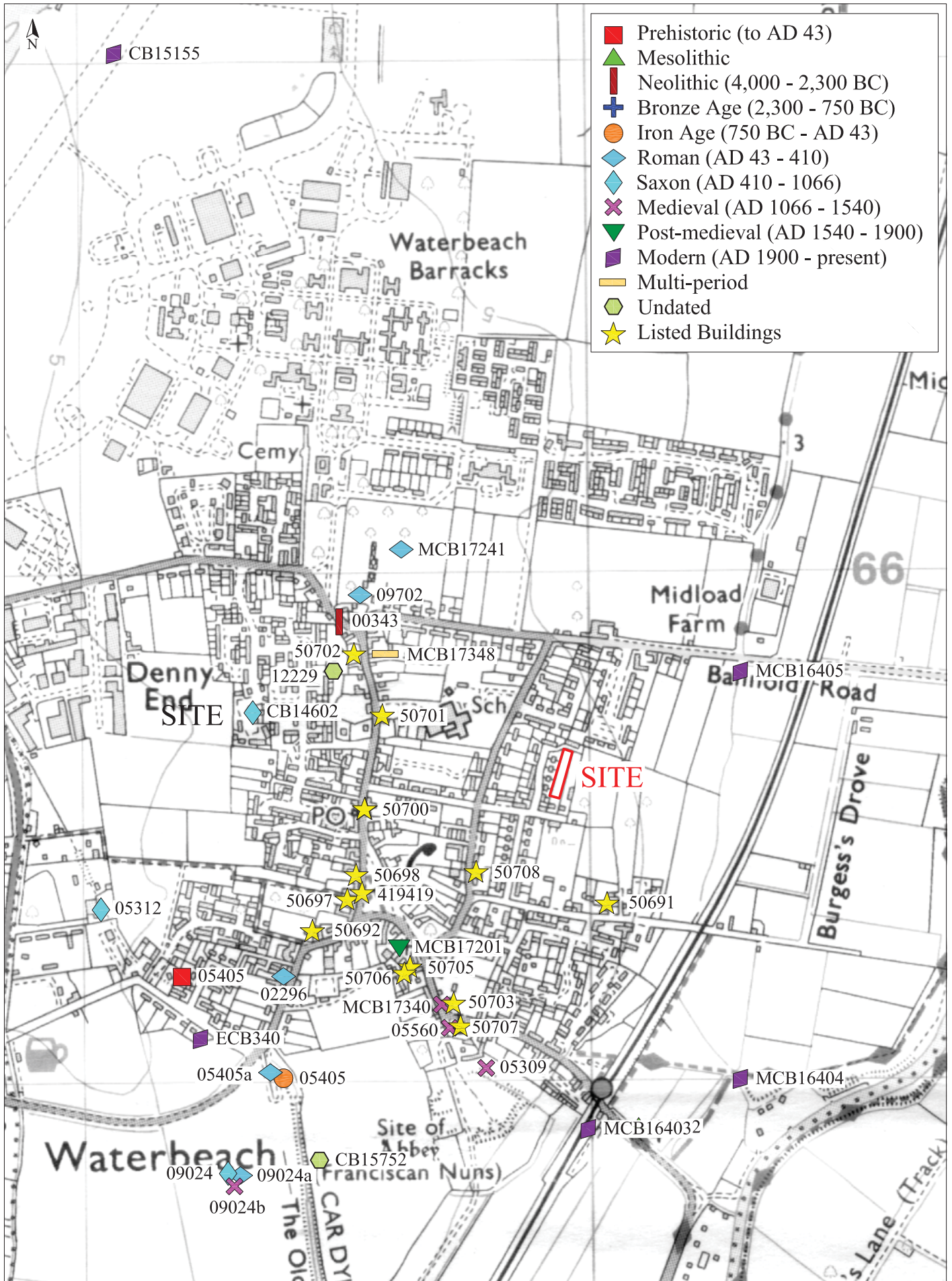
0 50m

Archaeological Solutions Ltd

Fig. 2 Detailed site location

Scale 1:1000 at A4





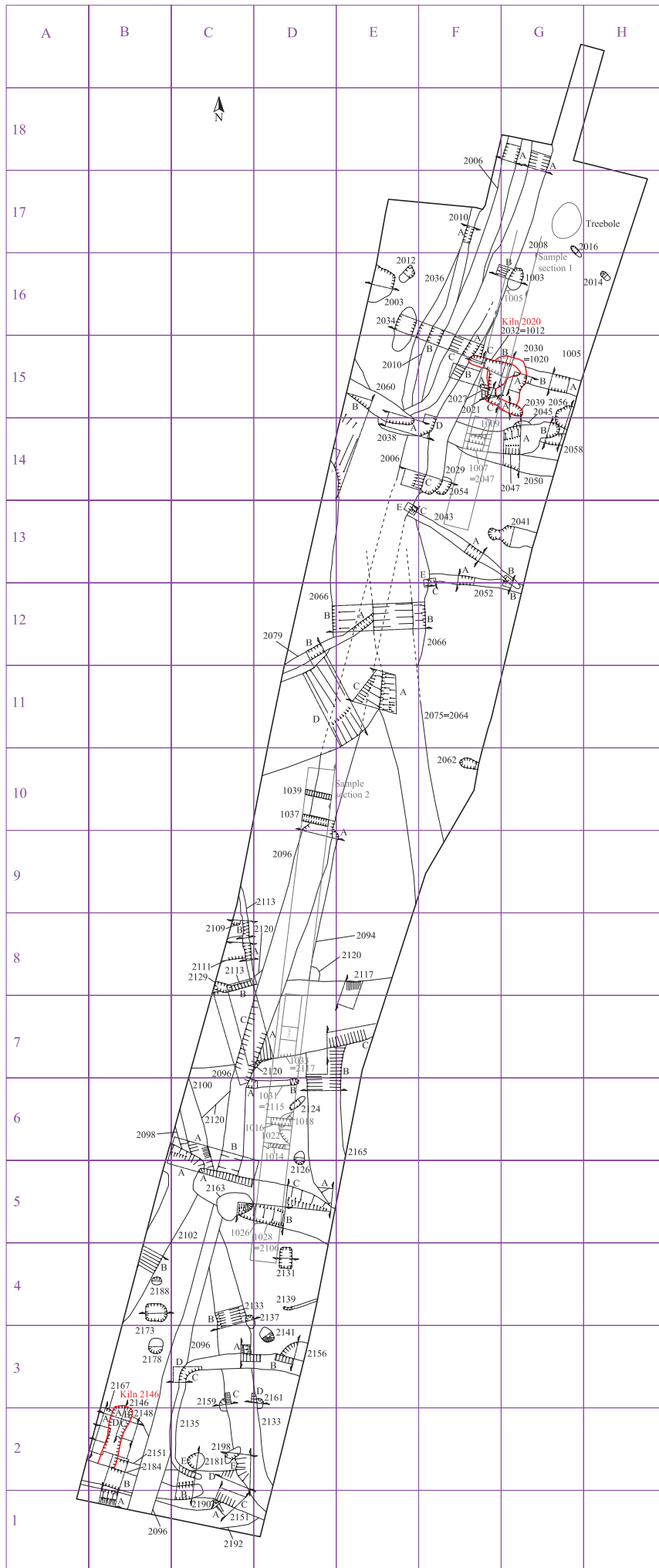
Reproduced from the 1999 Ordnance Survey 1:25000 map with the permission of Her Majesty's Stationery Office. Crown copyright Archaeological Solutions Ltd. Licence No. 100036680

