A Bronze Age pit
a late Iron Age enclosure and
a Roman droveway and enclosures
at Magna Park, Milton Keynes
November 2006-June 2007

Accession No. 2007.37/2007.71

Milton Keynes Event No. 1080/1118

Report No 14/92

Authors: Pat Chapman and Andy Chapman
with Paul Mason and Edmund Taylor

Illustrators: Amir Bassir, Andy Chapman, James Ladocha

MOLA
MUSEUM OF LONDON ARCHAEOLOGY

REGISTERED ORGANISATION IfA

Project Managers: Tony Walsh, Adam Yates & Andy Chapman
Site Code:2006.37/2007.71
NGR: SP 914386/SP 910383

MOLA
Bolton House
Wootton Hall Park
Northampton
NN4 8BN 01604 700 493
www.mola.org.uk
business@mola.org.uk

A Bronze Age pit
a late Iron Age enclosure and
a Roman droveway and enclosures
at Magna Park, Milton Keynes
November 2006-June 2007

Accession No. 2007.37/2007.71

Milton Keynes Event No. 1080/1118

Report 14/92

Quality control and sign off:

Issue No.	Date approved:	Checked by:	Verified by:	Approved by:	Reason for Issue:
1	30.04.2014	Pat Chapman	Andy Chapman	Andy Chapman	Draft for client review
2	03.06.2014	Pat Chapman	Andy Chapman	Andy Chapman	Final revisions

Authors: Pat Chapman and Andy Chapman
with Paul Mason and Edmund Taylor
Illustrators: Amir Bassir, Andy Chapman, James Ladocha

MOLA
Bolton House
Wootton Hall Park
Northampton
NN4 8BN
01604 700 493
www.mola.org.uk
business@mola.org.uk

STAFF

Fieldwork project manager	Tony Walsh BA
Post-excavation project managers	Adam Yates BA MIfA Andy Chapman BSc MIfA FSA
Text	Pat Chapman BA AIfA, Andy Chapman Paul Mason BA MIfA and Edmund Taylor BSc
Illustrations	Amir Bassir BSc, Andy Chapman, and James Ladocha BA
Fieldwork	Paul Mason, Edmund Taylor Mark Patenhall Adrian Adams, Amir Bassir, Martyn Cooper, James Brown, Jim Burke, Adrian Burrow MA, Damian Churchill MA Dan Cherry BA, Jonathan Elston Leon Field BA BComm, Nathan Flavell BA PGDip Maria Gale, Miranda Haigh BA David Haynes, Peter Haynes Paul Kajewski BA PGDip Jen Kinsman, James Ladocha Wallis Lord MSc Rowenna Mann MSc, Dan Nagy BA Rob Smith, Mark Spalding BSc Elizabeth Verrinder MA Angela Warner BA Yvonne Wolframm-Murray Phd
Flint	Y B Wolframm-Murray
Bronze Age loomweights and pottery and querns	Andy Chapman
Iron Age and Roman pottery	Ed McSloy BA MIfA and Rob Perrin BA, MLitt, PGCE, MIfA, FSA
Samian pottery	P V Webster
Building materials	Pat Chapman
Querns	Andy Chapman
Metalwork	Tora Hylton
Roman coin identification	Ian Meadows BA
Animal bone	Matilda Holmes BSc MA PhD AIfA Karen Deighton MSc
Charred plant remains	Val Fryer BA MIFA
Charcoal	Rowena Gale (Honorary Research Associate, Royal Botanic Gardens, Kew)
Metal detecting	Steve Critchley MSc
Illustrations	Amir Bassir, Andy Chapman James Ladocha

OASIS REPORT FORM

PROJECT DETAILS	**OASIS No: molanort1- 177808**	
Project name	Magna Park, Milton Keynes, Buckinghamshire	
Northamptonshire Archaeology was commissioned by CgMs Consulting, on behalf of Fen Farm Developments, to carry out a programme of archaeological works ahead of proposed development on land at Magna Park, Milton Keynes. Two areas were subject to open area excavation in 2006-07. An isolated middle Bronze Age pit containing a set of cylindrical loomweights lay within Site 2. At Site 1, a scatter of gullies and pits date to the middle/late Iron Age. A square enclosure, with a deep ditch, was created in the late Iron Age (1st century BC) and remained in use to the mid-1st century AD. There may have been a sequence of entrance structures in the south-east corner and an outer ditch, perhaps holding a timber palisade, enclosed the western half of the enclosure. Internal features included a stock pen and a drainage gully adjacent to the ditch on the lowest side, but little evidence survived to indicate the locations of any roundhouses. The enclosure produced a substantial assemblage of late Iron Age pottery, including hand-built vessel and wheel-finished vessels spanning the transition to the early Roman period. In the early Roman period there was a scatter of pits immediately outside the enclosure. The site was abandoned at around 70AD. At Site 2, a curving boundary ditch is of late Iron Age to early Roman date (1st century AD). By the early 2nd century AD, there was a new system of boundaries, comprising a broad droveway running into possible stock control enclosures. An adjacent domestic enclosure, containing at least two roundhouses, formed a low status native farmstead, dominated by pastoral farming. A new enclosure, containing a rectangular timber building, was constructed in the early 3rd century, and the droveway was made narrower, perhaps as a result of arable agriculture becoming dominant. The enclosures had been abandoned by the end of the 3rd century AD.		
Project type	Excavation	
Site status (none, NT, SAM etc)	None	
Previous work (SMR numbers etc)	Geophysical survey NA (Butler 2006) and trial trench evaluation NA (Burrow 2006; Patenall 2007) (as Milton Keynes, NOVA)	
Current Land use	Scrub	
Future work	None	
Monument type/ period	Bronze age pit, late Iron Age enclosure; Romano-British settlement with droveway	
Significant finds	Bronze Age loomweights, Iron Age and Roman pottery, metal finds	
PROJECT LOCATION		
County	Buckinghamshire	
Site address	Magna Park, Milton Keynes	
Study area (sq.m or ha)	4.48ha and *c* 0.5ha	
OS Easting & Northing	SP 914 386 and SP 910 384	
Height OD	60-70m aOD	
PROJECT CREATORS		
Organisation	MOLA Northampton (formerly Northamptonshire Archaeology)	
Project brief originator	Archaeological Officer, Milton Keynes Council	
Project Design	CgMs Consulting (JSAC)	
Director/Supervisors	Edmund Taylor, Paul Mason	
Project Managers	Tony Walsh, Andy Chapman (NA), Simon Mortimer (CgMs Consulting)	
Sponsor or funding body	Fen Farm Developments	
PROJECT DATE		
Start date	November 2006	
End date	March 2007	
ARCHIVES	**Location (Accession no.)**	**Content (eg pottery, animal bone etc)**
Physical	2006.203; 2007.37 2007.71	Pottery, animal bone, loomweights, metal finds, querns
Paper	2006.203; 2007.37 2007.71	Site record (context sheets, drawings, photographs etc)
Digital		Photographs, digital reports
BIBLIOGRAPHY		
Title	A Bronze Age pit, a late Iron Age to early Roman enclosure and a Roman droveway and enclosures at Magna Park, Milton Keynes, Buckinghamshire	
Serial title & volume	Report 14/92	
Author(s)	Pat Chapman, Andy Chapman	
Pages	114	
Date	3 June 2014	

Contents

Tables

Figures

A Bronze Age pit, a late Iron Age enclosure and a Roman droveway and enclosures at Magna Park, Milton Keynes November 2006-June 2007

Abstract
Northamptonshire Archaeology was commissioned by CgMs Consulting, on behalf of Fen Farm Developments, to carry out a programme of archaeological works ahead of proposed development on land at Magna Park, Milton Keynes. Geophysical survey and trial trench evaluation of the development area of c 80ha, identified two settlements, a square ditched enclosure to the west and 0.9km to the north-east an extensive boundary/droveway and enclosure system. These two areas were subject to open area excavation in 2006-07. An isolated middle Bronze Age pit containing a set of cylindrical loomweights lay to the north-east, within Site 2. At Site 1, to the west a scatter of gullies and pits date to the middle/late Iron Age. A square enclosure, with a deep ditch, was created in the late Iron Age (1st century BC) and remained in use to the mid-1st century AD. There may have been a sequence of entrance structures in the south-east corner and an outer ditch system, perhaps to hold a timber palisade, enclosed the western half of the enclosure. Internal features included a stock pen and a drainage gully adjacent to the ditch on the lowest side, but little evidence survived to indicate the location of a roundhouse. The enclosure produced a substantial assemblage of late Iron Age pottery, including hand-built vessels and wheel-finished vessels spanning the transition to the early Roman period. In the early Roman period activity was limited to a scatter of pits lying immediately outside the enclosure, some containing kiln furniture. The site was probably abandoned at around 70AD. At Site 2, to the north-east, a curving boundary ditch dated late Iron Age to early Roman (1st century AD). By the early 2nd century AD, there was a new system of boundaries, comprising a broad droveway running into possible stock control enclosures. An adjacent domestic enclosure, containing at least two roundhouses, formed a low status native farmstead, dominated by pastoral farming. A new enclosure, containing a rectangular timber building, was constructed in the early 3rd century, and the droveway was made narrower, perhaps as a result of arable agriculture becoming dominant. The enclosures had been abandoned by the end of the 3rd century AD.

1 INTRODUCTION

1.1 Introduction

Northamptonshire Archaeology was commissioned by CgMs Consulting, on behalf of their clients Fen Farm Developments, to carry out two archaeological excavations on proposed development land at Magna Park (formally Nova MK) in Milton Keynes, Buckinghamshire (NGR SP 910 383 and SP 914 386, Fig 1). The excavations met the requirements of a specification originally prepared by John Samuels Archaeological Consultants JSAC (2006) acting on behalf of Fen Farm Developments.

The development area covers 80ha, and had been subject to a programme of archaeological evaluation (Fig 2). Geophysical survey identified a possible sub-rectangular enclosure in the north-eastern part of the application area (Butler 2006). Subsequent trial trench evaluation confirmed the presence of the enclosure and of a more extensive system of associated ditches, all dated to the Roman period (1st-3rd centuries AD) (Burrow 2006 and Taylor 2006). Trial trench evaluation in the western part of the

development area (Patenall 2007), examined the square enclosure, identified in the geophysical survey, which was dated to the late Iron Age (early 1st century AD). In addition, in the southern part of the development, trench 87 (Fig 3) was opened up to expose the full extent of a small oval enclosure, 21.0m long by 16.5m wide (Patenall 2007, 5 & fig 4). The ditch was 1.3m wide by 0.85m deep, with a V-shaped profile, and a fill of orange-brown silty clay, but there was no entrance and no internal features and no finds to provide a date. A shallower ditch ran eastwards from the enclosure, continuing beyond the limit of excavation. It seems likely that this was a minor element of either the late Iron Age or Roman landscape.

Mitigation excavations were subsequently undertaken in the north-eastern area, Site 2, from November 2006 to March 2007 (Nova MK 2006) and in the western area, Site 1, from April to June 2007 (Nova MK 2007). Assessment reports and updated project designs were produced for both sites (Mason 2008 and Taylor *et al* 2008).

Preparation of this final report bringing both sites together has been undertaken between January and April 2014. A copy of the client report will be deposited online through the Archaeological Data Service (ADS, Grey Literature Library, MOLA Northampton).

Following the completion of the reporting, the site archive will be deposited with Buckinghamshire County Museum Service (Accession numbers: 2006.203 for evaluation wpork; 2007.37 for Nova MK 06 and 2007.71 for Nova MK 2007).

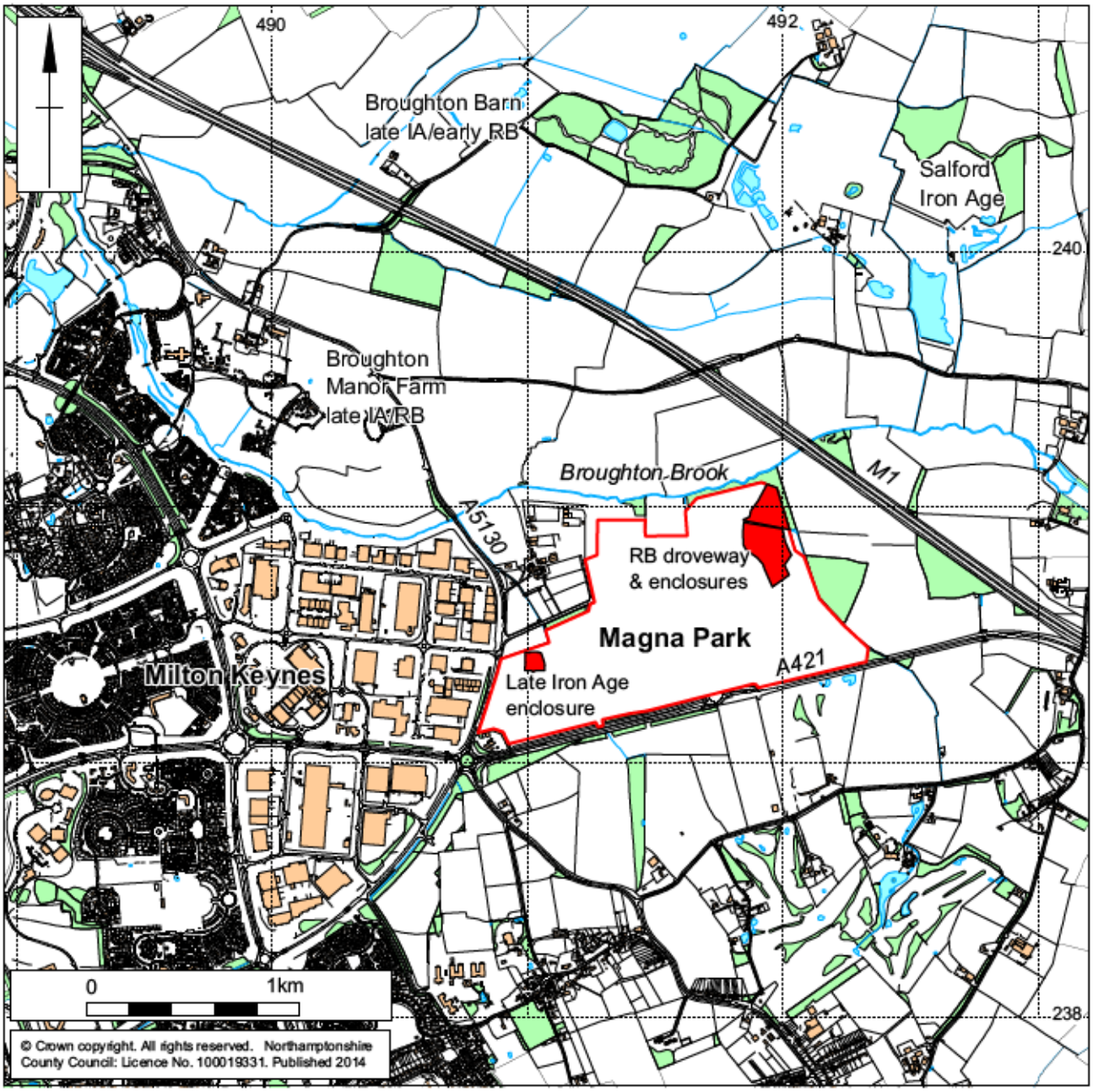
1.2 Topography and geology

The development site occupies an area of approximately 80ha on the east side of Milton Keynes, bounded to the south by the A421 Standing Way and to the west by the A5130. To the north and east are further arable fields and drainage ditches, with the M1 motorway a little further to the north-east (Figs 1-3).

The general topography of the surrounding area is one of low relief associated with Broughton Brook, a tributary stream of the River Ouzel. This stream rises on the higher ground to the east, around Salford, Bedfordshire, and flows westward passing to the immediate north of the development site, and then turns northwards to join the River Ouzel, which also flows northwards to join the River Great Ouse to the north of Milton Keynes.

The development site spans a low spur, rising to just over 70m aOD to the south, adjacent to the A421. Across the western half of the area there is gentle downslope to the north, with Site 1 lying on that slope. To the north-east, the lowest lying part of the development site, the ground drops to below 65m to the north of drainage ditch, around Site 2.

The geology comprises Glacial Till overlying Oxford Clay and Kellaway Beds (JSAC 2006, 3).



Scale 1:25,000 (A4)

Site Location Fig 1

910

920

390

0 200m

Site boundary

Excluded area

Phase 2 trenches

Previous trenches

1:5000

(from Patenhall 2007)

Milton Keynes Nova Phase 2 Trench Plan Fig 2

1.3 Original aims and objectives

Aims and objectives

The project aims, as set out in the Specification (JSAC 2006, 3-4), were to investigate the origin and development of the agricultural landscape by:

- Determining the phasing of the extant field systems by excavation;
- Investigation of the changes in landscape flora by environmental sampling;
- Consideration of the wider geological/hydrological landscape as a mechanism for catalyzing settlement.

Investigating the origin and development of domestic occupation by:

- Analysing the distribution of material culture;
- Investigating the form and function of structural features;
- Comparing the assemblages of rubbish disposal deposits by period.

Investigating palaeo-economy and industry through time by:

- Examination and comparison of faunal remains;
- Analysis and comparison of soil samples from industrial contexts;
- To identify possible crop regimes and staple food stuffs from environmental sampling.

Broader research themes to be considered for the relevant periods of the excavation, drawn from the Eastern Counties research frameworks by Glazebrook (1997), Brown and Glazebrook (2000) were as follows:

Bronze Age

- Changes in burial practise;
- Relationship between monuments and landscape development;
- Human impact on the landscape;
- Changing patterns of agricultural production and consumption.

Iron Age

- Chronology (absolute dating);
- Development of the agrarian landscape;
- Settlement chronology and dynamics;
- Economic and social change during the Late Iron Age/Roman transition;
- Social organisation and settlement form and function in the Early and Middle Iron Age;
- Artefact production and distribution;
- Bronze Age/Iron Age transition.

Roman

- Food consumption and production;
- Agricultural production;
- Landscapes;
- Rural settlements.

1.4 Methodology

Both sites were stripped under archaeological supervision using a 360° mechanical excavator fitted with a toothless ditching bucket. Topsoil and subsoil was stripped to reveal the natural substrate, into which features had been cut. Removed soil was handled by articulated dump trucks and stacked at a safe distance from the excavation areas.

Site grids were established at 20m intervals and related to the Ordnance Survey National Grid using a Leica System 1200 GPS. The stripped surfaces was cleaned by hand and planned at a scale of 1:50 at Site 1, the Iron Age enclosure, and 1:100 at Site 2, the extensive Roman droveway and enclosure system. All sectioned features were drawn at a scale of 1:10 or 1:20, and contexts were recorded on proforma sheets. A unique context number was allocated to each distinct deposit and feature.

The ground conditions were at times very wet and on occasions the sites were partially flooded or snowed on, and the teams are to be congratulated for achieving so much despite the far from ideal conditions.

Soil samples of up to 40 litres were taken for flotation from dateable contexts with a potential for the recovery of charcoal and carbonised plant remains.

The sites and the spoil heaps were scanned with a metal detector to maximize artefact retrieval.

Full photographic records comprising both 35mm monochrome negatives, with associated prints, and colour transparencies was maintained, together with digital photography.

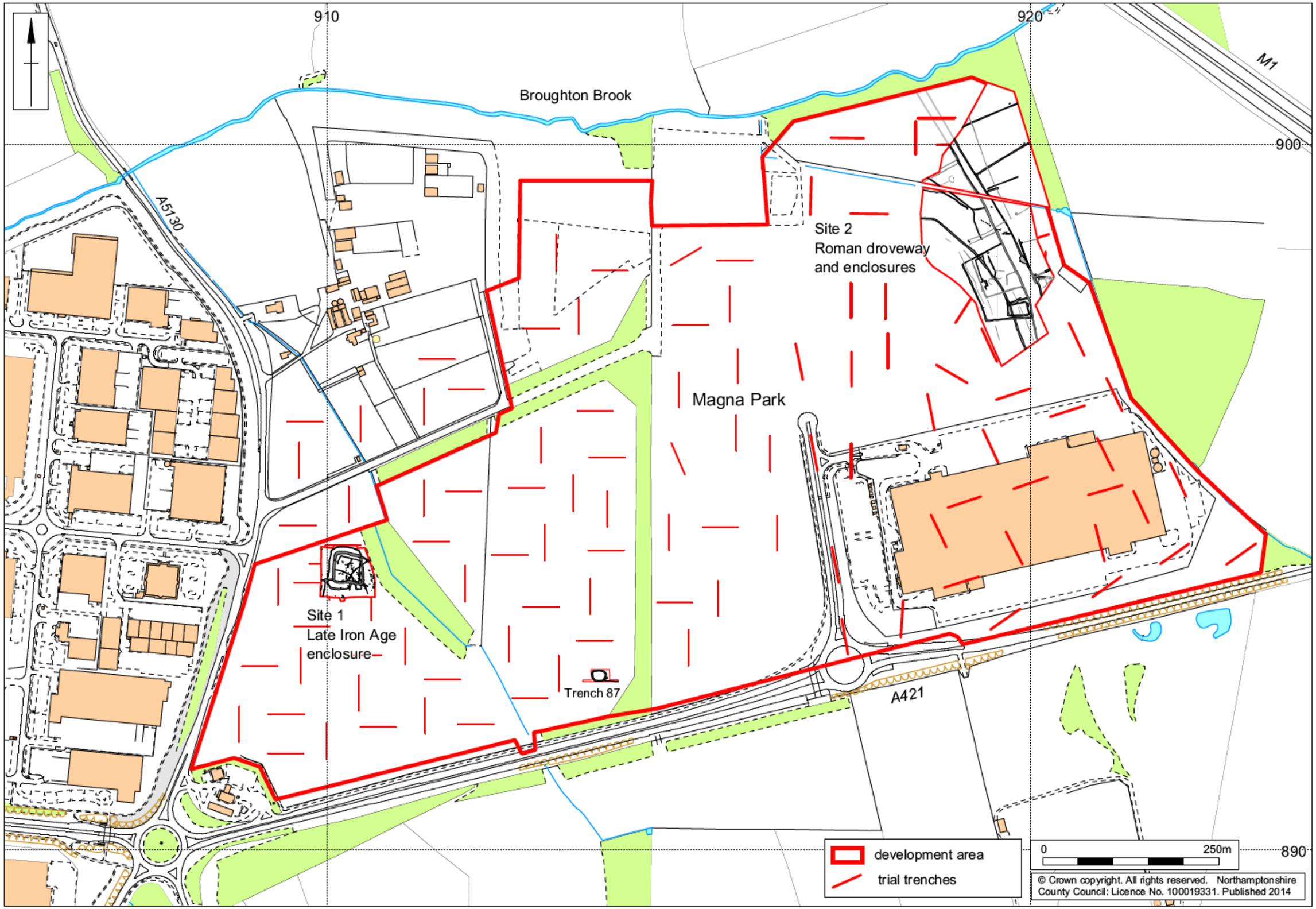
All works were conducted in accordance with the Institute of Field Archaeologists *Standards and Guidance for Archaeological Excavation* (IFA 1995, revised 2001) and the *Code of Conduct of the Institute of Field Archaeologists* (IFA 1985, revised 2000).

1.5 Site chronology

The broad chronology of the two sites is summarised below (Table 1).

Table 1: Site chronology

Period	Site 1: Late Iron Age enclosure	Site 2: Bronze Age pit, Roman droveway and enclosures
Late Neolithic/ early Bronze Age	-	lint scraper
Middle Bronze Age	-	Pit with loomweights & potsherd. Residual dagger fragment
Middle/late Iron Age (2nd century BC?)	Scattered pits and gullies	-
Late Iron Age (1st century BC- mid 1st century AD	Construction, use and modification of square enclosure	Curving boundary ditch
Early Roman (mid to late 1st century AD)	Pits south of enclosure	Curving boundary ditch Sparse deposition of pottery
Roman (2nd century AD)	Abandoned	Droveway & domestic enclosures Pastoral farming
Roman (3rd century AD)	-	Narrow droveway/trackway and domestic enclosure Arable farming
Roman (4th century AD)	-	Abandoned
Medieval/post-medieval	-	Ridge and furrow



Scale 1:5000 (A3)

Magna Park showing trial trecnhes and excavated Iron Age and Roman sites Fig 3

2 NEOLITHIC AND BRONZE AGE ACTIVITY

At the two sites a total of only four residual worked flints was recovered. At Site 2, the Roman trackway and enclosures to the north-east, there was a single pit dated to the middle Bronze Age by an assemblage of cylindrical loomweights.

2.1 Worked flint by Yvonne Wolframm-Murray

There is a single worked flint from Site 2, a residual find from the fill of a Roman gully. It is a mid brownish-grey coloured vitreous flint with a light brownish white and worn cortex on the dorsal surface. It is a discoid type scraper with retouch on almost all surfaces except around the proximal end. It dates from the late Neolithic/early Bronze Age.

Three waste flakes from Site 1, the late Iron Age enclosure, had no diagnostic features.

2.2 Middle Bronze Age pit

At the southern end of Site 2, the Roman droveway and enclosures (see Fig 31), there was a small oval pit, 690, 1.50m long by 1.15m wide and 0.58m deep, with a U-shaped profile and a sloping base. The primary fill (691) was firm gritty green/grey clay 'cessy' material, 0.25m thick, which contained an untidy cluster of partial and complete plain and decorated cylindrical loomweights, giving the impression that they had been dumped as a group in a single act of deposition, rather than being carefully placed (Fig 4). There was also a pottery sherd and a few animal bone fragments. Above the primary fill there were thin layers of grey and orange sandy clay, together 0.40m thick.

The fills of the pit was sampled, but the assemblages were severely root contaminated and contained only small charcoal fragments which, given the root penetration, may have been intrusive.

Stack of loomweights within pit 690 Fig 4

2.3 The loomweights by Andy Chapman

A total of 7.803kg of fired clay from cylindrical loomweights with longitudinal perforations was recovered as a single deposit in primary fill (691) of a small pit, 690. Two loomweights are virtually complete and there is more than a half of a further five (Fig 5a). Consideration of the remaining fragments suggests that the group contains a total of ten weights. The following text summarises the assemblage and a detailed report has been published in Records of Buckinghamshire (Chapman 2012).

There are three distinct types of weight. There are three plain weights, and the complete example is the largest in the group, at 100mm diameter by 95mm high and weighing 1.38kg. At least one of the other two plain weights probably also weighed well over 1.0kg.

The other seven weights all have their surfaces covered with multiple lines of fine or large impressed point decoration. Four weights, each around 85mm in diameter by 95mm long, and weighing some 0.95-0.99kg when complete, are profusely decorated with multiple closely-spaced lines of fine oval points, possibly executed with a comb (Fig 5b). The individual impressions are elongated at right-angles to the lines, 1.5mm long by 0.5mm wide, and are only 2mm apart. They were only shallowly impressed and some lines have been partially lost to surface erosion. A further three weights of similar size and weight are decorated with lines of more deeply impressed circular points, 3-4mm in diameter and set 6-8mm apart, centre to centre (Fig 5c). In both decorated types the lines of decoration run the length of the cylinders and form more complex patterns on the ends (Fig 5b & c.)

The recovery of cylindrical loomweights, including decorated examples, is not uncommon, but a group of ten weights containing several near complete examples, and with seven decorated examples, is certainly rare if not unique. As a group, they might have formed a set from a single loom, with the decorated examples consistently weighing slightly less than 1.0kg, while the two heavier plain weights were perhaps used at either end of the loom.

Cylindrical loom weights cannot be precisely dated and could occur anywhere between the Middle Bronze Age and the Late Bronze Age/Early Iron Age, but a Middle Bronze Age date seems most likely.

a) general view of all intact weights (Scale 50mm)

b) weight decorated with lines of fine incisions (Scale 10mm)

c) weight decorated with large perforations (Scale 10mm)

Plain and decorated cylindrical loomweights Fig 5

2.4 Bronze Age pottery by Andy Chapman

The pit that contained the cylindrical loomweights also contained a single sherd of pottery from fill (691). This is a plain body sherd, 5mm thick, from a hand-built vessel. The fabric is oxidised to light brown throughout and contains moderate angular flint, measuring from less than 1mm to 3-4mm. It can be broadly dated to the Middle Bronze Age to Late Bronze Age/Early Iron Age on the basis of its association with the cylindrical weights, with a Middle Bronze Age date most likely.

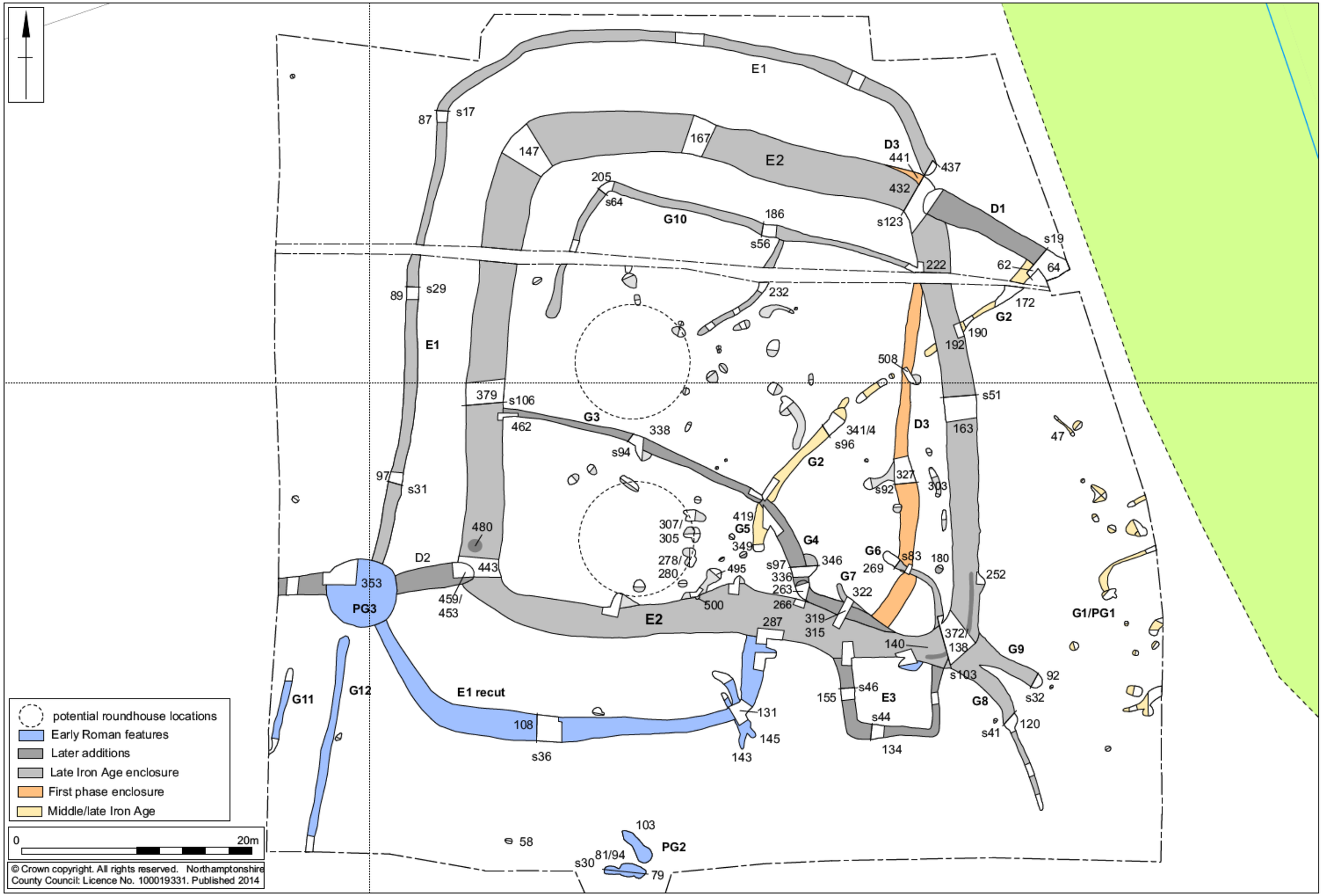
2.5 Middle Bronze Age dagger by Tora Hylton

Part of a copper alloy dagger dating to the middle Bronze Age was recovered from a Roman ditch 801 (D2) dated to the 2nd centuries AD. The fragment comprises the butt end and part of the blade (Fig 6). The butt-end is pierced by two holes and one still retains a rivet (slender peg type). The blade survives to a length of *c* 30mm, it has a lozenge-shaped cross-section and the thin edges of the blade are lost and patina is flaking in places. At its widest point (just below the rivets) the dagger measures 39mm and then tapers towards the tip of the blade, now missing.

Fragment of Bronze Age dagger recovered from Roman ditch (Scale 50mm) Fig 6

2.6 Animal bone by Karen Deighton

Approximately 50g of animal bone was retrieved from the primary fill (691) of pit 690. Preservation was reasonable with moderate fragmentation and abrasion. Root etching was noted on a single bone shaft and canid gnawing was observed on a proximal tibia. Identifiable bone was limited to two ovicaprid (sheep/goat) mandibular molars and a tibia of the same taxa. The tibia had been chopped mid shaft. The epiphyses were unfused which indicates a sub-adult animal.



Scale 1:300 (A3)

The late Iron Age enclosure (Site 1) Fig 7

3 A LATE IRON AGE ENCLOSURE (SITE 1)

3.1 Introduction

Site 1 lay near the western margin of the development area on land sloping gently down from the south-west, at 68m aOD, to the north-east, at 67m aOD (Fig 3). At the time of the excavation the ground was covered with the remnants of a rapeseed crop, and the open trial trenches from the evaluation (Fig 8). To the immediate east there was a tree belt flanking a drainage ditch that ran northwards to flow into Broughton Brook.

The site, before excavation, looking south Fig 8

The excavated area was roughly square, up to 77m north-south by up to 78m west-east, an area of 0.52ha (Fig 7). There were extensions to the north, to take in all of an outer enclosure ditch E1, and a small extension to the south to enable the full excavation of pit group PG2.

