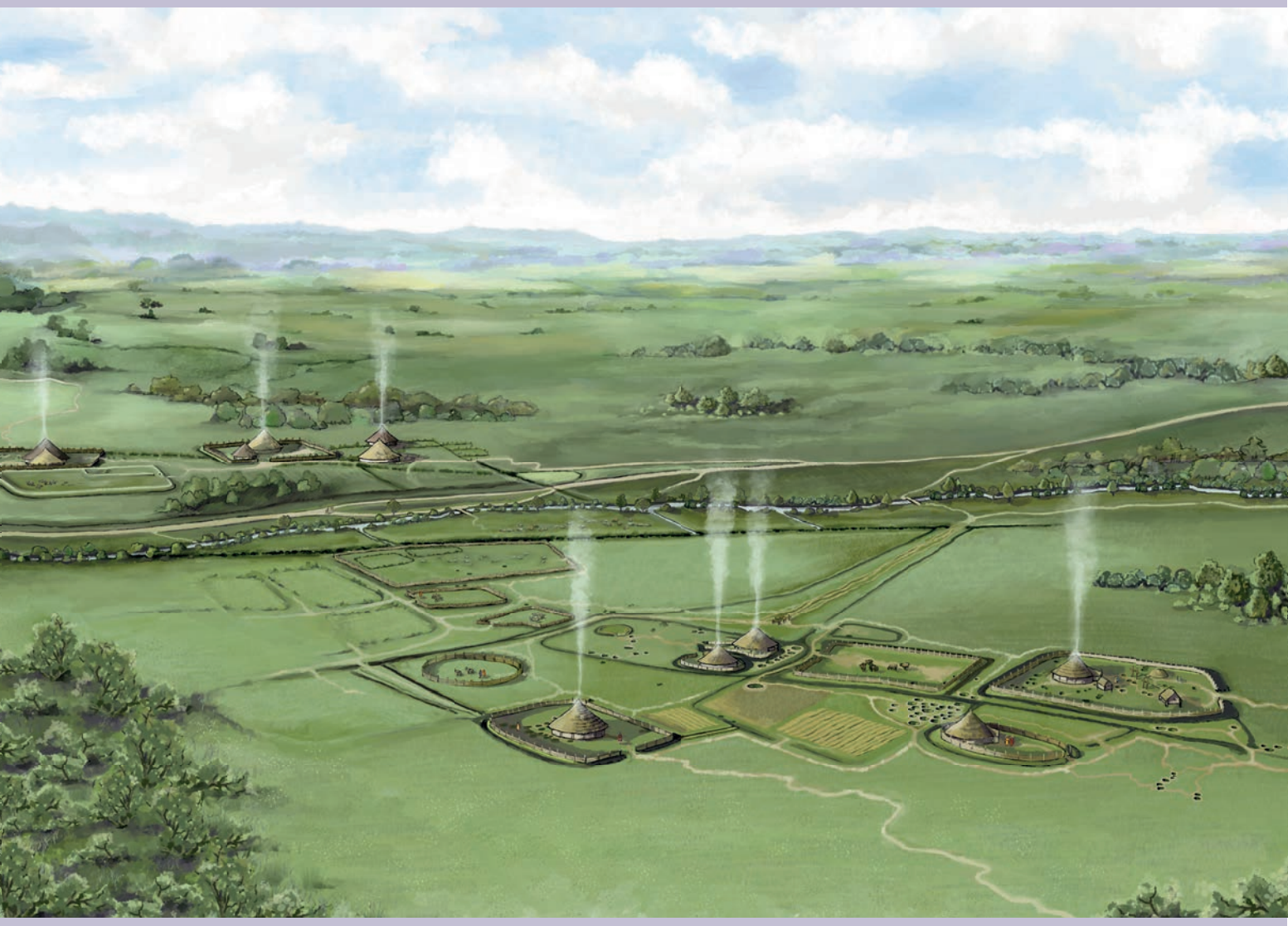
LIFE ON THE DALLINGTON BROOK

Archaeological Investigations at Harlestone Park Northamptonshire 2022–2023

Joanne Barker, Grace Griffith, Abby Antrobus and Dane Wright



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Life on the Dallington Brook
Archaeological investigations at Harlestone Park
Northamptonshire 2022–2023

Life on the Dallington Brook
Archaeological investigations at Harlestone Park Northamptonshire, 2022–2023

by

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Abbreviations

ABG	Animal bone group
ADS	Archaeological Data Service
aOD	Above Ordnance Datum
BGS	British Geology Survey
BL	British Library
c.	*circa*
CA	Cotswold Archaeology
cal	calibrated
CBA	Council for British Archaeology
CBM	Ceramic building material
CIfA	Chartered Institute for Archaeologists
Ct	Count
EPNS	English Place Names Society
EVEs	Estimated vessel equivalents
Ext.	Exterior
ha	Hectare
HE	Historic England
Int.	Interior
LPAN	Lead Planning Archaeologist for Northamptonshire
MNV	Minimum number of vessels
NA	National Archives
NAS	Northamptonshire Archive Service
NE	Natural England
NGR	National grid reference
NHER	Northamptonshire Historic Environment Record
NHLE	National Heritage List for England
NISP	Number of identified specimens
NLS	National Library of Scotland
NNC	North Northamptonshire Council
NNMP	Northamptonshire National Mapping Programme
NoSH	Number of sherds
NRFRC	National Roman Fabric Reference Collection
OS	Ordnance Survey
PAS	Portable Antiquities Scheme
PCRG	Prehistoric Ceramics Research Group
PPN	Pre-Planning Notes (Historic England)
Ra.	Registered artefact
RCHME	Royal Commission on the Historical Monuments of England
SUERC	Scottish Universities Environmental Research Centre
WNC	West Northamptonshire Council
Wt	Weight

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Summary

This monograph presents the results of archaeological works carried out ahead of the residential redevelopment of a 90 hectare (ha) parcel of land on the edge of New Duston, a western suburb of Northampton. The volume contains a detailed account of the discoveries made during the archaeological works and draws upon an earlier trial trench evaluation (undertaken by Cotswold Archaeology), geophysical survey evidence (undertaken by GSB) and cropmarks identified by the Northamptonshire National Mapping Programme (NNMP).

A small assemblage of mostly residual Mesolithic worked flint was recovered from the excavations, although the earliest features identified at the site were of Early Neolithic date. These comprised a small number of pits in Areas A and B containing Early Neolithic plain bowl pottery and worked flint. By the Middle Bronze Age the development site had become a focal point in the landscape, marked by the establishment of two groups of cremation burials, one either side of the Dallington Brook. Radiocarbon dating and Bayesian modelling indicates that this activity was broadly contemporaneous, although the groups themselves were very different in character. The cemetery in Area A was the larger of the two, and comprised tightly spaced clusters of burials, compared with a more dispersed pattern observed in Area B.

From the Late Bronze Age/Early Iron Age there appears to have been a dramatic change in the landscape, represented by the construction of linear boundaries. These took the form of two pit alignments, situated to the north and south of the Dallington Brook respectively, which broadly followed the floodplain and underlying alluvial geologies. There was a marked increase in archaeological features of Middle to Late Iron Age date compared with earlier periods, suggestive of a period of intensified settlement and economic practices. At this time the preceding Late Bronze Age/Early Iron Age pit alignments were redefined by ditched boundaries, which influenced the orientation and layout of the enclosures and features associated with the Middle to Late Iron Age settlement. The morphology of the enclosures, combined with the faunal and charred plant remains assemblages, suggests that this community was initially engaged in a mixed farming economy, combining both arable and pastoral practices. As the settlement progressed, particularly with the development of specific enclosures and the creation of field systems and a droveway in Area A, there seems to have been a notable transition towards an increased emphasis on pastoral farming. Within Area B, the establishment of a new enclosure system in the Late Iron Age/Early Roman period raises the possibility that there was some settlement continuity following the Middle to Late Iron Age; however the otherwise extensive morphological changes to the enclosures during the Late Iron Age/Early Roman period suggest that the majority of the Middle to Late Iron Age features had silted up by this point.

The archaeological evidence and artefactual assemblages suggest that the site was largely abandoned during the 1st century AD, until the construction of a limekiln in Area A during the Middle to Late Roman period. No evidence for corresponding domestic or settlement activity was identified within the development site. Following the abandonment of limekiln A at some point after the 3rd to 4th centuries AD, the site seemingly saw little use until the early medieval period, when it was used for the burial of two individuals in Area B. In the medieval and post-medieval/modern periods the development site was utilised as heathland and for arable and pastoral cultivation up to the present day.

Chapter 1
Introduction

Introduction and structure of this publication

This publication presents the results of an excavation undertaken from May 2022 to May 2023 by Cotswold Archaeology (CA) on land situated on the north-western edge of New Duston, a north-western suburb of Northampton in Northamptonshire (centred on NGR: 470452 262718; Fig. 1.1). The fieldwork was undertaken on behalf of Bloor Homes South Midlands, in advance of a 90ha residential development, which defines a new western boundary for the town of Northampton. The archaeological works were completed under the project title 'Land West of Northampton', however, in line with the name of the development site, the project is referred to as 'Harlestone Park' throughout this volume.

Two areas of the site were subject to archaeological excavation (Areas A (5.24ha) and B (4.2ha)), which revealed evidence for Mesolithic to post-medieval land-

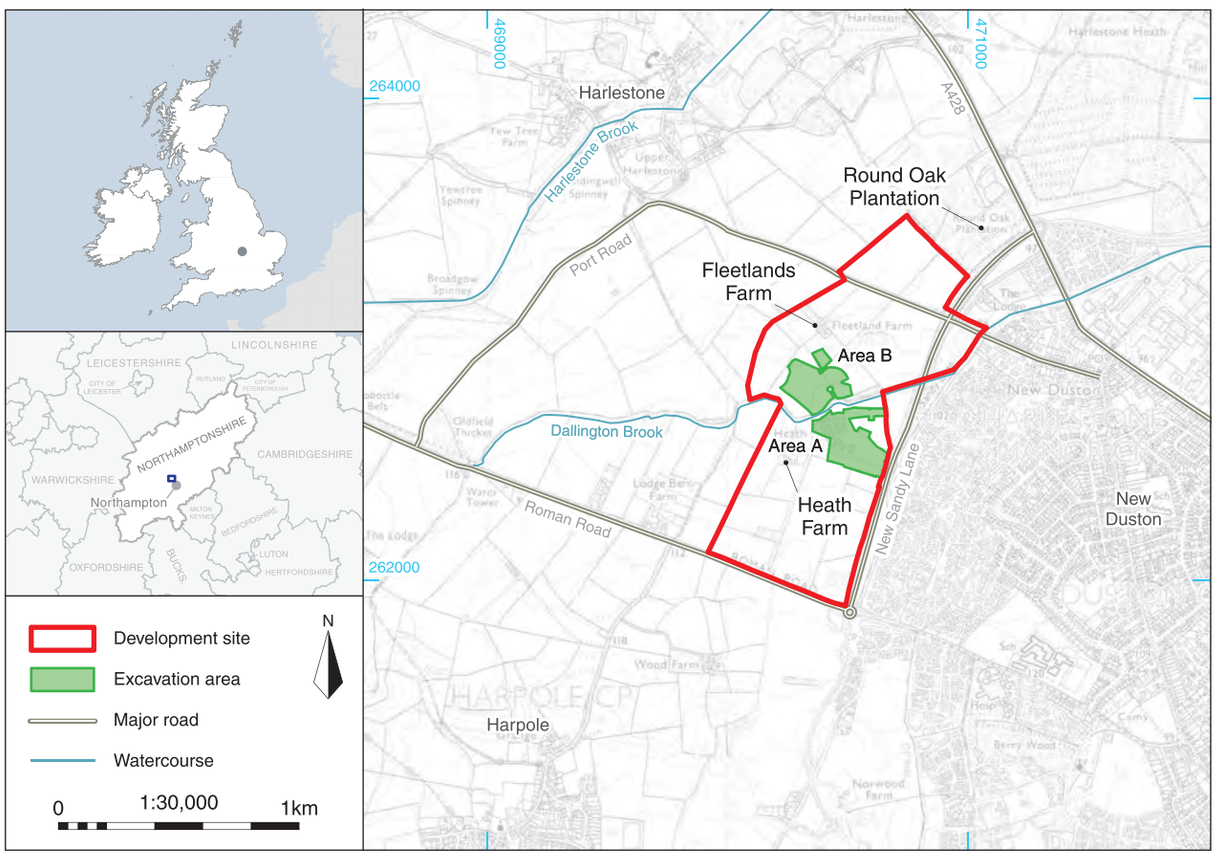

Fig. 1.1 Site location plan, showing the development site and the surrounding area

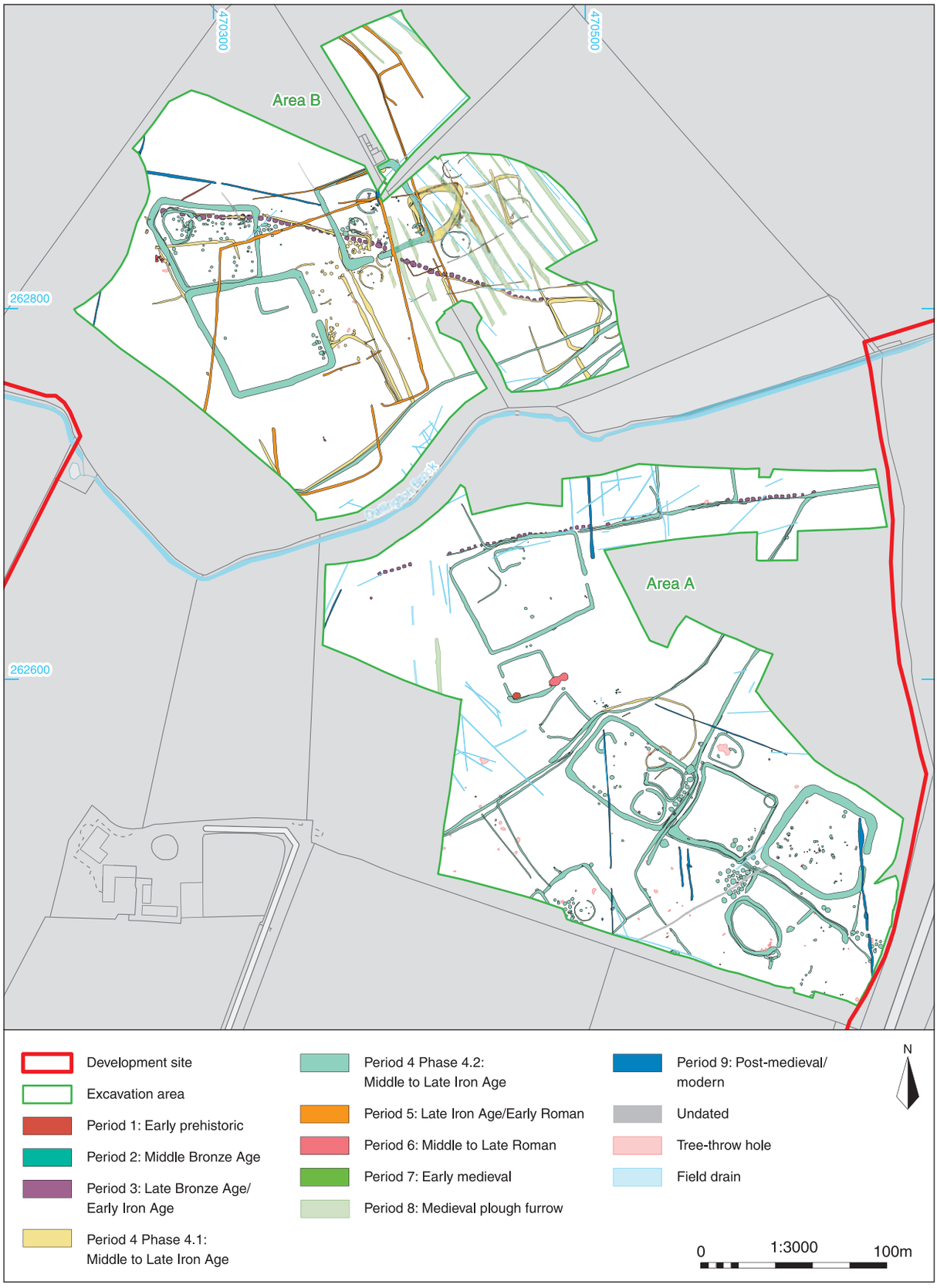

Fig. 1.2 Phased location plan of all archaeological features

use and settlement (Fig. 1.2), situated on either side of the Dallington Brook, a tributary of the River Nene. Before the project commenced, the archaeological potential of the site and its surrounding area was indicated by an extensive array of cropmarks identified by the Northamptonshire National Mapping Programme (NNMP, discussed further below). The archaeological investigations afforded by the development provided a welcome opportunity to explore a dense area of these cropmarks, enabling confirmation of their form and date, offering important insights into past land-use and settlement patterns in this part of Northamptonshire.

The results of the fieldwork and subsequent post-excavation analysis for the site are presented in Chapters 2–8 by chronological period, commencing with the early prehistoric period (Period 1; Table 1.1). These chapters describe the features and deposits and include summaries of the artefactual and environmental evidence. Full details of the artefactual and paleoenvironmental assemblages, as well as the radiocarbon dating and Bayesian analysis results are presented in the Appendices. In Chapter 9 a discussion draws together recurring themes that run through Chapters 2–8 and the results of the excavation are placed in their regional context. Further information is included in the site archive.

Table 1.1: Periods used in the report

Period/ Phase	Date
1	Early prehistoric (10,000 BC–1500 BC)
2	Middle Bronze Age (1500 BC–1100 BC)
3	Late Bronze Age/Early Iron Age (1100 BC–400 BC)
4/4.1	Middle to Late Iron Age (400–0 BC)
4/4.2	Middle to Late Iron Age (400–0 BC)
5	Late Iron Age/Early Roman (100 BC–AD 100)
6	Middle to Late Roman (AD 200–AD 410)
7	Early medieval (AD 410–1066)
8	Medieval (1066–1539)
9	Post-medieval/modern (1540–2000)

Site location, topography and geology

The development site is situated on the north-western edge of New Duston, within the unitary authority of West Northamptonshire (Fig. 1.1). It lies on the south-western edge of the gently rolling Northamptonshire Uplands (Natural England (NE) 2026, National Character Area 95), while to the south of Roman Road the landscape starts its slow decent towards the Nene valley, situated approximately 3km to the south of Harlestone Park.

The site comprises a large parcel of agricultural land, approximately 90ha in extent, bounded to the south and east by Roman Road and New Sandy Lane, respectively (Fig. 1.1). Land within the site is divided by the north-east to south-west course of the Dallington Brook, a tributary of the River Nene that crosses the centre of the site (Figs 1.1 and 1.3–1.4). This watercourse marks the lowest part of the site, lying at approximately 97.7m above Ordnance Datum (aOD; Fig. 1.3), and coincides with a wide band of sandstone, limestone and ironstone of the Northampton Sand Formation (Fig. 1.4). This forms the majority of the underlying bedrock geology for Area A and the southern part of Area B.

Area B, to the north of the brook, gently rises towards outcrops of interbedded sandstone and siltstone of the Stamford Member, limestone of the Blisworth Limestone Formation and limestone of the Wellingborough Limestone Member, all members of the Middle Jurassic Rutland Formation. These deposits extend north-westwards from New Duston towards Nobottle, near Harlestone (BGS 2026a; Fig. 1.4) and have formed an integral part of the landscape development in this area. Several post-medieval limestone quarries are known in the vicinity of the site, most notably a quarry at Fleetlands Farm located within the northern part of the development site (Fig. 1.1).

To the south of Area A, heading towards the southern boundary of the development site along Roman Road, the ground level is generally lower, rising gently to form a low ridge to the north of Harpole, which once more coincides with underlying outcroppings of interbedded sandstones of the Stamford Member and limestones of the Middle Jurassic Rutland Formation (Figs 1.3 and 1.4). The highest point recorded within the excavation areas was approximately 105m aOD on the northern boundary of Area B, while the lowest (100.8m aOD) was recorded at the south-eastern corner of Area A (Fig. 1.3).

The bedrock deposits are overlain by broadly north-east/south-west aligned bands of superficial alluvial deposits (clay, silt, sand and gravel) associated with the Dallington Brook (BGS 2026a; Fig. 1.4), broadly following the course of the tributary. Elsewhere within the site superficial deposits comprise Oadby Member diamicton composed of sands and gravels deposited as a result of glacial action up to two million years ago (BGS 2026a; Fig. 1.4).

Prior to the development the site contained two farms: Fleetlands Farm to the north and Heath Farm to the south (Fig. 1.1). Much of the development area consisted of arable land and pasture, demarcated by hedgerows and fences. The overlying soils in the northern and central parts of the site were predominantly freely draining, slightly acidic but base-rich, with areas of lime-rich loamy and clayey soils with impeded drainage in the south-eastern and north-western corners (Soilscapes 2026).

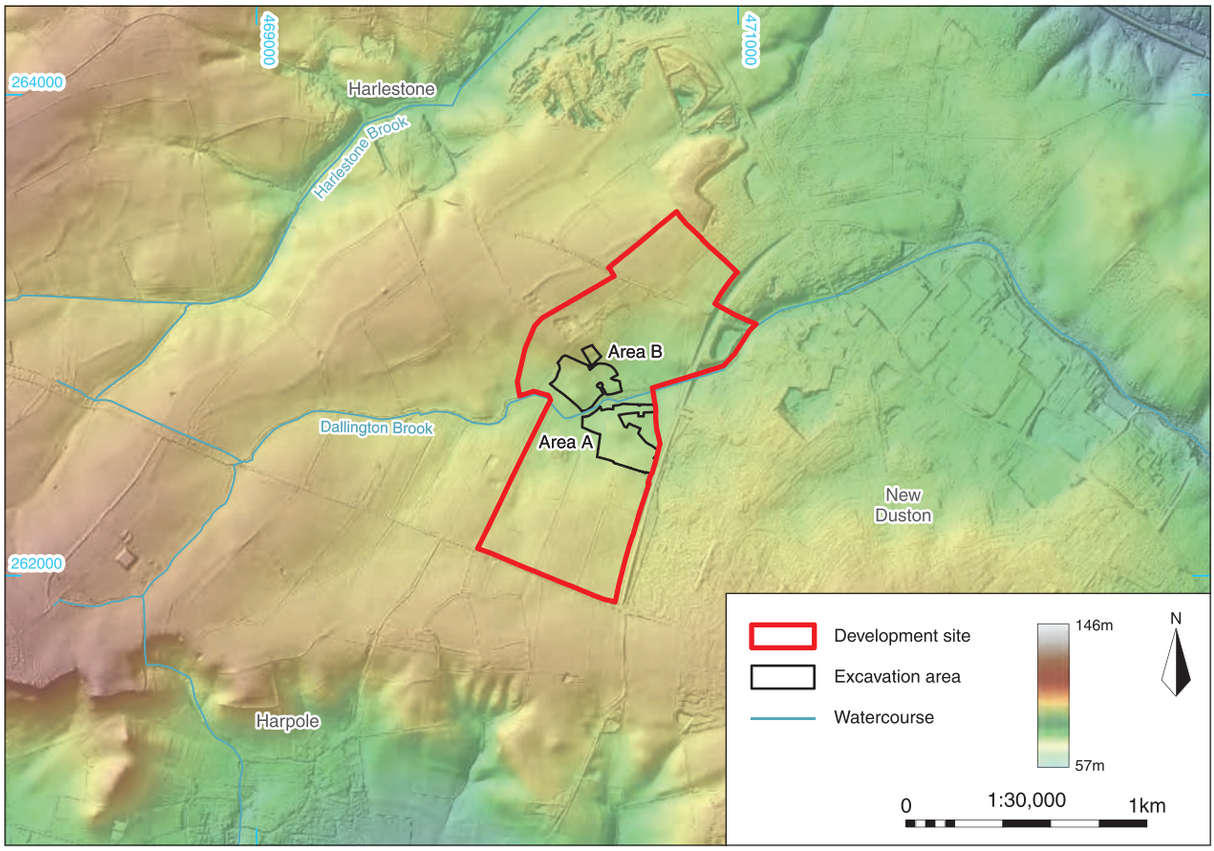

Fig. 1.3 Plan showing the topography of the area surrounding the development site

The archaeological and historical background

The development site forms part of a wider landscape to the west of Northampton that is known to contain significant archaeological remains of prehistoric to post-medieval date. Since the establishment of the Northamptonshire National Mapping Programme (NNMP; NCC 2008) in 1994, an extensive complex of archaeological cropmarks has been recorded in this area, including a concentration within the development area itself (Fig. 1.5). Many of the cropmarks depicted on Fig. 1.5 remain unexcavated, but where they have been subject to archaeological investigation they have been found to relate to settlement and agricultural land-use dating from the late prehistoric to the medieval period. Some cropmarks represent the remains of extensive Late Bronze Age to Iron Age land boundaries (Fig. 1.5).

As part of the planning process, the archaeological potential of the development site was initially investigated as part of a heritage desk-based assessment (CA 2016a) and subsequently evaluated through a programme of geophysical survey (GSB 2016) and trial trenching (CA 2016b).

The results of the geophysical survey and trial trench evaluation along with the archaeological background of the site are summarised below. In the following section, and on the accompanying Figure 1.5, archaeological sites and findspots recorded by the Northamptonshire Historic Environment Record are prefixed with 'NHER'. Scheduled monuments recorded by Historic England on the National Heritage List for England are prefixed with 'NHLE'. Cropmarks identified by the NNMP are prefixed with 'MNN'.

Prehistoric (*c.* 4000 BC–100 BC)

Evidence for occupation during the early prehistoric period across Northamptonshire has typically been sparse, with flint scatters being the predominant indicator of occupation. The parish of Duston is known to be an important area for lithics and, like the rest of Northamptonshire, the general distribution of Mesolithic flint assemblages suggests that river valleys were key locations during this period, particularly the more prominent locations such as valley sides and gravel islands of the floodplain (Phillips 2000, 4; Phillips and Kidd 2004, fig. 2.6, 22; Hall 1985, 31–5, fig. 4). This pattern was reflected in the discovery of a concentration of over 5000 struck flints of probable Mesolithic date and an associated buried soil during archaeological

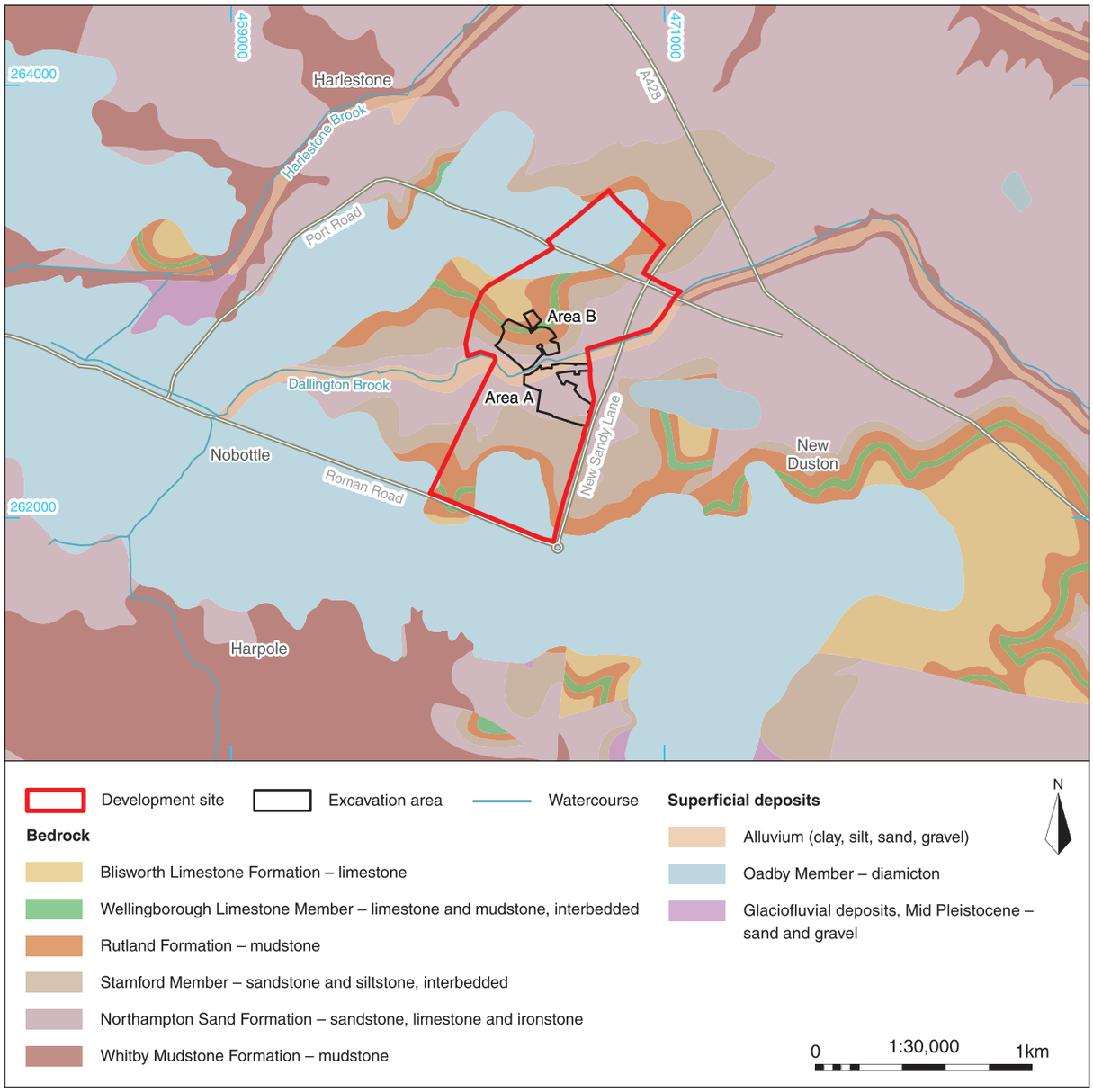

Fig. 1.4 Plan showing the geology of the area surrounding the development site (source BGS 2026a)

excavation of the Northampton North-West Relief Road, situated 2.8km to the north-east of the development area (Fig. 1.6; OA 2025, 28). The flints were found on an elevated spur on the edge of the floodplain at the confluence of the Brampton Branch tributary of the River Nene, and another smaller tributary (ibid.). The pattern of occupation is less certain for the Neolithic period but the distribution of artefacts and settlement related features in the region indicate that riverine locations remained an important focus during this period, as demonstrated by a large concentration of Early to Late Neolithic/Early Bronze Age worked flints and a Neolithic posthole found adjacent to the Dallington Brook at Dallington Gateway, 860m to the north-east of the development area (Chapman 2004, fig. 3.1, 26; Deegan 2008a, fig. 4.9, 65; Chapman 2019a, 35, 41–3). However, expansion onto the claylands during this period is also evident (Chapman 2004, fig. 3.1, 26, 36).

The Nene river valley also became the focus of three causewayed enclosures during the Neolithic period. The closest to the development site is the example at Dallington, situated 1.8km to the east on a hilltop plateau that overlooks the Brampton Arm of the River Nene (to the east) and Dallington Brook to the south-west (Fig. 1.5; CA 2016a; Deegan 2008a, 48). The Dallington causewayed enclosure is represented

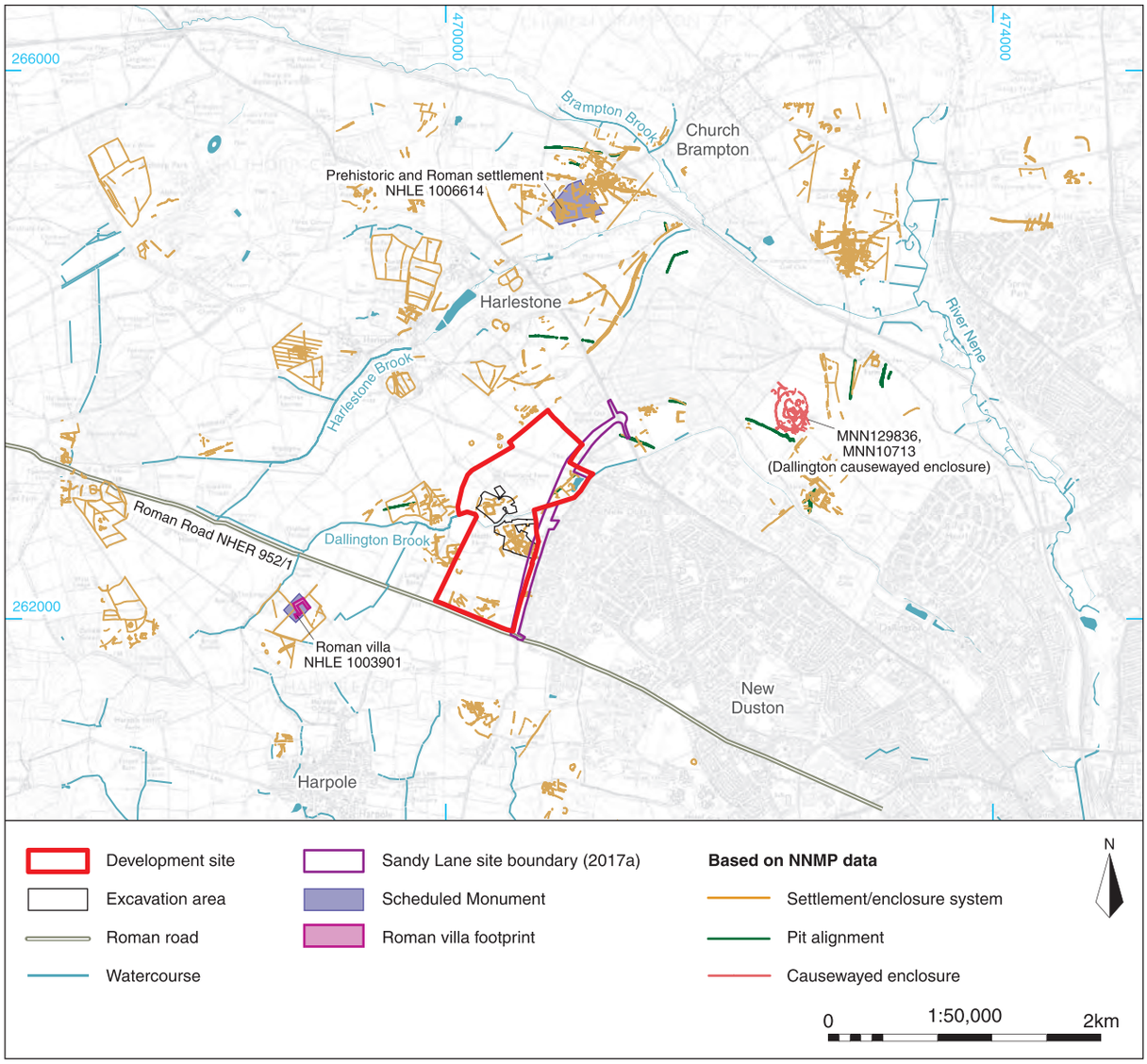

Fig. 1.5 Plan of the area surrounding the development site, showing cropmarks and National Heritage List for England entries

by segmented ditches that define a large oval area, approximately 5ha in size (Walford 2014, 3; Chapman 2019a, 35; Deegan 2008a, 48, 54).

The Dallington and Harlestone Brooks continued to be a focus for settlement during the late prehistoric period, with Bronze Age features found on the north side of the Dallington Brook during excavations associated with the Sandy Lane road scheme, situated immediately to the east of the site (Areas 1 and 3, Fig. 1.7; Garland *et al.* 2019, 78, figs 1 and 2). These comprised three separate groups of pits and enclosures and a single cremation burial (Areas 1–3; Fig. 1.7). Further Late Bronze Age settlement related features were found on higher ground (100–103m aOD) at Harlestone Quarry, situated between the Harlestone Brook and another tributary (Fig. 1.6; Chapman *et al.* 2017). This comprised a large, subdivided enclosure and pits containing domestic debris, including an assemblage of pyramidal loomweights (Chapman *et al.* 2017, 43).

The Late Bronze Age to Iron Age period in Northamptonshire saw the establishment of extensive alignments of pits (Deegan 2008b, 82). Numerous examples have been recorded by the NNMP in the vicinity of the development site (see Fig. 1.5), often concentrated close to the River Nene and its tributaries, in similar locations to Bronze Age settlement. Excavated examples include a pit alignment at Harlestone Quarry (Fig. 1.6; Chapman *et al.* 2017, 49–52; Vecchi 2023, 12–14), situated approximately 560m to the north of the site; two at Dallington Gateway, located 400m to

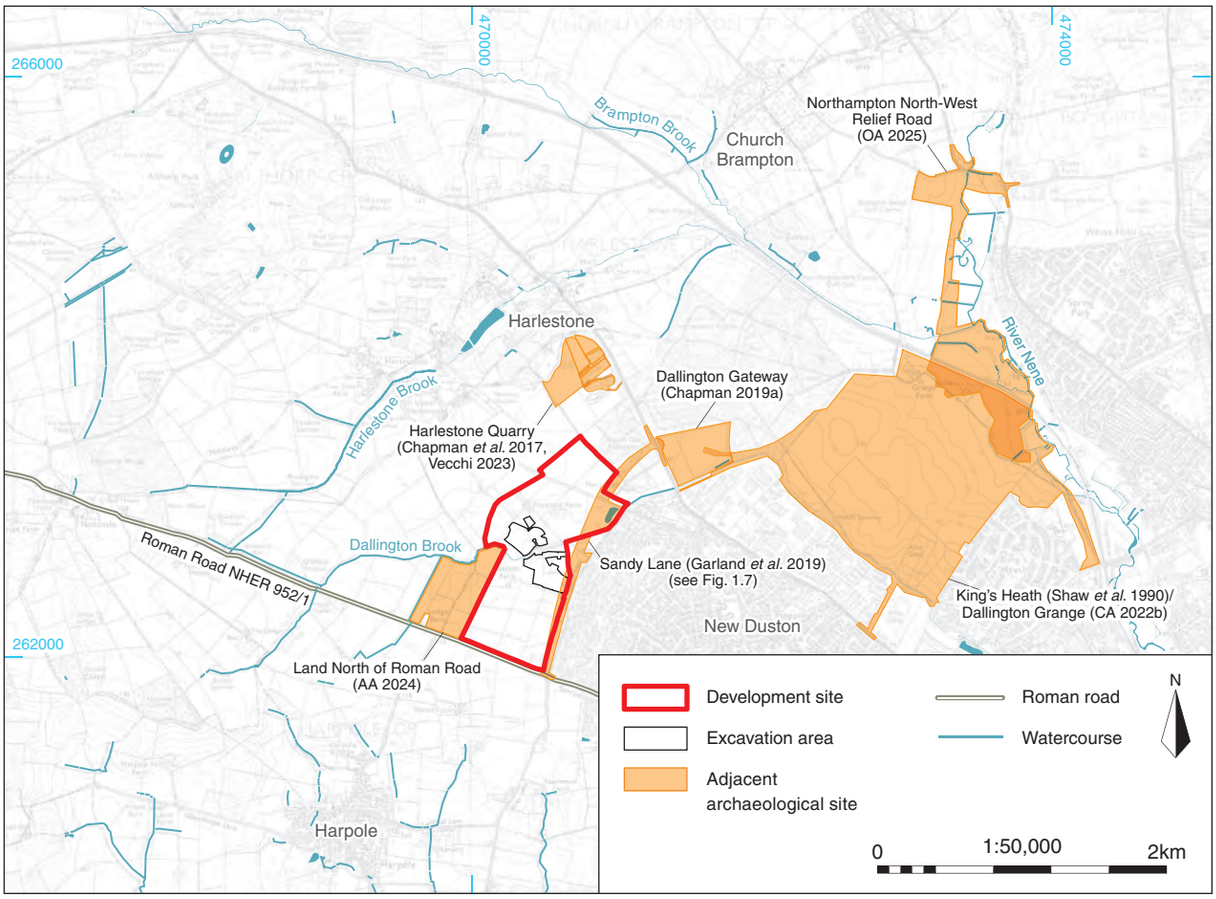

Fig. 1.6 Plan showing archaeological investigations of note within the vicinity of the development site

the east (Chapman 2019a, 40); one at the Northampton North-West Relief Road (OA 2025, 31) and one in Area 3, Sandy Lane (Figs 1.5 and 1.7; Garland *et al.* 2019, 77–86). A further concentration of pit alignments has been investigated in the area around Upton, 3km to the south-east (Wolframm-Murray *et al.* 2023, 86; Carlyle 2010, 79, fig. 3; Walker and Maull 2010, 21–4; Foard-Colby and Walker 2010, 59, fig. 5; Fig. 1.8).

Several of the pit alignments were re-established as ditched boundaries during the Iron Age, and some were incorporated into later settlements, appearing to influence the alignment of later enclosures and boundaries. At Sandy Lane the trajectory of the pit alignment was re-established as a trackway that appeared to broadly follow the course of the Dallington Brook (Garland *et al.* 2019; CA 2022b).

Middle to Late Iron Age settlement has been recorded at King's Heath, adjacent to the Dallington Brook (Fig. 1.6; Shaw *et al.* 1990), 2.2km east of the site. Here a core area of settlement, comprising rectangular enclosures and roundhouse drip gullies, was found to occupy an area of approximately 15ha, and was surrounded by ditches probably pertaining to fields and trackways (Shaw *et al.* 1990, 8). Further Middle to Late Iron Age settlement has been investigated just to the north of the River Nene at Upton, approximately 3km to the south-east of Harlestone Park (Fig. 1.8; Walker and Maull 2010, 24–5, figs 5 and 31; Foard-Colby and Walker 2010, 59–64, fig. 4). Here a number of enclosures had been laid out along a linear boundary, some containing evidence for domestic activity in the form of roundhouses and pits. A contemporary enclosed settlement has also been recorded at South Meadow Road, Upton, overlooking the Nene Valley to the south (Fig. 1.8; Speed 2015, 56–62, fig. 4).

Later Iron Age and Roman (*c.* 400 BC–AD 410)

Prior to the archaeological excavation no Roman features had been recorded within the development area by the NHER, but Roman Road, which forms part of the southern boundary of Harlestone Park, is thought to mark the course of a route (NHER 925/1; Figs 1.5 and 1.6) that linked the Roman walled town of *Bannaventa* (Whilton Locks), situated 9km north-west on Roman Watling Street (the A5), with the undefended nucleated

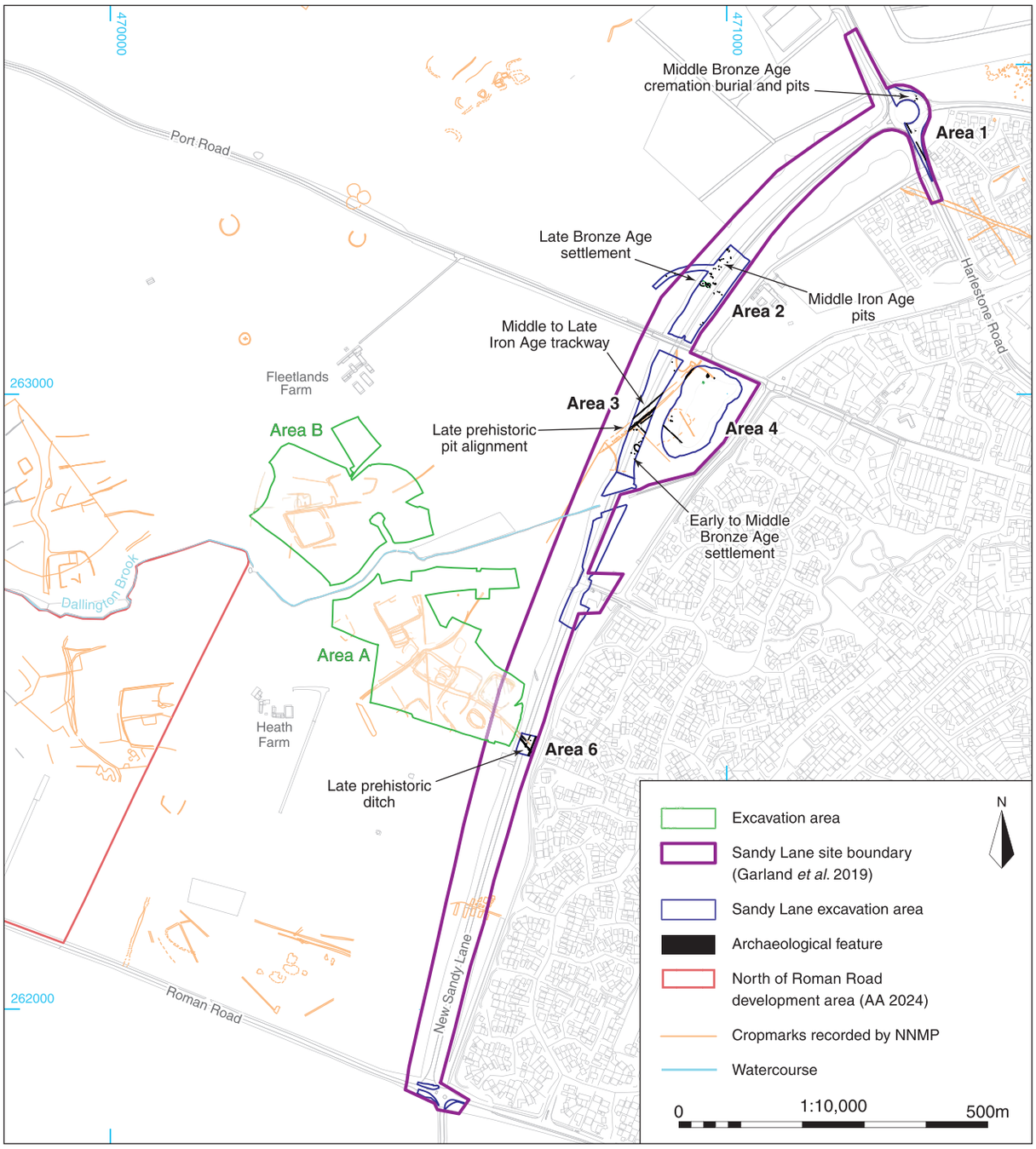

Fig. 1.7 Plan showing cropmarks and the Harlestone Park and Sandy Lane excavation areas

settlement at Duston (Taylor and Flitcroft 2004, fig. 5.1, 72–3).

Along the course of this route a number of Late Iron Age and Roman settlements have been found, including the site of a Roman villa (Fig. 1.5) located 920m to the south-west of the development site and designated as a Scheduled Monument (NHLE 1003901). First mentioned in 1874, the site was identified from surface spreads of stone, tile and tesserae that appeared to represent building rubble. Recent geophysical surveys plotted the footprint of a possible courtyard villa with yard surfaces and identified linear ditches, possibly related to stock enclosures (Fisher 2003; Butler 2008).

Further evidence of Late Iron Age and Roman settlement has been found along the course of the road on land just to the west of the development site

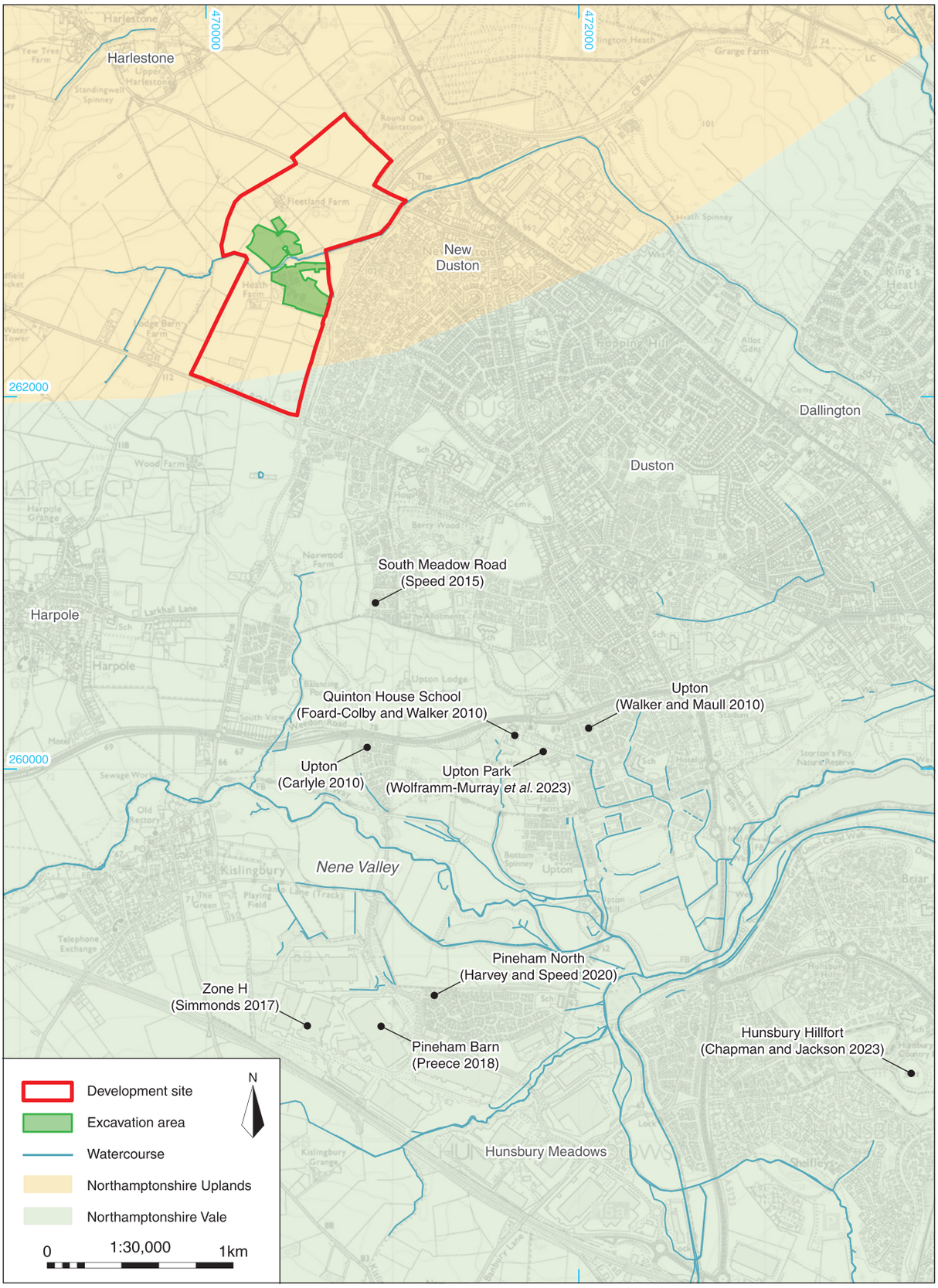

Fig. 1.8 Plan showing archaeological investigations of note along the Nene Valley to the south of the development site

at Land North of Roman Road (Fig. 1.6; AA 2024). This comprised a core settlement area defined by a large double ditched enclosure. A dense area of enclosures and trackways has also been investigated 2km to the north of the road at Dallington Grange and was found to be Late Iron Age to Roman in date (Fig. 1.6; CA 2022b). Roman activity has also been recorded 120km to the south of the road at Upton, on the western edge of Duston Roman settlement (Walker and Maull 2010, 21–4; Foard-Colby and Walker 2010; 59, fig. 5; Fig. 1.8). This comprised a complex of enclosures, and an associated pottery kiln, well and building (Walker and Maull 2010, 32–8, 50, figs 18 and 31).

