Washington Square, RAF Mildenhall
MNL 639

Post Excavation Assessment Report

SCCAS Report No. 2012/133

Client: Defence Infrastructure Organisation

Author: Andrew Tester

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HER Information

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Summary

This report presents the results of archaeological excavations that have taken place over an area of approximately 3,700 square metres on Washington Square, RAF Mildenhall. The report provides a quantification and assessment of the site archive and considers the potential of that archive to address specific research questions. The significance of the data is assessed in relation to the regional research agenda and recommendations are made for the dissemination of the results of the project.

The site lies at approximately 5m above sea level and was very close to the edge of the fens from prehistoric times up until the post-medieval period when large areas were drained. The fens included many square miles of inland marsh and wetland surrounded by an area of light sandy soil. These conditions were favourable for grazing cattle and sheep and ploughing, which could be done with light tools, and hunting in the wetland itself.

The evidence at Washington Square adds to work already carried out at Heritage Park (MNL 532), which is probably part of the same settlement. Work to assessment has confirmed a multi period site with prehistoric burials, and enclosures and field systems dating from the Late Iron Age through the Roman period to the post-medieval period.

The earliest ditches running northeast-southwest across the south-east end of the site, which have been re-cut many times, are late Iron Age to early Roman. They seem to suggest a sequence of enclosures that was centred to the east of the site. There are a number of pits which are provisionally interpreted as waterholes that are concentrated in the lower areas and these are also thought to be late Iron Age/Early Roman.

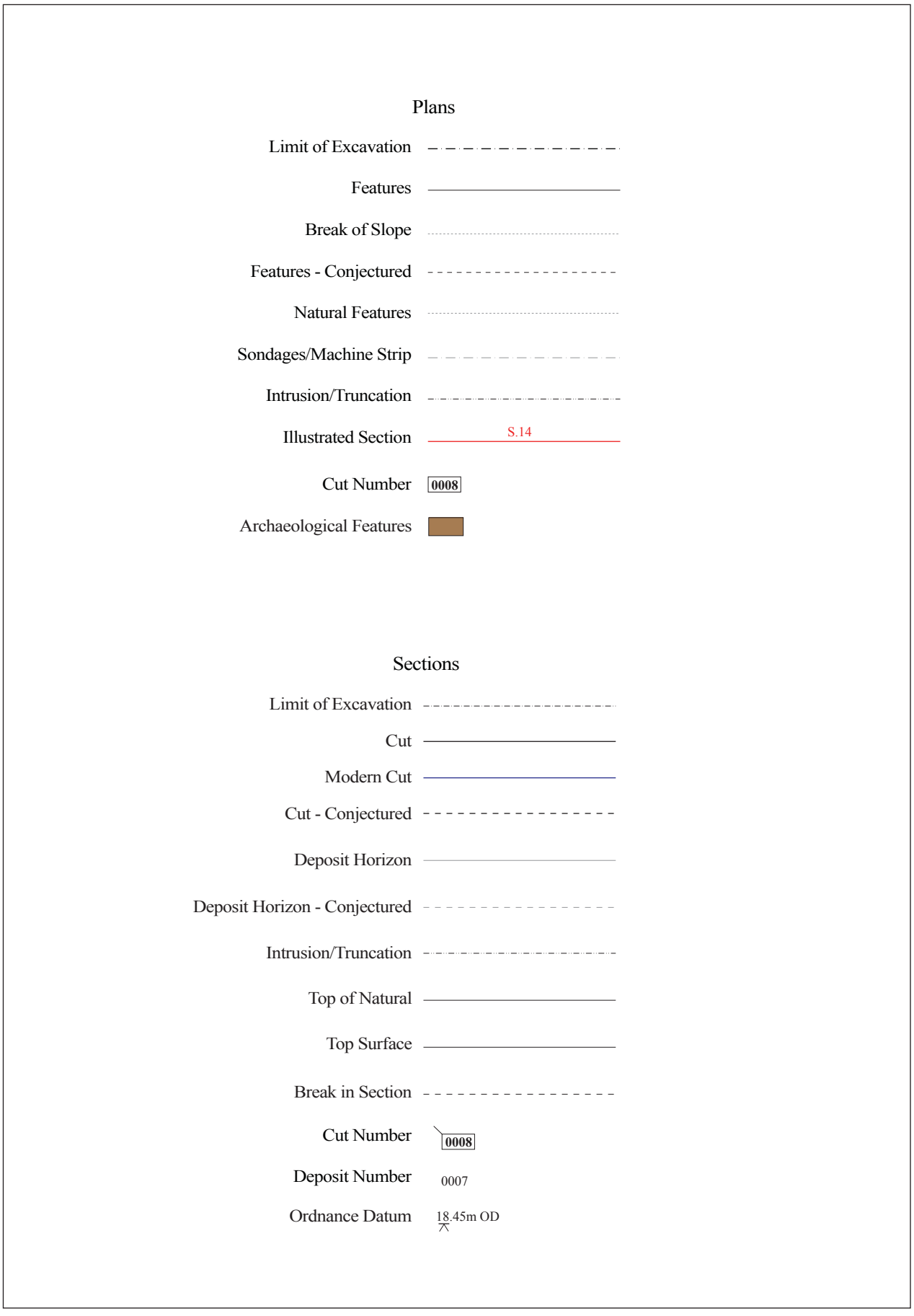
There are at least three more separate phases dating to the Roman period. The alignment of the enclosures changes and they extend west across the site. The later sequence of ditches dates from the later Roman period and can be traced over large areas of the site. They consist of a series of close set parallel ditches that infilled gradually, and are likely to have been open between raised beds which must have been related to planting - what was being grown is unknown at present. The latest enclosure ditches were infilled with Roman finds including animal bone and large amounts of

pottery; it is clear from this that people were living on or next to the site and disposing of rubbish in the adjacent ditches. The pottery assemblage revealed a long period of occupation but with significant quantities dating from the late 3rd to 4th centuries. The site was metal detected on several occasions which led to the recovery of an Iron Age brooch and two enamelled Roman disc brooches, one of which was gilded. A large enamelled horse fitting was also found. Coins from the site include a group of five that are silver and date from the Iron Age which were probably a small hoard.

Three crouched burials concentrated at the western end of the site are likely to be prehistoric, although attempts to achieve successful radiocarbon dates have failed. A fourth burial laid out on a north-south axis in a ditch with the head at the north end was dated as Roman.

Other features include a network of probable drainage channels dating from the post-medieval period indicating the reclamation of marginal land. Evidence of the WW II base was uncovered with the flagpole stand from the parade ground and three air raid shelters serving the buildings that surrounded the square.

Drawing Conventions



1. Introduction

Excavations were carried out on the site of Washington Square on RAF Mildenhall in advance of its redevelopment to convert a car park into a public open space with paths between trees and picnic areas. The area of the development was *c.*3,700 square metres. The car park consists of tarmac laid over imported course gravel. Below this the site had been levelled and the earlier ground surface, relating to the WW II parade ground removed. The work also included the excavation of two new access roads for fire trucks at the southern end of the site.

1.1 Site location

The site is located at TL 683 776 in what was formerly the administrative centre of the WWII RAF base. The square is bounded by pre-Second World War buildings on all sides with open spaces between.

1.2 The scope of the project

This report has been produced by SCCAS and funded by MOD Defence Infrastructure Organisation. It forms an assessment of the potential and significance of the results of the field work and outlines the further work required to complete the analysis of the results and to ensure appropriate dissemination. The report is consistent with the principles of Management of Research Projects in the Historic Environment (MORPHE), notably Project Planning Note 3 Archaeological Excavations (English Heritage, 2008). The principal aims of the project are as follows:

Summarise the results of the archaeological fieldwork

- Quantify the site archive and review the post-excavation work that has been undertaken to date
- Assess the potential of the site archive to answer research aims defined in the Brief and Specification
- Assess the significance of the data in relation to the current regional research framework (Medlycott, 2011) and with reference to previous regional research guidelines (Glazebrook, 1997; Brown & Glazebrook, 2000)
- Make recommendations for further analysis (if appropriate) and dissemination of the results of the fieldwork

1.3 Circumstances and dates of fieldwork

An archaeological evaluation was carried out on the site of Washington Square following advice from Judith Plouviez, SCCAS, Conservation Team, on behalf of the local planning authority and a Written Scheme of Investigation prepared (WSI). Although the presence of archaeology on the site was suspected, the density and level of preservation was unknown. It was therefore agreed that the overlying tarmac should be removed by the main contractors and that trial trenches should then be excavated through the underlying foundation deposit of 'type 1 gravel and sand'. The results of this trenching indicated that archaeological deposits, largely Roman in date, survived, albeit truncated, immediately below the existing type 1 gravel layer. As mitigation it was agreed to excavate the site following the controlled strip of the gravel. The evaluation and excavations took place between July and October 2010.

1.4 Methodology

The Type 1 sub-base, identified during the evaluation was removed by machine across the site under archaeological supervision. This exposed cut features outlined against yellow sand over most areas with a darker grey sand soil surviving in the eastern corner. The site was hoed clean and the surface planned at a scale of 1:50. The identified features were sampled by sectioning and surface plans were either amended or a further series of excavated plans produced. Following the main excavation two side roads, providing fire engine access from the south-east, were excavated.

Decisions were made during the excavation to remove less of the early modern features, notably the post-medieval drainage features to allow a more targeted approach for features dating to Iron Age and Roman periods.

The site was located using a Total Station Theodolite with levels supplied using a GPS. A single sequence numbering system was used for all contexts, and digital colour photographs were taken at all stages which are included in the site archive. Site data has been input onto an MS access database and recorded using the county Historic Environment Record (HER) number MNL 639.

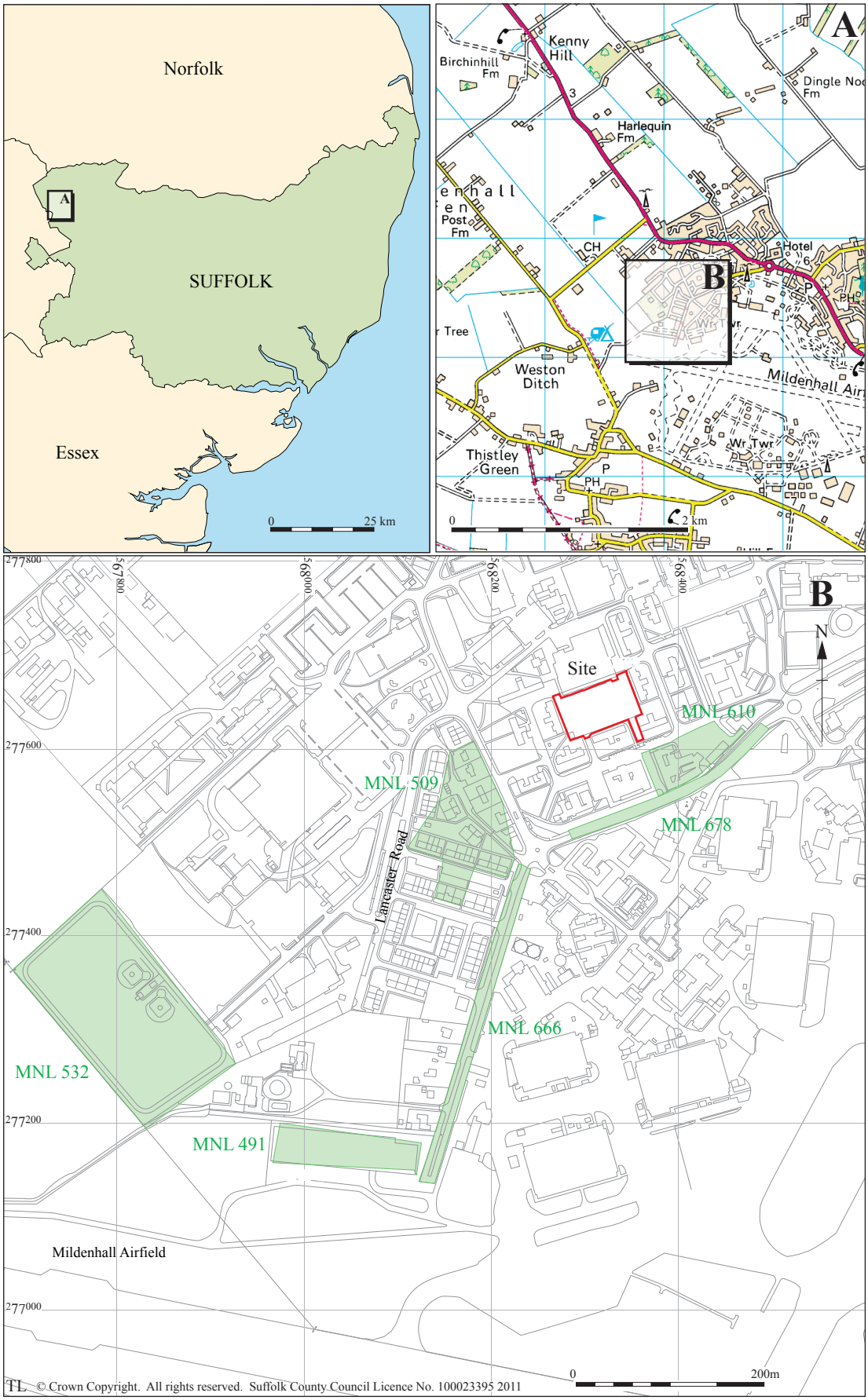


Figure 1. Location plan showing development area red and HER sites mentioned in the text (green)