The geology comprises Oxford Clay and Kellaway Beds overlain by glacial till. Given the clayey nature of the natural, the site was prone to localised flooding in periods of adverse weather, particularly at the lower lying northern end, which hampered the processes of excavation and recording (Fig 9).

The site, north end looking east, left, and right, looking south-west Fig 9

General stratigraphy

The natural (3) was patchy red-brown sandy gravel with frequent grey-blue veins of boulder clay, generally 0.40m below ground level, with a very soft band of grey clay at the northern end of the site. The overlying subsoil (2), typically 0.20m thick, was firm clay brown-orange-olive green in colour with occasional small stones, sharply differentiated from the topsoil, but merging into the natural. The topsoil (1), 0.30-0.40m thick, was a friable grey-brown clay loam with occasional small stones.

Medieval ridge and furrow field cultivation, surviving as ploughed-out shadows of the largely removed furrows, crossed the site from north-west to south-east. Ceramic land drains had been inserted along the furrows. The early field system would have truncated the features to some extent and as the furrows themselves have been largely removed, there has clearly been considerable truncation from recent ploughing. Crossing the site from east to west, slightly north of centre, there was an iron duct containing an electricity cable, which was left undisturbed within a baulk about 1.5m wide.

3.2 The development of the enclosure

The earliest activity was in the middle/late Iron Age, perhaps the 2nd century BC, with scattered pits and gullies lying to the east of the enclosure (Fig 7, G1/PG1) and probably including some of the scatter of similar features, largely undated, encompassed by the ditched enclosure.

The square enclosure dates to the late Iron Age, 1st century BC. In its original form, the enclosure ditch, of which only the eastern arm survived (D3) was 1.9m wide and up to 0.6m deep. This length contained only hand-built pottery, indicating that it had fallen out of use before the end of the 1st century BC.

Perhaps quite soon after its creation, a new, much deeper enclosure ditch was provided (E2), possibly as a result of the waterlogged ground conditions causing rapid silting of the original ditch and perhaps resultant flooding within the enclosure. There was also a realignment of the eastern side of the enclosure. The final enclosed area measured up to 39m north-south and east-west, an area of 0.14ha. This enclosure was in use until the mid-1st century AD. The substantial pottery assemblage includes hand-built vessels of the 1st century BC, and much wheel-finished or wheel-made pottery of the early 1st century AD.

The new enclosure ditch was up to 3.9m wide and 1.9m deep, and the surviving steep-sided V-shaped profile indicates that it had silted rapidly. The ditch had been certainly seasonal flooded and was permanently wet, with uncharred seeds of both wetland and dryland plants surviving in the primary fill and, in at least one instance the secondary fill. The blue-grey colour of both primary and upper secondary fills was also an indication that the ditch was waterlogged and contained gleyed silts, formed in anaerobic conditions.

There was no surviving entrance causeway but it is suggested that the complex palimpsest of features at the south-east corner were related to successive elaborate entrances. The ditch must either have been bridged and/or causeways had been removed when the entrance was repositioned. The narrowness of the ditch at this point provides some support for this argument. There are insufficient stratigraphic relationships to establish a full sequence of events, but it is suggested that a pair of curvilinear gullies, G7 & G8, within the enclosure flanked an approach, some 8m long and from 4.0-5.5m wide, to an entrance sighted at the eastern end of the southern arm.

The external sub-enclosure (E3), 6.5m wide by 5.0m long, may have been related to a later entrance, probably dating to the early 1st century AD, and located slightly to the west of its predecessor. The slots might have held a rectangular timber fore-building,

protecting an entrance, although the V-shaped profile of the slot does not support this suggestion. However, this structure was probably contemporary with the enclosing of the western half of the enclosure by a slot (E1), set between 4-7m beyond the enclosure ditch. To the south it terminated just to the west of the entrance sub-enclosure (E3), which extended a similar distance from the enclosure ditch. To the north and west, the feature was consistently steep-sided, with a flat base, 0.5-0.7m wide. There were no surviving indications in the fill that it had ever held timbers, but the profile would be consistent with the provision of an encircling timber palisade, perhaps later dismantled. Given that the enclosure ditch was seasonally flooded and permanently wet, the palisade could even had the purely, or an additional, practical function of preventing livestock from falling into the ditch whilst trying to drink from it.

Within the enclosure, on the northern, the lower lying side, a gully (G10) ran parallel with the enclosure ditch, with a southward running arm, 12m long, to the west, while to the east it ran to the enclosure ditch. A curvilinear gully ran from the central area of the enclosure to meet the northern arm. The 3.5m wide space between the enclosure ditch and the gully is insufficient width for an internal bank of any significant height, but the feature might have been a drainage gully along the base of a low bank (or the front of a hedge?), flanking the southern arm and part of the western arms of the enclosure.

There was a similar drainage gully along the lower lying part of the Wootton Hill Farm enclosure, Northampton, although there the space between gully and ditch was broader, as 5m, but still only enough for a relatively low bank (Jackson 1989, fig 5 and Jackson 2010, fig 6.6). The fills of this gully contained only hand-built pottery, so it had probably fallen out of use by the end of the 1st century BC.

To the south, a curving gully (G3/G4) cut off the south-western corner, forming an area 25m long and up to 15m wide. Similar internal sub-divisions are seen at many small Iron Age enclosures and are usually interpreted as stock enclosures. This feature produced wheel-finished pottery dating to the early 1st century AD.

Many of the scatter of minor gullies and pits across the interior, contained pottery dating to the 1st century AD, indicating that the majority were contemporary with the use of the enclosure. There are few other clues to the exact usage of the internal space, although the quantities of domestic debris from the enclosure ditch would suggest that it was a settlement enclosure. The presence of at least one roundhouse would be expected but there are few physical traces surviving. Ironically, the best candidates for paired doorposts, lay towards the eastern end of the enclosed area in the south-west corner, interpreted as a possible stock enclosure. Here there were two pits, each recut, where timber door posts would have formed doorways 3.5m and 2.0m wide, successively. It would be possible for these to have been the doorposts of an eastern entrance to a roundhouse 10m in diameter that would just fit between the enclosure ditch (E2) and the sub-division ditch (G3). Alternatively, it might be suggested that the central curvilinear gully could have begun somewhere around the eastern doorway of a roundhouse up to 10m in diameter, which would have occupied the space between the two southward run running arms of the drainage ditch (G10) and the corner sub-enclosure to the south (G3), with space for one of more ancillary structures in the north-eastern corner of the enclosure. However, lacking hard evidence, this is purely conjectural.

Wootton Hill Farm, Northampton which is the type site for an English Heritage recognised monument class, Wootton Hill-style enclosure: for small, deep-ditched enclosures with defended/protected entrances dating to the late Iron Age, can again be used as a parallel for Magna Park. At Wootton Hill Farm the enclosure was also square and of similar size, measuring 35m across in comparison to 39m at Magna Park, and at Wootton Hall Farm a short length of curving gully and a pair of substantial post-pits defined the presence of a single roundhouse, 10m in diameter. A gully of sub-

rectangular plan formed a stock enclosure in the adjacent corner, to complete the set of comparable internal elements that began with the drainage gully along the lower lying side of the enclosure.

We can therefore classify Magna Park as a Wootton Hill-style enclosure, although this does little on its own to explain the nature and function of the site.

There is limited environmental evidence for life associated with the enclosure. Animal bone was quite scarce, but included all the main domesticates, cattle, sheep/goat, pig, horse and dog. There was also some red deer, but the late Iron Age material was all from antlers, probably collected shed antlers for craft manufacturing, while there is a single tooth from an early Roman deposit.

The age of death of the cattle indicates a late Iron Age economy based largely on secondary products, milk and/or traction, with many animals retained to an advanced age, although the later deposits show increasing evidence for culls of some younger animals, specifically for meat, towards the mid 1st century AD. In contrast, sheep were initially of prime importance for their meat, but later deposits indicate a later age at death indicating a growing value for secondary products such as wool and milk.

Few deposits produced any quantity of cereal grain or chaff from processing, and the only querns come from the Roman deposits of the final phase of activity. It is therefore cosidered more likely that the cereal needs of the site were met by imported batches of semi-cleaned grain.

Fragments of fired clay kiln lining were recovered from around the south-eastern entrance, some internal pits and from the ditch on the western side of the enclosure, which may suggest that some pottery was manufactured nearby in the early-mid 1st century AD, and there was further kiln furniture in the early Roman features (see below).

The enclosure at Magna Park remained in use through to the middle decades of the 1st century AD, most probably surviving for a decade or more beyond the Roman Conquest. While the main focus of domestic occupation may then have moved elsewhere, there was still a final phase of less intense activity associated with the enclosure, but largely conducted outside of the main ditch circuit

The southern arm of the outer ditch system (E1), the possible palisade was extensively recut and enlarged at this time. In the single section excavated across the main length of this ditch the secondary fill contained quantities of large rounded cobbles, along with fragments of fired clay kiln lining and early Roman pottery, while a fragment of a puddingstone quern came from one of a pair of gullies that intersected this ditch to the east. The fills of a pit group to the south of this, PG2, were also characterised by the presence of cobbles, often burnt, fragments of kiln lining and early Roman pottery.

To the west, a large pit, 6m in diameter but only 0.5m deep, produced more early Roman pottery and another fragment of puddingstone quern, and a pair of linear gullies (G1 & G2) are also dated to this final phase of activity.

The presence of kiln furniture in both late Iron Age and early Roman deposits may suggest that pottery manufacturing was a common activity spanning the transition to the early Roman period, but with this perhaps occurring at some distance from a new settlement focus in the early Roman period.

3.3 Middle to late Iron Age activity (2nd-1st century BC)

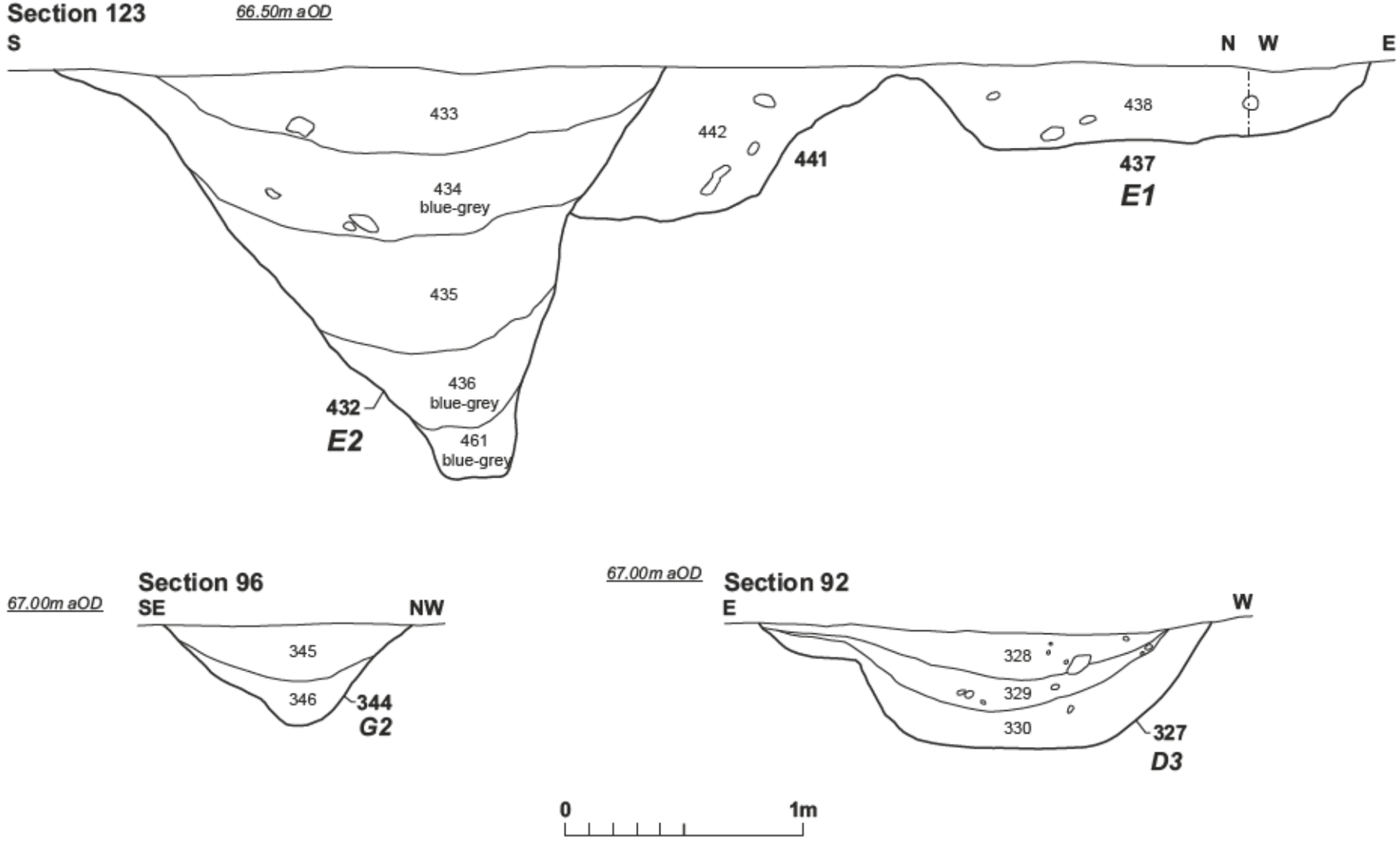
There were a cluster of shallow features to the east, G1/PG1, possibly associated with the gully G2, which ran from north-east to south-west in a series of segments (Fig 7).

Gully and pit group G1/PG1
The shallow pits, postholes and gullies to the east of the enclosure typically had fills of grey-orange clay with occasional gravel.

The pits varied from 0.80m-1.40m wide and 0.10-0.45m deep, with broad U-shaped profiles. A short shallow gully 47, aligned north-west to south-east, was 3.5m long and 0.15m wide but only 0.05m deep. Postholes were V-shaped, 0.25-0.40m in diameter and 0.08-0.12m deep, only one had a U-shaped profile. A series of gullies aligned south-west to north-east continued east beyond the limit of excavation. They were wide and shallow, both V and U-shaped, 0.40-0.80m wide and 0.15-0.25m deep. The features in this area contained a sparse scatter of hand-built middle/late Iron Age pottery (2nd-1st centuries BC), with 47 sherds in nine features, while 21 sherds from six features were early-mid 1st century AD in date, suggesting that some of these external features were contemporary with the use of the enclosure.

Gully G2/G5
This gully was discontinuous, comprising five segments of varying lengths, running from north-east to south-west. There was an area of confused and poorly understood stratigraphy at the intersection with gully G3/G4, but it seems most likely that the early gully continued south to a terminal G5 (Fig 7). The gully segments were 0.45-1.05m wide and 0.10-0.45m deep with varied profiles (Fig 10, section 96. The pottery in the fills included material of early-mid 1st century AD date, but this may have come from contamination during usage of the enclosure. There was a fragment of kiln plate from gully 62, to the north-east, where it was 0.85m wide and 0.40m deep with a U-shaped profile (Fig 16, section 19). At the southern terminal 349, G5, the gully was 0.75m wide and 0.20m deep with a very broad V-shaped profile, and there were fragments of kiln lining in primary fill (351).

Scale 1:25



Enclosure E2, ditches 441 and 443, ditch D3, gully G2 Fig 10

3.4 The late Iron Age enclosure (1st century BC-mid 1st century AD)

The original enclosure

There was most likely an original enclosure, 36m square, of which only the eastern arm, D3, survived, ditch sections 508, 327 and 299. Otherwise it had been almost obliterated by the more substantial enclosure ditch that replaced it.

On the eastern arm, D3, ditch 327 had a broad U-shaped profile, 1.9m wide and 0.50m deep, 0.40m wide and 0.15m deep (Fig 10, section 92). The secondary fill, (329) included animal bone from a dog, a horse, cattle, sheep/goat and a deer antler fragment, and two pottery sherds of Iron Age date. At the north-east corner of the enclosure, there was a further remnant of the early ditch, 441, which had a broad U-shaped profile, 0.60m deep (Fig 10, section 123).

The main enclosure ditch

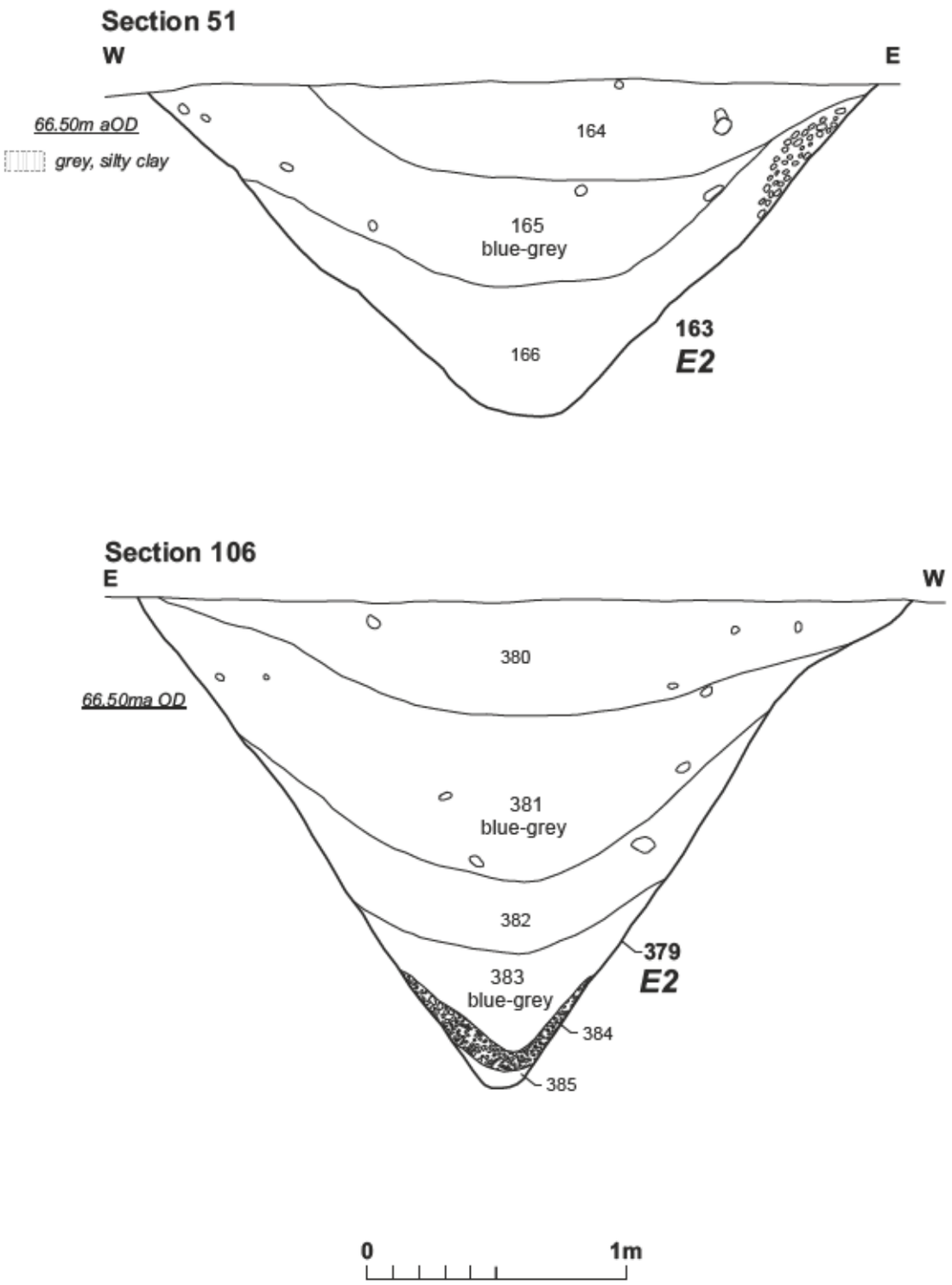
Perhaps after a relatively short time, the enclosure was completely remodelled. To the north, west and south the original ditch was obliterated by a more impressive ditch, consistently V-shaped and 2.40-3.90m wide by 1.30-1.90m deep. The eastern arm of the new enclosure was relocated to the east of the earlier ditch, thus widening the enclosure by some 3.5m, with the greatest increase occurring at the southern end of the eastern arm, perhaps to enable the provision of an elaborate entrance at this corner of the enclosure.

The surviving steep-sided ditch profiles indicate that the primary and lower secondary fills had accumulated rapidly, preventing further erosion of the sides. Around the circuit the fills showed a consistent pattern of silting. The primary fills were of blue-grey silty clay (Fig 11: S106, ditch 379 fills 383-385 and S51, ditch 163, lower part of 166, and Fig 12). The blue colouration denotes gleying, indicating that these deposits had been waterlogged and anaerobic, and the presence of some wood, in the form of small twigs and quantities of uncharred seeds from wetland and dryland plants, recovered from soil samples, show that the ditch was seasonally water filled and constantly wet, muddy and stagnant, and these deposits had remained waterlogged until excavated.

The primary fill of ditch 163, on the eastern arm (Fig 11, section 51, 166 and Fig 12) appeared to be particularly thick, but included much orange-brown redeposited natural, indicating a merging of the boundary between the primary and lower secondary fills, perhaps a result of more active erosion of the ditch sides in this area. Elsewhere, there was a clear distinction between the primary fill and the mottled orange-brown clays of the lower secondary fills, as in ditch 379 (Fig 11, 382). The mottling indicates that these deposits were also wet, but not permanently waterlogged.

Above this there was typically a thick upper secondary fill of blue-grey clay, seen particularly clearly in the northern arm of the enclosure, ditches 167 and 147 (Figs 13 & 14). The nature of this fill would suggest that there were prolonged periods with standing water in the partially silted ditch, with resultant gleying of the fills producing the blue colouration, as in the primary fills, but in only one excavated length had these upper deposits remained wet until excavated to enable some uncharred seeds to survive, fill (147) in ditch 149.

The silting in the ditches suggests that on the eastern and western sides more material was coming into the ditch from the interior, whilst along the north side material from the outside predominated. The fills therefore provide no consistent evidence for the presence of an associated internal bank.



Scale 1:25

Enclosure E2, ditches 163 and 379 Fig 11

Enclosure ditch 163, looking north Fig 12

Enclosure ditch 147, looking south Fig 13

Enclosure ditch 167, looking north-west Fig 14

Pottery from the fills of the enclosure ditch often comprised mixed deposits of both hand-built late Iron Age and wheel-finished pottery of the early-mid 1st century AD date, with the largest quantities coming from the blue-grey upper secondary fills and further material from the final fills. Animal bone from the main domesticates also came from upper secondary and final fills of the ditch, although restricted to single bones or teeth from horses and dogs. A deer bone came from ditch 379, on the west side. One or two fragments of kiln lining came from the north and east ditches 163 and 167, but 24 fragments weighing 981kg came from western ditch 379, and a further large amount from the south-west junction of enclosure ditch E2 and ditch D3.

Along the south side of the enclosure, the ditch was partially excavated on the north and south sides in conjunction with other features, except in the south-eastern entrance area where there was a recut, discussed more fully below (Fig 7 & Fig 15, section 103). The fill (273), ditch 272, and fills (295) and (296), ditch 315, all included pottery of early-mid 1st century AD date and small quantities of kiln lining.

A pit, 480, in the top of the enclosure ditch 443 in the south-west corner, was *c* 0.75m in diameter (Fig 7). The fill, described as burnt, had pottery of early-mid 1 century AD date and fragments of kiln lining.

South-eastern entrance area and enclosure E3

The complexity of this area, where the ditch was also at its narrowest, suggests that this was the location of at least two successive entrances. It is possible that in relocating the entrance any original entrance causeway had been removed.

The original entrance may have been an opening in the circuit flanked by ditch terminals, and this may have been sited at the narrowest part of the ditch, perhaps later cut through. The location of the original entrance may have been defined by a pair of curving gullies, G6 and G7, forming an internal approach to the entrance, perhaps holding timbers (Fig 7). The opening was 4.3m wide, but broadened to 5m before probably narrowing again at the crossing or causeway. A similar entrance arrangement has been

seen on an Iron Age enclosure at the Long Dole, DIRFT (Daventry International Rail Freight Terminal), Northamptonshire (A Chapman pers com).

The north-west terminal of gully G6, 269, was 0.80m wide and 0.20m deep with a broad U-shaped profile (Fig 15, section 83), with pottery of early-mid 1st century AD date in the fill (270). To the east the gully was narrower and shallower, 0.40m wide and 0.15m deep with an asymmetrical V-shaped profile. Gully G7 was 0.50m wide and 0.50m deep with a broad V-shaped profile.

The enclosure ditch at the south-east corner was the only section that showed recutting of the main enclosure ditch with this supporting the suggestion that the entrance underwent phases of remodelling. An early ditch, 138, surviving on the south side, was up to 0.80m deep, while the recut, ditch 372, had a V-shaped profile, 2.40m wide by 1.35m deep (Fig 15, section 103), still much shallower than elsewhere on the ditch circuit, and the fills produced one of the larger groups of fired-clay kiln lining.

Following the silting up of the ditches at this corner, a shallow gully, 140, 0.9m wide and 0.3m deep was cut into the fills for a length of 10m (Fig 7), and was only recognisable because of the distinctive fill of dark grey ashy clay loam, which contained pottery, animal bone and a quantity of kiln lining. This feature is most likely to belong with the final phase of early Roman activity.

Enclosure E3

Enclosure E3 was attached to the southern side of the main enclosure ditch, and enclosed a rectangular area measuring 6.5m by 6.0m (Fig 7). The western and southern arms, 155 and 134, were V-shaped, 1.20m wide and 0.40-0.50m deep, while the eastern arm was narrower and shallower, 0.50m wide and 0.18m deep (Fig 15, sections 44 and 46). It is suggested that this enclosure formed an external forecourt, protecting a new entrance, set slightly to the west of the original entrance. It is tempting to suggest that the gully may have held timbers of a forecourt structure, but the fills and gully profile provide no supporting evidence.

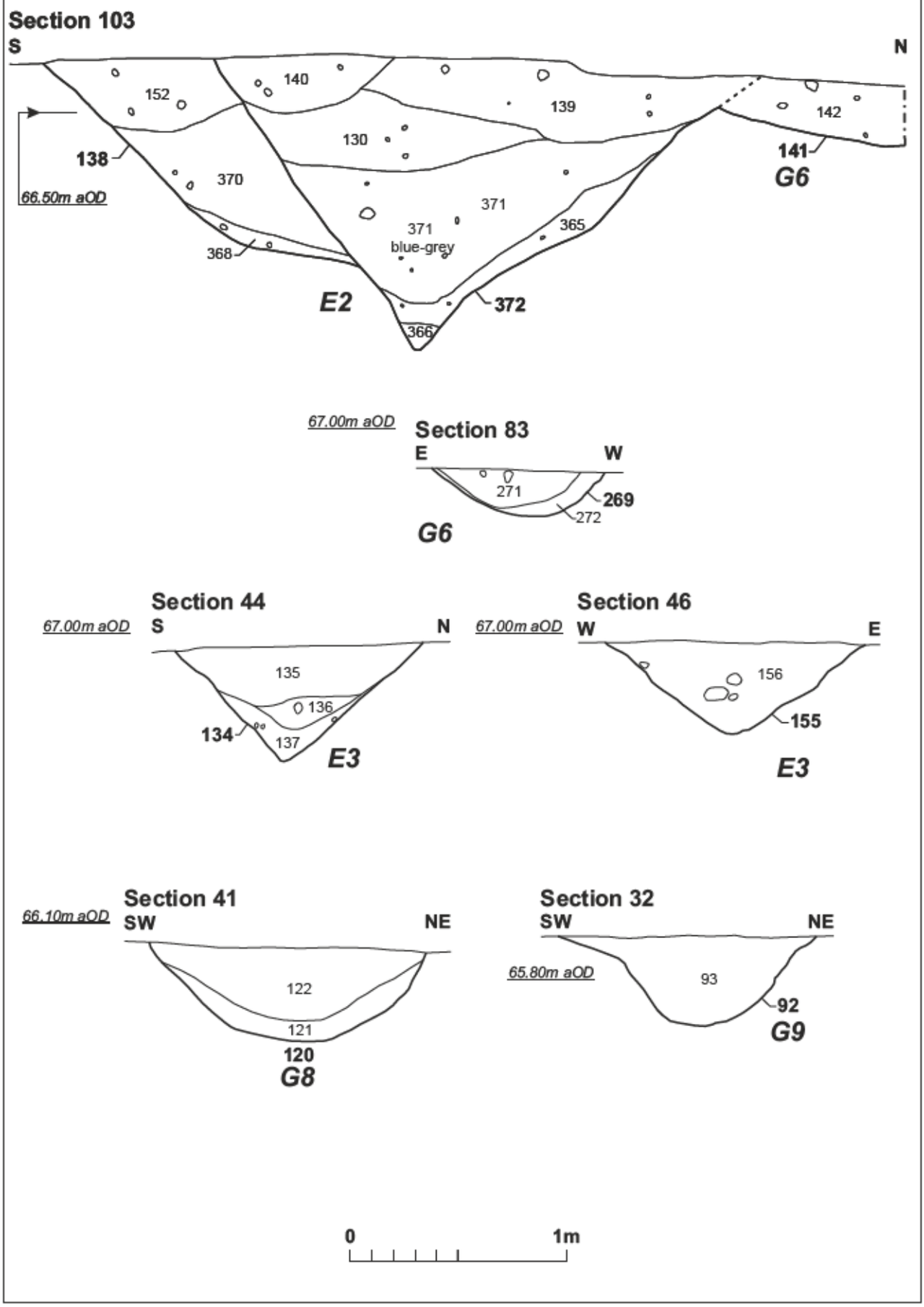
Within the enclosed area, a wide and flat-bottomed, rectangular pit, 239, 1.50m long and 0.23m deep, cut the main enclosure ditch and is likely to belong to the early Roman phase.

Ditches G8 and G9

At the south-east corner of the main enclosure ditch two gullies ran south-eastwards, steadily diverging (Fig 7). Pottery from the terminals was early 1st century AD in date, and animal bone and a few fragments of kiln plate also came from the fills. The relationship of these two ditches to the enclosure ditch is unclear.

Ditch G8 was 6m long, 1.25m wide and 0.40m deep (Fig 15, section 41). From the terminal, 120, a narrower and shallower gully, 0.55m wide and 0.15m deep with a broad V-shaped profile, ran southwards for a further 7.5m.

Ditch G9 was 5.5m long, with a rounded U-shape profile, 0.80m wide and 0.45m deep (Fig 15, section 32).



Scale 1:25 Enclosure ditch E2 and entrance structures Fig 15

An outer ditch or palisade

The western half of the enclosure was surrounded by an outer ditch/slot (E1), which ran roughly parallel to the enclosure ditch, at a spacing varying from 4.0-7.0m (Fig 7). To the north-east, this ditch came in to meet the enclosure ditch and terminated just short of it. The southern arm was much broader as a result of being recut and modified in the early Roman period. To the east it turned in abruptly and ran into the main enclosure ditch 6m to the west of the entrance structure (E3), perhaps suggesting that the two were contemporary in origin.

On the northern and western arms the ditch had a wide, flat-bottomed U-shaped profile 0.80m–1.30m wide and 0.30m-0.50m deep (Fig 16, sections 17, 29 and 31). The fills were blue-grey and grey-brown clays, occasionally brown, with a few small stones. The survival of the steep edges implies rapid backfilling, and it is suggested that this slot-like feature may have held a timber palisade that provided an outer defence around more than half of the enclosure.

The north-east ditch terminal, 437, was very shallow, 0.15m deep (Fig 10, section 123).

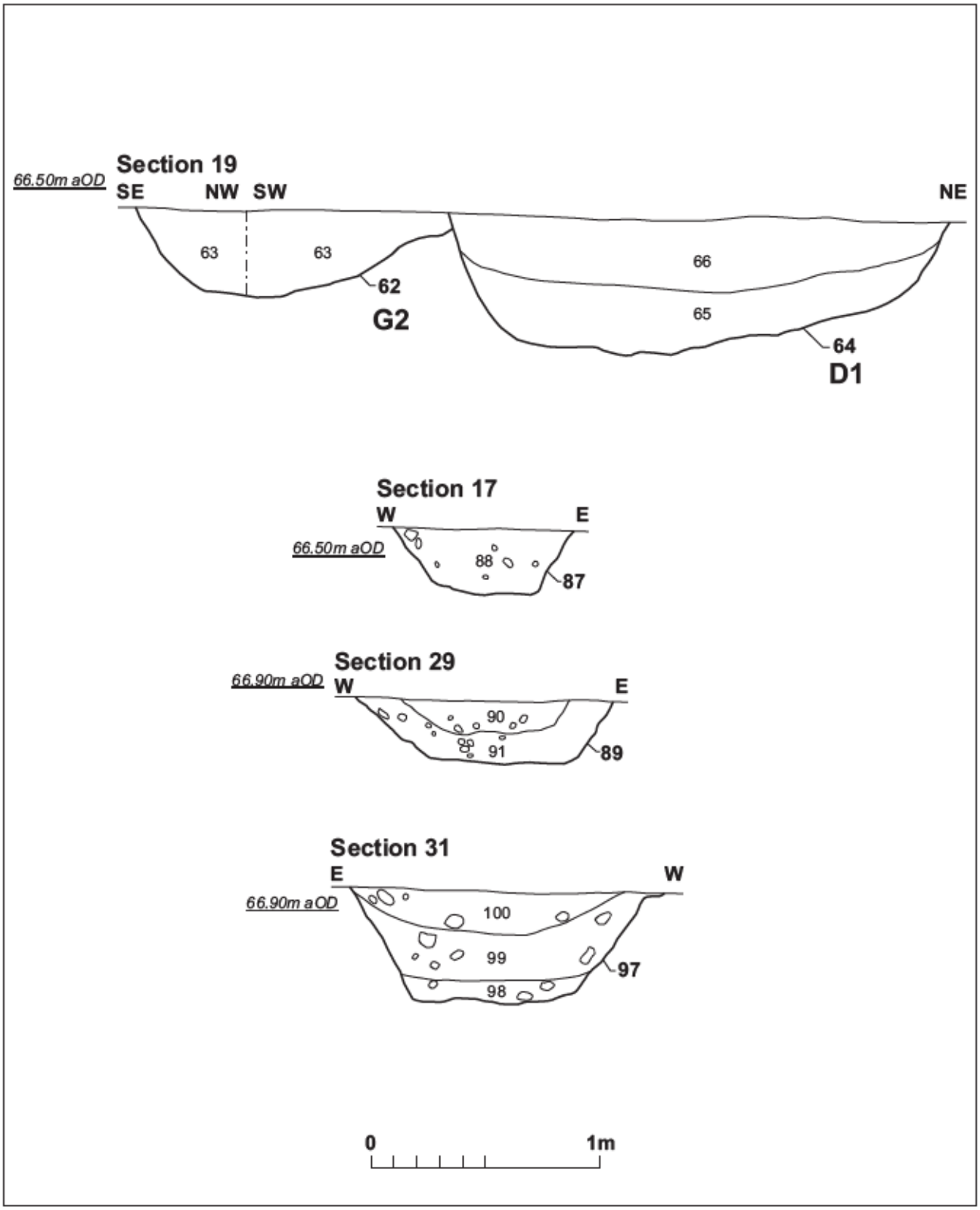
Late ditch systems

Ditch D1

At the north-east, ditch 430 cut the fills of the main enclosure ditch. It terminated at this corner and continued eastwards beyond the limit of excavation. The ditch was 2.20m wide and 0.50m deep with a fill of grey-brown clay (431), containing pottery of the early-mid 1st century AD (Fig 7).