A number of sub-rectangular and rectilinear enclosures were also identified from cropmarks in the vicinity of Church Brampton, 2.6km to the north-east of the site (Fig. 1.5), and the village of Harlestone, located 1.4km north-west of the site, which indicate a well-defined divided landscape of enclosed and unenclosed settlement elements. Some of the cropmarks appear to show internal circular features within enclosures, which suggest the existence of settlement. While the enclosures have not yet been excavated, Iron Age and Roman pottery sherds have been collected through fieldwalking across this area (Deegan 2008b, 99–100). South of the main course of the Brampton Brook, and approximately 3km to the north-west of Roman Road, is the Scheduled area of an extensive and complex area of cropmarks probably containing further evidence for Roman settlement (Fig. 1.5, NHLE 1006614).

Early medieval (AD 410–1066) and medieval (1066–539)

No early medieval features had previously been identified within the development area but a number of artefacts dating to the 5th to 9th centuries AD were recovered as unstratified finds during fieldwalking surveys undertaken in advance of the Northampton North-West Bypass construction work, approximately 900m–1.3km north-east of the site (Fig. 1.6; Holmes 1992). An early medieval ditch was also excavated at Harlestone Quarry, underlying the medieval ridge-and-furrow, but only a short length had been visible as cropmarks prior to this (Fig. 1.5; Chapman *et al.* 2017, 53, fig. 3). The ephemeral nature of early medieval occupation means that it is often only discovered through archaeological excavation and it is highly likely that the extensive cropmarks identified in the vicinity of the site contain features of this period. For instance, a 7th-century elite female bed burial was discovered at Harpole, 1.8km to the south, during archaeological investigation of an Iron Age to Roman farmstead (Blackmore and Barham 2023).

Dallington Brook marks the boundary between the parishes of Harlestone (to the north) and Harpole (to the south), both of which are recorded in the Domesday Survey of 1086. Harlestone appears in four entries (Northamptonshire, Folios 2, 9, 10 and 14, Open Domesday 2026a–d), suggesting a polyfocal settlement pattern that is preserved today as the hamlets of Upper Harlestone and Lower Harlestone. The landscape was largely agricultural in character throughout the medieval period and Harpole appears in one entry that describes the presence of ploughland, meadow and woodland (Northamptonshire, Folio 15, Open Domesday 2026e).

Field survey, aerial reconnaissance and archival research for this area (Partida *et al.* 2013) recorded ridge-and-furrow earthworks across the parishes of Harlestone and Harpole, including within the development site (Figs 1.9–1.11). LiDAR imagery shows linear features indicative of both medieval (widely spaced plough furrows which are not always parallel to one another) and post-medieval (tightly spaced plough furrows) ridge-and-furrow cultivation within the northern half of the site (Fig. 1.12).

Post-medieval (1540–1800) and modern (1800–present)

Harlestone and Harpole villages were thriving agricultural communities during the post-medieval and early modern periods. Land that had previously been under the medieval open field system was formally enclosed in 1766 (Harlestone parish) and 1778 (Harpole parish) but unfortunately neither Enclosure Map survives. Cartographic evidence, comprising 19th and 20th century OS mapping (e.g. Harlestone Park Estate Map (NAS 2025a; NLS 2026a–g), of this area in the post-medieval and modern periods, confirms that the site was predominantly used for agriculture.

A large swathe of Harlestone parish was occupied by the Harlestone House and Park Estate. Of medieval manorial origins, extensive landscaping and alterations were orchestrated by Humphrey Repton and John Adey between 1808 and 1811. The 1829 Harlestone Park Estate Map (of which the Northamptonshire Archive Service (NAS) holds a facsimile: NAS 2025a) shows a small L-shaped building at Fleetlands Farm, which is situated in the northern part of the development site (Fig. 1.1); this may be a structure related to lime-working in this area, an agricultural building or a dwelling. By 1885 a three-sided farm range is shown and clearly labelled Harlestone Lodge Farm (NLS 2026a). The name was changed to Fleetlands Farm by 1937 (depicted on the 1940 OS mapping, NLS 2026b).

In the southern half of the site is Heath Farm (Fig. 1.1). The 1885 OS Map (NLS 2026a) shows three buildings, which by 1900 had become a conjoined, three-sided farm range (NLS 2026c).

The geophysical survey and trial trench evaluation identified a number of probable post-medieval/early modern ditches (Figs 1.9–1.10). These fit within the general alignment of the existing field systems surrounding the site and match boundaries depicted on historic and current OS mapping. A large scooped depression indicative of quarrying activity was also

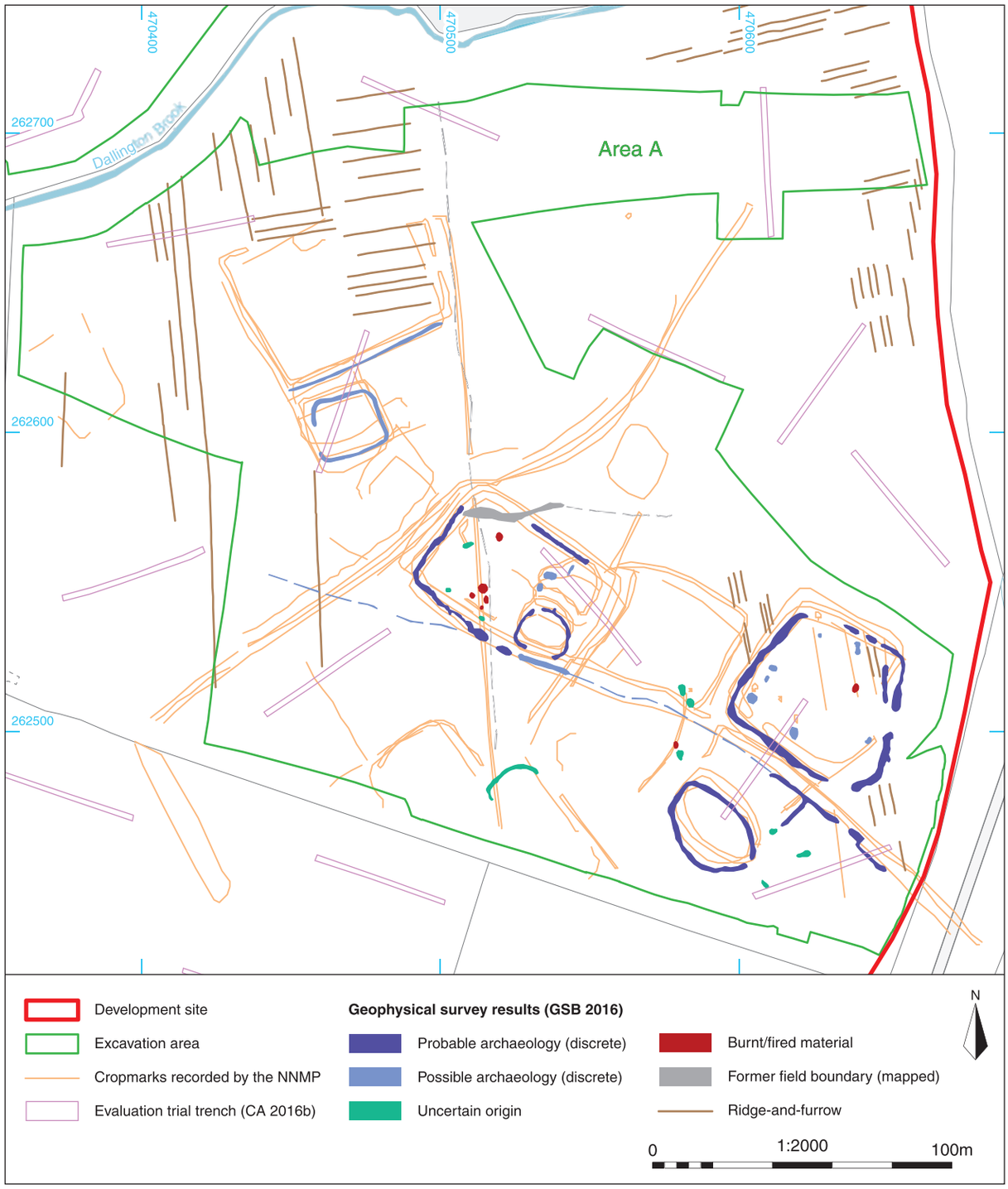

Fig. 1.9 Plan of Area A, showing cropmarks, geophysical survey results and location of the trial trenches

observed on the surface of a field situated immediately to the west of Fleetlands Farm (CA 2016a; Fig. 1.12). This feature is labelled on the 1885 OS map as 'Limekiln' (NLS 2026a) but appears only as an earthwork on subsequent mapping (e.g. OS mapping from 1940 (NLS 2026b), 1946 (NLS 2026d) and 1952 (NLS 2026e).

Site investigation history

Within the site two notable cropmark clusters straddle the Dallington Brook (Figs 1.5 and 1.9–1.10), representing a series of conjoined enclosures and ditched boundaries indicative of prehistoric field

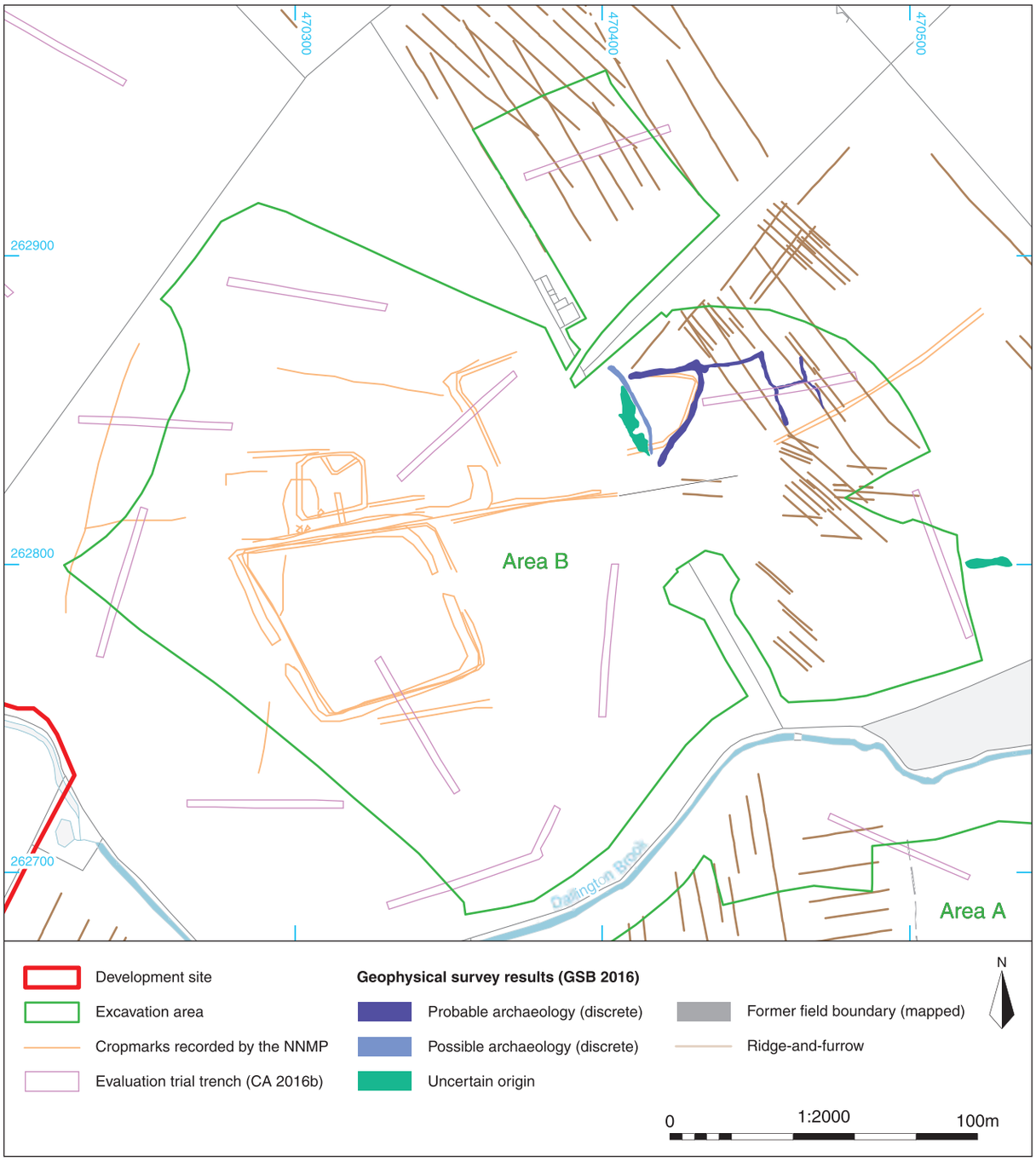

Fig. 1.10 Plan of Area B, showing cropmarks, geophysical survey results and location of the trial trenches

systems, perhaps associated with settlement. The area to the south of Dallington Brook contained the most extensive cropmarks, with evidence for six conjoined enclosures, three discrete enclosures and two ditched boundaries (Fig. 1.9). In addition to these, multiple internal features were identified, including two sub-enclosures and several probable pit groups. This complex extended as far as the eastern boundary of the site and a continuation of one of the linear features was excavated in Area 6, Sandy Lane (Fig. 1.7; Garland *et al.* 2019, 77–86). The cropmark evidence to the north of Dallington Brook was less extensive, comprising the probable remains of four enclosures and one ditched boundary (Fig. 1.10).

Cropmarks within the development area were partially investigated in 2016 by geophysical survey (GSB 2016;

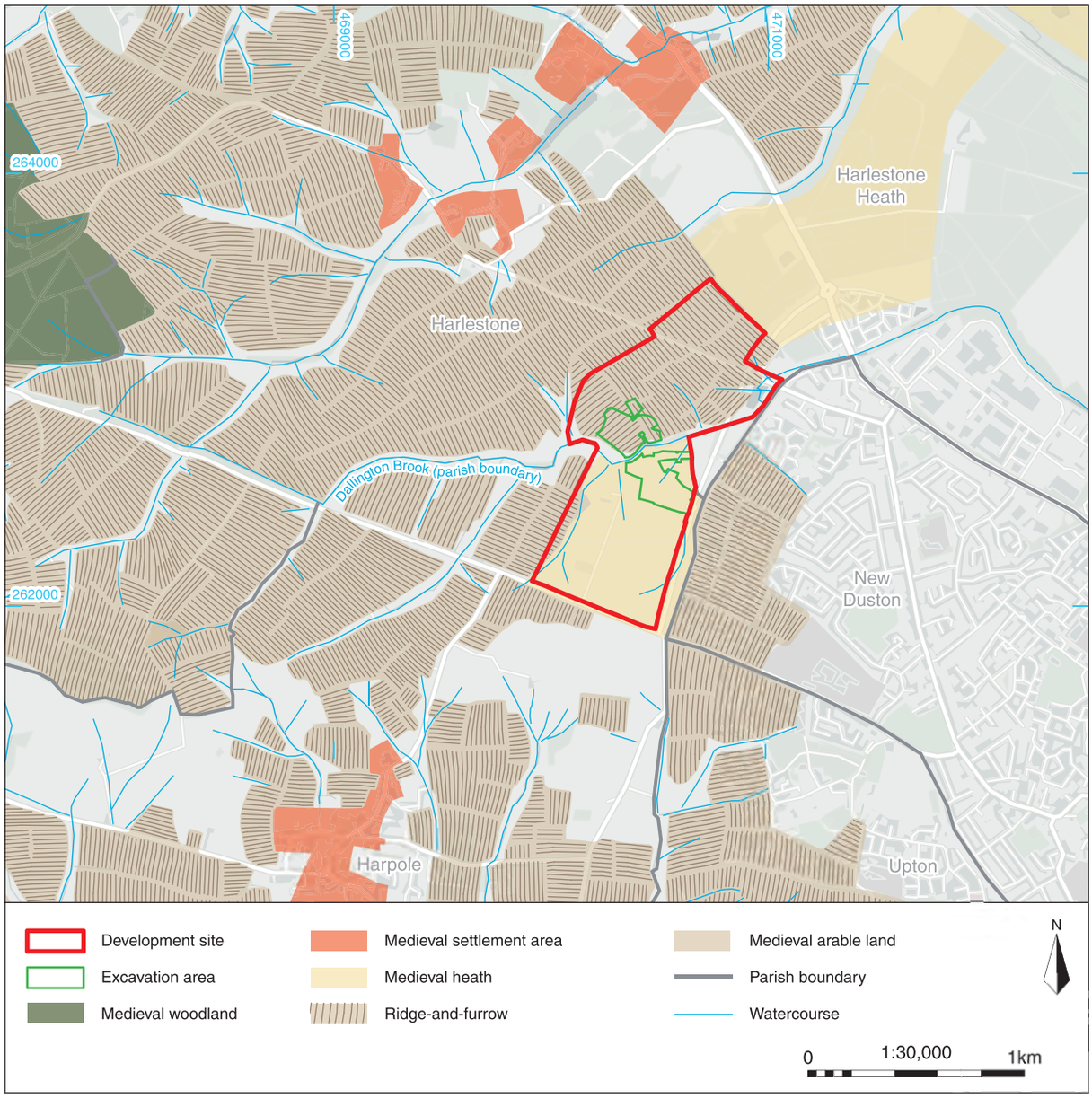

Fig. 1.11 Plan showing the medieval landscape (after Williamson et al. 2011)

Figs 1.9–1.10) and trial trench evaluation (CA 2016b; Figs 1.9–1.10). A series of enclosures was identified in the field south of Dallington Brook, which corresponded well with cropmarks identified as part of the NNMP and suggested the presence of further pits within the interior of several of the enclosures (GSB 2016, 3; Fig. 1.9). Several ditch-like anomalies were also identified as cropmarks to the north of Dallington Brook, although a large portion of these were not identified during the geophysical survey (GSB 2016, 4; Fig. 1.10). The subsequent trial trench evaluation correlated well with the identified cropmarks and geophysical anomalies (Figs 1.9–1.10), providing evidence for a concentration of Iron Age features suggestive of a series of enclosures, trackways and elements of field systems, situated on either side of Dallington Brook (CA 2016b).

The archaeological results from the excavation were drawn together in a post-excavation assessment report (CA 2024), which included recommendations for detailed analysis and the present publication. The assessment established that the fieldwork results were of regional and, in some respects, national significance, and included new evidence for archaeological activity of a range of periods at the site.

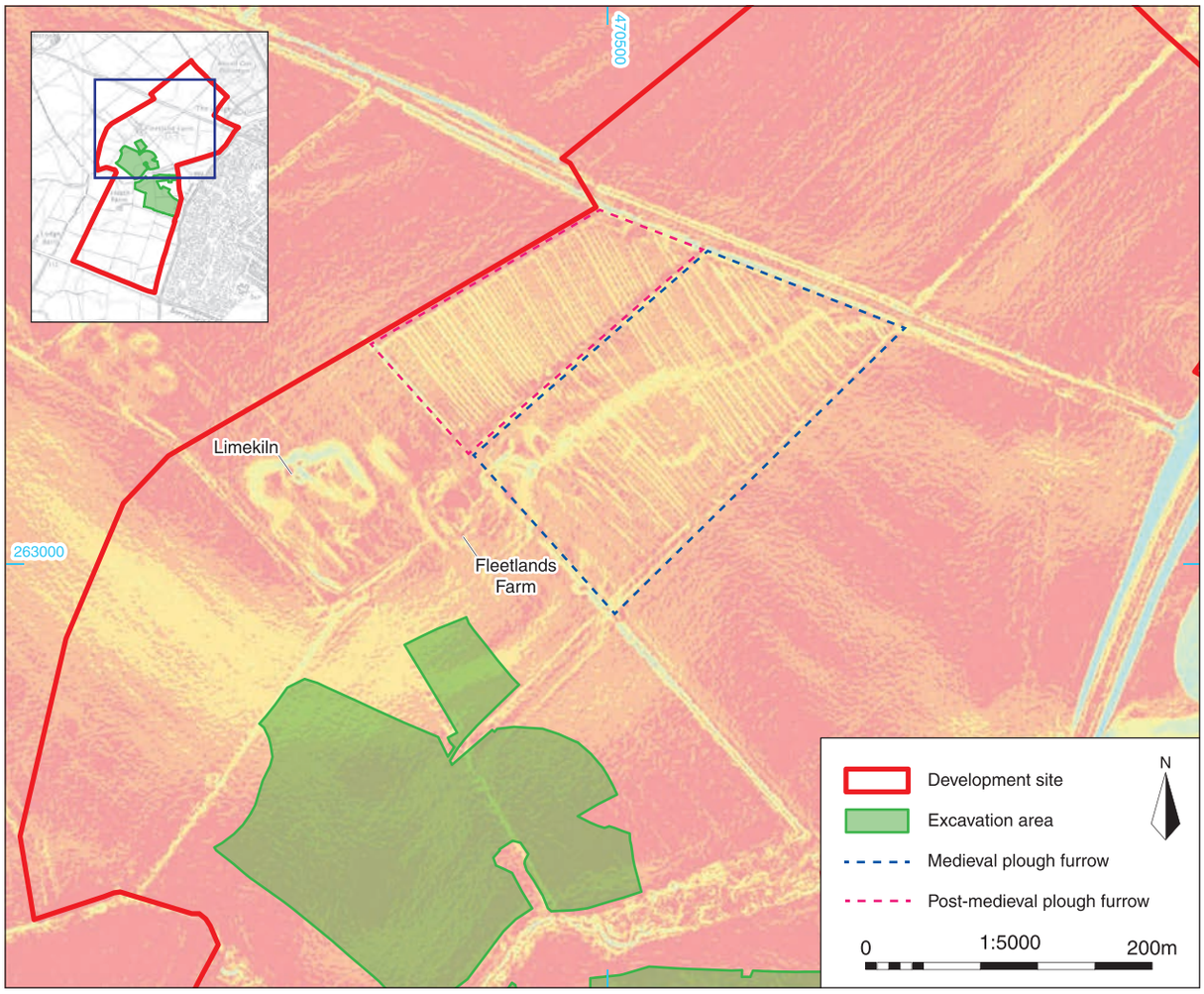

Fig. 1.12 Plan of Area A over a LiDAR survey showing plough furrows, a limekiln and Fleetlands Farm within the northern half of the development site

Aims of the project

The general aims of the fieldwork were to establish the character, quality, date, significance and extent of any archaeological remains or deposits surviving within the development site (CA 2022a). A set of specific aims for the excavation was formulated based on research frameworks devised to set priorities for future research for the East Midlands region (Research Frameworks 2026). The aims of the excavation focused on gathering evidence for the extensive settlement and other land-use within the site as evidenced from the aerial photographs, LiDAR, geophysical survey and trial trench evaluation (Figs 1.9–1.10, and 1.13–1.14). A particular focus was placed on recovering artefactual and environmental evidence to date the settlement and activity, and to create a better understanding of past land-use and economy. Additional aims were to assess how the archaeological evidence uncovered could contribute to themes including developing burial practices in the Middle Bronze Age and Iron Age, Roman industry and the local environment. Addressing these themes has the potential to create a better understanding of the function and development of the sites either side of Dallington Brook, allowing them to be contextualised within their broader regional and chronological setting.

A note on radiocarbon dating

A suite of 39 radiocarbon measurements was obtained from the excavation to provide dating for a range of features, to confirm the date of key pottery assemblages and to acquire baseline dating. The radiocarbon measurements obtained from the Scottish Universities Environmental Research Centre (SUERC) have been calculated using the calibration curve IntCal20 of Reimer *et al.* (2020) and the computer program OxCal (Bronk Ramsey 2009, 2021). Conventional radiocarbon

Fig. 1.13 Photograph showing the development site under excavation, looking south-east

Fig. 1.14 Aerial photograph showing Area B under excavation, looking north-west

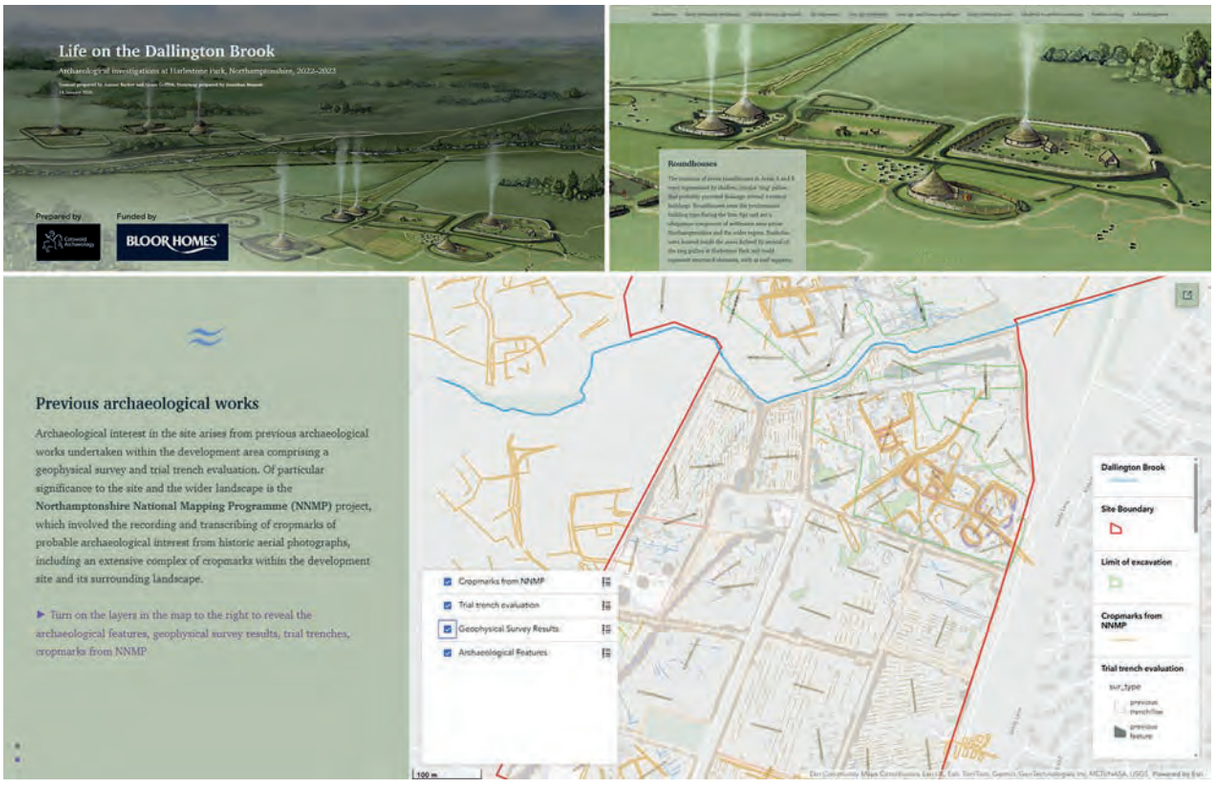

Fig. 1.15 A sample page of the Digital Storymap

dates in plain type are quoted throughout the text at the 95.4% probability level, unless otherwise indicated, and are tabulated at the start of each chapter. A programme of Bayesian analysis was also undertaken to model the archaeological chronologies of the early prehistoric, Middle Bronze Age and Iron Age features using the calibrated radiocarbon dates (see Hamilton, Appendix A3.9). Calibrated ranges quoted in italics in the text are posterior density estimates deriving from the Bayesian models presented in Appendix A3.9 and are given at the 95% probability level, unless otherwise indicated. The results of the modelled activity presented in the text (e.g. start: MBA) has the end points rounded outward by five years. The unmodelled (conventional) dates and calibrated ranges quoted in Appendix A3.9 have been calculated using the whole floruit method with their end points rounded outward by ten years.

Digital storymap

A digital resource has also been created, taking the form of an interactive web-based GIS (Geographical Information System) 'Storymap' hosted by Esri. This enables the viewer to explore some of the key elements of the site via annotated site phase plans, photographs, 3D models and other digital media (see Fig. 1.15 for a sample page). This GIS resource is available at https://cotswoldarchaeology.co.uk/.

Chapter 2
Period 1 Early Prehistoric (10,000 BC–1500 BC)

Introduction and dating

The earliest evidence for human activity within the excavation areas relates to the early prehistoric period, comprising 19 pits of Early Neolithic date (Fig. 2.1). Additionally, 330 pieces of worked flint indicative of Mesolithic, Late Neolithic and Beaker/Early Bronze Age flint working technologies were recovered either as residual finds within later features, or from the topsoil and subsoil deposits from both excavation areas, indicating a background level of activity and use of the landscape during these periods. The worked flints have been reported on by Jacky Sommerville in Appendix A2.9.

In total, five dispersed pits corresponding to Period 1 were identified in Area A, while 14 pits were identified in Area B, forming two distinct clusters of activity, both situated in the western half of the excavation area.

The dating of the Early Neolithic pits is based on worked flint and pottery assemblages recovered from the features, including a small group of Early Neolithic pottery recovered from pits in Area B. This comprised rim sherds from three Early Neolithic plain bowls, probably belonging to the Developed or Secondary Plain Bowl tradition, and have been reported on by Pete Banks in Appendix A2.1. A very small amount of potentially contemporaneous pottery was also recovered from two pits in Area A; however the sherds were small and in poor condition, limiting further analysis and comparison.

The pits in both areas produced worked flint indicative of technologies in use during the Mesolithic and Early Neolithic periods. The flints were in particularly good condition, with moderate edge damage on only eight pieces (Sommerville, Appendix A2.9).

The dating of the pits was refined by radiocarbon dating; five samples were dated from three pits in Area A (pits 11124, 11979 and 12170) and two in Area B (pits 20174 and 21684) (Table 2.1; Fig. 2.2). The pits across both areas produced Early Neolithic date ranges (at 95.4% probability), indicating broad contemporaneity with the early prehistoric pottery and worked flint assemblages.

The five radiocarbon dates are not statistically consistent, suggesting some longevity to the dated activity (Hamilton, Appendix A3.9). Bayesian analysis, produced a model with good agreement, estimating that the early prehistoric activity at the site began in *3915–3530 cal BC* and ended in *3490–2955 cal BC*, spanning approximately *55–865 years* (Table A3.75). The broad date range indicated by the Bayesian analysis makes it somewhat unlikely that the pits on either side of the Dallington Brook were contemporaneous. They may instead reflect intermittent activity that occurred in this landscape over a long period of time.

Archaeological evidence

Area A (Figs 2.3–2.6)

Five pits (11124, 11979, 11995, 12062 and 12170; Table 2.2) were dispersed across Area A (Fig. 2.3). Of these, three were similar in size (11979, 11995 and 12170) and were situated in the northern half of Area A (Fig. 2.3–2.5; Table 2.2). Each contained single fills of friable dark-brownish grey or orange silty sands (Fig. 2.4, Sections AA and BB; Fig. 2.5). A total of 545 pieces of worked flint were recovered from pits 11979 and 11995, which included an Early Neolithic Green Type 4Cv leaf-shaped arrowhead (Registered Artefact (Ra.) 19) (Fig. 2.6) from pit 11979 (Table 2.2). A large number of flint chips associated with the worked flint assemblages indicates that knapping occurred in the vicinity. This, combined with there being little to no edge damage on the flints, may suggest that the pits had been backfilled with fresh knapping waste (Sommerville, Appendix A2.9). A small quantity of early prehistoric pottery in poor condition was also recovered from pit 11979. Evidence suggesting the presence of domestic hearth waste is indicated by moderately large amounts of charred material, such as hazelnut shell (*Corylus avellana* L.) and charcoal fragments, which were found

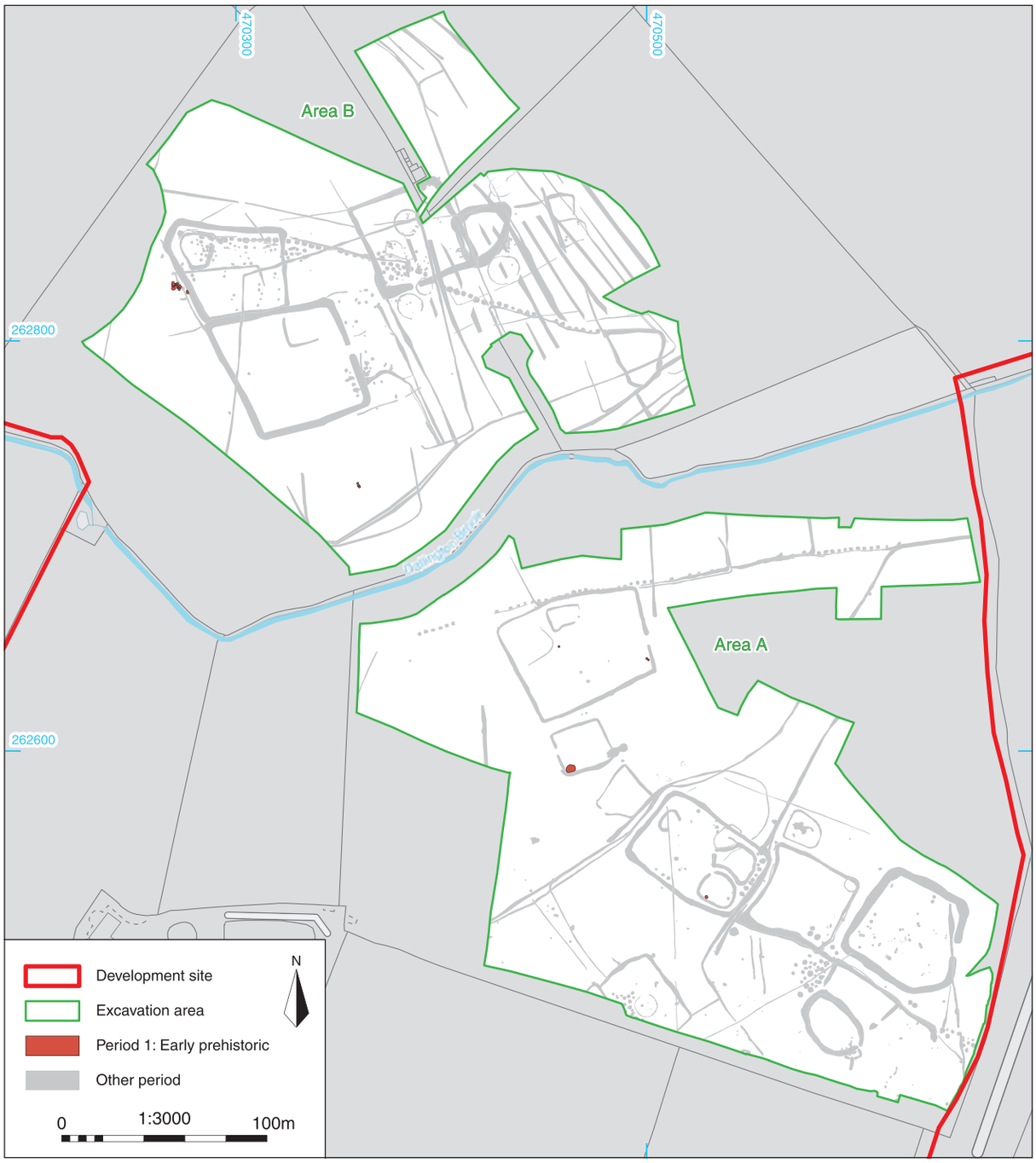

Fig. 2.1 Location and plan of early prehistoric (Period 1) features in Areas A and B

in the features. This information has been reported on by Sarah Wyles in Appendix A3.4.

Pit 12170 contained 11 pieces of worked flint, which included blades and a core rejuvenation flake (Table 2.2), both of which are consistent with the Early Neolithic radiocarbon date obtained from material in this feature (SUERC-130091; Table 2.1). A large charred plant assemblage was also recovered from pit 12170, which was rich in both hazelnut shell fragments and cereal remains, the latter being dominated by grain fragments rather than chaff elements (Wyles, Appendix A3.4).

Pit 12062 was situated 60m south of pit 12170 (Fig. 2.3) and was much larger in size (4.46m long and 3.26m wide) and depth (0.76m). It had been partially truncated on its southern side by Period 4 Phase 4.2 enclosure ditch A2A (see Chapter 5). The pit contained

Table 2.1: Summary of radiocarbon dating results for Early Neolithic pits in Areas A and B

Feature/ context	SUERC code	Material	Radiocarbon age (BP)	Calibrated radiocarbon age (95.4% probability)
Area A				
Context 11125 Pit 11124	SUERC-130111	Charcoal: oak (*Quercus* sp.) sapwood: 3 rings	4547 ± 27	3370–3312 cal BC (35%) 3297–3286 cal BC (1.3%) 3272–3270 cal BC (0.3%) 3241–3103 cal BC (59%)
Context 11980 Pit 11979	SUERC-130092	Hazelnut shell (*Corylus avellana*)	4742 ± 23	3632–3552 cal BC (59.2%) 3542–3506 cal BC (19.7%) 3430–3381 cal BC (16.6%)
Context 12171 Pit 12170	SUERC-130091	Hazelnut shell (*Corylus avellana*)	4707 ± 21	3618–3585 cal BC (6.7%) 3530–3492 cal BC (25.5%) 3464–3374 cal BC (63.3%)
Area B				
Context 20176 Pit 20174 Pit group PB3	SUERC-130121	Hazelnut shell (*Corylus avellana*)	4807 ± 25	3643–3599 cal BC (31%) 3590–3528 cal BC (64.5%)
Context 21685 Pit 21684	SUERC-130104	Hazelnut shell (*Corylus avellana*)	4807 ± 25	3643–3599 cal BC (31%) 3590–3528 cal BC (64.5%)

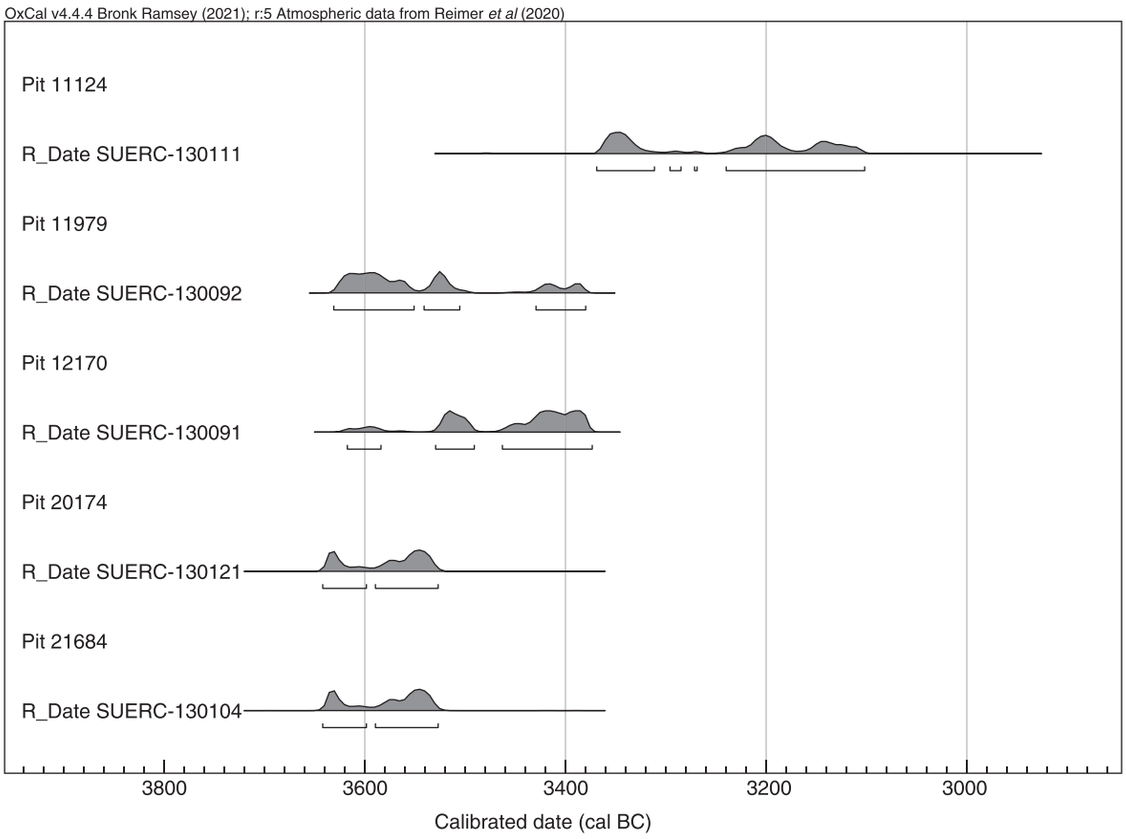

Fig. 2.2 Calibrated radiocarbon dates for the early prehistoric features

Fig. 2.3 Location and plan of early prehistoric (Period 1) features in Area A

three brownish yellow and greyish white silty sand fills that produced 32 pieces of worked flint, including a scraper made on a blade blank (Table 2.2). The flint assemblage is consistent with an Early Neolithic date for the pit (Sommerville, Appendix A2.9).

Pit 11124 comprised the south-easternmost Period 1

Table 2.2: Summary of Early Neolithic pits in Area A

Cut no.	Description	Length (m)	Width (m)	Depth (m)	Fill(s)	Artefacts (count: weight)
11124	Oval. Steep, straight sides, rounded base.	1.15	1.05	0.35	11125	–
11979	Circular. Steep, stepped sides, irregular base.	0.8	0.69	0.23	11980	ENEO pottery (5: 7g) Leaf-shaped arrowhead (Ra. 19) WF blade (12: 23.4g) WF bladelet (4: 2.4g) WF chip (145: 3g) WF multiplatform core (1: 102g) WF flake (79: 108.7g)
11995	Circular. Steep, rounded sides, irregular base.	0.71	0.58	0.26	11996	WF blade (6: 6.2g) WF bladelet (2: 0.5g) WF chip (236: 6.4g) WF core rejuvenation flake (2: 6g) WF flake (51: 55.9g) WF piercer (1: 1g) WF retouched flake (1: 2g) WF shatter (2: 1.3g) WF spurred piece (1: 0.9g) P-med window glass (1: 1g)
12062	Oval. Rounded sides, irregular rounded base.	4.39	>3.44	0.76	12063	WF miscellaneous (1: 4g)
					12064	WF flake (1: 1g)
					12065	WF blade (7: 17g) WF chip (2: 0.2g) WF core (1: 49g) WF flake (19: 102.8g) WF scraper (1: 3g)
12170	Circular. Steep, rounded sides, irregular base.	0.58	0.65	0.16	12171	ENEO pottery (1: 8g) WF blade (3: 5.5g) WF core rejuvenation flake (1: 7g) WF flake (7: 13g)

Key: ENEO = Early Neolithic; WF = worked flint; Ra. = Registered artefact; P-med = post-medieval

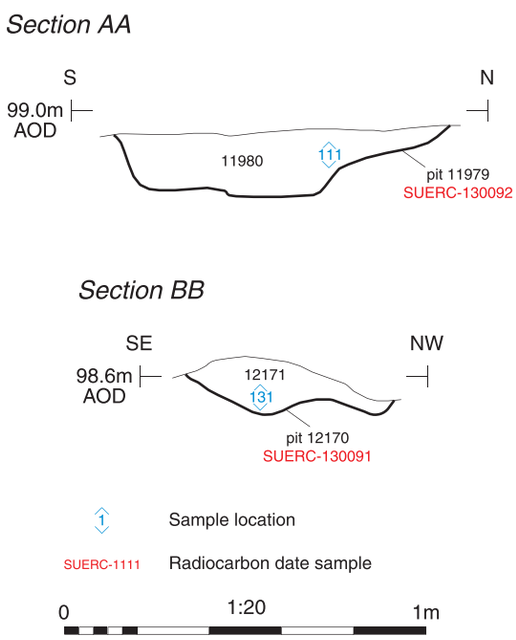

Fig. 2.4 Sections AA and BB of pits 11979 and 12170

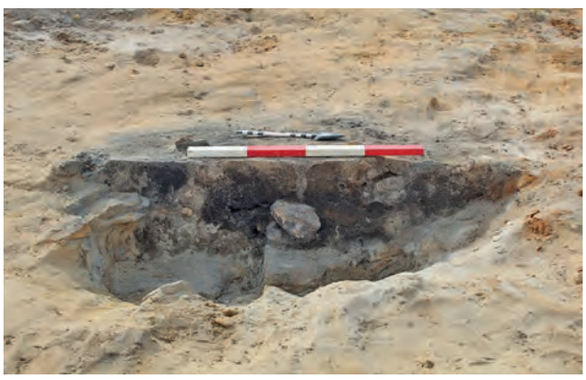

Fig. 2.5 Photograph of pit 11979, looking west (0.4m scale)

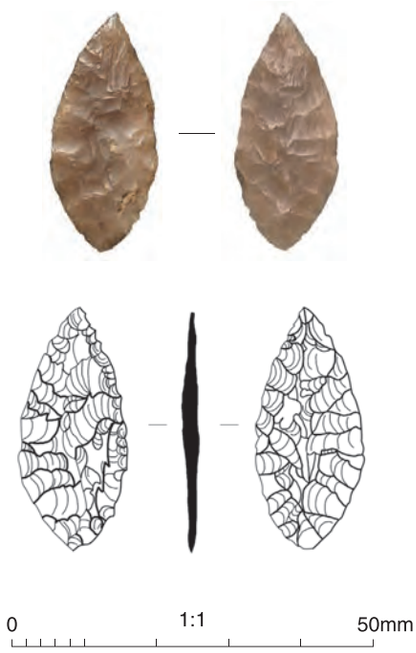

Fig. 2.6 Leaf-shaped arrowhead (Ra. 19) recovered from pit 11979

feature identified in Area A, situated 92m south-east of pit 12062 (Fig. 2.3). Its single fill produced a large quantity of charcoal, along with a small quantity of charred plant remains that included indeterminate grains and fragments of hazelnut shell (Wyles, Appendix A3.4). Pit 11124 was the only pit not to contain any artefacts, although a sample of oak charcoal produced an Early Neolithic radiocarbon date (SUERC-130111; Table 2.1).

Area B (Figs 2.7–2.9)

A cluster of 11 pits (pit group PB3; Table 2.3) was situated at the western side of Area B (Fig. 2.7), and was partially truncated (pits 20200, 22302 and 22384) by Period 4 Phase 4.1 ditch B1B and Period 4 Phase 4.2 ditch B4A (see Chapter 5). The pits were sub-circular with generally steeply sloping sides and rounded bases (e.g. pits 20168, 20171 and 20174; Fig. 2.8). They varied in size but were generally 0.68–2.25m in length, 0.56–1.42m in width and 0.2–0.8m in depth. The pits contained up to four fills that were commonly sterile; however pits 20171, 20174 and 22384 produced a small assemblage of Early Neolithic pottery, worked flint and animal bone. The Early Neolithic pottery recovered from pit 20171 is of particular note as it was in relatively good condition and probably originates from a highly burnished, slightly convex-sided bowl with an upright expanded rim (Banks, Appendix A2.1). A small assemblage of charcoal and charred plant remains, including indeterminate grains and hazelnut fragments, were recovered from pit 20174 (Wyles, Appendix A3.4).

Three worked flints were recovered from pit 22384, including a microlith and a bladelet that are suggestive of a Mesolithic date (Sommerville, Appendix A2.9). While the pit was stratigraphically earlier than others in the group, and a Mesolithic date is possible, the flints were recovered from the uppermost of the pit's fills and are therefore regarded as potentially residual surface finds, incorporated as the pit filled. The size, morphology and fill composition of pit 22384 are comparable to the other pits within pit group PB3, suggesting a common date.

An additional three pits (21684, 21692 and 21694) were situated in the southern half of Area B (Figs 2.7 and 2.9). The pits were circular, with moderately to steeply sloping straight sides and rounded bases (Fig. 2.9) and measured 0.55–0.66m in diameter and 0.14–0.26m deep. Forty worked flints, comprising one blade, six flakes and 33 chips, were recovered from pit 21684, indicative of Mesolithic or Early Neolithic flint knapping technologies (Sommerville, Appendix A2.9). This dating has been refined by an Early Neolithic date obtained through radiocarbon analysis of hazelnut shell from the pit (SUERC-130104; Table 2.1), suggesting that the features were broadly contemporaneous with pit group PB3, situated approximately 130m to the north. A very large quantity of hazelnut shell fragments and a small number of grains, including barley and emmer (*Triticum dicoccum*) were recovered from pit 21684, with a smaller assemblage of charred remains recovered from pit 21692; once more these assemblages appear to represent dumps of domestic hearth waste (Wyles, Appendix A3.4).