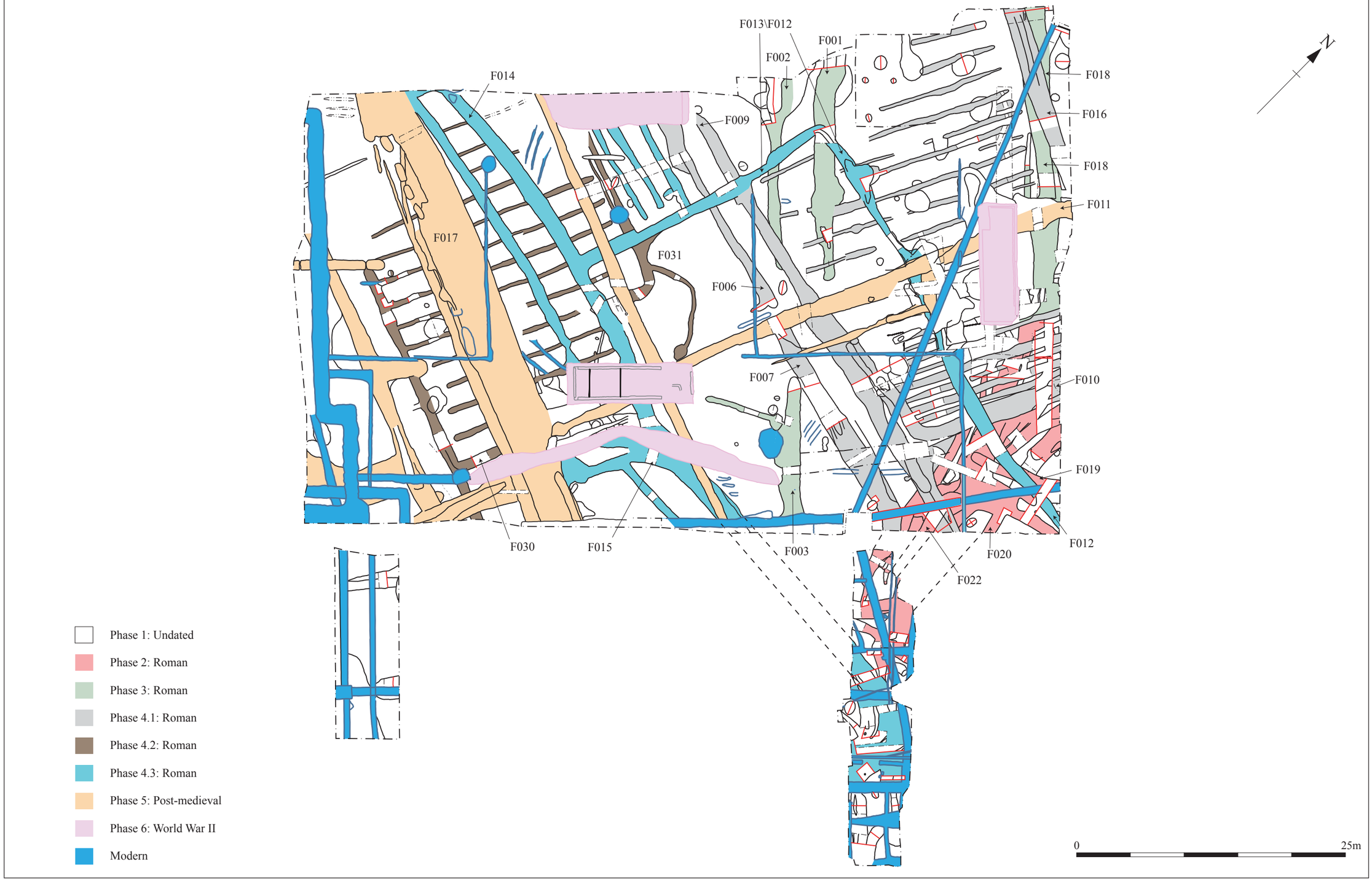


Figure 2. Overall phase plan with selected Feature numbers

2 Geological, topographic and archaeological background

The site lies at *c.* 4.8m OD; the bedrock of Cretaceous chalk lies immediately below the surface over some of the site, but elsewhere it is buried beneath fine sand laid down more recently during the Quaternary period (British Geological Survey – reference in bib needed). Although the site was generally dry, the water table is relatively close to the surface and drying peat deposits were identified within several pits and hollows across the site. In the wider landscape Washington Square lies on the edge of the former wetlands that bordered the Fens that lie to the north and west of RAF Mildenhall.

This is a rich area for early settlement with intense evidence of occupation recorded along the edge of the Fens from the Late Bronze Age through to the Early Anglo-Saxon period (Fig. 1). Recorded interventions on the county Historic Environment Record (HER) include:

MNL 491 where Iron Age and Roman remains were excavated along with Iron Age burials in the new parking lots to the south east of MNL 666.

MNL 509 where Roman remains were found along Halifax Road, Wellington Road and Dakota Road during monitoring to the west.

MNL 532 where excavations uncovered a wide multi-period settlement from prehistoric through to the Early Anglo-Saxon period beneath the new baseball park to the south west.

MNL 610, to the south of the site where the truncated remains of Roman settlement were uncovered.

MNL 678 to the south of the site where evidence was severely truncated but is likely to be a continuation of the Roman settlement.

It is suggested that the intense settlement area skirts the fen edge surviving approximately up to the line of the 5m contour that passes through the civilian and general administrative areas of the airbase to the north and west of the airfield. Beyond

the airbase, housing developments to the north of the site have revealed further extensive areas of excavation. Sites include Beck Row Mildenhall MNL 502, (Bales 2004); MNL 608, MNL 570 and MNL 618, (a site which covered 3.7 hectares). The evidence from these excavations is complementary to the present work, and shows that prehistoric and Roman fen edge activity continued with evidence for animal management (particularly cattle) and arable farming.

3 Original research aims

The original research aims for the project were defined in the Written Scheme of Investigation as follows:

To identify and fully record all archaeological deposits which would otherwise be damaged or removed by the redevelopment.

To investigate the potential for the site produce evidence for, in particular, Roman occupation.

To examine this site in relation to other excavations of Roman sites within RAF Mildenhall.

To assess the potential of the evidence to contribute to regional research priorities for the Roman period.

To identify a suitable vehicle to disseminate the results to both a professional archaeological and local audience.

4 Site sequence: results of the fieldwork

4.1 Introduction

The excavation recorded a sequence of field systems either based on N-S and E-W alignment, or NW-SE and NE-SW. These were predominantly Roman although there were some earlier finds and a post-medieval field system. The Roman ditch systems have been phased based on a combination of their place in the stratigraphic sequence, finds dating, spatial relationships and physical appearance. These are all shown on a combined phase plan (Fig. 2) and individual features are described in detail in Appendix 1 .

4.2 Prehistoric

Phase 1

No features have been positively identified to the Iron Age or earlier at this stage, although several pits which appear at the base of the stratigraphic sequence are likely to be prehistoric. Four skeletons were excavated of which two are characteristically early: both of these were crouched burials, one of which was very tightly bound suggesting that the body may have decayed before it was buried. Both inhumations appeared in the same area of site, which may suggest a local focus such as a natural feature or possibly a burial mound which has now been lost. Flint tools dating from the Neolithic to the Iron Age have also been found. A significant find was a probable cache of five Iron Age coins dating from the first century AD, of the Iceni; although not all in the same context they were located together and are likely to be a small hoard. Only twenty-six sherds of prehistoric pottery were recovered, the majority of which are flint-tempered. Other fabric types include sand-tempered sherds which are typical of assemblages dating to the Middle Iron Age whilst the mixed sand and flint-tempered sherds suggest a Late Bronze Age or Iron Age date. One context produced both fabric types, which suggests that there may be a chronological difference between the fabrics with the flint-tempered sherds being earlier.

4.3 Roman

The main period of occupation spans the Roman period. Due to the openness of ditches and the consequent likelihood of intrusive finds the earliest of the ditch systems may be late Iron Age. The provisional sequence is presented below. Selected features mentioned in the text have been numbered on figure 2.

Phase 2

A sequence of probably related ditches in the eastern corner of the site forms a 'T' shape, with the top of the 'T' aligned north to south. Examples of this system include ditches F020 and F021, which measured between 1m and 1.7m wide and between 0.35m and 0.6m in depth and ditch F022, which was *c*.2m wide and 0.8m deep. Ditch F019 aligned east-west and measured 0.9m wide and 0.12m deep. Variations in dimensions were often related to evidence of re-cutting that clearly happened frequently. Occasionally there was orange sand and chalk but the majority of the fills were similar with mid-grey sand. The ditches appear to have been open and may indicate settlement or field boundaries. The dating of this ditch group is problematic; the upper fills were often contiguous with an homogenous grey sand making the separation of finds difficult. The system is stratigraphically early but the pottery from these contexts ranges in date from the 2nd century to the late 3/4th centuries. The quantities of late pottery were low and it is reasonable to suggest that some of this material was from fills that post-dated the use of the ditch, rather accumulating in the abandonment fills towards the top, which may post-date the use of the ditch by some considerable time. Targeted examination of the finds groups across a range of ditches may help to resolve these issues. This system appears to continue into the south-east road extension to the site.

Phase 3

Three parallel ditches on the north-east side of the site appear to indicate a boundary ditch with an opening more than one phase. Ditches F002 and F003 form an almost straight boundary with a gap of *c*.10m between them; Ditch F001 was parallel to F002 albeit 3m to the northeast. A fourth ditch *c.* 9m to the east and also stratigraphically early is assigned to this phase because of its alignment, but it may belong to Phase 2. The ditches varied in width with F003 the widest at *c.*2.4m and F002 the narrowest at

0.8m. This may be misleading however as only ditch F018 was up to 0.52m deep with the rest all being shallower. This suggests that they were wide and 'U' shaped. Aside from their stratigraphic position and alignment these ditches had a similar fill of grey brown sand with few finds (there was also a peaty layer towards the base of ditch F001). A single pot sherd from F018 was dated to the 3rd/4th century with the remainder belonging to the1st /2nd century. It is highly likely that the later sherd was intrusive (F018 was cut by ditch F016 from Phase 4.1). The low quantity of pottery from these features may be an indication that the area lay towards the edge of settlement at that time where little rubbish accumulated. The wide opening between the ditches is suggestive of a field boundary possibly related to animal husbandry rather than the more secure entrance one might expect where livestock required close containment to avoid them straying into living space or onto arable land.

Phase 4

Phase 4 comprises a sequence of ditches associated with field systems; although stratigraphically separate they are not too dissimilar in alignment and may have been close in date.

Phase 4.1

This phase occurs on the north-east side of the site and includes a probable arable field system which comprises at least sixteen parallel rows. Two sets of rows were recorded with one group much shallower than the other which was completely eroded in places. The site was truncated and the previous ground surface undulating, which accounts for the variation in survival of the evidence. Contemporary ditches were between *c.*1.7m to 2.4m apart and had a maximum depth of *c*.0.5m. The ditch fills were not homogenous but revealed layering, which is a sign that they were not infilled in a single event. This in turn leads to the interpretation that the ditches were once open and that the soil may have been banked up between the ditches creating ridges of soil. At approximately right angles to the fields are boundary ditches north-east (F016) and south-west (F006, F009 and F010) and F032). As with the field system several phases are represented. Ditches F006 and F007 appear to be the earliest on the south-west side with ditch F016 to the north-east, based on the stratigraphic evidence. Closer analysis of individual sections and phased finds groups may help to confirm or expand these preliminary interpretations. Ditches F006 had a terminal with evidence for two postholes with a gap

of between 1m and 2m before continuing as ditch F007 (the end of ditch F007 was cut away by a post-medieval ditch F011). This was probably a gated entrance, and it was located opposite a gap in the field system which was over 6m wide, which may have been deliberate. At their widest ditch F006 was 1.3m and ditch F007up to 2m but there is evidence of re-cutting and individual phases of ditch are likely to have been narrower. Ditch F009 varied between 1.4 and 1.5m in width although the south-eastern segment was wider where it had been re-cut by ditch F032.

The pottery dating for ditches F006 and F007 ranged from the mid to late 1st century (F006) to mid to late 2nd century (F007). The total pottery count from these features was eighty-six fragments and a closer examination of the contexts may help to refine the dating and phasing further. Ditch F016 contained no significant pottery. Ditch F010 cut several of the 'horticultural' ditches but conforms sufficiently to the existing field pattern to suggest that it was extant when F010 was in use; it was up to 1.4m wide and up to 0.82m deep and was finds rich with 106 pottery sherds with a significant group dating to the 3rd to 4th century. The fill of Ditch F010 included large amounts of charcoal with more evidence for backfilling than the earlier phase. A large sample of fresh charcoal was retrieved close to the base of the ditch and parts of the feature were fire reddened. The plant macrofossil report for the context shows that 'the second stage of crop processing involved parching and/or pounding the spikelet to release the grain. These processes produce diagnostic waste elements of chaff including glume bases and spikelet forks which are seen in several of the samples'. The inclusion of a moderate density of charred cereal grains could be interpreted as separate deposits of grain that have been accidentally burnt. It seems unlikely that the grain became burnt during the parching process itself as no complete spikelets were recovered. Peas are less likely to be exposed to heat than grain as they do not require parching and so the presence of peas within these assemblages suggests that they are deriving from culinary accidents where food is either accidentally burnt or swept into the cooking fire. Wheat seems to have been the principal crop utilised at this site' (Rachel Fosberry, section 5.5.5 below). The evidence from the ditch considered alongside the rest of the site evidence would suggest that this processing may probably have occurred close to the site of production rather than within the settlement. There was, however, a layer of surface rubbish close by and it is possible that habitation had moved closer to the site by the late Roman period.