Archaeological Solutions Ltd

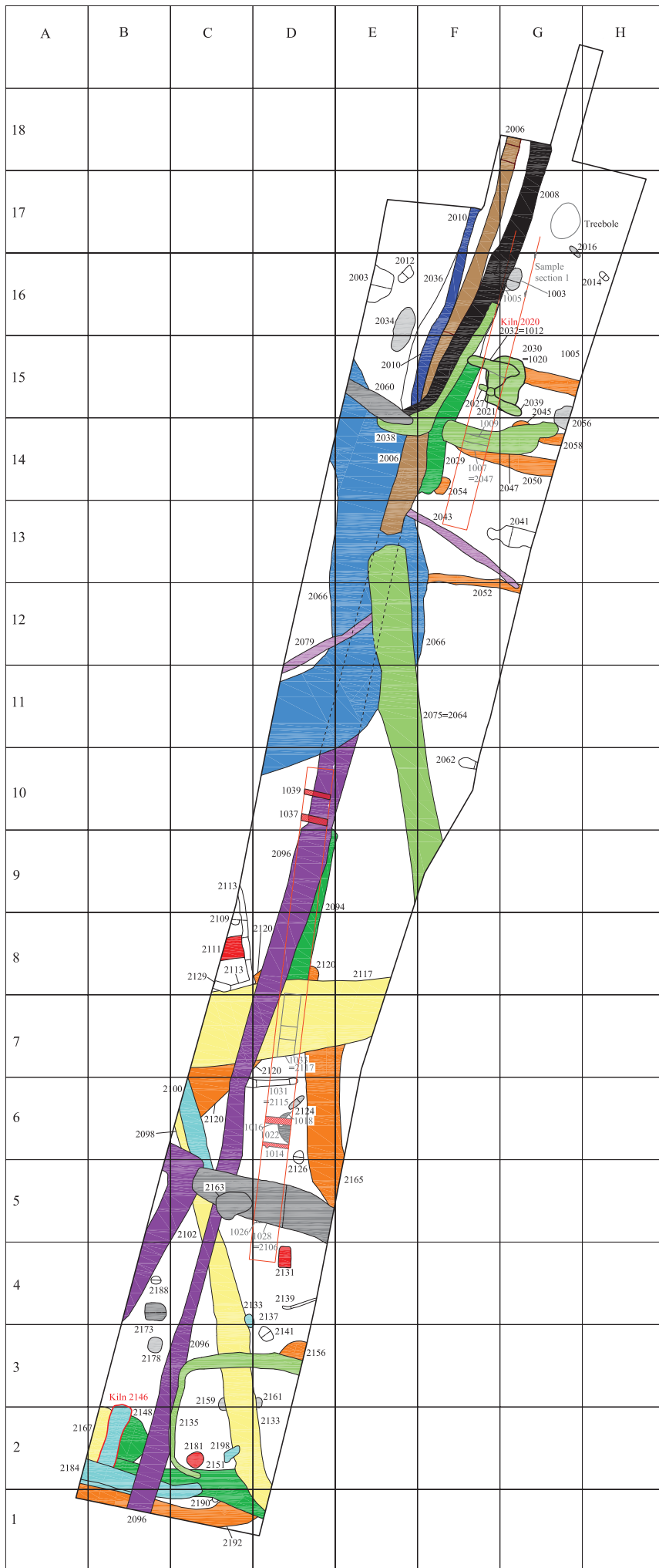
**Fig. 3 HER Data**

Scale 1:10,000 at A4





Archaeological Solutions Ltd  
**Fig. 4 All features plan**  
 Scale 1:250 at A3



- Phase 1 Middle Iron Age
- Phase 2 Romano-British sub-phase 1
- Phase 2 Romano-British sub-phase 2
- Phase 2 Romano-British sub-phase 3
- Phase 2 Romano-British sub-phase 4
- Phase 2 Romano-British sub-phase 5
- Phase 2 Romano-British sub-phase 6
- Phase 2 Romano-British sub-phase 7
- Phase 2 Romano-British sub-phase 8
- Phase 2 Romano-British sub-phase 9
- Phase 2 Romano-British sub-phase 10
- Phase 2 Romano-British sub-phase 11
- Phase 2 Romano-British sub-phase 12
- Unsub-phased Roman
- Modern