Discussion

(incorporating analysis by Pete Banks, Dana Challinor, Sarah Wyles and Jacky Sommerville)

Aspects of society

Mesolithic period

No features of Mesolithic date were identified during the excavation but a small assemblage of Mesolithic worked flint was recovered as residual finds in later features (see Highlight 1). During this period, the majority of the population would have had a transient lifestyle, relying on the surrounding landscape to provide food sources through hunting, fishing and gathering plants, berries and nuts (Myers 2026). As Mesolithic organic materials are rarely preserved, lithic assemblages usually form the predominant evidence for activity of this period. The dearth of artefactual material and archaeological features at Harlestone Park fits with the wider archaeological record for the Mesolithic period in Britain, with evidence for settlement rarely encountered (Myers 2026). The majority of Mesolithic worked flint

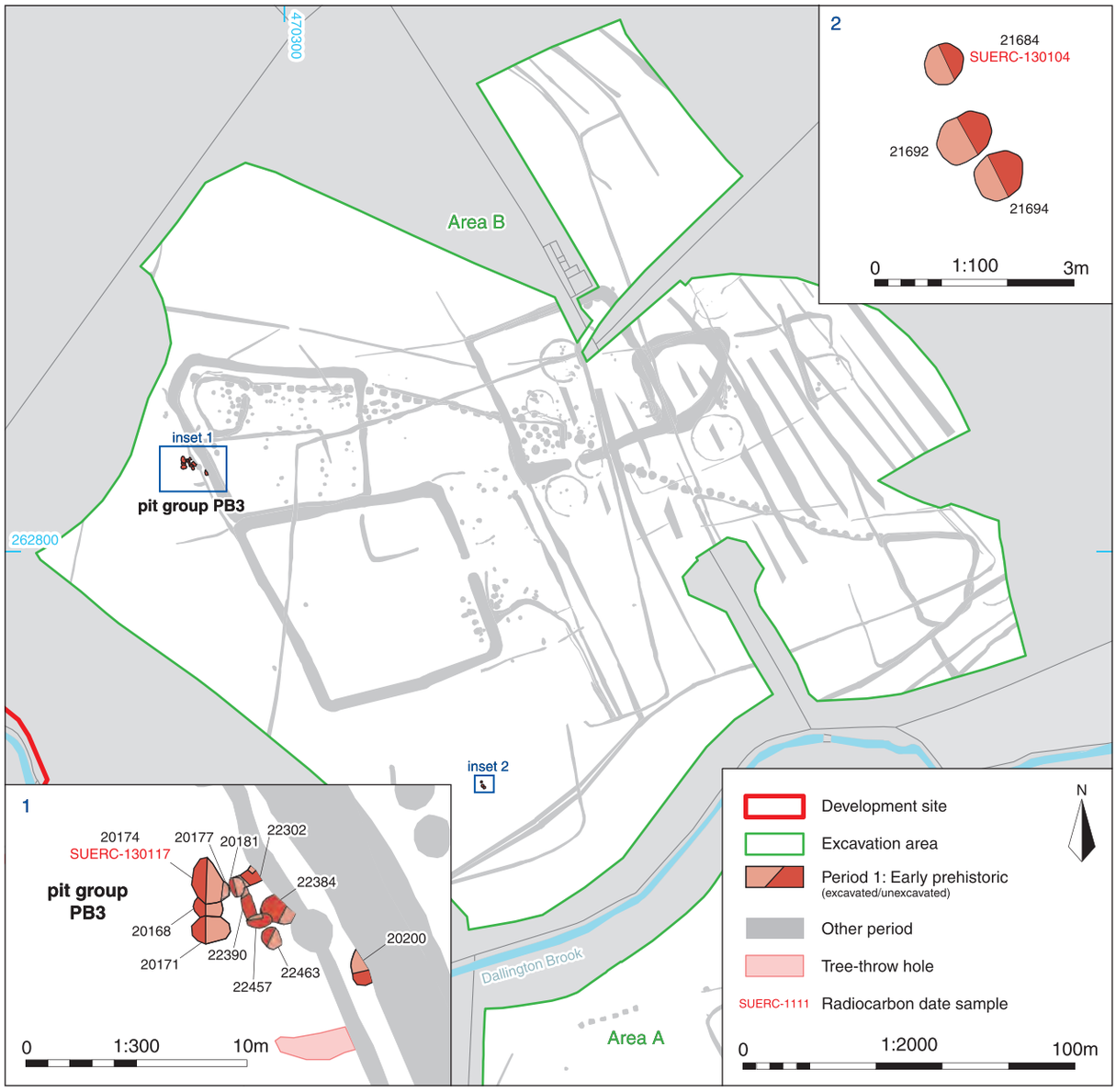

Fig. 2.7 Location and plan of early prehistoric (Period 1) features in Area B

Fig. 2.8 Photograph of pits 20168, 20171 and 20174, looking north-west (2m sale)

Fig. 2.9 Photograph of pits 21684, 21692 and 21694, looking north-east (0.5m scale)

Table 2.3: Summary of Early Neolithic pits in pit group PB3

Cut no.	Description	Length (m)	Width (m)	Depth (m)	Fill(s)	Artefacts (count: weight)
20168	Circular. Steep sides, flat base.	1.01	>0.7	0.57	20169	–
					20170	–
20171	Sub-circular. Steep, concave sides, rounded base.	1.36	1.2	0.56	20172	ENEO pottery (6: 43g)
					20173	ENEO pottery (6: 132g)
20174	Sub-oval. Irregular concave sides, rounded base.	2.25	1.42	0.57	20175	–
					20176	ENEO pottery (9: 18g) WF flake (1: 0.4g) WF blade (1: 1g) WF microdenticulate (1: 2g) WF chip (5: 0.2g) Animal bone (4: 2g)
20177	Sub-circular. Steep, concave sides, flat base.	0.64	>0.35	0.36	20178	–
20181	Oval. Concave sides and base.	0.9	0.65	0.23	20182	–
20200	Sub-circular. Steep, concave sides, rounded base.	1.54	0.78	0.75	20201	–
22302	Oval. Steep, concave sides, rounded base.	0.68	>0.77	0.22	22303	–
22384	Sub-circular. Steep, concave sides, rounded base.	1.55	>1.2	0.8	22466	–
					22465	–
					22464	–
					22385	WF flake (1: 1g) WF bladelet (1: 0.6g) WF microlith (1: 0.2g)
22390	Oval. Steep, straight sides, rounded base.	>1.3	0.56	0.24	22391	–
22457	Sub-oval. Steep, straight sides, flat base.	1.15	0.67	0.58	22458	–
					22459	–
22463	Sub-circular. Concave sides and base.	1.01	0.93	0.2	22462	–

Key: ENEO = Early Neolithic; WF = worked flint

recovered from Northamptonshire comprises residual material recovered from later features or deposits (Phillips 2000), with a site at Chalk Lane, Northampton, situated 5km south-east of the site, providing some of the only evidence for stratified Mesolithic features within the county, including several pits and a series of intersecting gullies (Williams and Shaw 1981).

The small quantity of Mesolithic worked flints from Harlestone Park included bladelets, a bladelet/flake core, two microliths and two truncations (see Highlight 1; Sommerville, Appendix A2.9). Microliths (small retouched flints) and truncations (see Highlight 1) were used for a variety of purposes during this period, such as the production of composite or multipurpose tools used for cutting, scraping, grooving and as weapons (Jacobi 1978, 20; Conneller *et al.* 2018, 528), and would have been widely used in daily life. The generally good condition of the Mesolithic flints from the site, with little or no edge damage, suggests that the material had not moved far from where it was originally deposited. It is therefore likely that the site was utilised during the Mesolithic period, though in ways that have left little to no trace in the archaeological record.

The area surrounding Harlestone Park appears to have been extensively used by humans during this period, based on substantial numbers of flints recovered from numerous sites. For example, at least 7000 worked flints, mostly of Mesolithic date, were recovered during excavations associated with the Northampton North-West Relief Road, situated 2.8km north-east of the site (Fig. 1.6; OA 2025). Additionally, approximately 25,000 flints were recovered from the topsoil during fieldwalking at Duston, 3km south-east of the site. This assemblage included a substantial proportion

Early Prehistoric Worked Flint

1-2 microliths
3 flake/bladelet core
4 truncation
5 burin
6 piercer
7 end scraper
8-9 microdenticulates

The earliest human activity on archaeological sites is often indicated by the presence of worked flint. From the Neolithic period onwards the dating of this activity may be supported by associated pottery, but this is not possible for the Mesolithic period (10,000–4000 BC), as it preceded the adoption of pottery use in Britain. Associated environmental material can also be used to confirm dating, although on this site no Mesolithic features were uncovered and the Mesolithic flints were all residual, i.e. they were found in post-Mesolithic features.

Some aspects of flint technology during the Mesolithic period are very distinctive, in particular the use of microliths, which were used to produce composite tools serving a range of purposes, including as arrows, knives, sickles or harpoons. On the whole, microliths are small flints, which have been retouched into a series of quite standardised forms. The most common form is the obliquely blunted point that was used throughout the Mesolithic period (Jacobi 1978, 20). However, Early Mesolithic types tend to be quite broad and later Mesolithic ones are usually narrower (Pitts and Jacobi 1979, 170). At Harlestone Park two obliquely blunted points were recovered, each probably from a different Mesolithic subdivision. These comprised a burnt and broken broad microlith (15mm wide) (1), and a narrow one (5mm wide) (2). Microliths are usually manufactured using bladelet blanks, and a core with bladelet and flake scars was also found on the site (3).

Another tool type, used during the Mesolithic period, is the truncation. This is made using a flake or a blade that is snapped (truncated) either straight across or at an angle and the broken surface is reworked with particularly fine, steep retouch. Two of these were found on the site. One was made using a flake as a tool blank (4) and, unusually, has also been retouched along the right dorsal edge. The other, a broken example, was made on a blade blank. Microwear studies indicate that truncations were probably used as multi-purpose tools, for cutting, scraping and grooving (Conneller *et al*. 2018, 528).

Many aspects of Mesolithic flint-working technology continued into the subsequent Early Neolithic period. However, microliths were no longer used and the leaf-shaped arrowhead became the projectile point that would have been used for hunting and interpersonal violence. For example, at the Crickley Hill Early Neolithic enclosure, Gloucestershire, approximately 600 were recovered, indicating that the monument had been subjected to a substantial attack (Savage 2014, 16) and the top of a leaf-shaped arrowhead was found embedded in an adult vertebra from a chambered cairn (Tulloch of Assery B) at Loch Calder, Caithness, Scotland (Young 1964–66, 63). One leaf-shaped arrowhead was recovered from the present site, in Early Neolithic pit 11979, although as it is undamaged it may not have been fired (see Fig. 2.6). A number of the other tools from the site may date from either the Mesolithic or Early Neolithic periods, although all but one was residual in Iron Age or later deposits. These include a burin (5), a piercer (made using a blade blank) (6), two end scrapers made on blade blanks (7) and six microdenticulates (8-9). These tools indicate domestic activity such as hide preparation (end scrapers), plant processing (microdenticulates), bone or antler working (burin) and possibly leather working (piercer).

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of Mesolithic items, such as microliths and bladelets (RCHME 1985, 249). These assemblages represent unusually large examples; most Mesolithic flint assemblages from Northamptonshire are smaller, often containing only a few pieces (Phillips 2000).

Like many sites of Mesolithic date in Northamptonshire, Harlestone Park is located on freely draining, permeable soils (Soilscapes 2026). It has been proposed that Mesolithic land-use favoured such geologies (Hall 1985, 31), although others have argued that the distribution of sites reflect patterns of modern investigation rather than the prehistoric reality (e.g. Clay 2002). While there may be undiscovered Mesolithic sites on other geologies in Northamptonshire, both Harlestone Park and the concentration of worked flint from Northampton North-West Relief Road, which was situated on a slightly elevated sandy spur in an area of underlying alluvial clays, silts, sands and gravels (OA 2025, 28), indicate a local inclination for well-drained locations. This apparent preference for freely draining soils seems to continue into the Neolithic period, with Early Neolithic sites often situated in permeable locations of pre-existing clearance (Deegan 2008a, 73).

Neolithic period

Low-level activity at the site continued into the Early Neolithic period, with a number of dispersed pits containing worked flint and pottery identified in Areas A and B, along with residual finds of Early Neolithic worked flints recovered from later features.

Evidence for earlier Neolithic settlement is rare in Northamptonshire and throughout Britain (Clay 2026; Deegan 2008a, 58), similar to the situation observed during the Mesolithic period. Within the local landscape, only the excavation at Dallington Gateway found evidence for Neolithic activity, in the form of a posthole and a tentatively dated post alignment (Chapman 2019a, 35). The best evidence for probable Neolithic settlement within the county was identified at Ecton, 12.5km east of the site, where shallow hollows, a hearth and patches of potential heat-affected clay were associated with Neolithic pottery and worked flint (Moore and Williams 1975). Small numbers of pits containing Neolithic material such as those at Harlestone Park are more common, although the often dispersed nature of these features makes their distribution difficult to collate (Deegan 2008a, 58), and there is often a reliance on scant artefactual or ecofactual material to date them.

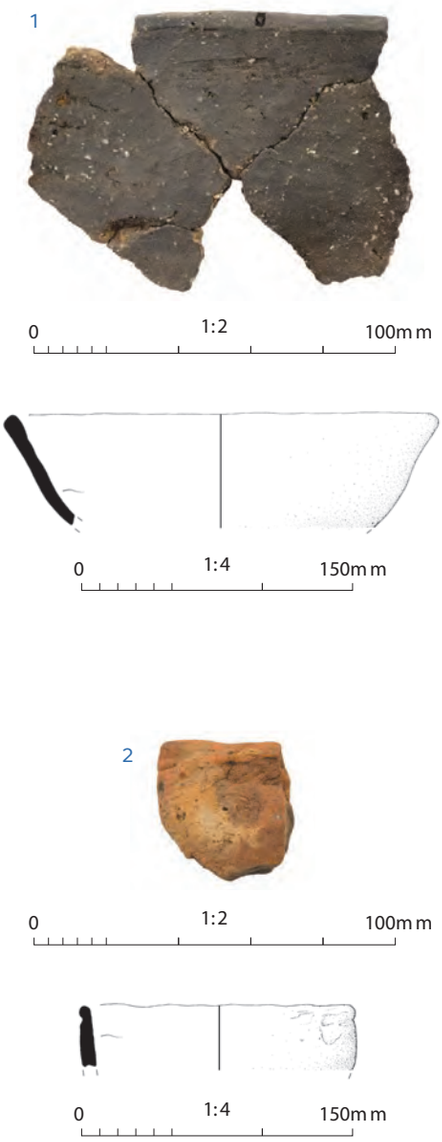
The Early Neolithic worked flint assemblage recovered from the site was much larger than the Mesolithic assemblage. Furthermore, the majority of the worked flints were recovered in good condition with little to no edge damage recorded on much of the material from seven of the Period 1 pits (Sommerville, Appendix A2.9). This, combined with the presence of large numbers of flint chips within several of the features, indicates that the pits were used for depositing fresh knapping waste. Other worked flints recovered from these pits include a leaf-shaped arrowhead (Ra. 19; Fig. 2.3), several blades and bladelets, a flake and blade core, three core rejuvenation flakes, a microdenticulate, and a piercer and an end scraper, both made using blade blanks. This assemblage is likely to be domestic in nature, as the flints are indicative of hide working (end scrapers), plant processing (microdenticulates) and flint knapping (chips, cores and core rejuvenation flakes). Other crafting or manufacturing processes are suggested by the piercer (used for piercing holes in various materials such as animal hides), burin (bone or antler working) and truncations (likely used as multifunction tools for cutting, scraping and/or grooving materials). The leaf-shaped arrowhead would have been used for hunting and/or defence and comparable examples have been recovered from excavations at Briar Hill (Bamford 1985, 60–77); Dallington (Chapman 2019a, 41–4) and Brixworth (Martin and Hall 1980, 8). It is noteworthy that the Harlestone Park example is undamaged, as the fragile tips of such arrowheads are usually missing, having broken off on impact during use or within the burial environment. It is therefore possible that this example was never shot.

Alongside the worked flint assemblage, a small quantity of Early Neolithic pottery was recovered, including examples of plain bowl (Whittle *et al.* 2011; Gibson 2024, 29; see Highlight 2). The assemblage was obtained from a small number of pits in Areas A and B and, although the group is small, a diverse range of fabrics is present (Banks, Appendix A2.1). The origin of the pottery is unknown, although it was probably produced locally as the raw materials for its production were readily available. These pots may have been used for the preparation or storage of food and drink, and examples of Early Neolithic pottery sherds with evidence for sooting or heating are not uncommon (see Highlight 2). While the quantities are low, the recovery of Early Neolithic pottery represents potential evidence for domestic activity during this period, although possibly only on a seasonal basis.

Landscape and environment

The Mesolithic was a period of vast environmental change, prompted by a rapid rise in climate, causing changes to vegetation and animal species distribution (Myers 2026). In contrast to more widespread Early Neolithic deforestation (discussed below), evidence suggests that Mesolithic hunter-gatherer communities used land clearance as a tool to optimise their subsistence and hunting practices, and not to drastically alter the landscape (Deegan 2008a, 46). Clearance during this period is argued to have been strategic, aimed at enhancing natural productivity and the movement of important food sources (both animals and plants),

Neolithic Pottery



Early Neolithic pottery:

1 Expanded rim, from plain, open (uncarinated) bowl. Surfaces highly burnished. Fabric: FLGR1. Form: V16. (Banks, Appendix A2.1, Fig. A2.1, no. 2).

2 Simple, crudely-finished rim, from small bowl. Fabric: Q1. Form: V17. (Banks, Appendix A2.1, Fig. A2.1, no. 3).

The earliest Neolithic pottery in England most likely originates from the south-east and dates to around the turn of the 5th millennium BC (Whittle *et al*. 2011, 744). These earliest vessels, known as Carinated Bowls, are round-bottomed with an angled profile. This first use of pottery is part of a new way of life that accompanied the introduction of farming from Continental Europe.

The Neolithic pottery from the excavation areas most likely belongs to the Developed or Secondary Plain Bowl tradition and dates to *c*. 3800–3500 BC (1-2). The assemblage was recovered from a small number of pits, most within Period 1 pit group PB3. For such a small group a surprisingly diverse range of materials was used; the various pottery fabrics include shell, quartz, crushed calcined flint and pieces of crushed pottery or grog. In some cases there is evidence to suggest that Neolithic people went to extraordinary lengths in order to obtain the raw material, such as excavating large shafts to extract high quality flint from seams underground.

The new ceramic technology arrived with other new material culture such as new flint (e.g. leaf-shaped arrowheads) (Butler 2015, 122–134) and stone axes. It was likely introduced to Britain as a technology already well-developed in Continental Europe, probably by highly skilled potters who made very fine pottery. The varied forms and simple styles of decoration that characterise the Developed or Secondary Bowls tradition, developed from *c*. 3800 BC, probably as the result of local experimentation.

It has been proven that pottery is closely associated with the preparation, service or preservation of food and drink. The distinctive round base of Early Neolithic pottery often exhibits sooting or spalling indicative of having been placed directly in or above a heat source. Analysis of absorbed residues similarly has shown that many pots were used for cooking, vessels from Ascott-Under-Wychwood, Gloucestershire contained lipids from pigs and cattle (Barclay 2007). Evidence that some pots were used for heating milk (Sheridan 2009). comes from Warren Fields, Aberdeenshire. It is clear that the new material culture was linked integrally to the lifepaths introduced from Continental Europe and the uptake of farming (Whittle *et al*. 2011, 876)

Considerable knowledge is needed to procure raw materials, make the pots and then fire them and it may be that not everyone in a community held this extensive knowledge required to produce pottery. The spread of this knowledge may have passed between communities, for example, through 'marriage' exchanges. This investment of time and effort into making pottery may have meant that it was an activity only undertaken at certain times of year, perhaps seasonally or perhaps when communities came together to partake in the construction or renewal of monuments (Cummings 2017, 64).

The 'Harlestone Park' assemblage contains vessels that may have facilitated the preparation of more food than was required by a small family unit and it is possible that their use was associated with feasting events that took place when communities gathered together.

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within woodland habitats (Deegan 2008a, 46). Mellars (1976) estimated that strategic and controlled burning could nearly double plant and animal productivity. Such clearings, when maintained, would have encouraged the growth of edible plants and provided browse for wild animals within a more open woodland canopy (Zvelebil 1994, 49). The first evidence for the exploitation of domesticated animals and plants appears during the earlier Neolithic (Myers 2026). It has been argued that the emergence of farming during this period was a direct response to climate crises (Gronenborn 2009), although this societal shift was probably influenced by various environmental and economic changes (Cayless and Tipping 2002).

Land clearance represents one of the major features of the Mesolithic to Neolithic transition (Woodbridge *et al.* 2014). Excavation at Burton Latimer, 22km north-east of the site, revealed numerous burnt-out tree-throw holes, suggestive of the deliberate pulling, felling and burning of trees. Radiocarbon dating of one such feature indicates that clearance took place during the transitional Late Mesolithic to Early Neolithic period, between 4904 and 4714 BC (Foundations Archaeology 2000, 11–12). Comparable Mesolithic to Early Neolithic radiocarbon dates were obtained from a dense group of burnt tree-throw holes found at Irthlingborough, 24km north-east of the site, and well-preserved worked flints were found associated with these features (Healy *et al.* 2007, 51). Similarly, pollen analysis from Wellingborough suggests that deforestation of the slopes of the River Nene had already started by the Middle to Late Neolithic (Brown and Meadows 1997, 190).

This contrasts with the wood charcoal assemblages recovered from Harlestone Park, which were all dominated by oak, with smaller components of hawthorn group and traces of hazel (Challinor, Appendix A3.5). These assemblages are typical of deposits of waste fuelwood from domestic use, with species likely chosen for their thermal properties, to produce high heat. These resources were probably gathered locally, suggesting that the site sat within a landscape of mixed deciduous woodland. The charcoal assemblage from pit 11124 contained slow-grown oak heartwood, suggesting that mature trees developed slowly in suboptimal conditions, such as in strongly competitive or poor environmental conditions. This information has been reported on by Dana Challinor in Appendix A3.5. The small number of open country molluscs recovered from pit 20174 may suggest some small-scale land clearance, though a lack of pollen data from Harlestone Park means this cannot be corroborated further.

Animals would have formed a key component of the Mesolithic lifestyle, both for food and as sources of materials. Large mammals available for hunting at this time would have included red and roe deer, wild pig and aurochs, with smaller mammals, birds, fish and shellfish also providing elements of the diet (Schulting 2008, 91; Cummings and Harris 2011, 365). Mesolithic faunal assemblages are rarely recovered in Britain, although occasional well-preserved assemblages such as that from Starr Carr (Legge and Rowley-Conwy 1988) have provided vital evidence for hunting and butchery practices. In approximately 4000 BC domesticated cattle, pigs and sheep/goat were introduced to Britain from Europe (Cummings and Harris 2011, 366). As with the Mesolithic period, faunal evidence for the Early Neolithic in Northamptonshire is rare, with animal bone present in only small quantities at most sites, limiting what can be said about land-use and diet (Chapman 2000, 9). The small quantity of unidentifiable animal bone recovered from Neolithic features at Harlestone Park provides little further information about the diet and/or economy of the site's inhabitants.

Similarly, very little can be said regarding other wild food sources; evidence for the herbivorous component of the Mesolithic diet is sparse due to generally poor organic preservation at Mesolithic sites. However, there is evidence to suggest that a range of edible fruits, nuts, berries, plants, fungi and roots was present in the landscape (Zvelebil 1994) that was probably exploited in the Mesolithic and continued to be so into the Neolithic. The Early Neolithic pits at Harlestone Park produced large charred plant assemblages, rich in hazelnut shell fragments and cereal remains and indicative of dumps of domestic hearth waste. The predominance of hazelnut shell fragments has been noted at other Neolithic deposits in southern Britain, including nearby at Saxon Rise Brixworth, Northamptonshire (Wyles 2023, 219), probably indicating exploitation and general reliance on wild food resources as significant elements of the diet at this time (Moffett *et al.* 1989; Stevens 2007; Robinson 2000).

Notably the cereal remains assemblages from Harlestone Park were dominated by grain fragments rather than chaff elements. This could suggest that the deposits represent processed assemblages, although as cereal grains are more robust than chaff it is possible that chaff simply has not survived. The cereal remains present include emmer wheat, spelt wheat and barley. Emmer is the typical wheat species for this period in this area (Greig 1991), although spelt wheat has not been securely dated from Early Neolithic deposits in southern Britain, being more commonly identified in Bronze Age deposits. It is therefore likely that the tentatively identified spelt wheat recovered from pit 12170 represents post-depositional movement within the deposit (Pelling *et al.* 2015) rather than an unusually early occurrence of the grain.

The worked flint recovered from the site was from a variety of flint sources, including Bullhead flint derived from Kent or Surrey (Shepherd 1972, 114) and Reading Formation flint from the Thames Basin (Anderson-Whymark 2013, 150; Butler 2005, 21; Sommerville, Appendix A2.9) and some of the assemblage must

have been imported from a considerable distance. The nearest chalk bedrock is situated 46km to the south-east, although whether this was used as a source is uncertain. The imported flint is testament to the migratory lifestyles of the Mesolithic and earlier Neolithic periods and the importance of communication networks to enable the supply of good quality raw materials. However, the presence of cortex on over a fifth of the worked flint assemblage also demonstrates reliance on secondary flint sources for the production of some objects. Deposits such as the Oadby Till Member, situated less than 1km to the north, south and east of the site (BGS 2026a) potentially formed the source of much of the raw material, while flints from the nearby river gravels may also have been utilised. Indeed, it is common for lithic assemblages from Northamptonshire to be composed mainly of flints derived from local gravel deposits, as at Briar Hill (Bamford 1985), Dallington (Chapman 2019a) and Upton (Walker and Maull 2010).

Chapter 3:
Period 2 Middle Bronze Age (1500 BC–1100 BC)

Introduction and dating

Evidence for Middle Bronze Age activity on the site included two groups of cremation burials, represented by a cremation cemetery (A) in Area A and a smaller, dispersed group of cremation burials in Area B (cremation group B) (Fig. 3.1). A small number of pits without cremated human bone were situated near to the burial groups and are considered to form associated activity (Fig. 3.1). In addition to the burials a rare copper-alloy barbed-and-tanged arrowhead (Ra. 3) of Middle Bronze age date was recovered from the topsoil in Area A (see Highlight 3; Fig. 3.1).

Two of the burials in cemetery A contained sherds of Middle Bronze Age pottery, which potentially corresponded to cinerary urns associated with the burials. Though diagnostic sherds were absent, a Middle Bronze Age date is considered most likely for the pottery, based on the fabrics and characteristics of firing (Banks, Appendix A2.1). Similarly, a single grog-tempered sherd was recovered from an additional cremation burial, which is considered to be contemporaneous, although due to its small size and lack of diagnostic features dating remains somewhat uncertain (Banks, Appendix A2.1).

The Middle Bronze Age dating of the cremation cemetery in Area A was refined by radiocarbon analysis undertaken on suitable samples of cremated human bone and charcoal recovered from five cremation burials (Table 3.1; Fig. 3.2). Although the dispersed cremation burials in group B were distinctly different to the tightly clustered burials identified in Area A, they are considered broadly contemporaneous. This was confirmed by the results of radiocarbon dating carried out on three samples of cremated human bone (Table 3.1). An additional sample of wood charcoal from a pit (21195) that appeared to form cremation-related activity also returned a Middle Bronze Age date (Table 3.1).

Bayesian modelling of the radiocarbon results from the eight cremation burials and associated pit found that they were statistically consistent and so could result from the same radiocarbon age. This suggests that the activity did not occur over a protracted period but probably took place over a relatively short timespan across both areas (Hamilton, Appendix A3.9). The Bayesian model displays good agreement, estimating that the Middle Bronze Age cremation activity in Area A began in *1505–1315 cal BC* and in Area B in *1535–1300 cal BC*, providing a 62% probability that activity began in Area A prior to Area B (Hamilton, Appendix A3.9). The modelling estimates that the cremations in Area A ended in *1420–1250 cal BC* and in Area B in *1405–1155 cal BC*, providing a 77% probability that the cremation activity ended in Area A prior to Area B (Hamilton, Appendix A3.9). These dates provide a chronology for the cremation activity in both areas, which tentatively suggests that the burials in Area A began and ended prior to those in Area B, although the probabilities for this sequence are relatively low (Hamilton, Appendix A3.9).

Archaeological evidence

Cremation cemetery A (Figs 3.3–3.6)

In the centre of Area A, a small cremation cemetery (A) was formed by three clusters of cremation burials (cremation burial groups (CBG) 1–3) within an area approximately 14.5m by 7m in extent (Fig. 3.3). Of the 19 features within the cemetery 16 produced cremated bone (0.1–624g), although some in very low quantities and not confirmed as human (Table 3.2). However, due to their spatial proximity and similar morphology and fills, all features containing cremated bone are interpreted as cremation burials. Three additional features (11095, 11122 and 11147; Table 3.2) did not contain cremated bone and are interpreted as pits.

The cremation burial pits were circular and of a similar size (0.2–0.58m in diameter) and depth (0.04–0.28m; Table 3.2), although many of the features had been truncated. Despite this, the amount of cremated bone

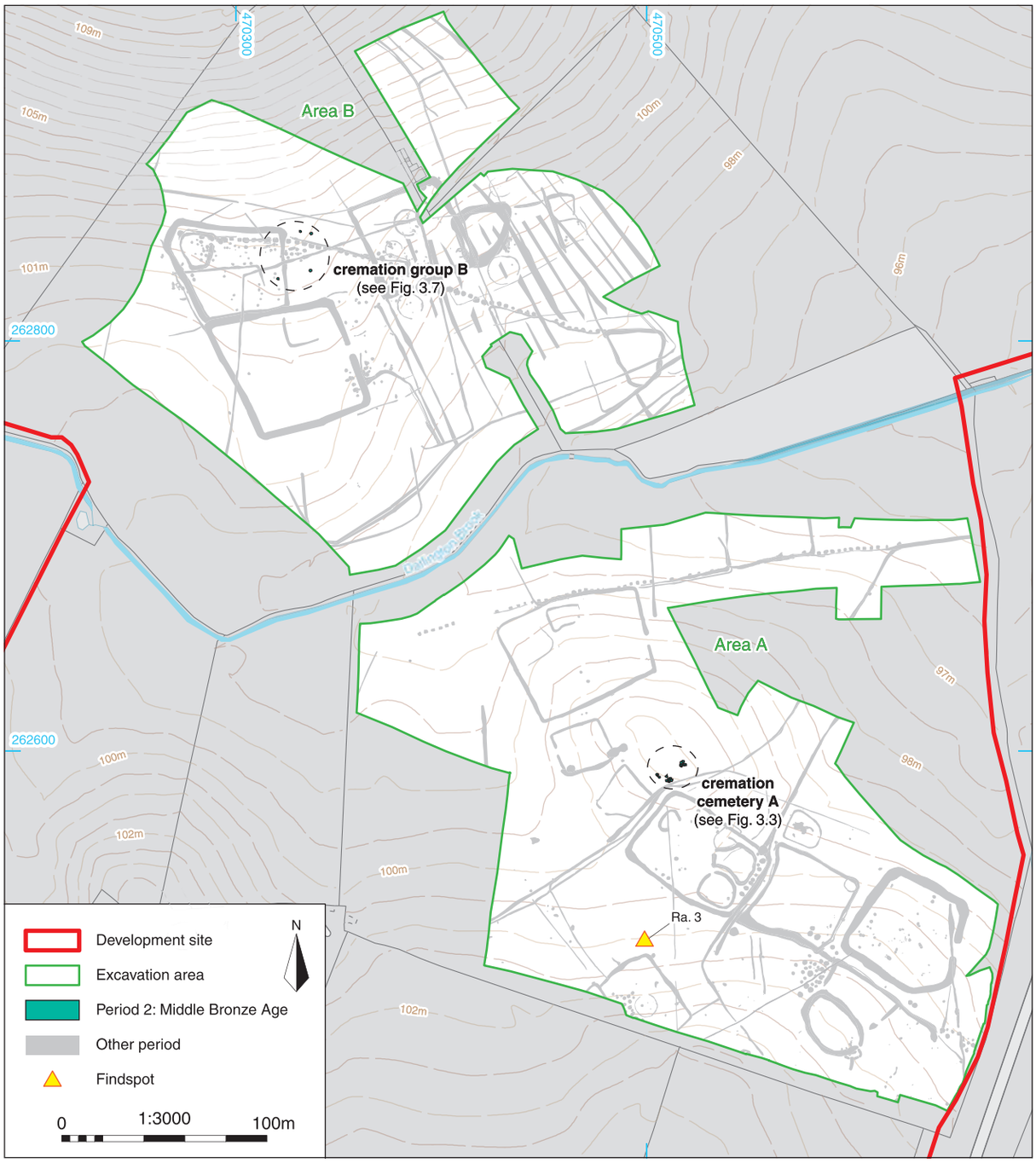


Fig. 3.1 Location and plan of Middle Bronze Age (Period 2) features in Areas A and B, overlying a topography map of the site

recovered from the features did not appear to correlate to the depth of the feature; for example, the greatest quantity of cremated bone (624.2g) was recovered from burial 11175, which was only 0.08m deep, whereas the deepest feature (burial 11171, 0.28m deep) produced only 3.8g of cremated bone. Full details of the Middle Bronze Age human bone assemblage are contained within Sharon Clough's report in Appendix A3.1.

Each burial comprised a pit with irregular to concave sides and an irregular base (for example cremation burials 11175 and 11112; Figs 3.4–3.6, Sections CC and DD). Three of the cremation burials (11099, 11129 and 11175) were probably urned, as indicated by sherds of Middle Bronze Age pottery (Banks, Appendix A2.1). The best evidence for this was cremation burial 11175 (Figs 3.5 and 3.6), although this too had suffered

Table 3.1: Summary of radiocarbon dating results for Middle Bronze Age features

Feature/ context	SUERC code	Material	Radiocarbon age (BP)	Calibrated radiocarbon age (95.4% probability)
Cremation cemetery A				
Context 11113 Cremation burial 11112	SUERC-122136	Cremated human bone	3138 ± 25	1496–1474 cal BC (6.3%) 1460–1379 cal BC (74.2%) 1345–1307 cal BC (15%)
Context 11121 Cremation burial 11120	SUERC-130093	Charcoal: hazel (*Corylus avellana*)	3107 ± 22	1434–1368 cal BC (52.5%) 1357–1296 cal BC (43%)
Context 11130 Cremation burial 11129	SUERC-130094	Charcoal: hazel (*Corylus avellana*)	3079 ± 28	1418–1266 cal BC (95.4%)
Context 11177 Cremation burial 11175	SUERC-122135	Cremated human bone	3129 ± 25	1492–1481 cal BC (2.2%) 1451–1376 cal BC (69.5%) 1348–1304 cal BC (23.7%)
Context 11195 Cremation burial 11194	SUERC-130095	Charcoal: alder (*Alnus* sp.)	3087 ± 24	1420–1279 cal BC (95.4%)
Cremation group B				
Context 20158 Cremation burial 20157	SUERC-122134	Cremated human bone	3093 ± 25	1424–1283 cal BC (95.4%)
Context 20160 Cremation burial 20159	SUERC-122924	Cremated human bone	3072 ±28	1417–1267 cal BC (95.4%)
Context 20881 Cremation burial 20880	SUERC-122133	Cremated human bone	3051 ± 25	1402–1256 cal BC (89.6%) 1248–1226 cal BC (5.9%)
Context 21195 Pit 21194	SUERC-130096	Charcoal: blackthorn (*Prunus spinosa*)	3113 ± 24	1441–1368 cal BC (56.9%) 1356–1296 cal BC (38.6%)

truncation, leaving only the base of the vessel intact. Its position does, however, indicate that this urn had been placed upright at the base of the burial pit.

Some of the cremation burials were seemingly arranged in pairs, particularly in CBG3 (Fig. 3.3). It is notable that within each of these pairings one burial contained more cremated bone than the other. For example, cremation burial 11112 contained 122g of cremated bone, whereas burial 11120 only had 19g (Clough, Appendix A3.1). However, the reasons for this were not apparent from the available data. There was little intercutting between the burials, suggesting that the locations of the graves may have been marked above ground to prevent disturbance (Clough, Appendix A3.1).

Generally, the low weight and fragmentary condition of the bone recovered from the burials hindered identification of skeletal elements and only ten of the burials could tentatively be assigned to an age group (Table 3.2; Clough, Appendix A3.1). The evidence we have suggests that the cemetery was used for the burial of a range of age groups, with a potential neonate, up to four possible children and five adults identified. It was not possible to establish the sex of any of the individuals within the cemetery (Clough, Appendix A3.1).

All the cremated bone was fully white in colour, suggesting that the pyre was sufficiently hot for long enough to fully calcine the bone (Clough, Appendix A3.1). The wood charcoal recovered from the cremation burials was dominated by oak and/or alder, with a smaller component of hazel and other trace species (Challinor, Appendix A3.5). The burial pits also produced varying quantities of charred plant remains, which included tuber fragments and seeds of vetch/wild pea (*Vicia/Lathyrus* sp. L.) (Wyles, Appendix A3.4). Cremation burials 11112 and 11120 also produced hawthorn (*Crataegus monogyna*) haws and false oat-grass (*Arrhenatherum elatius* var. *bulbosum*) tuber fragments (Wyles, Appendix A3.4).

Other than the pottery mentioned above, the only other artefact recovered from the burials was a worked flint flake from cremation burial 11099. There was no evidence to suggest that the item had been heat-affected, suggesting it did not form a pyre good; furthermore, the quantity of residual flint recovered from other features at the site suggests the flint represents similar material rather than a deliberate deposition.

Pits 11095, 11122 and 11147 (Fig. 3.3; Table 3.2) were devoid of cremated human bone but were of comparable size (approximately 0.3m in diameter) and depth (0.05–0.15m deep) to the cremation pits in the cemetery and were situated within the burial clusters. It is unclear whether these pits originally contained cremation burials that were lost to truncation or whether

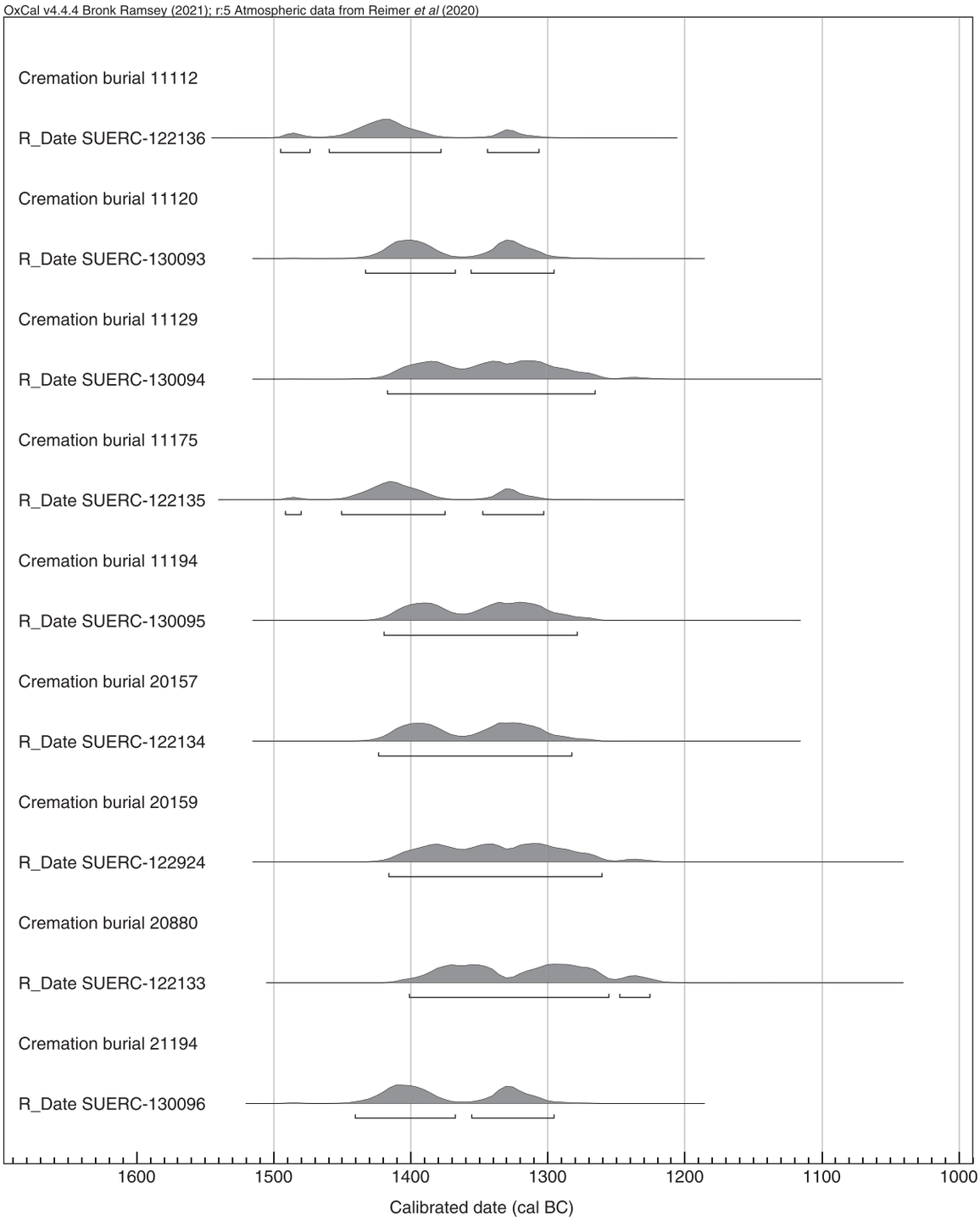


Fig. 3.2 Calibrated radiocarbon dates for the Middle Bronze Age cremation burials

the lack of bone was deliberate; it is possible that the pits were dug to contain cremation deposits but were never used. The distribution of these three features, with one pit associated with each burial cluster, may indicate that they represented some form of burial marker.

Cremation group B (Figs 3.7–3.10)

Cremation group B, situated in the northern half of Area B, comprised three cremation burials (20157, 20159 and 20880) and a pit (21194) (Fig. 3.7; Table 3.3). No pottery was associated with any of the burials and it is

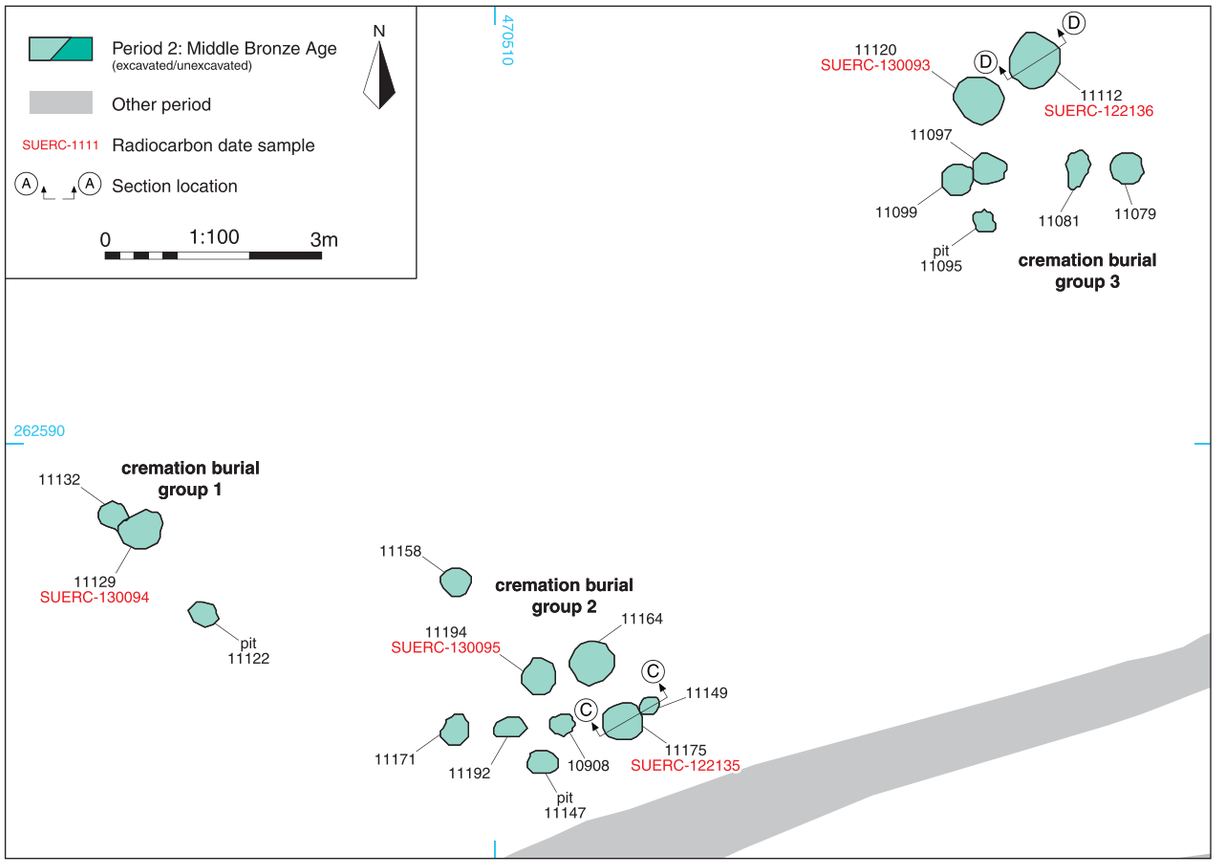


Fig. 3.3 Location and plan of Middle Bronze Age (Period 2) cremation cemetery A

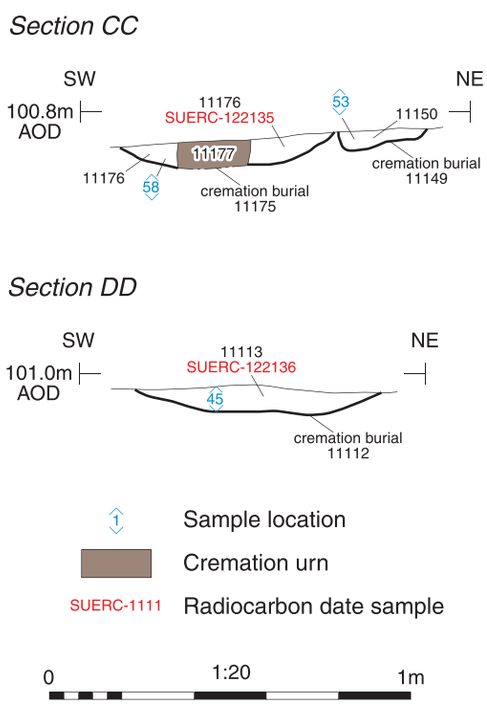


Fig. 3.4 Sections CC and DD of cremation burials 11112, 11149 and 11175

Fig. 3.5 Photograph of cremation burials 11175 (with partially intact possible cremation urn) and 11149, looking north-west (0.4m scale)

Table 3.2: Summary of Middle Bronze Age cremation burials and associated features within cemetery A

Cut no.	Diameter (m)	Depth (m)	Bone weight (g)	Age	Artefacts (count: weight)
CBG1					
11129	0.54	0.18	13.1	Adult	MBA pottery (2:12g)
11132	0.38	0.1	14.1	Adult	–
CBG2					
11149	0.25	0.06	0.9	–	–
11158	0.41	0.12	0.8	–	–
11164	0.54	0.17	3.2	–	–
11171	0.37	0.28	3.8	–	–
11175	0.58	0.08	624.2	Adult	MBA pottery (18:29g) (Ra. 18)
11192	0.47	0.04	3.2	Child	–
11194	0.45	0.08	21.9	?small adult or child	–
10908	0.23	0.11	<0.1	–	–
CBG3					
11079	0.47	0.04	4	?neonate	–
11081	0.58	0.08	12	?child	–
11097	0.46	0.12	4.5	–	–
11099	0.47	0.09	50	?child	MBA pottery (32:40g) (incl. Ra. 17) Worked flint flake (1:0.3g)
11112	0.68	0.08	122.8	Adult	–
11120	0.58	0.07	19.3	Adult	–
Pits					
11095	0.3	0.14	0	–	–
11122	0.33	0.15	0	–	–
11147	0.35	0.05	0	–	–

Key: CBG = Cremation burial group; MBA = Middle Bronze Age; LP = Late prehistoric; E–MIA = Early to Middle Iron Age

Fig. 3.6 Photograph of cremation burial 11175 under excavation

assumed that they were unurned. Unlike the cremation burials in Area A, which formed tight clusters, those in Area B were fewer in number and more dispersed, spread across an area measuring approximately 16m by 23m in extent. The features also showed greater variability in size (measuring 0.26–0.76m in length and 0.23–0.9m in width; Table 3.3), although they were generally shallow (0.05–0.17m deep), with gently sloping sides and rounded to irregular bases (for example, cremation burials 20157 and 20880; Figs 3.8–3.10, Sections EE and FF).

The weight of the cremated bone in each of the burials (81.9–670.6g) was notably greater than in most of the burials in cremation cemetery A, resulting in the identification of more skeletal fragments and allowing two of the individuals to be identified as adults (Table 3.3; Clough, Appendix A3.1). As with the Area A cremation burials, no bone fragments enabled identification of the sex of any of the individuals (Clough, Appendix A3.1). The majority of the bone

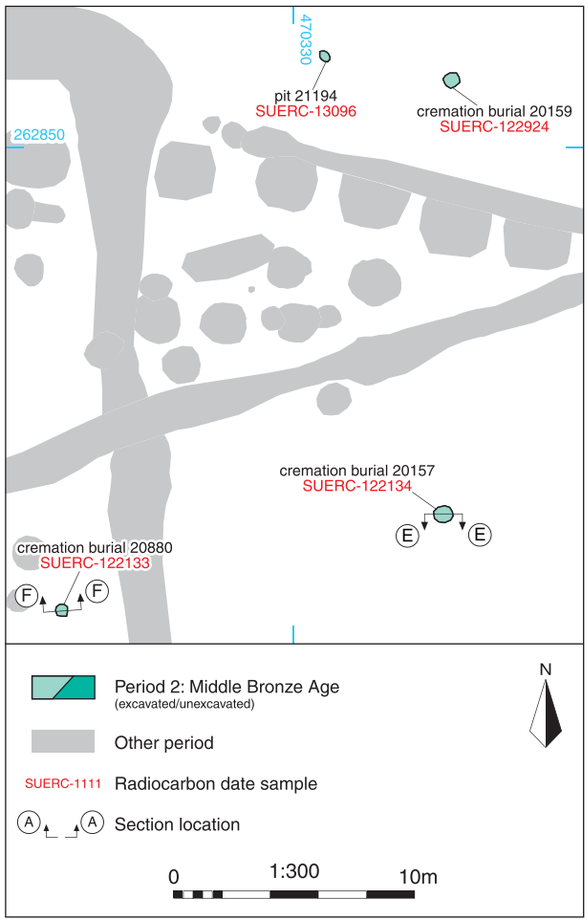


Fig. 3.7 Location and plan of Middle Bronze Age (Period 2) cremation group B

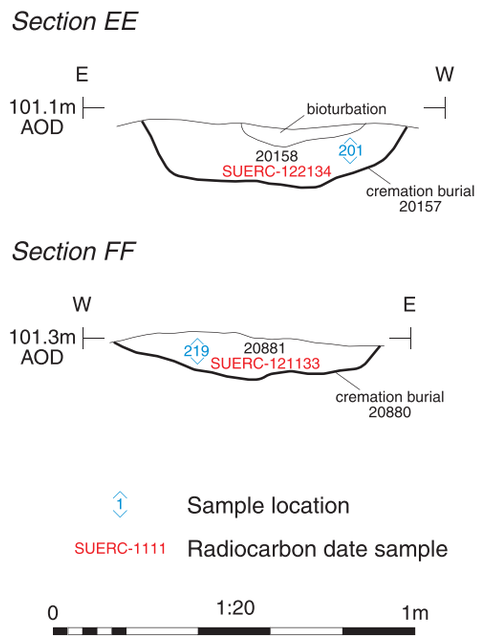


Fig. 3.8 Sections EE and FF of cremation burials 20157 and 20880

Fig. 3.9 Photograph of cremation burial 20157, looking south (0.4m scale)

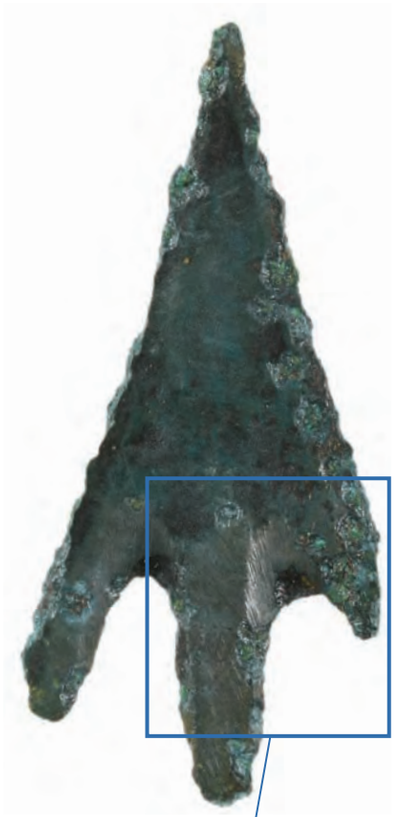
Fig. 3.10 Photograph of cremation burial 20880, looking north (0.5m scale)

was once more fully white in colour, again indicating high temperatures achieved during cremation. Only one worked flint flake was recovered, from cremation burial 20880, which probably represents residual material.