Closer investigation of the stratigraphic evidence for F010, and the surface layers excavated close by, may help to establish whether spelt wheat cultivation was taking place on the site.

Phase 4.2

This phase occurs on the south-west side of the site. It is mostly confined to a single sequence of parallel ditches with associated boundaries. The ditches are c. 2.3m apart. The southern boundary ditch is interesting in that several of the parallel, 'horticultural ditches' fell short of the boundary while others continued into it; this may indicate that the spoil from the boundary was heaped on the inside, which accounts for the gap, but that in places the horticultural ditches were re-dug. These ditches produced few finds, only twenty-three sherds of pottery combined; with a latest date of mid 2nd century to mid 3rd century. The totals provided here are insufficient to be certain of the dating given the overall paucity of late Roman material particularly as late Roman pottery made up only 2.5% of the total for the entire site. In light of this it is possible that phases 4.1 and 4.2 are contemporary albeit separated by an open space or trackway running across the middle of the site.

Phase 4.3

This phase was on a slightly different alignment to phases 4.1 and 4.2. While some parallel field ditches are suggested towards the west of the site a large open field was created across the middle of the site with at least two boundary ditches to the south. This system can be traced to the eastern road extension to the site where the ditches return to the south with evidence for at least four re-cuts. Whether the new field system represents a change in horticultural practice, with less heaping up of soil and simply open fields, or reflects a change in land use, with more pastoral farming, remains uncertain; the light fenland soil would undoubtedly lose fertility over a very few years if not constantly manured.

Ditch F012 and F013 cut all other phases of Roman occupation; despite this the combined total of 54 sherds of pottery produced none later dating than the mid 2nd century. It is possible that the pottery count may be increased by closer analysis of the trenching carried out in the south-eastern road extension.

Conclusions on the pottery dating

Although the date range of the pottery recovered from the site spans the mid 1st-4th century, the main period of use/deposition of pottery appears to be in the 2nd-3rd centuries. While there is little indication from the pottery of significant pre-Flavian (before AD 69) activity there is a small quantity of pottery which can be dated to the late Roman period of the late 3rd-4th century. The finds have not yet been analysed by phase and it is hoped that this will allow a clearer understanding of the economy and function of the site, and changes that occurred through time.

4.4 Post-medieval

The water table in this area rose from the Middle Iron Age to the Late Anglo-Saxon period (Tester *et al* forthcoming). .The next phase of evidence is for the drainage of the site in order to reclaim marginal land for agriculture.

A later arrangement of ditches characterised by a dark brown friable 'peaty' fill is tentatively dated to the 17th-18th centuries. The most persistent features are at least five parallel ditches running east to west that overlap. At least one of these ditches comprised an alignment of pits. These have been noted elsewhere on Mildenhall (MNL 532) where the pits had an organic fill, probably of brushwood designed to prevent the pits from silting up too quickly and facilitating drainage. In areas close to the site where a more complete soil profile has survived such as MNL 666 and MNL 678 (SCCAS Reports No. 2012/098 and 2011/197) an homogenous soil with post-medieval finds is evidence for arable cultivation, which continued until recent times.

4.5 World War II

An RAF base was established in 1931 becoming operational in 1934. The base was active throughout WWII and was attacked by the Luftwaffe on several occasions. Evidence of the parade ground that was replaced by the car park could be seen in the iron setting for a flag pole opposite Building 411. Three air-raid shelters were uncovered opposite the front of Buildings 436, 438 and 411. Corrugated iron was used to build a semi-circular frame that was reinforced with concrete. In addition a probable slit-trench was placed in front of Building 411, presumably a hurried response to the German raids.

An RAF cap badge was found by metal detector after the site strip and is perhaps, a reminder of the *c.*2,000 aircrew flying from Mildenhall who never returned.

4.6 Unphased

A number of features are unphased although the unusually good stratigraphy, for a rural site has meant the majority are pits and postholes. Many of the pits will be dateable to within the Roman period or perhaps earlier. Analysis of these groups as a whole is likely to allow more features to be phased. Richard McPhail has noted that 'a number of shallow pits occur (Fig. 6), which because they have a marked minerogenic peat fill, are interpreted as shallow wells tapping the late Roman and Saxon rise in groundwater (*cf.* Midland River sites and Scole-Oakley bypass)(Robinson, 1992; Tester, pers. comm.). It is possible of course that these were employed to water plants cultivated along the parallel shallow ditches. Subsequent to abandonment, these wells became infilled with a very dark grey (10YR3/1) minerogenic peat.

Plate 1 Excavation from the western corner

Plate 2 excavation from the north corner

Plate 3 Excavation detail from the eastern corner, 2m scales

Plate 4 Detail of ditches from the eastern corner, 2m scale

Plate 5 Detail of crouch burial 0678, scales at 0.2m

Plate 6 Detail of crouch burial 0295, 1m scale

5 Quantification and assessment

5.1 Post-excavation review

The following post-excavation tasks have been completed:

The site records have been entered onto a database

Most of the features have been grouped and assigned to a phase

The finds have been quantified and a preliminary assessment carried out including the spot dating of the main features

Radiocarbon dating of burials has been attempted although this was largely unsuccessful due to the strong acidity of the soil.

All site records have been input onto a Microsoft Access database. All hand drawn plans have been digitised into the Mapinfo GIS programme.

The digital records are stored at: Environmental Protection\ Conservation\ Archaeology\Current Recording Projects\Mildenhall\MNL 639 RAFM Washington Sq\Excavation. Photographs have been labelled but await archiving.

5.2 Quantification of the stratigraphic archive

Record type	Number	Detail
Context sheets	789	0001- 0789
Soil sample sheets	30	Sub samples processed
Small finds sheets	52	1001-
Section sheets	18	Sections drawn at a scale of 1:20
Plan sheets	21	Plans drawn at a scale of1:50
Photos	73+	73 archived many misc

Table 1. Quantification of the physical stratigraphic archive

5.3 Quantification and assessment of the bulk finds archive

Steve Benfield

5.3.1 Introduction

The quantities of bulk finds types recovered during the excavation are listed in Table 2. A full quantification of the finds by context is included as Appendix 2. In addition to the bulk finds categories there are a number of individually numbered small finds (SF) listed in Appendix 7 and human skeletal remains from four inhumation burials (Appendix 8).

Find type	No.	Wt/g
Pottery	934	18448
CBM	6	2012
Fired clay	2	12
Clay pipe	5	23
Quernstone	1	518
Fe nails	3	44
Worked flints	28	431
Burnt flint / heated stone	5	425
Animal bone	3521	27533
Shell	59	215
Charcoal	4	5

Table 2. Bulk finds quantities

5.3.2 Pottery

Stephen Benfield

Introduction

Pottery dating to the prehistoric, Roman and post-medieval periods was recovered (Table 3) and is discussed by separate period below. All of the pottery is listed by context in Appendix 4.

Period	No	Wt/g
Prehistoric	26	156
Roman	903	18402
Post-medieval	5	250
Total	934	18808

Table 3. Pottery quantities by period

Prehistoric pottery

Introduction

A small quantity of prehistoric pottery was recovered (26 sherds weighing 156g). The average sherd weight is 6g. The ceramics were quantified by number and weight and divided between two broad fabric types, that is flint-tempered and sand-tempered fabrics. Most was recovered as single sherds, or small groups of sherds that are probably from one vessel. Only one context (0230) produced sherds of both fabric types. The pottery is shown by fabric type in Table 4.

Fabric name	Fabric	No	Wt/g
Hand-made flint-tempered	HMF	14	88
Hand-made sand-tempered	HMS	12	68
Total		26	156

Table 4. Prehistoric pottery by fabric

Discussion

While sherds from one vessel can be dated to the Late Neolithic-Early Bronze Age, the majority of the pottery is probably Iron Age, and includes some which is of Middle Iron Age type.

Sherds of decorated pottery were recovered from context 0515. The sherds include part of a base, with two body sherds and two small sherd fragments. Four of the sherds (including the base) are in a buff to red coloured sandy fabric and probably belong to the same vessel. Three are decorated either with individual finger tip impressions, dot stab marks in rows or angled incised strokes. The nature of the decoration, the fabric and the relatively thin body sherds allow the vessel to be identified as a Beaker which can be dated to the period of the Late Neolithic-Early Bronze Age.

Two small joining sherds from context 0494 are in a red fabric which appears to contain some sparse, pale grog-temper or pale clay pellets. There is a faint line running across the sherds which might be decoration, but is probably an incidental surface mark. A number of surface indentations appear to result from burnt out organic fragments rather than applied decoration. As such, while the fabric and surface of these two sherds might possibly indicate a Neolithic or Bronze Age pot the sherds cannot be closely dated.

The majority of the prehistoric pottery consists of undecorated body sherds. There is one rim sherd (0622), but most of the dating of the assemblage relies on the fabric types present.

While just over half of the sherds contain some flint-temper this is present in relatively moderate quantities and mixed with sand-temper. This fabric type includes the rim sherd (0622) which is everted with a plain flat top. The number of flint-tempered sherds recorded is bolstered by six from one context (0320) which are probably all from the same vessel, so that overall the quantity of pottery represented by sherds with flint-

tempered and exclusively sand-tempered sherds is probably fairly even. The surface colour of all of these sherds varies between dark grey and brown. There is a small amount of burnt residue on the inside of one sand-tempered sherd from 0230.

The sand-tempered sherds (0141, 0182 0191, 0224, 0230, 0523, and 0628) are typical of assemblages dating to the Middle Iron Age, especially 0191 and 0227 which also have some organic marks in the surfaces. While not so closely datable, the nature and fabric of the sherds containing flint and sand-temper (0230, 0320, 0331, 0622 and 0716) suggests a Late Bronze Age or Iron Age date. That only one context (0230) produced sherds from both fabric types might suggest a chronological difference between these two fabrics, in which case the sherds with flint-temper would be the earlier in date, but the small quantity of pottery from a limited number of contexts makes any such conclusions unreliable.

Roman pottery

Introduction

In total the Roman pottery assemblage consists of 903 sherds with a combined weight of 18,402g and a total Eve of 14.38. The average sherd weight is 43g.

The Roman pottery has been quantified using the Suffolk (Pakenham) pottery fabric and form type series (unpublished). All of the sherds were divided between fabric categories and the vessel forms were recorded. The Suffolk type series was supplemented by the Colchester, Camulodunum (Cam) type series (Hawkes and Hull 1947, Hull 1963) and Horningsea form types for large storage jars were recorded where possible by reference to Evans 1991. Imported wares, consisting of samian, were referred to by common names following Webster (1996). The number of sherds, weight and Eve (estimated vessel equivalence) was recorded for each fabric type. The vessel rim diameters were also recorded.

The Roman pottery is shown by fabric type in Table 5 and a full catalogue is provided as Appendix 4.

Fabric name	Fabric	No	% No.	Wt/g	% Wt	Eve
Imported finewares:						
South Gaulish samian	SASG	10	1.1	87	0.4	0.15
Central Gaulish samian (Lezoux)	SACG	21	2.3	219	1.2	1.15
East Gaulish samian	SAEG	4	0.4	215	1.2	0.23
Sub-total		35	3.8	521	2.8	1.53
Local and regional finewares:						
Colchester colour-coated wares	COLC	5	0.5	21	0.1	0.20
Unspecified colour-coated wares	UCC	2	0.2	1	0	
Sub-total		7	0.7	22	0.1	0.20
Local and regional coarsewares:						
Black burnished ware Type 1	BB1	2	0.2	22	0.1	
Black-surfaced wares	BSW	180	19.9	2328	12.9	3.13
Colchester buff ware mortaria	COLBM	1	0.1	395	2.2	0.20
Grey micaceous wares (black-surfaced)	GMB	150	16.6	2252	12.5	1.79
Grey micaceous wares	GMG	39	4.3	425	2.3	1.00
Horningsea	HOG	112	12.4	4730	24.2	0.69
Horningsea black surfaced	HOGB	72	7.9	1831	10.1	0.57
Miscellaneous buff wares	BUF	107	11.8	1483	8.2	1.20
Miscellaneous sandy grey wares	GX	152	16.8	3277	18.2	2.71
Miscellaneous sandy red coarsewares	RX	3	0.3	36	0.2	
Nene Valley grey ware	NVG	1	0.1	27	0.1	0.06
Storage jar fabrics	STOR	9	1.0	149	0.8	
Unspecified shell-tempered wares	SH	4	0.4	68	0.4	
Verulamium-region white wares	VRW	5	0.5	110	0.6	0.38
West Stowe fine reduced wares	WSF	1	0.1	7	0	
White-slipped oxidised wares	WSO	1	0.1	6	0	
Sub-total		839	92.5	17146	92.8	11.73
Late specialist wares:						
Hadham oxidised ware	HAX	1	0.1	8	0	0.22
Late shell-tempered ware	LSH	14	1.5	276	1.5	0.50
Nene valley colour-coated ware	NVC	7	0.7	69	0.4	0.06
Sub-total		22	2.3	353	1.9	0.78
Total		903	99.3	18042	97.6	14.24

Table 5. Quantity of Roman pottery by fabric

The pottery assemblage

Imported finewares (samian)

The imported fineware consists entirely of samian. Both mould-decorated and plain vessel forms are present. All of the three major production areas South, Central and East Gaul are represented. The majority of the samian is from Central Gaul (Lezoux) (SACG) with smaller amounts from South (SASG) and East Gaulish (SAEG) production centres. Central Gaulish samian makes up 60% of the samian total by sherds, 42% by weight and 75% by Eve; the overall percentage by weight being significantly lowered by large sherds from one East Gaulish vessel.