Ditch D2

At the south-west corner, there was a similar ditch, 453, that cut the enclosure ditch fills and terminated, while continuing westwards beyond the limit of excavation (Fig 7). This ditch, 453, was 2.60m wide and 1.60m deep, with a V-shaped profile, and waterlogged grey-blue and grey-brown clayey fills. The final fill (460) was a distinctive dark grey silty clay, 0.6m wide and 1.0m thick, possibly filling a recut, gully 459, along the top of the ditch fills



Scale 1:25

Outer ditch E7 and ditch D1 Fig 16

Internal ditches/gullies and features

Gully G10

This was a rectilinear, L-shaped gully in the northern half of the enclosure. The main arm was aligned east to west, 3.5m south of the northern arm of the enclosure. To the west it turned abruptly south-west for a length of 12m, becoming shallower and fading away at the southern end (Fig 7). The fills comprised yellow-brown, orange-brown and blue-grey clays.

The gully, 186, had a broad rounded U-shaped profile, 0.90m wide and 0.28m deep, the fill (187) contained animal bone. At the western corner, 205, it was 0.85m wide and 0.56m deep, with a deep V-shaped profile and a narrow flat base (Fig 18, sections 56 and 64). The secondary fill (207) contained pottery of early-mid 1st century AD date and animal bone.

The western arm, 208, became narrower and shallower, 0.45m by 0.10m deep, before petering out further to the south.

An intermediate curvilinear gully, 232, 0.85m wide and 0.25m deep with an irregular profile, ran southwards from the centre of the enclosure to join the gully near the middle of the northern arm. The secondary fill of this subsidiary gully (233) included an almost complete girth beaker with a tall cordoned neck (Fig 17 and Fig 25; 25). Further south the gully was narrower and shallower, 0.45-0.60m wide by 0.13-0.20m deep, still with a broad V-shaped profile.

Complete but broken pot in gully 232, G10 Fig 17

This gully, which lay adjacent to the lowest lying arm of the enclosure, may have been for drainage, and a similar arrangement was present in an Iron Age enclosure of similar size at Wootton Hill Farm, Northampton (Jackson 1988-89,100 and fig 6). Its presence might suggest that there was a physical barrier between the ditch and the gully, as otherwise there seems no reason why drainage couldn't have been directly into the enclosure ditch to the south, but the spacing between them is too narrow for anything other than a narrow and low bank, certainly not a bank on a scale commensurate with the proportions of the enclosure ditch. In addition, the gully met the enclosure ditch to the east, indicating that there was no internal bank along the eastern arm.

Gully G3/G4

This gully ran from the western enclosure ditch, curving south-eastwards to approach the southern arm of the enclosure, with a possible related feature running along the inner edge of the enclosure ditch.

To the west the gully was 1.0m wide and 0.20m deep, but broadened and deepened to the east, 1.0m wide and 0.35m deep, ditch 338, with an irregular V-shaped profile (Fig 18, section 94), where it cut a flat–bottomed pit 322, 1.50 long and 0.30-0.43m deep. Both features produced pottery dating to the early-mid 1st century AD.

To the east of the confusing stratigraphy at the intersection with the earlier ditch (G2/G5), the gully turned south-eastwards (G4) and had a broad U-shaped profile, 1.10m wide and 0.28m deep, ditch 336 (Fig 18, section 97). The fill (337) included pottery of early-mid 1st century AD date and a kiln lining fragment. It also cut a pit, 346, 1.10m in diameter and 0.50m deep with a rounded U-shaped profile.

The curving gully may have terminated just short of the enclosure ditch, but the end was cut by another, probably related, gully, 263/319, of similar form, 0.9m wide and 0.50m deep with a U-shaped profile. This ran eastward along the inner edge of the enclosure ditch, and to the east it cut the early entrance structure gully (G7).

Internal features

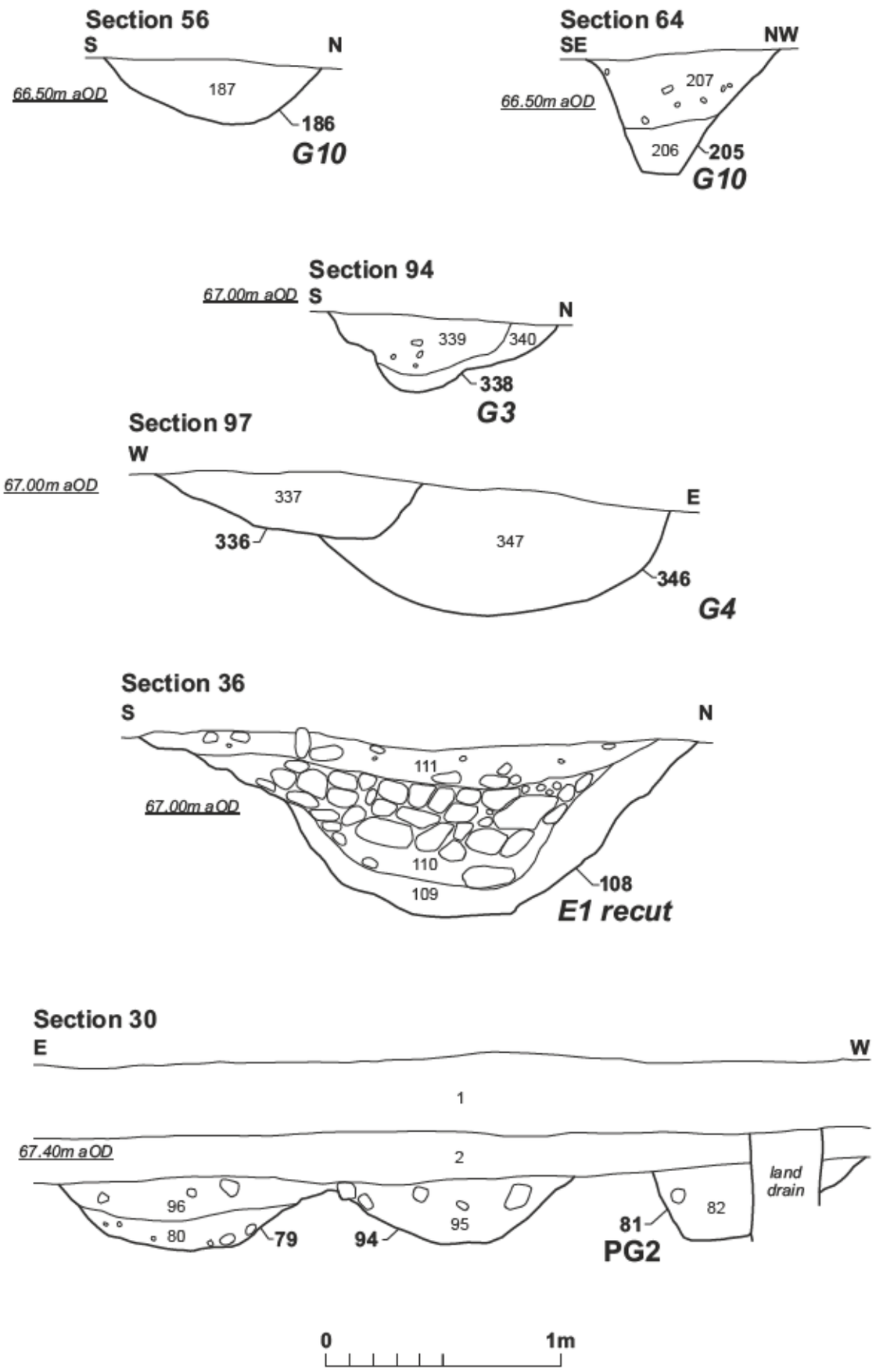
There were some 34 discrete features within the enclosure, comprising pits, postholes and short lengths of gullies. These lay across the central and eastern parts of the interior, with several pits to the northern and eastern sides of the probable stock enclosure defined by gully (G3/G4).

The gullies were both straight and curved, typically 1.20-2.80m long and 0.50-0.80m wide. The pits and postholes were 0.30-0.90m in diameter. These were all shallow features typically 0.05-0.16m deep, with seven examples 0.20-0.40m deep, mainly with U-shaped profiles although some were quite irregular. The fills were of undifferentiated clays.

About a third of the features contained pottery, all fragmentary sherds weighing only a few grams, and typically dating to the early-mid 1st century AD, indicating that at least those that produced pottery were contemporary with the use of the enclosure. Two pits, 180 in the east, and 307 in the south-west contained a few fragments of kiln lining in the fills.

There is only one instance where there may have been paired post-pits that could have formed the eastern doorway to a roundhouse that has left no other evidence for its existence. These oval to sub-rectangular pits lay towards the eastern end of the enclosed south-western corner of the enclosure. To the north, pits 305 and 307 were 1.2m and 0.8m in diameter but only 0.17m deep, while to the south, pits 280 and 278, both 0.8m in diameter and 0.20-0.25m deep (Fig 7). Posts in two earlier pits would have formed a doorway 1.5m wide, while the later two would have formed a narrow doorway only 1.0m wide. A roundhouse 10m in diameter would have fitted in the space between the enclosure ditch (E2) and the sub-division ditch to the north (G3).

To the immediate south-east of these possible post-pits, there was a dumbbell-shaped feature, comprising two circular pits, 1.3m diameter, linked by a narrow gully, 1.6m long by 0.5m wide and 0.10m deep (Fig 7, 495). The plan form would suggest that this was a two-post structure, with end posts forming a solid timber frame for some practical process. However, the northern pit, 0.1m deep, contained a central pedestal of what appeared to be natural clay, 0.6-0.7m diameter, unless this clay was filling the void of a removed post.



Scale 1:25 Internal gullies and early Roman features Fig 18

3.5 Early Roman pits (mid to later 1st century AD)

Outer ditch and gullies

The latest activity was focused on the south-west corner of the site, with early Roman pottery of the mid-later 1st century AD coming from a recut of the outer ditch (E1), a cluster of intercut pits to the south (PG2) and a large but shallow pit to the west (PG3) (Fig 7).

The recut of the ditch (E1), 108, was 2.30m wide and 0.75m deep, with a broad U-shaped profile. The primary fill (109), about 0.15m thick contained pottery, a fragment of kiln lining and animal bone. The secondary fill (110), 0.45m thick, contained a distinctive deposit of large stones and cobbles, up to 280mm long by 110mm wide, in a matrix of dark grey-blue silty clay, and pottery dated to the early-mid and mid-late 1st century AD (Fig 18, section 36 & Fig 19). This was overlain by a slightly stony clay fill (111) with pottery of the same date and further kiln lining fragments. Animal bones included cattle and sheep/goat as well as a dog mandible.

Ditch 108, looking west Fig 19

At the south-east corner, the ditch, 131, was 1.15m wide and 0.48m deep with a broad V-shaped profile. Two parallel gullies were aligned at right angles across the main ditch, but the sequence of cutting is uncertain due to the similar fills (Fig 7). The western gully 143 was 5.0m long, 0.30-0.45m wide and up to 0.05m deep. The eastern gully, 145, was 5.0m long, up to 1.0m wide and 0.40m deep, with a broad V-shaped profile. The fill (146) at the southern terminal contained a fragment of puddingstone quern (SF5), indicating that these features also dated to the early Roman period, and they may have marked the eastern extent of the recutting.

Pit group PG2

This comprised a line of three pits, a long narrow pit and a posthole. The pottery in these features was dated to the early-mid and mid-late 1st century AD.

Pit 103 was 3.50m long, aligned north-west to south-east, up to 1.50m wide and 0.25m deep (Fig 20). At the south-east end of the pit were three large cobbles, measuring 250 by 300 by 250mm, and these were surrounded by many smaller heat-damaged pebbles and flint nodules, within a matrix of dark grey clay (105), containing two large fragments of kiln lining. Another cluster of cobbles lay at the north-west end.

Pit 103, PG2, looking east Fig 20

Immediately to the south, there was a line of three pits, aligned east to west, 79, 94 and 81, all 0.30m deep (Fig 18, section 30). The fills were typically grey-brown/orange-brown clay with pebbles and flint. At the east end, pit 79 was 1.20m in diameter, with a primary fill (80), 0.15m thick, of dark grey clay with ash, burnt pebbles and pottery, including a collared flagon dated to AD 50-70, the latest datable pottery from the site (Fig 25; 27). Pit 94 was 1.20m in diameter with a fill that included some burnt stone. Pit 81, which had been bisected by a land drain, was 1.10m long and 0.90m wide, with a steep-sided U-shaped profile.

To the west, there was a small posthole, 58, 0.20m in diameter and 0.05m deep.

Pit group PG3

This large pit, 353, not fully excavated, was about 6m in diameter and 0.50m deep. It cut ditch D2, the later addition to the enclosure and the outer ditch E1 (Fig 7). The fill (354) included a puddingstone quern fragment (SF9) and pottery of mid-late 1st century AD date.

Gullies G11 and G12

In the south-west corner were two parallel gullies, G11 and G12, 3.5m apart and aligned north to south and continuing south beyond the limit of excavation (Fig 7). There was a gap of 6m from G11 to ditch D2 and about 4m from G12 to D2, though only about 2m from pit PG3.

Gully G11 was 0.60m wide and 0.25m deep with a broad U-shaped profile, becoming narrower and shallower at the terminal. The fills of 71 and 73 both had pottery of early-mid 1st century AD date.

G12 gully, 69, had a U-shaped profile 1.0m wide and 0.55m deep with a fill of blue-grey-orange clay and pottery of the same date. The northern end of the gully faded away.

3.6 The Iron Age and Roman pottery by Rob Perrin

Introduction

An assessment of the pottery was carried out by Ed McSloy of Cotswold Archaeology (McSloy 2009). He recorded the pottery by sherd count and weight per context, noted the fabrics present within each context and provided context dating, expressed as a *terminus post quem*. In addition, he recorded vessels identifiable to form (mostly rim sherds) for each context by fabric. The total pottery available for the assessment amounted to 3193 sherds weighing 44816g (*op. cit.*, 18). Additional sherds subsequently extracted from samples raised the total by the time of the analysis to 3197 sherds weighing 44828g. For the analysis, the pottery in each context was counted and weighed by fabric and the extant rims were measured to provide an estimated vessel equivalent (EVE). The pottery analysis records have been placed on an Excel spreadsheet. The colour codes used in the illustrated pottery descriptions are those in the 1971 edition of the *Munsell Soil Color Charts*.

Fabrics

McSloy used the fabric series compiled for Northamptonshire by MacRobert and Aird (Perrin 2006, 85, table 4.28) as the basis for the recording of the fabrics, with the addition of some extra fabrics for the Iron Age. Where possible, these have been correlated (Table 2) with the fabrics noted in other Milton Keynes publications (Knight 1993a and b, 1994; Marney 1989, 1994a and b; Elsdon 1996).

Table 2: Correlation of pottery fabrics

Fabric	***Description***	**M**	**MK**	**KP**	**KH**	**E**
IAFSH	Iron Age fine shell	-	S1	2	-	928
IAG	Iron Age grogged	-	G1	-	-	926
IAGS	Iron Age grog with shell	-	-	-	-	918
IAQ	Iron Age quartz	-	Q1	3	1	925
IAQSH	Iron Age quartz with shell	-	-	3		902/913
IASH	Iron Age shell	-	S2 S3	1	2	901
A	Belgic Standard grogged	46	46	-	-	-
AB	Belgic Grog with shell	45	45	-	-	-
AC	Belgic Grog with quartz	46qr	46qr	-	-	-
B	General shell-tempered	1a	1a	-	-	-
C	Unclassified reduced	9	9	-	-	-
C6	Grey with black surfaces	-	-	-	-	-
D	Unclassified oxidised	-	-	-	-	-
D6	Verulamium region white-ware	4g	4g	-	-	-
SILT	Silty wares	-	-	-	-	-

(Key: M: Marney; MK: Marney & Knight, Bancroft; KP: Knight, Pennylands; KH: Knight, Hartigans; E: Elsdon)

Table 3 shows the amounts and percentages of the various fabrics in the assemblage. The various Iron Age fabrics combined account for around a fifth to a sixth of the total and comprise coarse shell-tempered, grogged or quartz-sand-tempered fabrics. Standard grogged wares (Fabric A) in the 'Belgic' tradition (Thompson 1982) are by far the most numerous, with general shell-tempered wares (Fabric B) forming the next largest group. The amount of 'Romanised' reduced and oxidised wares is very low.

Table 3: Quantification of the fabrics

Fabric	Sherds	%	Weight (g)	%	EVE	%
IAFSH	7	-	99	-	-	-
IAG	192	6	3713	8.3	2.35	13.6
IAGSH	30	1	832	1.9	-	-
IAQ	50	1.5	979	2.2	0.34	2
IAQSH	2	-	38	-	0.04	-
IASH	185	5.8	1941	4.3	0.09	5.2
A	2137	66.8	28193	62.9	8.55	49.6
AB	4	-	456	1	0.14	0.8
AC	116	3.6	1790	4	1.87	10.9
B	409	12.8	6302	14.1	2.17	12.6
C	31	1	259	0.6	0.15	0.9
C6	24	0.7	30	-	0.19	1.1
D	5	-	54	-	0.11	0.6
D6	2	-	96	-	0.42	2.4
SILT	3	-	46	-	-	-
Total	**3197**		**44828**		**17.23**	

Forms

Table 4 shows the recorded vessels identifiable to form (mostly rim sherds) for each fabric. Jar or jar/bowl forms dominate.

The Iron Age vessels are usually hand-built and comprise rounded/globular-bodied, slack-shouldered or neck-less, barrel-shaped jars (Figs 22 & 23, 7-12). Most are undecorated, but one vessel has shallow fingertip impressions on the neck (Fig 22, 10), there are examples of vertical scoring and one instance of an unusual incised geometrical motif (Fig 22, 6). Pedestal and lug-handled vessels are also represented.

A number of these vessels can be specifically assigned to the late Iron Age (1st century BC), particularly the burnished bowl in a dark-grey fabric (Fig 22, 9). The form of this vessel seems to have more in common with the 'saucepan' pot tradition of the south, the Wessex region, rather than the late Iron Age globular burnished bowls that occur to the immediate north, in the Nene valley (A Chapman pers comm.).

Table 4: Number of vessels by form and fabric

Fabric/*Forms*	*Jar*	*Jar/Bowl*	*Bowl*	*Beaker/Jar*	*Dish/Lid*	*Flagon*	Total
IAG	1	12	2	-	1	-	**16**
IAGSH	-	1	-	-	-	-	**1**
IAQ	3	4	1	-	-	-	**8**
IAQSH	-	1	-	-	-	-	**1**
IASH	1	5	1	-	-	-	**7**
A	63	7	2	4	-	-	**76**
AC	4	-	-	1	-	-	**5**
B	16	2	1	-	-	-	**19**
C	1	-	-	-	1	-	**2**
C6	-	-	-	1	-	-	**1**
D	-	2	-	-	-	-	**2**
D6	-	-	-	-		2	**2**
Total	**89**	**34**	**7**	**6**	**2**	**2**	**140**

The range of 'Belgic' grogged ware forms is relatively restricted, with necked jars/bowls (Fig 25, 23 & 25) and carinated bowls/cups being most common (Fig 25, 26). Many of the vessel forms equate to some of those noted by Thompson (1982, including A, B1-1,

B3-1, B3-10, C1-3, C1-4, C2, C6-1, C7-1, D1-1, D1-3, E1-1, E1-3, E1-4, E2-2, E3-3). The more elaborately cordoned forms which can characterise late Belgic groups are absent.

The shell tempered vessels mainly comprise channel-rimmed jars, with many having oblique fingernail slashes to the outer part of the rim (Fig 24, 19-21). The channel-rimmed jar is a well-known type (Thompson 1982, C5-1 and C5-2) and is particularly common along the Ouse Valley (Friendship-Taylor 1999), with the slashed rim variant seemingly a post-conquest type (Friendship-Taylor 1999, 13), but see below.

One example from the present site of a channel-rim jar with oblique fingernail slashes on the rim is manufactured within the Iron Age pottery tradition, a hand-built shelly fabric with a barrel-shaped form (Fig 24, 19) and seems likely to date to the early 1st century AD. This would suggest that this variant was actually pre-Conquest in origin. However, the majority of the examples from the site showing these features are in manufacturing technologies of the late Iron Age/early Roman pottery tradition, and the illustrated examples show three stages of technological progression from the late Iron Age into the early Roman period (Fig 24, 19-21). The third example (Fig 24, 21) is wheel-turned with the diagonal slashes replaced by oblique incised decoration (A Chapman pers comm).

The two flagon sherds may be from the same vessel, which is a collared type (Fig 25, 27). A date within the 50s or 60sAD is likely for this vessel form (Davies *et al* 1994, 41).

Sources

The pottery is almost certainly mostly of local manufacture. In his discussion of the Pennylands Iron Age pottery, Knight notes "*… as all of the organic inclusions occur in local geological deposits, and as suitable potting clays occur abundantly in the vicinity of the site …, there is clearly no need to invoke non-local sources*" (1993, 221). 'Belgic' grogged ware was also made locally with known kilns at Caldecotte (Kiln 1 – Marney 1989, 95-8) and Wavendon Gate (Parminter 1996, 180-86) and the analysis of sand-tempered wares from Milton Keynes sites "*… suggest that the clays and sands used are local and not imported*" (Rattray 1989, 84). The collared flagon is a Verulamium region product.

The feature groups

The pottery was recovered from cut features, primarily enclosure ditches and gullies, together with a few pits. Most of the features excavated have been grouped on stratigraphic and ceramic criteria into three main phases: middle to late Iron Age (MLIA), early to mid 1st century AD (EMC1) and mid to late 1st century AD (MLC1). Some features were perhaps in use over multiple phases and a number could not be assigned to a particular group. The site appears to have been abandoned in the late 1st/early 2nd century AD.

The pottery fabrics and forms show a clear date range and sequence but the assemblages, especially the latest phase, are mixed. This is because there are no sealed groups, with the enclosure ditches having been open to receive material throughout their use and possibly periodically cleaned out or recut. The pits provide more coherent assemblages, but these groups are generally quite small and therefore of limited use.

Tables 5 and 6 show the amounts and percentages of the pottery and vessel types in the phased groups. The amount belonging to the earliest phase is small, about a fifth comes from the middle phase features, and almost three-quarters are from contexts dated to the latest phase. This is perhaps not surprising as earlier material was already present on the site and some of the deposits might relate to clearance leading up to the abandonment of the site.

Table 5: Quantification of pottery by phase group

Group	Sherd	%	Weight (g)	%	EVE	%
Middle/late Iron Age	197	6.2	1622	3.6	.42	2.4
Early/mid 1st century AD	631	19.7	7783	17.4	3.84	22.3
Mid/late 1st century AD	2232	69.8	34384	76.7	12.59	73
ungrouped	137	4.3	1026	2.3	3.8	2.2
Total	**3197**		**44828**		**17.23**	

Table 6: Vessel types by phased groups

Vessel forms	Jar	Jar/ Bowl	Bowl	Beaker/ Jar	Dish/ Lid	Flagon	Total
Middle/late Iron Age	1	5	-	-	-	-	**6**
Early/mid 1st century AD	32	2	2	1	-	-	**37**
Mid/late 1st century AD	59	20	4	4	2	1	**90**
ungrouped	2	3	-	1	-	1	**7**
Total	**94**	**30**	**6**	**6**	**2**	**2**	**140**

The small number in the Iron Age phase reflects the low overall pottery total and the small number of features that contained only Iron Age pottery. The limited form range is typical of the Iron Age. A lot of Iron Age pottery occurred in the later phases, with

Around a quarter of all vessels occur in the early to mid 1st century AD contexts and includes a few forms other than jars or bowls. The largest number of vessels and the widest form range occurs in the mid to late 1st century AD phase, including the only regional import, and much residual material from the earlier two phases.

Phase 1: Middle/late Iron Age
The features assigned to this phase are gully/pit group G/PG1 and gully G2, comprising 22 different contexts. Table 7 shows the fabric quantities and percentages, and Table 8 the forms by fabric, for the two groups.

Table 7: Quantification of pottery by fabric in Iron Age feature groups, G/PG1 and G2

Group	G/PG1	G2	G/PG1	G2	G/PG1	G2
Fabric	***sherds***		***Weight (g)***		***EVE***	
IAG	40	-	171	-	-	-
IAQ	5	-	39	-	-	-
IAQSH	-	1	-	20	-	0.4
IASH	2	1	16	10	0.02	0.4
A	18	72	117	653	-	0.18
AC	-	23	-	175	-	-
B	3	32	15	406	-	0.14
Totals	**68**	**129**	**358**	**1264**	**0.02**	**0.40**

Table 8: Quantification of Iron Age pottery by fabric and form in Iron Age feature groups G/PG1 and G2

PG1	Jar/Bowl	G2	Jar	Jar/Bowl	Total
IAQSH	-	IAQSH	-	1	**1**
IASH	-	IASH	-	1	**1**
A	1	A	1	-	**2**
B	-	B	-	2	**2**
Total	**1**	**-**	**1**	**4**	**6**

Phase 2: Early to mid 1st century AD

The features assigned to this phase are the enclosure ditch E1, ditch D3 and gullies G3-G5, comprising 28 different contexts containing around a fifth of the total site assemblage. Table 9 shows the pottery quantities and percentages by group. The external enclosure ditch E1 and the internal enclosure ditches G3-5 account for similar amounts.

Table 9: Quantification of pottery by group, early to mid 1st century AD

Group	Sherds	%	Wt (g)	%	EVE	%
D3	46	7.3	890	11.4	0.14	3.6
E1	258	40.9	3378	43.4	2.50	65.1
G3	151	23.9	1695	21.8	0.82	21.4
G4	101	16	1486	19.1	0.04	1
G5	75	11.9	334	4.3	0.34	8.9
Total	**631**		**7783**		**3.84**	

The fabric quantities and percentages for the whole phase (Table 10), show that the grogged and shell-gritted wares comprise around 90% of the total assemblage, while the amount of residual Iron Age pottery is very low, and the first 'Romanised' reduced wares appear.

Table 10: Quantification of pottery by fabric and percentage, early to mid 1st century AD

Fabric	Sherds	%	Wt (g)	%	EVE	%
IAG	4	0.6	72	0.9	0.19	4.9
IAQ	4	0.6	142	1.8	0.12	3.1
A	452	71.6	5931	76.2	2.50	65.1
AB	1	-	16	-	-	-
AC	14	2.2	188	2.4	0.13	3.4
B	117	18.5	1236	15.9	0.79	20.6
C6	24	3.8	30	0.4	-	-
C	15	2.4	168	2.2	0.11	2.9
Total	**631**		**7783**		**3.84**	

Table 11 shows the fabric quantities and Table 12 the fabric percentages, for the five groups.

Table 11: Quantification of pottery fabrics, early to mid 1st century AD

Group/ Fabric	***Quantity***	***D3***	***E1***	***G3***	***G4***	***G5***
IAG	Sherds	2	2	-	-	-
	Wt (g)	50	22	-	-	-
	EVE	-	0.19	-	-	-
IAQ	Sherds	-	2	-	2	-
	Wt (g)	-	88	-	54	-
	EVE	-	0.08	-	0.04	-
A	Sherds	28	209	119	90	6
	Wt (g)	668	2585	1349	1278	51
	EVE	0.03	1.86	0.61	-	-
AB	Sherds	-	1	-	-	-
	Wt (g)	-	16	-	-	-
AC	Sherds	-	6	4	2	2
	Wt (g)	-	80	66	10	32
	EVE	-	0.04	-	-	0.09

Group/ Fabric	Quantity	D3	E1	G3	G4	G5
B	Sherds	2	14	28	7	66
	Wt (g)	6	557	280	144	249
	EVE	-	0.33	0.21	-	0.25
C	Sherds	14	-	-	-	1
	Wt (g)	166	-	-	-	2
	EVE	0.11	-	-	-	-
C6	Sherds	-	24	-	-	-
	Wt (g)	-	30	-	-	-

Enclosure ditch E1 has all fabrics other than unclassified reduced, including Iron Age, which also occurs in ditch D3 and gully G4, both of which are near to Phase 1 features. Grogged wares are present, and form the largest component, in all features bar gully G5 where shell-gritted ware predominates. 'Romanised' reduced wares occur mainly in the external ditches E1 and D3, with just one sherd in gully G5.

Table 12: Pottery fabric percentages per group, early to mid 1st century AD

Fabric	Group	No/wt	D3	E1	G3	G4	G5
IAG		Sherds	4.3	0.8	-	-	-
		Wt (g)	5.6	0.7	-	-	-
		EVE	-	7.6	-	-	-
IAQ		Sherds	-	0.8	-	2	-
		Wt (g)	-	2.6	-	3.6	-
		EVE	-	3.2	-	100	-
A		Sherds	60.9	81	78.8	89	8
		Wt (g)	75.1	76.3	79.6	86	15.3
		EVE	21.4	74.4	74.4	-	-
AB		Sherds	-	0.4	-	-	-
		Wt (g)	-	0.5	-	-	-
AC		Sherds	-	2.3	2.6	2	2.7
		Wt (g)	-	2.4	3.9	0.7	9.6
		EVE	-	1.6	-	-	26.5
B		Sherds	4.3	5.4	18.5	7	88
		Wt (g)	0.7	16.4	16.5	9.7	74.6
		EVE	-	13.2	25.6	-	73.5
C		Sherds	30.4	-	-	-	1.4
		Wt (g)	18.7	-	-	-	0.6
		EVE	78.6	-	-	-	-
C6		Sherds	-	9.3	-	-	-
		Wt (g)	-	0.9	-	-	-

Table 13 shows the recorded forms by fabric, for the five groups. All are jars or jar/bowls bar two grogged ware bowls and a reduced ware beaker or jar, which has a hole drilled for a repair. Two-thirds are in grogged ware and another fifth in shell-gritted ware. Just over half are from enclosure ditch E1 which also has the vessels other than jars or jar/bowls.

Table 13: Pottery forms, by fabric, early to mid 1st century AD

Feature	D3	E1				G3	G4		G5	Total
Fabric/*Form*	*J*	*J*	*J/B*	*B*	*BKR/J*	*J*	*J*	*J/B*	*J*	
IAQ	-	-	1	-	-	-	-	1	-	**2**
A	1	13	-	2	-	4	4	-	-	**24**
AC	-	1	-	-	-	-	-	-	1	**2**
B	-	2	-	-	-	2	1	-	2	**7**
C	1	-	-	-	-	-	-	-	-	**1**
C6	-	-	-	-	1	-	-	-	-	**1**
Total	**2**	**16**	**1**	**2**	**1**	**6**	**5**	**1**	**3**	**37**

Illustrated pottery from features dated early to mid 1st century AD
(Fig 21)

1 Fabric A. Small bowl, wheel finished incised decoration, burnished shoulder, rim diameter 120mm. Brown (7.5YR5/2) to dark greyish-brown (10YR4/2) with a dark grey (10YR4/1) core. Enclosure E1, fills (109 & 110), ditch 108

2 Fabric B. Large thick-walled globular jar, splayed channel-rim. Reddish-brown (5YR5/2) to dark greyish-brown (10YR4/2). Enclosure E1, fill (132), ditch 131

3 Fabric A. Small globular jar, concave neck. Reddish-yellow (5YR6/6) with a grey (10YR5/1) core. Ditch group D3. fill (509), ditch 508

4 Fabric A. Globular bowl, deeply concave neck, rim diameter 180mm, base diameter 72mm. Dark greyish-brown (10YR4/2) with a light grey (10YR6/1) core and reddish-brown (5YR5/4) areas. Group G3, fill (463), gully 462

5 Fabric A. Globular bowl, abrupt angle at base of neck, rim diameter 220mm. Reddish-brown (5YR5/2) to dark greyish-brown (10YR4/2) with a grey (10YR5/1) core. Group G2, fill (173) gully 172

1

2

3

4

5

Late Iron Age wheel-finished pottery (1-5) from features dated early to mid 1st century AD (Scale 10mm) Fig 21

Phase 3: Mid to late 1st century AD

The features assigned to this phase are enclosure ditches E2 and E3, ditches D1 and D3 and gullies G6-G12, and pit groups PG2 and PG3, comprising 91 different contexts containing around three-quarters of the total site assemblage. The E2/E3 group relates to a few features in the south-east of the enclosure where a small annexe E3 abuts the enclosure ditch E2 and it was difficult to differentiate the fills of the respective ditches. Table 14 shows the pottery quantities and percentages by group. There is relatively little pottery from ditch D2, enclosure ditch E3 and E2/E3, gullies G8, G11 and G12 and pit group PG3. Most of the pottery in gullies G6 and G10 is from single vessels and there was no pottery in gullies G7 and G9. Enclosure ditch E2 contained over half of the pottery and a joining ditch D1 another 8%. Pit group PG2 contained an appreciable amount of pottery. The southern arm of the outer enclosure ditch E1 also contained material of this phase.