The wood charcoal assemblage recovered from the cremation group B features was dominated by oak, with no trace of the alder that formed large proportions of the assemblages from the Area A cremation burials (Challinor, Appendix A3.5). Low levels of plant remains were also recovered from the features, which included barley (*Hordeum vulgare*) and wheat (*Triticum* sp.) grains, and false oat-grass tuber fragments (Wyles, Appendix A3.4).

While pit 21194 was situated within the vicinity of the cremation burial pits (Fig. 3.7) and was of comparable size (approximately 0.3m in diameter) and depth (0.15m deep) to them, it did not contain cremated human bone. It did, however, yield a large quantity of charcoal, which as in the other pits, was dominated by oak, with traces of hazel (Challinor, Appendix A3.5). A radiocarbon date derived from charcoal from the pit (Table 3.1) indicates a Middle Bronze Age date, suggesting contemporaneity

Bronze Age Barbed-and-Tanged Arrowhead



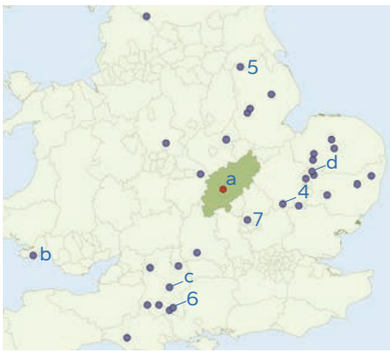
2 Detail of arrowhead showing filing/finishing marks (not to scale)

1 Copper alloy arrowhead (Ra. 3) from Area A

The excavations produced a rare type of metal item, which represents both the first example to be found during archaeological work and the only one currently known from Northamptonshire. Comprising a copper alloy barbed-and-tanged arrowhead (1), this object was found unstratified – though spatially located very close to Period 4 Phase 4.2 (Middle to Late Iron Age) enclosure A8. While its presence could relate to occupation of the wider area during the Middle Bronze Age (MBA), the possibility of long-term curation and re-deposition during the Iron Age is not out of the question. Instances of this practice are known, though admittedly rare when compared against the sum total of excavated sites (Hingley 2009, 146–147, table 1).

With its elongated, triangular appearance, Ra. 3 is morphologically similar to Early Bronze Age (EBA)/Beaker flint arrowheads of Green's Sutton C and Ballyclare C types (Green 1980, 121–122, figs 44–45), used until *c.* 1500 BC (Ballin 2021, 31, fig. 42). One face is flatter and noticeably more rough than the other, suggesting open-mould casting. Numerous striations visible around the tang and barbs on both faces likely indicate secondary working processes relating to finishing (2).

The presence of copper alloy barbed-and-tanged arrowheads in Britain has only relatively recently been accepted as a genuine archaeological phenomenon. Historically, the idea that these objects represented losses of European examples brought over by collectors and antiquarians was seriously mooted (see Needham in Brundle 2022). While the latter has now been debunked, whether they are indigenously manufactured or imported nevertheless remains a valid question (ibid.). Indeed, barbed-and-tanged copper alloy arrowheads are attested during the Bronze Ages of both France and Germany, most dating several centuries either side of *c.* 1500 BC (Mercer 1970, 202).



3 Distribution map of all known examples:
- a Harlestone Park
- b Penard/Langrove, South Wales
- c Water Dean Bottom, Wiltshire
- d Lakenheath, Suffolk

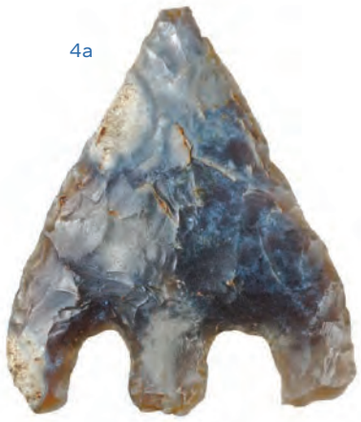
The first recorded British example was encountered as part of the hoard found at Penard/Langrove, South Wales (3b), in 1827 (Crawford and Wheeler 1921, 137–138; O'Connor 1980, 102–103; Grimes 1939). This deposit was buried at the very end of the MBA, *c.* 1275–1140 BC. Another early find was made in 1925 at Water Dean Bottom on Salisbury Plain (3c) (Cunnington 1926, 182), while a poorly provenanced antiquarian piece from the 'Fenton collection' was purportedly recovered in the early 20th century near Lakenheath, Suffolk (3d) (Pendleton 1999, 164, no. 323; Cunnington 1926, 182). The Penard/Langrove find has led to these objects being assigned a MBA date, though one might question whether in fact their origins lie in the EBA given that many mirror the forms of various contemporary flint barbed-and-tanged arrowheads (4-4a). If not contemporaneous, another possibility is that flint examples encountered incidentally might have been copied centuries later. However, arrowheads are generally functional objects with only so many potential designs, so the possibility that this resemblance is coincidental cannot be discounted.

For a long time, the three latter examples represented the only British finds of this object type. However, the current corpus stands at over 30 pieces, which overwhelmingly comprise metal-detecting finds reported to the Portable Antiquities Scheme (PAS) since the early 2000s. Figure (3) shows the distribution of all known examples, with concentrations evident in both Wiltshire and East Anglia. Other than a few scattered finds from Lincolnshire and the Midlands, their focus is firmly located in eastern/south-western England. Only one is known north of the Humber, with virtually none reported from western Britain or Wales (excluding the Penard/Langrove example). It is interesting to consider whether this distributive pattern is genuine, or merely reflects regional biases relating to metal-detecting in terms of hobby prevalence or reporting levels (Robbins 2012; 2013; 2014). Nevertheless, it is worth noting that both eastern and south-western England were core zones for metalwork deposition during the MBA (Griffiths 2023, 186–188, see also figs 4–5).

That copper alloy barbed-and-tanged arrowheads are now known quite widely from Britain (5-7), albeit in small numbers, adds weight to the suggestion that local manufacture was taking place. Interestingly, this seems to have taken place both 'organically' and via the adaption of other object types. Indeed, some of those found here appear to have been modified or re-purposed from tip fragments of spears or rapiers (Pendleton 1999, 33).

4

4a



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Similar arrowhead examples (Fig. 3, 4-7):
- 4 Meldreth, Cambridgeshire PAS ID: NARC-7ED438
- 4a Comparative EBA flint example PAS ID: BH-6BC618
- 5 Temple Bruer, North Lincolnshire PAS ID: SWYOR-453A2D
- 6 Salisbury, Wiltshire PAS ID: WILT-807272
- 7 Battlesden, Central Bedfordshire PAS ID: BH-E49DD8

5

6

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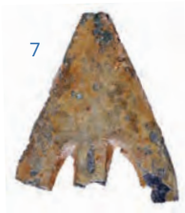

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Alex Bliss

Table 3.3: Summary of Middle Bronze Age burials and associated feature within cremation group B

Cut no.	Diameter (m)	Depth (m)	Bone weight (g)	Age	Artefacts (count: weight)
Cremation burials					
20157	0.9	0.17	212.1	Adult	–
20159	0.6	0.1	81.9	–	–
20880	0.76	0.13	670.6	Adult	Worked flint flake (1: 0.2g)
Pit					
21194	0.26	0.15	0	–	–

and probable association with the other pits in the burial group, possibly representing a truncated cremation burial or other cremation-related feature.

Discussion

(incorporating analysis by Pete Banks, Sharon Clough, Dana Challinor and Sarah Wyles)

Aspects of society

Evidence for the Middle Bronze Age period within the East Midlands largely comprises finds of metalwork, pottery and lithics, with definitive evidence for settlement and burial sites being rare (Deegan 2008a, 58). This dispersed and ephemeral evidence has resulted in a paucity of recorded Middle Bronze Age sites across the region, with only a small number known from Northamptonshire (Luke 2016, 142), although the application of radiocarbon dating has recently seen the number of sites identified begin to increase. A notable example from Thrapston, Northamptonshire, 32km north of Harlestone Park, included an enclosure, an associated settlement and small cremation cemetery. Few artefacts were recovered, although several radiocarbon dates enabled the site to be dated to the Middle to Late Bronze Age (Luke and Guy 2022).

No Middle Bronze Age features other than the cremation burials were identified at Harlestone Park, although contemporaneous activity was identified between 500 and 800m to the north-east, in Sandy Lane excavation Areas 1 and 3 (Garland *et al.* 2019, 78). There, evidence included the remains of a small, potentially domestic, circular enclosure and accompanying pits in Area 3, radiocarbon dated to the Early to Middle Bronze Age, along with dispersed pits and a cremation burial of Middle Bronze Age date in Area 1 (Fig. 1.7; Garland *et al.* 2019, 78). Known Middle to Late Bronze Age settlements in southern Britain typically consist of several unenclosed post-built roundhouses, which are believed to have been occupied by single household groups (Brück 2001a, 149). These roundhouses were organised into small groups or dispersed among fields and were often accompanied by field or settlement boundaries that appear to have developed contemporaneously (Darvill 2009, 211; Roberts 2013, 538; Yates 2007, 18).

Ritual and funerary practices

Location of cemeteries in the landscape

During the Middle Bronze Age the construction and use of monumental mortuary architecture synonymous with the Neolithic and Early Bronze Age periods, such as burial mounds, became less common (R. Bradley 2007, 202; Darvill 2009, 222). Instead, the burial of the dead within 'flat' cremation cemeteries, defined by Caswell and Roberts (2018, 334) as having no features visible on the ground surface, became the prevalent mortuary practice (Clay 2026). The lack of evidence for burial mounds at Harlestone Park, such as an associated ring ditch, suggests that burial groups A and B fall within this category.

Cremation cemeteries were not a new development and were in use in many upland areas of Ireland and Britain from the Neolithic period onward, often in association with monuments such as ring cairns or stone circles (e.g. Eaglestone Flat, Derbyshire (Barnatt 1994) and Forteviot, Scotland (Noble and Brophy 2017)). Middle Bronze Age cremation cemeteries are found throughout Britain but are more numerous across central and southern England (Caswell and Roberts 2018, 334–6, fig. 2). Within Northamptonshire, examples of comparable size to those at Harlestone Park include Briar Hill (21 burials; Bamford 1985), Chapel Brampton (28 burials; Moore 1971, 1973), Kelmarsh (19 burials; Soden and Dix 1995) and Redlands Farm, Stanwick (16 burials; Keevil 1992; Harding and Healy 2007). However, several sites have been found to contain smaller groups, such as the six cremation burials at Pineham Barn (Preece 2018, 15–16), as well as individual burials at Upton Park and Sandy Lane (Wolframm-Murray *et al.* 2023, 17–18; Garland *et al.* 2019, 78)

The location of Middle Bronze Age cremation cemeteries within the landscape is a topic of much discussion (e.g. Bradley 1981; Ellison 1980; Caswell and Roberts 2018). Some appear to have developed around

existing monuments in the landscape, such as burial mounds (e.g. Redlands Farm) or causewayed enclosures (e.g. Briar Hill). This may have been motivated by a desire to establish or reinforce the genealogical lineage of a community, potentially related to status and landownership (Holst 2013, 112) and may well correlate with an increased prevalence of field systems during the Middle Bronze Age. Where a connection to a previous monument can be identified, later burials are generally organised around the existing mortuary features, indicating continued respect or veneration either for the monument or for the previously deceased. For example, the cremation burials at Briar Hill were clustered on the south-western side of the causewayed enclosure (Bamford 1985, 3) and those at Redlands Farm were clustered at the north-eastern end of a Long Barrow (P. Bradley 2007, 82–7). No monuments were found at Harlestone Park, however it is important to note that cremation cemetery A was located on a distinct high point within the landscape (approximately 101m aOD; Fig. 3.1). At the end of the Neolithic and into the Bronze Age period there was a tendency for monument building to shift away from valley bottoms to more prominent valley sides (Deegan 2008a, 73). It is possible that cemetery A's elevated position in the landscape afforded it enhanced visibility, enabling it to fulfil a similar function as other monuments, strengthening physical and temporal links between communities and certain parts of the landscape.

There is also some suggestion that cremation burials were associated with settlement sites, often being located within a few hundred metres of one another (R. Bradley 2007, 185; Darvill 2009, 116–17). Cremation cemetery A was situated 500m from the enclosure identified in Area 3 of the Sandy Lane excavation (Garland e*t al.* 2019, 78) and may have been established by the same community, creating a close connection to the living population. The cremation cemetery at Pineham Barn was surrounded by small groups of pits that were interpreted as possible remains of short-lived settlement (Preece 2018, 62). Examples from further afield include South Lodge, Dorset (Barrett *et al.* 1991) and Itford Hill, Sussex (Holden 1972), where cemeteries were located less than 100m from a settlement. At Itford Hill, a sherd of pottery recovered from one of the houses corresponded to a damaged globular vessel from a burial within the cremation cemetery (Holden 1972, 110), suggesting a direct social and practical connection between the funerary events in the cemetery and the everyday settlement occupation. However, in many instances there is no obvious connection with pre-existing monuments and Caswell and Roberts (2018) have argued that a large proportion of burials are situated over 1km away from settlement. This variation suggests that there were multiple factors determining the choice of location for burial of the dead (Caswell and Roberts 2018, 343–6).

Cemetery layout and burial composition

Caswell and Roberts (2018) have observed that Middle Bronze Age cremation cemeteries are generally small, and burial clusters containing more than 25 individuals are rare (Ellison 1980, 122). This aligns well with most of the evidence from Northamptonshire, with Redlands Farm (Keevil 1992; Harding and Healy 2007), Kelmarsh (Soden and Dix 1995) and Briar Hill (Bamford 1985) each containing fewer than 25 individuals (16, 19 and 21 burials respectively). Burials often form clusters of 10–25 individuals, with all ages and sexes usually represented, and with no distinct spatial patterning by demographic group (Ellison 1980, 124). The burials from Areas A and B fit with this pattern, with group B containing three cremation burials and cremation cemetery A containing 16. Cemeteries of this size have previously been interpreted as representing familial units but recent studies have highlighted that they are far smaller than would be expected for an entire community and it is apparent that a large proportion of the Middle Bronze Age population did not receive an archaeologically visible burial (Caswell and Roberts 2018, 332–3).

Arrangements of tightly grouped burials, similar to those in cemetery A, have been observed at Pineham Barn (Preece 2018, 15–16), Briar Hill (Bamford 1985), Locks Heath, Hampshire (CA 2016c) and Latch Farm, Hampshire (Piggott 1938). There could be a number of explanations for these arrangements, including the extended use of the cemeteries over long periods of time; deliberate acts intended to represent ancestral connections or accidental truncations due to the burials not being marked. The general lack of intercutting between the burials within cremation cemetery A may suggest the presence of some form of above ground marker, such as a post or capping stone, which persisted long enough to enable earlier burials to be avoided (Clough, Appendix A3.1). For instance, some of the urns at Latch Farm were covered by capstones (Piggott 1938, 175) and small sandstone lumps extended in a line above the urns at Simons Ground F, Dorset (White 1982, 22), demarcating the location of the burials. No evidence for capping stones was found at Harlestone Park but it is possible that the associated pits, notably distributed one per burial cluster, could in fact represent post-settings for burial markers.

At Harlestone Park the majority of the burials produced significantly less than 100g of cremated bone. This pattern is not unusual, and it is rare for Bronze Age cremation burials to contain enough bone to equate to an entire person (Rebay-Salisbury 2010, 64; Thompson 2015a, 2). To put this into perspective, modern cremations typically weigh between 1000–3600g for an adult, and 500g for a child (McKinley 2000a, 404). It has been suggested that the treatment of the body after death could take many forms during the Bronze Age and there is evidence for the curation and manipulation

of human remains, with deposition of part of the body being just one aspect of post-mortem social practices (Garwood 2011, 421; Brück and Booth 2022). Though difficult to quantify, such low-weight cremated bone deposits of less than 100g are often interpreted as symbolic burials including only a proportion or 'token' deposit of the cremated remains (McKinley 2013, 154–5). Similar low burial weights were recorded at Sandy Lane, where 88g of bone was recovered from cremation burial 515 (Garland *et al.* 2019, 81), and at Pineham Barn and Locks Heath, with many of the burials producing 10g to 67g of cremated bone (Preece 2018, 16, table 2; CA 2016c, 20). Factors such as local ground conditions might have contributed to the low weight of bone at Harlestone Park; notably, no spongy or cortical bone was recovered from the cremation burials, which is susceptible to destruction by environmental factors (Clough, Appendix A3.1). The lack of an associated urn for the majority of the burials probably also had an impact, as vessel would have protected the cremated bone from the surrounding soil conditions, although it is important to note that some of the seemingly unurned burials may have had associated urns that had been removed by subsequent truncation. However, while post-depositional factors may have had some impact on the quantity of bone recovered from the burial pits, the consistently low weights, and absence of a correlation between the depth of the burial pits and size of the bone assemblage, suggests that that the cremated remains at Harlestone Park fit the characteristics of 'token' deposits.

Anatomical evidence can provide insights into the spatial organisation of cemeteries. At Itford Hill, Sussex, both adults and children were buried in the western half of the cemetery but only children were interred in the eastern area (Ellison 1980, 122), while of 21 burials at Briar Hill, none were children (Bamford 1985, 49). The lack of identifiable bone fragments recovered from Harlestone Park limits what can be said about the cremation burials in terms of the individuals represented. Only 12 could be tentatively aged, and the sex could not be determined for any of the individuals. Despite this, tentative patterns can be suggested. It is clear that the burials within cremation cemetery A were separated into three distinct clusters (CBG 1–3), which may be representative of familial or social groupings. There does not appear to be any differentiation of age within the groupings, with both adult and child burials observed in two of the three clusters, thus supporting the familial grouping interpretation. Due to the smaller and more dispersed nature of cremation group B, little can be discerned regarding the spatial arrangement of the burials, though the two southern burials were both probable adults, their relationship to the northern burial of indeterminate age is unclear.

Cremation urns

During the Middle Bronze Age cremated remains were generally placed within coarse pottery vessels of varying regional styles, while others were either unurned or potentially placed within organic containers that have left no archaeological trace (Pollard 2002, 28). Only three burials identified during the fieldwork produced pottery, with cremation burial 11175 producing the best evidence for a potential cremation urn. This may be due to truncation of the burials, which potentially removed any additional urns. It is unclear whether the association with, or lack of, a burial urn was reserved for particular individuals, age groups or sexes. At some sites this appears to have been the case, as at nearby Chapel Brampton, where approximately half of the 28 cremation burials (unidentifiable to age or sex) recovered from the site were interred in bucket urns (Moore 1971, 1–2), while at Eye Kettleby in Leicestershire older adults were buried in urns more commonly than younger individuals (Finn 2011), suggesting that particular burial containers were used for people of different ages. This pattern is not consistently observed within Middle Bronze Age cremation cemeteries more broadly, however, and at Harlestone Park pottery was found in the possible child burial 11099 and adult burials 11129 and 11175.

Pottery from Middle Bronze Age funerary and domestic contexts is often very similar and many vessels used as 'urns' could be classed as storage or cooking vessels if found within a domestic context (Rebay-Salisbury 2010, 68; Calkin 1962, 7). Consequently it is possible that the vessels found within the cemeteries were personal or household items belonging to the deceased, repurposed as containers for the cremated remains. Pottery found in cremation burials at Kimpton, Hampshire seemed to have been deliberately smashed on the pyre before being deposited alongside the cremated bone, as sherds from the same vessel appeared to have been subjected to differing degrees of heat (Brück 2006, 301). This process may be indicative of funerary practices involving the collection and/or destruction of objects retained as symbols of relationships between the living and the dead. Although the pottery assemblage associated with the cremation burials from Harlestone Park was highly fragmented, there was no evidence that the sherds were heat-affected and it is therefore unlikely they had been included on the pyres.

Fuel

As discussed above, both oak and alder charcoal were present within the cremation cemetery A burials. Oak is a highly thermal-efficient fuel source while alder is generally considered a lightweight and poor fuel (Edlin 1949; Warren 2006), although there is increasing evidence that alder was frequently used in the Bronze Age cremation process (Challinor, Appendix A3.5). The widespread evidence for the full calcination of

bone suggests that achieving the thorough cremation of individuals was an important part of funerary rites during this period (Caswell and Roberts 2018, 10; Clough, Appendix A3.1). Dunlop (2004) has observed that children and thin adults are much harder to cremate well due to lower levels of body fat. Consequently, the even white colour of the bone across all of the Period 2 burials at Harlestone Park, which included at least five possible children, implies that the pyres were sufficiently hot and well tended, and that the body may have been turned on the pyre to keep it in the hottest area, with supplementary fuel added when needed (Clough, Appendix A3.1). Moreover, this indicates that the use of alder in the cremation cemetery A burials had been successful in providing sufficiently high calorific temperatures (Challinor, Appendix A3.5). The evidence of fungal decay on some of the wood charcoal used suggests that logs would have been pre-seasoned to provide a high, sustained heat for the cremations (Challinor, Appendix A3.5).

Alder would have grown along the banks of the Dallington Brook and so would have been a locally available resource, although the dominance of oak within some of the assemblages suggests that the use of alder was not necessarily due to a lack of other available wood, as posited at some other sites (e.g. Gale 2000, 347–8). The use of alder in non-cremation contexts seems to be quite low during this period, suggesting that it may have had particular funerary significance (Challinor, Appendix A3.5). It is unclear whether a tentatively observed preference for alder within the adult burials at Harlestone Park is of any significance. Alder was not the dominant taxa in any of 23 Early and Middle Bronze Age cremation burials recorded from Thrapston, Earls Barton; Sandy Lane or Higham Ferrers (Campbell 2007; Challinor 2009, 2017a, 2022a, 2022b). Whether there was any link between the age demographic and the fuel source is therefore uncertain.

Landscape and environment

Environmental material retrieved from funerary contexts typically provides only a limited understanding of the surrounding landscape, its utilisation and site economy and the charred plant and charcoal assemblages recovered from the burials at Harlestone Park are no exception. The charred plant remains from the burials at Harlestone Park included cereal grains (wheat and barley) and tuber fragments, in addition to the wood charcoal mentioned above (Wyles, Appendix A3.4). Plant tubers, in particular those of false oat-grass, are widely found in cremation deposits (Godwin 1984; Robinson 1988) and it is thought that some of these tubers and stems may represent material uprooted while creating a fire break around the pyre site and then used as tinder (Stevens 2008; Wyles, Appendix A3.4). The cereal remains could have derived from crop processing waste used as tinder for the pyre and, although the quantity is small, do imply the cultivation of wheat and barley by the associated community.

Access to woodland was indicated by the presence of oak, alder and possible hazel charcoal. The majority of this material appears to derive from trunkwood or larger branches and the oak is unlikely to have been from mature wood (Challinor, Appendix A3.5). At the neighbouring Sandy Lane site contemporary pits also produced hazelnut shells and sloe stones, implying the presence of areas of scrub, field margins and/or woodland edges in the vicinity of Harlestone Park (Garland *et al*. 2019, 81).

Chapter 4:
Period 3 Late Bronze Age/Early Iron Age (1100 BC–400 BC)

Introduction and dating

The evidence for Late Bronze Age/Early Iron Age activity at Harlestone Park comprised two pit alignments (A and B) situated on either side of the Dallington Brook within Areas A and B respectively (Fig. 4.1). Pit alignment A followed a broadly north-east/south-west alignment, mirroring the current course of the brook, while pit alignment B was aligned north-west/south-east.

The dating of pit alignments has long been contentious. This is partly due to a dearth of both artefactual and environmental evidence within such features, although where datable material has been recovered this has often provided variable dates, making a definitive

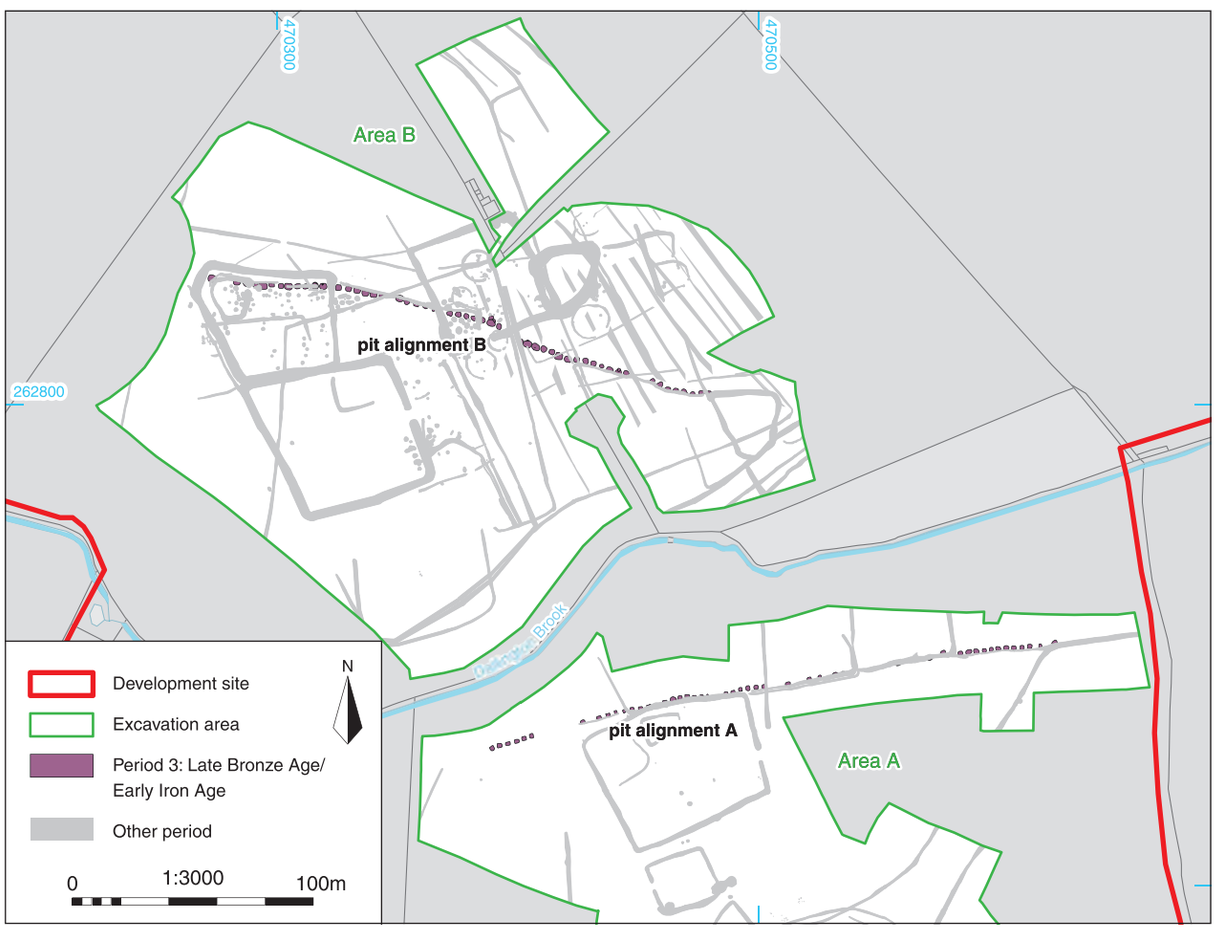


Fig. 4.1 Location and plan of Late Bronze Age/Early Iron Age (Period 3) features in Areas A and B

Table 4.1: Summary of radiocarbon dating results for Late Bronze Age/Early Iron Age features

Feature/ context	SUERC code	Material	Radiocarbon age (BP)	Calibrated radiocarbon age (95.4% probability)
Pit alignment A				
Context 11953 Pit 11952	SUERC-122137	Waterlogged twig fragment: alder/ hazel (*Alnus glutinosa/ Corylus avellana*)	2408 ± 25	726–701 cal BC (4.8%) 664–651 cal BC (2.9%) 546–401 cal BC (87.8%)
Context 11953 Pit 11952	SUERC-130101	Hazelnut shell (*Corylus avellana*)	2474 ± 24	767–481 cal BC (95.4%)
Context 12338 Pit 12337	SUERC-130097	Charcoal: cf. blackthorn (*Prunus* cf. *spinosa*)	2217 ± 24	380–337 cal BC (17.9%) 327–198 cal BC (77.5%)

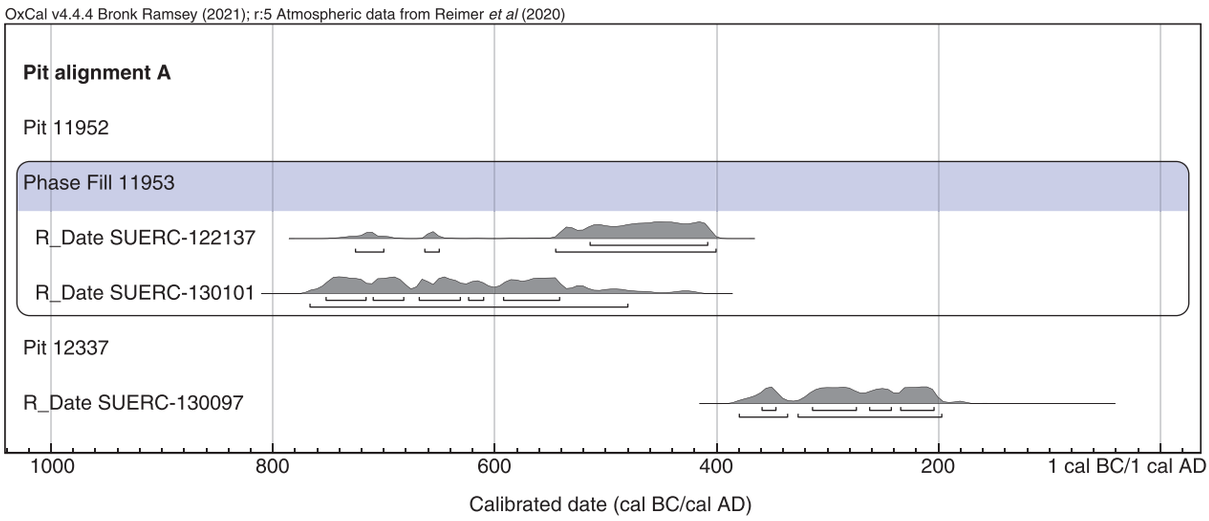


Fig. 4.2 Calibrated radiocarbon dates for the Late Bronze Age/Early Iron Age pits

chronology difficult to ascertain (Willis 2023). This is evidenced within pit alignments A and B, neither of which produced much artefactual material but did yield small quantities of pottery spanning the Iron Age. Much of this material is considered intrusive, primarily originating from the Period 4 (Middle to Late Iron Age) settlement-related features that the pit alignments were truncated by.

Recent programmes of absolute dating of organic material from pit alignments has provided mounting evidence to suggest that these boundaries were predominantly constructed during the Late Bronze Age to Early Iron Age (Deegan 2008b, 89). The radiocarbon results from some excavations in the region have also implied their continued use into the Middle Iron Age, as at Upton, Northampton (Walker and Maull 2010) and Cottisford Turn, Silverstone (Mudd 2007). These variable dates are sometimes considered to be indications that pits could remain open in the landscape for prolonged periods of time, perhaps for several generations after the initial formation of these boundaries (Walker and Maull 2010, 47).

Two Late Bronze Age to Early Iron Age radiocarbon results were obtained from pit 11952 (Table 4.1; Fig. 4.2), within pit alignment A. These are statistically consistent and could be the same age. Furthermore, as the dating was undertaken on two types of material (waterlogged and burnt), the result is considered to be more secure. Consequently it is likely that the returned ranges reflect the date of the feature, with the later of the two results (SUERC-122137; Table 4.1) providing the best estimate for the pit being actively used, in *720–400 cal BC* (Hamilton, Appendix A3.9). However, a radiocarbon date obtained from blackthorn charcoal from pit 12337 returned a Middle Iron Age date range (Table 4.1). While this might represent a later reuse of the boundary, it could equally be the result of intrusive charcoal in this one context, as the pit was heavily truncated by a Period 4 Phase 4.2 (Middle to Late Iron Age) ditch (Hamilton, Appendix A3.9). There was not enough datable material recovered from the pit alignments to obtain further radiocarbon dates and a robust chronological model for the features is therefore not possible. However, it is likely that pit alignment A

was established during the later Bronze Age to earlier Iron Age. The similarity in form of pit alignments A and B, and their spatial proximity, suggests contemporaneity, and both are therefore assigned to Period 3.

Archaeological evidence

Pit alignment A (Figs 4.3–4.6)

Pit alignment A was defined by a line of 48 pits, which

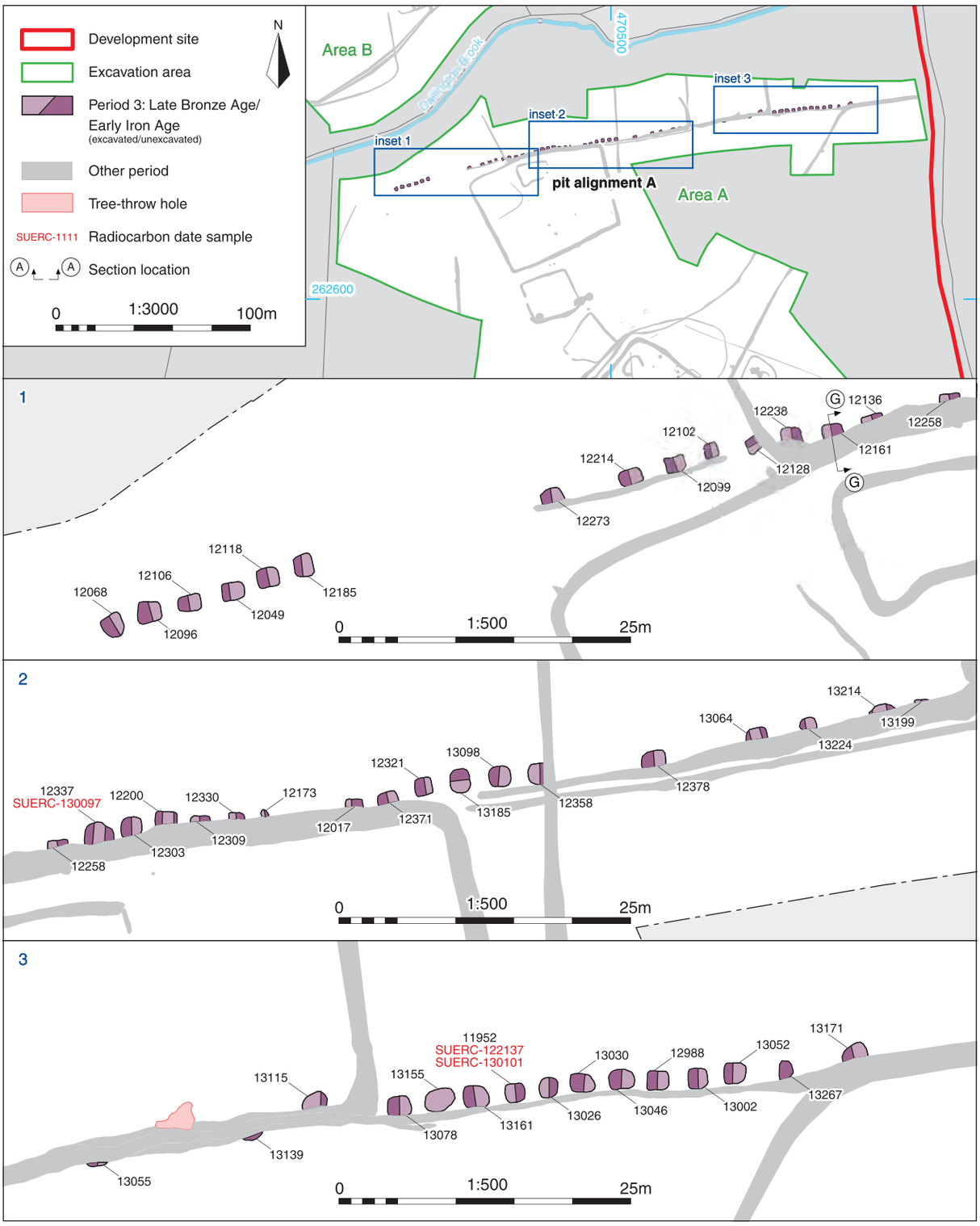


Fig. 4.3 Location and plan of Late Bronze Age/Early Iron Age (Period 3) features in Area A

Table 4.2: Summary of Late Bronze Age/Early Iron Age pits within pit alignment A

Context no.	Shape	Description	Length (m)	Width (m)	Depth (m)	Artefacts (count: weight)
11952	Sub-circular	Steep, convex sides, flat base	1.8	1.55	0.34	–
12017	Sub-oval	Moderate concave sides, rounded base	>2.4	1.28	0.49	–
12049	Square	Steep, concave sides, flat base	1.53	1.53	0.74	–
12068	Sub-circular	Steep, concave sides, flat base	2.7	1.93	0.41	P-med/mod pottery (1: 6g)
12096	Square	Steep, straight and convex sides, rounded base	1.72	2	0.7	–
12099	Sub-square	Concave sides, base	1.35	1.35	0.36	–
12102	Sub-square	Straight, concave sides, rounded base	1.39	1.39	0.38	–
12106	Sub-circular	Irregular, asymmetrical sides, flat base	1.3	1.3	0.57	–
12118	Sub-oval	Concave, stepped sides, flat base.	1.81	1.81	0.48	–
12128	Sub-circular	Concave sides and base	1.2	>1	0.4	–
12136	Square	Steep, concave sides, flat base	>0.75	>0.62	0.65	–
12161	Sub-square	Steep, straight and concave sides, rounded base	>1.32	1.32	0.58	–
12173	Sub-oval	Concave sides and base	>0.6	0.6	0.19	–
12185	Sub-square	Concave sides, flat base	2.3	2.3	0.7	–
12200	Sub-circular	Steep, concave sides, rounded base	2	>1.34	0.48	–
12214	Sub-circular	Steep, concave sides, flat base	1.9	1.4	0.3	–
12238	Sub-square	Concave sides and base	>1	1.05	0.52	–
12258	Square	Stepped, concave sides, flat base	1.9	>0.7	0.54	–
12273	Sub-square	Concave sides, flat base	0.9	>0.9	0.36	–
12286	Sub-circular	Not visible in plan. Steep, concave sides, rounded base	>0.9	>0.4	0.26	–
12303	Sub-square	Steep, straight sides, concave base	>1	1.48	0.47	–
12309	Sub-square	Irregular sides and base	>0.77	>0.49	0.42	–
12321	Square	Concave sides, flat base	1.7	1.9	0.22	–
12330	Sub-circular	Steep, concave sides, rounded base	>1.29	>0.6	>0.25	–
12337	Square	Steep, straight sides, rounded base	2.51	>1.92	0.55	–
12358	Sub-circular	Irregular sides, rounded base	>1.34	2.06	0.37	–
12371	Sub-circular	Convex sides, rounded base	1.79	>1	0.31	–
12378	Sub-square	Steep, concave sides, rounded base	1.6	>1.6	0.6	Animal bone (10: 15g)
12988	Sub-oval	Concave sides and base	1.56	1.56	0.46	–
13002	Square	Concave sides and base	1.5	1.5	0.32	–
13026	Sub-circular	Straight, irregular sides, rounded base	2	1.6	0.4	–
13030	Oval	Steep, concave sides, rounded base	2.2	1.64	0.28	–
13046	Oval	Concave sides and base	2.19	1.57	0.43	–
13052	Oval	Concave sides and base	2	2.75	0.48	–
13055	Circular	Steep, concave sides, rounded base	>1	>0.35	0.31	–
13064	Circular	Steep, concave sides, rounded base	1.88	>0.9	0.43	–
13078	Sub-circular	Steep, concave sides, rounded base	2.02	>1.7	0.39	–
13098	Sub-oval	Steep, concave sides, flat base	2.02	1.73	0.38	–
13115	Circular	Irregular sides and base	2.09	>1.49	0.68	–
13139	Sub-circular	Concave sides, irregular base	>0.8	>0.8	0.54	–
13155	Sub-circular	Concave sides and base	2.73	1.92	0.48	–

Table 4.2 (cont.): Summary of Late Bronze Age/Early Iron Age pits within pit alignment A

Context no.	Shape	Description	Length (m)	Width (m)	Depth (m)	Artefacts (count: weight)
13161	Circular	Concave sides, flat base	2.21	>1.81	0.46	M–LIA pottery (2: 14g)
13171	Sub-square	Concave sides and base	1.52	>1.52	0.27	–
13185	Sub-circular	Straight and concave sides, flat base	2.06	1.75	0.47	–
13199	Sub-oval	Concave and convex sides, rounded base	>1.37	>1.37	0.59	–
13214	Square	Steep, concave sides, flat base	>1	1.46	0.64	–
13224	Sub-square	Steep, straight sides, flat base	1.49	<0.95	0.6	–
13267	Circular	Unexcavated	>1.6	1.19	–	–

Key: M–LIA = Middle to Late Iron Age; P-med/mod = Post-medieval/modern

Fig. 4.4 Photograph of pit alignment A under excavation, looking north-east

spanned a length of approximately 240m along the northern edge of Area A (Figs 4.3–4.4, Table 4.2). The six westernmost pits were separated from the remainder of the alignment by a 20m wide gap that appeared to be deliberate rather than the product of truncation. Overall, the 48 pits were sub-circular or sub-square in plan and are considered to form part of the same boundary. The majority of the pits were truncated to a varying extent by Period 4 Phase 4.2 ditches; therefore it is possible that additional gaps in the pit sequence could be attributed to this. Most of the pits were regularly spaced with gaps of 1–1.5m between them. The pits varied slightly in length (0.9–2.7m), width (0.7–2.75m) and depth (0.19–0.65m) but generally had steeply sloping sides and rounded bases (for example, pit 12161; Figs 4.5–4.6, Section GG).

The fill sequences of the pits were variable, ranging from one to ten fills; however most of the pits contained

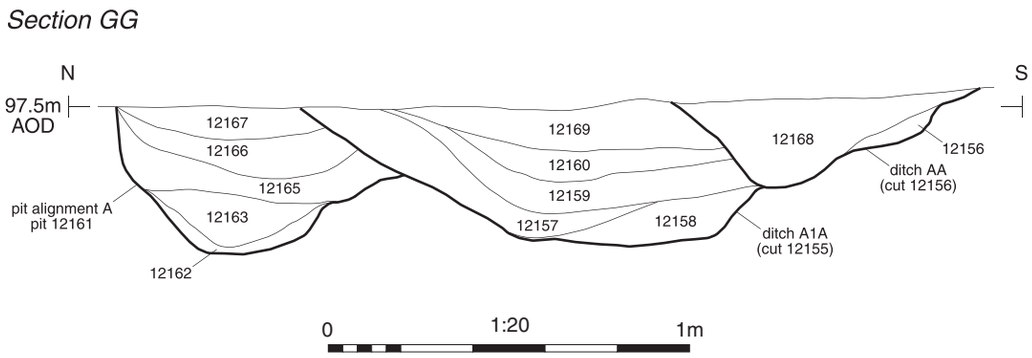


Fig. 4.5 Section GG of pit 12161 (Period 3, pit alignment A) and ditches A1A and AA (Period 4 Phase 4.2)

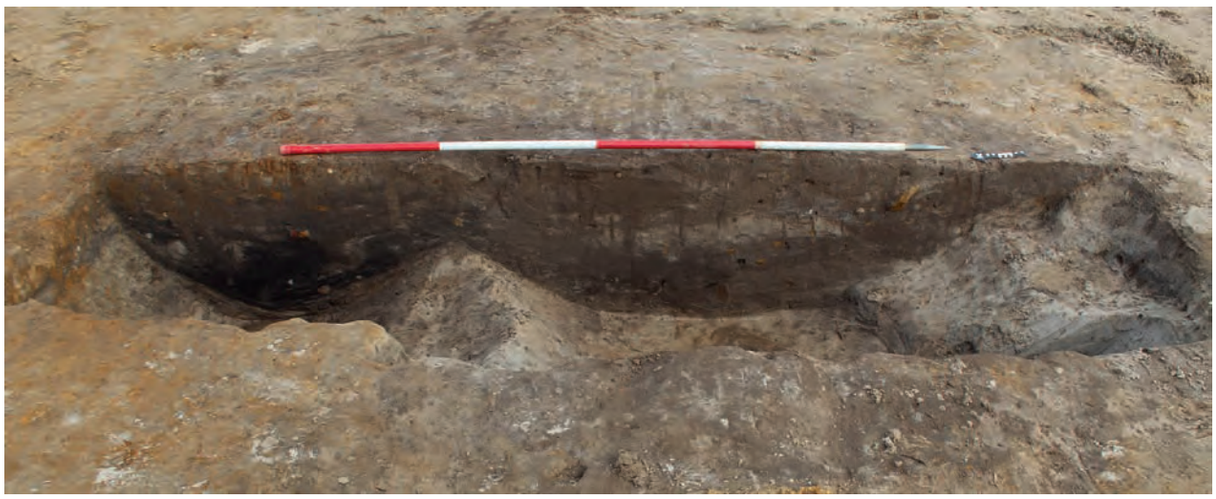


Fig. 4.6 Photograph of pit 12161 (Period 3, pit alignment A) and ditches A1A and AA (Period 4 Phase 4.2), looking east (2m scaale)

between two and four fills of brownish and orangey grey silty sands and clays, which probably formed via natural accumulation. Within the pits that contained multiple fills the sequences were broadly symmetrical with no evidence to suggest the presence of banks or upcast spoil in the vicinity of the features. At the bases of the pits the lower fills were often formed via the natural erosion or weathering of the freshly dug sides and were therefore similar to the underlying geology.

There was a general paucity of material recovered from the pits. A very small quantity of Middle to Late Iron Age and post-medieval to modern pottery was recovered from two of the pits (12068 and 13161; Table 4.2); this material is considered intrusive as it was recovered from the single fill of pit 12068 and from a fill truncated by later Phase 4.2 (Period 4) ditches within pit 13161. Additionally, a few fragments of animal bone of unknown taxa were recovered from pit 12378 (Table 4.2). Environmental samples recovered from the pits produced moderate amounts of wood charcoal (dominated by oak, with smaller quantities of cherry and blackthorn), sparse quantities of charred material and high numbers of insect remains, including water flea eggs (Wyles, Appendix A3.4; Challinor, Appendix A3.5).

Pit alignment B (Figs 4.7–4.10)

North-west/south-east orientated pit alignment B was located in the central portion of Area B and comprised 59 pits (Figs 4.7 and 4.8, Table 4.3). It extended for approximately 214m across the excavation area and, unlike pit alignment A, the pits formed an almost continuous line, with few significantly wide gaps (Fig. 4.7). The pits were generally circular to oval and measured 0.6–3.4m in diameter and 0.1–1.5m deep, with steeply sloping concave or stepped sides and rounded bases (for example pit 21491; Figs 4.9–4.10, Section HH). As with pit alignment A, a large number

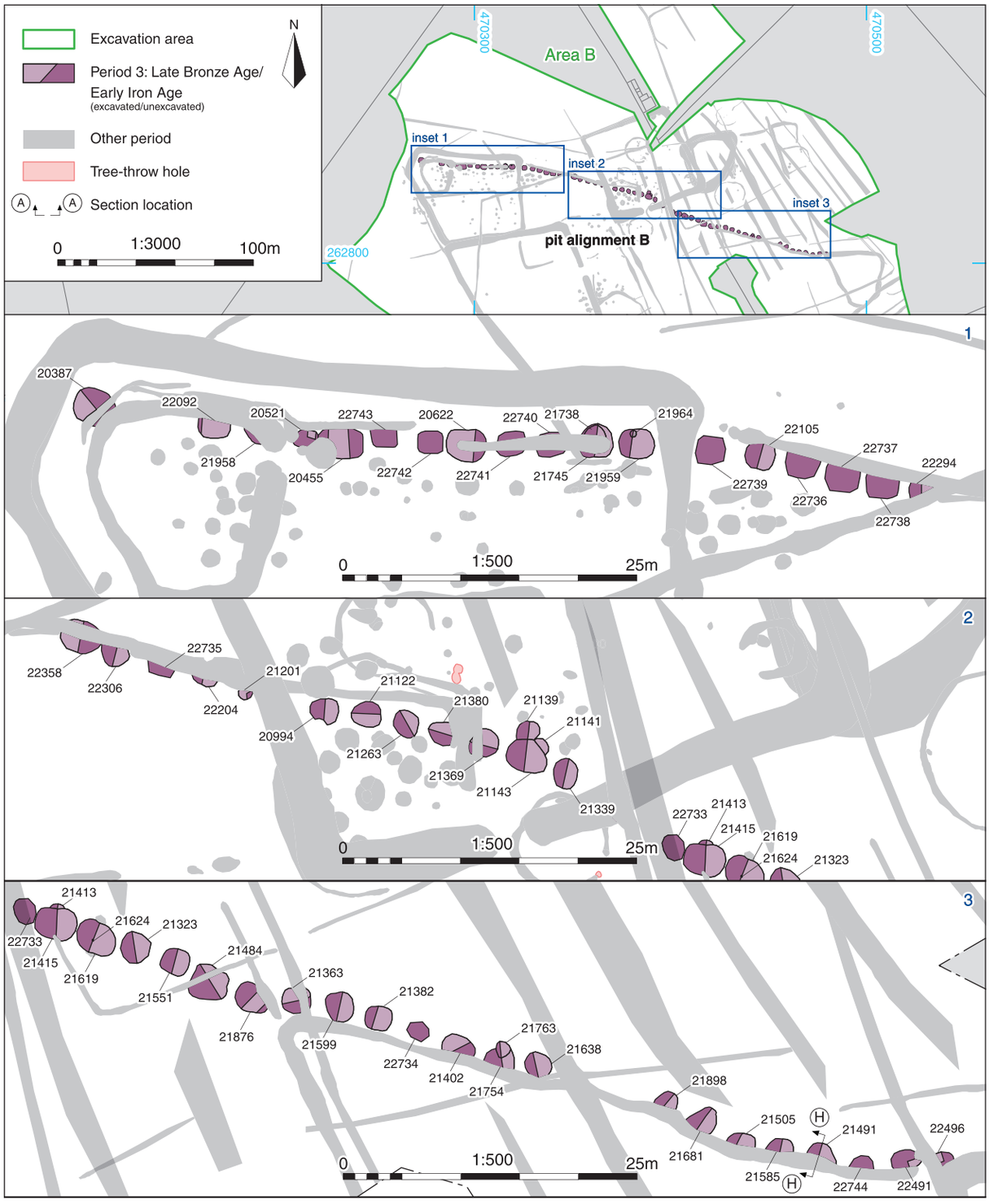


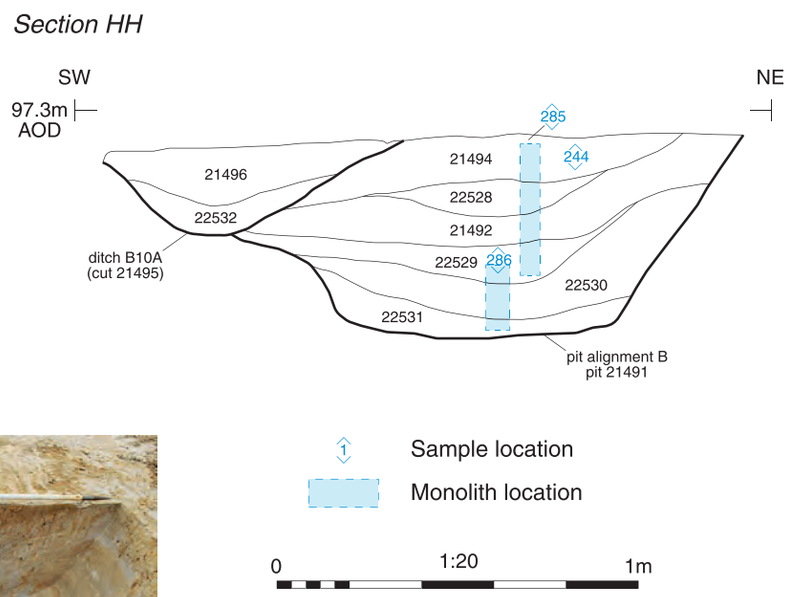
Fig. 4.7 Location and plan of Late Bronze Age/Early Iron Age (Period 3) features in Area B

of the pits were truncated to a varying extent by Middle to Late Iron Age (Period 4) features, therefore it is possible that the alignment continued to the south-east and/or north-west.