The South Gaulish samian can be dated to the second half of the 1st century. Forms recorded in this fabric are the cup Dr 27 and the decorated bowl form Dr 37 which dates to after *c*. AD 70. The decorated bowl sherd (0656) retains part of the ovolo border with a bead border below. Vessel forms in Central Gaulish samian, which is current throughout the 2nd century, includes plainware vessel types of the early and early-mid 2nd century date (Curle 11, Dr 18/31 and Dr 27) and vessel types dating to the mid-late 2nd century (Dr 31 and Walters 79). The cup form Dr 33 is also recorded. It can be noted that no decorated sherds were recorded in this samian fabric. Only one vessel form in East Gaulish samian could be identified, the bowl form Dr 31 which is current from the mid-late 2nd to mid 3rd century.

A small number of the samian sherds have been burnt. These are a South Gaulish sherd (0656), one possible South Gaulish sherd (0626) and two Central Gaulish sherds (0661 and 0656). The different dates of the burnt fabric types indicates unrelated incidental burning of these sherds, although it can be noted that two of the burnt samian sherds are from one context (0656).

Local and regional finewares

Regionally important fine (colour-coated) wares are represented by just a few sherds. Most could be sourced as Late Colchester colour-coated ware (COLC), which is current in the mid 2nd-mid 3rd century. Where identifiable these Colchester products are beakers; the only specific form identified being a corniced rim beaker (0631) of form 3.6.7 (Cam 391) which can be dated to the mid 2nd-early 3rd century (Symonds and Wade 1999, 485). Two sherds of unspecified fine colour-coated ware could not be confidently sourced, but are probably products from regional kiln sites rather than imports.

Local and regional coarsewares

Local and regional coarsewares make up the vast majority of the pottery recovered from the site. The largest quantity of pottery within this group of fabrics (in terms of sherd count and weight) can be sourced to the Cambridgeshire Horningsea industry (Fabrics HOG & HOGB) which is the closest of the major Roman kiln groups to the site, located about fourteen miles to the south-west. Horningsea wares account for 22% by sherd

and 38% by weight of the coarse wares (excluding the Late specialist wares). However, almost all of the sherds recorded in Horningsea fabrics are from large jars or large storage jars, reflected in the relatively low total Eve count of 1.26.

In terms of Eves, the largest fabric groups are Black surface wares (BSW) and Miscellaneous sandy grey wares (GX). Other important fabric types in terms of quantity are Grey micaceous wares, (black surfaced) (GMB) and miscellaneous buff wares (BUF). None of these fabrics are specifically sourced, although many of the micaceous wares (GMB and GMG) are likely to be products of the Wattisfield area (Arthur 2004, 160). There is one large sherd from a Colchester buff ware *mortaria* (COLBM) (0285) and as this and other Colchester products were reaching the site (see above) Colchester may also be the source of some of the Buff wares which include a small number of sherds identified as from flagons (0156 and 0324).

The products of the Horningsea industry reaching the site appear to be mostly large jars of Evans form types 1-2, 3-8 and 9-11 (Evans 1991, figs. 2-3). These appear to provide most of the large storage size jars used on the site as the sherds in other storage jar fabrics (STOR) form only a small part of the assemblage. Other coarseware industries were supplying mainly jars and dishes/bowls. The most commonly recorded forms are slack shouldered jars of forms 4.5 (plain) and 4.6 (with a groove(s) around the shoulder) and bead rim bowls of form 6.18; with lesser numbers recorded from bowls with a girth groove(s) of form 5.4 and rim sherds from plain and groove rim dishes of form 6.18. Other vessel types are much less common representing one or just a few pots. There are also small numbers of sherds from beakers with panel-dot decoration (0375 and 0737) and a frilled *tazza* (0593 and 0632) in Grey micaceous wares (GMG).

The incidences of sherds recorded for other fabric types are much less common. Individual or small numbers of sherds can be sourced to kilns in the region of Poole in Dorset – Black burnished ware Type1 (BB1), the Verulamium area (VRW), the Nene Valley (NVG) and probably to the kilns around West Stow (WSF); although the Nene Valley may also have provided some of the unsourced grey wares (GX) as sherds from one vessel (0551 and 0595) are from a slash-cordoned jar which is considered a typical Nene Valley vessel type (Perrin 1999, 80 and fig. 56 nos. 21-25). The identified forms in these fabrics are: BB1 – dish (0364); VRW – jar (0631) and a reed-rimmed bowl of form

6.3 (0663); NVG - dish of form 6.19 (0631) and probably a jar (see above); WSF – stamp decorated bowl of form 6.6 (0209).

Late specialist wares

The Late specialist wares, which can be identified as dating to the period of the mid/late 3rd-4th century, form only a small part of the assemblage – that is 2.5% or less for number, weight and Eve.

The largest group are late shell-tempered wares (LSH), the vessel forms recorded in this fabric all being jars. These can probably be sourced to the South Midlands area. There are also a small number of sherds of Nene Valley colour-coated ware (NVC) which, where identified are all from beakers. A single sherd was recorded from the Hadham potteries (HAX).

Dating

A small quantity of the pottery recovered can be dated to the early Roman period of the mid first-early 2nd century. This includes the South Gaulish samian, a collared flagon (0156), two rims from jars of form 4.1 (0375 and 0521), two sherds from dishes of form 6.21 as well as a sherd from a stamp decorated bowl (0209). Sherds from the Verulamium region potteries (VRW) can also be dated to the period of the mid 1st-mid 2nd century. Some of the pottery could date to the pre-Flavian period (AD 69-96). The collared flagon can be dated as pre-Flavian or possibly early Flavian and the jar and dish forms listed above are also current from the mid 1st century; as is the import of South Gaulish samian. However, taken together as a small group, there is little indication of any significant quantity of pottery which dates to the pre-Flavian period. Pottery which can be closely dated to the Flavian period and early 2nd century is certainly present. The decorated samian bowl (0565) and the stamp decorated bowl can both be dated to after *c.* AD 70, but these are most probably of Flavian-mid 2nd century date here. Overall the Roman assemblage, with some reservations, can probably be regarded as essentially of Flavian date and later.

The quantity of pottery that can be dated to the period beginning *c.* early/mid 2nd century and after is, in terms of fabrics and vessel form types which become current from this period, much greater than for the early Roman period. The jar and bowl forms

which were most commonly recorded among the assemblage are types that appear from the period of the early-mid 2nd century - slack shouldered jars of form 4.5 and 4.6, bead rim bowls of form 6.18 and dishes of form 6.19. One of the largest suppliers of pottery to the site which can be identified to a source is the Horningsea potteries and the appearance of this fabric type on the site can be dated to *c.* mid 2nd century.

It appears that the mid 2nd to mid 3rd century was the period over which most of the pottery recovered was used/deposited on the site. Some of the coarseware fabric types which provide the bulk of the pottery cannot be closely dated to that period. Horningsea wares may continue in production until the mid 4th century (Evans 1991, 37-38). Also, a few of the forms introduced in the 2nd century continue to be current into the fourth century. However, the proportion of pottery that can be closely dated to the Late Roman period is significantly reduced in relation to that for the 2nd-3rd century. This is certainly so in relation to the quantities of pottery which can be sourced to Late Roman production centres. Also, the relatively common late Roman coarseware flanged bowl (form 6.17) which is current from the late 3rd century, was only recorded once (0176), which suggests that there was probably a significant drop in the quantity of sandy coarsewares reaching the site in the late Roman period. Late shell-tempered wares (LSH) are the major identified coarseware reaching the site in the late Roman period. The relatively small amount of these in relation to the amount of coarsewares dated to the mid Roman period, suggests a much lower quantity of pottery in use/deposited on the site in the late Roman period. This would appear to be the case even if all of the unspecified shell-tempered ware (SH) recorded is also late Roman in date (LSH) and allowing for the probable shorter length of time for which these wares were current.

Discussion

Although the date range of the pottery recovered spans the mid 1st-4th century, the main period of use/deposition of pottery appears to be in the 2nd-3rd centuries. While there is little indication from the pottery of significant pre-Flavian activity there is a small quantity of pottery which can be dated to the late Roman period of the late 3rd-4th century.

Continental imports reaching the site are restricted to samian which appears to decrease over the earlier 3rd century as sherds representing only one or two East

Gaulish vessels were recovered. Small quantities of finewares were also obtained from Colchester in the 2nd-3rd century. The samian and finewares, possibly supplemented by a few of the coarseware pots such as flagons, would have provided a small range of table vessels. However, almost all of the pottery consists of sherds from coarseware jars, bowls and dishes which are connected primarily with the storage, preparation and possibly the transport of foodstuffs, although some of the bowls and dishes could also have been used to serve and eat from. It can be noted that one *mortarium* was present and there are sherds from a frilled *tazza*. However, no sherds from *amphorae*, which would indicate more exotic imported foodstuffs such olive oil, wine, fruit and fish products, were recorded.

Apart from the samian the identified sources for the pottery are regional industries. Small quantities of pottery were reaching the site from the Verulamium potteries in the early Roman period and in the late 1st-2nd century probably from West Stow. In the 2nd-3rd century the major identified sources are Horningsea and probably the Wattisfield area potteries with some more specialist vessels from Colchester (colour-coats, *mortaria*) and probably a few coarseware vessels from the Nene Valley.

The quantity of pottery which can be closely dated late 3rd-4th century suggests a drop in the use/deposition of pottery in the late Roman period. The late Roman coarsewares appear to emphasise jars, these being shell-tempered and probably originating in the South Midlands, with some fineware beakers being obtained from the Nene Valley and a very small proportion of pottery from the Hadham industries (represented by one sherd).

Post-medieval pottery

Stephen Benfield with identifications by Richenda Goffin

Introduction

There are only a few sherds of post-Roman pottery, all of which are of post-medieval date (5 sherds weighing 250g). The pottery is listed by fabric in Table 6 and by context in Appendix 4.

Fabric name	Fabric	No	Wt/g	Date range
Cologne/Frechen stoneware	KOLN	1	30	18th-20th century
Glazed red earthenwares	GRE	4	220	15th-17th century
Total		5	250	

Table 6. Quantity of Post-Roman pottery by fabric

The assemblage

The post-medieval pottery consists of one sherd of Cologne/Frechen stoneware (0467) from a plain globular jug which can be dated *c.* 1550-1700, with the remainder being Glazed red earthenwares of 16th-18th century date. The Glazed red earthenware vessel forms are bowls (0341, 0428) and a large pipkin represented by a tubular handle (0636) (Jennings 1981, 170 and fig. 71).

5.3.3 Ceramic building material

Stephen Benfield

Introduction

Only a very small quantity of ceramic building material (CBM) was recovered (7 fragments weighing 1014g). These are listed in Table 8 and the quantity by context is shown in Appendix 2. Five different fabrics were recorded from a visual inspection (Table 7). The types of tile recorded are Roman *tegula* (TEG), unspecified Roman brick or tile (RBT), other brick (B) and peg tile (PEG).

CBM Fabric	Description
r fs	red with fine sand
rfs rf pc	red with fine sand, red sandy ferrous fragments and pale clay pellets or streaks
rfs wc	red with fine sand and small white calcareous fragments
rms wc	red with medium sand and small white calcareous fragments
rcs pc	red with coarse sand, and pale clay pellets or streaks

Table 7. CBM fabric descriptions

Ctxt	Fabric	Form	No	Wt (g)	Notes	Date
0349	rms wc	B	1	260	65 mm (2.5 inch) thick	p-med/mod
0350	cs pc	unident	1	2		
0592	rfs rf pc	RBT	1	172	20 mm thick	Rom
0663	rfs rf pc	RBT	1	207	20 mm thick	Rom
0711	rfs	PEG	1	46	12 mm thick	med-p-med/mod
0716	rfs	TEG	1	158	flange ht 45 mm	Rom

Ctxt	Fabric	Form	No	Wt (g)	Notes	Date
0737	rfs wc	RBT	1	169	20 mm thick	Rom

Table 8. CBM type and fabric by context

The assemblage

Most of the CBM is of Roman date (0592, 0663, 0716 and 0737). Only one piece of the Roman CBM could be positively identified to a particular tile type and this is a piece from *tegula* roof tile (TEG). The other pieces of Roman CBM are flat and about 20 mm thick which suggests they might also be pieces of *tegulae.*

The post-roman CBM consists of one piece of peg tile (0711) which dates from the medieval period or later and one piece from the corner of a brick (0349) which is probably of post-medieval or modern date.

One small flake (0350) is hard fired and appears to be CBM rather than fired clay. This piece is not closely dated but is most likely to be of Roman rather than later date.

5.3.4 Fired clay

Stephen Benfield

There is one small piece of relatively hard fired clay weighing 6g (0712). The fabric is sandy and pale reddish-brown mottled with pale clay. It retains part of one flat original surface. Another small piece (0674) weighing 6g, is probably also fired clay. This is in a relatively soft pale grey fabric. A small semi-circular groove on one side appears to be either part of a surface internal angle or a perforation.

5.3.5 Quernstone

Stephen Benfield

A single small section from the edge of an imported lava quernstone originating in the Rhineland was recovered as an unstratified find (0408). The piece weighs 518g. There are faint vertical tooling marks on the edge and close-set tooling marks on the one surviving flat surface, the other surface having been broken away so that no

measurement of thickness is possible. The slow curvature of the short section of surviving edge suggests an original diameter in excess of 500mm; but the diameter is difficult to establish with any degree of accuracy.

Although lavastone was also imported in the post-Roman period, given that the finds from the site are overwhelmingly Roman the piece here is almost certainly of Roman date.