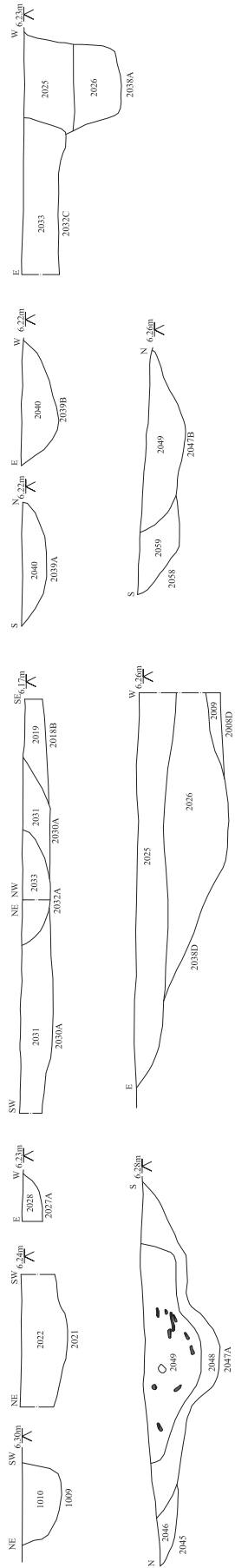


*Archaeological Solutions Ltd*  
**Fig. 5 Phase plan**  
 Scale 1:250 at A3