As with pit alignment A, the fill sequences for the pit alignment B features were variable, ranging from one to nine fills; however the majority of the pits contained between one and five fills of greyish brown sandy

Fig. 4.8 Photograph of pit alignment B under excavation, looking north-west

Fig. 4.9 Section HH of pit 21491 (Period 3, pit alignment B) and ditch B10A (Period 4 Phase 4.1)



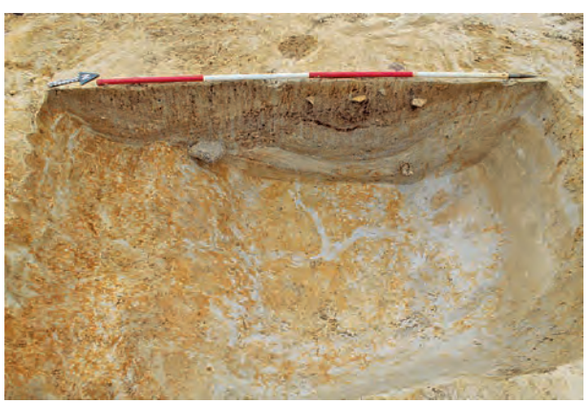


Fig. 4.10 Photograph of pit 21491 (Period 3, pit alignment B) and ditch B10A (Period 4 Phase 4.1), looking north-west (2m scale)

silts and yellowish brown silty sands. Once more the fill sequences were symmetrical, with no evidence to suggest the presence of banks or spoil heaps within the vicinity of the features. The lower fills of the pits were predominantly sandy and probably derived from the weathered sides of the freshly dug pits. The overlying regular horizontal bands of sands and clays, however, are indicative of water-lain deposition, perhaps through cyclical washing in of sediments or flooding events, followed by settlement in a standing water body (Kowalska, Appendix A3.3). Fluctuations in the water table were also suggested by dark reddish mottling and iron pan in the upper fill of pit 21491 (Kowalska, Appendix A3.3). The homogeneous nature and general paucity of cultural material within some of the upper fills of the features, such as pit 21638, may indicate the intentional and quick backfill of the pits prior to the construction of the subsequent Middle to Late Iron Age (Period 4) enclosure ditches. This information has been reported on by Agata Kowalska in Appendix A3.3.

There was notably more artefactual material recovered from the pit alignment B features (Table 4.3) compared with those in pit alignment A (Table 4.2), though the assemblage is still small. The greater quantity of finds from within the features associated with pit alignment B are probably a consequence of its location. While pit alignment A was situated along the floodplain, slightly away from the main focus of the subsequent Middle to Late Iron Age activity in Area A, pit alignment B extended through the centre of this later settlement

Table 4.3: Summary of Late Bronze Age/Early Iron Age pits within pit alignment B

Context no.	Shape	Description	Length (m)	Width (m)	Depth (m)	Artefacts (count: weight)
20387	Oval	Concave sides and base	>3	2.43	0.87	Worked flint flake (1: 4g)
20455	Square	Steep, stepped sides, flat base	>2	>2.73	1.05	M–LIA pottery (7: 75g) Fired clay (1: 10g)
20521	Sub-square	Concave sides, irregular base	>1.2	>1.2	0.94	–
20622	Sub-rectangular	Steep, stepped sides, flat base	3.25	3.25	0.84	–
20994	Sub-circular	Steep, concave sides, flat base	2.46	2.02	1.5	M–LIA pottery (2: 14g)
21122	Sub-circular	Steep, irregular sides, rounded base	1.8	2.43	0.95	–
21139	Circular	Concave sides and base	1.7	>1.2	0.2	–
21141	Circular	Steep, concave sides, rounded base	1.2	>1.42	0.41	–
21143	Circular	Steep, stepped sides, rounded base	3.4	3.41	1.13	–
21201	Rectangular	Steep, slightly convex sides, flat base	>1.15	>1.6	0.48	–
21263	Circular	Steep, concave sides. Base not reached	1.77	2.6	>1.31	Worked flint flake (1: 1g)
21323	Sub-oval	Steep, concave sides, flat base	2.57	2.57	0.88	M–LIA pottery (1: 2g)
21339	Circular	Concave sides and base	2.4	2.4	1.02	–
21363	Oval	Straight sides, flat base	3.29	2.3	0.82	–
21369	Oval	Straight sides, rounded base	>1	2.96	1.26	–
21380	Oval	Straight sides, rounded base	>1	2	1.32	Worked flint blade (1: 3g)
21382	Sub-circular	Straight sides, rounded base	2.27	2.02	0.98	M–LIA pottery (8: 23g) Worked flint flake (1: 2g)
21402	Sub-circular	Concave sides and base.	>2.3	2.3	0.65	M–LIA pottery (3: 6g)
21413	Circular	Concave sides and base	>0.48	>0.48	0.54	–
21415	Sub-circular	Irregular concave sides and flat base. Recut of pit 21413	>2.5	2.5	>0.89	M–LIA pottery (3: 25g) Burnt animal bone (3: 1g)
21484	Sub-oval	Concave sides and base	3.45	3.55	0.74	–
21491	Oval	Steep, straight sides, flat base	3	>1.19	0.78	M–LIA pottery (1: 6g)
21505	Sub-circular	Stepped sides, flat base	>1.16	2.43	0.5	–
21538	Sub-circular	Not visible in plan. Steep, stepped sides, flat base	>1.63	>1.63	0.43	–

Table 4.3 (cont.): Summary of Late Bronze Age/Early Iron Age pits within pit alignment B

Context no.	Shape	Description	Length (m)	Width (m)	Depth (m)	Artefacts (count: weight)
21551	Sub-square	Concave sides, flat base	2	2	0.75	M–LIA pottery (20: 336g) Animal bone (4: 30g)
21585	Circular	Steep, straight sides, flat base	2.2	>1.92	0.72	–
21599	Sub-circular	Concave sides and base	2.66	2.66	0.94	–
21619	Sub-oval	Concave sides, irregular base	2.81	2.81	1.1	E–MIA pottery (2: 3g) M–LIA pottery (57: 238g) Whetstone (1: 546g)
21638	Sub-circular	Concave sides and base	2	>2	0.94	M–LIA pottery (2: 17g) LIA/ERB pottery (1: 17g) Worked flint (1: 23g) Animal bone (6: 4g)
21681	Oval	Convex sides Base not reached	>2	2.4	>0.89	M–LIA pottery (1: 48g)
21738	Oval	Convex sides, rounded base	>0.75	1.8	0.63	–
21745	Oval	Slightly convex sides and flat base.	>2.85	3.1	1	–
21754	Circular	Concave sides and base.	2.9	>2	0.76	M–LIA pottery (25: 114g)
21763	Circular	Concave sides and base.	0.75	1.35	0.3	M–LIA pottery (12: 55g)
21876	Square	Straight sides and rounded base	>2.16	2.9	0.92	–
21898	Sub-circular	Concave sides and base.	2	>1.86	0.68	–
21958	Sub-square	Sides unknown, flat base	>0.43	>0.43	>0.3	–
21959	Oval	Straight sides and flat base	3.4	2.23	1	–
21964	Circular	Straight sides and rounded base	0.6	0.6	0.2	–
22092	Circular	Steep, irregular sides and flat base	2.77	>1.51	0.56	–
22105	Sub-square	Steep, stepped sides and a flat base	2.52	>2.24	0.94	M–LIA pottery (5: 10g)
22204	Sub-square	Concave and stepped sides and rounded base	2.4	>0.6	0.81	–
22294	Sub-square	Concave sides and flat base	>2	>1.8	0.87	–
22306	Sub-oval	Steep, irregular sides and rounded base	2.9	>2.1	0.63	–
22358	Oval	Concave sides and flat base	>3	2.93	0.83	–
22491	Sub-oval	Concave sides, base not reached	>2.07	>1.64	>0.64	–
22496	Sub-oval	Concave sides, base not reached	>0.8	>0.8	0.2	Animal bone (7: 44g)
22733	Oval	Unexcavated	2.29	1.79	–	–
22734	Circular	Unexcavated	1.87	1.58	–	–
22735	Sub-square	Unexcavated	2.5	>0.88	–	–
22736	Sub-circular	Unexcavated	>1.96	2.83	–	–
22737	Sub-circular	Unexcavated	2.9	>2.1	–	–
22738	Sub-circular	Unexcavated	2.89	>1.84	–	–
22739	Circular	Unexcavated	2.46	2.37	–	–
22740	Sub-circular	Unexcavated	2.13	2.43	–	–
22741	Sub-circular	Unexcavated	2.13	2.41	–	–
22742	Sub-square	Unexcavated	1.89	2.15	–	–
22743	Sub-square	Unexcavated	>1.56	2.2	–	–
22744	Sub-circular	Unexcavated	>1.09	2.03	–	–

Key: E–MIA = Early to Middle Iron Age; M–LIA = Middle to Late Iron Age; LIA–ER = Late Iron Age to Early Roman

in Area B. The material from pit alignment B was recovered from the upper fills of features, largely from pits truncated by subsequent Period 4 activity (e.g. pits 20455, 21380 and 21402), and the material is therefore regarded as intrusive. Artefacts included Early to Middle Iron Age, Middle to Late Iron Age and Late Iron Age to Early Roman pottery, as well as a whetstone that was recovered from the upper fill of pit 21619 (Shaffrey, Appendix A2.10). A small amount of animal bone was also recovered. Two environmental samples produced sparse quantities of charred remains (including barley grain and hulled wheat (*Triticum dicoccum/spelta*) glume) and unidentified charcoal (Wyles, Appendix A3.4).

Discussion

(incorporating analysis by Pete Banks, Michael Grant, Agata Kowalska, Dana Challinor and Sarah Wyles)

Aspects of society

Many pit alignments have been recorded across Northamptonshire in recent years, as a result of the NNMP (Fig. 1.5; Deegan and Foard 2008) and archaeological investigation (Fig. 4.11), numbering 250 as of 2022 (Willis 2023). Pit alignments formed a distinct phase of land division across the Midlands during the first millennium BC, first emerging in the Late Bronze Age (Willis 2023; Rylatt and Bevan 2007, 219–20) and often being replaced or re-established as ditches over the course of the Iron Age, as was the case at Harlestone Park. Their distribution (Fig. 4.11) in Northamptonshire suggests that vast swathes of the later prehistoric landscape was divided by these large-scale boundary features and their emergence alongside other linear monuments, such as triple ditch/dyke systems, implies an increasing concern with land division or demarcation during this period, possibly linked to changes or growth in farming practices and landownership (Willis 2023; Deegan 2008b, 82; Thomas 2008b).

Pit alignments generally consist of continuous lines of evenly spaced pits of fairly consistent shape and size, which can extend for long distances across the landscape (Willis 2023). For example, segments of what appear to be the same pit alignment were discovered at several locations in Upton, Northamptonshire, forming a boundary that spans at least 2km in length (Wolframm-Murray *et al.* 2023, 86; Carlyle 2010, 79, fig. 3; Walker and Maull 2010, 21–4; Foard-Colby and Walker 2010, 59, fig. 5). Nevertheless, it is not uncommon for certain pits to differ in shape and size or for variations in the spacing of pits to manifest along the length of an individual alignment (Willis 2023). Wiggles or curves have also been observed over the course of some of these boundaries.

There was a general consistency in both the size and shape of the pits within alignments A and B, with most pits being evenly spaced. A slight curve to the south was observed at the western end of pit alignment B; however, the two boundaries maintained a fairly straight trajectory. In pit alignment A several wider gaps measuring 5 to 10m presented a noticeable variation that did not seem to result from later truncation. The most westerly length of pits was separated from the rest of pit alignment A by a 20m-wide gap, possibly representing an access route across the boundary to the brook. Some of the gaps in pit alignment A also appeared to define short sequences of 5 to 7 pits, although the presence of truncation by Period 4 ditches necessitates a cautious interpretation of this observation. Variations in the spacing, size and shape of pits, as well as changes in the alignment of these types of boundary, have been documented in many instances across Northamptonshire. For example, two pit alignments at Upton Park exhibited sinuous layouts and contained groupings of pits of a similar size and shape (Wolframm-Murray *et al.* 2023, 35–6, fig. 2.35, 92). At Milton Ham it was suggested that the pit alignment could be divided into four distinct segments based on the morphology and spacing of the pits (Leslie and King 2021, 12–14). This may suggest that the boundaries were dug in stages, perhaps being added to over time, by separate groups of people in the form of 'work gangs' (Rylatt and Bevan 2007, 223; Wolframm-Murray *et al.* 2023, 92; Chapman *et al.* 2017, 66).

The construction of pit alignments would have been a large undertaking, presumably requiring forethought regarding the trajectory and extent of the boundaries. For instance, the pit alignment at Harlestone Quarry generally followed a straight line over the course of 199m, with only a few pits deviating from the main east–west axis (Chapman *et al.* 2017, 49). Consequently, Chapman *et al.* (2017) have proposed that there must have been an intentional line to follow, visible in the landscape, during the creation of the pit alignment. In practical terms this was potentially achieved through the use of backsights, fore markers or other points in the landscape along the intended route (ibid.). There was clearly some level of intentionality to adhering to specific trajectories within the landscape. Although the pit alignments identified in Areas A and B were predominantly straight there was no evidence for prominent landmarks or marker features that could have served as backsights or fore markers. It is conceivable that the Dallington Brook influenced the trajectory of pit alignment A, although it is unlikely to have been used in the layout of pit alignment B. Alternatively it is possible that some form of marker was used that has left no trace in the archaeological record.

Location and function

The function of pit alignments has been widely debated because their morphology and the frequent lack of artefacts and environmental material in the pits does not readily suggest a clear purpose (Rylatt and Bevan

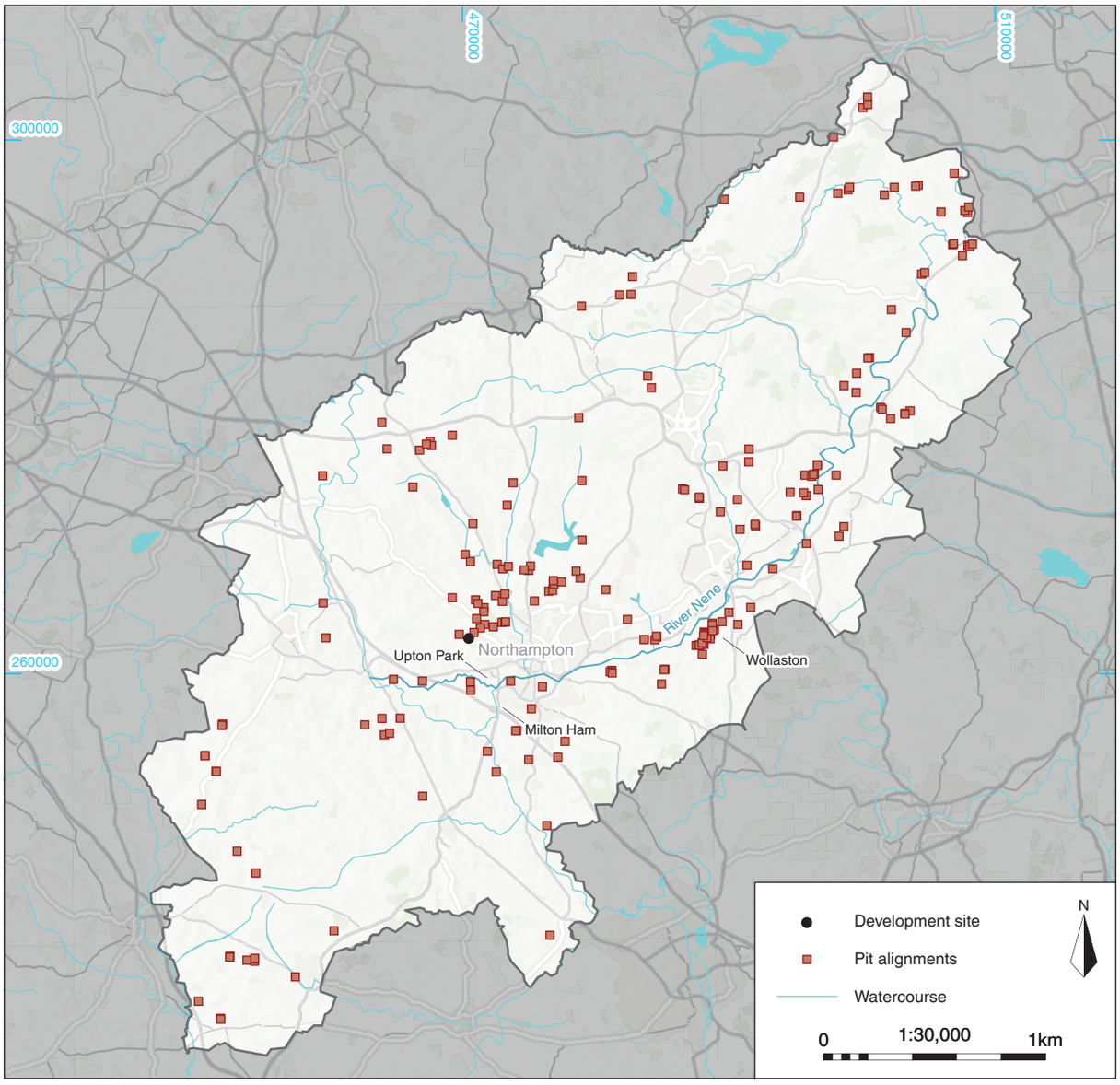


Fig. 4.11 Distribution of pit alignments in Northamptonshire recorded by the NNMP

2007, 219–20). In contrast to ditches, pit alignments do not seem to serve as effective barriers for dividing the landscape or containing livestock as, by their nature, they are not continuous and allow easy movement between one side of the boundary to the other (Rylatt and Bevan 2007, 219). Furthermore, they are not as effective as ditches in facilitating the drainage of surface and groundwater; while water may accumulate in the pits, which can be of considerable size and depth, there is no easy mechanism for removal of the water. As with other Northamptonshire examples there was no evidence for timber posts or associated banks and/or spoil heaps within the fill sequences of the pits defining pit alignments A and B and it appears that they were left to silt up through natural processes (Kowalska, Appendix A3.3). What is clear from the significant number of pit alignments is that that they were an important part of the developing landscape during the later prehistoric period (Thomas 2008a), possibly serving as symbolic boundaries as much as physical ones.

The locations of pit alignments often coincide with key places in the landscape and Lambrick has suggested that they may have been the formalisation of 'well-understood boundaries recognisable by reference to lines between visible landmarks (trees, earlier prehistoric monuments, confluences and bends in streams and rivers, or other readily recognisable features)' (Lambrick 2009, 56). In Northamptonshire there are numerous

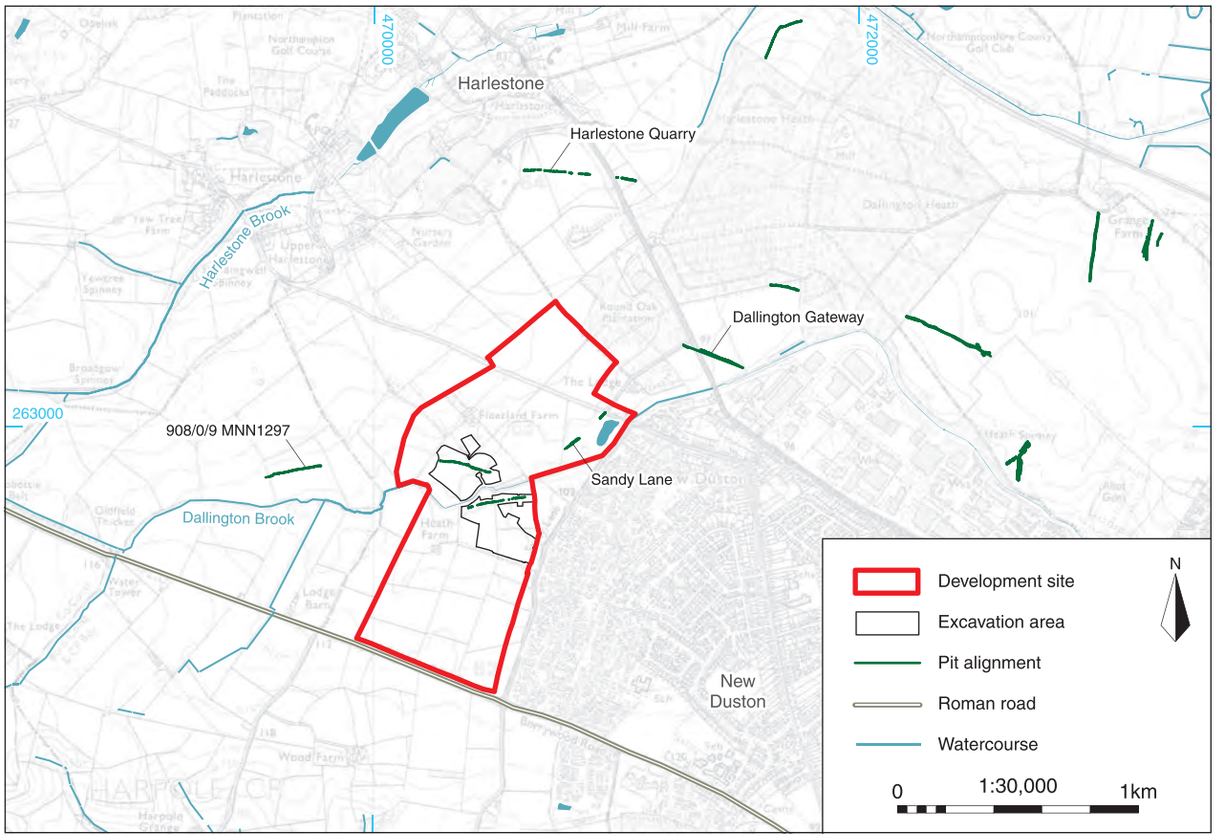


Fig. 4.12 Distribution of pit alignments recorded in the vicinity of Harlestone Park by the NNMP and during adjacent archaeological investigations

instances of pit alignments running parallel to the River Nene, its tributaries or the valley slopes (Deegan 2008b, 84, fig. 6.2; Fig. 4.11), as is the case for pit alignment A and those to the east of Harlestone Park, at Sandy Lane (Garland *et al.* 2019, 78), and west of the site (908/0/9 MNN1297; Fig. 4.12). Boutwood (1998) noted a similar correlation between pit alignments and watercourses in Lincolnshire, suggesting this may reflect a widespread intentional connection. This may imply that pit alignments had a symbolic importance, possibly reaffirming the natural boundary of a watercourse (Thomas 2003, 83), or that they had a practical element concerning access to water for pasture and/or arable farming requirements (Boutwood 1998; Hingley 1989, 143–144).

At Harlestone Park the orientation of the pit alignment in Area B differed from the one in Area A in that it followed the natural contour of a gentle north-west to south-east slope on the west side of the Dallington Brook, rather than following the watercourse. Some pit alignments in Northamptonshire have been found on naturally prominent ground, potentially in order to increase their visibility within the landscape or to highlight the natural slopes. At Dallington Gateway, for example, the pit alignment followed the edge of a ridge, with the land dropping away to the south and east (Chinnock and Muldowney 2016, 37–8), while a pit alignment at South Meadow Road, Upton followed the slope of a hill (Speed 2015, 57).

There has also been a suggestion that the position of some pit alignments coincided with changes in geology. The course of pit alignment A, for instance, closely mirrored the southerly extent of the alluvium associated with the Dallington Brook (Fig. 4.13) and at Harlestone Quarry the pit alignment potentially followed the boundary between the permeable sands and shattered ironstone to the north and the clays and silty clays of the mudstones to the south (Chapman *et al.* 2017, 66). Similarly, the orientation of the pit alignment at Upton paralleled the alignment between the sand and ironstone and the clay geologies, though it was set 60m to the north (Walker and Maull 2010, 49). It is possible, therefore, that these pit alignments might represent a division between the easily worked arable land and heavier or waterlogged soils more suitable for pasture or rough grazing (Jackson 2010).

The reasons governing the location of pit alignments are likely to have been multifaceted but growing evidence

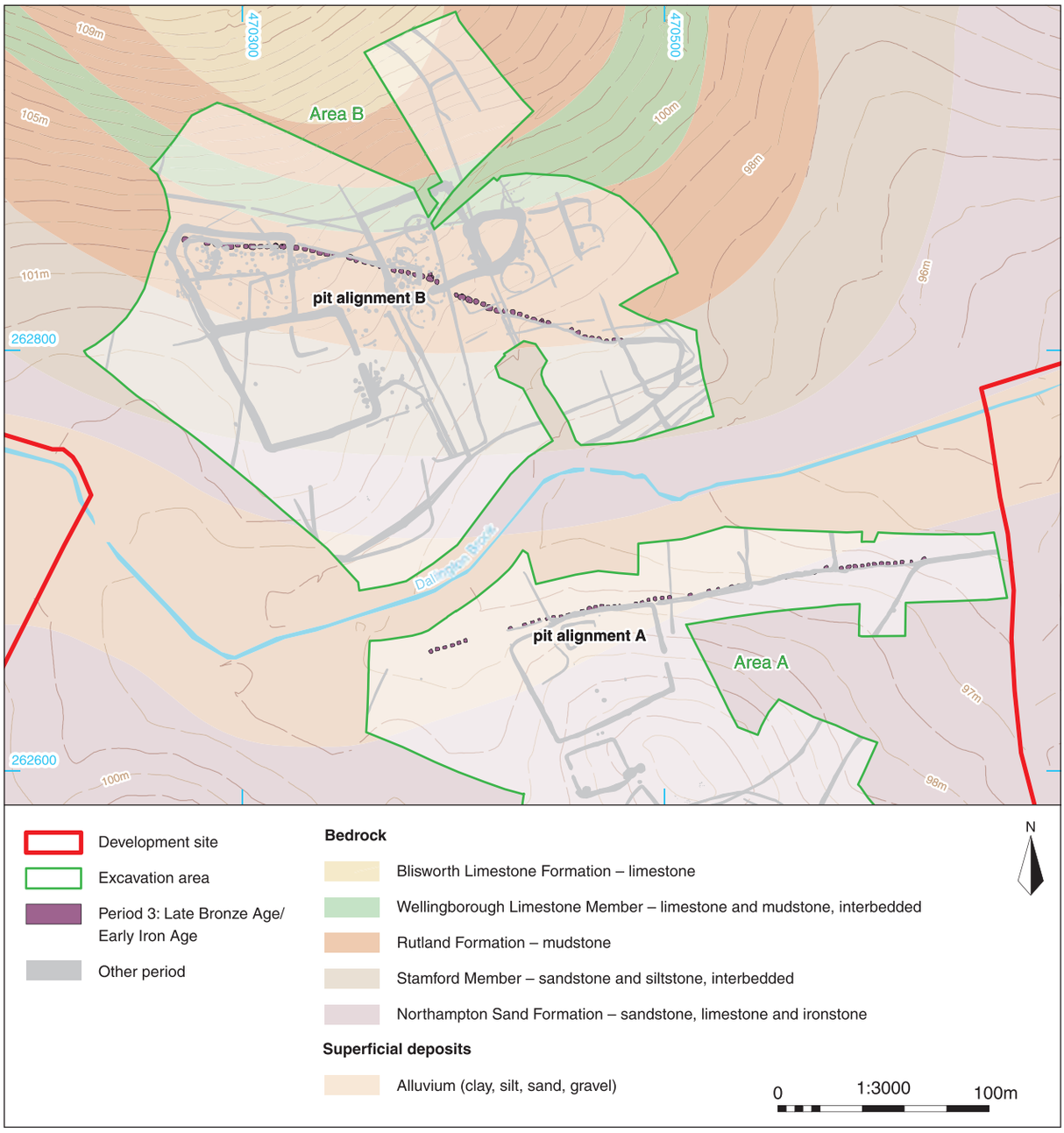


Fig. 4.13 Pit alignments A and B with the underlying geology (source BGS 2026a) and topography

from archaeological research indicates the necessity of considering individual pit alignments within a wider landscape context rather than purely focusing on their individual topographic and geological associations. At Wollaston Quarry, for example, parts of 11 different pit alignments were investigated over an area of 2.5km^2. Some of the alignments ran parallel to the River Nene, while others were perpendicular to it on a north-west/south-east orientation. Together they formed a coaxial system, dividing the valley floor into relatively uniform land parcels (Atkins and Meadows 2024, 120–1). A similar model is possible for pit alignments A and B and the multiple examples recorded in the vicinity of Harlestone Park (Fig. 4.12), which include the pit alignments at Sandy Lane, Dallington Gateway and Harlestone Quarry (Fig. 4.12; Garland *et al.* 2019, 78; Chapman 2019a, 40; Chapman *et al.* 2017, 49–52). Overall, the close spatial positioning of this group of pit alignments to one another implies a potential correlation within a wider 'planned' landscape.

There was no physical evidence for associated domestic settlement at Harlestone Park but a deposit of charcoal was found low in the fill sequence of two of the pits in Area A (Challinor A3.5). This was dominated by oak and is suggestive of fuel waste, possibly associated with domestic activity. Evidence of settlement for this period is rare in the East Midland counties, with the findings often being ephemeral, spatially contained and associated with very limited artefactual and environmental assemblages (Willis 2023). Nevertheless, two Late Bronze Age roundhouses and associated pits were identified in Area 2 of the Sandy Lane excavation, situated approximately 600m to the north-east of pit alignment A (Fig. 1.7; Garland *et al*. 2019), while a ditch system, enclosure, pits and four-post structures were also situated alongside the pit alignment at Harlestone Quarry (Chapman *et al*. 2017, 42–9). Two of the associated pits produced loomweights, indicative of possible textile working and associated domestic occupation during this period (Chapman *et al*. 2017, 43–6).

Landscape and environment

Environmental evidence was limited to just a few pits within alignments A and B and comprised a range of weed seeds typical of a variety of different habitats, such as wet/damp ground found along the Dallington Brook, and open environments potentially containing a mix of meadow and arable land, with areas of scrub and rough/waste ground (Wyles, Appendix A3.4). The charcoal assemblage from these pits was dominated by oak with smaller components of wild cherry (*Prunus* cf. *avium)* and hawthorn group (Maloideae*)* (Challinor, Appendix A3.5). A similar assemblage of wood charcoal was recovered from the pit alignment at Sandy Lane (CA 2017a, 63–5) and, taken together, these are indicative of an open environment with an element of mature woodland in the vicinity of the site.

Within Northamptonshire, analysis of pollen from Turnells Mill Lane, Wellingborough and Wollaston have shown that large-scale deforestation occurred along the floodplain of the River Nene during the Late Bronze Age/Early Iron Age (Brown and Meadows 1997, 190), almost certainly linked to the appearance of pit alignments and other types of landscape boundary during this period. It is not known when land within the development site was cleared but the environmental evidence and large-scale nature of pit alignments A and B suggest that they were established in a predominantly open landscape. Possibly linked to this is the notable absence of alder within the Period 3 assemblages from Harlestone Park, compared with the preceding Period 2 assemblages. This could suggest that this wood source was no longer considered appropriate, or it that it had been removed from the edge of the brook as part of a widespread deforestation during this period.

Chapter 5:
Period 4 Middle to Late Iron Age (400 BC–1 AD)

Introduction and dating

The earliest firm evidence of settlement-related activity within the excavation areas was of Middle to Late Iron Age date and comprised a series of individual and conjoined enclosures and fields in Areas A and B, alongside associated sub-enclosures, roundhouses, pits, postholes, boundaries and trackways. Dating of the settlement has been based on a combination of pottery and radiocarbon analysis, while the morphology of some of the enclosures is closely aligned with later Middle to Late Iron Age examples recorded elsewhere in Northamptonshire (Chapman 2023, 102–3). Together these different strands of dating evidence have highlighted some ambiguities in the chronology of the settlement and these are discussed further below.

Stratigraphic sequence

The stratigraphic sequence and changing morphology of the features suggests two phases (4.1 and 4.2) of Middle to Late Iron Age activity (Figs 5.1–5.3), although the date of the transition between the two phases is uncertain. The first phase (Period 4 Phase 4.1) featured settlement and landscape organisation, including the establishment of seven enclosures, four roundhouses and dispersed and clustered pits and postholes. The identification of some of the enclosures is tentative as many were truncated by subsequent Period 4 Phase 4.2 activity and survived as a series of intermittent ditches that followed a general north-west/south-east axis. Several of the enclosures in Area B appear to have been influenced by the position of the earlier Late Bronze Age/Early Iron Age pit alignment B, which introduced irregularities into their otherwise rectilinear layouts.

The second phase of activity (Period 4 Phase 4.2) comprised another sequence of enclosures in Areas A and B, but these were more regular in their layout compared with those in Phase 4.1 and often defined by substantial ditches. Many of the enclosures contained sub-enclosures and clusters of pits, but enclosures A8 and B6 also contained evidence of roundhouses. The arrangement of these two enclosures closely resembled those found at other Northamptonshire sites, such as Pineham North and Pineham Barn (Preece 2018; Harvey and Speed 2020), which have been dated to the later Middle to Late Iron Age. However, the pottery discovered at Harlestone Park did not possess the diagnostic features necessary to confirm a later date. Additionally, during this phase the existing Late Bronze Age/Early Iron Age pit alignment (A) in Area A was redefined by field and enclosure ditches that either ran parallel to or cut the pits.

Pottery evidence

The pottery assemblage recovered from Period 4 features was mostly characteristic of Middle to Late Iron Age fabrics and forms, with short-necked, slack-shouldered, globular and ovoid forms all represented (Banks, Appendix A2.2). There was limited evidence for possible transitional activity around the Early to earlier Middle Iron Age (*c.* 600–250/200 BC), as indicated by the presence of tall-necked and strong-shouldered vessels, particularly in association with the Phase 4.1 settlement in Area B (Banks, Appendix A2.2). Notably, the lack of carinated bowls and absence of fingertip impressed shoulder sherds suggests a date closer to around 400 BC, rather than earlier (Chapman 2023, 109; Banks, Appendix A2.2). The presence of Hunsbury-type bowls and La Tène style decoration indicate that activity could have continued into the 1st century BC (Banks, Appendix A2.2).

Scientific dating

A radiocarbon dating programme was undertaken to refine the chronology of the Middle to Late Iron Age settlement; however the availability of suitable material (bone, charcoal and charred plant remains) from secure contexts was limited to just 14 samples, from pits, ditches and a cremation burial in Areas A

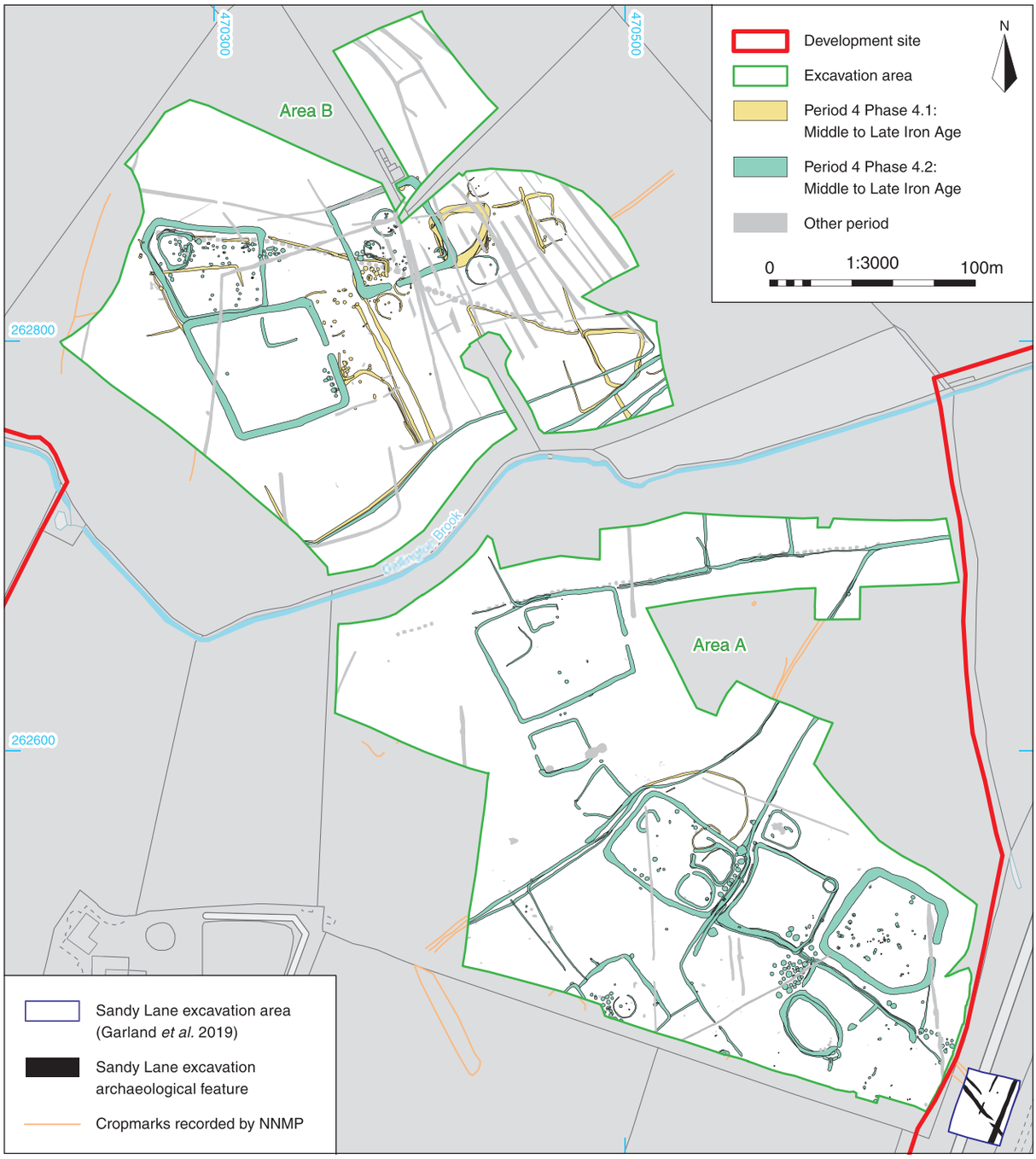


Fig. 5.1 Location and plan of Middle to Late Iron Age (Period 4 Phases 4.1–4.2) features in Areas A and B

and B (Table 5.1 and Fig. 5.4). Except for one sample, all yielded dates within the Middle Iron Age range of *406–109 cal BC*, with no differentiation between the two phases. Bayesian modelling of these radiocarbon results estimates that the settlement probably began in *445–265 cal BC* (Fig. 5.5) and ended in *345–140 cal BC* (Fig. 5.4), with the overall span of dated activity lasting 30–275 years (Hamilton, Appendix A3.9). The data from Areas A and B were sufficient to analyse them separately, revealing that activity in Area A began in *490–230 cal BC*, while in Area B it started in *480–255 cal BC* (Fig. 5.5) (Hamilton, Appendix A3.9). The estimated end dates for Area A range from *350 to 90 cal BC* and for Area B from *350 to 80 cal BC* (Fig. 5.5) (Hamilton, Appendix A3.9). These findings suggest that the activity on each side of the Dallington Brook

Fig. 5.2 Location and plan of Middle to Late Iron Age (Period 4 Phases 4.1–4.2) features in Area A

was broadly contemporaneous, although there is an indication that settlement in Area B may have begun and ended slightly earlier than in Area A (Hamilton, Appendix A3.9).

Summary

The radiocarbon dating samples were gathered from secure deposits; however, the limited availability of suitable biological material restricted the number of

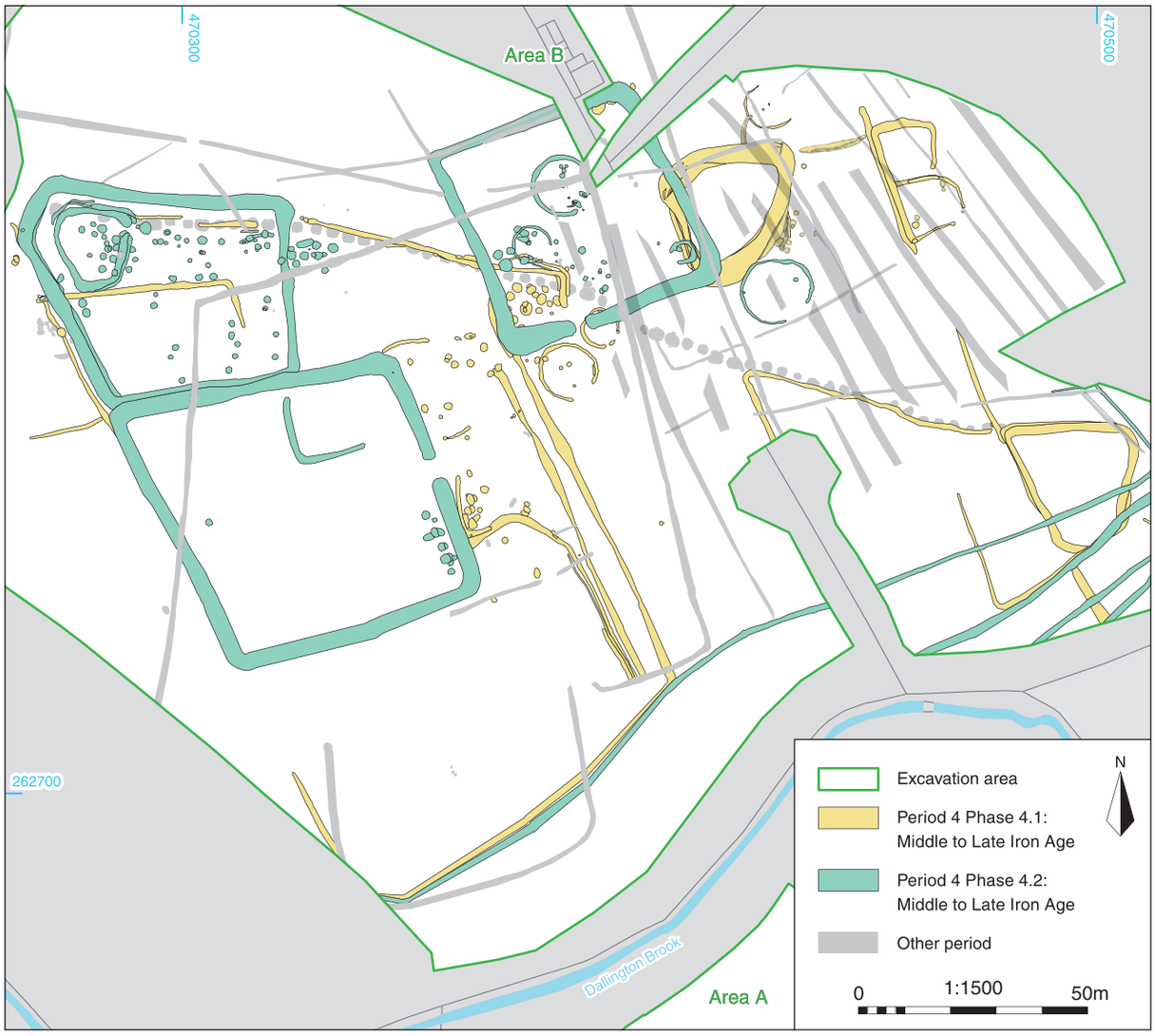


Fig. 5.3 Location and plan of Middle to Late Iron Age (Period 4 Phases 4.1–4.2) features in Area B

dates that could be obtained. It is important to recognise that this small sample of dates cannot necessarily be seen as fully representative of the date of the Iron Age settlement and there was limited opportunity to explore chronological nuances in aspects of the settlement, such as morphological changes for instance. The estimated end date ranges for the settlement in Areas A and B suggest that occupation may have continued as late as the early 1st century BC (Hamilton, Appendix A3.9); it is possible that had more radiocarbon dates been available this range may have extended further into the Late Iron Age. Certainly some aspects of the pottery assemblage and the morphology of some of the Phase 4.2 settlement components strongly suggest that occupation extended into the Late Iron Age.

Archaeological evidence (Period 4 Phase 4.1)

Evidence for Period 4 Phase 4.1 activity was identified in Areas A and B, though to varying degrees. Phase 4.1 activity in Area A was restricted to one enclosure and associated sub-enclosure (Fig. 5.6). The evidence for Phase 4.1 activity in Area B was more extensive and included six enclosures and four ring gullies. Several different types of enclosure were associated with this phase of activity, ranging over semi-circular, sub-square, broadly D-shaped and rectilinear, suggesting that they potentially had variable functions. Pits and postholes were also common feature of Phase 4.1 activity in Area B, often occurring in clusters or individually. It should be noted that, unless a clear function was discernible, features measuring less than 0.5m in diameter have been classified as postholes, while features larger than this

Table 5.1: Summary of radiocarbon dating results for Middle Iron Age features

Feature/ context	SUERC code	Material	Radiocarbon age (BP)	Calibrated radiocarbon age (95.4% probability)
Period 4 Phase 4.1				
Area B				
Context 20918 Pit 20916 Pit/posthole group PB2	SUERC-130102	CPR: spelt grain (*Triticum spelta*)	2243 ± 21	386–349 cal BC (27.1%) 311–207 cal BC (68.4%)
SK1 21708 from ditch B3A Cut 21934	SUERC-122925	Human bone – lower incisor tooth	2214 ±28	380–197 cal BC (95.4%)
Context 21953 Cremation burial 21952 in ditch B3A	SUERC-122129	Cremated Human Bone	2125 ± 24	341–323 cal BC (5.6%) 201–52 cal BC (89.8%)
Period 4 Phase 4.2				
Area A				
Context 10156 Cut 10155 Ditch AX	SUERC-130107	CPR: spelt grain (*Triticum spelta*)	2167 ± 23	356–280 cal BC (45.5%) 254–250 cal BC (0.4%) 232–147 cal BC (46%) 138–110 cal BC (3.5%)
Context 10281 Pit 10279 Pit/posthole group PA4	SUERC-130113	CPR: spelt grain (*Triticum spelta*)	2223 ± 22	380–342 cal BC (18%) 321–201 cal BC (77.4%)
Context 10713 Pit 10712 Pit group PA5	SUERC-130105	CPR: spelt grain (*Triticum spelta*)	2166 ± 23	355–281 cal BC (44.7%) 231–146 cal BC (46.6%) 140–109 cal BC (4.1%)
Context 11339 Pit 11332 Pit group PA7	SUERC-130114	CPR: hulled wheat grain (*Triticum dicoccum/spelta*)	2298 ± 27	406–354 cal BC (73.1%) 283–230 cal BC (22.3%)
Context 12114 Pit 12113	SUERC-130106	Charcoal: blackthorn/cherry (*Prunus* sp.)	2261 ± 24	394–351 cal BC (40.6%) 302–208 cal BC (54.8%)
Context 12429 Pit 12427 Pit/posthole group PA3	SUERC-130112	Charcoal: blackthorn/cherry (*Prunus* sp.)	2218 ± 20	374–341 cal BC (15.7%) 323–200 cal BC (79.8%)
Area B				
Context 20636 Pit 20635 Pit/posthole group PB6	SUERC-130116	CPR: spelt grain (*Triticum spelta)*	2246 ± 24	389–349 cal BC (28.9%) 312–206 cal BC (66.5%)
Context 20774 Pit 20773 Pit/posthole group PB6	SUERC-130115	CPR: spelt grain (*Triticum spelta*)	2300 ± 20	404–359 cal BC (87.1%) 276–261 cal BC (5.2%) 244–234 cal BC (3.2%)
Context 20909 Cut 20908 Ditch B4A	SUERC-130131	Animal Bone: pig scapula (*Sus scrofa*)	2224 ± 24	381–342 cal BC (18.9%) 322–201 cal BC (76.6%)
Context 21102 Cut 21098 Ditch B5.1	SUERC-130126	Animal Bone: cattle upper foreleg	2293 ± 24	403–356 cal BC (73%) 281–232 cal BC (22.5%)
Context 21247 Ring ditch 21246 Roundhouse RB1	SUERC-130103	CPR: spelt grain (*Triticum spelta*)	2234 ± 23	384–346 cal BC (22.1%) 317–204 cal BC (73.3%)

have been classed as pits, although it is acknowledged that there would have undoubtedly be some crossover.