Table 14: Quantification of pottery, mid to late 1st century AD

Group	Sherds	%	Wt (g)	%	EVE	%
D1	182	8.2	2910	8.5	1.07	8.5
D2	71	3.2	1154	3.4	-	-
E2	1220	54.7	21730	63.2	6.76	53.7
E3	12	0.5	171	0.5	-	-
E2/E3	59	2.6	483	1.4	.06	0.5
G6	113	5.1	2033	5.9	-	-
G8	11	0.5	57	0.2	-	-
G10	120	5.4	1288	3.7	.98	7.8
G11	30	1.3	112	0.3	-	-
G12	6	0.3	90	0.3	-	-
PG2	394	17.7	4220	12.3	3.72	29.5
PG3	14	0.6	136	0.4	-	-
Total	**2232**		**34385**		**12.59**	

Table 15 shows the fabric quantities and percentages for the whole phase. The grogged and shell-gritted wares comprise around three-quarters of the total assemblage and there is more 'Romanised' reduced and oxidised wares, as well as the only regional import from Verulamium (fabric D6). The quantity of late Iron Age pottery is high, possibly representing a mixture of residual pottery and survivals in use.

Table 15: Quantification of fabric and percentages, mid to late 1st century AD

Fabric	Sherds	%	Wt (g)	%	EVE	%
IAFSH	7	-	99	0.3	-	-
IAG	145	6.5	3420	9.9	2.35	18.7
IAGSH	30	1.3	832	2.4	-	-
IAQ	38	1.7	791	2.3	0.20	1.6
IAQSH	1	-	18	-	-	-
IASH	160	7.2	1781	5.2	0.77	6.1
A	1502	67.3	20764	60.4	5.69	45.2
AB	3	-	440	1.3	0.14	1
AC	76	3.4	1412	4.1	1.74	13.8
B	248	11.1	4589	13.3	1.24	9.8
C	16	0.7	91	0.3	0.04	-
D	2	-	30	-	-	-
D6	1	-	72	0.2	0.42	3.3
SILTY	3	-	46	-	-	-
Total	**2232**		**34385**		**12.59**	

Table 16 shows the fabric quantities and Table 17 the fabric percentages, for the 12 groups. Grogged ware is present in all of the groups and shell-gritted ware in seven of the 12. Iron Age pottery also occurs in a differing seven of the 12 groups, some of which are located in the south-east part of the Phase 3 enclosure where it overlies the Phase 1 features. Nine of the 14 fabrics are represented in enclosure ditch E2. Pit groups PG2 and PG3 and ditch D1 have five each and ditch D2 and enclosure ditches E2/E3 four each. Gullies G6, G11 and G12 just have grogged ware present. 'Romanised' pottery occurs in ditch D2, enclosure ditch E2 and pit groups PG2 and PG3.

Grogged wares make up most of the pottery in the gullies G6, G8, G10, G11, G12 and pit group PG2, and a substantial part of ditch D1 and enclosure ditches E2 and E2/E3. Shell-gritted wares comprise most of the remainder in gully G8 and pit groups PG2 and PG3, although both pit groups also have noticeable amounts of 'Romanised' pottery. Shell-gritted wares also account for around 10% or more of the pottery in ditch D1 and enclosure ditch E2 and 5% in enclosure ditches E2/E3. Iron Age pottery is significant in ditches D1 and D2, enclosure ditches E2 and E2/E3, gully G10 and pit group PG3. Ditches D1 and enclosure ditches E2/E3 are close to the Phase 1 Iron Age features but ditch D2, pit group PG3 and gully G10 are some distance away from the earlier focus.

Table 16: Quantification of pottery fabric, mid to late 1st century AD

Fabric	Group	D1	D2	E2	E3	E2/E3	G6	G8	G10	G11	G12	PG2	PG3	Group
IAFSH	Sherds	-	-	-	7	-	-	-	-	-	-	-	-	7
	Wt (g)	-	-	-	99	-	-	-	-	-	-	-	-	99
IAG	Sherds	14	-	110	-	21	-	-	-	-	-	-	-	145
	Wt (g)	232	-	2920	-	268	-	-	-	-	-	-	-	3420
	EVE	0.04	-	2.31	-	-	-	-	-	-	-	-	-	2.35
IAGSH	Sherds	-	30	-	-	-	-	-	-	-	-	-	-	30
	Wt (g)	-	832	-	-	-	-	-	-	-	-	-	-	832
IAQ	Sherds	-	-	35	-	2	-	-	-	-	-	-	1	38
	Wt (g)	-	-	769	-	8	-	-	-	-	-	-	14	791
	EVE	-	-	0.20	-	-	-	-	-	-	-	-	-	0.20
IAQSH	Sherds	-	-	-	-	-	-	-	1	-	-	-	-	1
	Wt (g)	-	-	-	-	-	-	-	18	-	-	-	-	18
IASH	Sherds	28	-	66	-	-	-	-	66	-	-	-	-	160
	Wt (g)	442	-	1077	-	-	-	-	262	-	-	-	-	1781
	EVE	0.29	-	0.48	-	-	-	-	-	-	-	-	-	0.77
A	Sherds	122	37	824	5	33	113	10	15	30	6	300	7	1502
	Wt (g	173 2	307	12471	72	186	203 3	47	155	112	90	3519	40	20764
	EVE	0.74	-	2.58	-	0.06	-	-	0.11	-	-	2.20	-	5.69
AB	Sherds	-	-	3	-	-	-	-	-	-	-	-	-	3
	Wt (g)	-	-	440	-	-	-	-	-	-	-	-	-	440
	EVE	-	-	0.14	-	-	-	-	-	-	-	-	-	0.14
AC	Sherds	-	-	22	-	-	-	-	38	-	-	16	-	76
	Wt (g)	-	-	429	-	-	-	-	853	-	-	130	-	1412
	EVE	-	-	0.32	-	-	-	-	0.87	-	-	0.55	-	1.74
B	Sherds	16	1	158	-	3	-	1	-	-	-	66	3	248
	Wt (g)	460	10	3590	-	21	-	10	-	-	-	448	50	4589
	EVE	-	-	0.73	-	-	-	-	-	-	-	0.51	-	1.24
C	Sherds	-	3	1	-	-	-	-	-	-	-	11	1	16
	Wt (g)	-	6	32	-	-	-	-	-	-	-	51	2	91
	EVE	-	-	-	-	-	-	-	-	-	-	0.04	-	0.04
D	Sherds	-	-	-	-	-	-	-	-	-	-	-	2	2
	Wt (g)	-	-	-	-	-	-	-	-	-	-	-	30	30
D6	Sherds	-	-	-	-	-	-	-	-	-	-	1	-	1
	Wt (g)	-	-	-	-	-	-	-	-	-	-	72	-	72
	EVE	-	-	-	-	-	-	-	-	-	-	.42	-	0.42
IAFSH	Sherds	-	-	-	7	-	-	-	-	-	-	-	-	7
	Wt (g)	-	-	-	99	-	-	-	-	-	-	-	-	99
IAG	Sherds	14	-	110	-	21	-	-	-	-	-	-	-	145
	Wt (g)	232	-	2920	-	268	-	-	-	-	-	-	-	3420
	EVE	0.04	-	2.31	-	-	-	-	-	-	-	-	-	2.35
IAGSH	Sherds	-	30	-	-	-	-	-	-	-	-	-	-	30
	Wt (g)	-	832	-	-	-	-	-	-	-	-	-	-	832
IAQ	Sherds	-	-	35	-	2	-	-	-	-	-	-	1	38
	Wt (g)	-	-	769	-	8	-	-	-	-	-	-	14	791
	EVE	-	-	0.20	-	-	-	-	-	-	-	-	-	0.20
IAQSH	Sherds	-	-	-	-	-	-	-	1	-	-	-	-	1
	Wt (g)	-	-	-	-	-	-	-	18	-	-	-	-	18
IASH	Sherds	28	-	66	-	-	-	-	66	-	-	-	-	160
	Wt (g)	442	-	1077	-	-	-	-	262	-	-	-	-	1781
	EVE	0.29	-	0.48	-	-	-	-	-	-	-	-	-	0.77
SILTY	sherds	2	-	1	-	-	-	-	-	-	-	-	-	3
	Wt (g)	44	-	2	-	-	-	-	-	-	-	-	-	46

Table 17: Fabric percentages, mid to late 1st century AD

Fabric	Group	D1	D2	E2	E3	E2/E3	G6	G8	G10	G11	G12	PG2	PG3
IAFSH	Sherds	-	-	-	58	-	-	-	-	-	-	-	-
	Wt (g)	-	-	-	58	-	-	-	-	-	-	-	-
IAG	Sherds	7.7	-	9.1	-	35.6	-	-	-	-	-	-	-
	Wt (g)	8	-	13.5	-	55.5	-	-	-	-	-	-	-
	EVE	3.7	-	34.2	-	-	-	-	-	-	-	-	-
IAGSH	Sherds	-	42	-	-	-	-	-	0.8	-	-	-	-
	Wt (g)	-	72.1	-	-	-	-	-	1.4	-	-	-	-
IAQ	Sherds	-	-	2.9	-	3.4	-	-	-	-	-	-	7.1
	Wgt	-	-	3.6	-	1.7	-	-	-	-	-	-	10.3
	EVE	-	-	3	-	-	-	-	-	-	-	-	-
IASH	Sherds	15.4	-	5.5	-	-	-	-	55	-	-	-	-
	Wt (g)	15.2	-	5	-	-	-	-	20.3	-	-	-	-
	EVE	27	-	7.1	-	-	-	-	-	-	-	-	-
A	Sherds	67	52.1	67.6	42	55.9	100	90.9	12.5	100	100	76.1	50
	Wt (g)	59.5	26.6	57.4	42	38.5	100	82.5	12	100	100	83.4	29.4
	EVE	69.2	-	38.2	-	100	-	-	11.2	-	-	59.1	-
AB	Sherds	-	-	.25	-	-	-	-	-	-	-	-	-
	Wt (g)	-	-	2	-	-	-	-	-	-	-	-	-
	EVE	-	-	2.1	-	-	-	-	-	-	-	-	-
AC	Sherds	-	-	1.5	-	-	-	-	31.7	-	-	4.1	-
	Wt (g)	-	-	1.7	-	-	-	-	66.2	-	-	3.1	-
	EVE	-	-	4.7	-	-	-	-	88.8	-	-	14.8	-
B	Sherds	8.8	1.4	13.1	-	5.1	-	9.1	-	-	-	16.8	21.4
	Wt (g)	15.8	0.9	16.6	-	4.3	-	17.5	-	-	-	10.6	36.8
	EVE	-	--	10.8	-	-	-	-	-	-	-	13.7	-
C	NoSh	-	4.2		-	-	-	-	-	-	-	2.8	7.1
	Wt (g)	-	0.5	0.15	-	-	-	-	-	-	-	1.2	1.5
	EVE	-	-	-	-	-	-	-	-	-	-	1.1	-
D	Sherds	-	-	-	-	-	-	-	-	-	-	-	14.3
	Wt (g)	-	-	-	-	-	-	-	-	-	-	-	22.1
D6	Sherds	-	-	-	-	-	-	-	-	-	-	0.25	-
	Wt (g)	-	-	-	-	-	-	-	-	-	-	1.7	-
	EVE	-	-	-	-	-	-	-	-	-	-	11.3	-
SILTY	Sherds	1	-	-	-	-	-	-	-	-	-	-	-
	Wt (g)	1.5	-	-	-	-	-	-	-	-	-	-	-

Tables 18 and 19 show the recorded forms by fabric for the eight groups in which they occur. The majority are jars or jar/bowls but various other forms also occur. The pit group PG2 contexts also contain the Verulamium region flagon (Fig 25, 27) and a reduced ware dish or bowl (Fig 25, 26), while enclosure ditch E2 contains grogged ware beaker/jars and bowls in Iron Age and shell-gritted fabrics. Ditch D1 has a dish or lid in an Iron Age fabric and gully G10 contains a grogged ware beaker or jar (Fig 25, 25). Two vessels have perforated bases (Fig 25, 24).

Table 18: Pottery forms by fabric, mid to late 1st century AD

Feature	D1			D2	G6	G10		PG3	Total
Fabric/*Form*	*J*	*J/B*	*D/L*	*J/B*	*J*	*BKR/J*	*J/B*	*J*	
IAG	-	-	1		-	-	-	-	**1**
IAGSH	-	-	-	1	-	-	-	-	**1**
IASH	-	1	-	-	-	-	-	-	**1**
A	4	1	-	-	1	-	1	-	**7**
AC	-	-	-	-	-	1	-	-	**1**
B	-	-	-	-	-	-	-	1	**1**
Total	**4**	**2**	**1**	**1**	**1**	**1**	**1**	**1**	**12**

Table 19: Pottery forms by fabric, mid to late 1st century AD

Feature	E2				E2/E3		PG2				Total
Fabric/*Form*	*J*	*J/B*	*BKR/J*	*B*	*J*	*B*	*J*	*J/B*	*D/L*	*F*	
IAG	-	12	-	2	1	-	-	-	-		**15**
IAQ	2	2	-	1	-	-	-	-	-	-	**5**
IASH	-	2	-	1	-	-	-	-	-	-	**3**
A	24	2	3	-	-	-	11	1	-	-	**41**
AC	1	-	-	-	-	-	1	-	-	-	**2**
B	4	1	-	-	-	1	4	-	-	-	**10**
C	-	-	-	-	-	-	-	-	1	-	**1**
D6	-	-	-	-	-	-	-	-	-	1	**1**
Total	**31**	**19**	**3**	**4**	**1**	**1**	**16**	**1**	**1**	**1**	**78**

Illustrated pottery from features dated mid to late 1st century AD

(Fig 22)

6 Fabric IAQ. Vertical sides, flat-topped rim, body has unusual incised decoration forming a geometric pattern. Dark greyish-brown (10YR4/2) to greyish-brown (10YR5/2). Enclosure E2, fill (381), ditch 379

7 Fabric IAG. Probably barrel-shaped, simple rounded rim, faint near horizontal scoring on body, rim diameter 120mm. Dark greyish-brown (10YR4/2).

Enclosure E2, fill (445), ditch 443

8 Fabric IAG. Small plain bowl, rounded rim, rim diameter 120mm. Dark greyish-brown (10YR4/2). Enclosure E2, fill (224), ditch 222

9 Fabric IAG. Bowl, flat base, burnished surface, shallow neck, rounded rim, base diameter 86mm, height 105mm, rim diameter 165mm; similar to 'saucepan pot' tradition of southern England (Wessex). Late Iron Age (1st century BC) Dark greyish-brown (10YR4/2). Enclosure E2, fill (458), ditch 453

10 Fabric IASH. Shouldered bowl, fingertip impressions on neck, below rounded rim. Dark greyish-brown (10YR4/2). Enclosure E2, fill (320), gully 319

(Fig 23)

11 Fabric IAG. Small bowl, with shallow neck and rounded rim, smoothed, late Iron Age (1st century BC). Light brownish-grey (10YR6/2) to very pale brown (10YR7/3) with a grey (10YR5/1) core. Enclosure E2, fill (150), ditch 138 (recut 372)

12 Fabric IAG. Shouldered bowl, hand-built with concave neck and everted rounded rim, rim diameter 160mm, base diameter 110mm, height c125mm. Late Iron Age (1st century BC) Grey to greyish-brown (10YR5/1-5/2). Enclosure E2, fill (150), ditch 138 (recut 372)

13 Fabric A. Open slightly globular bowl, with combed decoration, rim diameter 250mm (early 1st century AD). Light red (2.5YR6/8) with a grey (10YR5/1) core. Enclosure E2, fill (381), ditch 379

14 Fabric A. Rim and decorated body. Light brown (7.5YR6/4) with a grey (10YR6/1) core and light grey (10YR7/1) internal surface. Enclosure E2, fill (165), ditch 163

15 Fabric A with some fine shell. Large globular jar, rim diameter 310mm. Grey to greyish-brown (10YR5/1-5/2). Enclosure E2, fill (140), ditch 138

16 Fabric A. Large jar. Light brown (7.5YT6/4) with a dark grey (10YR5/1) core. Group G6, fill (270), ditch terminal 269

(Fig 24)

17 Fabric A. Large jar. Reddish-yellow (5YR6/6-6/8) with a grey (10YR5/1) core. Group PG2, fill (80), pit 79

18 Fabric B. Small globular bowl, channel rim. Very dark grey (10YR4/1) with a weak red (2.5YR4/2) internal surface. Group PG2, fill (105), pit 103

19 Fabric B. Barrel shaped jar, channel rim with diagonal incised rim. Iron Age style potting but early 1st century AD by form. Dark reddish-brown (5YR3/2) to reddish-yellow (5YR6/6). Enclosure E2, fill (170), ditch 167

20 Fabric B. Channel rim with diagonal incisions. Dark greyish-brown (10YR4/2) with a reddish-brown (5YR4/3) internal surface. Enclosure E2, ditch (381), ditch 379

21 Fabric B. Channel rim with diagonal incisions. Light brownish-grey to pale brown (10YR6/2-3). Group D1, fill (65), ditch 64

22 Fabric A. Globular jar. Pale brown (10YR6/3) with a grey (10YR5/1) core. Enclosure E2, fill (139), ditch 138

(Fig 25)

23 Fabric A. Necked bowl with single cordon. Reddish-yellow (5YR6/6) to dark greyish-brown (10YR4/2) with a grey (10YR5/1) core. Enclosure E2, fill (381), ditch 379

24 Fabric A. Perforated base. Reddish-yellow (5YR6/6-6/8) with a grey (10YR5/1) core. Enclosure E2, fill (434), ditch 432

25 Fabric A. Necked beaker or jar, with single cordon. Reddish-yellow (5YR6/6-6/8) with a grey (10YR5/1) core. Group G10, fill (233), gully 232

26 Fabric A. Carinated bowl, faintly incised lattice decoration on body. Light grey (10YR7/2) with a dark grey (10YR4/1) core and light brown (7.5YR6/4) core edges. Group PG2, fill (105), pit 103

27 Fabric D6. Flagon rim. White (10YR8/2). Group PG2, fill (80), pit 79

6

7

8

10

9

Iron Age pottery (6-10) residual in features dated mid to late 1st century AD
(Scale 10mm) Fig 22

11 12

13 14

15 16

Iron Age (11-12) and later pottery (13-16) from features dated mid to late 1st century AD
(Scale 10mm) Fig 23

17

18

19

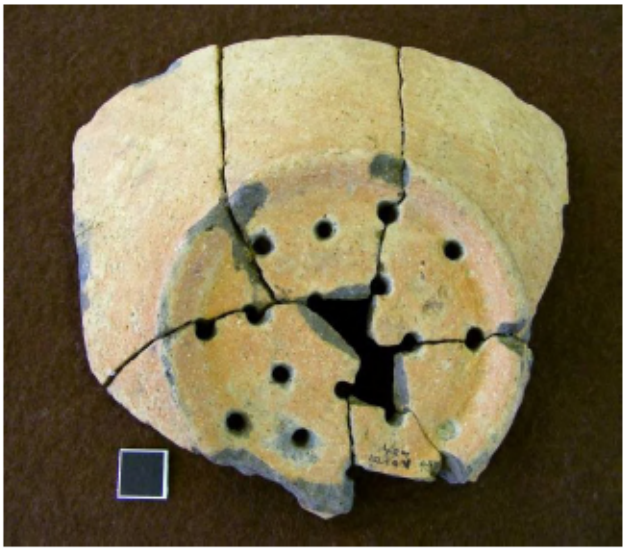
20

21

22

Pottery (17- 22) from features dated mid to late 1st century AD (Scale 10mm) Fig 24

23



24

25

26

27

Pottery (23- 27) from features dated mid to late 1st century AD (Scale 10mm) Fig 25

Ungrouped contexts
Table 20 shows the amounts of the various fabrics in the ungrouped contexts. Grogged fabrics are again by far the most numerous. The contexts also contain what may be another sherd from the Verulamium region flagon in pit group PG2

Table 20: Quantification of pottery fabric, ungrouped contexts

Fabric	sherds	Wgt (g)	EVE
IAG	3	50	-
IAQ	3	7	2
IASH	22	134	7
A	93	718	18
AC	3	15	-
B	9	54	-
D	3	24	11
D6	1	24	-
Total	**137**	**1026**	**38**

One of the ungrouped contexts (Table 21) contains a Verulamium region sherd which may be from the same flagon as that in pit group PG2 and the other forms in the ungrouped contexts are jars or jar/bowls, other than a grogged ware beaker or jar.

Table 21: Quantification of pottery fabrics, ungrouped contexts

Feature	UNGR				Total
Fabric/*Form*	*J*	*J/B*	*BKR/J*	*F*	
IAQ	1	-	-	-	**1**
IASH	1	-	-	-	**1**
A	-	1	1	-	**2**
D	-	2	-	-	**2**
D6	-	-	-	1	**1**
Total	**2**	**3**	**1**	**1**	**7**

Comparative material, dating and occupation characteristics
Fabrics, forms and other characteristics compare to material from the wider south-east Midlands region and from the Milton Keynes area. There are close affinities with the large middle/late Iron Age group from Pennyland (Knight 1993a), and Iron Age and Roman pottery from Hartigans (Knight 1993b; Marney 1993), Wavendon Gate (Elsdon 1996; Parminter 1996), Saffron Gardens, Bletchley (Waugh *et al* 1975, 379-86, 392-9) and Bancroft (Knight 1994, figs 204-5; Marney 1994a figs 210, 212, 215-22, 224; 1994b figs 227-40, 243, 245, 247). Marney's (1989, 7-16) Groups 1-3 (from Walton, Cotton Valley and Constantine Way, respectively) also share many of the Magna Park forms, as do a number of the Northamptonshire site assemblages examined by Friendship-Taylor (1999), including Aldwincle (figs 23-4), Camp Hill (fig 34), Duston I (figs 38-9), Hardingstone (figs 50-4), Moulton Park (figs 61-4), Rushden (figs 78-86) and Weekley (figs 102-04).

The earliest material present consists of quantities of hand-built pottery in the middle Iron Age tradition, but includes a number of vessels that can be specifically dated to the late Iron Age (1st century BC). However, the majority of the material is wheel-finished. This includes a range of channel-rim jars, some in shelly fabrics and manufactured within the Iron Age potting tradition while others are in the newer traditions, and there is also a variety of large storage jar forms. These all probably date to the early to mid 1st century AD, perhaps *c* AD25–70/80, thus spanning the late Iron Age to Roman transition. Many of the vessels show evidence of sooting or burning, two have perforated bases and

another has what appears to be a repair hole. There are no indications of specialist use or 'high-status' activity within the assemblage, such as might be inferred from fine wares, continental imports or local copies.

3.7 Kiln furniture by Pat Chapman

The 154 fragments of fired clay, weighing 5.5kg, are predominantly pieces of kiln furniture (Table 22).

The fragments comprise some large thick flat pieces, the largest being 120mm by 100mm and 20-60mm thick, with other smaller pieces and small fragments. They have been roughly shaped, with the surviving edges straight rather than curved. The surfaces have been roughly smoothed but remain uneven and some have stem and seed impressions. The fabric is very hard and occasionally granular, indicative of having been subjected to high temperatures and generally reddish-orange to brown with black cores, or black surfaces. One fragment is red with a band of brown adjacent to the blackened end, as if it had been lining a stokehole.

One fragment, from fill (294) gully 321 (G7), has an impression with a diameter of 15mm, the top edge is smoothed as though for a vent perforation. Two other fragments, from gully 62, G2, and the terminal of gully 92, G9 are 45mm thick with a remnant broad perforation that would be about 40mm in diameter, but not smoothed. These three items could be from kiln plates.

A few fired clay fragments are small irregularly-shaped, hard, smooth, sandy orange-brown and black clay, which could be debris from a hearth.

The scatter of kiln furniture fragments were mainly concentrated around the south-eastern entrance area and the southern end of the enclosure, both in the interior and outside to the south, in ditch 108 and pit 103, PG3. However, one dump, weighing over a kilo, comes from western enclosure ditch 379.

These fragments are probably lining from a kiln, and/or are parts of kiln plates, there are no fragments that could be possible kiln bars.

Table 22: Quantification of kiln furniture

Fill/feature	No	Wt (g)	Description
63 / gully 62, G2 NE corner	1	120	Kiln plate fragment, 45mm thick perforation *c* 45mm diameter
93 / gully terminal 92, G9	1	40	Kiln plate fragment, perforation *c* 45mm diameter
99 / outer ditch 97, E1	1	5	Fc (fired clay)
105 / pit 103, PG2	2	521	Kiln lining 35mm thick
109 / outer ditch 108, E1	1	7	Kiln lining
111 / outer ditch 108, E1	2	95	Kiln lining
122 / gully terminal 120, G8	3	19	Kiln lining 2 fragments; 1 fc
139 / enclosure ditch 138, E2	13	254	Kiln lining, 30mm thick
140 / layer on enclosure ditch 138, E2	5	258	Kiln lining; 1 fc
152 / enclosure ditch 138, E2, SE	1	27	Kiln lining
164 / enclosure ditch 163, E2	8	60	Kiln lining
170 / enclosure ditch 167, E2	3	75	Kiln lining
181 / pit 180, East	3	28	Kiln lining; 1 fc
194 / enclosure ditch 192, E2, NE	2	65	Kiln lining; 1 fc
254 / enclosure ditch 252, E2, SE	8	414	Kiln lining, 28mm thick 2 joining fragments 5mm thick
264 / gully 263, G4	4	136	Kiln lining, 21mm thick; 3 fc

Fill/feature	No	Wt (g)	Description
267 / enclosure ditch 266, E2, S	4	32	Kiln lining; 3 fc
292 / gully 322, G7	1	12	fc
293 / gully 319, G4	8	55	Kiln lining fragments; 2 fc
294 / enclosure ditch 315, E2	3	199	Kiln lining, 20mm thick, 2 joining 1 piece perforation; I fc
304 / gully 303	10	42	Kiln lining fragments
308 / pit 307	1	26	Kiln lining corner fragment
342 / gully 341, G2	3	7	Kiln lining fragments
345 / ditch 344, G2	3	40	Kiln lining fragments
351 / gully terminal 349, G5	4	353	2 Kiln lining 23-25 thick & 2 fragments
381 / enclosure ditch 379, E2	23	869	Kiln lining, 35mm thick; 2 fc
382 / enclosure ditch 379, E2	1	112	Kiln lining flat, 20mm thick
420 / gully 419, G5	7	973	Kiln lining, 60mm thick Plate edge, 40mm thick
434 / enclosure ditch 432, E2 n-e	4	66	Kiln lining
445 / enclosure ditch 443, E2/D2	4	369	Kiln lining, 1 piece, 12-25mm thick
460 / enclosure ditch 459, E2/D2	11	75	Fc
481 / 480 pit in enclosure ditch E2	4	95	Kiln lining, 2 end pieces, 15mm thick
501 / enclosure ditch 500, E2	5	31	Fc
Totals	**154**	**5480**	

3.8 A metal find by Tora Hylton

A decorated terminal from a Roman copper alloy armlet was recovered by metal detector from subsoil (2) in the base of a furrow. It comprises a parallel-sided strip measuring 38mm (broken) by 18mm wide, ornamented with a central panel of incised chevrons giving the impression of plating. The terminal is decorated with two transverse rows of ring-and-dot, flanked by single rows of short incisions (Fig 26). Generally armlets of this type come from late-1st to early 2nd-century AD deposits. A similar example has been recovered from nearby Wavendon Gate (Hylton 1996, fig 58, 13) and there are other examples from Colchester, Essex (Crummy 1983, fig 40, 1586) and Verulamium, St Albans (Waugh and Goodburn 1972, fig 32, 30).

Roman copper alloy armlet terminal (Scale 10mm) Fig 26

3.9 Querns by Andy Chapman

There are two fragments from querns, both of which are in Hertfordshire Puddingstone; comprising largely rounded flint pebbles, measuring from 5mm to 40mm in diameter, in a light grey matrix. Hertfordshire Puddingstone querns occur in early Roman contexts (Watts 2002, 32), although some French Puddingstone querns were imported into the southern England and East Anglia prior to the Roman Conquest (Peacock 2013,158-161).

The smaller piece, up to 105mm in diameter, has rounded edges from secondary damage but retains part of a heavily worn surface, and is from the circumference of an upper or runner stone. It comes from the fill (146) of a small gully 145 lying to the south of the enclosure, either contemporary with or pre-dating the outer ditch system (E1).

The larger piece comprises *c* 20% of a lower stone at least 250mm in diameter. Part of the convex upper surface survives along with part of a conical central spindle socket, 50mm deep. The outer edges have been subject to much secondary damage, but a small part of the outer circumference probably survives. This stone comes from the fill (354) of the large pit 353 (PG3) lying beyond the south-west corner of the main enclosure, which belongs with the final phase of activity.

3.10 Animal bone by Matilda Holmes

A small assemblage of animal bone was recovered from contexts dated from the middle/late Iron Age to the later 1st century AD. This site is of considerable interest given the continuity between late Iron Age and Roman periods, but the sample sizes are really too small for detailed analysis, although some effort will be made to characterise the assemblages by the major phase groups (Table 23).

Table 23: Species represented by phase, total fragment count (hand collected)

Species identified	middle-late Iron Age	Early-mid 1st century AD	mid 1st century AD	mid-late 1st century AD
Cattle	50	82	26	34
Sheep/goat	14	25	8	14
Sheep	1	-	-	-
Goat	-	1	-	-
Pig	1	11	-	2
Horse	6	6	3	4
Dog	1	2	-	2
Red Deer	1	2	-	1
Total	**74**	**129**	**37**	**57**
Large mammal	91	129	34	64
Large mammal ribs	13	3	-	1
Medium mammal	8	37	5	3
Medium mammal ribs	4	-	-	2
Unidentified mammal	46	52	-	50
Total	**236**	**354**	**76**	**177**

Methodology

Bones were identified using the author's reference collection. Due to anatomical similarities between sheep and goat, bones of this type were assigned to the category 'sheep/goat', unless a definite identification (Prummel and Frisch 1986; Payne 1985) could be made. Bones that could not be identified to species were, where possible, categorised according to the relative size of the animal represented (small–rodent/rabbit-sized; medium–sheep/pig/dog-size; or large–cattle/horse-size). Ribs were not identified to species, vertebrae were recorded when the vertebral body was present, and maxilla, zygomatic arch and occipital areas of the skull were identified from skull fragments.

Tooth wear and eruption were recorded using guidelines from Grant (1982) and Silver (1969), as were bone fusion (Silver 1969), metrical data (von den Driesch 1976), anatomy, side, zone (Serjeantson 1996) and any evidence of pathological changes, butchery (Lauwerier 1988) and working. The condition of bones was noted on a scale of 1-5, where 1 is fresh bone and 5, the bone is so badly degraded to be almost unrecognisable (Lyman 1994, 355). Other taphonomic factors were also recorded, including the incidence of burning, gnawing, recent breakage and refitted fragments. All fragments were recorded.

A number of sieved samples were collected but because of the highly fragmentary nature of such samples a selective process was undertaken, whereby fragments were recorded only if they could be identified to species and/or element, or showed signs of taphonomic processes (Table 27).

Taphonomy and condition

Bones were generally in good to fair condition (Table 24), although very friable, with a high proportion of fresh breaks and refitted fragments observed (Table 25). Bones from the middle-late Iron Age were in a better state of preservation than those from later phases, possibly because they were subject to less disturbance post-deposition, given the lower occurrence of breakage. There was also very low incidence of gnawed bone from middle-late Iron Age features when compared to an increasing number through time. Although dogs were present on site in all phases it suggests they were afforded less opportunity to chew bones in the earlier period. This is contradicted somewhat by the evidence for delayed deposition or re-deposition evident by the higher proportion of loose teeth to those remaining in mandibles. A far greater ratio can be observed in the middle-late Iron Age, suggesting that enough time passed for the tough connective tissue holding teeth in place to break down and teeth to fall out before either being deposited, or disturbed *in situ*. This may indicate that mandibles were treated differently to long bones in the Iron Age, and not buried as quickly as other waste. The high fragmentation of bones and increasing incidences of butchery implies some form of processing took place prior to disposal.

Table 24: Condition of bones identified to species and/ or anatomy

Condition		mid-late Iron Age	early-mid 1st century AD	mid 1st century AD	mid-late 1st century AD
Excellent	1	-	-	-	-
Good	2	41	48	10	18
Fair	3	13	38	17	17
Poor	4	4	6	2	4
Very poor	5	-	1	-	-
Total		**58**	**93**	**29**	**39**

Table 25: Proportion of identified bones exhibiting taphonomic changes

Condition/ Taphonomy	Middle-Late Iron Age	early-mid 1st century AD	mid 1st century AD	mid-late 1st century AD
Fresh break	12%	29%	24%	60%
Refitted fragments	13=33	19=62	5=18	13=37
Gnawed	4%	22%	24%	47%
Loose teeth to teeth in mandibles*	3:0	1.7:1	0.25:1	0.9:1
Butchery	5%	7%	21%	31%
Burnt	2%	5%	-	-

Teeth excluded unless specified. * P4/dP4 and molars only

Highly fragmented calcined bone was recorded from samples and hand-collected material within fills of the enclosure ditch E2; fill (289) ditch 287, (295) 315, (254) 252 and (193) 192; gully 190 G2 and elongated internal pit 303; mid 1st century 232 gully G10 and mid-late 1st century ashy fill (140) over ditch E2 372. The majority of which could not be identified to species or anatomy, although two fragments of sheep/goat tibia were recorded in fill (289), E2 ditch 287. The reason for burning bones at such high temperature is not clear: it may be linked to burials or simply the disposal of rubbish.