5.3.6 Miscellaneous

Iron nails

Pieces of corroded iron were recovered which can be identified as nails, or probable nails. There is one nail from each of three contexts (0341, 0357 and 0539). Two of these (0357 and 0539) are quite short at between 30-40mm. One can be seen to have a flat round head and can be described as Manning Type B (Manning 1985, 134). The remaining nail (0341), which is bent at 90 degrees, is about 105 mm long.

Burnt/heated stone

Five pieces of heated stone, weighing a total of 425g, were recovered. There are two pieces of sandstone/quartzite (0252, 0272) which together weigh 210g and three pieces of heated (burnt) flint (0265, 0291 and 0622) which weigh 215g.

Clay tobacco pipe

Five pieces of plain clay pipe stem, between 30-60mm in length, were recovered from two contexts. A single piece was recovered from 0428 and four pieces from 0492. The pipe stems can be broadly dated as post-medieval to modern.

Discarded material

A small number of individual pieces of finds material recovered from the site were discarded as they are natural or unmodified. These are natural stones from contexts 0141, 0182, 0291, 0357, 0527, 0591, 0712, natural ferrous concretions from contexts

0227 and 0496, natural flints from contexts 0226, 0364, 0548 and 0594, and black, tar covered stones of modern date from 0265 and 0341.

5.3.7 Worked flint

With identifications and comments by Colin Pendleton

Introduction

In total there are twenty-seven pieces of worked flint which together weigh 431g. The worked flints are listed in by context and individually described in Appendix 3.
The worked flint was recovered from twenty-three contexts, mostly ditch fills.
Almost all was recovered as single pieces with only three contexts producing more than one piece (0057, 0622 and 0628); the maximum being three pieces from any one context.

Discussion

The assemblage is mixed in terms of date with a sizable Mesolithic/Neolithic element and a later one, probably of Middle-Late Bronze Age date.

The Mesolithic/Neolithic element is represented by patinated flints which include some blades and one end scraper. Some of these show clear reuse in later prehistory, represented by the later, unpatinated flake industry. Of note is one very large broad flake (0001) made from what appears to be a reused, deeply patinated and stained earlier flake; possibly of Palaeolithic date (weight 107g). This flake (which was given a small find number - SF1044), is probably of Neolithic date but may possibly date later.

Among the later industry there are no finished tools, apart from pieces with limited edge retouch. The quality of the workmanship does not suggest an Early Bronze Age industry, but one only slightly later. Although the flints which make up this later assemblage are difficult to date closely there are only a few squat and hinge fractured flakes and the standard of workmanship is reasonably good. This suggests that the group is likely to be of Middle or Late Bronze Age date, rather than Iron Age. Although individual flints can only be dated as later prehistoric (Neolithic-Iron Age), overall it would not be unreasonable to see the unpatinated flints as a contemporary group;

though it is possible some (especially as most appear to be from separate contexts) could still be Iron Age, or earlier flints re-utilised in the Iron Age.

5.4 Quantification and assessment of the small finds archive

Stephen Benfield with Iron Age and Roman coins by Judith Plouviez (SCCAS) and provisional identifications by Ruth Beveridge (SCCAS)

Introduction

In total there are forty-two individually numbered small finds from the excavation (SFs 1010-1052). These are listed with provisional identifications and dating in Appendix 7. Of these small finds twenty-four are Late Iron Age and Roman coins which are discussed together. Almost all of the coins from the site were metal detected from soil layers or from spoil and have been individually plotted.

Iron Age and Roman coins

Twenty-four coins were found from the excavation, of which four are definite and one possible late Iron Age, and seventeen are Roman. These are listed by under broad dated groups in Table 11 and are described in full in the small finds appendix (Appendix 7). All the coins are in fairly poor condition and have not been cleaned except by gentle brushing to aid identification.

SF No	Coin type	Dated (AD)	Totals
	Iron Age coins:		
1010	silver unit , Icenian Pattern Horse type	1 - 43	
1011	silver unit , Icenian Pattern Horse type, Anted type	1 - 43	
1012	(silver), possibly a fractional unit. Not certainly a coin		
1013	silver unit, Icenian boar/horse type	20-30	
1014	silver unit, possibly Icenian	30 - 43	4
	Early-Mid Roman coins:		
1017	as or dupondius	43 - 250	
1024	dupondius, possibly Trajan	98 - 117	
1025	as or dupondius, portrait probably 1st or early 2nd century	43 - 138	
1027	sesterius, possibly Hadrian.	117 - 138	
1028	denarius, Severus Alexander.	226 - 229	
1031	as or dupondius. Probably Antoninus Pius	138 -161	
1032	as or dupondius, possibly female Faustina II?	161 - 200	
1034	as or dupondius, portrait 1st or early 2nd century.	43 - 138	8

SF No	Coin type	Dated (AD)	Totals
	Late Roman coins		
1016	nummus, second half of 4th C, probably Valentinian	364 - 378	
1018	radiate, probably barbarous, Claudius II	270 - 286	
1019	rev suggests radiate	260 - 286	
1022	nummus, damaged	324 - 378	
1023	oval flan, no visible detail	260 -378	
1026	possible Nummus	330 - 378	
1029	radiate	268 - 270	
1030	radiate, barbarous, Claudius II.	270 - 286	
1035	radiate, barbarous.	270 - 296	
1038	nummus. Magnentius	350 - 353	
1039	nummus, fallen horseman.	348 - 360	11
Coin total			23

Table 9. List of coins divided between late Iron Age, early-mid Roman and late Roman periods

The Iron Age group are all silver units, three of which could be identified as Icenian types: one boar-horse and two pattern-horse types. These were all in circulation in the first half of the 1st century, and occur in the 'final' hoards which may be deposited as late as the Boudiccan revolt in AD 60-61. Their proximity to each other, with two found adjacent, suggests a hoard and these coins have been reported and recorded as treasure.

The Roman coins are all copper alloy apart from a single denarius of Severus Alexander (226-229), a period at which denarii are relatively common site finds. Copper alloy coins dating to pre-AD250 included one sestertius, one dupondius and five uncertain dupondii or asses. Of these only three were attributed to a specific reign, the earliest being Trajan (98-117). However the proportion of pre-AD 250 coins is higher at 38% than the norm for British or Suffolk assemblages.

The later coins include five 3rd century radiates and five 4th century nummi (and one uncertain). Three of the nummi were identified, two being mid 4th (350's) and one Valentinian (364-378).

Overall the Roman coins suggest a greater level of activity in the early Roman period but no particular affluence and an unusually low level of activity in the 4th century compared to other Roman rural sites in northwest Suffolk.

Other small finds

The other numbered small finds consist of finds of metal, stone and glass. Most of these have been dated as Roman, or are provisionally dated as Roman, with one or two post-medieval and modern dated finds. However, while some pieces can be confidently identified and dated, the dating of others is provisional. There is little supporting context dating for most of these finds. Only seven have context numbers (one of which relates to a surface area of the site) and almost all of the metal finds are from metal detecting across the site.

There are three brooches, two of which are metal detector finds. One is a La Tene 1b type of Middle Iron Age date (SF1037); also a Langton Down type which can be dated to *c.* AD 25-60 (SF 1040) which was recovered from the ditch 0169 (0170). The remaining brooch is a Roman disc type with a central, conical glass setting (SF1015) which can be dated to the period of the 2nd-4th century. A piece of copper alloy (SF1051), probably from the surface of the West Road Strip (0736), might possibly also be part of a fourth, badly preserved brooch.

A small number of other objects in non-ferrous metal can be identified. There is a copper alloy spoon (SF1036), a copper alloy ring (SF1047), an enamelled circular harness fitting (SF1046) and a decorated fitting or toggle (SF1041). These are of Roman date or are provisionally dated as Roman. A small acorn-shaped finial (SF1049) from ditch 0675 (0674) is provisionally dated as post-medieval. There is also part of a lead spindlewhorl (SF1020), a stone hone (SF1052) (0631) and an iron object which is possibly part of a sickle (SF1043)

Two pieces of glass were recovered. One (SF1050) (0697) is a solid, beaded rim (Eve 0.10) in blue-green glass from a small bowl or cup about 90 mm dia which is Roman and probably of 2nd-3rd century date. The other (SF1042), which is unstratified, is in pale blue-green, lightly ribbed glass with a faint, pale yellow band. This could also be Roman but might possibly be modern.

5.5 Quantification and assessment of the environmental evidence

5.5.1 Human Skeletal Remains

Sue Anderson

Introduction

Four articulated skeletons were recorded, of which three are known or assumed to be prehistoric based on their crouched positions (0296, 0625, 0678), and one was fully extended and thought to be Roman (0629). A full catalogue is included as Appendix 7.

Method

Measurements were taken using the methods described by Brothwell (1981), together with a few from Bass (1971) and Krogman (1978). Sexing and ageing techniques follow Brothwell (1981) and the Workshop of European Anthropologists (WEA 1980), with the exception of adult tooth wear scoring which follows Bouts and Pot (1989). Stature was estimated according to the regression formulae of Trotter and Gleser (Trotter 1970). All systematically scored non-metric traits are listed in Brothwell (1981), and grades of cribra orbitalia and osteoarthritis can also be found there. Pathological conditions were identified with the aid of Ortner and Putschar (1981) and Cotta (1978).

Number of individuals

The minimum number of individuals from the articulated remains was four, each discrete burial containing the bones of only one individual. No additional ‘extra bone’ or disarticulated material was present.

Condition

The skeletons were in fair to good condition, although all three prehistoric burials were heavily fragmented. Two were disturbed and incomplete.

Demographic analysis

The age and sex determinations for the four skeletons is shown in Table 12.

Period	Grave	Sk. No.	Age	Sex
Bronze Age?	0295	0296	MA+	Male?
	0679	0678	MA-Old	Male
Iron Age?	0623	0625	Young	Male
Roman	0630	0629	MA-Old	Female

Table 10. Age and sex of articulated skeletons

The probable prehistoric graves contained three adult males and the Roman skeleton was that of a mature female.

Metrical and morphological analysis

Articulated skeletons were measured where possible and the results are included at the end of the catalogue. Tables of systematically-scored non-metric traits can also be found there.

Stature could be calculated for two of the males and the female. The female, at 160.8cm (5’ 3”), was slightly above average for her period. The males, 0625 at 179.4cm (5’ 11”) and 0678 at 174.3cm (5’ 9”), were also above average but both were estimated based on lower arm bones, which tend to give a higher estimate than the leg bones. All three were within the expected range for the prehistoric and Roman periods.

Cranial length/breadth index could only be calculated for the female, who was dolichocranial at 73.5. Narrow skulls are the norm amongst Roman populations, so this individual was normal for her period.

Non-metric traits could only be partially scored in this group owing to the fragmented condition of three of the adult skeletons. No unusual traits were recorded.

Dental analysis

Only two teeth were present amongst the three prehistoric skeletons 0296 had a small fragment of left mandible surviving, with one molar lost ante-mortem and one *in situ* (probably the 2nd and 3rd, unless the 3rd was congenitally absent). Both other prehistoric skeletons were missing their skulls, but a single tooth (the lower left lateral

incisor) was found in the grave of 0678. An infection was present in the mandible of 0296 (see below, 'Infections'), but otherwise these dental remains provided little information.

The Roman female had a complete dentition, although some of the alveolar bone on the right side of the maxilla was damaged or lost. Of 32 teeth, two (the lower third molars) were congenitally absent, and five (all molars) had been lost ante-mortem. Four were present at death, but the crowns had been completely lost to caries (upper right PM2 and I2, upper left M1 and lower left I2). Further carious lesions were present on three teeth (upper right PM1, upper L M3 and lower left C), two of which were adjacent to teeth with missing crowns. Three root fragments which had also lost the crowns due to caries were present but no sockets survived for these, suggesting that these may have been held in place by the gums and were remains of some of the teeth which appeared to have been lost ante-mortem. Abscesses were present under all the teeth which had lost their crowns, due to open pulp cavities allowing infection to travel to the root apex. Slight to moderate alveolar resorption had occurred throughout the dentition, and there was considerable calculus formation, particularly on the lower right teeth.

Pathology

Congenital and developmental anomalies

Two of the prehistoric skeletons had anomalies of the vertebral arches of the spine. Skeleton 0625 had spina bifida occulta of the first to third sacral segments (the rest were missing), a condition which would have been asymptomatic in life.

A detached neural arch (spondylolysis) of one of the lumbar vertebrae (probably the fourth) was present in 0678. This condition may result in slippage (spondylolisthesis) of the vertebral body, which can cause osteophytes to form. Fragments of lower lumbar vertebral body were present with large osteophytes at the anterior (superior of ?L5 and inferior of ?L4), which suggest that this had happened in this case.

Degenerative disease

Degenerative changes were noted in all four skeletons, although none was severe.

The joints of prehistoric males 0296 and 0678 were in poor condition and only fragments could be assessed. In 0296, there were osteophytes in the right big toe, both hips, the neck, and the upper ribs. A small porotic lesion in the left facet of the first thoracic vertebra indicated Grade II osteoarthritis at the joint with the rib head. In 0678, both big toe joints were affected, the left with Grade II osteoarthritis and both with osteophytes. Osteophytes were present on the mid rib facets and the bodies of surviving thoracic vertebrae, as well as on the lower lumbar vertebrae as described above. Skeleton 0625, although relatively young, also had osteophytes on the facets of the right second and third ribs.

The Roman female had slight osteophytes of the acetabular rims of her hips (although these were in poor condition and incomplete), and again there were osteophytes on some upper rib facets, as well as on the bodies of most of the surviving vertebrae. Grade II osteoarthritis was noted on the right side of the T12 vertebra, at the joint for the rib head.