Phase 4.1 features produced a modest assemblage of artefactual material, including 608 sherds (4515g) of Middle to Late Iron Age pottery, along with fired clay (3597g). A small assemblage of animal bone

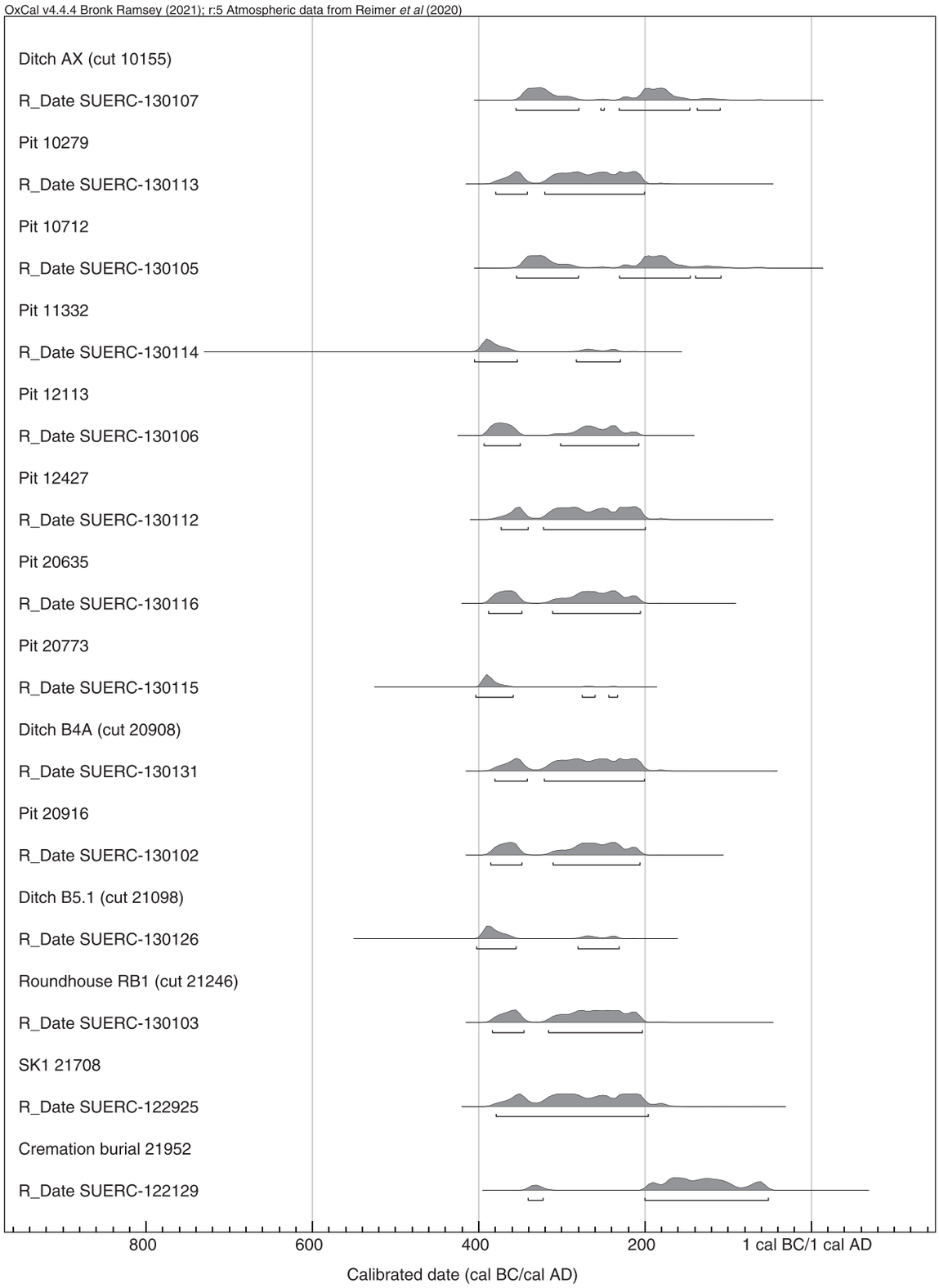


Fig. 5.4 Calibrated radiocarbon dates for Middle to Late Iron Age settlement features

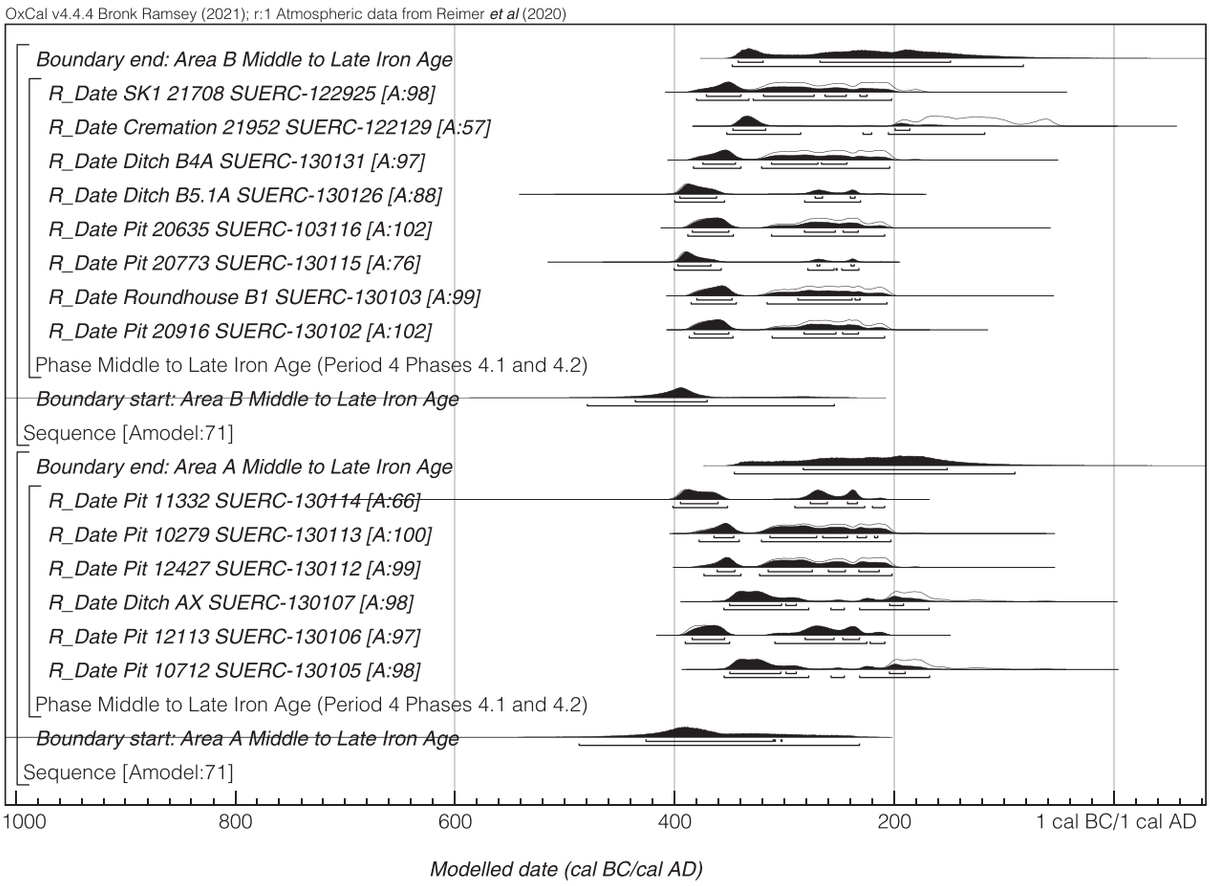


Fig. 5.5 Alternative chronological model for the Middle to Late Iron Age settlement that shows the probabilities for the start and end of the activity in each area

(1427 fragments/1082g), dominated by cattle and horse/donkey, with smaller quantities of sheep/goat, pig and dog/fox remains, was also recovered from Phase 4.1 features, along with small amounts of both disarticulated and cremated human bone (from Area B). Overall, Phase 4.1 features produced low levels of charred material and charcoal, typically comprising cereal grains (spelt, emmer and barley) and chaff, weed seeds (dominated by oats (*Avena* sp.), and brome grass (*Bromus* sp.). However, several pits (including 20916 and 20962) produced large environmental assemblages indicative of late stage crop processing waste material and hearth/oven waste material and these are discussed in more detail below (Wyles, Appendix A3.4).

Area A (Fig. 5.7)

In Area A features corresponding to Phase 4.1 comprised one enclosure (A14) and an associated sub-enclosure (A14.1), which were situated within the central portion of the excavation area, approximately 100m south of Period 3 pit alignment A (Figs 5.6–5.7).

Enclosure A14 and sub-enclosure A14.1 (Fig. 5.7)

Enclosure A14 was defined by a single curvilinear ditch (AI) that defined a broadly semi-circular-shaped area, 44m wide and at least 38m long. However, the north-western extent of ditch AIA1 was largely truncated by subsequent Phase 4.2 features, meaning that the full dimensions of the enclosed area could not be determined. It is possible, however, that the enclosure was open to the south-west. Ditch AI measured approximately 0.7m wide and 0.13–0.36m deep, though this varied along its length. It had moderately sloping concave sides and a flat base. Very little artefactual material was recovered from enclosure A14 and its associated features, comprising just two sherds (20g) of Middle to Late Iron Age pottery.

Sub-enclosure A14.1 was situated within enclosure A14, on the south side. It was broadly D-shaped and measured approximately 9m by 14m in extent. It was defined by ditch A14.1A, which was similar in width (0.6–0.7m) to ditch AI but slightly deeper in places (0.08–0.65m), with a concave profile. A 5m-wide gap at the north-eastern corner of the sub-enclosure may represent a potential entranceway; however, due

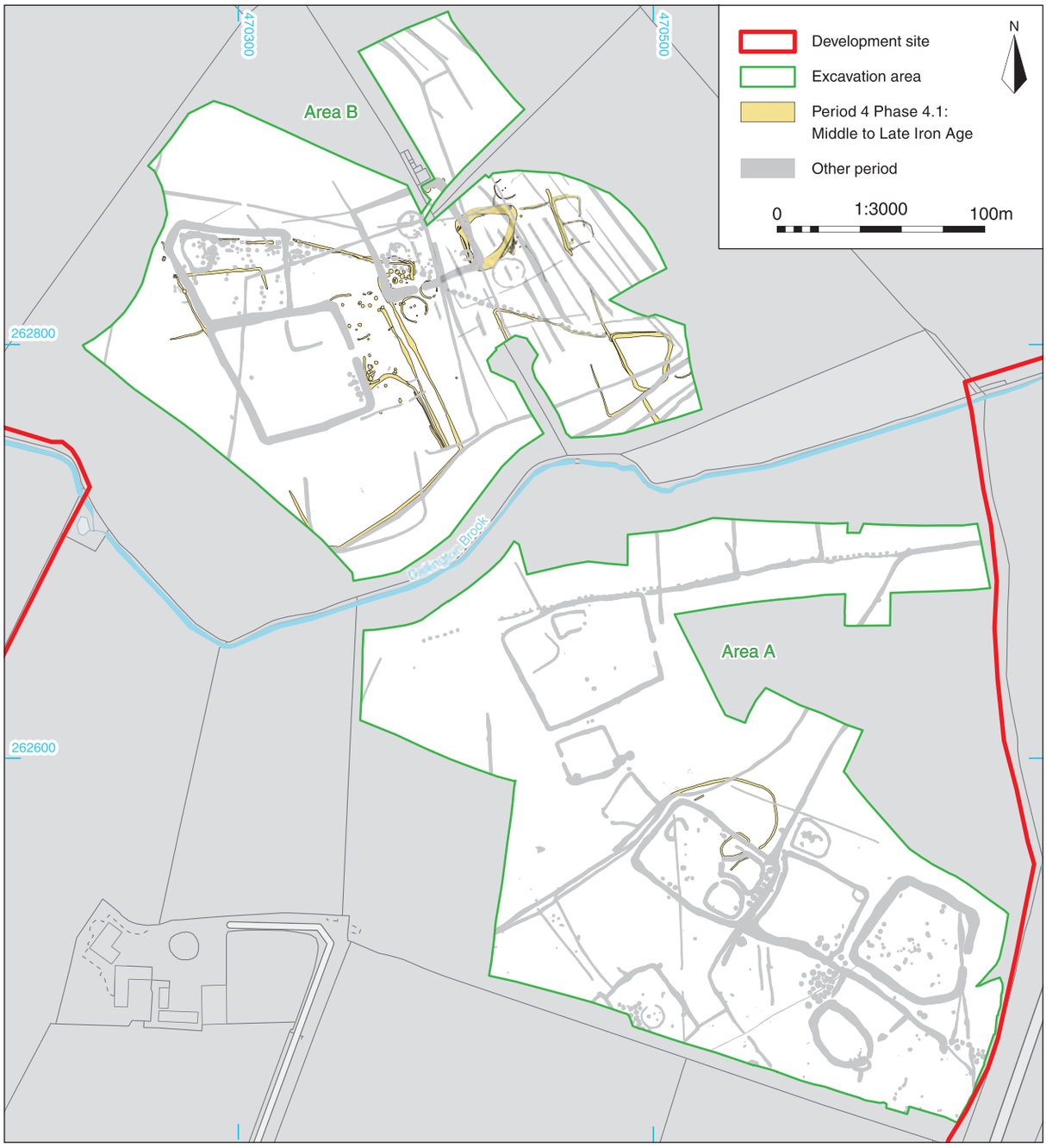


Fig. 5.6 Location and plan of Middle to Late Iron Age (Period 4 Phases 4.1 and 4.2) features in Areas A and B

to heavy truncation by subsequent Phase 4.2 ditches in this location, it is unclear whether this gap formed an intentional entrance or whether a portion of ditch A14.1A had been removed.

An additional short ditch (AAF) was also situated within enclosure A14 and may have been associated with internal arrangements within the enclosure, perhaps representing an internal partition.

Area B (Figs 5.8–5.18)

In Area B features pertaining to Phase 4.1 were identified across the excavation area. The enclosures formed two broad categories: rectangular, defined by straight, sometimes intermittent, ditches with north-west/south-east and south-west/north-east orientations (enclosures B1–B2 and B9–B10), and D-shaped (B3 and B12) (Fig. 5.8). The rectangular enclosures extended across Area

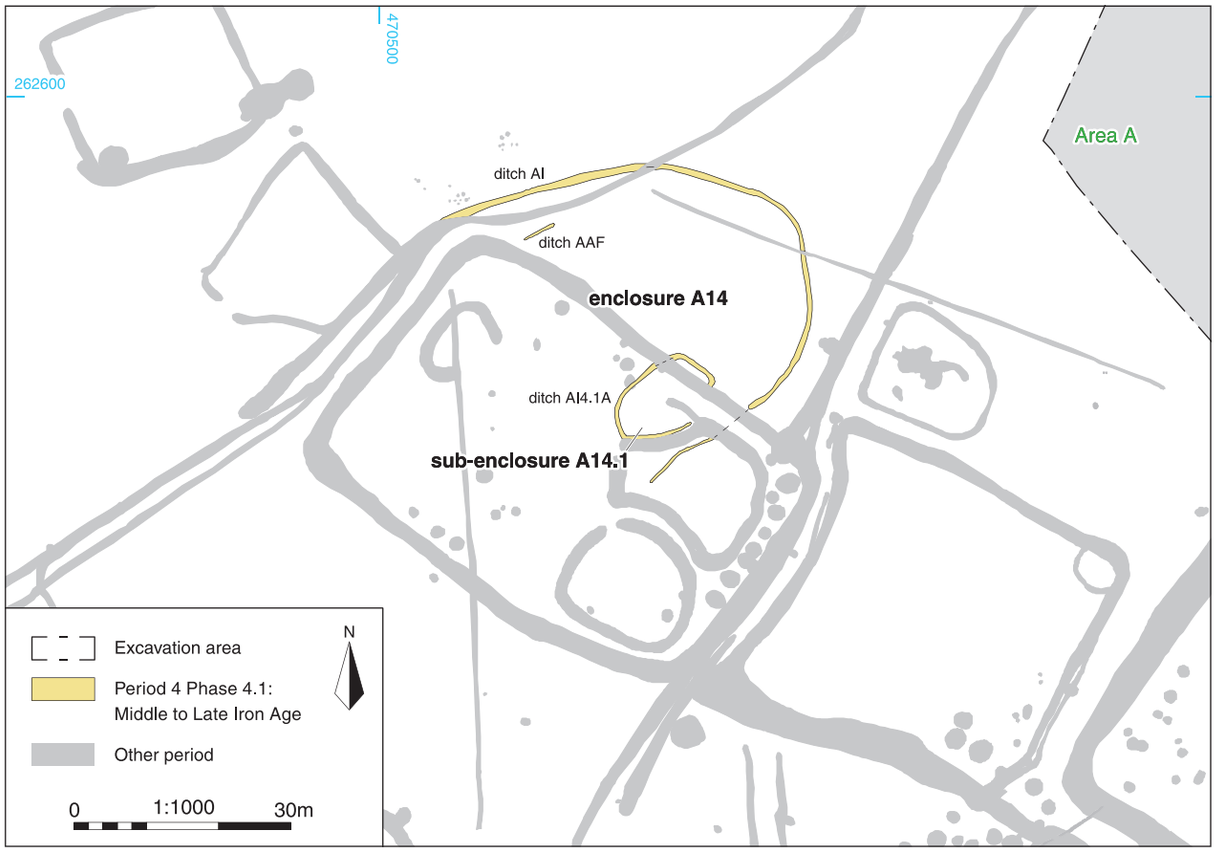


Fig. 5.7 Location and plan of Middle to Late Iron Age (Period 4 Phase 4.1) features in Area A

B, with enclosure B9 continuing beyond the limit of excavation to the west. Enclosure B1 was the largest, with enclosures B2 and B10 being of a similar shape but smaller size. All the rectilinear enclosures were defined by single ditches of variable widths (0.18–2.45m wide) and depths (0.07–0.98m deep), with concave sides and bases. Concentrations of pit/posthole groups (PB1–PB2, PB4 and PB9) and four roundhouses (RB3–RB4 and RB6–RB7) were also present in Area B.

Enclosure B1 (Figs 5.8–5.14)

Enclosure B1 occupied much of the western half of Area B, situated between Period 3 pit alignment B and the Dallington Brook. It contained multiple ditches, possibly pertaining to internal partitions and sub-enclosures, as well as dispersed and clustered pits and postholes.

The enclosure was approximately 145m long by 79m wide (Figs 5.8–5.9) and defined on the south, eastern and western sides by ditches B1B, B1F and BE (Fig. 5.9). Intermittent ditches B1N, B1O, B1P, B1R and B1S formed the northern boundary of the enclosure; notably these ditches followed the same course as Period 3 pit alignment B and appeared to form a redefinition of this boundary, truncating many of the earlier pits). This suggests that, although largely infilled, some remnant of pit alignment B remained in the landscape, influencing the layout of the later enclosure. The enclosure ditches varied considerably in width (0.18–2.45m wide) and depth (0.07–0.98m deep) but generally had steeply sloping sides and rounded bases. The uppermost fill at the terminals of ditches B1O and B1S contained a localised patch of stone cobbles (Fig. 5.10). There was no evidence to suggest that these stones had derived from a structure and they may instead represent a consolidation layer associated with an entrance into the north-east corner of enclosure B1.

Ditch B1Q was positioned adjacent to ditch B1F (Fig. 5.9) and potentially formed a redefinition of this boundary. Alternatively the regular spacing (3–5m wide gap) between the ditches, combined with their similar course and orientation, may suggest the ditches formed a trackway, potentially used for funnelling cattle or other livestock or allowing ease of access between the northern and southern parts of the enclosure.

The presence of internal divisions and/or sub-enclosures within the interior of enclosure B1 was indicated by ditches B1A, B1E, B1H, B1I, B1J, B1L and B1M (Fig. 5.9). In particular, ditches B1A, B1H/B1I/B1J and B1M may have formed sub-enclosures

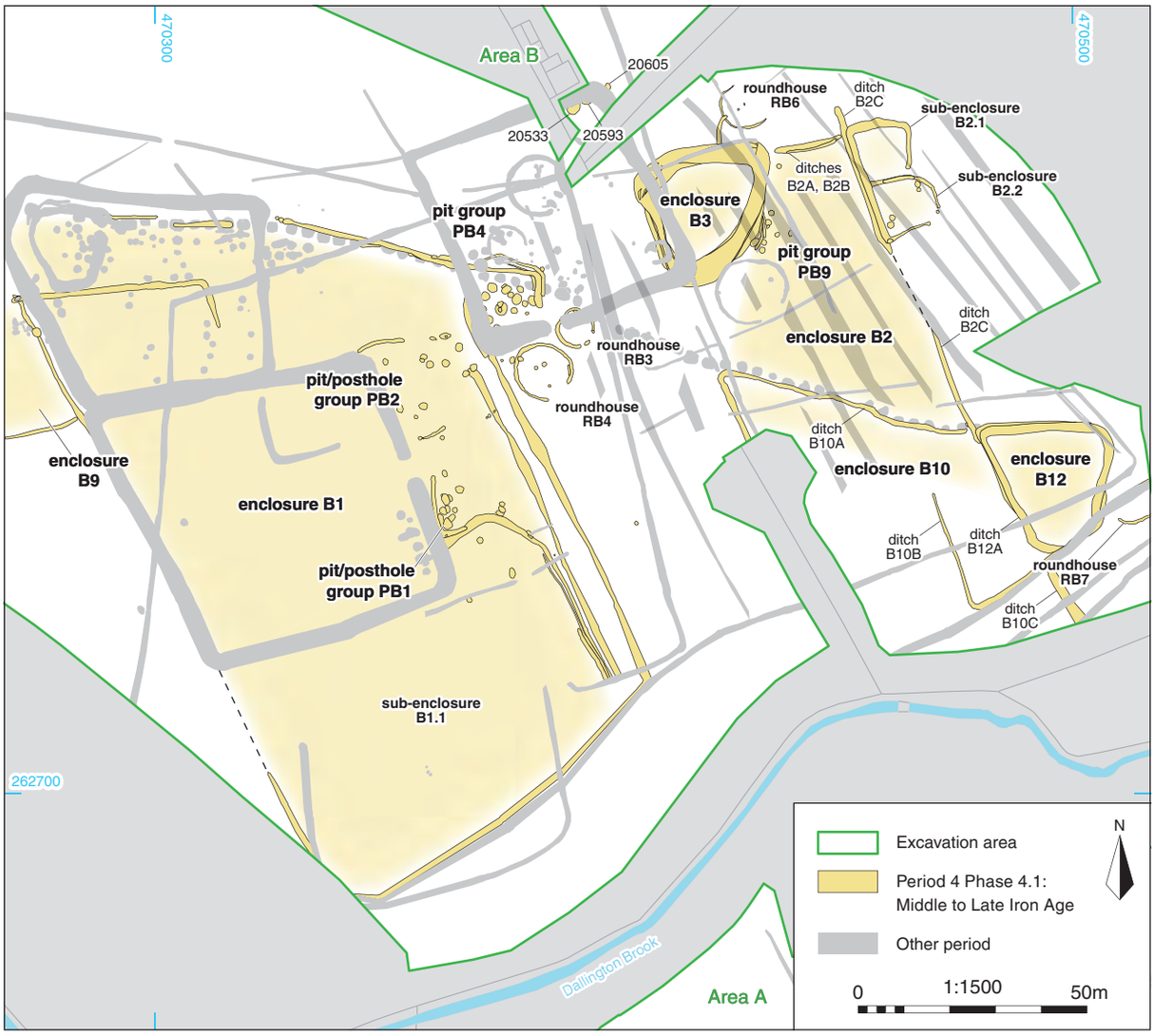


Fig. 5.8 Location and plan of Middle to Late Iron Age (Period 4 Phase 4.1) features in Area B

in the north-western and south-eastern corners of enclosure B1, respectively. The internal ditches were of similar width (0.3–2.1m) and depth (0.06–0.37m) to the external enclosure ditches and had similar profiles and fill sequences. Ditches B1E and B1L were both curvilinear in shape and potentially represent the heavily truncated remains of a circular enclosure with an internal diameter of approximately 21.5m, although it is possible that the ditches represented the remains of two separate roundhouse gullies. A substantially complete globular bowl with a flat-topped rim (Ra. 25; Banks, Appendix A2.2), typical of the Middle to Late Iron Age period, was recovered from the eastern terminus of ditch B1L.

Pit/posthole group PB1 (Fig. 5.11)

A cluster of 17 pits and two postholes (group PB1) was situated in the eastern half of enclosure B1 (Fig. 5.11). The pits within group PB1 were circular or oval and ranged in size between 1.09–3.3m long, 0.93–1.74m wide and 0.18–0.9m deep, with steep, concave sides and rounded to flat bases. Full details of the individual pits are presented in Appendix 1. The postholes were smaller and more circular in shape, measuring approximately 0.3m in diameter and 0.13–0.34m deep (Appendix 1). Many of the pits were intercutting, indicating that they represented several episodes of activity. Three of the pits (20754, 21811 and 21852) were also truncated by internal ditches associated with enclosure B1 and it is possible that they represent an earlier phase of activity. However, due to the absence of any artefactual evidence and their spatial relationship with the other pits, they have been included in pit/posthole group PB1.

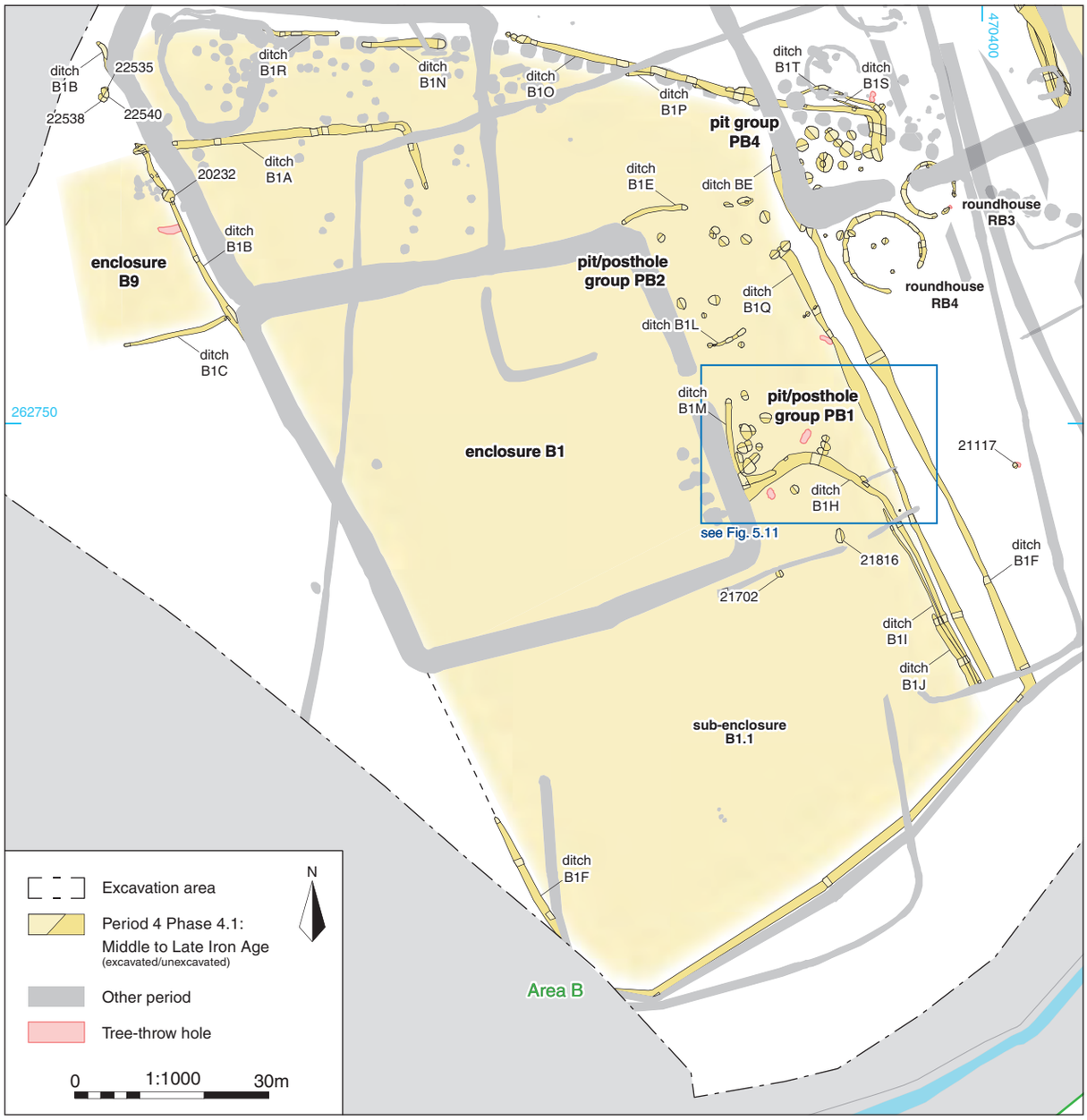


Fig. 5.9 Detailed plan of enclosure B1 and associated features

Pit/posthole group PB2 (Fig. 5.12)

Pit/posthole group PB2 was situated towards the north-eastern corner of enclosure B1 and comprised a loose cluster of 18 pits and one posthole (Fig. 5.12, Appendix 1). The pits were circular or oval and 0.55–3.2m wide, 0.5–1.5m long and 0.12–0.78m deep with steeply sloping concave sides and rounded or flat bases. The posthole measured 0.28m in diameter and 0.16m deep, with a concave profile.

Seven of the pits (20244, 20251, 20916, 20921, 20933, 20950 and 21189) were of particular note as they were arranged in a loosely circular grouping. It is possible that they were arranged around, or in relation to, a structure of some kind, although no traces of any associated features were identified during the fieldwork.

The pits and postholes produced a moderate assemblage of artefacts, including Middle to Late Iron Age pottery (101 sherds, 1132g), animal bone (104 fragments) and roughly cylindrical fragments of fired clay from pit 21189, which may represent oven furniture/structural material. Soil samples from pits 20916 and 20962 produced large assemblages of charred plant remains indicative of a mixture of late stage crop processing waste material, together with some hearth/

Fig. 5.10 Photograph of ditches B1O and B1S (Period 4 Phase 4.1) and Period 3 pit alignment B pits 21369 and 21380, under excavation

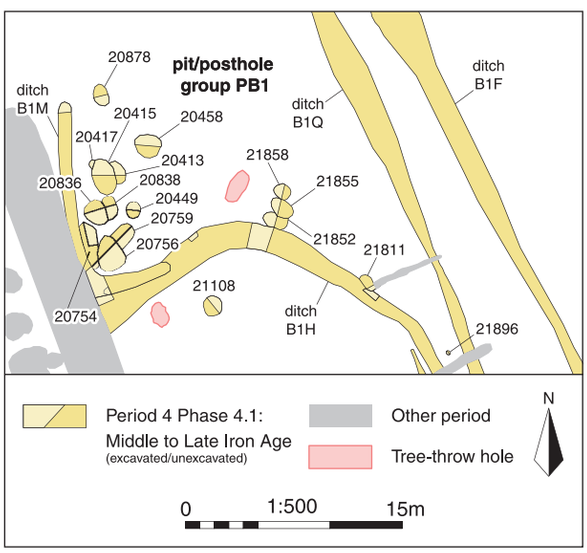


Fig. 5.11 Detailed plan of pit/posthole group PB1

oven waste material (Wyles, Appendix A3.4). They were dominated by weed seeds of oat, brome grass, docks, and black bindweed, species typical of grassland, field margins or arable environments (Wyles, Appendix A3.4). Both pits also contained charred cereal remains, including spelt, emmer and barley, and in pit 20962 grains outnumbered cereal chaff (Wyles, Appendix A3.4). A sample of spelt from pit 20916 produced a Middle Iron Age radiocarbon date (SUERC-130102; Table 5.1).

Pit group PB4 (Figs 5.12–5.14)

A tight cluster of 16 pits was situated in the north-east corner of enclosure B1 (Fig. 5.12, Appendix 1) and appeared to be enclosed by ditches B10 and BE. They were circular to oval in shape and generally had steeply sloping sides and flat bases (Fig. 5.13, Sections II and JJ; Fig. 5.14). They measured 0.5–2.8m in length, 0.5–2.86m in width and 0.14–1.18m in depth. In contrast to pit/posthole group PB2 only a very small quantity of pottery (2 sherds, 52g) was present, all from one pit (21024).

Ten of the pits (20219, 20731, 20734, 21039, 21111, 21113, 21135, 21232, 21769 and 22004; Fig. 5.12) formed a circular arrangement, enclosing an area that was 5–6m in diameter, with a 4m-wide gap on the south

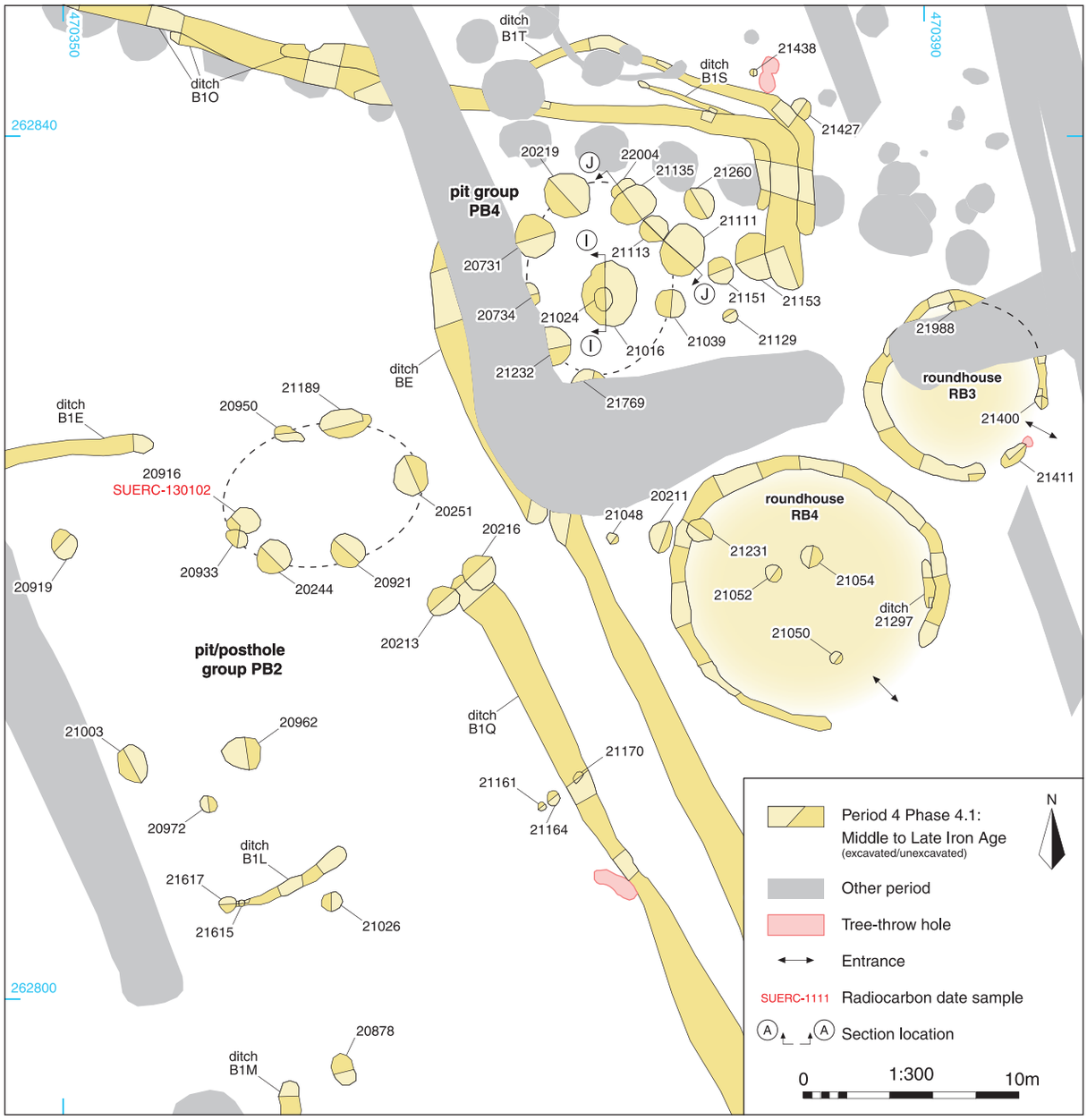


Fig. 5.12 Detailed plan of pit/posthole groups PB2 and PB4, and roundhouses RB3 and RB4

side. Pit 21016 was positioned centrally within the circle and appeared to be enclosed by the other ten pits (Fig. 5.12). There was no evidence to explain why the pits were arranged in this way but this configuration could imply that pit 21016 was the earliest in the sequence and the subsequent pits were placed around it, forming a circle.

Enclosure B9 (Fig. 5.9)

Enclosure B9 was defined by ditches B1C to the south and ditch B1B to the east (Fig. 5.9). The western and northern enclosure boundaries were not identified during the excavation; they potentially lay beyond the western boundary of Area B or were no longer present due to truncation. The enclosure ditches were approximately 0.45–0.6m wide and 0.09–0.36m deep with moderately sloping concave to straight sides and rounded bases.

Three intercutting pits (22535, 22538 and 22540) and an additional pit (20232) were associated with enclosure B9. The pits were sub-circular with concave sides and bases. They varied in size but were generally 0.69–5m in diameter and 0.57–0.86m in depth. Pit 20232 appeared to truncate enclosure ditch B1B but may have been a

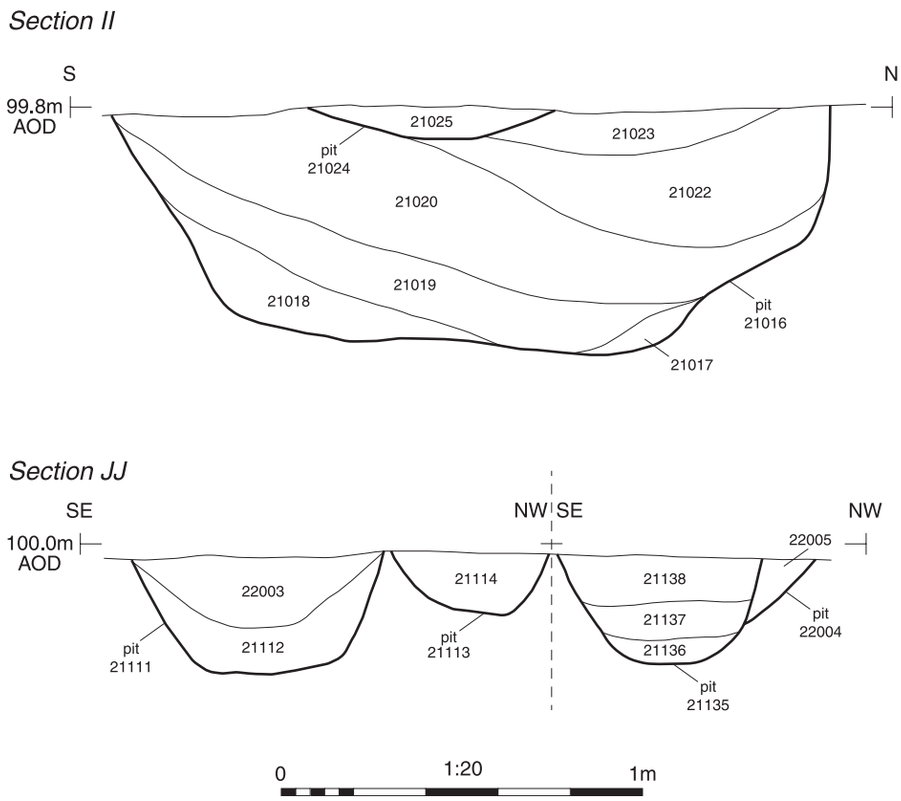


Fig. 5.13 Sections II and JJ of pit group PB4 pits 21016, 21024, 21111, 21113, 21135 and 22004

Fig. 5.14 Photograph of pit group PB4 pits 21016 and 21024, looking west (2m scale)

contemporaneous sump-pit for drainage, as it was much deeper (0.86m) than the ditch (0.20m).

Roundhouses RB3–RB4 (Figs 5.9 and 5.12)

Situated immediately to the east of enclosure B1 were two circular ring gullies, defining the probable location of roundhouses (RB3 and RB4; Figs 5.9 and 5.12). The ring gullies had shallow concave profiles (0.3–1.13m wide), suggesting they were more likely to be associated with drainage opposed to being structural in nature. The gullies appeared to have formed a pair, with roundhouse RB4 situated approximately 1.5m south-east of roundhouse RB3 (Fig. 5.12). Roundhouse RB4 was noticeably larger (with an internal diameter of 11m) than RB3 (internal diameter: 7m) though the depths of the ring gullies were broadly comparable (not exceeding 0.3m deep). The ring gullies produced Middle to Late Iron Age pottery (55 sherds, 366g) and a fragment of animal bone.

Both roundhouses had south-east-facing entrances (4–5.5m wide). Shallow feature 21411 (0.13m deep) was situated within the entrance of roundhouse RB3 (Fig. 5.12), and while it may have formed a truncated element of the ring gully, it was perhaps a separate feature, possibly a door post or similar entrance structure. An additional pit (21400) situated within the eastern terminal of the ring gully may also have related to an entrance structure. Pit 21400 produced a small amount of Middle to Late Iron Age pottery (four sherds, 16g) and animal bone (four fragments).

Roundhouses RB3 and RB4 were each associated with

a number of internal and external features. A potentially linear feature (21988) truncated a portion of the northern section of the ring gully defining roundhouse RB3. It possibly represents a recut of the ring gully, although this could not be confirmed as the feature was largely truncated by subsequent Phase 4.2 activity. Three sherds (26g) of Middle to Late Iron Age pottery were recovered from the feature.

Five features were located within the interior of the gully defining roundhouse RB4, comprising a short ditch (21297) and four small pits (21050, 21052, 21054 and 21231; Fig. 5.12). Short ditch 21297 was approximately 2m long, 0.35m wide and up to 0.09m deep, with concave sides and a flat base. It was partially cut by the ring gully but due to its location it is possible this feature represents an earlier iteration of the gully; the fills of both features were very similar (bluish grey and greyish brown silty and sandy clay) and it is likely that the two were broadly contemporaneous.

Pits 21050, 21052, 21054 and 21231 were circular in shape and of similar size (0.7–0.98m long, 0.66–0.93m wide and 0.08–0.34m deep). They generally had steep, straight or concave sides and flat bases. The pits located broadly in the centre of the roundhouse could represent structural elements, such as roof supports. However, pit 21231 truncated the north-western section of the ring gully and is likely to represent a slightly later episode of activity, post-dating the use of the roundhouse. Despite this, it contained Middle to Late Iron Age pottery (13 sherds, 58g).

Two pits (20211 and 21048) were located outside roundhouse RB4 (Fig. 5.12) and may have been associated with its use. The pits produced a small amount of Middle to Late Iron Age pottery (eight sherds, 47g) and animal bone.

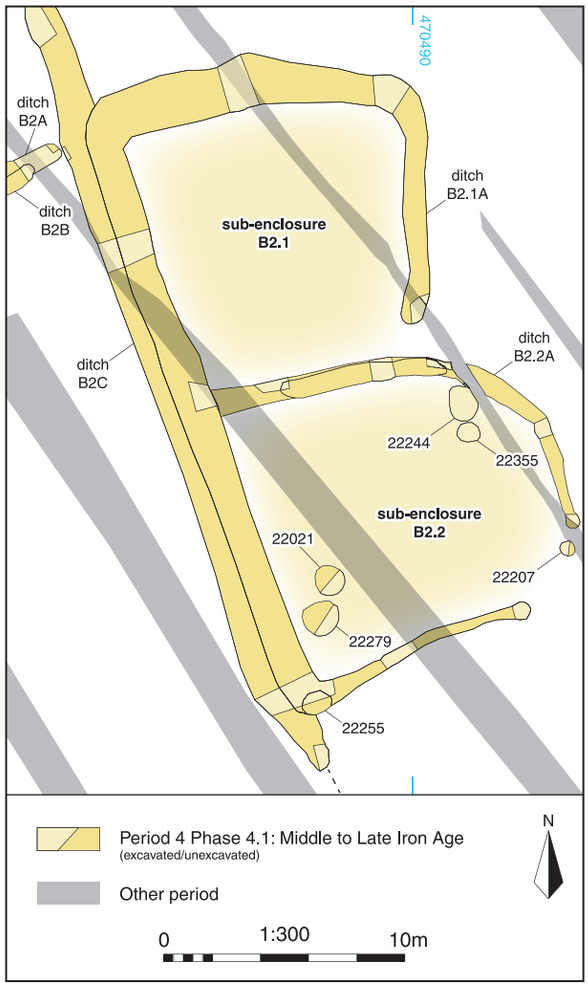


Fig. 5.15 Detailed plan of sub-enclosures B2.1 and B2.2

Enclosure B2 (Figs 5.8 and 5.15)

Enclosure B2 was defined by ditches B2A–B2C (Fig. 5.8). The enclosure's northern boundary was defined by ditch B2A, which had been redug at least once along the same course (ditch B2B; Figs 5.8 and 5.15). Its southern boundary was defined by the northern boundary (ditch B10A) of enclosure B10, which was situated immediately to the south (Fig. 5.8). No clear western boundary for the enclosure was observed within the limit of the excavation, but the enclosure measured at least 60m by 70m in size. The ditches had concave profiles and measured between 0.25–1.54m wide and 0.07–0.55m deep.

Two sub-enclosures (B2.1 and B2.2) were appended to the east side of enclosure B2 (Figs 5.8 and 5.15) and differed in size and shape to enclosure B2.

Sub-enclosures B2.1 and B2.2 (Figs 5.8 and 5.15)

Sub-enclosures B2.1 and B2.2 were similar in shape and size (approximately 10m by 12m) (Fig. 5.15) and were defined by ditches B2.1A and B2.2A. The sequence of ditches suggests that sub-enclosure B2.2 was established first and was later replaced by or incorporated into the layout of sub-enclosure B2.1.

Ditches B2.1A and B2.2A measured 0.2–1.92m wide and 0.14–1m deep with steeply sloping concave or straight sides and rounded bases, with ditch B2.2A being narrower and shallower than B2.1A. Entrances were positioned at the south-eastern corners of the two sub-enclosures, indicated by 1.2m and 3m wide gaps. Pit 22207 was situated on the eastern side of the entrance into sub-enclosure B2.2 (Fig. 5.15). The pit was 0.56m in diameter and 0.25m deep with a concave profile. Due to its location it is possible the pit formed part of an entranceway structure, such as a gate post.

The interior of sub-enclosure B2.1 was devoid of features but sub-enclosure B2.2 contained four pits (22021, 22244, 22279 and 22355). A fifth pit was positioned on the south-west corner of the sub-enclosure and appeared to truncate the ditch (Fig. 5.15). The pits were circular with steep, concave profiles and generally measured 1–1.6m in diameter and 0.43–0.64m deep.

The exception to this was pit 22355, which was slightly smaller (0.88m diameter) and much shallower (0.11m deep). Moderate quantities of Middle to Late Iron Age pottery (81 sherds, 280g) were recovered from the pits, while pits 22021, 22244 and 22355 also contained animal bone (1009 fragments), some of which was burnt. Small assemblages of charred cereal remains, weed seeds and charcoal were also present (Wyles, Appendix A3.4). High numbers of plant remains were recovered from pit 22244, consisting of cereal remains (emmer, spelt and barley), with the chaff elements outnumbering the grains (Wyles, Appendix A3.4). These assemblages appear to be reflective of dumped late stage crop processing waste material (Wyles, Appendix A3.4).

Enclosure B10 (Fig. 5.8)

Enclosure B10 comprised an irregular-shaped enclosure (approximately 71m by 61m in extent) (Fig. 5.8), defined on the north, east and west sides by ditches B10A, B2C and B10C. Ditch B10A broadly followed the course of Period 3 pit alignment B and truncated the former pit features (Fig. 5.8). No boundary was identified to the south, indicating that this side may have been open or that the southern limit of enclosure B10 might have been defined by the brook. An L-shaped ditch (B10B; Fig. 5.8) was situated on the eastern side of the enclosure and could have formed a sub-enclosure, approximately 14m by 34m in extent and with an entrance to the north-west.

D-shaped enclosure B3 and pit group PB9 (Figs 5.8 and 5.16–5.18)

D-shaped enclosure B3 was situated in the north-west corner of enclosure B2, potentially representing a later but broadly contemporaneous episode of modification to the enclosure system in this part of Area B (Figs 5.8 and 5.16).

Enclosure B3 had an internal area of approximately 18m by 24m, which was defined by ditch B3A (Fig. 16). Ditch B3A had been recut at least six times on roughly the same course, representing continued maintenance. The ditch varied considerably in width (0.48–5.48m wide) and depth (0.26–1.59m deep), though it generally had steeply sloping concave and irregular sides and a rounded base (Fig. 5.17, Section KK and Fig. 5.18). Ditches B3B–B3D were three short (up to 7.5m long), sinuous ditches that were truncated by enclosure B3 and extended broadly southwards from its south-east corner (Fig. 5.16). It is possible that these ditches formed earlier iterations of the enclosure ditch, although they were much narrower and shallower.

No entrance into the enclosure was visible but the layout of the earliest ditches in the sequence (B3B, B3C and B3D) suggest that one could have existed on the south-east side before being cut by a series of recut ditches, represented as B3A.

A human cranium, teeth, fragments of disarticulated human femur (SK1), a small quantity of cremated bone (100.8g) and animal bone was recovered from one of the later recuts (21934 and 21952; Fig. 5.17, Section KK) of enclosure B3 ditch B3A. Analysis of the human bone tentatively suggests that the remains belonged to an adult male (Clough, Appendix A3.1). No clear grave cut was identified within the ditch, indicating that the bones may have been from a disturbed burial or deposited as they were. Radiocarbon dating undertaken on a human incisor from SK1 produced a Middle Iron Age date (SUERC-122925; Table 5.1).

Additionally, the cremated remains of a child, aged approximately 3 years old, was deposited just above SK1 in the latest recut (21952) of enclosure ditch B3A (Fig. 5.17; Clough, Appendix A3.1). Radiocarbon analysis conducted on a sample of the cremated human bone produced a Middle to Late Iron Age date range of 341–52 cal BC at 95.4% probability or 176–60 cal BC at 68.3% probability (SUERC-122129; Table 5.1; Hamilton, Appendix A3.9, Table A3.75), which could mean that the enclosure ditch continued to be maintained, or remained partially open, into the later Iron Age.

Pit group PB9 (Fig. 5.16)

Pit group PB9 was situated to the east of enclosure B3 and several of the pits were cutting or cut by ditches B3B–B3D, suggesting that the pits represent several phases of activity. The group comprised eight pits (Fig. 5.16; Appendix 1) that were circular or oval and ranged in width (0.62–1.6m wide) and depth (0.18–0.96m deep), though they generally had concave sides with rounded to flat bases. Pits 21861 and 21993 produced a small assemblage of Middle to Late Iron Age pottery (11 sherds, 126g).

Roundhouse RB6 (Fig. 5.16)

Semi-circular ditch B6 was situated immediately to the north of enclosure B3 and enclosed an area approximately 10m in diameter (Fig. 5.16). While the northern portion of the feature did not survive, it is interpreted as a truncated ring gully associated with a roundhouse. The ditch measured 0.2–0.5m wide and 0.06–0.15m deep and had a shallow concave profile, indicative of a drainage rather than structural purpose. Though no artefactual material was recovered from the roundhouse, it is considered broadly contemporaneous with roundhouses RB3 and RB4.