Carcass representation and butchery

In all phases bones from all parts of cattle carcasses were present (Tables 26 and 27) and, although recovered in smaller numbers, the same was generally true for sheep/goat, indicating that complete animals were disposed of on site, with no evidence for the redistribution of carcass parts off site. In all phases, a dearth of vertebrae suggests that these were discarded in another place at a particular stage in the butchery process. There were too few bones from other species to make further judgements, although horses were only represented by teeth and lower limb bones (metapodials and phalanges) in all but the mid-late 1st century, when forelimbs were also recorded. This may imply that horse carcasses were deposited elsewhere following skinning, the head and lower legs being attached to the skin and disposed of on site.

Direct evidence for butchery was largely limited to cattle limb bones, with evidence for disarticulation and skinning in the middle-late Iron Age, and disarticulation and processing the carcass into smaller joints in subsequent phases. Of particular note were a mid-late 1st-century AD horse radius whose distal end had been chopped through and a mid 1st-century AD cattle tibia with a shave mark typical of Romanised filleting (Maltby 2010, 38). Occasional butchery marks were recorded on pig and sheep/goat bones; which is fairly typical, as the larger cattle carcass would require more processing, with heavier cleavers than those of smaller animals.

No associated bone groups were recorded, and there were no deposits of industrial, craft or butchery waste. Evidence from carcass parts and butchery therefore implies that it was likely that cattle and sheep at least were butchered and disposed of as complete carcasses on site in all phases, although it is possible that some stages of butchery (ie skinning and splitting the carcass involving the removal of the vertebral column) were carried out and disposed of elsewhere. Changes in the frequency of butchery from the mid 1st century AD, and the identification of filleting on a single bone implies that there was some Roman influence on the processing of carcasses from this phase.

Species representation and diet

In all phases, cattle bones predominate, becoming more common with time (Table 23). Sheep/goat were next most often recorded, of which both sheep and goat were positively identified. Pig remains were relatively uncommon, although they were recovered in greatest quantities from the early-mid 1st-century AD assemblage. Horses

were present in low numbers in all phases, as were dog and red deer. Only in the mid-late 1st-century AD were deer remains possibly indicative of direct contact with the animal through hunting, represented by a single maxillary tooth – in all other phases only antler fragments were present, which could have been recovered from shed antler.

Species diversity was very low, with no bird or fish recovered. This is perhaps not surprising given the small size of the assemblage, but may indicate that hunting was not widespread as a means of procurement. From this sample of bones, the diet of the population associated with the settlement would largely have centred on beef, with some lamb and pork also contributing. The presence of a butchered horse radius in the mid-late 1st century AD may indicate that horse meat was also consumed, although this was not widespread in Roman culture (Simoons 1994, 187).

Table 26: Anatomical representation for all species (NISP)

	Middle-Late Iron Age						
Species/ Anatomy	**Cattle**	**Sheep**	**Sheep/ Goat**	**Pig**	**Horse**	**Dog**	**Red Deer**
Antler	-	-	-	-	-	-	1
Loose Mandibular Tooth	1	-	-	1	2	-	-
Mandible fragment	2	-	2	-	-	-	-
Maxilla fragment	-	-	-	-	-	-	-
Loose Maxillary Tooth	2	-	1	-	1	-	-
Lumber Vertebrae	2	-	2	-	-	-	-
Sacrum	1	-	-	-	-	-	-
Thoracic Vertebrae	1	-	-	-	-	-	-
Scapula	1	-	-	-	-	-	-
Humerus	2	1	1	-	-	-	-
Radius	2	2	1	-	-	-	-
Ulna	2	-	-	-	-	-	-
Pelvis	1	-	-	-	-	-	-
Femur	10	-	3	-	-	-	-
Tibia	9	-	-	-	-	1	-
Calcaneus	1	-	-	-	-	-	-
Metacarpal	1	-	2	-	1	-	-
Metapodial	4	-	-	-	1	-	-
Metatarsal	1	-	-	-	1	-	-
Total	**43**	**3**	**12**	**1**	**6**	**1**	**1**

	Early-Middle 1st century AD						
Species/ Anatomy	**Cattle**	**Sheep/ Goat**	**Goat**	**Pig**	**Horse**	**Dog**	**Red deer**
Antler	-	-		-	-	-	1
Horn Core Fragment	-	-	1	-	-	-	-
Horn Core + frontal	2	-	-	-	-	-	-
Loose Mandibular Tooth	11	1	-	2	1	1	-
Mandible fragment	9	3	-	3	1	-	-
Maxilla fragment	-	1	-	1	-	-	-
Loose Maxillary Tooth	11	2	-	-	3	-	-
Occipital	1	-	-	-	-	-	-
Zygomatic	2	-	-	-	-	-	-
Lumber Vertebrae	-	1	-	-	-	-	-
Scapula	-	-	-	1	-	-	-
Humerus	6	-	-	1	-	-	-
Radius	7	3	-	1	-	1	1
Ulna	-	-	-	1	-	-	-
Pelvis	-	1	-	-	-	-	-
Femur	3	4	-	-	-	-	-
Tibia	6	9	-	1	-	-	-
Astragalus	1	-	-	-	-	-	-
Calcaneus	3	-	-	-	-	-	-
Metacarpal	5	-	-	-	-	-	-
Metapodial	9	-	-	-	1	-	-
Metatarsal	2	-	-	-	-	-	-
1st Phalange	3	-	-	-	-	-	-
2nd Phalange	1	-	-	-	-	-	-
Total	**82**	**25**	**1**	**11**	**6**	**2**	**2**

	Mid 1st century AD			Mid-Late 1st century AD					
Species/ Anatomy	**Cattle**	**Sheep/ Goat**	**Horse**	**Cattle**	**Sheep/ Goat**	**Pig**	**Horse**	**Dog**	**Red Deer**
Horn Core + frontal	2	-	-	-	-	-	-	-	-
Loose Mandibular Tooth	1	-	-	5	1	-	-	1	-
Mandible fragment	4	1	-	7	1	1	-	1	-
Maxilla fragment	-	-	-	1	-	-	-	-	-
Loose Maxillary Tooth	4	-	1	1	-	-	1	-	1
Cervical Vertebrae	1	-	-	-	-	-	-	-	-
Scapula	1	-	-	1	1	1	-	-	-
Humerus	1	-	-	1		-	1	-	-
Radius	3	-	-	5	1	-	2	-	-
Pelvis	-	1	-	1	-	-	-	-	-
Femur	-	1	-	1	2	-	-	-	-
Tibia	2	2	-	1	4	-	-	-	-
Astragalus	-	1	-	-	-	-	-	-	-
Calcaneus	1	1	-	-	-	-	-	-	-
Tarsal	-	-	-	1	-	-	-	-	-
Metacarpal	-	-	-	1	1	-	-	-	-
Metapodial	-	1	1	2		-	-	-	-
Metatarsal	2	-		3	3	-	-	-	-
1st Phalange	4	-	1	1	-	-	-	-	-
Total	**26**	**8**	**3**	**32**	**14**	**2**	**4**	**2**	**1**

Table 27: Anatomical representation for all species (NISP) (Sieved samples)

	Middle-late Iron Age		Early-Mid 1st century AD				Mid-late 1st century AD		
Species/ Anatomy	Horse	Cattle	Cattle	Pig	Sheep/ goat	Sheep	Cattle	Pig	Sheep/ Goat
Mandible	-	-	-	-	-	-	-	1	-
Maxillary tooth	-	-	1	-	-	-	-	-	1
Humerus	-	-	-	-	-	-	-	-	1
Radius	-	-	-	-	1	-	1	-	1
Ulna	-	-	-	-	1	-	1	-	-
3rd Carpal	-	-	-	-	1	-	-	-	-
Pelvis	-	-	1	-	-	-	-	-	-
Femur	-	-	-	-	1	-	-	-	1
Tibia	1	-	-	-	1	-	-	-	-
Astragalus	-	-	1	-	-	-	1	-	-
Metacarpal	-	-	-	-	-	-	-	-	1
3rd Metacarpal	-	-	-	-	-	-	-	1	-
Metapodial	-	-	1	-	-	-	-	-	-
Metatarsal	-	-	-	-	1	1	-	-	-
1st Phalange	1	-	1	-	1	-	-	-	1
2nd Phalange	-	-	-	1	-	-	-	-	-
3rd Phalange	-	1	-	1	1	-	1	-	-
Vertebrae	-	-	-	-	-	-	-	-	-
Total	**2**	**2**	**5**	**2**	**8**	**1**	**4**	**2**	**6**

The assemblage

Cattle

Although detailed analysis of the assemblage would not be reliable for a sample this small, a number of pertinent observations were made. In the middle-late Iron Age there was no evidence for cattle being culled prior to skeletal maturity at 4 years of age, following which half the later fusing vertebrae were unfused, suggesting that a number were still alive into old age, over 7 years. Evidence for animals that died prior to reaching 18 months was present in the early-mid 1st century AD in both fusion and tooth wear (wear stage C), indicating that animals were culled at prime meat age as well as maturity, consistent with the remainder of bones being fused, and the calculation of two wear stages at G.

More tooth wear was present in the mid-late 1st century AD, with evidence for a neonatal animal (wear stage A), one that died at around 18-30 months (wear stage D), also reflected in the fusion data, the remainder being adult, with one wear stage G and the remaining late fusing bones fused. When taken together, this indicates a cattle economy based largely on secondary products, milk and/or traction, with more evidence for culls of younger animals specifically for meat in the early-mid 1st century AD. Two pathological metapodials were recorded in the early-mid 1st century AD and mid-late 1st century AD, exhibiting splaying of the distal condyles, which may be an age-related change, or brought on by the use of the animal for traction.

Sheep/goat

Although there were fewer sheep bones to compare, there was consistent evidence for animals to be older with time. In the middle-late Iron Age there was no evidence for animals over one year of age, in the early-mid 1st century AD all were culled prior to reaching three years, yet in the mid-late 1st century AD all bones were fused, consistent with the presence of a mandible at wear stage G, from an animal 4-6 years of age. A neonatal tibia was also recorded in this phase. In the two early phases this implies that sheep were of prime importance for their meat, yet were considered more valuable for secondary products such as wool and milk in the later phase.

Pigs
Unsurprisingly, all pigs were apparently culled prior to reaching 24 months, consistent with their primary use for meat.

Horse
All horse bones were fused.

Dog
There was evidence for a young dog that died prior to 18 months of age in the mid-late Iron Age.

Summary
Although the sample sizes are small, some details regarding the nature of human-animal relationships can be extracted. By the end of the Iron Age cattle were used for meat and secondary products, and sheep for their meat, trends which are consistent with other contemporary sites in the area (Hambleton 1999). It is likely that animals were culled, processed and disposed of on site in all phases, with evidence for cattle and sheep being bred in the vicinity of the site from neonatal animals recorded in the mid-late 1st century AD.

However, there was some indication for changes that occurred around the time of the Roman period. Although the relative quantities of cattle, sheep and pig were consistent with those from other Iron Age sites in the region (Hambleton 1999, 59), increasing proportions of cattle related to the Roman occupation have been observed at many settlements (King 1984, 193) and this, combined with the observation of a Roman filleting mark in the mid 1st century AD suggests an influence on the population of the settlement of certain aspects of Roman butchery and diet.

3.11 Charred plant remains by Val fryer

Twenty-one soil samples for the retrieval of the plant macrofossil assemblages were taken, mostly from the enclosure ditches, and fifteen were submitted for assessment, including three from the evaluation phase of work.

Ten litre sub-samples were bulk floated by Northamptonshire Archaeology and the flots were collected in a 500 micron mesh sieve. The dried flots were scanned under a binocular microscope at magnifications up to x 16 and the plant macrofossils and other remains noted are listed on Tables 28 and 29. Nomenclature within the tables follows Stace (1997). Both charred and de-watered macrofossils were recorded, the latter being denoted within the tables by a lower case 'w'. Modern contaminants, including fibrous roots and seeds, were abundant throughout and formed the major component of many of the assemblages studied; two samples contained only roots.

Results
Cereal grains/chaff, seeds of common weeds and wetland plants and tree/shrub macrofossils were present throughout, although mostly at very low densities. Preservation was poor to moderate, with a high density of the charred grains being severely puffed and distorted, probably as a result of combustion at very high temperatures.

Charred oat (*Avena sp.*), barley (*Hordeum sp.*), including a single asymmetrical lateral grain of six-row barley (*H. vulgare*) and wheat (*Triticum sp.*) grains were recorded, although rarely as more than one grain within an assemblage. A single spelt wheat (*T. spelta*) glume base was noted within sample 5.

Charred seeds of common field weeds were present at a very low density within four assemblages. Taxa noted included brome (*Bromus sp.*), black bindweed (*Fallopia convolvulus*), persicaria (*Persicaria maculosa/lapathifolia*), dock (*Rumex sp.*) and scentless mayweed (*Tripleurospermum inodorum*). A single charred sedge (*Carex sp.*) nutlet was recorded from sample 3.

De-watered seeds of weeds, wetland/aquatic plants and tree/shrub species occurred at a slightly higher density within six assemblages, all from either the primary or secondary fills of the main enclosure ditch E2. Dry land taxa within these assemblages included musk thistle (*Carduus sp.*), thistle (*Cirsium sp.*) and stinging nettle (*Urtica dioica*), whilst the presence of seeds of gipsy wort (*Lycopus europaeus*), pond weed (*Potamogeton sp.*), water crowfoot (*Ranunculus subg. Batrachium*) and horned pond weed (*Zannichellia sp.*) indicate that the ditches held standing water. De-watered elderberry (*Sambucus nigra*) seeds were abundant within sample 8 and a single sloe (*Prunus spinosa*) fruit stone was present within sample 18.

Charcoal fragments were present at a low to moderate density throughout. Other plant macrofossils were generally rare, although the de-watered assemblages did contain a high density of root/stem fragments, pieces of twig and moss fronds. Possible fragments of charred heather (*Ericaceae*) stem were noted within the assemblage from sample 5.

Other remains were generally scarce. The small fragments of black porous and tarry material were probable residues of the combustion of organic remains (including cereal grains) at very high temperatures. De-watered caddis larval case fragments and arthropod remains were noted in samples 8, 15 and 18 from the main enclosure ditch.

Conclusions

The low density of material noted within the charred assemblages is almost certainly derived from small quantities of either scattered or wind-blown refuse of probable domestic origin. Cereals appear to have been utilised by the occupants of the site, although the low density of chaff and weed seeds within the assemblages may indicate that the grain was not processed locally. However, it should be noted that the high temperatures to which the material was obviously subjected may have destroyed these more delicate plant remains. It is, perhaps, more likely that the cereal needs of the site were met by imported batches of semi-cleaned grain.

The de-watered assemblages from the main enclosure ditch indicate that it was reasonably well maintained, with only a minimal growth of colonising weeds on the banks and little or no shrubby overgrowth. The ditch was at least seasonally waterfilled and at least constantly quite muddy and stagnant, with the permanently waterlogged and anaerobic until the time of excavation, as otherwise these uncharred remains would not have survived.

Table 28: Quantification of plant macrofossils

Sample	**3 (eval'n)**	**4**	**2**	**21**
Context	***7208***	***233***	***105***	***106***
Feature	**7210**	**232**	**103**	**103**
Feature type	***E2***	***G10***	***PG2***	***PG2***
Cereals				
Triticum sp. (grains)	-	-	-	x
Cereal indet. (grains)	-	x	-	x
Herbs				
Bromus sp.	-	-	-	x
Small Poaceae indet.	-	-	-	x
Tripleurospermum inodorum (L.)Schultz-Bip	-	-	-	x
Other plant macrofossils				
Charcoal <2mm	x	x	x	-
Other materials				
Black porous 'cokey' material	-	x	x	x
Small coal frags.	x	-	-	-
Sample volume (litres)	**-**	Fill of pot	40	10
Volume of flot (litres)	**<0.1**	**<0.1**	**<0.1**	**<0.1**
% flot sorted	**100%**	**100%**	**100%**	**100%**

Table 29: Quantification of plant macrofossils from enclosure ditch E2

Sample No.	3	5	6	8	15	16	17	18	19	20
Fill	140	254	295 s	149 s	385 p	447 s	452 p	461 p	477 s	481 p
Cut	138 r		315	147	379	443	443	432	433	443
Cereals										
Avena sp. (grains)	xcf	x	-	-	-	-	-	-	-	-
Hordeum sp. (grains)	-	x	-	-	-	-	-	-	-	xcf
H. vulgare L. (asymmetrical lateral grain)	x	-	-	-	-	-	-	-	-	-
Triticum sp. (grains)	x	x	-	-	-	-	-	-	x	x
(glume bases)	-	x	-	-	-	-	-	-	-	-
(spikelet bases)	-	-	-	-	-	-	-	-	-	x
T. spelta L. (glume base)	-	x	-	-	-	-	-	-	-	-
Cereal indet. (grains)	xx	xx	x	-	-	-	-	-	x	x
Herbs										
Asteraceae indet.	-	x	-	-	-	-	-	-	-	-
Atriplex sp.	xcf	-	-	xw	-	-	xw	xw	-	-
Brassicaceae indet.	x	-	-	-	-	-	-	-	-	-
Bromus sp.	x	-	-	-	-	-	-	-	-	xcf
Carduus sp.	-	-	-	-	-	-	xcfw	xw	-	-
Chenopodiaceae indet.	x	x	-	-	-	-	xw	-	-	xw
Cirsium sp.	-	-	-	-	-	-	xw	-	-	-
Fabaceae indet.	-	x	-	-	-	-	-	-	-	-
Fallopia convolvulus (L.)A.Love	-	x	-	-	-	-	-	-	-	-
Small Poaceae indet.	-	x	-	-	-	-	-	-	-	x
Persicaria maculosa/lapathifolia	x	x	-	xw	-	-	-	xw	-	-
Polygonum aviculare L.	-	-	-	-	-	-	xw	xw	-	-
Potentilla anserina L.	-	-	-	-	-	-	-	xw	-	-
Ranunculus acris/repens/bulbosus	-	-	-	-	-	-	-	xw	-	-
R. parviflorus L.	-	-	-	xw	-	-	-		-	-
Rumex sp.	-	x	-	-	-	-	-	xw	-	-
Rumex/Carex sp.	-	x	-	-	-	-	-	-	-	-
Solanum sp.	-	-	-	-	-	-	-	xw	-	-
Sonchus asper (L.)Hill	-	-	-	-	-	-	-	-	-	xw
Stellaria graminea L.	-	-	-	-	-	-	xw	-	-	-
S. media (L.)Vill	-	-	-	-	-	-	-	-	-	xw
Tripleurospermum inodorum (L.)Schultz-Bip	-	x	-	-	-	-	-	-	-	-
Urtica dioica L.	-	-	-	-	xw	-	xw	xw	-	xw
U. urens L.	-	-	-	-	-	-	-	xw	-	-

Quantity: x = 1-10 specimens; xx = 10-50 specimens; xxx 50-100 specimens; xxxx = 100+ specimens: cf = compare; tf = testa fragment; b = burnt
p = primary fill; s = secondary fill; r = late recut

Sample No.	3	5	6	8	15	16	17	18	19	20
Fill	140	254	295 s	149 s	385 p	447 s	452 p	461 p	477 s	481 p
Cut	138 r		315	147	379	443	443	432	433	443
Wetland/aquatic plants										
Carex sp.	x	-	-	xw	-	-	-	xw	-	-
Lemna sp.	-	-	-	xw	-	-	-	-	-	xw
Lycopus europaeus L.	-	-	-	-	-	-	-	xw	-	xw
Montia fontana L.	-	-	-	-	-	-	xw	-	-	-
Potamogeton sp.	-	-	-	xw	-	-	-	xw	-	-
Ranunculus subg. *Batrachium* (DC)A.Gray	-	-	-	xxw	-	-	xw	xxw	-	xw
R. flammula L.	-	-	-	-	-	-	xw	-	-	-
Sparganium sp.	-	-	-	-	-	-	-	xw	-	-
Zannichelia sp.	-	-	-	-	-	xw	xw	xw	-	-
Tree/shrub macrofossils										
Prunus spinosa L.	-	-	-	-	-	-	-	xw	-	-
Salix sp. (fruit)	-	-	-	-	-	-	-	xw	-	-
Sambucus nigra L.	-	-	-	xxxw	-	-	-	xw	-	-
Other plant macrofossils										
Charcoal <2mm	x	xx	x	xxx		x	x		xx	xx
Charcoal >2mm	x	x	-	-	-	-	-	x	x	x
Charred root/stem	-	x	-	-	-	-	-	-	-	x
Waterlogged root/stem	-	-	-	-	x	-	xxxx	xxxx	-	x
Ericaceae indet. (stem)	-	xcf	-	-	-	-	-	-	-	-
Indet.inflorescence frags.	x	-	-	-	-	-	-	-	-	-
Indet.moss		-	-	-	-	-	-	xw	-	-
Indet.seeds	x	-	-	-	-	-	-		-	-
Indet.twigs		-	-	-	-	-	-	xxw	-	-
Other material										
Black porous 'cokey' material	xx	xx	x	-	-	-	-	x	x	-
Bone	-	x		-	-	-	-	-	-	-
Caddis larval case frags.	-	-	-	-	-	-	-	xw	-	-
Ferrous globule	-	-	-	x	-	-	-	-	-	-
Small coal frags.	x	-	-	x	-	-	-	-	-	-
Waterlogged arthropods	-	-	-	xx	x	-	-	x	-	-
Volume (litres)	20	40	20	40	10	40	60	20	30	50
Volume of flot (litres)	**<0.1**	**<0.1**	**<0.1**	**<0.1**	**<0.1**	**<0.1**	**<0.1**	**<0.1**	**<0.1**	**<0.1**
% flot sorted	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

Scale 1:1500 (A4)

The Roman droveway and enclosures Fig 27

4 THE ROMAN DROVEWAY AND ENCLOSURES (SITE 2)

4.1 Introduction

Site 2 lay in the north-eastern corner of the development area, immediately south of Broughton Brook on a slight slope, dropping from *c* 65.0m aOD in the south to *c* 64.0m aOD in the north (Fig 3). The excavated area was divided in two by a drainage channel and field boundary running east-west. The excavation extended for 415m north-south and up to 190m east-west, a total area of 4.8ha (Figs 27 and 28).

View of site during machine stripping, looking north-west Fig 28

The ground conditions were at times very wet and on occasions the site was either partially flooded or covered with snow (Figs 29 and 30).

View of wet site, looking north-west Fig 29

Site under snow, looking south-east Fig 30

4.2 The development of the droveways and enclosures

A long curving boundary ditch (D1) probably functioned as a land boundary throughout the 1st century AD. A curving ditch 38m to the north and a line of postholes further east, may have formed a broad droveway, leading westward. There was no indication of settlement in the immediate vicinity, although small amounts of early Roman pottery were recovered as residual finds in later contexts.

This early boundary was probably still extant in the early 2nd century AD, and it at least partly influenced the alignment of a new broad droveway. To the south the droveway lay east of and parallel to the existing boundary, although to the north it continued northward rather than swinging eastward. An early enclosure to the west still showed respect for the previous boundary system, but this was soon replaced by transverse boundaries that probably defined a series of fields or paddocks alongside the droveway, and at least 100m long. To the south the broad droveway was blocked by a cross ditch, with a corner opening suggesting use for stock control. To the immediate south the droveway appears to have opened into a stock yard, with a domestic enclosure to the west and a possible stock enclosure to the east.

This complex arrangement would suggest that the economy of the settlement was focussed on pastoral farming, and perhaps quite large herds and flocks were being managed.

Attached to the southern end of the eastern enclosure there was the north-east corner of another possible domestic enclosure. The main domestic enclosure contained two roundhouses and a corner sub-enclosure. The ditch of the sub-enclosure was partially sealed by dumped soils containing much domestic debris, including a complete but broken bottom stone from a rotary quern, perhaps deposited when this enclosure was abandoned and levelled, prior to being replaced by a new enclosure, relocated a little further to the south.

In the early 3rd century AD a new eastern ditch was introduced, reducing the broad droveway to a much narrower drove or trackway, with the stock control measures removed so that it became a continuous through road.

The domestic enclosure was completely remodelled and relocated a little further to the south. The roundhouses made way for a rectangular timber-framed house, although only

the timber slots of the northern wing had survived, with a corridor or veranda facing east. There was again a corner sub-enclosure. The enclosure or paddock to the east was also remodelled. To the south of this there was intense activity at the north-west corner of the southernmost enclosure, with a long length of ditch containing dumped organic debris that included quantities of charred cereals and chaff, while an overlying deposit contained fragments of millstone and quern, presumably from a nearby animal-powered mill. The evidence suggests that this enclosure was a focus for the storage and milling of grain.

In the 3rd century AD, the conversion of the broad droveway and the stock control measures to a simple trackway, and the dumping of charred cereals and chaff in one group of ditches, associated with millstones from an animal-powered mill suggests that the balance of the economy had shifted away from pastoral towards arable farming.

However, a few generations later, by the end of the 3rd century AD, the enclosures had been abandoned.

4.3 Phase 2: Late Iron Age to early Roman boundary (early 1st to early 2nd centuries AD)

The principal feature was a curving boundary ditch (D1), running from south-east to north-west and then turning more abruptly westwards; continuing beyond the limit of excavation (Fig 31). At the northern end of the system, another ditch (D4) 38m to the north ran parallel to the main boundary. Further east, on the same alignment there was a line of postholes terminating to the east at a short length of gully. There was only a little late Iron Age pottery associated with this boundary system, but across the site there is a sparse presence of residual early Roman pottery from the mid 1st to early 2nd century AD.

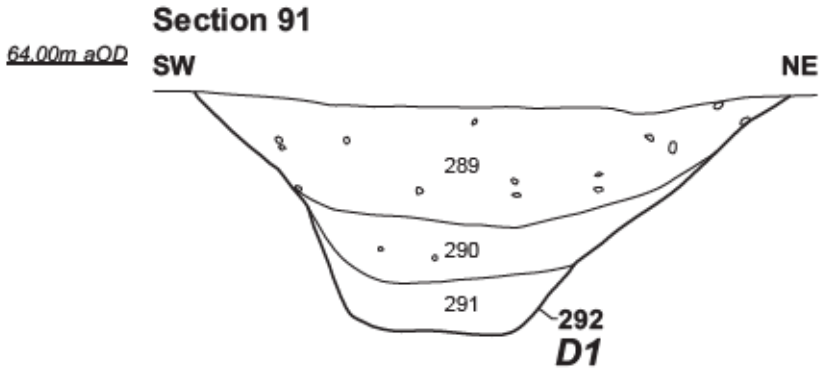
A linear boundary (D5) appears to respect the alignment of ditch D4, but is more likely to belong with the early development of the droveway system in the 2nd century AD, as the branching arms of D5 to the east form an enclosure within the later ditch system (see Fig 35). However, the apparent relationship of ditch system D5 to elements of both Phase 2 and Phase 3 suggests that the droveway system of the 2nd century AD was created while the boundary D1 was still an extant and recognised boundary, with a period of transition in which the new droveway system and the associated field and paddocks supplanted the earlier land boundaries.

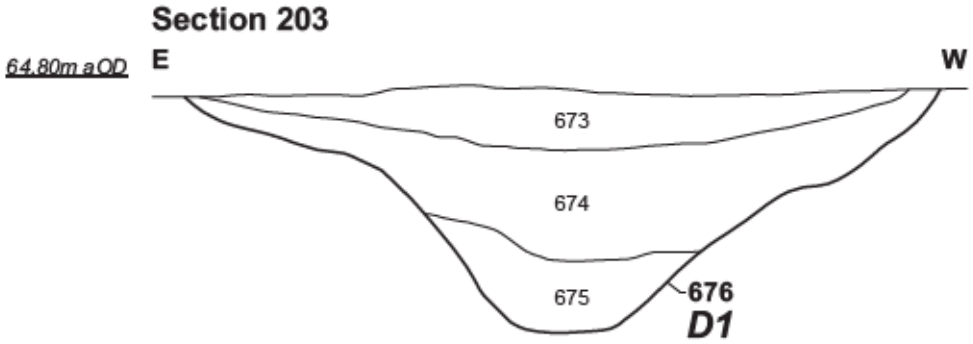
Boundary ditch D1

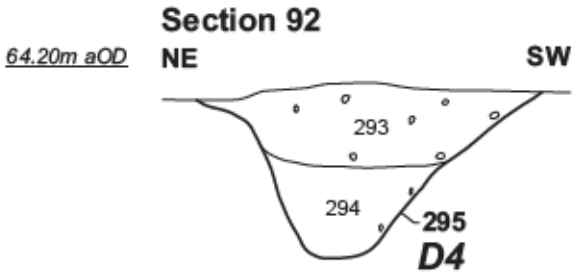
A length of about 270m of this boundary ditch lay within the excavated area. The ditch was up to 3.0m wide and 0.9m deep, and the V-shaped profile had eroded upper edges, indicating that the ditch had been open and silting over a long period of time (Fig 32, sections 91 and 203). The primary fills were typically orange-brown clays with some gravel. Later fills comprised dark grey and grey-brown clays, indicating that there was standing water in the ditch at some times of the year.

A small lead object came from ditch 519, but at this point the early ditch was cut by a Phase 3 enclosure ditch 517 (E2), so the object may actually be from the later enclosure. The only identifiable fragments of charcoal in a soil sample from ditch 473 were hawthorn (Table 39), from a local hedgerow or scrub landscape.

Scale 1:1500 (A4) Phase 2: late Iron Age-early Roman boundary (1st century AD) Fig 31







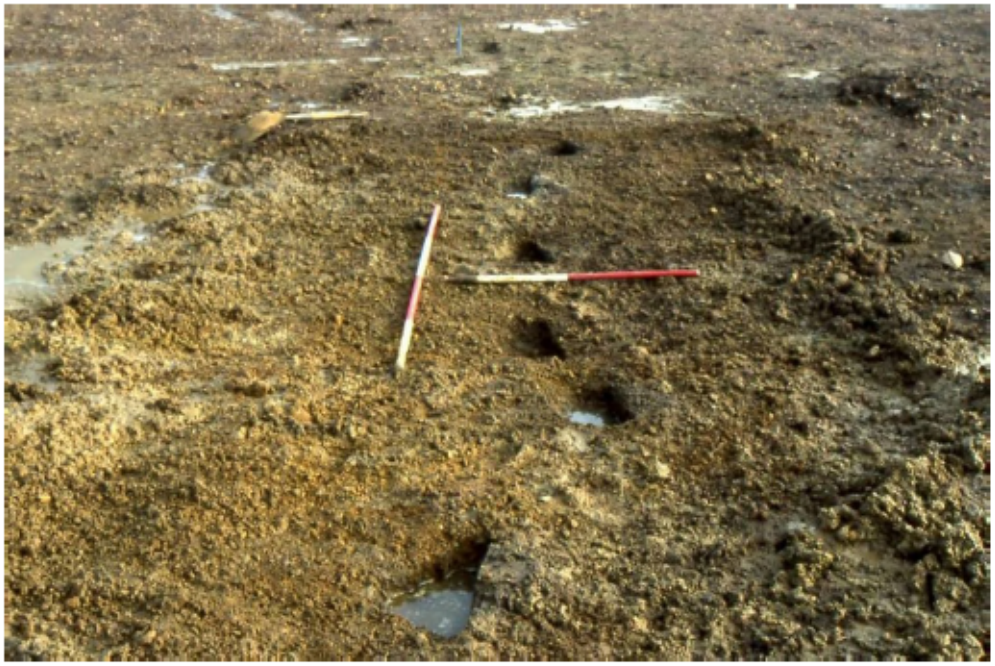
Scale 1:25 Sections of boundary ditch D1, gully D4 Fig 32

Ditch system D4 and postholes

About 38m north of the boundary ditch there was a less substantial ditch on a parallel alignment (D4). The ditch, 295, was 1.15m wide and 0.55m deep with a rounded V-shaped profile (Fig 32, section 92). The fill produced a small quantity of late Iron Age, Belgic-style pottery, indicating an origin no later than the early 1st century AD.

To the east, on the same general alignment, there was a ragged and irregular line of at least 25 postholes in a length of some 45m, with others perhaps removed by later features (Fig 33). The postholes were mostly circular, 0.19-0.50m in diameter and 0.12-0.30m deep with V- and U-shaped profiles. The easternmost postholes lay beside two short lengths of gully, 7m and 3m long, and 0.45-0.95m wide and 0.12-0.14m deep. It would appear that the line of ditch D4 was continued eastward as a fence line.

The timber fence diverged from the southern boundary, with the eastern end 50m to the north of ditch (D1). It could be seen as forming a funnelled approach from the east, suggesting that while ditch D1 may primarily have been a land boundary division, the north-western end was utilised as the southern side of a broad droveway, with animals possible being herded from a more open landscape to the east towards a corral or stock yard to the west, beyond the excavated area.



Phase 2, line of postholes, looking east Fig 33

4.4 Phase 3: Roman droveway and enclosures (early 2nd to early 3rd centuries AD)

At the northern end of the site there was a broad straight droveway (D2), which became narrower to the south-east, where it terminated at a cross ditch, leaving only a narrow opening to the south (Fig 35). In a plot to the west of the droveway there was a circular structure or enclosure (S3). To the south the droveway opened into an open stock yard, with a possible stock enclosure (E6). To the west a rectangular enclosure (E2) had an entrance at the north-western corner, with two roundhouses to the south (S1) and (S2), and a small enclosure (E4) in the south-eastern corner. On the other side of the droveway there was the northern end of another probable enclosure (E5) with a small sub-square enclosure (S4) in the north-western corner.

Droveway D2

The western droveway ditch was almost continuous, but was broken in two places by narrow trackways, 3-4m wide, leading westwards.