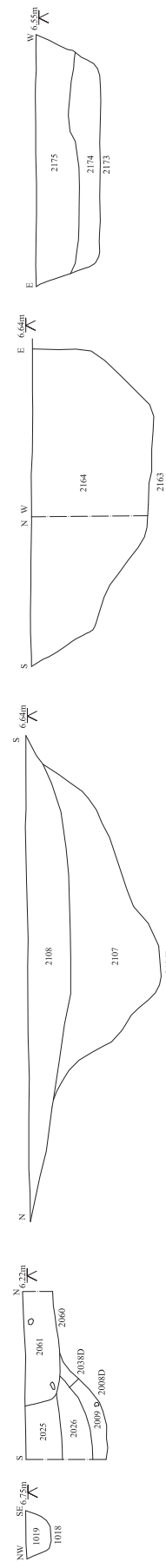




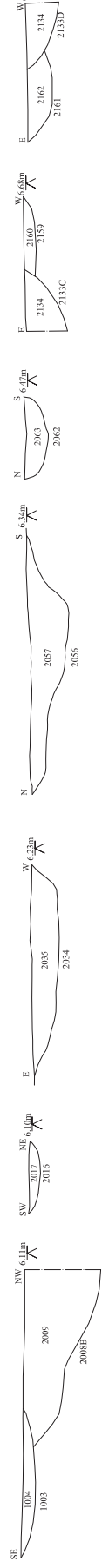
Phase 2: Romano-British sub-phase 11

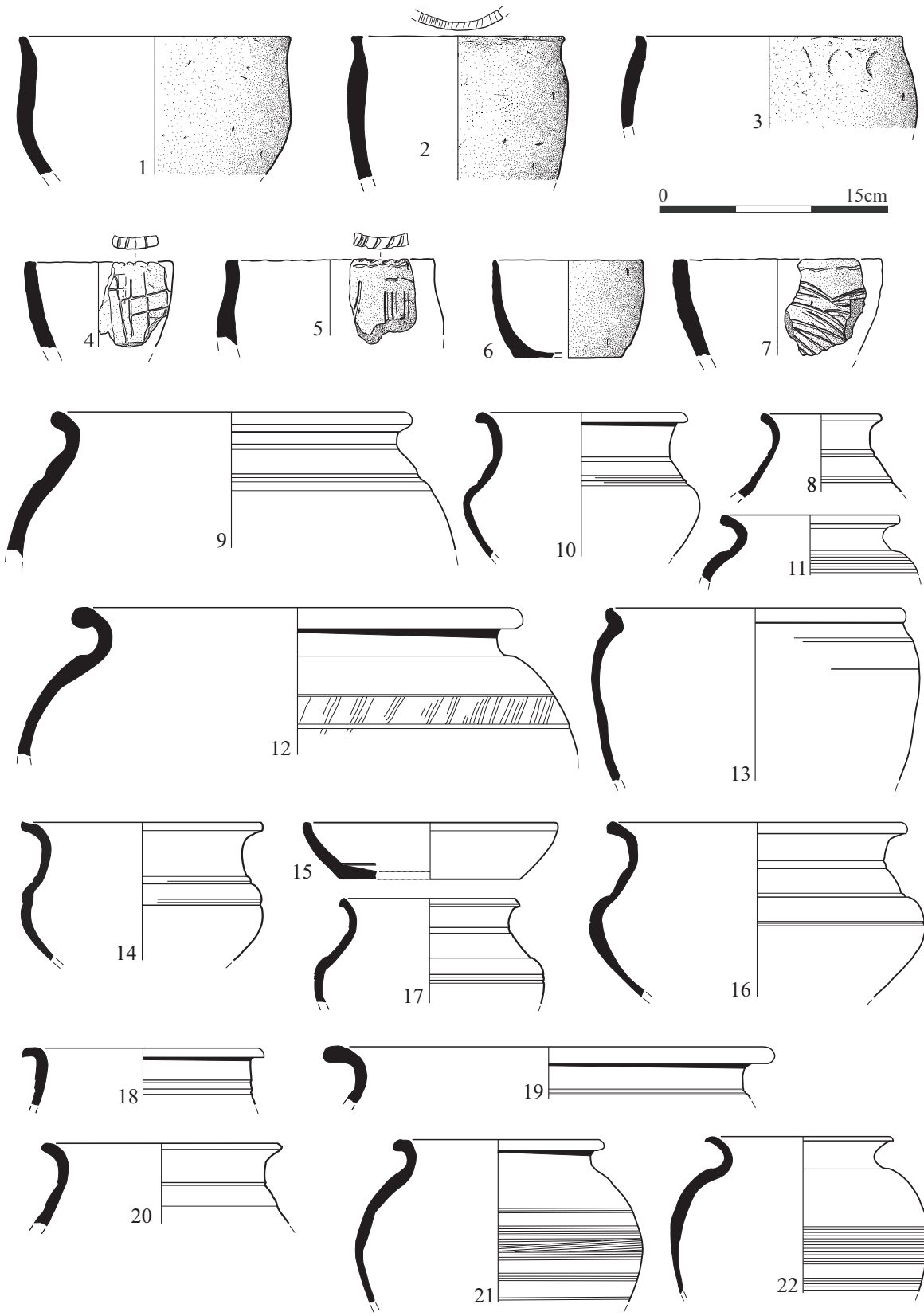