Metabolic disorders and indicators of physical stress

Cribra orbitalia, a lesion thought to be associated with iron deficiency anaemia, was not assessable in any of the prehistoric skeletons. The right orbit of the Roman female was present and there were changes to the surface, but these may be related to infection (see below). Deep pitting and thickening of the rear parietals and superior occipital of Skeleton 0296's skull may be indicative of healed porotic hyperostosis, again a condition associated with iron deficiency, but such changes may also be attributed to a scalp infection or inflammation.

In general the spines of these burials were in poor condition and few vertebrae could be assessed for the presence of Schmorl's nodes. However, they were present in the lower thoracic vertebrae of 0625 and the L4 of 0678. The Roman female was affected in the T4–5 and T11–12 vertebrae. These lesions are associated with physical stress on the spine.

The high level of caries seen in the Roman female is likely to be related to a diet rich in carbohydrates.

Infections and inflammatory response

Skeleton 0296 exhibited thickened new bone formation within the alveolus of the surviving fragment of left mandible, below the position of the first molar. This was possibly caused by an abscess, which resulted in a bacterial infection such as osteomyelitis. The inflammatory response was entirely within the cancellous bone of the jaw, with no evidence that it had spread to the external surfaces of the cortical bone (at least on the surviving fragment). It is not clear whether the infection was active or healed at the time of death.

There was clear evidence of an inflammatory response in the skull of 0629, but as this appears to have been secondary to trauma it is described in detail in the following section.

Trauma

A deep oval lesion on the medial condyle of the left femur (knee joint) of Roman female 0629 was an example of unhealed osteochondritis dissecans. The lesion was 16 x 12mm in extent and 6mm deep, with a smooth floor. This type of lesion is thought to be caused by constant pressure on the joint, causing microfractures and an eventual failure in the blood supply to part of the bone, which breaks off and lies within the joint. The condition is common in athletes today, and results in pain and inflammation. The knee is a particularly common joint to be affected.

Another similar type of lesion occurred in the distal joint surface of the right tibia of Sk. 0678, comparable with examples published as osteochondritic lesions by Wells (1974, fig 10) but which Waldron describes as ‘normal variants’ (Waldron 2009, 154). An exostosis on the left navicular at the joint with the middle cuneiform, and another on the superior-anterior facet of the left calcaneum were further evidence for physical stress in the feet and ankles of 0678.

Small ‘stress lesions’ were present in the feet of two individuals. These appear similar to osteochondritis dissecans, but do not conform to the clinical definition of the disease as they occur on the concave surfaces of joints. In 0296 there was an oval lesion (6 x 4mm) on the proximal facet of the proximal hallucial phalange (big toe), and similar lesions were present on both proximal hallucial phalanges of 0625. Again, Waldron (2009) considers these to be normal variants.

The skull of 0678, as noted above, showed some dramatic pathological changes which had resulted in a degree of deformity (App. 8 Fig. 1) with a raised prominence. There is evidence that the individual suffered some kind of trauma which had resulted in fracture lines running from the right side of the frontal bone (just above the supra-orbital ridge on the lateral side) to the right parietal, with radiating fracture lines at the frontal end (App. 8 Figs. 1–2). There is a possibility that the lines were the result of a cut, rather than a fracture, but unfortunately a portion of the frontal bone was missing from the area where the blow was probably struck. The fracture lines were partially healed, although the parietal end showed signs of non-union. Thickening of the skull was marked at the right side of the frontal and on both parietals roughly along the coronal suture, but the diploë were largely normal and thickening was due to new bone growth on the cortical surfaces, particularly externally (Appendix 8). Irregular new bone formation had occurred internally (Appendix 8), and there was thickening of the roof of the right orbit with some porosity. The lumpy external appearance of the skull is suggestive of an inflammatory reaction which had healed by the time of death, and it is presumed that this occurred as a direct result of tissue injury from trauma. This may indicate that there was an open wound which allowed an infection to enter the scalp and travel to the inner surface of the skull, although the infection could have entered the skull through the open fracture lines. The degree of remodelling indicates that the individual survived for some time after the injury. The loss of the fragment of frontal bone which might have supplied the answers to the type of injury sustained is regrettable, but probably a result of damage (?plough truncation) to the grave in the recent past.

Summary and discussion

The four inhumations appear to represent at least two and possibly three phases of burial at this site. Three were probably prehistoric (two Bronze Age and one ?Iron Age) and consisted of one young and two older adult males. One female was probably

Roman. The earlier skeletons were relatively well preserved but heavily fragmented, whilst the bones of the Roman were in better condition but still showed signs of post-mortem breakage.

The estimated living statures of two of the men and the Roman female could be calculated, and all three were of above average height. The female had a narrow skull which was typical of her period. Common pathological conditions related to physical stress and degeneration of the joints was present in all four skeletons. One individual showed evidence of a bacterial infection of his jaw which was at best painful and at worst life-threatening, as it could have resulted in septicaemia or other complications. However the most dramatic pathology in this small group was seen in the Roman female, who had sustained an injury to her skull which had resulted in a chronic infection and consequent deformity.

The group is too small to make anything other than sweeping conclusions, but these individuals provide further information which can be added to the growing corpus of data on skeletal remains of prehistoric and Roman date from the western fen edge of Suffolk.

5.5.2 Faunal Remains

Julie Curl

Introduction

A total of 27,533g of bone, consisting of 3521 pieces, was recovered by hand-collecting and sieved samples. The assessment of this material identified at least twelve species, including rodents and herptofauna in the sample material. The assemblage shows a good range of species, butchering and pathologies, as well as some possible working waste. The sample material has the potential to provide additional environmental evidence. A catalogue of the hand collected bone is provided as Appendix 5 and the sample material as Appendix 6.

Methodology

The assessment was carried out following a modified version of guidelines by English Heritage (Davis, 1992). All of the bone was scanned to determine range of species and elements present. Where species identification was not possible, an attempt was made to determine if the remains were those of large mammals, small to medium mammals, small mammals, birds, fish and herpetofauna and more detailed counts of these fragments that are not identifiable to species are in the digital archive. A note was also made of butchering and any indications of skinning, horn or antler working and other modifications. When possible a record was made of ages and any other relevant information, such as pathologies. Counts and weights were noted for each context with additional counts for each species identified, counts were also taken of bone classed as 'countable' (Davis, 1992) and measureable bone (following Von Den Driesch, 1976).

Sample material was briefly scanned, weighed and counted primarily to record the range of species and elements present and these were recorded as 'present' in the catalogue by groups at this stage.

All information was recorded directly onto an Excel spreadsheet for quantification and assessment. A basic catalogue of the hand-collected material and a separate catalogue of the sample material are included in the written report and the full assessment database, with more detailed catalogues and counts available in the digital archive.

The faunal assemblage

Quantification, provenance and preservation

A total of 26,476g of faunal remains, consisting of 1861 pieces, was hand-collected from evaluation and excavation work at this site. A further 1057g of bone, consisting of 1660 elements, was recovered from sieved-samples.

Bone was produced from a variety of fills, with just over 60% of the hand-collected material yielded from ditch fills, a further 22% was recovered from pit fills; the remaining 18% of the assemblage was yielded from layers, linear features, grave fills and general finds layers. The bulk of the hand-collected faunal remains were recovered from fills of a Roman date, with at least 74% of the remains discovered with finds from this period. Around 5% of the bone was produced with artefacts of a prehistoric date; the remaining

21% of the faunal remains were undated or found with finds of a mixed date. Full quantification of the faunal remains by weight, feature type and period can be seen in Table11.

Feature Type	Period							Total
	Mixed - PM, Rom	Mixed - Rom/Pre	PM/ Lmed	Post Med	Prehistoric	Roman	Undated	
Ditch		202	122	338	125	12,234	2974	15,995
Feature						228		228
Finds						2058	541	2599
Grave						94		94g
Grave?							25	25
Hollow/Layer						586		586
Layer				189		109	167	465
Linear						361		361
Pit					1142	3742	944	5828
Silting layer						250		250
US	18							18
Unspecified							27	27
Grand Total	18	202	122	527	1267	19,662	4678	26,476

All weights in grammes

Table 11. Quantification of the hand-collected faunal assemblage by weight, feature type and period (this table does not include sample material).

The hand-collected assemblage is generally in good condition, although fragmented from butchering, with some bone heavily butchered. Some remains are more fragmented from wear and soil pressure, particularly skulls. Small quantities of gnawed and burnt bone were noted during the assemblage. The material from sieved samples, particularly the small mammal bone, is in very good condition with many complete small bones that will allow accurate identification of species.

Species range and modifications and other observation

At least six species were identified in the hand-collected material during the assessment. In addition, several species of rodent, bird, fish, small mammal and herptofauna were seen in the sieved- sample material. The most frequently recorded species in the hand-collected is cattle, which were represented by a range of ages. Other species include sheep/goat, equid, pig/boar, deer and bird. Some species appear to be restricted to a single period, for example bird and deer remains only produced from Roman fills. Quantification of the hand-collected faunal assemblage by species, species quantity and period is presented in Table 12.

Species	Period							Species Total
	Mixed - PM, Rom	Mixed - Rom/Pre	PM/ Lmed	Post Med	Prehistoric	Roman	Undated	
Bird						3		3
Cattle				5	15	321	41	382
Deer - Red						1		1
Equid			1		2	16	11	30
Mammal	7	4	11	5	83	907	362	1379
Pig/boar					2		2	4
Sheep/goat		3		1	2	41	15	62
Period Total	7	7	12	11	104	1289	431	1861

Table 12. Quantification (NISP) of hand-collected species by period (this table does not include additional species recovered from sample material – see 'sample material')

While much of the assemblage appears to be of domestic stock, it is possible that some of the porcine remains may be of wild boar. A metatarsal of a red Deer was seen in 0634, which had been butchered and remains of bird were seen in two fills and include a probable wild species.

Numerous bones are measurable (following Von Den Driesch, 1976) and able to provide data for ageing, estimation of stature, sex and breed.

A range of butchering was seen throughout the assemblage, including skinning, meat production and consumption and possible evidence of working waste in one prehistoric pit fill.

Several pathologies were noted in the assessment, which were restricted to the cattle and equids; these pathologies should provide further information on the state of health, use and husbandry of the stock at this site.

Sample material

The initial scan and assessment of the sieved faunal material from the samples shows a variety of rodents (voles, mice and shrews), probable hedgehog and herpetofauna remains along with smaller elements from the main domestic stock, small mammals and birds. Some human bone is included in the faunal samples and the sample material will need sorting prior to final analysis. The material from the samples, particularly the small mammal bone, is in very good condition with many complete small bones that will allow

accurate identification of species. Smaller elements of the main domestic species were also seen.

The samples material has the potential to provide additional environmental evidence for smaller species (including probable ‘pest’ species) living on and around the site. The sample material can also provide additional material for the main domestic species and allow comparison of retrieval methods.

Conclusions

The assessment of the faunal assemblage suggests it consists largely of the food and butchering waste of the main domestic stock species kept, with the butchering and pathological evidence suggesting a wide range of uses. The sample material also provides valuable additional environmental information from species living around site which are often habitat or diet specific. The samples have the potential to provide information on species regarded as ‘pests’ around site, such as rodents living around food stores.

5.5.3 Shell

Stephen Benfield

The shell recovered during the excavation consists mostly of oyster shell with a few snail shells. These are listed by context in Appendix 2.

Small quantities of oyster shells were recovered from nineteen contexts. Most of these are whole shells although a few part shell and fragments are also present. In total there are fifty-three oyster shell pieces with a total weight of 209g.

The oysters were clearly imported onto the site for consumption as food; the empty shells being discarded as rubbish.

Six shells and shell fragments from four contexts (0137, 0416, 0467 and 0468) are not closely identified. All are small and approximately of periwinkle size. Most of these are

of thin walled shells and are probably land snails; although two (0416 and 0468) are more robust and may be marine shells and if so are probably periwinkles.

5.5.4 Charcoal

There are four small pieces charcoal, together weighing 5g, from two contexts (0712 and 0731). The charcoal from one (0731) consists of two pieces, each approximately 25 mm long. The charcoal from the other (0712) is a broken single piece which is relatively hard; is about 20mm long with a cross section of up to 25 mm.

5.5.5 The plant macrofossils

Rachel Fosberry

Introduction and methods

Twenty-four bulk samples were taken from Roman and undated deposits to assess the quality of preservation of plant remains and their potential to provide useful data as part of further archaeological analysis.

The flots had been previously been obtained by the manual flotation of bulk samples using a 0.3mm mesh sieve. The dried flots were scanned using a binocular microscope at x16 magnification and the presence of any plant remains or other artefacts noted (Appendix *8 and Appendix *9). Identification of plant remains is with reference to the Digital Seed Atlas of the Netherlands and the authors' own reference collection.

Quantification

The results are recorded in Appendix *8 and Appendix *9. For the purpose of this initial assessment, items such as seeds, cereal grains and small animal bones have been scanned and recorded qualitatively according to the following categories: # = 1-10, ## = 11-50, ### = 51+ specimens. Items that cannot be easily quantified such as charcoal were scored for abundance: + = rare, ++ = moderate, +++ = abundant

Results

Preservation is by carbonisation and is moderate to good. Charred plant remains were recovered from all of the samples and include charcoal, cereal grains and chaff

elements, pulses and weed seeds. Flot volumes were variable dependent on charcoal composition. Many of the samples contained significant volumes of charcoal, in particular Sample 5 from pit 0363 (0367). The charred cereal assemblage is comprised of a high density of wheat (*Triticum sp*.) grains of which the hulled wheat, spelt (*T. spelta*) predominates. This species has been identified by the numerous diagnostic chaff elements including glume bases and spikelet forks. Tentative identifications of emmer (*T. dicoccum*) wheat chaff elements suggest this earlier form of hulled wheat is also present in low quantities, possibly as a contaminant. Occasional grains with a rounded morphology may indicate the presence of free-threshing wheat (*T. aestivum/compactum*). Other crop plants include barley (*Hordeum sp.)* grains which occur occasionally and peas (*Pisum sativum*) which are more common.