The western droveway ditch was up to 1.80m wide by 0.40-0.70m deep, with both U- and V-shaped profiles (Fig 38, section 245). A large iron drop-hinge staple, for supporting a substantial gate or door, came from ditch 107 (Fig 50). To the south the western ditch was less substantial, up to 0.80m wide and 0.30m deep, with a rounded V-shaped profile. Pottery dated to the 2nd century AD came from the ditch fills forming the eastern arm of enclosure E2. The eastern arm of the droveway was less substantial, 831, 0.48m wide and 0.20m deep.

To the north the droveway was 40m wide, but arms steadily converged and were only 25m apart where it was blocked by a cross ditch, 15. There was a narrow opening, 5.5m wide, providing access to the south, and its placing in the corner suggests that its function was stock control.

Ditch system D5

To the west of the droveway an early ditch system showed respect for both the Phase 2 boundary system and the new droveway system. As discussed above, this appears to define a period of transition between the two systems.

To the west a linear ditch, 0.84m wide and up to 0.28m deep with a wide U-shaped profile, closely followed the line of Phase 2 ditch D4. To the east it branched eastward to meet the western droveway ditch (D2) and southwards to meet the northern arm of enclosure E2, forming a roughly rectangular enclosure, 35m long by 23m wide.

This arrangement was probably short-lived, being replaced by a single large rectilinear enclosure or paddock, 110m long, bounded by the narrow side tracks to both the north and south. So the entire arrangement was focused on the main droveway, with the Phase 2 boundary (D1) totally redundant.

Structure S3

The trackway ditches to the north (769 and 772) were 1.0m wide by up to 0.50m deep. A globular or bag-shaped beaker came from ditch 772 (Fig 45, 1).

To the south of this trackway there was an oval gully (S3), 10.0m in diameter north to south and 4.5m in diameter east to west, typically 0.60m wide and 0.20m deep (Figs 34 and 35). A platter of Belgic grogged ware came from fill (727) of 728 (Fig 45, 2). There was a broad opening to the east, 6m wide, with three pits irregularly placed across the opening.

A shallow linear gully, 904, 0.62m wide and 0.18m deep, ran south-westwards from structure 3, parallel with the trackway to the north,

This structure is difficult to interpret, given its oval form and the absence of any evidence for the presence of a roundhouse or any other structure within it. It may have functioned as a small pen or stock fold.

Oval enclosure S3, looking west Fig 34

Enclosure E2

On the western side of the droveway there was a rectangular enclosure, 85m long and 50m wide, 0.42ha (about an acre), with a broad entrance in the north-west corner (Fig 36). The northern and southern arms of the enclosure were generally wide and shallow with U-shaped profiles, 1.10-1.80m wide and up to 0.60m deep. The western arm of the enclosure, 409, was 2.20m by 1.10m deep, and the fill included the only coin found on the site, a well worn *dupondius* minted in the late 2nd century AD. The eastern arm, which was also the droveway ditch, was 1.40m wide and 0.70m deep. The northern half of the enclosure was empty apart from a central cluster of small shallow pits, and this, together with the broad funnelled entrance set in the corner, suggest use as a stock corral.

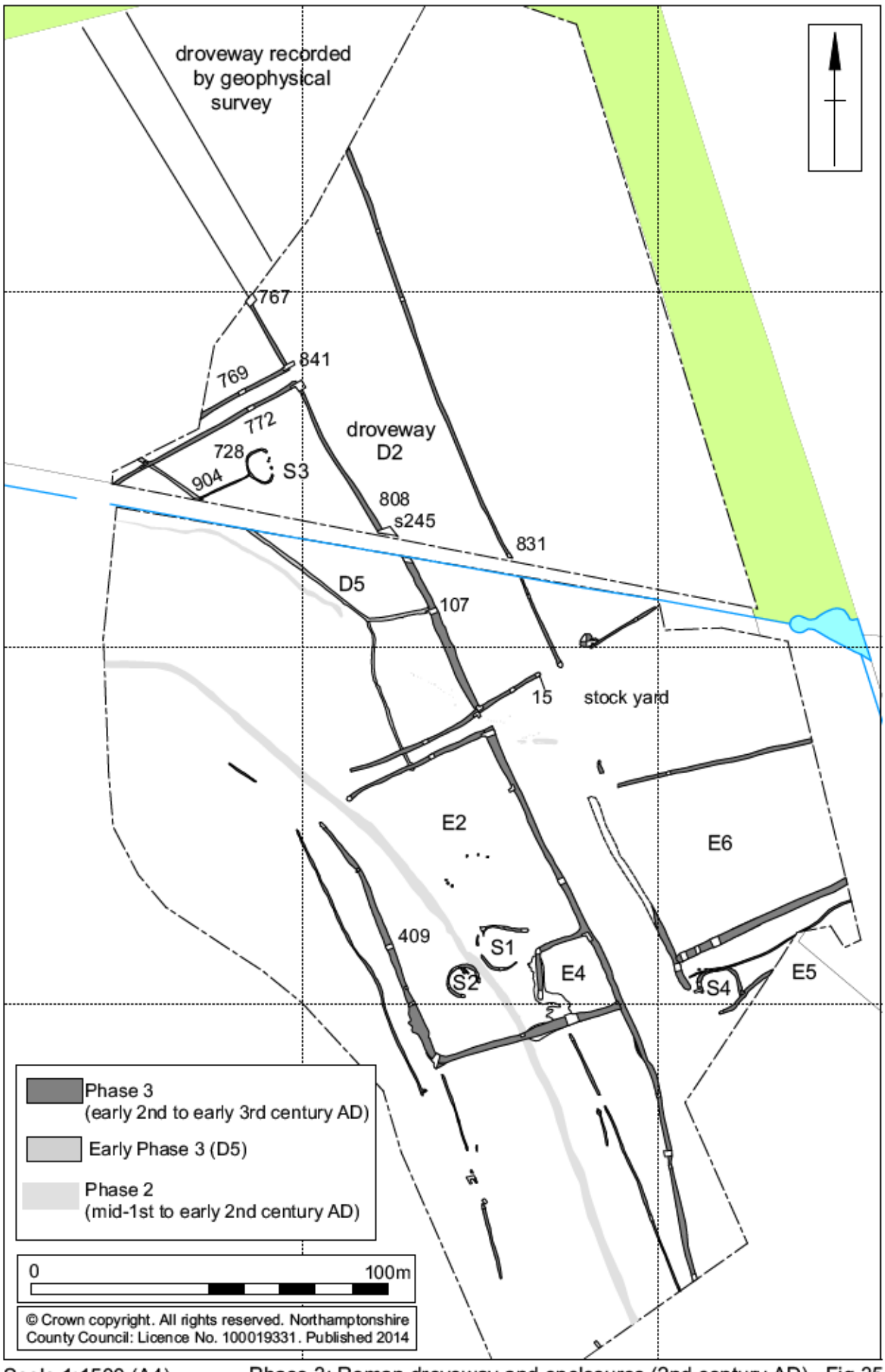
The trackway along the northern side of the enclosure was *c* 3.5m wide and along the western arm there was also a parallel gully, forming a trackway 5m wide. From the southern arm of the enclosure, two intermittent gullies ran southwards.

Three pits in the centre of the enclosure were about 1m apart, 0.30-0.60m in diameter and 0.15-0.30m deep with round U-shaped profiles. A samian bowl dated 120-190 AD came from pit 454 (Fig 45, 6). A little to the west were three more pits. These were 0.40-0.50m in diameter and 0.08-0.15m deep with rounded profiles.

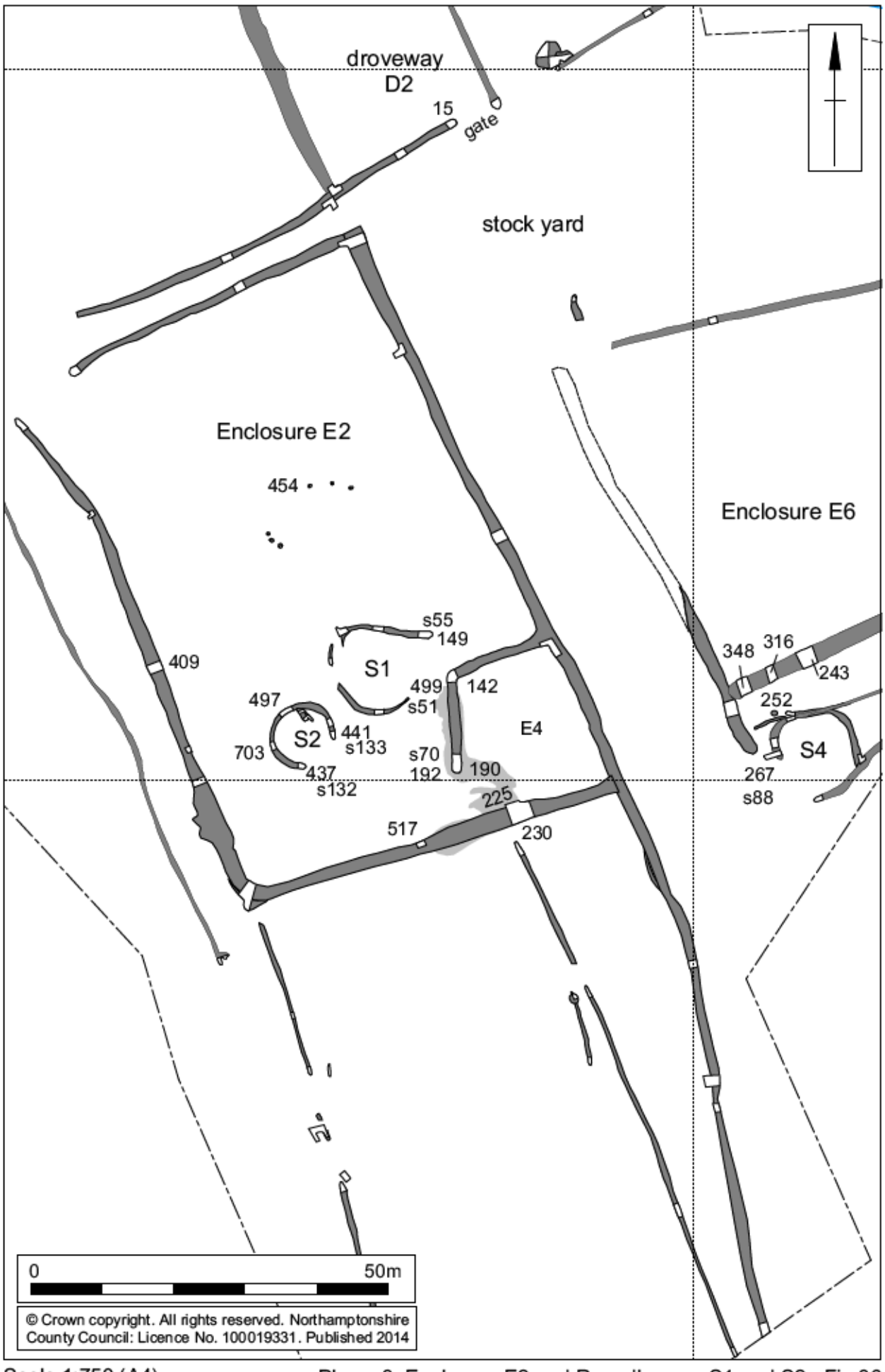
In the southern half of the enclosure were two roundhouses, S1 and S2, with a small enclosure E4 in the south-eastern corner. S1 would have been the principal domestic roundhouse, with S2 as an ancillary building.

Roundhouse S1

The ring ditch had an internal diameter of 11m, suggesting that the enclosed roundhouse would have been *c* 9m in diameter. The surrounding gully was discontinuous, with a projecting northern arm and a broad opening to the east. The northern terminal, 149, was 0.80m wide and 0.30m deep, with a wide rounded V-shaped profile. The upper fill (146) contained pottery dated to the 2nd century. The southern terminal, 499, was 0.30m wide and 0.20m deep with a V-shaped profile, the same dimensions as the rest of the circuit (Fig 38, sections 55 and 151). There were no internal features.



Scale 1:1500 (A4) Phase 3: Roman droveway and enclosures (2nd century AD) Fig 35



Scale 1:750 (A4)

Phase 3: Enclosure E2 and Roundhouses S1 and S2 Fig 36

Roundhouse S2
The ring ditch was 7.5m in diameter, suggesting that it enclosed a small roundhouse *c* 5.5-.6.0m diameter. There was a 5.3m wide entrance, facing south-east. The southern terminal, 437, was 0.80m wide and 0.20m deep with a flat bottom and sloping sides, and the northern terminal and the rest of the gully was typically 0.40m wide and 0.15m deep, with a wide U-shaped profile (Fig 38, sections 132 and 133).

The fills of the gullies produced small quantities of scattered hearth waste (soil samples 30-32) and fragments of fired clay. Pottery dated to the 2nd to 3rd centuries AD came from the south terminal and the west and east sides.

Enclosure E4
An L-shaped ditch in the south-eastern corner of enclosure E2 formed a square sub-enclosure, 21m long by 19m wide with a 7.0m wide entrance. The L-shaped ditch was 1.40m wide and 0.50-0.60m deep with a V-shaped profile (Fig 39, section 70).

At the corner of enclosure E4 the ditch, 142, was 1.35m wide and 0.60m deep with a rounded V-shaped profile. The fill (141) included pottery dated to the 2nd to 3rd centuries AD and some scattered cereal waste (sample 4). The fill (191) at the terminal, 192, contained pottery, fired clay fragments and a fragment from a quern (SF9).

The western arm of enclosure E4, the entrance area and the adjacent southern arm of enclosure E2, were overlain by an extensive spread (190/225) and (520/521) of soft dark greyish-black silty clay, 3-4m wide and up to 0.25m thick, forming the final fill of the ditch and filling slight hollows extending beyond the ditches and through the entrance (Fig 38, section 70). In spread (190) around ditch terminal 192 there was a large quantity of pottery dated to the 2nd to 3rd centuries AD (Figs 45, 7 and 46, 8), two fragments of roof tile, animal bone, two fragments of millstone (SF8 and 10) and an iron knife. The charcoal from this spread contained fragments of hawthorn.

The final layer (225) in the entrance area and over the adjacent enclosure ditch 230 was of cobbles and gravel in a matrix of grey-black clay, mottled with orange, perhaps a later attempt to consolidate the surface (Fig 37).

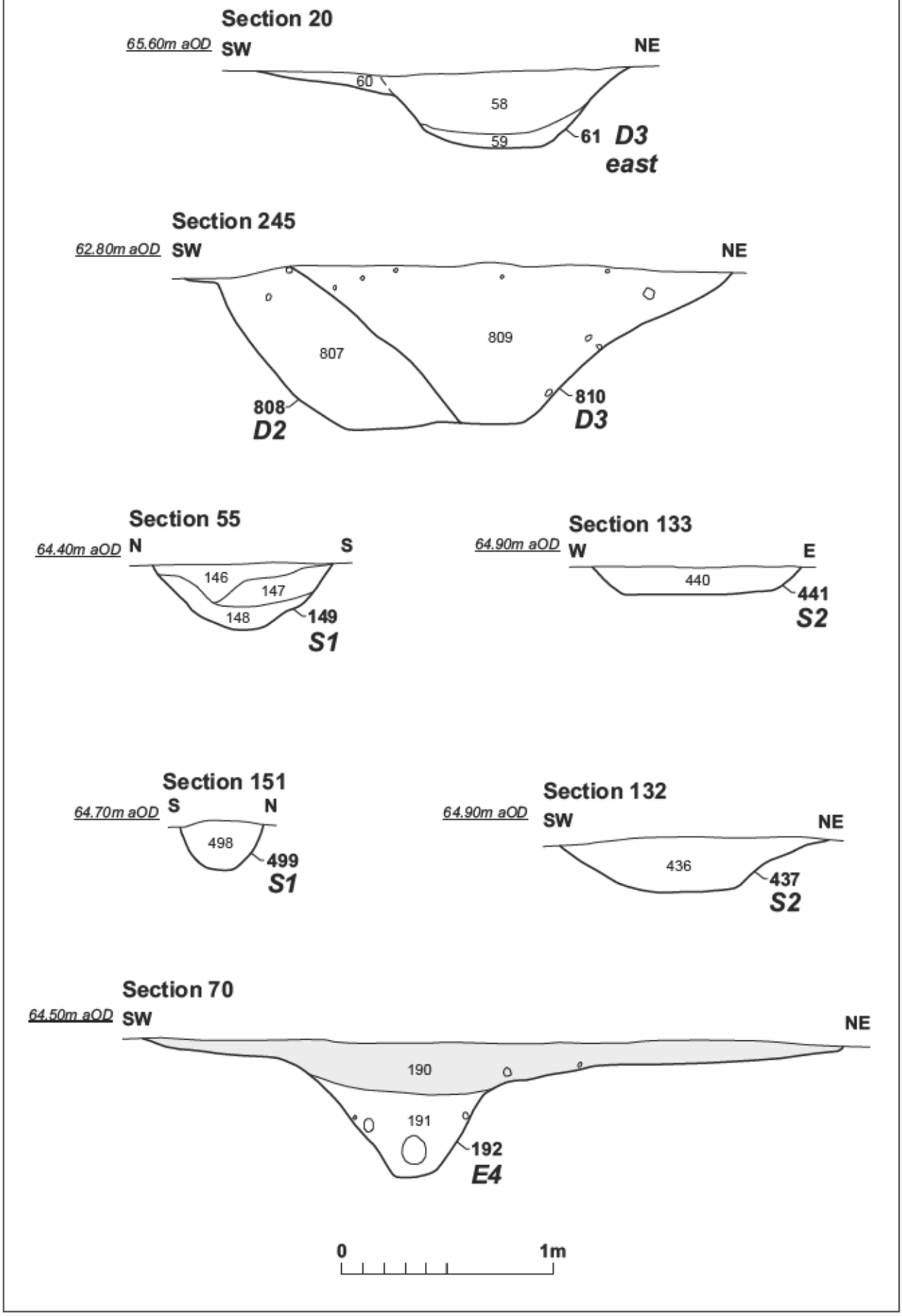
This spread of material clearly accumulated once enclosure E4 had fallen out of use, and it may derive from the levelling and clearance of the adjacent roundhouses, which would account for the range of domestic debris within it, prior to the remodelling of the enclosure in the early 3rd century.

Layer of cobbles in ditch 230 adjacent to enclosure E4 Fig 37

A stock yard and Enclosures E5

To the immediate south of the blocked droveway and north of enclosure E6, there was an open area at least 35m wide and becoming wider to the east. It is suggested that this area formed an open stock yard for gathering animals that had been brought down the droveway from the north, and perhaps also from the south. The enclosure to the south, E6, probably also functioned as part of this stock control system,

Enclosure E6 was 53m long and in excess of 60m wide. The northern arm was 1.10m wide and 0.55m deep with a broad V-shaped profile. The western arm only survived at the southern end, recut by the later droveway ditch, and had been totally lost to the later ditch further north.



Scale 1:25 Sections of droveway ditches D2 & D3, Structures S1 & S2, Enclosure E4 Fig 38

Enclosure E6 and Structure S4

There was a complex area in the south-eastern corner of the site, with a palimpsest of intercut ditches through Phases 3 and 4. It may have formed the northern end of another domestic enclosure, as much domestic debris came from the sequence of ditch fills, although especially in the later usage, Phase 4.

The northern arm ditch, 316/348, was up to 2.0m wide by 1.0m deep (Fig 39), and the secondary fill (347) contained an Oxford whiteware mortaria (Fig 45, 5). The northern arm terminated to the west, adjacent to the droveway ditch, which itself terminated a little to the south, so that enclosure/structure S4, opened onto the droveway.

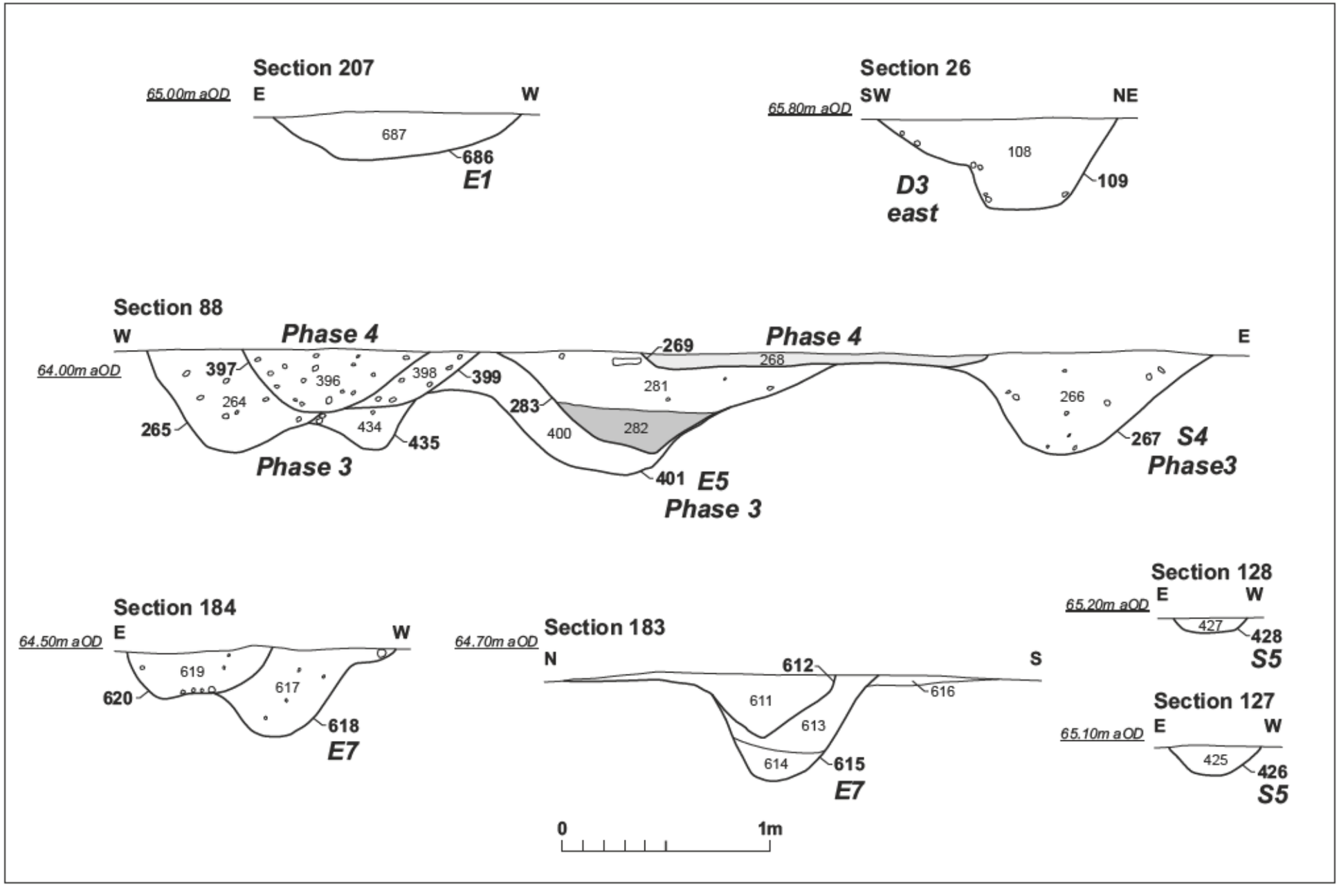
Ditch 316, enclosures E5/E6, looking west Fig 39

Structure S4

This sub-square structure comprised a series of curving ditches/gullies, with elements on the northern and southern sides also continuing eastwards. They were typically 1.0m wide by 0.5m deep (Fig 40, section 88, 267: Fig 44) although the sinuous gully along the northern side was flat bottomed, 0.50m wide by 0.1m deep.

The enclosed area was 11.5m in diameter and there was a 7m wide opening to the west. There is no indication of the presence of a roundhouse, and the sub-square plan might suggest that this was a small sub-enclosure, perhaps an animal pen.

A posthole to the north of the structure, 252, contained the rim of a large storage jar (Fig 45, 3).



Scale 1:25 Droveway ditch D3, Enclosure E5, Structure S4 & S5, Enclosure E7 Fig 40

4.5 Phase 4: Roman droveway and enclosure (3rd century AD)

In the early 3rd century AD, the droveway and settlement was extensive remodelled, perhaps as a result of a change in function (Fig 41). The western droveway ditch was retained and recut, but on the eastern side there was a completely new ditch, running further south than previously and considerably reducing the width of the droveway at its northern end. Geophysical survey recorded the continuation of the droveway for a further 85m to the north, approaching Broughton Brook.

The new droveway (D3) was 10m wide to the north, although to the south, adjacent to the domestic enclosures, it broadened to 17m wide. To the south there was a marked change in alignment of the droveway, but its course further south is unknown.

To the west, the previous domestic enclosure was levelled. In the new enclosure (E3), which lay a little further to the south, the roundhouses were replaced by a rectangular timber-framed house, S5, which only partially survived. There was again an internal sub-enclosure in the south-east corner.

The enclosures to the east of the boundary were also remodelled, and the ditches at the north-west corner of the southern enclosure (E5) contained much domestic debris, particular charred cereal and chaff, and fragments of millstones and querns.

The removal of the stock control features and the presence of a mill may denote a shift from pastoral to arable farming.

Droveway D3

The eastern droveway ditch, 61/109, was U-shaped, 1.10m wide and 0.40m deep with fills of dark grey clay with orange mottles, indicating that it was often wet (Fig 38, section 20; Fig 40, section 26). Further north, 881, the ditch was 2.20 wide and 0.50m deep, the fill of mainly blue-grey clay indicates that here the ditch was typically waterlogged.

To the north, two linear ditches, 65m apart, were aligned perpendicular to the eastern droveway ditch, forming an enclosure or paddock. These were fairly substantial ditches, with the most northerly, ditch 857, 1.50m wide and 0.77m deep, while the boundary to the south, 850, was 2.20m wide and 0.62m deep, both with U-shaped profiles. The might reflect the wet ground and resulting tendency for features to silt rapidly.

Further south there were a pair of gullies, aligned east to west, 833, 1.0 and 2.0m wide and 0.10 and 0.30m deep, respectively, with broad sloping sides, but these appear to be only minor sub-divisions.

The western droveway ditch was of similar dimensions. To the north, ditches 777 and 838, were 1.60m and 2,20m wide and 0.65m deep, with U-shaped profiles, although further south the ditch, 810, was 2.0m wide by 0.75m deep with a V-shaped profile and a broad flat base and eroded upper edges, The fill (809) was of homogeneous clayey silts (Fig 38, section 245).

Enclosure E3

This rectangular enclosure was 110m long by 68m wide (Fig 42). The western arm was up to 1.60m wide but survived to only 0.25m deep. The northern and southern arms were 1.00m and 1.40m wide and 0.30 and 0.55m deep respectively, with V-shaped profiles. A handle from a silvered copper alloy spoon came from the northern arm, ditch 136.

In the central area of the enclosure, there was an extensive spread of soils, 190, 225 and 520, filling shallow hollows above the sub-enclosure in use in Phase 3 (Fig 42). It has been suggested that this deposit was probably largely domestic debris from the

previous phase derived from the levelling of the houses and the filling of the ditches. It is possible, however, that there may have been further deposition in Phase 4, and the cobbles deposited in the ditch above the occupation debris (see Fig 37) may have been an attempt to consolidate a particularly soft spot within enclosure E3.

Structure S5
Towards the western side of the enclosure there were fragmentary remains of the linear slots of a timber-framed house. The slots defined three walls of a single room, *c* 7.0m long by 5.5m wide, although the western wall was lost in the fills of an earlier ditch. There was a narrow corridor/veranda on the east side, 1.5m wide.

There was probably a doorway in the southern wall of the identified room, and single length of wall slot, fading out and lost to the south, indicate the former presence of a further room of rooms to the south. It is possible that the surviving room was merely the northern wing of a simple strip building, of a basic winged corridor plan form, with the central rooms and the southern wing all lost.

The wall slots were typically 0.48m wide and up to 0.15m deep (Fig 40, sections 127 and 128). A small body fragment from a roof tile came from the western terminal 380.

The north-western corner of the enclosure was divided from the remainder by a curving ditch, 1.0m wide by 0.50m deep. Joining fragments of a copper alloy bracelet came from ditch 488, and a local copy of a black burnished ware type bowl came from gully 512 (Fig 46, 9).

Within this enclosed area there were lengths of linear gully running north-south and shorter lengths running parallel to the northern arm of the enclosure. These gullies were typically 0.50m wide and 0.10-0.30m deep, the shallow gullies were flat-bottomed and the deeper ones were V-shaped. This enclosed space may have formed a garden or, more practically, a horticultural plot adjacent to the house.

Sub-enclosure E7
In the south-east corner there was a rectangular sub-enclosure (E7), 27m long by 13m wide, with a narrow entrance, 1.0m wide, in the north-east corner. The placing of the enclosure fully within the larger enclosure and a subsidiary ditch along the northern side, created a narrower trackway, 1.5-4.0m wide, encircling three sides of the enclosure, which may suggest it served as some form of stock corral.

The enclosure ditch was up to 1.30m wide and 0.50m deep, with a V-shaped profile (Fig 40, sections 183 and 184). The western and southern arms, 615 and 618, were later recut, 612 and 620 respectively, when they were shallower, up to 0.30m deep.

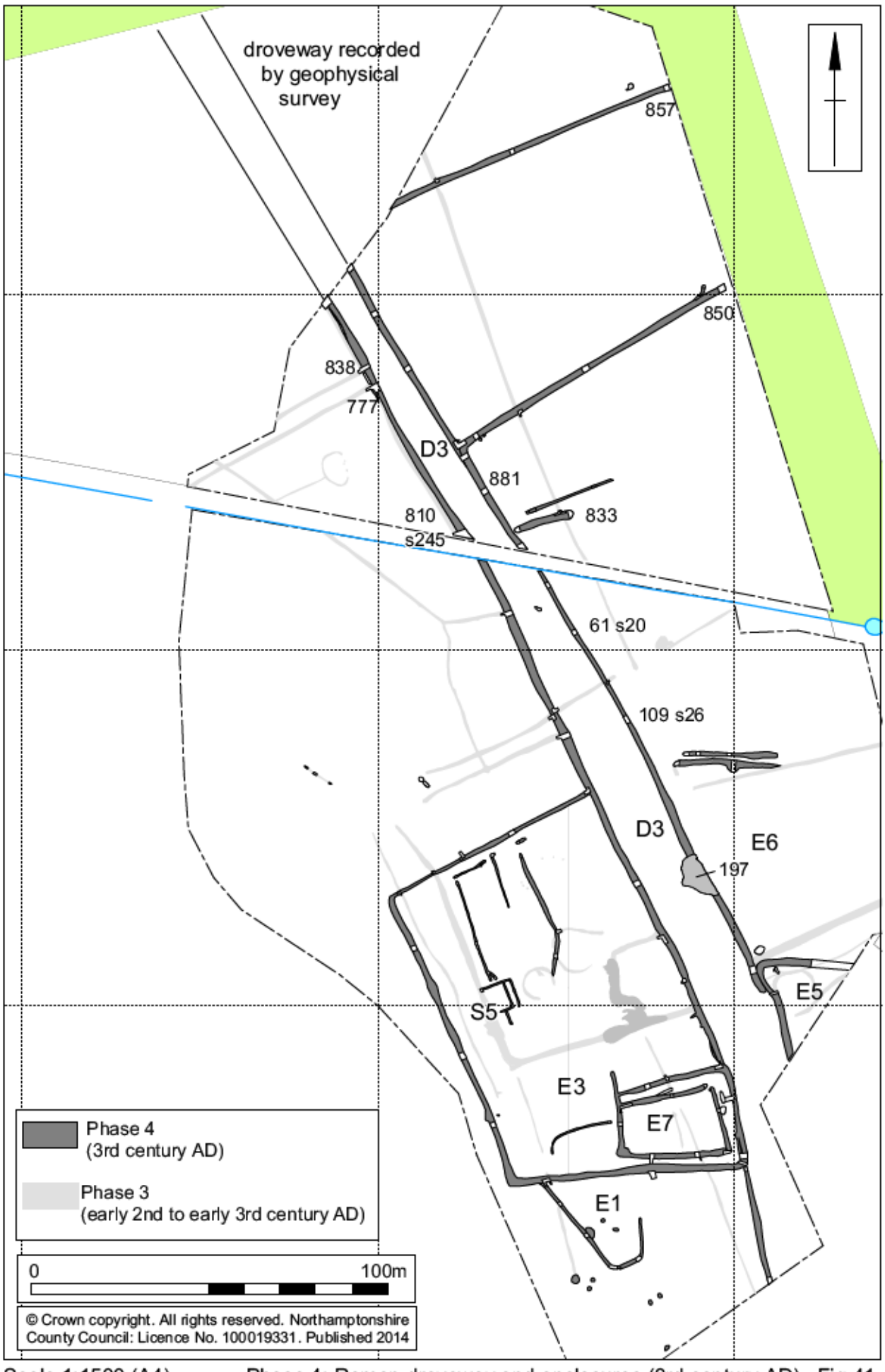
A posthole, 526, alongside the northernmost ditch contained the rim of a large storage jar (Fig 45, 4).

To the west, there was a curving gully, 15m long, 0.50m wide and 0.30m deep with a V-shaped profile, perhaps associated with the use of the sub-enclosure.