Roundhouse RB6 was partially truncated by short ditch BF (Fig. 5.16), which was in turn truncated by enclosure B3. It is unclear whether the ditch represented activity associated with the use of the roundhouse but it is considered likely to be broadly contemporaneous with it, perhaps representing an associated annex or a drainage feature, draining water away from the roundhouse into an earlier iteration of ditch B3A. Two postholes (22747 and 22748) were situated within the interior of roundhouse RB6 (Fig. 5.16); due to their central location it is possible the features had a structural function, such as roof supports.

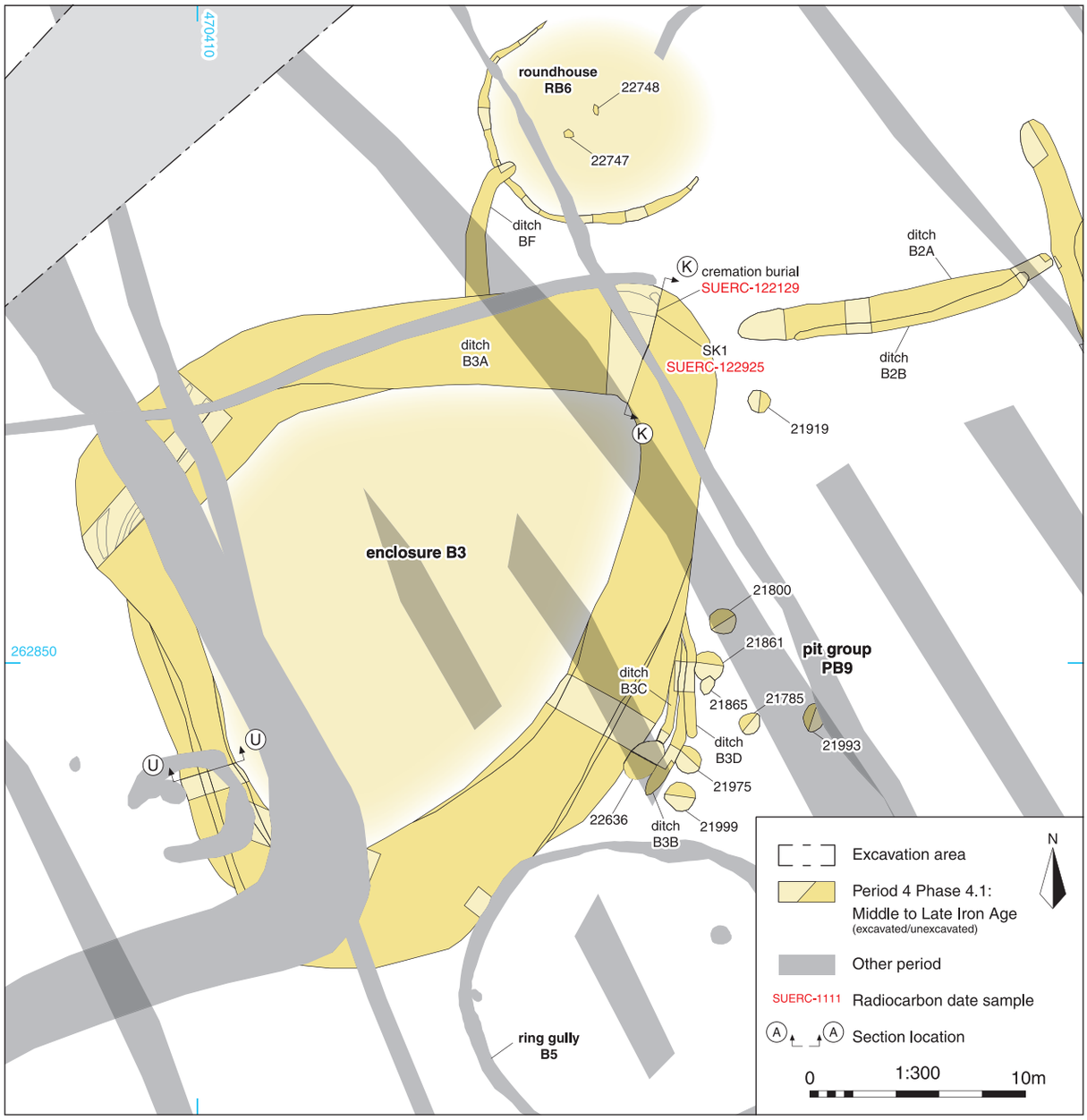


Fig. 5.16 Detailed plan of enclosure B3 and associated features

D-shaped enclosure B12 (Fig. 5.8)

Enclosure B12 was situated in the south-east corner of Area B, appended to the outside eastern edge of enclosure B10 (Fig. 5.8). The D-shaped enclosure was defined by ditch B12A, which had been redug at least once on the same course, and enclosed an area approximately 29m by 22.5m. The enclosure ditches were generally narrower (1.62–2.4m wide) than those defining D-shaped enclosure B3 but were of a similar depth (0.17–1.22m deep) and profile (steeply sloping concave to straight sides and rounded bases). Like enclosure B3, no entrance into the enclosure was found during the excavation.

Ditch B12A was filled by a sequence of light to dark orangey or greyish brown or greyish blue silty sand fills that were on the whole sterile. Only 18 sherds (87g) of Middle to Late Iron Age pottery and five fragments of animal bone was recovered from the enclosure ditch.

Possible roundhouse RB7 (Fig. 5.8)

A curvilinear gully (RB7) was situated approximately 4m south-east of enclosure B12, which potentially represented the truncated remains of a roundhouse (RB7; Fig. 5.8). The ditch was at least 7m long and extended beyond the eastern limit of the excavation. No northern

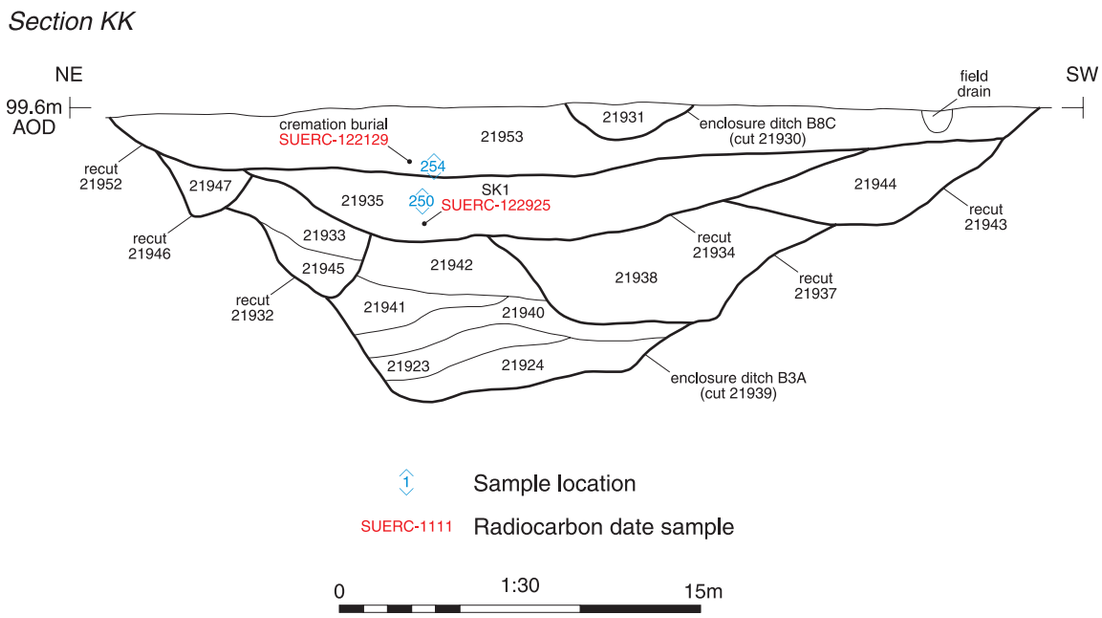


Fig. 5.17 Section KK of enclosure ditch B3A and its recuts and Period 5 enclosure ditch B8C

Fig. 5.18 Photograph of enclosure ditch B3A and its recuts, and Period 5 enclosure ditch B8C, looking south-east (2m scale)

return was observed, potentially due to truncation from Phase 4.2 ditches and Period 8 plough furrows. The gully was 0.3–0.5m wide and had a shallow (0.08–0.13m deep) concave profile. It contained a single fill that produced nine sherds (37g) of Early to Middle Iron Age pottery and could potentially be of a slightly earlier date than the rest of the Phase 4.1 settlement in Area B.

Dispersed pits (Figs 5.8–5.9 and 5.12)

Two pits (21117 and 21427) were situated between enclosures B1, B2 and B10 and have been assigned to Phase 4.1 based on their proximity to the enclosures (Figs 5.9 and 5.12). They did not contain any datable artefacts but pit 21427, situated just to the north-east of pit group PB4 in enclosure B1, contained a high number of hazelnut shell fragments, apple/pear fruit fragments, cereal grains (including spelt) and weed seeds, representative of crop processing waste material (Wyles, Appendix A3.4).

Three additional pits (20533, 20593 and 20605) were situated to the north of enclosure B3 (Fig. 5.8). They measured 1.28–1.94m in diameter and 0.24–58m deep, with steeply sloping concave sides and concave to flat bases. Each of the features were truncated by Phase 4.2 ditch B6A (discussed below) and although the features contained no artefactual material, they have been tentatively assigned to Phase 4.1 due to their proximity to enclosure B3.

Archaeological evidence (Period 4 Phase 4.2)

A second phase of Middle to Late Iron Age activity (Phase 4.2) was represented by a series of individual and conjoined enclosures and fields within Areas A and B, as well as associated sub-enclosures, pits and postholes, boundaries and a trackway (Fig. 5.19). The enclosures associated with Phase 4.2 activity were generally more regular and organised in their layout than those of the preceding phase, as well as being more consistent in shape (rectangular or square), although there was considerable variation in their size. The presence of pits, postholes and sub-enclosures within some of the enclosures suggests that they had different functions, with the presence of roundhouses suggesting at least two had a domestic function. One enclosure was oval and situated apart from the main alignment of enclosures in Area A and may have had a different function.

Fig. 5.19 Location and plan of Middle to Late Iron Age (Period 4 Phase 4.2) features in Areas A and B

Phase 4.2 features contained the largest assemblage of artefacts, including a substantial quantity (2035 sherds, over 23kg) of Middle to Late Iron Age pottery, with a small component of residual Early to Middle Iron Age pottery (53 sherds, nearly 1.5kg). In addition to this a spindle whorl (Ra. 12), saddle quern (Ra. 23), part of a triangular loomweight, fragments of oven furniture, an iron knife (Ra. 13) and a small quantity of industrial waste were recovered. The largest quantity of animal bone (1909 fragments/4781g) also came from this phase of activity (dominated by cattle, followed by sheep/goat and equids, with smaller quantities of pig, dog/fox, cat and red deer antler), with some articulated animal remains deposited in ditches and pits. As with the Phase 4.1 features the environmental remains recovered from Phase 4.2 features generally comprised small quantities of charred cereal remains (including spelt, emmer, barley and hulled wheat grains), weed seeds (comparable

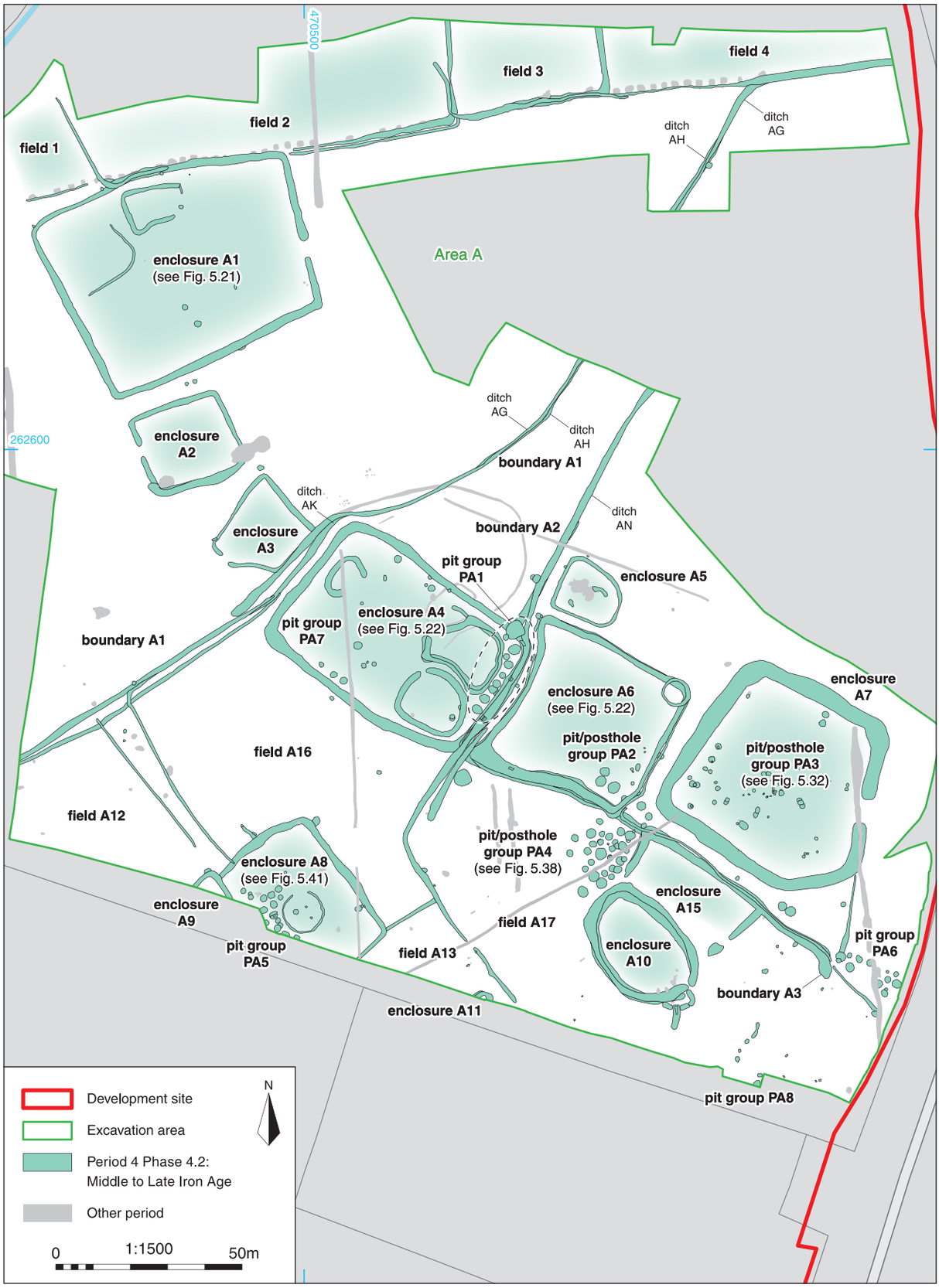


Fig. 5.20 Location and plan of Middle to Late Iron Age (Period 4 Phase 4.2) features in Area A

species to the Phase 4.1 features) and charcoal. However, several larger assemblages of charred grains were recovered from pits and ditches in Areas A and B, which were indicative of late stage crop processing waste and domestic hearth/oven waste material. It is notable that small quantities of waterlogged remains (including rush, water crowfoot and small nettle) were recovered from Phase 4.2 features, largely from those situated along the floodplain in Area A, suggesting localised flooding or standing water within these features.

Area A (Figs 5.20–5.50)

In contrast to the limited evidence for Phase 4.1 activity in Area A, the Phase 4.2 features were much more substantial (Fig. 5.20) and extended beyond the limits of the excavation area. A series of 12 newly established enclosures were constructed (A1–A11 and A15), the majority of which were arranged on the same broadly north-west to south-east axis, although some diverged from this arrangement (A5, A8, A9, A10 and A11). For the most part these enclosures were rectangular or square in shape (A1–A9 and A15), however at least one was oval (A10).

Coinciding with these new enclosures were two boundary ditches (A1 and A2) that traversed Area A on a broadly north-east to south-west alignment. To the south of the main enclosure group, these boundaries had been incorporated into a field system (A12–A13 and A16–A17). The fields were less uniform in layout compared with the enclosures and were defined by narrower and shallower ditches, and on the whole contained far fewer pits. Several of the discrete enclosures (A8–A11 and A15) were also situated within this field system. During this period, Period 3 pit alignment A was redefined by ditches associated with a series of fields that extended east to west along the floodplain in the northern part of Area A.

Enclosure A1 and associated features (Fig. 5.21)

Enclosure A1 was situated in the northern half of Area A and was associated with two possible sub-enclosures (A1.1 and A1.2), three dispersed pits (12029, 12113 and 12177) and a posthole (12212) (Fig. 5.21).

The enclosure was defined by ditch A1A, which partially truncated Period 3 pit alignment A (Fig. 5.21), and defined a rectangular area measuring 61.5m by 46m. An east-facing entrance was suggested by a 4.5m wide gap in the enclosure ditch on its eastern side. The enclosure ditch varied in width (1.2–2.93m wide) and depth (0.47–1.5m deep) but consistently had steeply sloping sides and a rounded base (see Fig. 4.5, Section GG and Fig. 4.6). Ditch A1A contained a sequence of up to 12 fills that produced 21 sherds (233g) of Middle to Late Iron Age pottery. Generally, the enclosure ditch produced sparse quantities of charred plant remains, however a sample recovered from the northern boundary ditch, closest to the floodplain, produced a moderate assemblage of uncharred and waterlogged remains, including rush, water crowfoot and small nettle (Wyles, Appendix A3.4).

Three monolith samples taken from the enclosure ditch indicated that the lower fills were the result of the ditch sides eroding, with the symmetrical geometry of the lower part of the ditch indicating the erosion of both sides, possibly shortly after the ditch was excavated (Kowalska, Appendix A3.3). Humified organic matter from within the ditch suggests that the ditch had been overgrown by vegetation at some point; the ditch's clay fills were potentially derived from flooding episodes as a result of its location close to the floodplain (Kowalska, Appendix A3.3).

Sub-enclosure A1.1 was established in the northern half of enclosure A1 and was defined by ditch A1.1A, which enclosed an area of at least 15m by 8m (Fig. 5.21). An entrance on the eastern side was indicated by an approximately 8m-wide gap in ditch A1.1A. Short ditch 12296 and pit 12208 were both situated within the entrance of the sub-enclosure and may have been associated with entranceway structures contemporaneous with the enclosure.

An additional sub-enclosure (A1.2) was indicated by L-shaped ditch A1.2A, situated to the west of sub-enclosure A1.1 (Fig. 5.21). The ditch demarcated the eastern and southern sides of a square sub-enclosure in the north-western corner of enclosure A1, with the main enclosure ditch forming the northern and western sides. Two potential entrances were situated in the south-western and north-eastern corners of the sub-enclosure, though due to the shallow depth of preservation for much of this ditch it is possible these were instead the result of truncation.

Pits 12029, 12113 and 12177 and posthole 12212 were situated in the interior of enclosure A1; the three pits were located in the south and the posthole was located along the northern edge of the enclosure (Fig. 5.21). The pits were generally of similar size (1.5m diameter), though varied in depth (between 0.15–0.93m deep). In contrast posthole 12212 was much smaller; it had a diameter of 0.4m and was 0.13m deep. The fills of the pits and posthole were generally sterile and comprised a mix of mid-yellowish or greyish brown silty sand. Pit 12113, however, contained four fills, the lowest two fills comprising dark greyish black sandy silt and mid-blueish grey silty clay that produced burnt stone and two sherds (23g) of Middle to Late Iron Age pottery. This included a sherd of a slack-shouldered bowl with a simple upright rim. A sample of charcoal of *Prunus* sp. (blackthorn/cherry) recovered from the lowest fill of pit 12113 was radiocarbon dated to the Middle Iron Age (SUERC-130106; Table 5.1).

Enclosure A2 (Fig. 5.21)

Enclosure A2, situated to the south of enclosure A1, was on the same curving north-west/south-east alignment

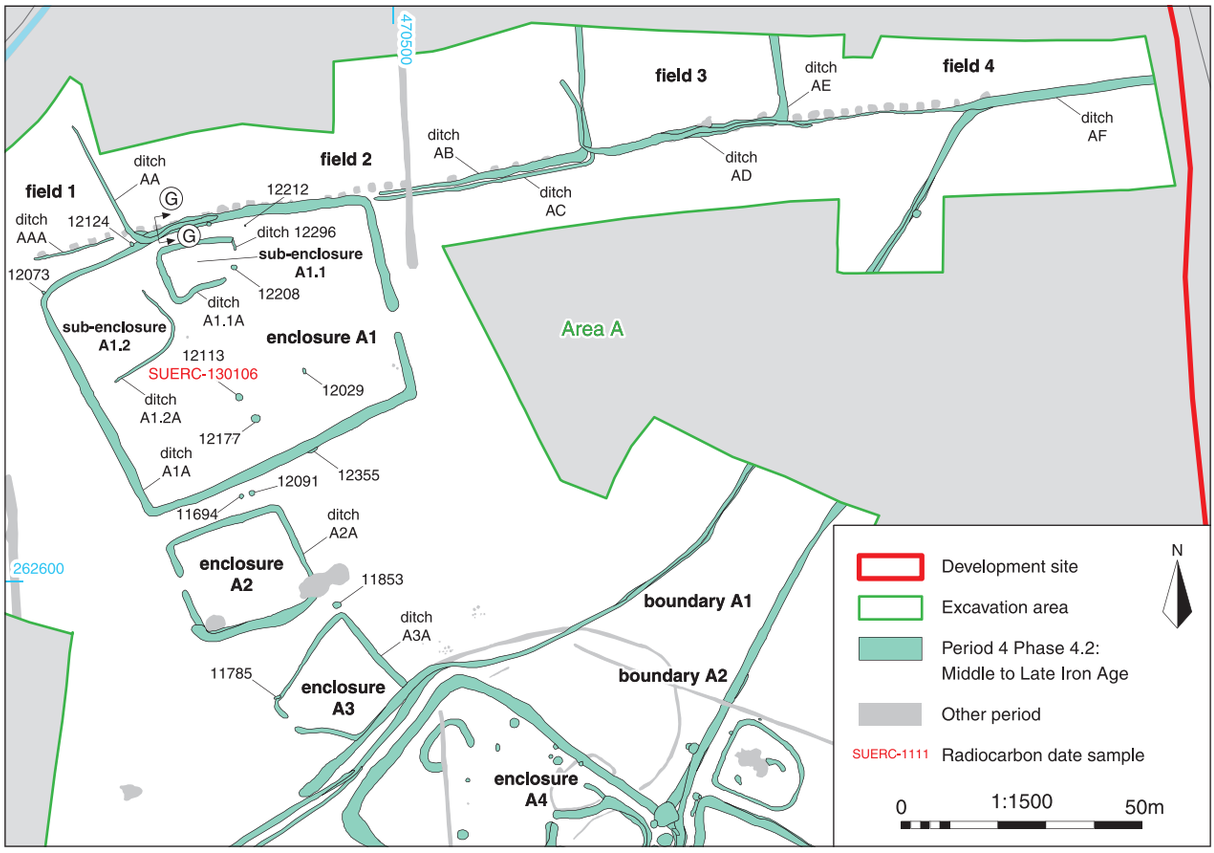


Fig. 5.21 Detailed plan of fields 1–4 and enclosures A1–A3

(Fig. 5.21). There was a consistent 6m-wide gap between enclosures A1 and A2, which may represent a deliberate placement intended to facilitate movement, potentially of livestock, in the space between them. Enclosure A2 was defined by ditch A2A, which had been recut at least once along its southern boundary, indicating maintenance of the enclosure. Ditch A2A defined a square enclosure measuring 23m by 20m, with a 3m-wide entrance on the western side. The enclosure ditches were similar in size and morphology to those defining enclosure A1, measuring 1.24–3m wide and 0.79–1.14m deep with steeply sloping concave sides and rounded bases. Ditch A2A contained up to nine naturally derived fills that produced a small assemblage of Middle to Late Iron Age pottery (15 sherds, 262g), an iron carpentry nail and three intrusive fragments of clay tobacco pipe. No internal features were identified within enclosure A2.

Enclosure A3 (Fig. 5.21)

Enclosure A3 was situated to the south-east of enclosure A2 and was sub-rectangular in shape, enclosing an area of approximately 19m by 17m (Fig. 5.21). The enclosure was defined by ditch A3A, which varied in width (0.6–1.6m wide) and depth (0.26–0.75m deep); it is notable that although the enclosure ditch was of similar size and morphology to the ditches associated with enclosures A1 and A2 the overall layout of the enclosure was more irregular than the two to the north. A south-west-facing entrance was indicated by a 2.7m wide gap in ditch A3A, which was similar in its location to the entrance for enclosure A2. Ditch A3A contained up to three naturally derived fills that produced nine sherds (37g) of Middle to Late Iron Age pottery.

Enclosure A4 and associated features (Figs 5.22–5.30)

Enclosure A4 was situated in the centre of Area A, to the south-east of enclosure A3. Three sub-enclosures (A4.1–A4.3) and two pit groups (PA1 and PA7) were situated within enclosure this enclosure (Fig. 5.22).

Enclosure A4 was defined by ditch A4A, which enclosed a rectangular area measuring 58m by 38m in extent, with no apparent break in the enclosure ditch (Fig. 5.22). It is notable that enclosure A4 had a markedly different axis and alignment to enclosures A1 and A2, marking a pronounced change in the overall orientation and layout of the enclosures situated to the south-east of enclosure A4. The enclosure ditch was more substantial than those defining enclosures A1–A3;

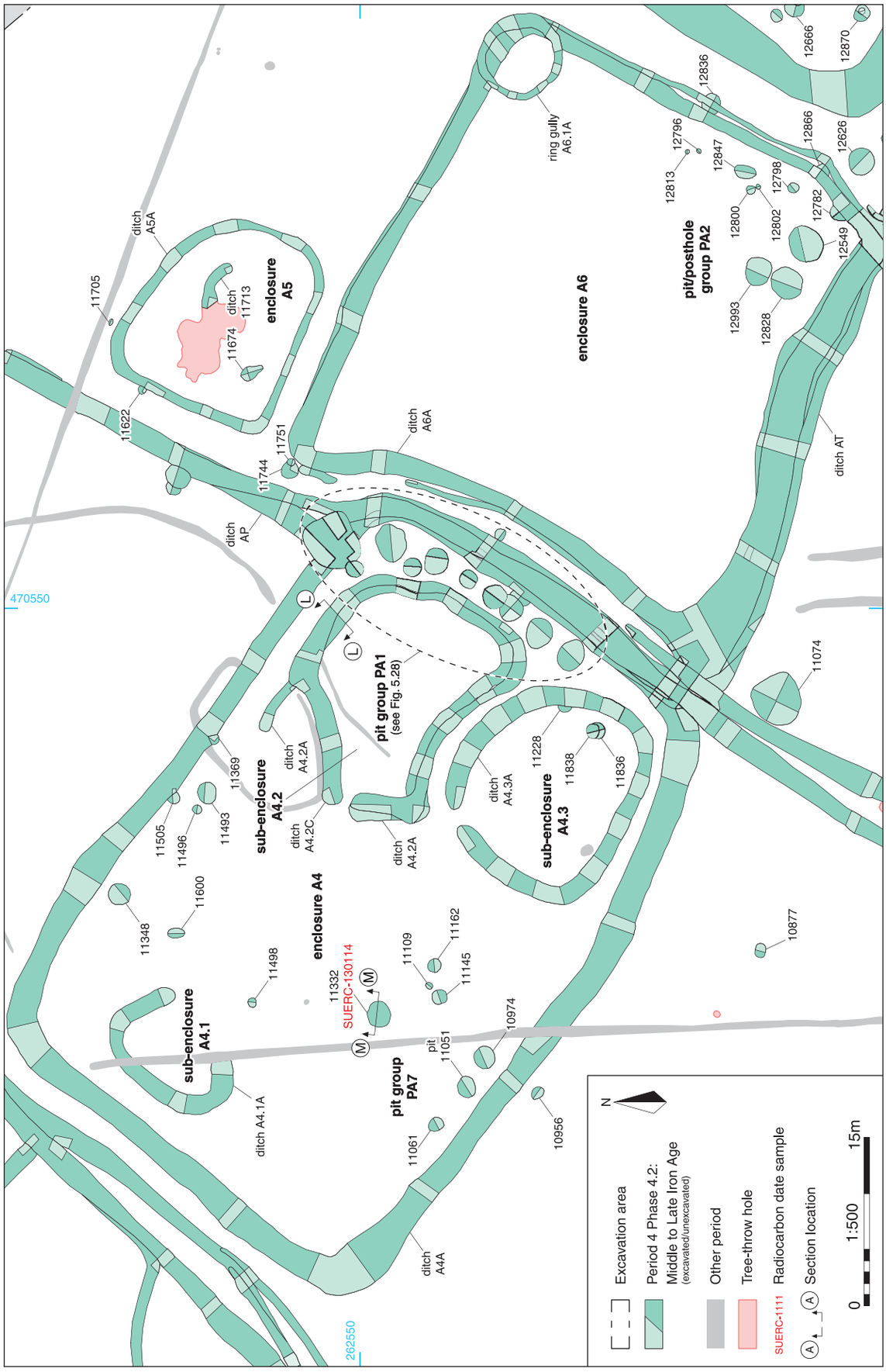


Fig. 5.22 Detailed plan of enclosures A4–A6 and associated features

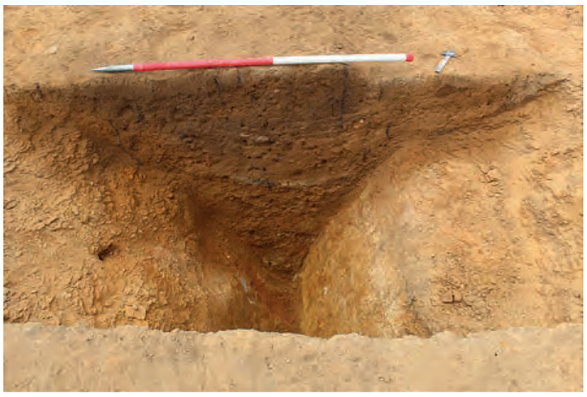


Fig. 5.23 Photograph of enclosure ditch A4A, looking north-west (1m scale)

Fig. 5.24 Photograph of sub-enclosure ditch A4.1A, looking north-east (1m scale)

it varied along its length in width (1.55–3.94m wide) and depth (0.47–1.2m deep), though it generally had steeply sloping concave sides and a narrow rounded base (Fig. 5.23). The enclosure ditch produced a moderate assemblage of Middle to Late Iron Age pottery (53 sherds, 684g), as well as fired clay (16g) and animal bone (187 fragments).

A sub-oval enclosure (A4.1), approximately 9m by 5m in size, was established in the northern half of enclosure A4 and was defined by ditch A4.1A (Fig. 5.22). The sub-enclosure ditch was fairly substantial, measuring 1.3–1.84m wide and 0.58–0.78m deep (Fig. 5.24), with a similar profile to the main enclosure ditch. Consequently the feature has been interpreted as a sub-enclosure rather than a structural element for a domestic structure such as a roundhouse. A south-east-facing entrance was indicated by a 6m wide gap in the enclosure ditch (Fig. 5.22). It is possible that this entrance was initially narrower than observed during the excavation, as the sub-enclosure was truncated in this location by Period 9 (post-medieval/modern) ditch AAD.

Some of the fired clay recovered from ditch A4.1A was cylindrical in section and potentially represents elements from an object or structure, which may be associated with kiln or oven furniture, although no corresponding structure was found during the excavation. Full details of this material are in Appendix A2.6, by Pete Banks and Laura Pearson.

Sub-oval enclosure A4.3 was situated in the south-western corner of enclosure A4 (Figs 5.22 and 5.25). It was defined by ditch A4.3A that enclosed an area 15.5m by 13.5m in size. The ditch was 1.4–1.67m wide and approximately 0.6m deep. A north-facing entrance was indicated by a 1.5m gap in ditch A4.3A. Four soil samples were recovered from the enclosure ditch, which produced a moderate amount of charcoal and charred plant remains, including indeterminate, wheat and hulled wheat grains, along with tuber stem fragments and seeds of sheep's sorrel (Wyles, Appendix A3.4).

Within the interior of sub-enclosure A4.3 were three pits (11228, 11836 and 11838; Fig. 5.22), two of which were intercutting. The pits varied in length (0.65–2m long), width (0.78–1.43m wide) and depth (0.31–0.55m deep), though they generally had concave sides and bases. Pit 11228 was truncated by ditch A4.3A and may represent an episode of activity within the interior of enclosure A4 prior to the establishment of the sub-enclosure.

A third sub-enclosure (A4.2) was established in the south-eastern corner of enclosure A4 and was initially sub-rectangular in shape (Fig. 5.22), defined by ditch A4.2A, which enclosed an area of approximately 18m by 11.5m. The southern boundary of sub-enclosure A4.2 appears to have curved around, following the course of sub-enclosure A4.3 situated immediately to the south (Fig. 5.22). This suggests that sub-enclosure A4.3 was established prior to sub-enclosure A4.2 and influenced its layout. Ditch A4.2A varied in width (0.41–1.3m wide) and depth (0.25–0.64m deep) but generally had steeply sloping concave sides and an irregular rounded base (Fig. 5.26, Section LL and Fig. 5.27). An entrance was indicated by a 9.5m wide gap on the north-west side.

Following the initial establishment of sub-enclosure A4.2, modifications were made to its layout, represented as ditch A4.2C, which saw the re-establishment of the enclosure ditch, broadly along its original course (Fig. 5.22). The exception to this was in the north-western corner of the sub-enclosure, where recut A4.2C reduced the north-west entrance to a 1m gap. This change in alignment broadly followed the course of Phase 4.1 sub-enclosure A14.1 (Fig. 5.22) and suggests that some remnant of this former enclosure remained to influence sub-enclosure A4.2. The modifications, though later than the initial establishment of the sub-enclosure (ditch A4.2A), are considered to have been broadly

Fig. 5.25 Photograph of sub-enclosure A4.3, looking south (1m scales)

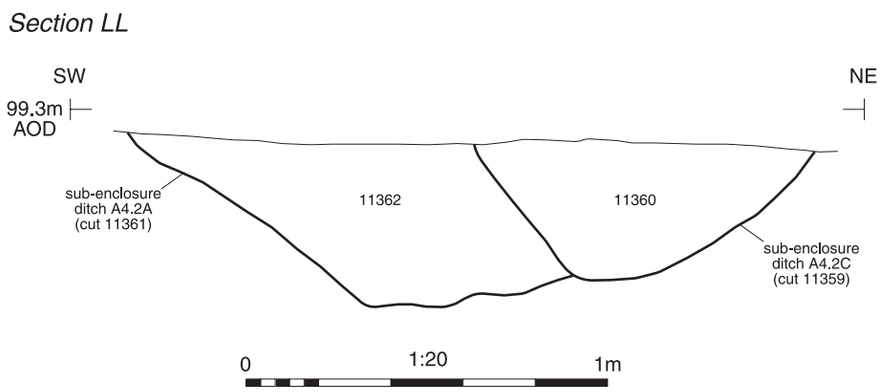


Fig. 5.26 Section LL of ditch A4.2A and its recut A4.2C

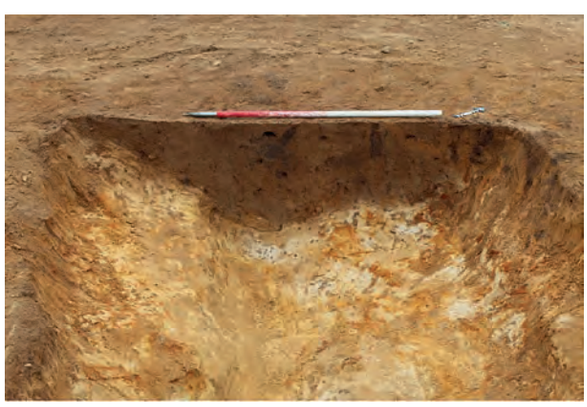


Fig. 5.27 Photograph of sub-enclosure ditch A4.2A and its recut A4.2C, looking north-west (1m scale)

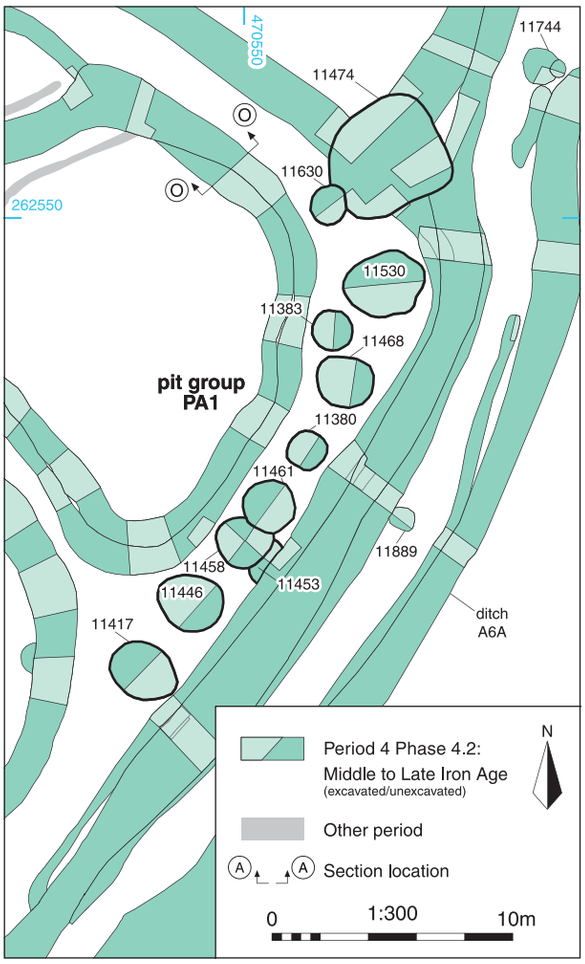


Fig. 5.28 Detailed plan of pit group PA1

contemporaneous; ditch A.2C was of comparable width (0.41–2.75m wide) and depth (0.27–0.65m deep) to ditch A4.2A (Fig. 5.26, Section LL and Fig. 5.27).

Pit group PA1 (Figs 5.22 and 5.28)

Pit group PA1 comprised a linear cluster of 11 pits (Appendix 1) that broadly followed the course of the south-eastern sides of enclosure A4 and sub-enclosure A4.2 (Figs 5.22 and 5.28). At least one of the pits was cut by the enclosure A4 ditch, while others cut this ditch, suggesting that the pits represent more than one phase of activity in this location. The pits were circular and ranged between 0.85–2.3m in diameter and 0.42–1.07m deep. They produced a small assemblage of Middle to Late Iron Age pottery (12 sherds, 222g) and animal bone (24 fragments), as well as fragments of fired clay from pit 11383 that exhibited round-sectioned fragments with probable wattle impressions. Five soil samples were recovered from the pits, which produced a small amount of charcoal but no charred plant remains (Wyles, Appendix A3.4).

Pit 11474 (Fig. 5.28) was the exception to the group; it was much larger, measuring 5m in diameter and 1.4m deep, with irregular concave sides and a rounded base. It contained 12 greyish and whitish silty and sandy clay fills that likely accumulated naturally. These produced four sherds (102g) of Middle to Late Iron Age pottery and a single fragment of animal bone (1g). Due to the large size of pit 11474, and its positioning on the corner of the enclosure, it is possible that it formed a water pit or sump. However, this could not be conclusively determined during the excavation as there was no evidence for waterlogging within the fills of the feature.

Pit group PA7 (Figs 5.22 and 5.29–5.30)

A broadly north-east/south-west aligned cluster of 14 pits (pit group PA7; Appendix 1) was situated between sub-enclosure A4.1 and sub-enclosures A4.2 and A4.3 (Fig. 5.22). Loose groups were present among the cluster, with pits 11061, 11051 and 10974 arranged in a line alongside the enclosure boundary (Fig. 5.22). The pits were generally circular with concave sides and flat bases, with diameters of 0.5–1.9m and depths of 0.11–1.25m. They produced a moderate assemblage of artefacts including Middle to Late Iron Age pottery (166 sherds, 2336g) and animal bone (41 fragments; Appendix 1).

Pit 11332, located within the centre of enclosure A4, is of particular note. This pit measured 1.9m in diameter and 1.25m deep, with steeply sloping, near vertical sides and a flat base (Fig. 5.29, Section MM and Fig. 5.30).

Monolith samples recovered from the pit indicate alternating episodes of natural silting and dumped waste material, potentially resulting from decaying turves, topsoil, leaves and other organic matter (Kowalska, Appendix A3.3). The heterogeneous nature of the upper fills suggests intentional backfilling, possibly representing several dumping episodes interspersed with mixed natural silting resulting from the erosion and slumping of the pit sides (Kowalska, Appendix A3.3).

The four middle fills (11335, 11337–11339; Fig. 5.29, Section MM) produced 90 sherds (1317g) of predominantly Middle to Late Iron Age pottery. Of this, 27 sherds (541g) of pottery were recovered from fill 11339, including examples of a round bodied bowl with a simple upright rim and wiped surface, a globular jar with a flat-topped rim, a burnished round bodied bowl with a simple upright rim, and two sherds of scored ware. A sample of *Triticum dicoccum/ spelta* (hulled wheat grain) recovered from fill 11339 was radiocarbon dated to the Middle Iron Age (SUERC-130114; Table 5.1).

A moderate to large assemblage of charred plant remains was also recovered from the uppermost fills (11342, sample 83 and 11339, sample 84) and sample 83 comprised almost equal numbers of cereal remains and weed seeds (Wyles, Appendix A3.4). The cereal remains included those of spelt, emmer and barley and the weed seeds those of brome grass, oats, clover,

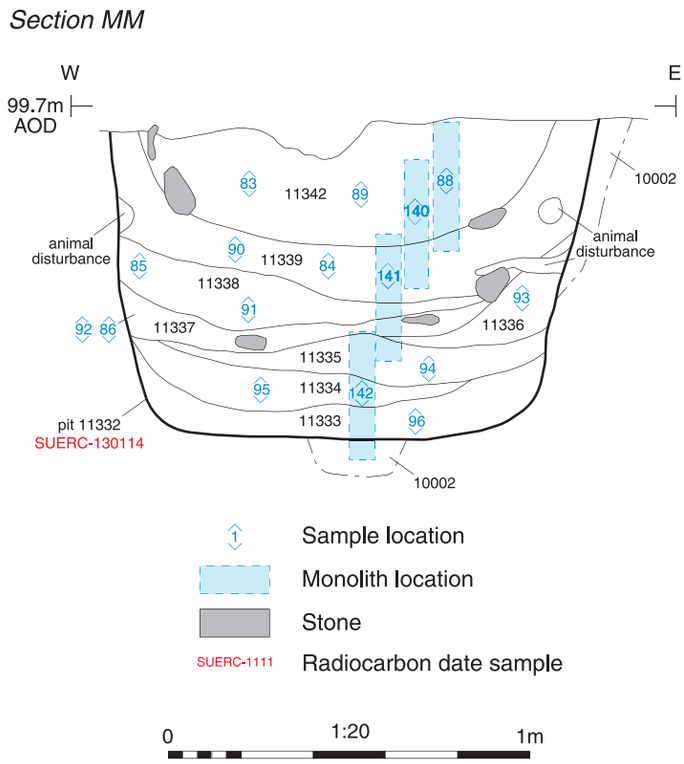


Fig. 5.29 Section MM of pit 11332

Fig. 5.30 Photograph of pit 11332, looking north (1m scale)

Fig. 5.31 Photograph of ditch A5A, looking north-west (1m scale)

medick, knotgrass (*Polygonum aviculare* L.) and curled docks (*Rumex crispus* L. type) (Wyles, Appendix A3.4). Again, the assemblage may be representative of a mixture of late stage crop processing waste and domestic hearth/oven waste material.

Enclosure A5 (Figs 5.22 and 5.31)

Enclosure A5 was situated in the centre of Area A and was notably positioned off the main enclosure alignment (Fig. 5.22). It was defined by ditch A5A, which enclosed an area of approximately 16m by 13.5m (Fig. 5.22). The ditch was less substantial than those defining enclosures A1–A4, varying in width (0.56–1.4m wide) and depth (0.34–0.55m deep), with generally steep straight sides and a rounded base (Fig. 5.31). The ditch contained a sequence of five naturally derived fills containing a small quantity of Middle to Late Iron Age pottery (19 sherds, 203g).

Two features were present within the interior of enclosure A5, comprising pit 11674 and ditch 11713 (Fig. 5.22). Pit 11674 was oval and measured 2.13m long, 1.2m wide and 0.39m deep. Ditch 11713 was approximately 6m long, 1m wide and 0.41m deep, and was truncated by a tree-throw hole at its northern end, which masked the terminus of the feature. No datable material was recovered from the two features, though they are both considered to be contemporaneous with enclosure A5.

Enclosure A6 and associated features (Fig. 5.22)

Square enclosure A6 was situated to the south of enclosure A5 and to the south-east of enclosure A4, in the centre of Area A (Fig. 5.22). A ring gully (A6.1A) and a pit/posthole group (PA2) were situated within the interior of enclosure A6, both of which were located along the eastern side (Fig. 5.22).

Enclosure A6 was defined by ditch A6A, which had been recut at least once and enclosed an area of 37.5m by 37m. The north-western side of the enclosure respected the curve of enclosure A4 (Fig. 5.22), indicating that enclosure A6 was established after A4, though the two are considered broadly contemporaneous. The ditches were of similar size to the enclosures A1–A4 and ranged in width (0.56–1.8m wide) and depth (0.34–0.55m deep) with steeply sloping concave sides and rounded bases. The enclosure ditch contained up to five fills that derived from natural infilling but did produce several sherds of Middle to Late Iron Age pottery (six sherds, 42g).

Ring gully A6.1A (Fig. 5.22)

Ring gully A6.1A comprised a continuous circular ditch that was situated in the north-eastern corner of enclosure A6 (Fig. 5.22). The stratigraphic relationship for this ring gully was not very clear but the gully appeared to truncate the enclosure ditch, suggesting it was a later addition to the enclosure and possibly built up against an external bank. The gully enclosed an area 6m in diameter and varied in width (0.4–1.2m wide) and depth (0.16–0.48m deep), with a concave profile. It is possible that it formed a small enclosure; the generally shallow depth and profile of the gully suggest that the feature was not the structural element of a roundhouse building. It contained multiple fills that were predominantly mid to dark greyish brown or mid-yellowish brown clayey sand. No datable material was recovered, though it is considered to be broadly contemporaneous with enclosure A6.

Pit/posthole group PA2 (Fig. 5.22)

Pit/posthole group PA2 comprised a cluster of six pits and four postholes (Appendix 1), which were situated in the south-eastern corner of enclosure A6 (Fig. 5.22). The pits were generally circular in shape and ranged between 0.8–3.73m in diameter and 0.21–1.41m deep, with moderate to steeply sloping sides and rounded or flat bases. The postholes were much smaller (0.4–0.8m in diameter) and shallower (0.05–0.36m deep). Only one sherd of Early to Middle Iron Age pottery was recovered from the features. A soil sample recovered from pit 12993 produced a small amount of charcoal and charred plant remains (Wyles, Appendix A3.4) but otherwise the fills of the pits were sterile.

Enclosure A7 and associated features (Figs 5.32–5.33)

Sub-square enclosure A7 was situated in the south-east corner of Area A and to the south-east of enclosure A6 (Fig. 5.32). It was defined by ditch A7A and enclosed an area of approximately 45m by 44m. An east-facing entrance was indicated by the presence of a 6.5m wide gap in the enclosure ditch. Ditch A7A was more substantial (Fig. 5.33) than the other Phase 4.2 enclosure ditches, at 1.84–5.67m wide and 0.95–2.04m deep. It generally had steeply sloping concave sides and a narrow rounded base, with multiple fills mostly formed through natural processes. A moderate assemblage of Middle to Late Iron Age pottery (241 sherds, 5973g), fired clay (11g) and animal bone (259g) was recovered from the enclosure ditch.

Pit/posthole group PA3 (Fig. 5.32)

Pit/posthole group PA3 comprised a cluster of 51 pits and eight postholes (Appendix 1) situated within the interior of enclosure A7 (Fig. 5.32). The pits were circular to sub-circular in shape and ranged between 0.5–1.78m in diameter and 0.08– 0.81m deep. The postholes were smaller (0.32–0.45 in diameter) and generally shallower (0.09–0.31m deep).

The spatial distribution of the features was generally difficult to discern, with little evidence for a distinct pattern of organisation within the interior of the enclosure. However, it is possible that the pits and postholes within group PA3 formed internal partitions or divisions within enclosure A7, with some of them appearing to form circular, square and linear arrangements. For example, features 12765, 12767, 12776, 12778, 12882 and 12887 may form a fence line and a discrete cluster of features (12414, 12730, 12732, 12734 and 12736) may represent the location of a structure in the south-east corner of the enclosure (Fig. 5.32).