Phase 2: Romano-British sub-phase 12



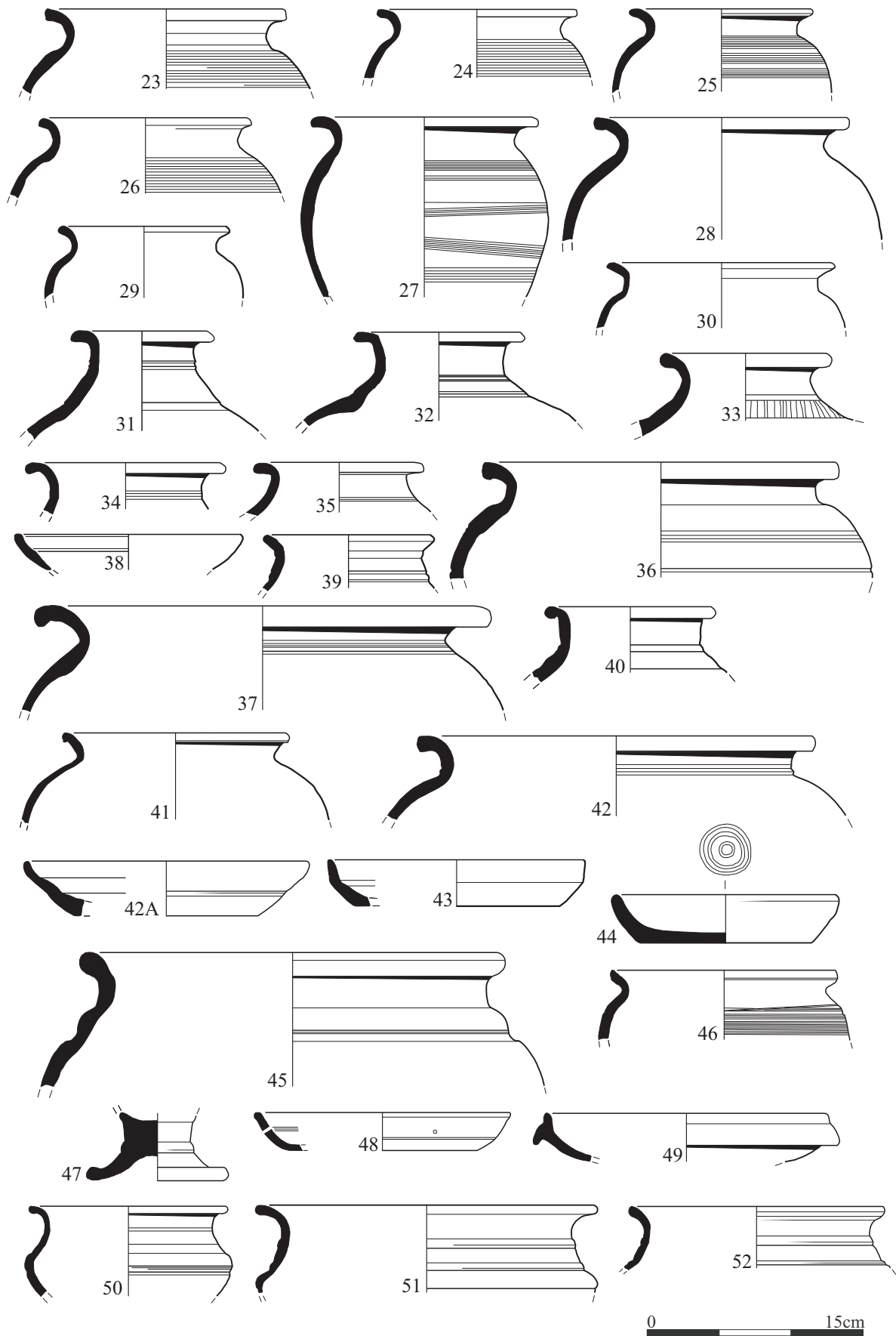
Phase 2: Romano-British sub-phase unassigned