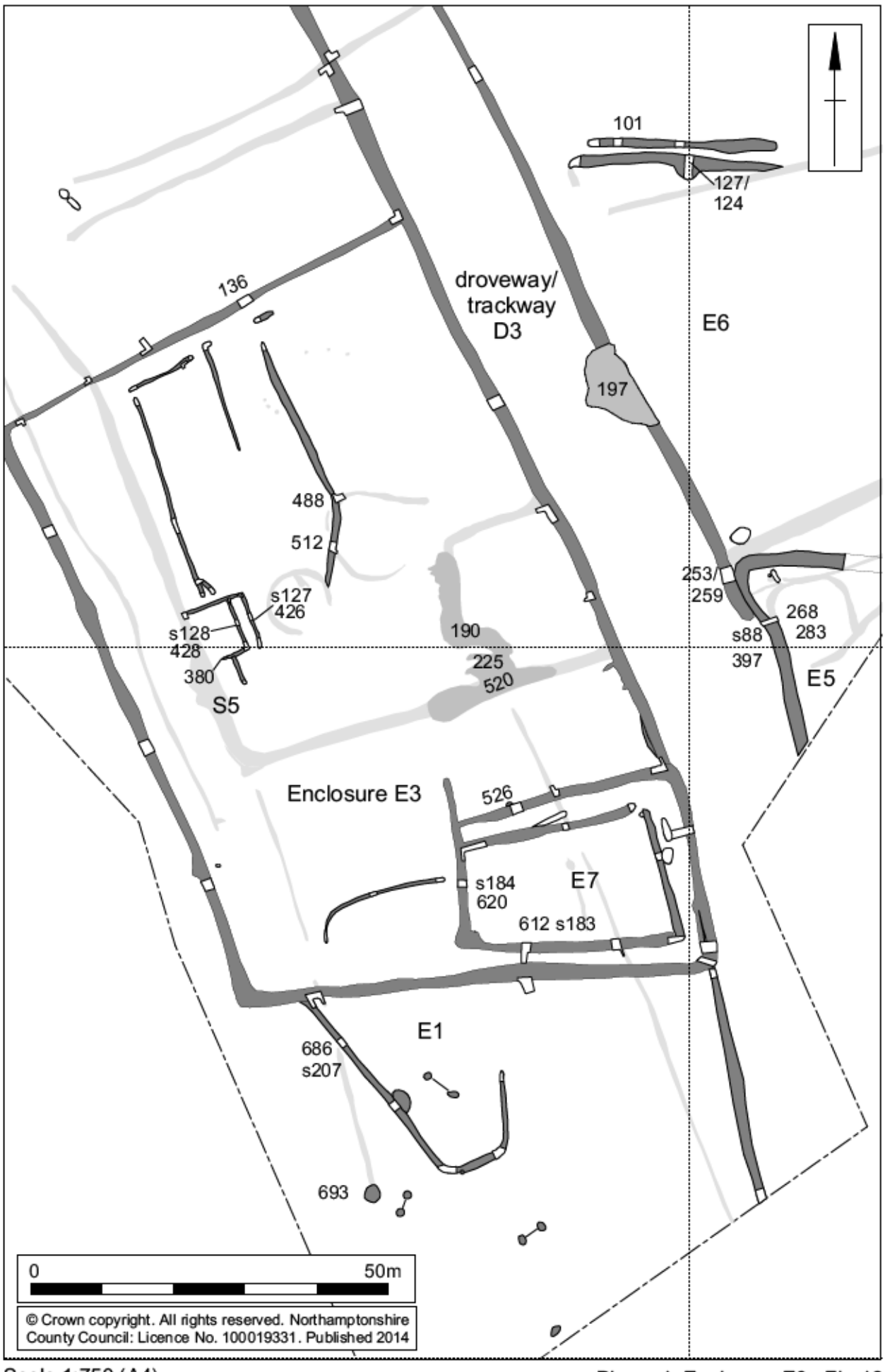
Enclosure E1
Attached to the southern arm of the main enclosure (E3), there was a U-shaped enclosure, E1, 30m long and a minimum of 8m wide at the southern end, with an opening 15m wide to the east. The eastern ditch was broad and shallow, up to 1.10m wide and 0.30m deep with a flat bottom, though the terminal was narrower and shallower, 0.40m by 0.20m deep. The western ditch, 667, was 0.90m wide by 0.30m deep with a rounded broad V-shaped profile (Fig 40, section 207).

Within and to the south of this enclosure, were three pairs of pits. Within the enclosed area, there was a pair of pits 3m apart, with the pits 1.00-1.20m long by and 0.25m deep, with broad U-shaped profiles. To the south-east there was a pair of pits 2.0m apart and to south-west two pits 1.5m apart. A larger pit 693, 0.94m diameter and 0.30m deep lay, 4m to the west. There were no finds from these pits, or any indication of their purpose, and they could have related to an earlier phase of activity.

The paired pits may have held the posts for timber frames, serving some functional purpose specifically carried out in this area.



Scale 1:1500 (A4) Phase 4: Roman droveway and enclosures (3rd century AD) Fig 41



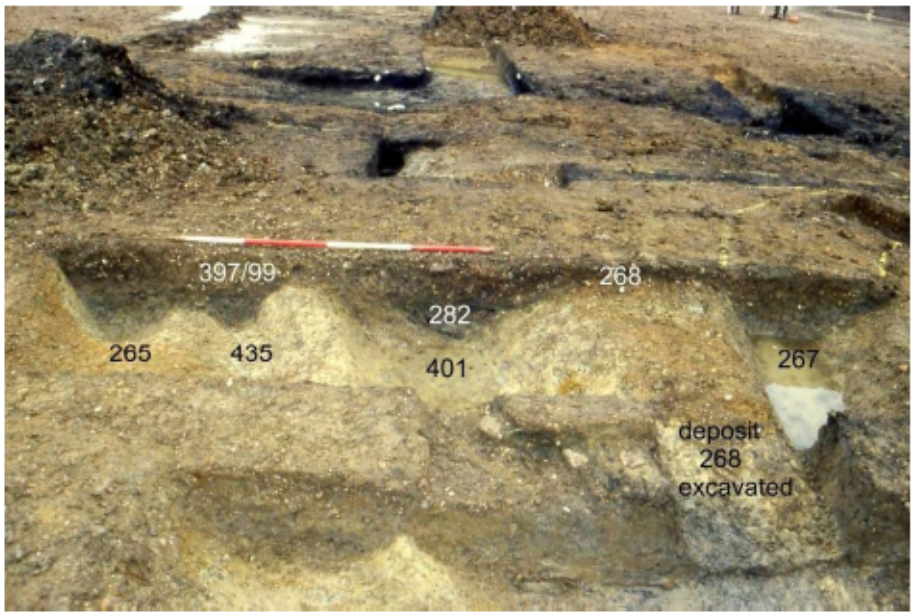
Scale 1:750 (A4)

Phase 4: Enclosure E3 Fig 42

Enclosures E6 and E5

To the east of the droveway there were new ditch systems. The eastern droveway ditch, 253, was now continuous up to the northern end of Enclosure 5. At the northern end of enclosure E6, there was a pair of parallel ditches, 101 and 127/124, 0.60 wide by 0.10 deep and 2.0m wide and 0.20m deep respectively, although these were both discontinuous, perhaps indicating that it was no longer necessary to fully enclose this space.

To the south, the northern end of enclosure E5, was fully redefined. This new ditch system also turned southwards to continue the eastern side of the droveway, 399 and recut 397. Inside this, a parallel inner ditch, 283 (Fig 40, section 88) contained a distinctive primary fill (282), of grey-black organic silts. This deposit extended further south and north and continued along part of the northern arm. The deposit produced large quantities of charred cereal grains, weed seeds and chaff (samples 20 and 23), the only such deposit found in the excavation.



Ditch complex at north-west corner of enclosure E5, Section 88, looking north Fig 43

Broken rotary quern (q) in deposit 268, enclosure E5 Fig 44

The last act in this area was the deposition of seven fragments of millstones and a complete, but broken, bottom stone of a rotary quern (SFs 17-22 and 28) in deposit (268) (Fig 44), covering an area *c* 3.0m by 1.7m, over ditch 267 of structure S4 and boundary ditch 283, and also containing quantities dumped stone, pottery and animal bone. This may have marked the clearance and abandonment of activity within enclosure E5.

4.6 The Roman pottery by Ed McSloy

Introduction

Pottery amounting to 627 sherds, weighing 12.03kg (11.70 estimated rim equivalents EVE) was recovered (Table 30).

The condition of the pottery tended to be poor. Loss of surfaces was extensive and the result of properties of the local soils and abrasion through mechanical processes. Certain fabrics, including Soft Pink Grogged fabric 2, and oxidised fabrics 17 and 18b, appear to be more susceptible, typically resulting in powdery surfaces. Leaching of calcareous inclusions is common with shelly fabrics and also would seem to be the result of the soil conditions. Average sherd weight is nonetheless reasonably high for a Roman assemblage at 19.2g.

Pottery was recovered from 109 individual contexts, mainly the fills of enclosure, boundary and droveway ditches. Context groups are small: the largest being 73 sherds from layer (190), probably dumped occupation debris at the end of the life of the roundhouses within Enclosure E2. More typically (in 92 of the 109 instances), context groups consist of ten or fewer sherds.

Methodology

The pottery was sorted into fabrics primarily by macroscopic observation and sherd count and weight recorded for each context. Where vessel form could be determined, usually from rim sherds, this was noted and rim EVEs (Estimated Vessel Equivalents) recorded. In the interests of continuity, fabric nomenclature is adapted from that developed by Marney (1989) and utilised for most subsequent publications of pottery from the Milton Keynes area. Fabrics are in addition matched against the National Roman fabric Reference Collection codes (Tomber and Dore 1998), with relevant concordances (Table 30). All fabrics are well documented elsewhere and no attempt is made to duplicate descriptions.

Assemblage composition

A small proportion of the assemblage (10% by count) consists of wheel thrown grog-tempered 'Belgic' types (fabrics 45/46/46qr), material which in this region characterises the early 1st century AD. The larger part of the assemblage consists of Romano-British coarsewares originating from local or relatively local sources, of which shell-tempered wares (fabric 1), sandy reduced wares (fabrics 3 and 9) and soft pink grog-tempered wares (fabric 2) are most numerous.

Shell-tempered wares may derive from a variety of local sources, which may include the kilns at Harrold, north Bedfordshire (Brown 1994). Hooked-rim jar forms and large flanged bowl forms which characterise the 4th-century Harrold repertoire are absent. Sandy reduced wares; fabrics 3 and 9 compare closely to published material from the Milton Keynes area (Marney 1989) and are almost certainly local in origin. Soft pink grog-tempered wares are well represented (Table 31). Local origin for this ware type is clear from its abundance in Milton Keynes area (Booth and Green 1989; Marney 1989, 64-9).

Greyware fabric 14 and oxidised type 17, both of which likely originate in the Upper Nene valley, close to Northampton (Johnson 1969), are the most abundantly represented of regional ware types. Further non-local material includes material from neighbouring regions and comprises predominantly specialist wares (mortaria) and fineware fabrics. The latter comprise Lower Nene Valley colour-coated wares and self-coloured fabric 18b, probably from the same source. Mortaria occur as products from the Verulamium region, Mancetter/Hartshill and most numerously Oxfordshire. A notable find, from Phase 3 gully 772 (north of S3), is a lead-glazed (fabric 13a) globular/bag-shaped beaker (Fig 45, 1). Lead-glazed wares were produced in a number of centres in

Britain before the mid-2nd century AD (Arthur 1978). The fabric and decorative motifs are consistent with Arthur's south-east English group, possibly produced in the Staines area, west of London.

Table 30: Quantification of pottery fabrics

Source	Description	MK fabric	NRFRC*	Sherds	%	Weight (g)	Rim EVEs
Local†	Grog	46	-	44	7.0	963	0.25
	Grog with shell	45	-	6	<1	294	-
	Grog with quartz	46qr	-	13	2.1	330	-
	Shell-tempered	1	-	165	26.3	3905	3.06
	Local grey sandy	9	-	135	21.0	1502	2.04
	Local black sandy	3	-	39	6.2	984	0.91
	Pink grogged	2	PNK GT	60	9.6	1004	0.74
Local/ uncertain	Grey with white slip	9	-	1	<1	10	-
	Grey with oxidised surfaces	9	-	7	1.1	233	0.10
	oxidised with white slip	41	-	1	<1	6	-
Regional	Upper Nene grey	14	-	52	8.3	750	1.61
	Upper Nene oxidised	17	-	14	2.2	146	0.30
	?Upper Nene white	18	-	7	1.1	51	0.09
	Oxford whiteware (mortaria)	4a	OXF WH	13	2.1	1120	0.70
	Lower Nene grey	12	-	2	<1	74	0.09
	Lower Nene valley CC	6	LNVCC	22	3.5	242	0.81
	Lower Nene valley white/cream	18b	-	15	2.4	62	-
	Veru. Region white	4g	VER WH	2	<1	64	0.06
	Mancetter/Hartshill	4ec	MAH WH	1	<1	30	-
	South-East English lead-glazed	13a	SOB GL	9	1.4	14	0.10
Continental	Central Gaul samian	20	LEZ SA/ LMV SA	13	2.2	191	0.62
	East Gaul samian	20	-	1	<1	10	-
	South Gaul samian	20	LGF SA	5	<1	44	0.22
Total				**627**		**12029**	**11.70**

*codes for National Roman Fabric Reference Collection (Tomber and Dore 1998)
†'local' is here applied to ware types originating from the Buckinghamshire/ Bedfordshire/ Northamptonshire region

Forms

A platter is the only non-jar form identifiable among the 'Belgic' grogged fabrics (Fig 45, 2).

Represented forms predominantly comprise utilitarian vessel types occurring in the common coarseware types, mostly medium or narrow-mouthed jars (47.1% of total EVEs). Most are necked forms evolving from Belgic vessels. In addition, there is one example of a channel-rimmed jar, a form similarly derived from the native tradition (Friendship-Taylor 1999), Large diameter storage jars (6.3% of EVEs) occur only in shell-tempered or pink grogged fabrics (Fig 45, 3 & 4).

Open forms occur primarily in sandy reduced wares (fabrics 3, 9, 14) and comprise dishes (12.2%) and bowls (4%) derived from Black-Burnished type wares. Bowls of characteristic necked form (Booth 1989) are most common form among pink grogged fabric 2 and represent 4.1% of total EVEs. Mortaria represent 6% of EVEs, with identifiable forms all flanged Oxfordshire types: M17/M18 and M22 (Young 1977) (Fig 45, 5). Strainer-bowls occur as body sherds in local reduced fabric 9.

A small number of bowls (2.6% of EVEs) including reeded-rim, hemispherical flanged and samian-inspired (Drag. 36) forms occur in oxidised fabrics (fabrics 17, 4g and 18b)

and might be described as tableware types. The dominant regional fineware type, Lower Nene Valley colour-coated ware, occurs as beakers (4.9% of EVEs) and a single 'Castor box' (0.5% EVEs).

Table 31: Pottery fabrics quantification by Phase, MK fabrics in parenthesis (unphased features omitted)

	Phase 2			Phase 3			Phase 4		
Fabric	***No***	***Wt (g)***	***EVE***	***No***	***Wt (g)***	***EVE***	***No***	***Wt (g)***	***EVE***
Grog (46)	3	14	-	15	226	0.10	24	700	0.16
Grog with shell (45)	-	-	-	6	294	-	-	-	-
Grog with quartz (46qr)	4	122	-	4	32	-	3	138	-
Shell-tempered (1)	4	70	0.10	91	2156	2.03	60	1309	0.72
Local grey (9)	18	98	0.11	51	654	1.19	56	620	0.69
Local black sandy (3)	2	24	-	16	394	0.38	15	528	0.53
Pink grogged (2)	-	-	-	30	652	0.46	22	302	0.28
Grey with white slip	-	-	-	-	-	-	1	10	-
Grey with oxid surfaces	-	-	-	2	190	10	1	4	-
Oxidised with white slip (41)	-	-	-	1	6	-	-	-	-
Upper Nene grey (14)	-	-	-	30	548	1.30	18	170	0.20
Upper Nene oxid (17)	-	-	-	11	132	0.30	3	14	-
Upper Nene? coarse white (18)	-	-	-	2	8	-	4	37	0.09
Oxon white mortaria (4a)	-	-	-	4	146	0.32	8	914	0.38
Lower Nene grey (12)	-	-	-	1	32		1	42	0.09
Lower Nene C-C (6)	-	-	-	21	234	0.75	1	8	0.06
?Lower Nene colour white/cream (18b)	-	-	-	5	28	-	10	34	-
Veru. Reg white (4g)	1	30	0.06	-	-	-	-	-	-
Mancetter/Hartshill mortaria (4ec)	-	-	-	-	-	-	1	30	-
SE English glazed (13a)	-	-	-	9	14	0.10	-	-	-
Cent Gaulish sam (20)	-	-	-	5	142	0.46	3	25	-
South Gaulish sam (20)	-	-	-	1	18	0.09	2	23	0.12
East Gaulish sam (20)	-	-	-	1	10	-	-	-	-
Totals	**32**	**358**	**0.27**	**306**	**5916**	**7.58**	**233**	**4908**	**3.32**

MK fabrics in parenthesis

Samian *by P V Webster*

Imported continental pottery was restricted to a small group of samian (Table 32).

The range of forms is limited, with the dish/bowl range Drag 18/31 to Drag 31 predominating (Figs 45; 6 and 46; 8). Overall the date range is between the late 1st and late 2nd centuries. It may be noted, however, that form Drag 18/31 predominates over form Drag. 31 and a narrower range *c* AD100-160 would accommodate all pieces. Sherd size is generally fairly small with some, especially South Gaulish pieces being noticeably abraded.

Table 32: Samian by form/region, quantities by no. vessel and Rim EVE

Form (generic)	Form	Cent. Gaul	South Gaul	East Gaul	Total
Plain dish/bowl	Drag.18/31	2/0.18	-	-	**2/0.18**
	Drag.18/31r	1/0.05	1/0.12	-	**2/0.17**
	Drag.31	1/-	-	-	**1/-**
	Drag.31R	1/-	-	-	**1/-**
	Curle 23	-	1/0.09	-	**1/0.09**
	Drag.36	2/0.35	-	-	**2/0.35**
	unid. bowl	2/-	-	-	**2/-**
	unid. dish	-	1/0.01	-	**1/0.01**
Plain cup	Drag.33	-	-	1/-	**1/-**
Dec. bowl	Drag.37	1/0.04	-	-	**1/-**
Unid.	unid.	3/-	2/-	-	**5/-**

Chronology

Pottery was compared against the site Provisional Phases devised from stratigraphy. Dating on ceramic grounds was hampered by typically small context groups and, to a degree, by the conservatism which characterises Romano-British coarsewares. The samian provides good dating markers (above) although it would appear much of this material may be residual. Further date markers were provided by regional finewares and mortaria. Quantities of soft-pink grog tempered wares provide useful dating, this type not considered to occur before the later 2nd century (Marney 1989, 174–5), and most abundant during the 3rd century. Notable absences among later groups are Oxfordshire colour-coated wares, a type commonly seen in the region within deposits dating after *c* AD 240/70.

Phase 2: 1st to early 2nd centuries AD

Small quantities of pottery were associated with the earliest features. Belgic type wares, fabrics 45, 46/46qu, all likely to date to the 1st century AD, occur in ditch 295 (D1) and is residual in gullies 681/706 of the small enclosure (E2). Pottery from pit 688 may provide some refinement within this scheme: it included a carinated, reeded-rim bowl in Verulamium region whiteware dateable before *c* AD 150. Samian was not recovered from any Phase 2 context, but residual South Gaulish material in later deposits attests to activity of comparable date in the vicinity.

Phase 3: early 2nd century to 3rd century AD

The intensified activity identified in Phase 3 is reflected in larger quantities of pottery deriving for the most part from the central area of the site, within an enclosure defined by ditches to the west of a droveway.

A wide dating span for this phase is indicated: a small group of earlier material including 1st-century AD grog-tempered wares and a lead-glazed vessel (Fig 45, 2) which must pre-date *c* AD 125/140 were associated with ring gully 728 (S3), and adjacent ditch 772.

Much of the remaining pottery is somewhat later, the majority certainly dating after the mid/later 2nd century AD. This is indicated in most instances by pink grogged ware which occurs in all larger groups associated with this phase. Reduced wares comprise a mix of local (fabrics 3 and 9), and Upper Nene valley greywares.

Roundhouse ring gullies and isolated features attributed to this phase produced very little pottery. Ring gully 514 (S1) and pit/gully 571 (S2) produced a small groups, consistent with a late 2nd to 3rd century AD date. Pit 454 (in E2) produced approximately one half of a Central Gaulish samian (Drag. 36) bowl dateable between *c* AD 120–190 (Fig 45, 6).

The fill of gully 201 (S4) included sherds from an indented and scale-applied Lower Nene colour-coated ware beaker (as Howe *et al* 1980, 39), dateable to the mid or later 3rd century.

Larger groups associated with this phase are confined to enclosure ditches, including ditches 409/491 and 192/230 (E2). Ditch 409 included a substantial portion from a Lower Nene valley colour-coated ware indented beaker was recovered from, its form suggesting mid or later 3rd century AD dating (as Howe *et al* 1980, 39/40).

Broadly similar dating is indicated for enclosure ditches 192/230, the fills of which produced the largest groups from the site. That from ditch 192 (105 sherds/2445g) includes roughly equal quantities of shelly, sandy reduced and pink grogged coarsewares. Oxidised wares including hemispherical flanged bowl and a Drag. 36 bowl copy (Fig 45, 7) support a date in the 3rd century AD; Oxfordshire whiteware mortaria (Young forms M18 and M22), and a Lower Nene colour-coated ware conical flanged bowl suggesting dating in the second half of the 3rd century AD. A similar date is indicated by a substantially complete shell-tempered ware jar from ditch 230 (Fig 46, 10), a form reminiscent of late-style Black Burnished ware cooking pots.

Phase 4: 3rd century AD
Quantities of pottery relating Phase 4 are significantly reduced in comparison with the previous phase. Context groups are typically very small, none exceeding 35 sherds (ditch section 200), a factor making assessment of dating frequently difficult or arbitrary.

The few chronological indicators present within Phase 4 support dating consistent with later material from Phase 3. The bulk of pottery consists of shell-tempered, pink-grogged and sandy reduced wares in broadly equivalent proportions to those from Phase 2.

Depression/spread 345/324 produced 3rd-century AD forms including local black sandy (fabric 3) copies of Black Burnished ware type flat, grooved rim bowl (Fig 46, 9) and an Oxfordshire mortarium of a variant form of Young's form M17 (Fig 45, 5). A vessel of equivalent type was also present in ditch 413 (E3).

Summary
There is limited evidence for activity through the 1st century AD apparent from the Phase 2 deposits and residual pottery in later contexts. The main peak of activity on the site, based on the ceramic evidence, would seem to be between the later 2nd and the mid/later 3rd centuries AD. Differences between material from Phases 3 and 4 are not apparent, suggesting that the relative dating sequence is confined within a narrow chronological span. Specific evidence for activity in the 4th century AD is entirely lacking from the pottery assemblage.

Catalogue of illustrated pottery

(Figs 45 & 46)

1 Globular or bag-shaped beaker with everted rim. White painted/barbotine ring motifs under glaze, which is worn on outer surface but fresher on the inner surface (bottom right). Fabric13a. Phase 3, fill (771) of ditch 772

2 Platter, Fabric 46, 'Belgic' grogged ware, 210mmk diameter. Phase 3, fill (727) of of ring gully 728, S3

3 & 4 Rims of large storage jar, rim diameters 340mm & 400mm. Fabrics 1& 2. fill (251) of posthole 252; fill (525) of posthole 526

5 Oxford whiteware mortaria, with flange, Fabric 4a, 350mm diameter, variant of form M17 (Young 1977, 72). Phase 3, fill (347) of ditch 348, enclosure E5

6 Samian bowl (Drag 36), 200mm diameter, Central Gaulish *c* AD 120–190. Phase 3, Enclosure E2, pit 454

7 Bowl imitating samian Drag 36, *c* 200mm diameter (see Marney 1989, fig 42; 18). Phase 3, E2, deposit 190 over E4

8 Samian plate with footring, and ring of rouletting, (Drag 31R), Central Gaulish. Phase 3, E2, deposit 190 over E4

9 Local black sandy (fabric 3) copy of Black Burnished ware type flat, grooved rim bowl. Rim diameter 160mm. Phase 3, fill (510) of gully 512, E3

10 Shelly jar (Fabric 1), with everted rim (BB type): height 140mm, base diameter 70mm. rim diameter 150mm. Phase 3, fill (228) of ditch 230, E2/E4

1

2

3

4

5

6

7

Roman pottery (1-7) (Scale 10mm) Fig 45

8

9

10

Roman pottery (8-10) (Scale 10mm) Fig 46

4.7 Building materials by Pat Chapman

Roman ceramic roof tile

There are three fragments of Roman roof tile, weighing 337g. Two of these are *tegulae* flanges and one a body sherd. There is a shelly ware tile from Phase 3 layer (190), over small enclosure E4. The body of the tile is 15mm thick while the flange is upright, 25mm thick and 45mm high with a flat top. The small *tegula* flange fragment from layer (190) is made from a soft bright orange clay with some very small grog inclusions. The flange is also upright, 45mm tall with a flat top, but 20mm thick with a slight reverse 'S' curve rising from the body to the top. The body fragment from Phase 4, gully 380 of structure S5 is 15mm thick and made from a slightly friable light brown fabric. These small worn fragments are debris that has probably travelled some distance from their origin.

Fired clay

This assemblage of 23 fragments, of varying sizes, weighs 270g. The largest fragments come from Phase 3, ditch 192 (E4). They are irregular, silty, slightly soft and vesicular, carelessly mixed and orange and cream in colour. The fragments from Phase 4 gully 488 of structure S5 comprise small angular pieces with some smoothed surfaces, similar fabric to those found in ditch 192. Fragments from Phase 3 gully 703 (S2) and Phase 4 ditch 526 (E3) are small, dark red brown and friable, while the one small piece from fill (703) of Phase 3 gully 702, structure S2, is almost vitrified from being subjected to very high temperature. These are random fragments that could be from any type of structural element.

Stone

There is a rectangular slab of limestone from Phase 4, layer 268, east of the droveway. The stone is 205mm by 150m and 40mm thick. There is no perforation for a roof tile, so this may be a roughly-shaped slab from a wall. It has split lengthways revealing the white stone with the occasional shell under the weathered pale gold surface.

4.8 Querns and millstones by Andy Chapman

There are ten fragments of worked stone from millstones and rotary querns (Table 33). The finds occurred in only two locations.

There are two fragments of millstone from ditches 142 and 192 of the small enclosure in the south-east corner of Enclosure E2, and a further two pieces are from the occupation layer (190) above the same ditch, Phase 3.

The other six pieces, two from millstones and four from rotary querns, are from a deposit (269) associated with the ring ditch (S4) on the opposite side of the droveway to enclosure E2. This deposit also contained an irregular fragment of lava, presumably imported from the Eifel region of Germany. This stone had only a small surviving worked area and this suggested that it came from a grinding stone rather than a quern, perhaps a reused quern.

Geology

There are six pieces of Millstone Grit, five of which come from millstones, while the other piece is from the upper stone of a flat rotary quern. Presumably, either the stones themselves or the raw material was imported the considerable distance from the Peak District of Derbyshire. The Millstone Grit is most typically quite coarse grained, although grain size can vary quite considerably within a single stone, and the flat rotary quern is one of the pieces with a finer grain.

There are four pieces in conglomerate sandstone, with a light grey to white matrix containing dense quartz and other pebble inclusions of around 5-10mm diameter and

sparse larger pebble inclusions measuring 10-40mm in diameter, which is characteristic of the Old Red Sandstone from the Forest of Dean. These are from bottom stones of rotary querns.

Table 33: The querns and millstones

Context **Geology**	**Dimensions (mm)**	**Diam (mm)**	**Comments**
190 occupation layer above ditch 192 small enclosure E4, near roundhouse S1			
(SF8) Fine sandstone (Millstone Grit)	160x125 (5%) 35-47mm thick	>550	Upper millstone, small fragment, concentric grooves on grinding surface.
(SF10) Medium sandstone (Millstone Grit)	240x130 (5%) 48-53mm thick	>480	Upper millstone, irregular fragment. Lines of dimples on upper surface. Concentric grooves on grinding surface
141/142 ditch at corner of small enclosure E4			
(SF4) Coarse sandstone (Millstone Grit)	280x240 (*c* 10 %) 57-50mm thick	800	Upper millstone, with circumference. Dimpled tooling top face. Worn grinding surface, with concentric grooves.
191/192 ditch terminal small enclosure E4			
(SF9) Fine sandstone (Millstone Grit)	205x120 (< 10%) 28-36mm thick	*c*450	Upper stone, flat rotary quern. Small, close dimples on upper surface, well worn grinding surface
268/269 shallow deposit, east of droveway by S4			
(SF28) Coarse sandstone (Millstone Grit)	340x320 (c 25%) 50-70mm thick	> 680	Lower millstone. Eye 80mm diam Outer edge missing. Well worn, some pecked tool marks just survive (Fig 47).
(SF17) Coarse sandstone (Millstone Grit)	350x140x55	*c* 800	Rectangular block probably reused from millstone. Curved end from original circumference.
(SF18) Old Red Sandstone Forest of Dean	(20%) 50-90mm thick Spindle socket *c*30mm diam	500	Bottom stone, rotary quern Uneven bottom, finely dimpled grinding surface
(SF19) Old Red Sandstone Forest of Dean	Complete (100%) 35-80mm thick Spindle socket	400	Complete (fractured) bottom stone, rotary quern. Slight central dome. Well worn grinding surface, shallowly concentric grooving (Fig 48).
(SF20) Old Red Sandstone Forest of Dean	300x200 (30%) 70-100mm thick	c450	Bottom stone, rotary quern Length of circumference, domed, spindle socket missing. Probably same stone as SF21
(SF21) Old Red Sandstone Forest of Dean	200x190 (10%) 40-80mm thick	c450	Bottom stone, rotary quern. Fragment of circumference, domed. Probably same as SF20
(SF22) Lava	280x110x65	—	Irregular fragment, not from a quern. Remnant of curved surface suggests that it may have been a mortar/grinding stone

Millstones

The millstones are identified by a combination of thickness and, when measureable, the large diameters of the stones, which would have been too large to be turned by hand and are presumably to be from animal-powered mills.

There is a single piece that comprises some 25% of a bottom millstone (SF28) (Fig 47). This stone is 70mm thick at the centre, where there an aperture, 80mm in diameter, to allow a drive shaft to pass through the stone, indicating the use of an underdrive (Watts 2002, 57-62). The stone becomes progressively thinner, to 50mm, and it was evidently more than 680mm in diameter, but the circumference is missing. The grinding surface is well worn but retains a few faint dimpled tool marks.

There are three pieces from upper or runner stones. One of these (SF4) is from a stone 800mm in diameter. On the runner stones the upper surface is undulating and contains dimpled tool marks, while the grinding surfaces are well worn with concentric grooves. The central eye does not survive on any of these stones.

A further large piece of Millstone Grit must have come from a millstone, and a curved end suggests the stone was 800mm in diameter, but the piece has been reworked into a rectangular block for some secondary use.

Bottom millstone in Millstone Grit (SF28), layer 268/269 (Scale 50mm) Fig 47

Querns

There are four pieces in Old Red Sandstone from bottom stones of rotary querns. There is a complete, but broken, bottom stone (SF19) that is 400mm in diameter, with a slightly convex grinding surface and a slightly domed centre, with faint worn concentric grooves (Fig 48). It is 35mm thick at the circumference and 80mm thick at the centre, where there is a spindle socket, 30mm diameter, which penetrates through the entire width of the stone. The other bottom stones are 450mm (SF20 & 21) and 500mm (SF18) in diameter, with convex grinding surfaces. They are 100mm and 90mm thick at the centre and one (SF 18) retains part of a spindle socket 30mm in diameter which also penetrates through the entire width of the stone. They are 40-50mm thick at the circumference.

There is only a single fragment from an upper stone (SF9), in fine-grained sandstone, probably Millstone Grit, which comes from the circumference of a stone 450mm in diameter and 36mm thick. The upper surface has dimpled tool marks, like the millstones, and the grinding surface is well worn.

Bottom stone of rotary quern in Old Red sandstone (SF19), layer 268/269 (Scale 50mm) Fig 48

4.9 Roman metalwork by Tora Hylton

The excavations produced a small collection of 17 individually recorded finds, all from stratified deposits; six objects of copper alloy, nine of iron and two of lead. Although the finds are few, the assemblage is suggestive of domestic settlement; the range of finds includes items relating to personal adornment, household implements and buildings. The finds were concentrated in the southern half of the site and were predominantly located in the fills of boundary ditches and soil spreads in Phases 2 and 3.

Copper alloy

Objects include a penannular brooch, a fragment from an armlet and a spoon handle. The brooch was recovered from fills (254/255) of ditch 253/259 (Phase 4, east of droveway), it is complete and stylistically it parallels Fowlers Type C (1960), it has been manufactured from a solid circular-sectioned ring with flattened terminals coiled at 90 degrees to the ring. The pin, now damaged has a circular cross-section, it tapers to a point, above which there is a small hump (Fig 49). Such brooches are relatively common from 1st-century AD deposits, but they are known to have been in use from the 1st-3rd centuries AD (Corney 1999). For a similar example see Hattatt (1987 fig 74, 251).

Pennanular copper alloy brooch (Scale 10mm) Fig 49

Two small joining fragments, 47mm long, forming part of a plain, tapered armlet with a D-shaped cross-section, probably originally penannular, were recovered from Phase 4 gully 488 (adjacent to Phase 3 ring ditch S1).

A twisted handle from a silvered copper alloy spoon came from ditch 136 (Phase 4, E3). Only a vestige of the bowl remains with an offset moulding connecting it to the handle.

A copper alloy 'collar' of unknown use, was recovered from spread 225 over small enclosure E4 (Phase 3).

Coins by Ian Meadows
The only coin recovered is a worn example of a *dupondius* from enclosure ditch 409 (Phase 3, E2). The obverse bears the distinct outline of a head with hair in a bun, the location of which would suggest Faustina Junior rather than a coin of any of the other Flavian or Antonine empresses. The reverse is illegible. The worn state would reflect this coins long circulation beyond its minting date in the third quarter of the 2nd century AD.

A copper alloy disc with surface ferrous deposits was recovered from spread (225) (Phase 3, E2/4).