Charred weed seeds are generally rare in this assemblage occurring often as single specimens. Seeds of weeds found in cultivated and disturbed soil include Bromes (*Bromus* sp.)*,* cornflower *(Centaurea cyanus)*, vetches *(Vicia* sp.), clover/medick (*Trifolium/Medicago* sp.), field gromwell (*Lithospermum arvense*), orache (*Atriplex* sp.) dock *(Rumex* sp.) and knotgrass (*Polygonum aviculare*). Plants more associated with ruderal habitats, although may also occur as arable weeds, include chickweed (*Stellaria media*), goosefoot (*Chenopodium sp*.) and cleavers (*Gallium aparine*).

Wetland plants are restricted to Sample 1 (pit 0406 (0407)), Sample 2 (ditch 0495 (0496)), Sample 9 (pit 0115 (0468)), Sample 10 (pit 0114 (0462)) and Sample 21 (well 0462 (0473)). Samples 1 and 2 contain seeds of plants that can often found growing on the banks of rivers, ponds and water-filled ditches such as sedges (*Carex sp*.), Common spike-rush (*Eleocharis palustris*), hemp-agrimony (*Eupatorium cannabinum*) and bull-rushes (*Scirpus sp*.). Significant quantities of charred leaf fragments and nutlets of saw-sedge (*Cladium mariscus*) were also noted in Sample 1. Sample 21 was taken from a feature that had been interpreted as a possible well. The flot contains only seeds of water crowfoot (*Ranunculus subg. Batrachium*), which is an obligate aquatic, suggesting that the feature did indeed contain water. Samples 9 and 10 both contained numerous seeds of duckweed (*Lemna sp*.) a plant that quickly colonises shallow ponds, ditches and even puddles forming seeds only when the feature starts to dry out. It is unclear whether the seeds in these samples are contemporary with the deposits or a later contaminant.

Discussion

The charred plant remains are dominated by spelt wheat from both the cereal grains and the chaff that would have formed the spikelets. Hulled wheats such as spelt and emmer require several stages of crop processing and each stage produces a characteristic assemblage of grain, chaff and weed seeds as described by Hillman (1984). Spikelets of wheat are broken off of the cereal ear during the first stages of crop processing (threshing, winnowing and sieving) and are a convenient form in which to transport and store the wheat until it is required (Stevens, 2003). The second stage of crop processing involved parching and/or pounding the spikelet to release the grain. These processes produce diagnostic waste elements of chaff including glume bases and spikelet forks which are seen in several of the samples. The inclusion of a moderate density of charred cereal grains could be interpreted as separate deposits of grain that have been accidentally burnt. It doesn't seem likely that the grain became burnt during the parching process itself as no complete spikelets were recovered. Peas are less likely to be exposed to heat than grain as they do not require parching and so the presence of peas within these assemblages suggests that they are deriving from culinary accidents where food is either accidentally burnt or swept in to the cooking fire.

Wheat seems to have been the principal crop utilised at this site. Barley occurs so rarely that it may be that it was considered to be a fodder crop for animal rather than human consumption and is thus less likely to have been accidentally burnt. It is unclear whether this site is a consumer or a producer site as only evidence for the secondary stages of processing are seen so the semi-cleaned grain may have been imported to the site from elsewhere.

The charred weeds seeds are consistent with the final stages of crop processing in which the semi-cleaned grain would sieved and hand picked to remove contaminating seeds that are of a similar size to the actual grains such as corn gromwell and brome. Brome grass seeds are often found in charred grain assemblages as the plants grow to the same height as the cereal crop and the seeds are a similar size to the cereal grain. They could have been tolerated as a crop contaminant as they are unlikely to greatly affect quality of flour. Other plant species such as vetches, knotgrass and cleavers grow in cultivated fields and would have been harvested along with the crops.

Saw sedge is a fenland resource that is commonly used for thatching and fuel. It's presence in only one sample suggests a deliberate deposit of this burnt material with incorporated sedges and rushes perhaps after an accidental burning or replacement of thatch.

Conclusions

The environmental samples produced an assemblage of charred crops, chaff and weed seeds typical of Roman sites in this region. Recent excavations at West Row Primary School (Fosberry 2011) also showed that spelt wheat was the primary crop consumed during the Roman period in Mildenhall.

5.5.6 Soil micromorphology

Richard McPhail

Summary

The soil characteristics of a number of Roman features were examined and discussed. One feature with red sands could have resulted from an industrial installation employing fire, while an enigmatic series of shallow parallel ditches have an unknown use, but could possibly be associated with horticultural practices such as viticulture. There is no evidence that these ditches were associated with drainage. On the other hand, abandoned shallow wells became infilled with a minerogenic peat, probably as a result of rising groundwater during the late Roman and Anglo-Saxon period.

Introduction

The Roman settlement site at RAF Mildenhall, Suffolk (MNL63) was visited on the 14th October 2010, and soils were discussed with Andrew Tester (Field Team, SCCAS). The site mainly consists of Roman ditches and pit/shallow well fills, some dating to the Late Roman Period; a series of shallow parallel ditches were of specific interest (Tester, pers. comm). Fills composed of burned red sands, a possible buried soil, Iron Age and medieval features were also noted. Soils were examined according to standard techniques (Goldberg and Macphail, 2006; Hodgson, 1997).

Results

Local soils

Local soils are Typical brown calcareous sands formed on chalky drift (Methwold soil association) which have a risk of wind erosion (Hodge *et al*., 1983). Sands occur over chalky till.

Buried soil?

At Cut 0288 (Phase 4.1) and locally, a weakly formed dark greyish brown (10YR4/2) moderately firm Ah horizon is present over a likely truncated pale brown (10YR6/3) and faintly mottled subsoil sand, and below greyish brown (10YR5/3) sands of possible dumped origin (Fig. App 11.1). This soil profile is sealed by very dark grey (10YR3/1) occupation soils. It is possible that the buried soil relates to Iron Age disturbances of the site. Such Breckland sandy soils are fragile and easily truncated by wind if their humic topsoil is breached.

Roman ditch fill of burned sands

Cut 0288 is characterised by a fill of weak red (2.5YR4/2) to red (2.5YR4/8) sands, which overlie a thick basal charcoal layer (App 11 Fig. 2). Upwards the fill is more mixed with weathered chalk, and grey (2.5YR5/1) sands. It was noticed that the lowermost red soil fill over the charcoal was clayey. This could be associated with clay that is neoformed/ mobilised by the potassium (K) in ash (Courty and Fedoroff, 1982; Slager and Van der Wetering, 1977). This has also been recorded at British sites (Macphail and Crowther, 2006), including the Roman farmstead site at Hethersett, Norfolk, where a corn dryer fill was characterised by large amounts of charcoal and 'neoformed' red clay (Macphail and Crowther, 2005). It is possible that this charcoal and red sand fill in Cut 288 was associated with some kind of similar industrial installation employing fire. (No metallic fragments or slag had been retrieved; Tester, pers. comm).

Late Roman shallow parallel ditches

A late use of the site is recorded by a series of shallow (~20 cm), generally narrow (35 cm) parallel ditches some 1.50m apart; later ditches are deeper (~30 cm)(Figs. 3-5). The fills of these ditches are brown (7.5YR5/2) to dark brown (7.5YR3/2), and more humic compared to the surrounding weakly mottled very pale brown (10YR7/4) sandy subsoils. One hypothesis is that these parallel ditches could have been associated with

viticulture and the planting of vines, and/or fruit-growing. Ground water rises in the late Roman Period at this fen-edge site may have permitted viticulture in what were droughty soils. It is probably difficult to ascertain whether a special tilth was added to the putative growing 'trenches', because occupation soil is ubiquitous across the site anyway, and may well have fallen/been mixed in. Equally, insect and small mammal burrowing has obscured the base of the shallow ditch fills, so it is not clear whether the fills are 'silting' fills or purposeful tilth fills (*cf.* garden soils at Roman Pompeii, Roman Colchester and London, (Macphail, 1994, 2010)). No waterlogging soil features were noted in these ditches, suggesting that these are not simply for drainage.

Well pits

A number of shallow pits occur (App 11Fig. 6), which because they have a marked minerogenic peat fill, are interpreted as shallow wells tapping the Late Roman and Saxon rise in groundwater (*cf*. Midland River sites and Scole-Oakley bypass (Robinson, 1992; Tester, pers. comm.)). It is possible of course that these were employed to water plants cultivated along the parallel shallow ditches. Subsequent to abandonment, these wells became infilled with a very dark grey (10YR3/1) minerogenic peat. Upwards this peat shows evidence of drying out and humification and has become reddish brown (5YR5/3) in colour due to moderate iron staining. Equally, the overlying sands are a mottled pinkish grey (5YR6/2) and yellowish red (5YR4/6) due to a history of waterlogging and fluctuating water tables.

Conclusions

The soil characteristics of a number of Roman features were examined and discussed. One feature with red sands could have resulted from an industrial installation employing fire, while an enigmatic series of shallow parallel ditches have an unknown use, but could possibly be associated with horticultural practices such as viticulture. There is no evidence that these ditches were associated with drainage. On the other hand, abandoned shallow wells became infilled with a minerogenic peat, probably as a result of rising groundwater during the late Roman and Anglo-Saxon period.

6 Significance of the data and potential for analysis and publication

6.1 Realisation of the Original Research Aims

1. To identify and fully record all archaeological deposits which would otherwise be damaged or removed by the redevelopment.
Archaeological evidence dating from the prehistoric through to the Roman period and beyond was identified and fully recorded. The multi-period site included a number of prehistoric burials, and enclosures and field systems dating from the late Iron Age through to the Roman period and post-medieval period.

2. To investigate the potential for the site produce evidence for, in particular, Roman occupation.
A number of pits dating to the late Iron Age/early Roman period were identified. Three crouched burials are probably prehistoric but they have not been successfully radiocarbon dated. A complex sequence of Roman land-use was recorded, which consisted of several phases of ditches and enclosures. A considerable part of the site was covered with close set parallel ditches dating to the late Roman period, which are thought to be evidence of a well organised system of raised beds for horticultural activity. A large assemblage of Roman pottery was recovered, along with a number of Iron Age and Roman coins and other small finds, as well as a significant quantity of animal bone.

3. To examine this site in relation to other excavations of Roman sites within RAF Mildenhall.
This research aim will be undertaken at the analysis stage.

4. To assess the potential of the evidence to contribute to regional research priorities for the Roman period.
The site produced evidence which could contribute to the following regional research themes:
The development of the agrarian economy in the Iron Age
Processes of economic and social change and development during the late Iron Age and Iron Age-Roman transition
Agricultural and food production and consumption in the Roman period

The degree of ‘Romanisation’ of areas of fenland settlement (Medlycott 2011 36)
The nature of Roman rural settlements
Changing agricultural practices throughout the Roman period
The evidence for Roman horticulture and viniculture
The development of the agrarian economy and changes in landscape and land-use across all periods as evidenced in the analysis of palynological sequences and preserved macrofossils

5. To identify a suitable vehicle to disseminate the results to both a professional archaeological and local audience.
It is suggested that the work on the analysis stage for Washington Square should be included in a publication which covers other relevant sites nearby such as 30 Acre Field Mildenhall (MNL 532).

6.2 The potential for analysis and publication

The site archive resulting from the Washington Square excavations has the potential to address questions relating to late Iron Age and Roman settlement on the fen-edge, providing evidence in particular for farming. The proximity of other excavations, particularly MNL 532 but also the Lakenheath sites and those excavated between the USAF bases, enhances this potential. It is envisaged that the publication of the Washington Square results should be alongside some of the earlier sites with the results integrated for discussion.

The excavations from Lakenheath and Mildenhall have the potential to make a significant contribution to our understanding of the archaeology of the Fens and Breckland. The Fen basin stretches through Lincolnshire, Cambridgeshire, Suffolk and Norfolk and the lands skirting it are known for a particular concentration of settlement evidence through the prehistoric to the Anglo-Saxon periods. This topography and associated natural resources attracted settlement and underpinned the development in these areas. Of particular importance were the light soils with easy access to groundwater, the drier grazing land into the Breckland, the vast expanse of marsh abundant in wildlife and a network of waterways ideal for transporting goods. Nevertheless the intensity of settlement still seems surprising, and any sites which

contribute to our understanding of the basis of the various economies, particularly that of the Romans, is extremely valuable.

6.3 Potential of the stratigraphic archive

Preliminary phasing has taken place which will form the framework for further stratigraphic analysis. Detailed stratigraphic study will allow further analysis of the features in order to determine function and realise a fuller understanding of the archaeological evidence. Of particular importance is the unusually well preserved series of horticultural features and the associated finds groups and environmental remains.

The results of this analysis will also contribute to the understanding and interpretation of the 2003-2006 excavations on 30 Acre Field (The Sportsfield, MNL 532) and will contribute to a major publication of the evidence from RAF Mildenhall and RAF Lakenheath.

6.3.1 Interrogation of stratigraphic data

A framework of phasing has been applied to the site which will require refining based on the closer analysis of selected features and relationships. A re-examination of the finds evidence, particularly the pottery may enable a more precise dating sequence to be established for the site. The examination of the dating of key groups will be a feature of this work.

6.3.2 Feature descriptions and discussion by phase

The results of the analysis will define the framework from which to order and discuss the principal feature group within their phased contexts. Closer examination is required of the feature groups from the south east road extension of the site.