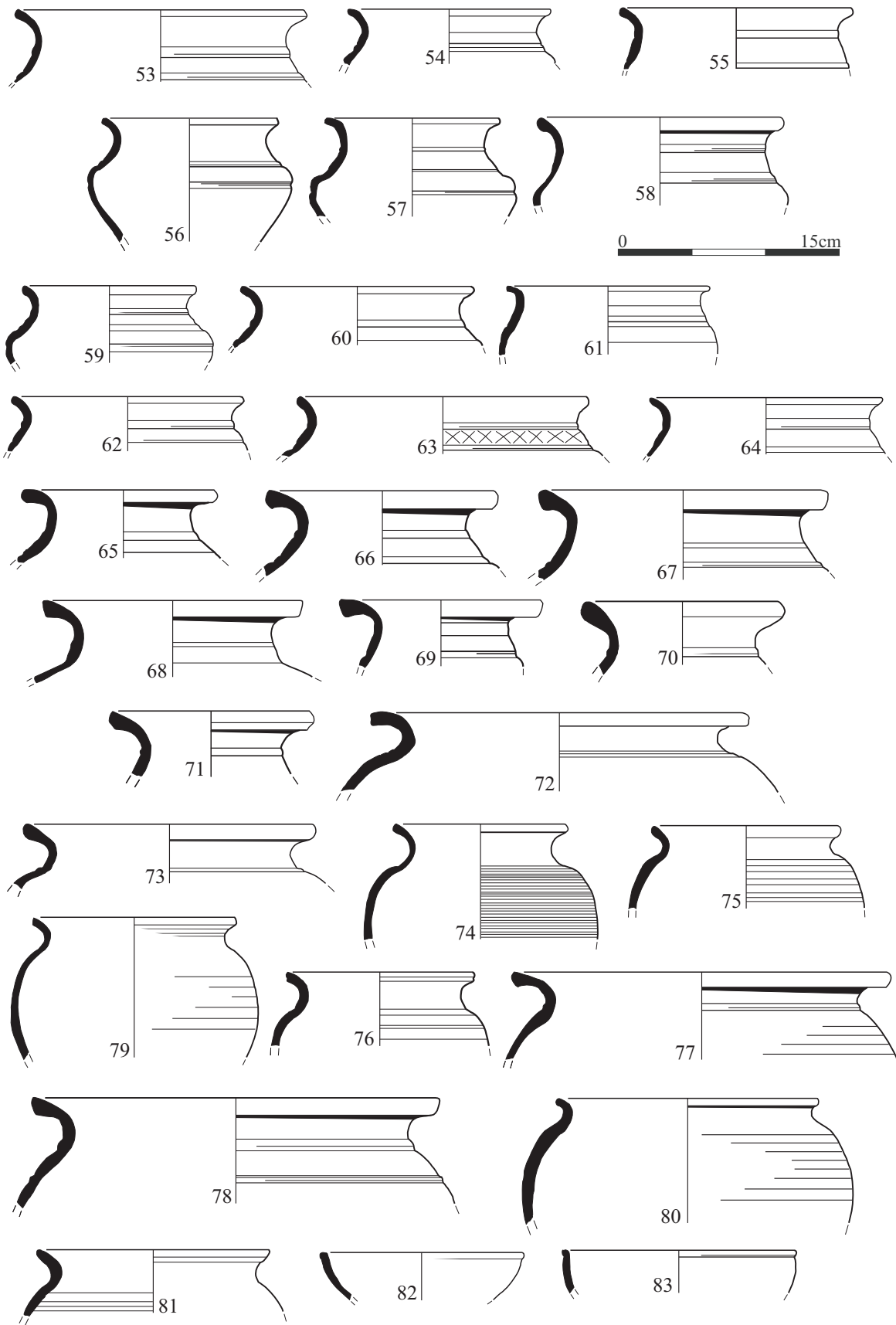


*Archaeological Solutions Ltd*  
**Fig. 9 Pottery illustrations**  
 Scale 1:4 at A4