Iron
Nine iron objects were recovered: four are undiagnostic fragments which cannot be identified with any degree of certainty. Two large iron objects, one a probable knife blade, are from a spread of occupation debris (190) that also produced a substantial pottery assemblage and fragments of millstone, and was probably associated with a roundhouse (S1).

Four are structural nails, measuring up to 90mm long and most probably for use with buildings etc. The ironwork is in a good state of preservation, but some pieces are encrusted in corrosion products.

The only identifiable object is a large drop-hinge staple for supporting a substantial door or a gate. The pointed staple is 115mm long, with a square section up to 20mm thick, while the circular-sectioned pivot is *c* 30mm long and 18mm in diameter (Fig 50). It comes from the fill (106) of the west droveway ditch 107, to the north of the enclosure.

Iron drop-hinge staple for supporting a large door or gate (Scale 10mm) Fig 50

Lead
There is part of a lead object from fill (518) of ditch 519 Phase 2 boundary D1, adjacent to Phase 2 enclosure ditch 517, E2. Sheet lead off cuts come from Phase 4, layer (268) east of droveway.

4.10 Animal bone by Matilda Holmes

Taphonomy and condition

All the animal bones were hand collected. The bones were in mixed condition, and fragmentary. The majority (43) of those whose condition was recorded were in fair to bad condition, although a small number (16) were in very good or good condition. A large number of fragments (196) could be refitted to make sixteen larger pieces, although this included 47 fragments from a shattered horse mandible. Most of this breakage appears to have occurred post-deposition but prior to excavation, as only five bones showed signs of fresh breaks.

Taphonomic factors affecting the material were recorded including burnt, gnawed, butchered and recently broken bones. Of these one fragment had been burnt, three showed signs of canid gnawing and five were observed to have been affected by butchery methods.

Sieved samples produced little in the way of mammals, fish and bird bones, with a single fish bone and a single burnt small mammal bone recorded from Sample 20, a black organic layer containing crop processing debris, but not available for study.

Basic description of findings

Table 34 shows the fragment count of species. Although the sample is small, of the 228 fragments recorded only 82 were identified to species, due to the poor condition of the material. In all phases larger species predominate (horse and cattle), a trend reflected in the numbers of unidentified fragments. Cattle and horse remains were identified from phase 2 contexts, although pig bones were recorded from phases 3 and 4, and sheep and red deer only identified in the former.

There is a limited amount of metrical and ageing data (bone fusion, tooth wear and eruption), but the sample of bones is too small to speculate on husbandry, diet or economy.

Table 34: Species representation (fragment count)

Species	Phase	2	3	4
Cattle		1	30	16
Sheep / Goat		-	9	-
Pig		-	1	2
Horse		1	5	17
Red deer		-	1	-
Total identified		2	46	35
Unidentified large mammal		14	42	58
Unidentified medium mammal		-	1	2
Unidentified mammal		1	11	18
Total		**15**	**100**	**113**

4.11 Charred plant remains by Val Fryer

Introduction and method statement

Forty samples were bulk floated by Northamptonshire Archaeology and the flots were collected in a 500 micron mesh sieve. The dried flots were scanned under a binocular microscope at magnifications up to x 16 and the plant macrofossils and other remains noted are listed on Tables 35-37. Twenty-seven (approximately 67%) of the assemblages studied contained only a low density of small charcoal flecks; these are listed separately on Table 38. Modern fibrous and woody root fragments were a major contaminant within most of the assemblages, and two samples (59 and 68) were entirely composed of this material.

Results

Cereal grains and chaff and/or seeds of common weed plants were present at mostly very low densities in thirteen of the assemblages, although two (samples 20 and 23) contained very high densities of material. Preservation was generally moderate to good although some macrofossils did appear very abraded, possibly as a result of prolonged exposure prior to burial or subsequent disturbance.

Oat (*Avena sp.*), barley (*Hordeum sp.*) and wheat (*Triticum sp.*) grains were recorded, with wheat being predominant throughout. Most wheat grains were of an elongated 'drop-form' shape typical of spelt (*T. spelta*) and spelt glume bases were present within three assemblages and abundant within samples 20 and 23. A single bread wheat (*T. aestivum/compactum*) type rachis node was also recorded from sample 20.

Seeds of common corn field weeds were present within six of the assemblages, Taxa noted included stinking mayweed (*Anthemis cotula*), a common plant of heavy clay soils, brome (*Bromus sp.*), cornflower (*Centaurea sp.*), black bindweed (*Fallopia convolvulus*) and dock (*Rumex sp.*). A single sedge (*Carex sp.*) nutlet was noted within the assemblage from sample 20.

Charcoal fragments were present throughout, although rarely at a high density. A small number of shells of terrestrial and freshwater molluscs were recorded within two of the ditch samples (14 and 23), the freshwater specimens possibly indicating that the ditches were at least seasonally wet or waterfilled. Other material types were generally scarce, with the fragments of black porous and tarry material possibly being derived from the combustion of organic materials (including cereal grains) at very high temperatures.

Discussion

Phase 2 (1st – 2nd century AD contexts) (Table 35)

Of the five samples taken, only one contains anything other than small charcoal fragments. A single wheat glume base within sample 61 would appear very likely to be intrusive within the context.

Table 35: Quantification of Phase 2 plant macrofossils

Sample No.	**61**
Fill/cut	***471/***
Feature type	**Ditch**
Plant macrofossils	
Triticum sp. (glume base)	X
Cereal indet. (grain)	-
Charcoal <2mm	Xx
Charcoal >2mm	X
Charred root/stem	X
Other materials	
Black porous 'cokey' material	X
Sample volume (litres)	**-**
Volume of flot (litres)	**<0.1**
% flot sorted	**100%**

Phases 3 & 4 (2nd to 3rd century AD) (Tables 36 & 37)

With Phase 3 came the development of a droveway with adjacent enclosures, one of which contained at least two roundhouse ring gullies (S1 and S2). Samples 30, 31 and 32, from the more complete gully (S2), contained small quantities of possible scattered hearth waste, some of which (samples 30 and 31) may have been swept out from the interior of the structure. Samples 1 and 4 also appear to contain low densities of

scattered or wind-blown detritus. The Phase 4 assemblages differ little from those from Phase 3, and the majority of the assemblages appear to be composed of low densities of scattered or wind-blow refuse of possible domestic origin>

The exception is the presence of grains, weed seeds and a high density of cereal chaff within samples 20 and 23 from two sections of a late phase ditch on the opposite side of the droveway to enclosure E3, near Phase 3 structure, S4. The samples come from a distinctive deposit of black organic silts, which were present in the upper secondary fills of the ditch around the north-west corner of enclosure E5. This deposit largely comprised charred cereal processing debris.

Conclusions

In summary, the majority of the assemblages studied appear to be composed of small amounts of scattered or wind-blown detritus of uncertain origin.

Two soil samples, 20 and 23, from a single length of ditch, Phase 4, contained quantities of cereal processing debris. As this was the only instance of such material, it is perhaps problematic whether it is indicative of on-site cereal processing or was derived from spent fuel, with the cereal requirements of the occupants being met by imported batches of semi-cleaned or prime grain. The material within samples 20 and 23 could be derived from the final cleaning of imported grain prior to consumption, although cereal processing waste does appear to have been traded for use as kindling or fuel during the Roman period. It is also relevant that the ditch containing these deposits was overlain by a soil horizon containing several fragments from rotary querns and millstones. Perhaps the deposition of both charred grain and querns in this one area denotes the nearby presence of an area devoted to grain storage and processing.

Table 36: Quantification of Phase 3 plant macrofossils

Sample No.	**1**	**4**	**30**	**31**	**32**
Fill/cut	***14/15***	***141/142***	***436/437***	***440/441***	***496/497***
Feature type	**Gully N of E2**	**E2 small enclosure**	**Roundhouse ring gully S2**		
Cereals					
Avena sp. (grains)	-	-	-	-	-
Hordeum sp. (grains)	-	-	xcf	-	-
Triticum sp. (grains)	-	x	x	x	-
(glume bases)	-	x	-	x	-
(spikelet bases)	-	-	-	-	-
(rachis internodes)	-	-	-	-	-
T, spelta L. (glume bases)	-	-	-	-	-
Cereal indet. (grains)	-	-	x	-	x
(basal rachis node)	-	-	-	-	-
(detached sprouts)	-	-	-	-	-
(culm node)	-	-	-	-	-
Herbs					
Anthemis cotula L.	x	-	-	-	-
Bromus sp.	-	-	-	-	-
Centaurea sp.	-	-	-	-	-
Chenopodiaceae indet.	-	-	-	-	-
Fallopia convolvulus L.(A.Love)	-	-	-	-	-
Rumex sp.	-	-	-	-	-
Rumex/Carex sp.	-	x	-	-	-
Other plant macrofossils					
Charcoal <2mm	x	x	x	x	x
Mollusc shells					
Terrestrial species					
Vallonia sp.	-	-	-	-	-
Freshwater species					
Anisus leucostoma	-	-	-	-	-
Lymnaea sp.	-	-	-	-	-
Sample volume (litres)	10	10	20	20	20
Volume of flot (litres)	**<0.1**	**<0.1**	**<0.1**	**<0.1**	**<0.1**
% flot sorted	**100%**	**100%**	**100%**	**100%**	**100%**

Quantity: x = 1-10 specimens; xx = 10-50 specimens; xxx 50-100 specimens;
xxxx = 100+ specimens: cf = compare; tf = testa fragment; b = burnt

Table 37: Quantification of Phase 4 plant macrofossils

Sample No	**14**	**15**	**20**	**23**	**21**	**40**	**56**
Fill/cut	***194/ 197***	***193/ 197***	***255/ 257***	***282/ 283***	***268***	***611/ 612***	***520***
Feature type	**East droveway ditch**		**Ditch, E of droveway (near S3)**		**Layer E of drove**	**E3 ditch**	**Layer W of drove (=190)**
Cereals							
Avena sp. (grains)	x	-	x	x	-	-	-
Hordeum sp. (grains)	-	-	x	xcf	-	-	-
Triticum sp. (grains)	xx	-	xxx	xxx	x	x	x
(glume bases)	x	x	xxx	xxx	-	-	-
(spikelet bases)	-	-	xxx	xx	-	-	-
(rachis internodes)	-	-	xxx	x	-	-	-
T. spelta L. (glume bases)	x	xcf	xxxx	xxxx	x	-	-
(spikelet forks)	-	-	x	x	-	-	-
T. aestivum/compactum type (rachis nodes)	-	-	x	x	-	-	-
Cereal indet. (grains)	x	-	xxx	x	x	x	
(awn frags.)	-	-	xx	x	-	-	-
(detached sprouts)	-	-	xx		-	-	-
Herbs							
Agrostemma githago L.	-	-	xtf	-	-	-	-
Anthemis cotula L.	-	-	-	-	-	x	-
Atriplex sp.	-	-	x	-	-	-	-
Bromus sp.	x	-	x	X	-	-	-
Centaurea sp.		-	x	X	-	-	-
Chenopodiaceae indet.	x	-	-	X	-	-	-
Cirsium sp.	-	-	x	-	-	-	-
Fabaceae indet.	-	-	x	-	-	-	-
Fallopia convolvulus L.(A.Love)	-	-	x	X	-	-	-
Small Poaceae indet.	x	-	-	-	-	-	-
Large Poaceae indet.	-	-	x	-	-	-	-
Rumex sp.	x	-	-	X	-	-	-
Tripleurospermum inodorum (L.)Schultz-Bip	x	-	-	-	-	-	-
Wetland plants							
Carex sp.	-	-	x	-	-	-	-
Other plant macrofossils							
Charcoal	xx	x	x	x	x	x	x
Mollusc shells							
Terrestrial species							
Vertigo angustior	x	-	-	-	-	-	-
Vallonia sp.	-	-	-	x	-	-	-
Freshwater species							
Anisus leucostoma	xx	-	-	x	-	-	-
Lymnaea sp.	x	-	-	x	-	-	-
Other materials							
Fish bone	-	-	x	-	-	-	-
Small mammal/amphibian bone	-	-	xb	-	-	-	-
Sample volume (litres)	20	20	10	**20**	30	10	20
Volume of flot (litres)	**<0.1**	**<0.1**	**0.2**	**<0.1**	**<0.1**	**<0.1**	**<0.1**
% flot sorted	**100%**	**100%**	**50%**	**100%**	**100%**	**100%**	**100%**

4.12 Charcoal by Rowena Gale

A small assemblage of charcoal was selected for assessment from primary or single contexts which contained pottery. The samples related to Roman occupation, Phases 2-4 (1st-3rd centuries AD). Four of the five samples submitted for assessment were obtained from ditches, while the fifth included material from a spread. The samples were all extremely small, and only three produced material worthy of description and discussion, as the others contained uncarbonised material likely to be modern and intrusive.

Methods

The charcoal mostly consisted of tiny pieces of very friable material. In view of the minimal material present, all viable charcoal was examined.

The samples were prepared using standard methods (Gale and Cutler 2000). Anatomical structures were examined using incident light on a Nikon Labophot-2 compound microscope at magnifications up to x400 and matched to prepared reference slides of modern wood.

Results (Table 39)

Phase 2 (1st century-early 2nd century AD)

Sample 61 was recovered from context [471], a ditch aligned northwest-southeast across the southern part of the site (Phase 2, D1). The sample contained tiny fragments of charcoal, mostly unsuitable for identification, but one was possibly from the hawthorn/ Sorbus group (*Pomoideae*).

Phases 3 & 4 (2nd-3rd centuries AD)

Sample 56 was from layer (520), overlying the enclosure ditch at the south-east corner of enclosure E2, and, along with layer 190), perhaps a spread of occupation debris at the end of the life of this enclosure. Although very friable, 13 fragments were examined and named as a member the hawthorn/ Sorbus group (*Pomoideae*). The charcoal consisted entirely of narrow roundwood and it is probable that several pieces originated from a single stem. The source of the material is unknown but clearly related to an activity undertaken within the enclosure.

Sample 105 included small fragments of charcoal from oak (*Quercus sp.*) and willow (*Salix sp.*) or poplar (*Populus sp.*).

Discussion

Owing to the paucity of charcoal available and the poor condition of the material examined, the data obtained is very limited. Apart from noting that oak, a member of the hawthorn group and willow/ poplar grew in the locality, it is not possible to comment further on the character of the environment.

Table 39: Charcoal assessment

Sample	Cut/fill/feature Phase	Quant	Taxa identified	Comments
61	/471/ Ditch Phase 2	x	1 x *cf.* hawthorn/ *Sorbus* group (Pomoideae)	Very small fragments, mostly unsuitable for identification
56	520 layer Phase 3/4	xx	13 x hawthorn/ *Sorbus* group (Pomoideae), roundwood	Very friable charcoal; several pieces may have originated from a single piece.
105	/899/ Droveway ditch Phase 4	x	1 x oak (*Quercus* sp.); 3 x willow (*Salix* sp.) or poplar (*Populus* sp.)	Small fragments.

Quantity: x = 1 – 10; xx = 11 – 20

5 LATER LAND USE

Geophysical survey (Butler 2006) identified ridge and furrow in the southern area of the site suggesting that it had been given over to agriculture by the later medieval period, if not earlier.

A series of ceramic field drains were present across the site. In the north-eastern area the ground level had been elevated with deposits of clay and rubble; this presumably related to the exhibition ground that formerly occupied the site.

Two spheres of lead shot found in topsoil deposits, measure 10-13mm in diameter, suggesting that they would have been for use with pistols rather than muskets (T Hylton pers comm.).

6 DISCUSSION

Through the early development of Milton Keynes in the 1970s and 1980s, archaeology was covered by the archaeology unit attached to the Milton Keynes Development Corporation, and the recent wave of new development has been covered by the work of numerous commercial archaeological organisations. As a result, for the Iron Age and Roman periods the Milton Keynes area must be one of the most intensively examined landscapes in England. Once the results of the many recent excavations become available, it should be possible for someone to provide a detailed synthesis of the changing pattern of settlement form and function, and status, from the middle Iron Age through to the end of the Roman period.

Magna Park makes a further small contribution to this palimpsest. For present purposes the most useful direct comparison is to the immediately local sites. Of particular relevance is the Iron Age and Roman settlement at Broughton Manor Farm/Brooklands, lying to the north-west on the opposing slopes of Broughton Brook (Atkins *et al* forthcoming 2014), and in the Roman period at least these sites may have been closely connected, with Magna Park perhaps an outlying farm to an estate centre at Broughton Manor Farm. The authors would like to thank Rob Atkins of Oxford Archaeology East for providing information in advance of publication.

Magna Park is on low lying ground adjacent to Broughton Brook and the surrounding terrain for some kilometres is one of low relief, dotted with activity from the Bronze Age onward.

There was a single Neolithic pit and early Bronze Age round barrows to the north at Salford quarry (Dawson 2005) and middle Bronze Age cremation burials at Broughton Barn Quarry to the north-west (Chapman 2009). These provide a context for activity continuing into the middle Bronze Age, with the isolated pit containing cylindrical loomweights at Magna Park.

As is generally the case, there is limited evidence of early Iron Age activity, although in the broader landscape there is the notable early Iron Age post-built roundhouse, perhaps the precursor to the Iron Age shrine and Roman mausoleum complex at Bancroft Roman villa (Williams and Zeepvat 1994).

In the broader landscape, on the higher ground 3.5-4.0km to the south there is Danesborough hillfort, at 150m aOD on Aspley Heath, which may have served as the local tribal centre for this area, including the Magna Park late Iron Age enclosure.

At Magna Park, activity may only have begun in the 2nd century BC, but there was a substantial middle to late Iron Age settlement at the neighbouring site to the north, Broughton Manor Farm/Brooklands, and another further afield at Salford Quarry, Bedfordshire.

The Magna Park late Iron Age enclosure, Site 1, appears to be a simple family farmstead, likely to have contained a single principal roundhouse and perhaps one or more ancillary buildings, although apart from a pair of recut pits that might have held doorposts there were no surviving traces. The enclosure can be classified as a Wootton Hill-type enclosure, named after the type site on the outskirts of Northampton, having exceptional deep ditches and a protected/defended entrance.

The site economy may have involved a mixed pastoral and arable regime, but there is too little evidence to determine the balance of pastoral to arable, although the lack of charred cereals and chaff, and the lack of any querns in Iron Age contexts may suggest that pastoral agriculture was dominant.

In addition, small quantities of fired clay kiln lining and kiln plate, in both late Iron Age and the small number of early Roman features, suggest that throughout the 1st century AD pottery was being manufactured on the site or nearby, although no remains of kilns were located and wasters were not evident among the site assemblage. The presence of kiln lining in the few early Roman features, unless residual, might suggest that pottery manufacturing was the only use of this area in the early Roman period.

The use of the Iron Age enclosure would certainly have overlapped with the curving boundary ditch to the north-east, and while there was no evidence for occupation at Site 2, there was a sparse scatter of 1st century pottery. It is suggested that this ditch was primarily a land boundary, although at one end the parallel ditch and fence line indicate that it may also have been utilised as a droveway for stock control. Perhaps seasonal roundups of animals otherwise left to graze in an open landscape.

In the Roman period the local focus was the Roman town of *Magiovinium* on Watling Street, the modern A5, which lay 5.5km to the south-west, where the River Ouzel crossed Watling Street, and also the point on Watling Street closest to Magna Park. This is the likely market centre for products produced at Magna Park. There could have been direct trade with the more important villa estate centres, such as Bancroft Roman villa, but this lay a little further away, 9km to the west, close to the River Great Ouse

By the early 2nd century AD, the Iron Age boundary had been replaced by a new boundary and droveway. To the south the new boundary was on a parallel alignment, but to the north the Roman droveway continued northwards to the very edge of Broughton Brook. This suggests that while the existing boundary was respected to the south, to the north there was a major change, perhaps related to a change of land tenure.

It seems likely that the droveway continued to the north of the stream, which opens the possibility that there was a direct physical link between the Magna Park and the contemporary settlement at Broughton Manor Farm. At that site, through the Roman period a trackway ran eastwards and could have met the Magna Park droveway to the north-west of Magna Park. It is even possible that they formed a single trackway.

The Iron Age and Roman settlement at Brougton Manor Farm was evidently more substantial and of higher status than the settlement at Magna Park (Atkins *et al* forthcoming 2014).

In the middle Iron Age there was an open settlement, later at least partially enclosed that contained some 20 roundhouses. In the late Iron Age there was a shift to a new but probably smaller farmstead settlement, set within a rectangular ditched enclosure, but considerably larger than the enclosure at Magna Park. From the early 1st century to the early 2nd century AD one corner of the Broughton Manor Farm enclosure was given over to a cemetery which contained cremation burials accompanied by imported pottery and glass vessels, indicting a level of wealth not seen at Magna Park.

The farmstead continued to prosper through the Roman period, and stone-built or at least stone-footed buildings had appeared by the middle of the 2nd century AD, when the occupants of the enclosure at Magna Park were still occupying timber roundhouses. It is possible that the native occupants of the roundhouse at Magna Park were serving an estate centred on the Broughton Manor Farm complex. In the 2nd century AD the purpose of the settlement seems clear, with the broad droveway blocked to the south, with a gateway leading to a large stock yard and stock enclosure, indicating that it was a specialised pastoral farm, set up for handling livestock in some quantities.

It has been suggested that Broughton Manor Farm also specialised in pastoral farming, both cattle and perhaps trading in horses as well (Atkins *et al* 2014 forthcoming).

By the early 3rd century, however, the whole system was re-modelled, the broad droveway became a narrow droveway/trackway, and a through road. In the new domestic enclosure the inhabitants were more Romanised, now living in a timber-framed house, perhaps with a simple winged corridor plan. In the south-east corner of the site late ditch deposits and perhaps clearance debris produced quantities of charred grain and chaff, with the ditch in the corner of the enclosure perhaps used as a convenient dump for a prolonged period. In addition, the final dumped deposit contained fragments of millstones, indicating the provision of an animal-powered mill, suggesting that flour was being produced on a scale beyond the needs of the occupants of the adjacent enclosure and perhaps supply other parts of the estate and maybe with a surplus for market. It would appear that the physical remodelling of the settlement was a direct result of the need to shift from a pastoral to an arable regime.

By the end of the 3rd century AD the entire settlement was abandoned, although at Broughton Manor Farm occupation was to continue until the late 4th or even the early 5th century AD. The reason for abandonment is unknown, but it may be that arable farming on these low lying heavy clays, frequently wet if not waterlogged in winter, may have rapidly led to soil exhaustion and decreasing yields, with this settlement perhaps abandoned in favour of those on the lighter gravel terraces.

BIBLIOGRAPHY

Amorosi, T, 1989 *A postcranial guide to domestic neo-natal and juvenile mammals*, British Archaeological Reports, International Series, **533**

Arthur, P, 1978 The Lead Glazed Wares of Roman Britain, in P Arthur and G Marsh 1978, 293–355

Arthur, P, and Marsh, G, 1978 *Early fine wares from Roman Britain*, British Archaeological Reports, British Series, **57**

Atkins, R, Popescu, E, Rees, G, and Stansbie, D, 2014 *Broughton, Milton Keynes, Buckinghamshire: The Evolution of a South Midlands Landscape*, Oxford Archaeology Monograph, **22**

Bass, W M, 1995 *Human Osteology*, Missouri Archaeology Society, Columbia

Blagg, T, and King, A, (eds), 1984 *Military and Civilian in Roman Britain,* British Archaeological Reports, International Series, **137**, Oxford

Booth, P M, and Green, S, 1989 The Nature and Distribution of Certain Grog Tempered Vessels, *J Roman Pottery Studies* **2**, 77-84

Brothwell, D R, and Higgs, E S, 1969 *Science and Archaeology*, London, Thames and Hudson

Brown, A, 1994 A Romano-British shell-tempered pottery and tile manufacturing site at Harrold, Bedfordshire, *Bedfordshire Archaeol J*, **21**, 19–107

Brown, N, and Glazebrook, J, 2000 *Research and Archaeology: a framework for the Eastern Counties, 2. Research agenda and strategy,* East Anglian Archaeol, Occasional Paper, **8**

Brown, J, Butler, A, Carlyle, S, and Yates, A, 2005 *Geophysical survey and trial trench evaluation on land at Tattenhoe Park, Milton Keynes, Buckinghamshire,* Northamptonshire Archaeology report, **05/1**

Burrow, A, 2006 *Archaeological evaluation of land at Nova MK1, Milton Keynes, September 2006*, Northamptonshire Archaeology report, **06/119**

Butler, A, 2006 *A Geophysical Survey at Nova MK1, Milton Keynes, Buckinghamshire,* Northamptonshire Archaeology report, **06/45**

Chapman, A, 2009 Bronze Age burial and late Iron Age and Roman Settlement at Broughton Barn Quarry, Milton Keynes, Buckinghamshire, *Records of Buckinghamshire*, **49,** 9-41

Chapman, A, 2012 A group of Bronze Age loomweights from Magna Park, Milton Keynes, *Records of Buckinghamshire*, **52**, 25-32

Chapman, A, forthcoming, *An Iron Age settlement at Coton Park, Rugby, Warwickshire*, Northamptonshire Archaeology report

Cohen, A, and Serjeantson, D, 1986 *A Manual for the Identification of Bird Bones from Archaeological Sites*, London

Davies, B, Richardson, E, and Tomber, R, 1994 *A Corpus of Early Roman Pottery from the City of London* Council for British Archaeology Research Report 98, London, Archaeology of Roman London, **5**

Dawson, M, 2005 An *Iron Age settlement at Salford, Bedfordshire,* Bedfordshire Archaeol Monog*, **6***

Elsdon, S M, 1996 Iron Age Pottery, in Williams *et al* 1996, 169-76

EH 2001 *Archaeometallurgy*, Centre for Archaeology Guidelines, English Heritage

Friendship-Taylor, R M, 1999 *Late La Tène Pottery of the Nene and Welland Valleys of Northamptonshire: with particular reference to Channel-rim Jars*, British Archaeological Reports, British Series **280**

Glazebrook, J, 1997 *Research and Archaeology: a framework for the Eastern Counties, 1. Resource assessment,* East Anglian Archaeol, Occasional Paper, **3**

Grant, A, 1982 The use of toothwear as a guide to the age of domestic ungulates, in Wilson *et al* (eds) 1982

Hambleton, E, 1999 *Animal Husbandry Regimes in Iron Age Britain,* British Archaeological Reports, British Series, **282**, Oxford

Hattat, R, 1987 *Brooches of Antiquity*, Oxbow

Hillson, S, 1992 *Mammal Bones and Teeth*, London, Institute of Archaeology

Howe, M D, Mackreth, D F, and Perrin, J R, 1980 *Roman Pottery from the Nene Valley: a Guide*, Peterborough City Museum, Occasional Paper, **2**

IFA 1985, revised 2000 *Code of Conduct of the Institute of Field Archaeologists*, Institute of Field Archaeologists

IFA 1995 revised 2001 *Standard and Guidance for Archaeological Excavation*, Institute of Field Archaeologists

Jackson, D, 1989 An Iron Age enclosure at Wootton Hill Farm, Northampton, *Northamptonshire Archaeology*, **23**, 3-21

Jackson, D, 2010 *Dennis Jackson: A Northamptonshire Archaeologist*, Northamptonshire Archaeological Society

Johnston, D E, 1969 Romano-British Pottery Kilns near Northampton, *Antiq J,* **49**, 75–97

JSAC 2006 *A Specification for Strip, Map and Sample Excavation for land at Nova MK1, Milton Keynes*, John Samuels Archaeological Consultants, **1320/06/02**

King, A, 1984 Animal bones and the dietary identity of military and civilian groups in Roman Britain, Germany and Gaul, in Blagg and King (eds), 187-217

Knight, D, 1993a Late Bronze Age and Iron Age Pottery from Pennyland, in Williams 1993, 219-30

Knight, D, 1993b Late Bronze Age and Iron Age Pottery from Hartigans, in Williams 1993, 230-38

Knight, D, 1994 Late Bronze Age and Iron Age pottery, in Williams and Zeepvat 1994, 381-98

Lyman, R L, 1994 *Vertebrate Taphonomy*, Cambridge, Cambridge University Press

Maltby, M, 2010 *Feeding a Roman Town: Environmental Evidence from Excavations in Winchester, 1972-1985,* Winchester Museums

Marney, P T, 1989 *Roman and Belgic Pottery From Excavations in Milton Keynes 1972-82 Aylesbury*, Buckinghamshire Archaeological Society, monog, **2**

Marney, P T, 1993 *Belgic and early Roman Pottery* from Hartigans, in Williams 1993, 238-43

Marney, P T, 1994a Roman Coarse Pottery from the Mausoleum Site, in Williams and Zeepvat 1994, 398-425

Marney, P T, 1994b Coarse Pottery from the Villa, in Williams and Zeepvat 1994, 425-507

Mason, P, 2008 *Excavation of a late Iron Age enclosure at Nova MK1, Milton Keynes, Buckinghamshire 2007, Assessment Report and Updated Project Design,* Northamptonshire Archaeology report, **07/168**

McSloy, E R, 2009 Appendix 2: Pottery, in Mason 2008, 18-20

Needham, S, and Spence, T, (eds) 1996 *Refuse and disposal at area 16 East Runnymeade*, Runnymede Bridge research excavations, **2**

Patenall, M, 2007 *Archaeological evaluation of land at Nova MK1, Milton Keynes, March 2007*, Northamptonshire Archaeological report, **07/42**

Parminter, Y, 1996 The Roman Coarse Pottery, in Williams *et al* 1996, 176–193

Parry, S, 2006 *Raunds Area Survey. An archaeological study of the landscape of Raunds, Nothamptonshire 1985-94,* 0xbow

Payne, S, 1985 Morphological distinctions between the mandibular teeth of young sheep and goats, *Journal of Archaeological Science,* **12**, 139-147

Peacock, D, 2013 *The Stone of Life: the archaeology of querns, mills and flour production in Europe up to c AD500*, Southampton Monographs, New Series, **1**

Perrin, R 2006: Romano-British pottery, in Parry 2006, 84-91

Prummel, W, and Frisch, H, 1986 A guide for the distinction of species, sex and body side in bones of sheep and goat, *Journal of Archaeological Science,* **13**, 567-577

Prummel, W, 1988 Distinguishing features on postcranial skeletal elements of cattle, Bos primigenius f. Taurus, and red deer, Cervus elaphus, *Schriften aus der Archaeologisch-zoologischen Arbeitsgruppe Schleswig-Kiel*, Heft **12**, Keil

Rattray, R, 1989: The Sand Tempered Wares, in Marney 1989, 83-6

Schmid, E, 1972 *Atlas of Animal Bones*, Elsevier

Schoch, W H, Pawlik, B, and Schweingruber, F H, 1988 *Botanical macro-remains*, Berne, Paul Haupt

Serjeantson, D, 1996 The animal bones, in Needham and Spence 1996

Silver, I A, 1969 The ageing of domestic animals, in Brothwell and Higgs 1969

Simoons, F, 1994 *Eat Not This Flesh: Food Avoidances from Prehistory to the Present,* University of Wisconsin, Madison

Spratling, M G, 1979 The debris of Metal Working, in Wainwright 1979

SSEW 1983 *Soils of eastern England*, Soil Survey of England and Wales, Sheet 4, 1:250,000

Stace, C, 1997 *New Flora of the British Isles*, second edition, Cambridge University Press

Taylor, E, 2006 *An Archaeological Trial Trench Evaluation of land at NOVA MK1 (Balancing Pond and Road Scheme), Milton Keynes, Buckinghamshire: August-September 2006, Event No. 1082*, Northamptonshire Archaeology report, **06/135**

Taylor, E, Chapman, P, & Mason, P, 2008 *Archaeological excavation at Nova MK1, Milton Keynes, Buckinghamshire: November 2006 – March 2007. Assessment report and updated project design,* Northamptonshire Archaeology report, **08/74**

Thompson, I 1982: *Grog-tempered 'Belgic' Pottery of South-eastern England*, British Archaeological Reports British Series, **108**

Tomber, R, and Dore, J, 1998 *The National Roman Fabric Reference Collection: a handbook London*, Museum of London Archaeology Service

von den Driesch, A, and Boessneck, J, 1974 Kritische Ammerkungen zur Widerristhohenberechnung aus Langemassen vor- und fruhgeschichtlicher Tieknochen, *Saugtierkundliche Mitteliungen*, **22**, 325-348

von den Driesch, A, 1976 *A guide to the measurement of animal bones from archaeological sites,* Cambridge, Massachusettes, Harvard University Press

Wainwright, G, 1979 *Gussage All Saints: An Iron Age Settlement in Dorset*, Dept of the Environment Archaeol Reports, **10**

Waugh, H, Mynard, D C, and Cain, R, 1975 Some Iron Age Pottery from mid and north Bucks with a gazetteer of associated sites and finds, *Records of Buckinghamshire,* **19.4**, 373–21

Williams, R J, 1993: *Pennyland and Hartigans: Two Iron Age and Saxon sites in Milton Keynes*, Buckinghamshire Archaeological Society monog, **4**

Williams, R J, Hart, P J and Williams, A T L 1996: *Wavendon Gate: a Late Iron Age and Roman Settlement in Milton Keynes*, Buckinghamshire Archaeological Society monog, **10**

Williams, R J and Zeepvat, R J 1994: *Bancroft. A Late Bronze Age/Iron Age settlement, Roman Villa and Temple-Mausoleum*, Buckinghamshire Archaeological Society monog, **7**

Wilson, B, Grigson, C, and Payne, S, (eds) 1982 *Ageing and Sexing Animal Bones from Archaeological Sites*, British Archaeological Reports, British Series, **109**

Young, C J, 1977 *Oxfordshire Roman pottery*, British Archaeological Reports, British Series, **43**

MOLA Northampton (formerly Northamptonshire Archaeology)

30 April 2014 (revised 3 June 2014)

MOLA
Bolton House
Wootton Hall Park
Northampton
NN4 8BN
01604 700 493
www.mola.org.uk
sparry@mola.org.uk