6.3.3 Graphics

Further graphics work will be required following the general stratigraphic analysis. The site sections will require digitising to complete the archive, and a selection of these will require preparation for publication. Further phase plans will be required for publication.

6.4 The potential of the finds archive with recommendations for further work

6.4.1 General introduction

Further work on the finds listed below is considered to be essential in order to realise the potential for understanding the archaeology of the site and allowing it to be discussed in relation to the wider archaeology of the area.

6.4.2 Pottery

The pottery has been fully quantified, catalogued and discussed at a general level. However the assemblage will require further assessment alongside further work undertaken on the site phasing. A study of the pottery offers the best opportunity for refining the dating of the site and individual phases. The survival of an unusually good stratigraphic sequence will require the grouping and cross-referencing of finds with stratigraphic evidence.
Recommendations: 2 days further refinement of dating
Illustrations: 1 day

6.4.3 Ceramic building material, fired clay, quernstone and worked flint

These small assemblages of finds have been initially catalogued and described and no further work is recommended on this material.

6.4.4 Small finds

The small finds include a number of Iron Age and Roman coins which have been preliminarily catalogued before cleaning. Although most were metal detected rather than being fully stratified, they have been individually plotted and a study of their spatial distribution on site may be worthwhile. The dating pattern for the coin assemblage *i.e.* the fact that there are several early Roman coins and 'an unusually low level of activity in the 4th century compared to other rural Roman sites in northwest Suffolk' is also worthy of further discussion and the coin assemblages from nearby sites could also be studied in order to establish how localised this pattern is.

The non-coin element of the small finds requires full cataloguing including the two fragments of glass, as firm identifications and dating will inform on the material culture of the Iron Age and Roman periods, and beyond. The assemblage as a whole should be considered alongside groups of similar material from other local sites of the same date.

The Late Iron Age silver coins have been reported as Treasure. Both the silver and the copper alloy coins should be cleaned for greater legibility, particularly those that have concreted deposits obscuring them.
Recommendations: Full catalogue of non-coins: 2 days
Coin report and comparative discussion: 1 day
Cleaning coins: 1 day
Illustrations of small finds: 1 day

6.5 The potential of the environmental archive with recommendations for further work

6.5.1 Human Skeletal Remains

The human skeletal remains have been fully recorded and no further work or study is required for them. With the exception of one inhumation of Roman date (0625) three other inhumations are not closely dated by any associated finds. Attempts at radio-carbon dating (C14) have failed with skeletons 0296, 0629 and 0678 due to the erosion of collagen in the acid sandy soil.
Recommendations: Discussion: 1 day

6.5.2 Faunal Remains

The faunal assemblage has the potential to provide useful information on the domestic and wild species utilised and living on and around the site. The main assemblage contains mainly domestic stock with a good deal of butchering, ageing and pathological evidence that can provide information on the uses, health and husbandry of the domestic animals kept here. If further work is done on refining the dating sequence within the Roman period, it is possible that differences in the faunal assemblage will become apparent.

The material from sieved samples, particularly the small mammal bone, is in very good condition with many complete small bones that will allow accurate identification of species present. The sample material has the potential to provide additional elements from domestic stock and wild species used or living on site and will also provide additional environmental evidence for the site and surrounding area. The samples will need to be sorted and any human bone removed prior to final analysis.

Several pathologies were noted in the assessment; these pathologies should provide further information on the state of health, use and husbandry of the stock at this site and need full recording and analysis.

Recommendations:
The sorting of the sample material, recording and analysis of both the sieved and hand-collected material and updating of the report should take six days.

6.5.3 Shell and charcoal

Both the shell and charcoal fragments have been initially catalogued and no further analysis on them is required.

6.5.4 Plant macrofossils

The quantity and quality of the recovered material is insufficient for any firm conclusions to be drawn on the nature of the site as to whether it was a producer or a consumer settlement. It is not felt that further study of this material will aid interpretation and analysis is not recommended. The assessment results will need to be integrated with the corresponding assessments and analysis carried out on contemporary sites within the air bases.
Recommendation: Discussion: 1 day

6.5.5 Soil micromorphology

No further work is envisaged from the micromorphological assessment of the site.

7 Updated Project Design

7.1 Revised research aims

Following the excavation and initial assessment work several topics have emerged as meriting further investigation, in addition to the original research aims.

The specific topics for further analysis are:

Can detailed stratigraphic analysis refine the sequence of archaeological activity on site for the Iron Age and Roman period?

Can the combination of stratigraphic analysis and a more detailed study of the pottery provide a better understanding of the spatial and temporal changes during the Iron Age and Roman periods?

Can the three burials which could not be dated through radiocarbon analysis be otherwise dated?

What is the morphology of the raised beds which are of late Roman date? What kind of plants would have been grown in the beds? Is there any evidence for viticulture? What parallels are there for similar types of horticultural activity on the Fen edge and elsewhere?

What evidence is there for Roman buildings on the site? Large quantities of Roman pottery and animal bone were used to fill the late enclosure ditches… where were these people living?

How typical is the Roman pottery assemblage for a rural site? How does it compare to other relevant groups?

How typical is the animal bone assemblage for a rural Roman site? How can an analysis of the assemblage increase our knowledge of the environment on the site and nearby? The assessment indicates that there is a considerable variety of species and that the small bone present in the samples is well preserved. There is the potential to

provide information not only on the types of animals which were being farmed and eaten but also the 'pests' and natural fauna that were in the background at this time.

What kind of agricultural production and processing was taking place in the Iron Age and Roman period?

Is it possible to suggest any model of how and whether the cultivated enclosures fitted in with the production unit *e.g*. the farmstead or estate?

Significance relating to research topics for the East of England

The excavation revealed some significant and well-preserved features which have the potential to make a considerable contribution to some of the topics raised in the regional research frameworks (Brown and Glazebrook, 2000, Medlycott 2011). These include:

The development of the agrarian economy in the Iron Age
The Iron Age is poorly represented at Washington Square with the exception of the coin hoard and pottery from the Iron Age/Roman transition. It is likely that at least some of the ditches and pits were pre-Roman (along with burials). Closer interrogation of the stratagraphic data and finds may help to identify contributing evidence for this topic, such as site structure and animal husbandry.

The processes of economic and social change and development during the Late Iron Age and Iron Age-Roman transition
The question of continuity and change from the Iron Age to Roman period on the Fen edge is an important research objective. Closer analysis of the sequence and function of the earlier ditches may contribute to this topic.

Agricultural production and food production and consumption in the Roman period
While the body of data relevant to this topic has increased massively within recent years from all sides of the fens the economics of food production are not clearly understood; neither are the changes in agricultural practice and the forces, which brought that about. The evidence for horticulture from Washington Square and the potentially very clear dating evidence alongside the environmental evidence will help to address issues such as what was being cultivated and whether/how this changed through time.

The nature of rural Roman settlements

This question can be addressed by analysing the findings from Washington Square with a consideration of those from other excavations within the locale. The evidence for sprawling settlement of apparently increasing intensity in the late Roman period with more regular field boundaries (?) needs to be seen alongside the discovery of the Mildenhall Treasure (a collection of highly decorated silver plate from the 4th century that was found in 1942 within half a mile of the site) and the evidence for a substantial villa in the same area. Identifying the pastoral/horticultural activities and how they changed through time may provide valuable information on the relationship between the managed and cultivated land and the farmstead/villa. Is there any indication that this land may have formed part of the villa estate? Are there parallels for such land-use in other places on the fen edge or elsewhere in the region, or further afield? Is it more likely that there was another focus which was controlling these activities during the late Roman period?

The development of the agrarian economy and changes in landscape and land-use across all periods as evidenced in the analysis of palynological sequences and preserved macrofossils.

The results of the macrofossil assessment will contribute to the overall picture of the Fen Edge settlements. This information can be discussed in relation to other sites in the vicinity and beyond in order to enhance and test the validity of findings from individual sites.

7.3 Reporting and publication proposals

The results of the analysis will be presented in a combined publication with other Mildenhall sites with other material accessible in archive.

It is envisaged that the excavation analysis results will be published alongside those of MNL 532 (30 Acre Field), and that these will appear in the East Anglian Archaeology series. Work on this project is progressing and the methodologies and specialist personnel are similar, which will facilitate the integration of the results into the combined publication. A publication synopsis will be prepared when the analysis phase is closer to completion providing a clearer picture of the main findings of the work undertaken.

Further work following the analysis for publication will require:

Production of publication text in the format of the work for MNL 532 and other sites to be included in the publication in a volume of the East Anglian Archaeology series. A synthetic discussion of the findings from the excavation.

Selection/ production of illustrations to accompany the text and production of captions.

Production of GIS maps and selected finds distribution plots.

Regional research for comparative sites, particularly those on the Fen-edge and the production of a wider discussion of the results.

Editing following comments from the academic referees.

Final report editing.

Alterations after copy editing comments from East Anglian Archaeology.

The physical archive will be stored at the archaeological and archive stores of SCCAS in Bury St Edmunds and the digital archive on the SCC computer network. CD copies of all digital files will be kept with the physical archive.

7.4 Task sequence for analysis and publication

The following tasks are listed below in order to complete the stratigraphic and finds analyses for the production of a full report:

7.4.1 Stratigraphic task sequence

Task 1. General management AT

Task 2. Stratigraphic analysis

Review site phasing, carry out analysis of stratigraphic archive with reference to finds and environmental data. AT

Task 3. Comparative local, regional and national research. AT

7.4.2 Finds and environmental task sequence

Task 4. Management and co-ordination of specialists CT

Task 5. Small finds catalogue and report NC

Task 6. Comparative work and coin report JP

Task 7. Human remains discussion SA

Task 8. Animal bone catalogue and analysis and discussion JC

Task 9. Environmental material comparative discussion VF?AW

Task 10. Finds dating review and pot adjustments CT

Task 11. Editing finds catalogues, databases and preparing appendices CT

Task 12. Conservation of small finds EH

Task 13.Collate finds specialist reports CT

7.4.3 Task sequence for illustrations and photographs

Task 14. Digitise sections GA

Task 15. Prepare selected sections for publication GA

Task 16. Prepare selected plans for publication + new generated plans CB

Task 17. Prepare pottery and small finds illustration for report BW

Task 18. Selection of site photos for report AT

Task 19. Preparation of images for report CB

7.4.4 Task sequence for publication

Task 20. Preparation of publication synopsis AT

Task 21. Production of draft publication report AT

Task 22. Copy editing of draft report RG

Task 23. External reader to comment TBC

Task 24. Specialist edits to be organised and incorporated CT

Task 25. Respond to reader's comments and edits, resubmit report AT

7.4.5 Archive deposition

Task 26. Archiving of finds CT

Task 27. Submission of physical and digital archive RB

7.4.6 Consumables and non staff costs

Task 28. Finds transport and supplies

Task 29. EAA copy edit production costs

8 Analysis and publication: resources and programming

8.1 Task list and Project Staff

Task No.	Description of task	Staff Initials	Names : all staff Suffolk County Council unless stated otherwise	
Stratigraphic				
1	General Management	AT	Andrew Tester	Senior Project Manager
2	Stratigraphic analysis	AT	Andrew Tester	
3	Comparative research	AT	Andrew Tester	
Finds and Environmental tasks				
4	Co-ordinate specialist finds work	CT	Cathy Tester	Finds Officer
5	Small finds catalogue	NC *	Nina Crummy (Freelance)	Roman small finds specialist
6	Coin report	JP	Judith Plouviez	Coin expert
7	Discussion on HSR	SA *	Sue Anderson (Freelance)	Human bone specialist
8	Animal bone report	JC *	Julie Curl (Freelance)	Faunal remains expert
9	Plant macro comparative discussion	AW/VF ?	Anna West Val Fryer	Environmentalist
10	Finds dating review & comp work	CT	Cathy Tester	
11	Updating finds catalogues,	CT	Cathy Tester	
12	Conservation/cleaning small finds	EH	Emma Hogarth	Conservationist
13	Collate spec finds reports	CT	Cathy Tester	
Graphics				
14	Digitise sections	GA	Gemma Adams	Graphics assistant
15	Draft & pub section drawings	GA	Gemma Adams	
16	Report maps, plans & sections	CB	Crane Begg	Graphics officer
17	Pottery & SF illustration	BW	Beata Wieczorek-Olesky	Graphics assistant
Photographic				
18	Selection of site photographs for report	AT	Andrew Tester	
19	Preparation of images for report	CB	Crane Begg	
Publication text				
20	Synopsis	AT	Andrew Tester	
21	draft publication report	AT	Andrew Tester	
22	Copy editing of report	RG	Richenda Goffin	Post excavation manager
23	External reader/EAA comments	TBD		
24	Specialist edits	CT	Cathy Tester	
25	Respond to reader's comments	AT	Andrew Tester	
Post-excavation project management				
26	Archiving finds	CT	Cathy Tester	
27	Submission of physical and digital archive	RB	Robert Brooks	Assistant project officer

Consumables and non-staff costs				
28	Finds transport, supplies			
29	EAA Production			

Table 13. Task list and project staff

9 Acknowledgements

The fieldwork was project managed and directed by Andrew Tester
Post-excavation management was provided by Andrew Tester and Richenda Goffin
Finds processing was carried out by Jonathan van Jennians and analysis was undertaken by Cathy Tester, Stephen Benfield, and Richenda Goffin. External specialist reports were undertaken by Sue Anderson, Rachel Fosberry, Dr Richard Mc Phail and Julie Curl and additional specialist advice was provided by Dr Colin Pendleton and Judith Plouviez.

The report illustrations were created by Crane Begg, Ellie Hillam and Gemma Adams and the report was edited by Joanna Caruth and Richenda Goffin.

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