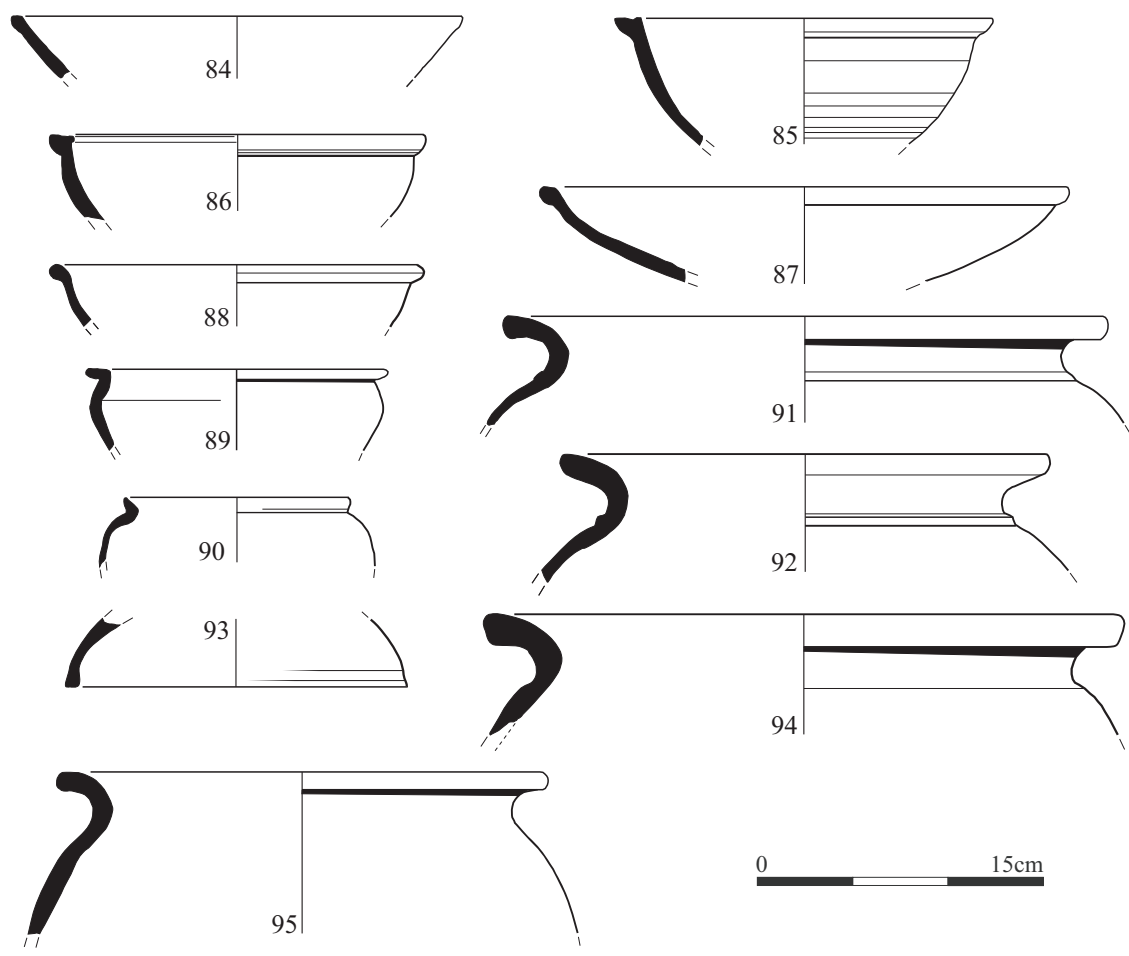




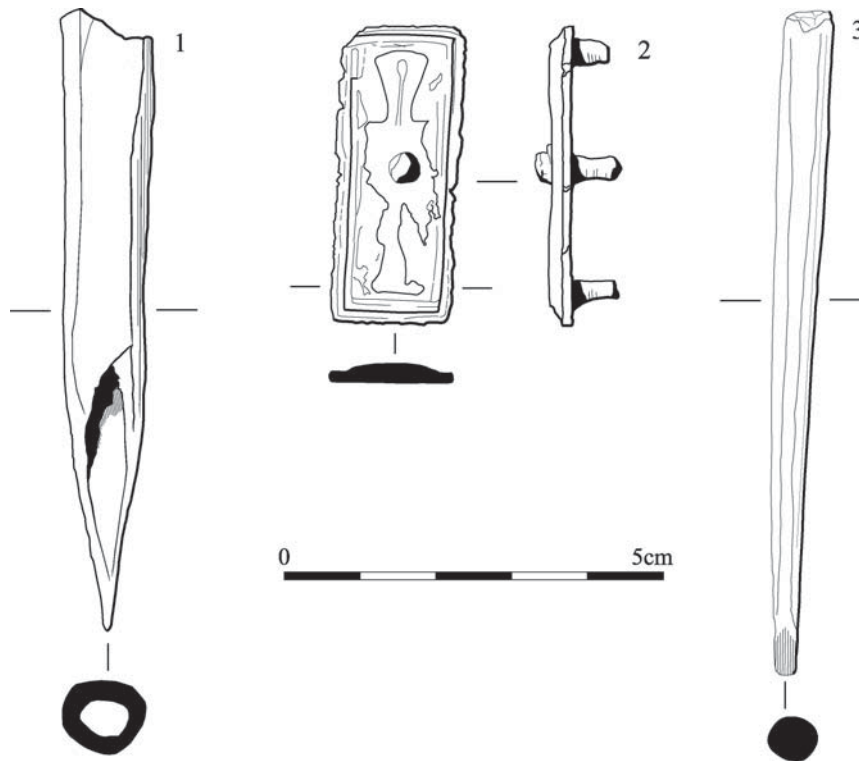
<i>Archaeological Solutions Ltd</i>
<b>Fig. 10 Pottery illustrations</b>
Scale 1:4 at A4



Archaeological Solutions Ltd  
**Fig. 11 Pottery illustrations**  
 Scale 1:4 at A4



<i>Archaeological Solutions Ltd</i>
<b>Fig. 12 Pottery illustrations</b>
Scale 1:4 at A4



<i>Archaeological Solutions Ltd</i>
<b>Fig. 13 Small finds</b>
Scale 1:1 at A4