The pits and postholes produced a small assemblage (23 sherds, 614g) of Middle to Late Iron Age pottery and animal bone (39 fragments; Appendix 1). Fired clay (96g) recovered from pit 12816 exhibited round-sectioned fragments with probable wattle impressions, which may suggest the presence of a wattle and daub structure in the vicinity (Banks and Pearson, Appendix A2.6). Thirteen soil samples recovered from the pits also produced small to moderate quantities of charcoal and charred plant remains, dominated by cereal remains and

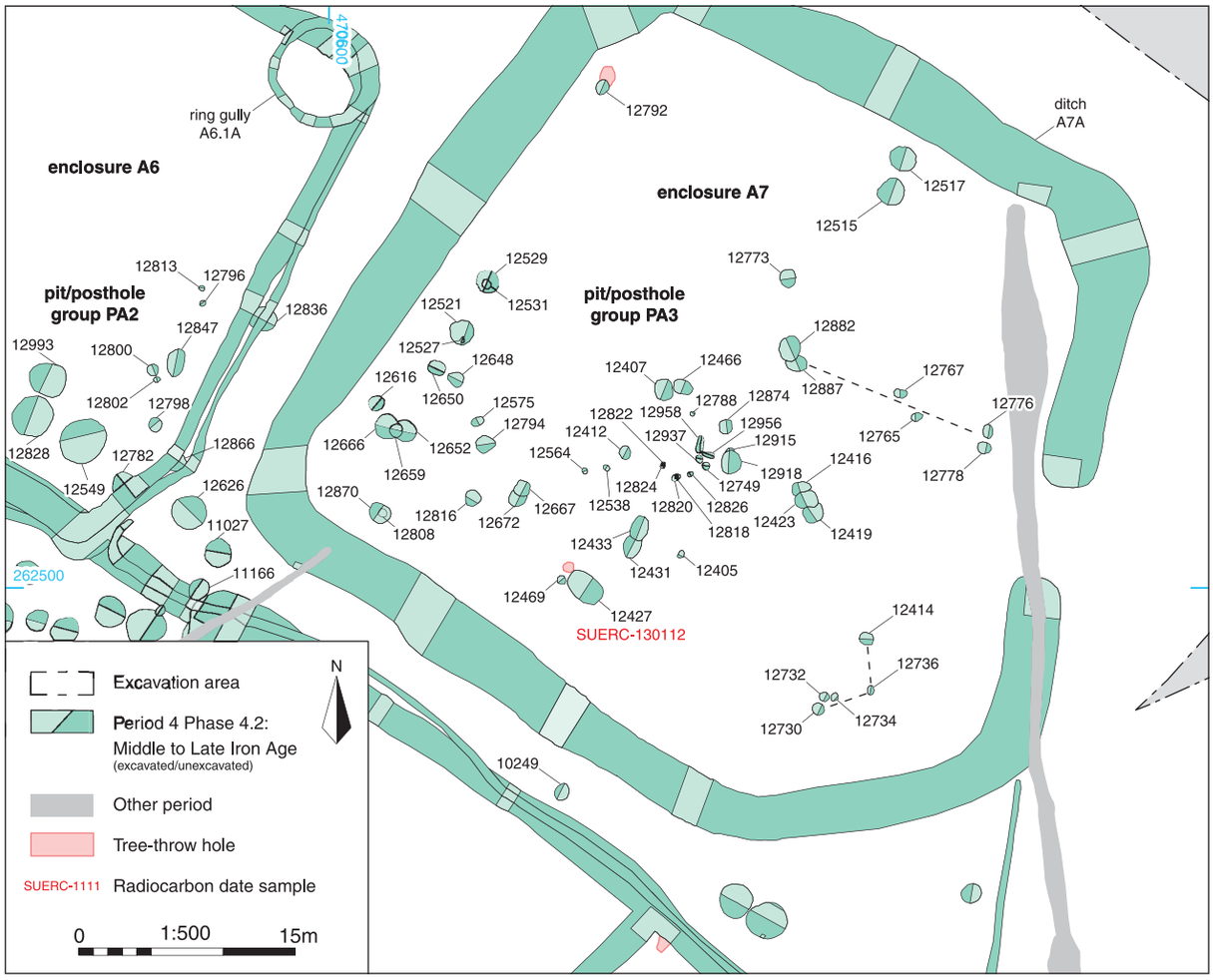


Fig. 5.32 Detailed plan of enclosure A7 and associated features

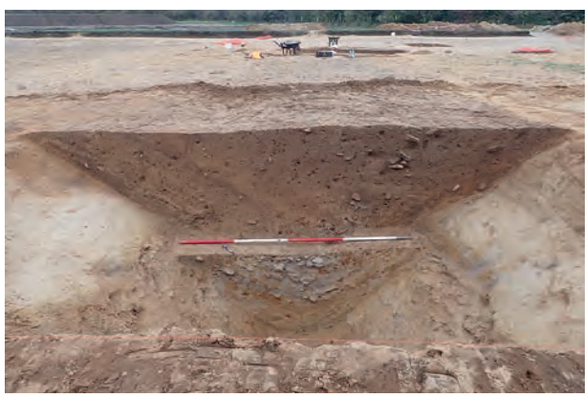


Fig. 5.33 Photograph of ditch A7A, looking north-east (2m scale)

weed seeds (Wyles, Appendix A3.4). Cereal remains were predominant in pits 12427 and 12652, and included emmer, spelt and barley (Wyles, Appendix A3.4). The weed seeds included those of brome grass, oats, cleavers (*Galium aparine* L.) and curled dock, and the assemblages overall are indicative of a mixture of crop processing waste material together with some domestic hearth/oven waste material (Wyles, Appendix A3.4).

A sample of charcoal of blackthorn/cherry from the middle fill (12429; dark-blueish black silty sand)) of pit 12427 produced a Middle Iron Age radiocarbon date (SUERC-130112; Table 5.1). This fill also produced a sherd (45g) from a burnished slack-shouldered jar with a simple upright rim.

Boundaries A1 and A2 (Fig. 5.34)

Two boundary ditches (A1 and A2) crossed Area A on a north-east/south-west orientation (Fig. 5.34) and appeared to widen as they encountered enclosure A4. Boundary A1 was more than 274m in length and cropmark evidence suggests that this feature extended beyond the southern limit of the excavation (see Fig. 5.1). To the north it joined the southern boundary

Fig. 5.34 Detailed plan of boundaries A1, A2 and A3 and the enclosure system

of field 4 (Fig. 5.34). Boundary A1 was defined by a sequence of four intercutting ditches (AG, AH, AJ and AK) which varied in width (0.55–2.17m wide) and depth (0.11–0.95m deep), though it broadly followed the same trajectory. The ditches had concave sides and bases and generally had two naturally accumulated fills.

Boundary A2 was broadly parallel with boundary A1, situated at the opposing end of enclosure A4 (Fig. 5.34), but changed direction towards its south-west end, to a south-easterly course. Like boundary A1 it was defined by multiple intercutting ditches (AN, AO and AP), which followed the same course. The boundary was at least 190m long and the ditches varied considerably in width (0.2–2.24m) and depth (0.05–0.92m), with moderate to steeply sloping sides and rounded bases. The ditches contained up to three fills of predominately mid-greyish or yellowish brown silty sand, with some being dark-orangey brown. Only ditch AN contained artefacts, comprising three sherds (90g) of Middle to Late Iron Age pottery.

The course of boundary A1 avoided the north-west side of enclosure A4 but was redug along the south-eastern side of enclosure A3. Boundary A2, however, was dug on the same course as the south-east side of enclosure A4. This suggests that these ditches were established slightly later in the site's development sequence. It is of particular note that the enclosures situated to the north of boundary A1 contained considerably fewer pits and sub-enclosures than those to the south of it. Consequently it could be considered that this ditch was used to define and/or separate enclosures and areas used for differing activities such as domestic or pastoral activity, potentially in association with the local topography.

Four features (10348, 11610, 12035 and 12044) cut the boundary ditches though once more they are considered to be broadly contemporaneous.

Boundary A3 and ditch AY (Figs 5.34 and 5.35)

A north-west/south-east boundary (A3) lay to the south of enclosures A6 and A7 and was partially cut by enclosure A6 (Figs 5.34 and 5.35), although its spatial arrangement and association with the enclosures makes it likely to have been broadly contemporaneous.

Boundary A3 was defined by ditch AT and recut AW and was approximately 129m long. The ditches varied in width (0.3–2.11m wide) and depth (0.1–1.04m deep), with recut AW being far narrower and shallower than ditch AT. Analysis of the fill sequence of ditch AT suggests that many of the fills were deposited via natural erosion of the surrounding sands, with grey lenses potentially representing material from the former topsoil/turf that had fallen into the enclosure ditch (Kowalska, Appendix A3.3).

Ditch AY was situated at the eastern end of ditch AT, to the south of enclosure A7 (Fig. 5.35). The ditch measured approximately 24m long with a north/south orientation and appeared to define a small area between ditch AT and the eastern extent of enclosure A7. The ditch measured 1.22m wide and 0.31m deep.

Pit group PA6 (Fig. 5.35)

Pit group PA6 comprised a cluster of 13 pits (Appendix 1), which were situated along the eastern limit of the excavation (Fig. 5.35). The pits formed a cluster within an area of approximately 20m by 15m. They were generally circular and 0.7–2.3m in diameter and 0.12–1.2m deep, with steeply sloping concave sides and flat bases. Several of the pits cut the southern end of ditch AY but are likely to be broadly contemporaneous.

A small assemblage of Middle to Late Iron Age pottery (six sherds, 62g) and animal bone (17 fragments, 3g), some of which was burnt, was recovered from the pits. A high number of charred plant remains was also recovered from pit 10095, dominated by cereal remains (Wyles, Appendix A3.4). The cereal remains included those of barley, along with almost equal numbers of emmer and spelt remains and the predominant weed seeds included those of brome grass and oats (Wyles, Appendix A3.4). The assemblage is likely to be reflective of dumped late stage crop processing waste and domestic hearth material (Wyles, Appendix A3.4).

Field systems 1 and 2 and enclosures A8–A10 and A15 (Figs 5.34–5.49)

Alongside the curving north-west/south-east alignment of discrete enclosures, two field systems (1 and 2) were also identified in Area A (Fig. 5.34). Field system 1 was situated at the northern end of Area A and comprised four fields (1–4) that extended beyond the limits of the excavation to the north, west and east (Figs 5.20 and 5.21). Field system 2 was situated to the south of enclosures A4–A7 (Fig. 5.34).

The function of these fields is uncertain; however, a distinction has been made between these 'fields' compared to the discrete 'enclosures'. The fields were conjoined and less uniform in their layout, with a general paucity of internal features, a trend most notable in field system 1. This is in contrast to the separate enclosures A1–A7, which were associated with a greater amount of internal sub-enclosures and pit activity. The fields are however considered to be broadly contemporaneous with the Phase 4.2 enclosure activity identified in Area A and appear to respect their orientations and layouts.

Field system 1: Fields 1–4 (Fig. 5.34)

Fields 1–4 (field system 1) were defined by ditches AA–AF and AAA, which formed four rectangular fields ranging between approximately 40m to 100m wide. The southern boundaries of the four fields occupied the same alignment as Period 3 pit alignment A, which they truncated (Fig. 5.34). Ditch AA truncated the boundary ditch of enclosure A1 (ditch A1A) while ditches AB and AC appeared to respect enclosure that enclosure, suggesting that the fields, though broadly

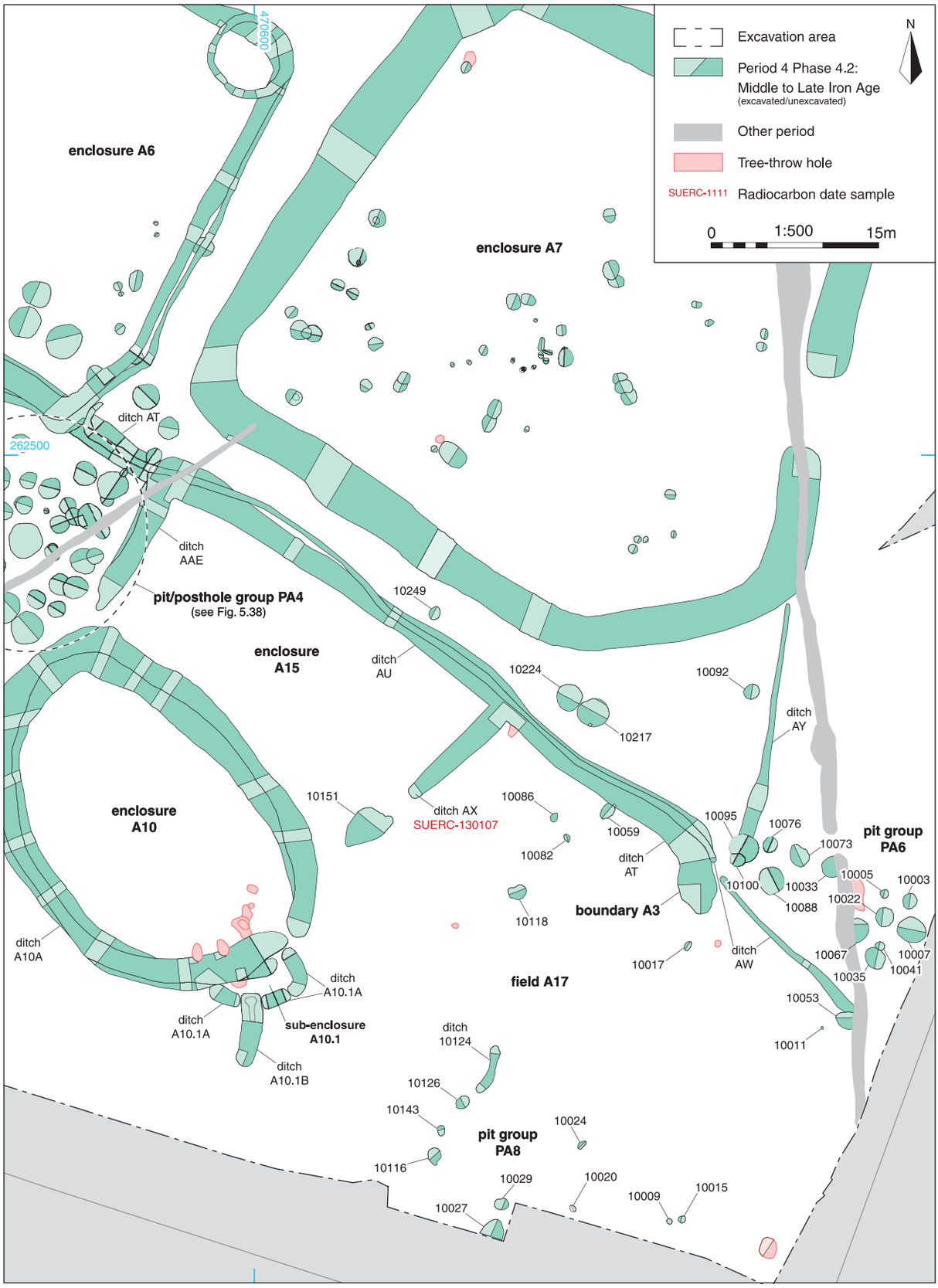


Fig. 5.35 Detailed plan of boundary A3, enclosures A6, A7, A10, A15 and associated pits and postholes (groups PA4, PA6 and PA8)

contemporaneous, were probably constructed after enclosure A1. Some of the ditches had been recut, indicating that the field boundaries were maintained.

The ditches measured between 0.31m and 2.5m wide and up to 0.62m deep and generally had steep concave to irregular sides and rounded bases (see Fig. 4.5, Section GG and Fig. 4.6). No evidence for internal activity was associated with field system 1.

The majority of the ditches contained multiple fills, ranging from light-yellowish brown or grey silty clay to light to mid-blueish grey sandy clay. There was very little artefactual material recovered, comprising just three sherds (82g) of presumed intrusive 9th to 11th-century AD pottery and six fragments of burnt stone. Two bulk soil samples were recovered from ditches AB and AE, which produced very small amounts of unidentified charcoal and a moderate assemblage of uncharred and waterlogged remains (Wyles, Appendix A3.4). The presence of waterlogged material within these ditches is a testament to their location along the floodplain and indicates the ditches potentially underwent periods of flooding or standing water. Though this may be due to their location on the floodplain or seasonal rainfall, it may suggest the ditches served as naturally filling water meadows for livestock.

Field system 2: Fields A12–A13 and A16–17 (Fig. 5.34)
Field system 2 comprised ditches AL, AM and AV, and boundaries A1, A2 and A3. Together they defined a field system comprising a perpendicular arrangement of north-east/south-west and north-west/south-east aligned parcels of land (fields A12–A13 and A16–A17) that were similar in nature to fields 1–4 situated to the north (Fig. 5.34). The southernmost fields (A12 and A17) extended beyond the southern limit of the excavation.

The arrangement of the fields in system 2 was very different in character to the individual enclosures, with the field system ditches instead comprising long linear boundaries that in places formed individual and sometimes irregular land parcels (Fig. 5.34). The ditches varied in width (0.2–2.24m wide) and depth (0.05–0.92m deep) though had similar steeply sloping concave sides.

Field A17 was the largest and most irregular shaped of the fields forming field system 2. It comprised a broadly triangular area (measuring at least 139m by 60m in extent), which was defined by boundary A3 to the north, and boundary A2 to the west and south (Fig. 5.34). Cropmarks recorded by the NNMP indicate that the northern boundary of field A17 continued beyond the eastern limit of the excavation, with a continuation of the feature also identified during excavations associated with Sandy Lane immediately to the east of the development site (Garland *et al.* 2019; Fig. 5.1). Features associated with field A17 comprised two discrete enclosures (A10 and A15, discussed below) and two pit/posthole groups (PA4 and PA8, discussed below).

Fields A12 and A16 were more regular in their layout, comprising two rectangular fields that measured at least 49m by 39m and 87m by 47m, respectively (Fig. 5.34). Cropmarks recorded by the NNMP indicate field A12 continued beyond the southern limit of the excavation, with a probable north-west/south-east southern boundary situated approximately 15m south-west of Area A (see Fig. 5.1). The fields were separated by two broadly parallel ditches (AL and AM); it is possible that these ditches represent two iterations of the same boundary, though due to the regular spacing (4–8m wide gap) between the two ditches it is also possible the features represent a trackway or similar feature. Two discrete enclosures (A8 and A9, discussed below) were situated along the eastern boundaries of fields A12 and A16.

Field A13 was situated immediately to the south-east of fields A12 and A16, and to the south of field A17 (Fig. 5.34). It measured at least 35m by 16m in extent and extended beyond the southern limit of the excavation. Field A13 was associated with one small, discrete enclosure (A11, discussed below).

Ditches associated with field system 2 generally contained single fills of light to mid-greyish brown silty sand. One sherd (12g) of Middle to Late Iron Age pottery was recovered from ditch AM, alongside an intrusive sherd (13g) from an Early to Middle 1st-century AD bead rim platter and four intrusive sherds (7g) of post-medieval/modern pottery.

Enclosure A10 (Figs 5.35–5.37)
Enclosure A10 was situated in the south-eastern corner of Area A, within the centre of field A17 (Fig. 5.35). It was defined by ditch A10A and its recut, which broadly followed the same course as the original enclosure ditch (Fig. 5.35). The ditches enclosed a sub-oval area measuring 29m by 18m in extent (Fig. 5.36), notably different to the predominantly square and rectangular enclosures observed to the north. A south-east-facing entrance was indicated by a 2.75m gap in the enclosure ditch, which was subsequently reduced in size to 0.5m during the recutting of the original enclosure ditch. The ditches varied greatly in width (0.84–4.34m wide) and depth (0.18–0.63m deep) but consistently had concave profiles.

The fill sequence in the enclosure ditches suggest that most of the fills derived naturally from the erosion of the unvegetated and unstable ditch sides and surrounding geology, potentially shortly after the ditches were dug (Kowalska, Appendix A3.3).

A small assemblage of Middle to Late Iron Age pottery was recovered from the ditches. Additionally, ten bulk soil samples recovered from the feature produced small to moderate quantities of charcoal and charred plant remains, likely to be representative of dispersed

Fig. 5.36 Enclosure A10, under excavation, looking south-east

Fig. 5.37 Photograph of ditch A10.1A, looking south-west (1m scale)

settlement waste material (Wyles, Appendix A3.4). The assemblage was dominated by weed seeds, in particular those of brome grass, and the cereal remains included those of spelt and barley (Wyles, Appendix A3.4).

Three short lengths of ditch were situated outside of enclosure A10 (A10.1A; Fig. 5.35). They formed a broadly rectangular layout, approximately 5m by 1.5m in extent. The three sub-enclosure ditches varied in length (2.5–4.3m), width (0.66–1.77m) and depth (0.6–2.02m) and had steeply sloping sides and rounded bases (for example, see ditch A10.1A, Fig. 5.37). A fourth ditch (A10.1B) was situated perpendicular to the enclosure and could be associated with it, perhaps acting as drainage. The ditch measured 7m long, 1.37m wide and 1.2m deep and had a similar profile to the other sub-enclosure A10.1 ditches; it was recut at least once along the same course. Monolith samples recovered from the ditches indicated that the lower fills accumulated naturally via erosion of the ditch sides, with similar depositional processes occurring in the upper fills though likely within standing water within the feature (Kowalska, Appendix A3.3).

Enclosure A15 (Figs 5.34 and 5.35)

Ditches AAE, AU and AX truncated boundary A3 and appeared to form three sides of a possibly rectangular enclosure (A15), within field A17 (Fig. 5.34). Ditches AAE and AX both had broadly north-east/south-west orientations and terminated before reaching the northern boundary of enclosure A10, seemingly respecting its location. Additionally, pit 10151 was situated approximately 3m from the southern terminus

of ditch AX (Fig. 5.35). It was a large feature which measured approximately 3.08m in diameter and 0.44m deep. Due to its location, it is possible that the feature represents a continuation of ditch AX which has been truncated or a deliberately placed feature to restrict access to enclosure A15 situated to the north-west. No internal features were associated with enclosure A15.

Ditches AAE, AU and AX were 0.68–3.4m wide and 0.15–0.92m deep. A large assemblage of charred plant remains was recorded from ditch AX; the chaff elements were predominant in this assemblage with almost equal numbers of emmer and spelt, a small percentage of which showed traces of germination (Wyles, Appendix A3.4). The weed seeds were dominated by seeds of brome grass, oats, clover and medick; overall the assemblage appears to be reflective of dumped late stage crop processing waste material (Wyles, Appendix A3.4). A sample of spelt grain from AX produced a Middle Iron Age radiocarbon date range (SUERC-130107; Table 5.1; Fig. 5.35).

Pit/posthole group PA4 (Figs 5.35 and 5.38–5.40)

Pit/posthole group PA4 comprised a cluster of 33 pits and one posthole (Appendix 1), which were situated immediately to the north-west of enclosures A10 and A15 (Figs 5.35 and 5.38). The features formed a tight cluster within an area of approximately 19m by 23m (Figs 5.38–5.40). Most of the pits were circular and sizes ranged between 1.15–2.9m in diameter and 0.2–1.35m deep. The posthole (10252) was smaller in size (0.49m in diameter) and depth (0.1m).

A moderate assemblage of artefacts, including predominantly Middle to Late Iron Age pottery (37 sherds, 566g), 13g of industrial waste and 32 fragments of animal bone were recovered from the features. Additionally, a high number of charred plant remains was recovered from pit 10279, dominated by cereal remains including those of emmer, spelt and barley, with a small percentage showing traces of germination (Wyles, Appendix A3.4). The weed seeds include those of brome grass and oats and overall the assemblages may be representative of late stage crop processing waste and domestic hearth/oven waste material (Wyles, Appendix A3.4). A sample of spelt grain from pit 10279 produced a Middle Iron Age radiocarbon date range (SUERC-130113; Table 5.1; Fig. 5.38).

Monolith samples recovered from pit 10300 indicated the presence of organic matter, such as turves and/or topsoil that had fallen into the pit, or material that was dumped into the pit via intentional backfilling (Kowalska, Appendix A3.3).

Pit group PA8 (Fig. 5.35)

A group of seven pits (Appendix 1) was situated in the south-eastern corner of Area A (Fig. 5.35), which measured between 0.55–>1.9m long, 0.46–>1.65m wide and 0.12–0.41m deep. Short ditch 10124 was

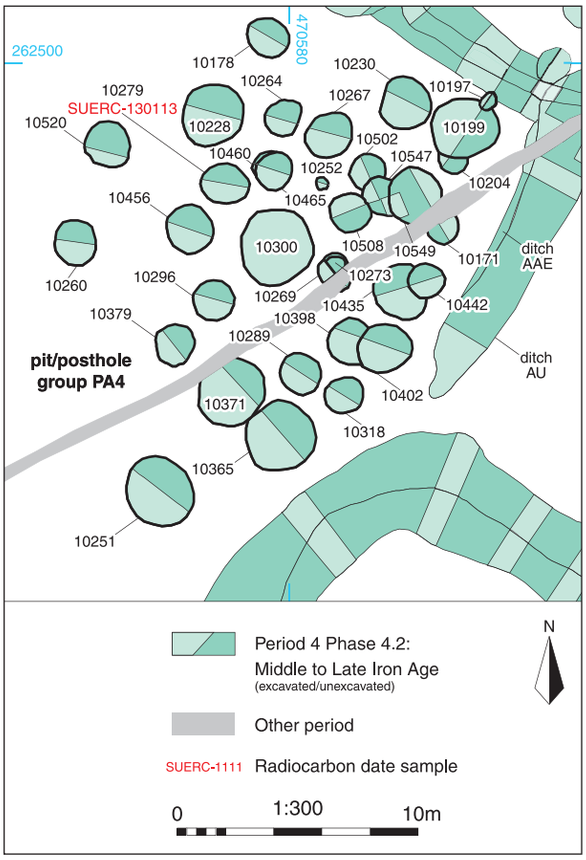


Fig. 5.38 Detailed plan of pit/posthole group PA4

Fig. 5.39 Photograph of pit/posthole group PA4, looking north-east

situated to the north of pits 10116, 10126 and 10143 and pit 10116 (Fig. 5.35) and was broadly on the same alignment. Ditch 10124 had a similar shallow concave profile and measured 0.87–0.97m wide and 0.17–0.23m deep. Consequently it is possible that these features represent part of the same boundary feature forming one side of an enclosure or sub-enclosure.

Fig. 5.40 Photograph of pit/posthole group PA4 and enclosure A10, looking west

The pits and ditch contained single fills of predominantly mid-orangey brown silty sand, most of which were sterile. Only pit 10020 produced artefacts, comprising 40 sherds (37g) of Middle to Late Iron Age pottery.

Enclosure A8 and associated features (Figs 5.34 and 5.41–5.49)

Enclosure A8 was situated on the southern edge of Area A, along the eastern boundaries of fields A12 and A16, and was defined by ditch A8A (Figs 5.34 and 5.41). Ditch A8A enclosed a rectangular area measuring at least 39m by 28m in extent, although the true dimensions of the enclosure could not be determined as it extended beyond the southern limit of the excavation. The enclosure ditch varied in width (0.75–2.8m) and depth (0.29–0.79m) but consistently had a concave profile. It contained up to two fills of mid-orangey brown or light to mid-greyish brown silty sand that produced a small assemblage of Middle to Late Iron Age pottery (seven sherds, 46g) and an iron nail.

Roundhouse RA8.1 (Figs 5.34 and 5.41–5.49)

A circular gully, with a 4m-wide opening to the north, was situated in the centre of enclosure A8, which probably represents the remains of a roundhouse (RA8.1) (Figs 5.41–5.42). It had an internal diameter of 10m, which is broadly comparable with the Period 4 Phase 4.1 roundhouses identified in Area B. The ring gully had a concave profile and varied in width (0.22–0.64m) though generally shallow (0.05–0.24m deep) (Fig. 5.43, Section NN). Due to the shallow depth of the ring gully, it is unlikely that it formed a structural element for a roundhouse or similar structure, though may have served as a drip gully.

The ring gully contained a single fill of mid-greyish brown silty sand that produced a moderate assemblage of predominantly Middle to Late Iron Age pottery (52 sherds, 1197g, including a partially complete vessel (Figs 5.44 and 5.45)), a sandstone spindle whorl (Ra. 12; Fig. 5.46; see also Highlight 6), and animal bone (16 fragments). The spindle whorl, which had been broken in half, is of note for having a central perforation of 9mm in diameter, unusually large for Iron Age spindle whorls. Detailed information can be found in Ruth Shaffrey's report in Appendix A2.10.

The animal bone assemblage recovered from ring gully RA8.1 is of note, containing a diverse group including canid, cat, equid, cattle and sheep/ goat remains; cats in particular being rare on Iron Age sites. This assemblage has been reported on by Matilda Holmes in Appendix A3.2.

Two postholes (10892 and 10929) and a pit (10894) were situated in the interior of the ring gully (Fig. 5.41). The pit was 0.6m long, 1.13m wide and 0.56m deep (Fig. 5.47, Section OO and Fig. 5.48) with steeply sloping sides and a rounded base, while the postholes were sub-circular, 0.5m in diameter and 0.21–0.37m deep (for example, 10892; Fig. 5.47, Section PP and Fig. 5.49). They each contained sterile fills of dark-greyish brown or mid-orange brown clayey sand. The postholes were situated in the centre of the roundhouse and potentially formed structural supports.

Pit group PA5 (Figs 5.41 and 5.42)

Pit group PA5 comprised 19 pits (Appendix 1) situated

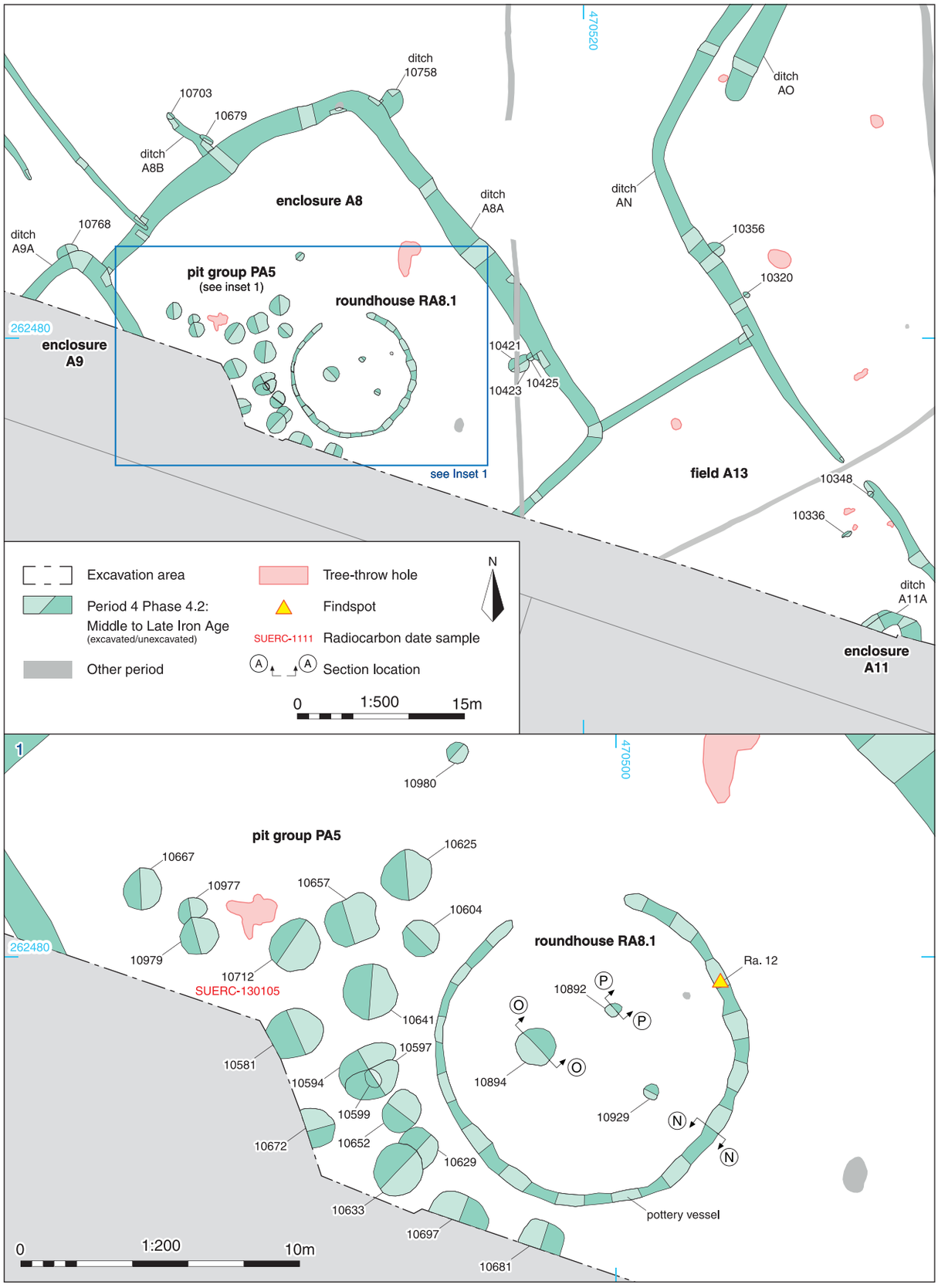


Fig. 5.41 Detailed plan of enclosures A8–A9 and A11 and associated features

Fig. 5.42 Photograph of roundhouse RA8.1 and pit group PA5, looking north-west (1m scales)

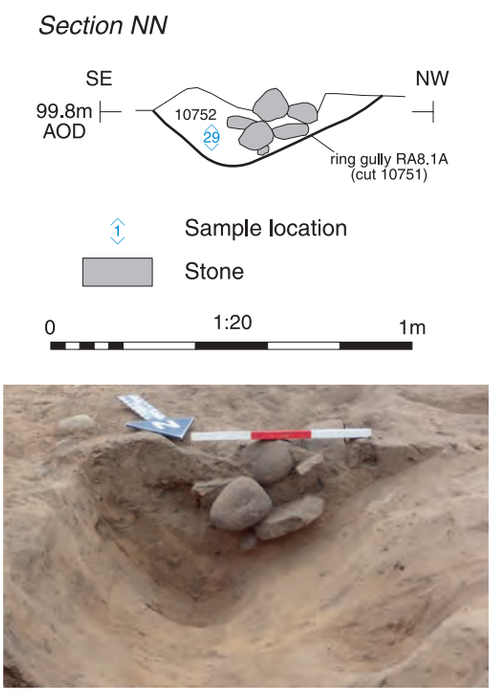


Fig. 5.43 Section NN of ring gully RA8.1A (left) and photo-graph of ring gully RA8.1A, looking south-west (right) (0.3m scale)

in the southern half of enclosure A8 (Figs 5.41 and 5.42). The pits formed a tight cluster that appeared to curve around the west side of roundhouse RA8.1. Several pits extended beyond the limit of the excavation area and this could suggest that further pits lay to the south. The pits were sub-circular or sub-oval and ranged between 0.68–2.1m long, 0.75–2.64m wide and 0.09–0.82m deep. They predominantly had steeply sloping sides and flat bases.

The pits contained multiple fills predominantly consisting of variations of light to mid-brownish or yellowish grey silty sand and appear to have been deposited through natural processes. This was supported by the small assemblage of Middle to Late Iron Age pottery (11 sherds, 245g) and industrial waste (42g) that was recovered from just six of the pits (Appendix 1). Two soil samples recovered from pit 10712 produced a moderate charred plant assemblage, predominantly comprising cereal remains that included those of spelt, emmer and barley (Wyles, Appendix A3.4). The weed seeds included those of brome grass and medick/clover and the assemblages may be reflective of dumps of late stage crop processing waste and domestic hearth/oven waste (Wyles, Appendix A3.4).

Three additional pits were situated within the interior of enclosure A8 (10421, 10423 and 10425) (Fig. 5.41). The pits were sub-oval and measured 0.5–1.1m long,

Fig. 5.44 Photograph of pottery vessel within ring gully RA8.1, under excavation

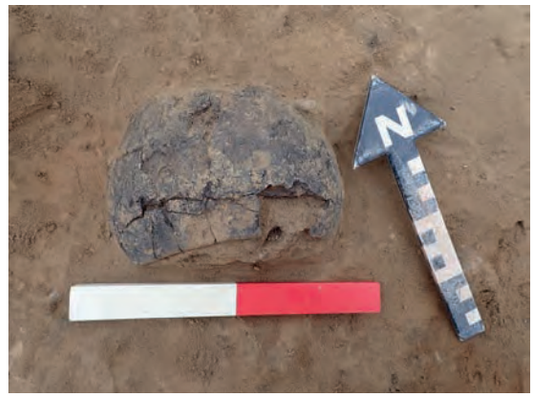


Fig. 5.45 Photograph of pottery vessel within ring gully RA8.1, looking north-east (0.2m scale)

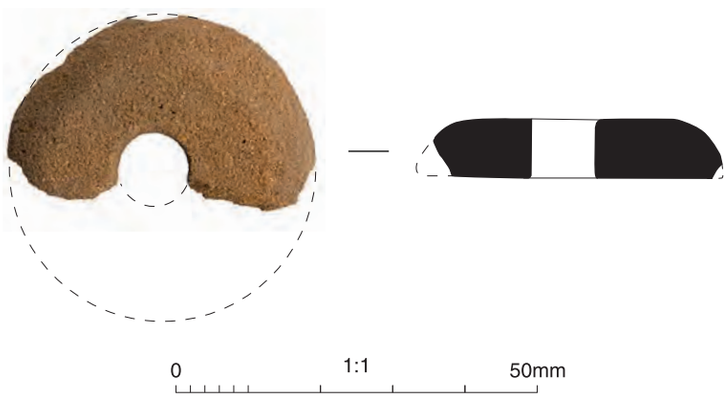


Fig. 5.46 Sandstone spindle whorl (Ra. 12) recovered from ring gully RA8.1

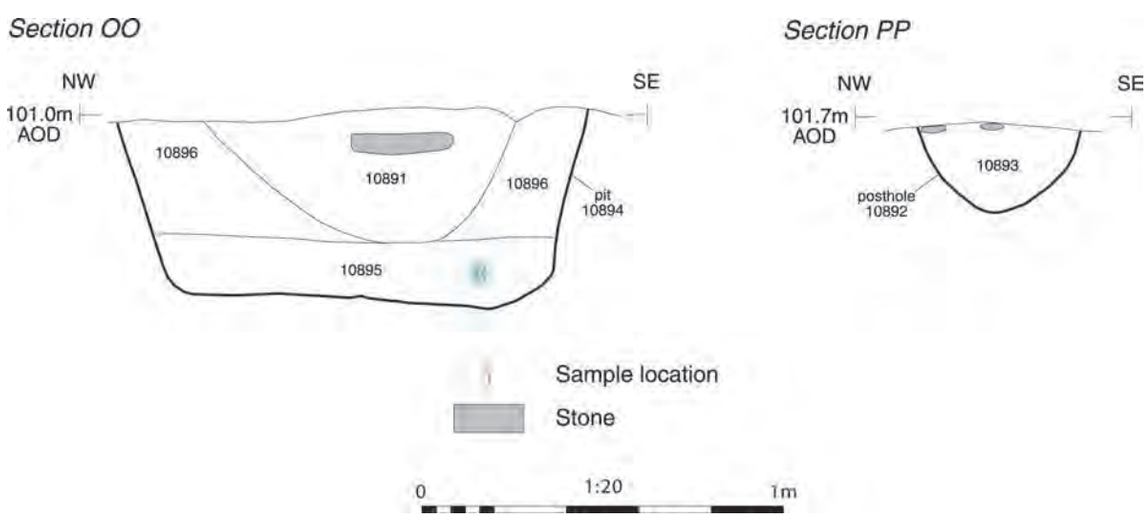


Fig. 5.47 Sections OO and PP of pit 10894 and posthole 10892

Fig. 5.48 Photograph of pit 10894, looking north-east (1m scale)

Fig. 5.49 Photograph of posthole 10892, looking north-east (0.3m scale)

0.52–1.1m wide and 0.33–0.35m deep. Unlike the pits in group PA5 they all contained single sterile fills of light to mid-yellowish brown silty sand.

Two external ditches on the northern (10758) and western (A8B) sides of enclosure A8 may provide evidence for additional activity extending into fields A12 and A16 to the north-east (Fig. 5.41). Ditch A8B measured at least 4.8m long, 1.22m wide and 0.4m deep. Though it contained no artefactual material it is likely to be broadly contemporaneous with enclosure A8. The ditch was cut by two pits (10679 and 10703) which were circular or oval and measured 0.79–1.25m long, 0.35–0.79m wide and 0.39m deep. The paucity of finds means the function of the pits is difficult to determine; however their spatial arrangement may suggest they represented structural features associated with the enclosure ditches such as a fence line or gate post.

Enclosure A9 (Figs 5.34 and 5.41)

Part of another enclosure (A9) was situated immediately to the west of enclosure A8 (Figs 5.34 and 5.41). Only the corner, defined by ditch A9A, lay within the excavation area. It is possible that ditch A9A represented a square or rectangular enclosure to the south-west of enclosure A8, though its dimensions could not be determined. The enclosure ditch was approximately 2.1m wide and between 0.41 and 0.55m deep.

Pit 10768 was situated on the north-western corner of enclosure A9 and was truncated by ditch A9A (Fig. 5.41). It was circular and measured approximately 0.76m in diameter and 0.71m deep.

Enclosure A11 (Figs 5.34 and 5.41)

Possible enclosure A11 was situated along the southern limit of the excavation, within field A13, and potentially had a similar layout to enclosure A10, as indicated by curved ditch A11A (Figs 5.34 and 5.41). It had been recut at least once on the same alignment and broadly the same course. The enclosure ditches varied in width (0.35–1.25m) and depth (0.27–0.54m) and largely extended beyond the southern limit of the excavation.

Dispersed pits in field system 2 (Figs 5.34, 5.35, 5.41 and 5.50)

Fourteen pits (10015, 10017, 10053, 10059, 10082, 10086, 10118, 10320, 10336, 10356, 10858, 10877, 10956 and 11074) and four postholes (10009, 10011, 10348 and 10804) were dispersed across the fields in field system 2 (Figs 5.34–5.35 and 5.41). The pits were generally sub-circular to sub-oval in shape and varied in size (0.5–2.5m long, 0.55–1.5m wide) and depth (0.06–0.59m). The postholes were generally 0.22–0.45m in diameter and 0.08–0.19m deep.

The pits and postholes contained single, generally sterile fills of mid to dark-brownish grey silty sand that produced little dating evidence (22 sherds (368g) of Middle to Late Iron Age pottery) and three fragments of burnt animal bone. They have been assigned to Phase 4.2 based on stratigraphic relationships and proximity to the field system ditches, although it is possible that they could have been earlier or later in date.

A high number of charred plant remains were recovered from pit 10017, composed almost entirely of hazelnut shell fragments and indicative of domestic hearth waste (Wyles, Appendix A3.4), and a complete iron knife (Ra. 13; Fig. 5.34 and 5.50) of probable 3rd to 1st century BC date was recovered from the lowest fill of pit 10877. Full details on the knife can be found in Alexander Bliss's report in Appendix A2.11.

Pit 11074 was the largest of the dispersed pits (2.11m in diameter and 0.21m deep) and was situated in the north-western corner of field A17 (Fig. 5.34). The function of the pit was uncertain, with only a single piece of worked flint recovered from the feature. A soil

Fig. 5.50 Iron knife (Ra. 13) recovered from pit 10877

sample recovered from the pit produced a small amount of charcoal, hulled wheat grain and glume fragments and tuber stem fragments, as well as a small number of terrestrial molluscs (Wyles, Appendix A3.4). The shallow depth of the pit, lack of waterlogged material or evidence for standing water in the fills of the feature suggest that it was not used as a water pit. Similarly, the dearth of artefacts suggests that it was not a waste pit.

Other dispersed pits in Area A (Figs 5.21, 5.22, 5.28, 5.32 and 5.35)

An additional 21 pits (10092, 10217, 10224, 10249, 11027, 11166, 11622, 11694, 11705, 11744, 11751, 11785, 11853, 11889, 12073, 12091, 12124, 12355, 12626, 12836 and 12866) were dispersed between the enclosures in Area A (Figs 5.21, 5.22, 5.28, 5.32 and 5.35). Some of these were truncated by or cut the enclosure ditches and may have been only broadly contemporaneous with Phase 4.2 activity, although the presence of Middle to Late Iron Age pottery in some of the pits has resulted in them being assigned to Phase 4.2.

The pits were generally circular in shape and 0.5m–1.72m in diameter and 0.14–0.94m deep. Several of the pits (11694 (Fig. 5.21); 11705 (Fig. 5.22); 12626, 11027 and 11166 (Fig. 5.32); 10224 (Fig. 5.35)) had steeply sloping sides and flat bases, while others had more moderately sloping sides and rounded bases. They predominantly contained multiple fills of light to mid-yellowish or greyish brown sandy silt that appeared to have derived from natural processes. Only four pits (10092, 10217, 10224 and 12091) contained pottery (eight sherds, 60g) and pit 10092 produced 27 fragments of animal bone, some of which was burnt. Daub was also recovered from pit 11027, which exhibited round-sectioned probable wattle impressions, along with the corner fragment of a triangular loomweight.

Additionally, a high number of charred plant remains were recovered from pit 11027, dominated by cereal remains including those of emmer, spelt and barley, with a small percentage showing traces of germination (Wyles, Appendix A3.4). The weed seeds include those of brome grass and oats; overall the assemblages may be representative of late stage crop processing waste and domestic hearth/oven waste material (Wyles, Appendix A3.4).

Area B (Figs 5.51–5.72)

During the subsequent phase of Middle to Late Iron Age activity in Area B a new enclosure system comprising three broadly square enclosures (B4–B6) was established that appeared to mark the reconfiguration of many of the Phase 4.1 enclosures and roundhouses (Fig. 5.51). Like the preceding enclosures, the Phase 4.2 activity was associated with sub-enclosures, pit/posthole groups and three roundhouses, suggesting a similar level of activity to Phase 4.1. The newly established enclosures differed from those in Phase 4.1 in that they are more consistent in shape and defined by wider and deeper enclosure ditches, comparable in their layout, size and morphology to the Phase 4.2 enclosures identified in Area A. The majority of the Phase 4.2 activity in Area B was situated in broadly similar locations to the Phase 4.1 activity, though there was notably less activity within the southern half of the excavation area, potentially indicating a shift in the settlement activity away from the floodplain during this later phase.

Enclosure B4 and associated features (Figs 5.52–5.59)

Enclosure B4 was situated in the north-western corner of Area B (Fig. 5.51). A sub-enclosure (B4.1), a potential internal division (B4.2A) and three pit/posthole groups (PB5, PB6 and PB10) were also situated inside enclosure B4 (Figs 5.52 and 5.57).

Enclosure B4 was defined by ditch B4A, which had been partially recut along the same course at least once (Fig. 5.51). The ditches defined a roughly square area measuring 43m by 46m. The northern boundary broadly followed the course of Phase 4.1 enclosure B1 northern boundary, suggesting that some remnant of this earlier feature remained in the landscape at this point. The enclosure B4 ditches varied greatly in width (0.8–4m) and depth (0.2–1.62m), though they consistently had steeply sloping straight or concave sides and a flat base (Fig. 5.53, Section QQ). They contained multiple fills of predominately light-yellowish brown or mid-brownish grey silty sand. Monolith samples recovered from the enclosure ditches indicate that the lower fills were the result of natural, cyclical silting and sorting, potentially in a standing body of water within the ditch, probably due to a fluctuating water table (Kowalska, Appendix A3.3). A moderate assemblage of artefacts, including 188 sherds (1295g) of Middle to Late Iron Age pottery and animal bone (186 fragments), including an articulated pig shoulder joint, was recovered from the ditches. A

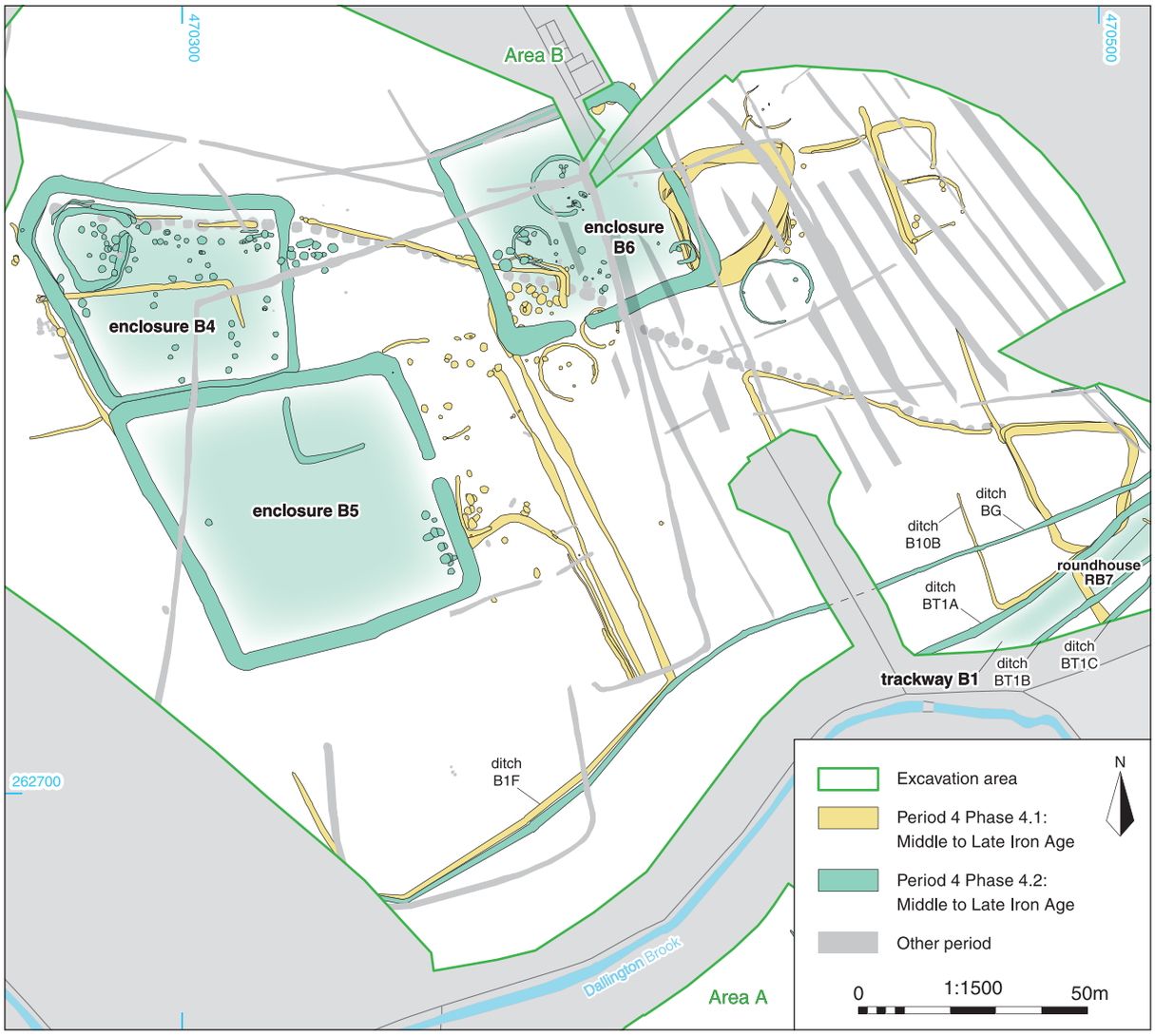


Fig. 5.51 Location and plan of Middle to Late Iron Age (Period 4 Phase 4.2) features in Area B

sample of the shoulder joint produced a Middle Iron Age radiocarbon date range (SUERC-130131; Table 5.1).

Two parallel ditches (B4.2A and B4.2B) situated in the north-eastern corner of enclosure B4 could represent internal partitions or structures (Figs 5.52 and 5.57). They measured 3.8m and 7.5m long, 0.45–1m wide and 0.14–0.53m deep with moderate to steeply sloping sides and flat bases and contained single fills of mid-brownish grey silty sand that were devoid of artefacts.

Sub-enclosure B4.1 and pit group PB5 (Figs 5.52 and 5.54–5.56)

Sub-enclosure B4.1 was situated in the north-western corner of enclosure B4 and was defined by ditch B4.1B and associated recuts B4.1A, B4.1C–B4.1E (Fig. 5.52). The sub-enclosure was similar in shape to the Phase 4.1 D-shaped enclosures situated in the eastern half of Area B and potentially indicates a continuation of enclosure types and shared function.

Ditch B4.1B enclosed an area approximately 15m by 12.5m in extent (Figs 5.52 and 5.54). A small entrance was denoted by a 1.2m gap in the enclosure ditch in the north-eastern corner. The ditch ranged in width (1.07–2.65m) and depth (0.38–1.08m) though it had a consistently steeply sloping concave profile (Fig. 5.55). It was subsequently redefined on the external north and east sides by ditches B4.1A and B4.1C–B4.1E. These later ditches were slightly narrower (0.42–1.38m) but were of a similar depth (0.17–1.09m) and profile to ditch B4.1B. The ditches produced a moderate assemblage of Middle to Late Iron Age pottery, nine pieces of worked flint and animal bone.

The enclosure ditches contained a similar fill sequence

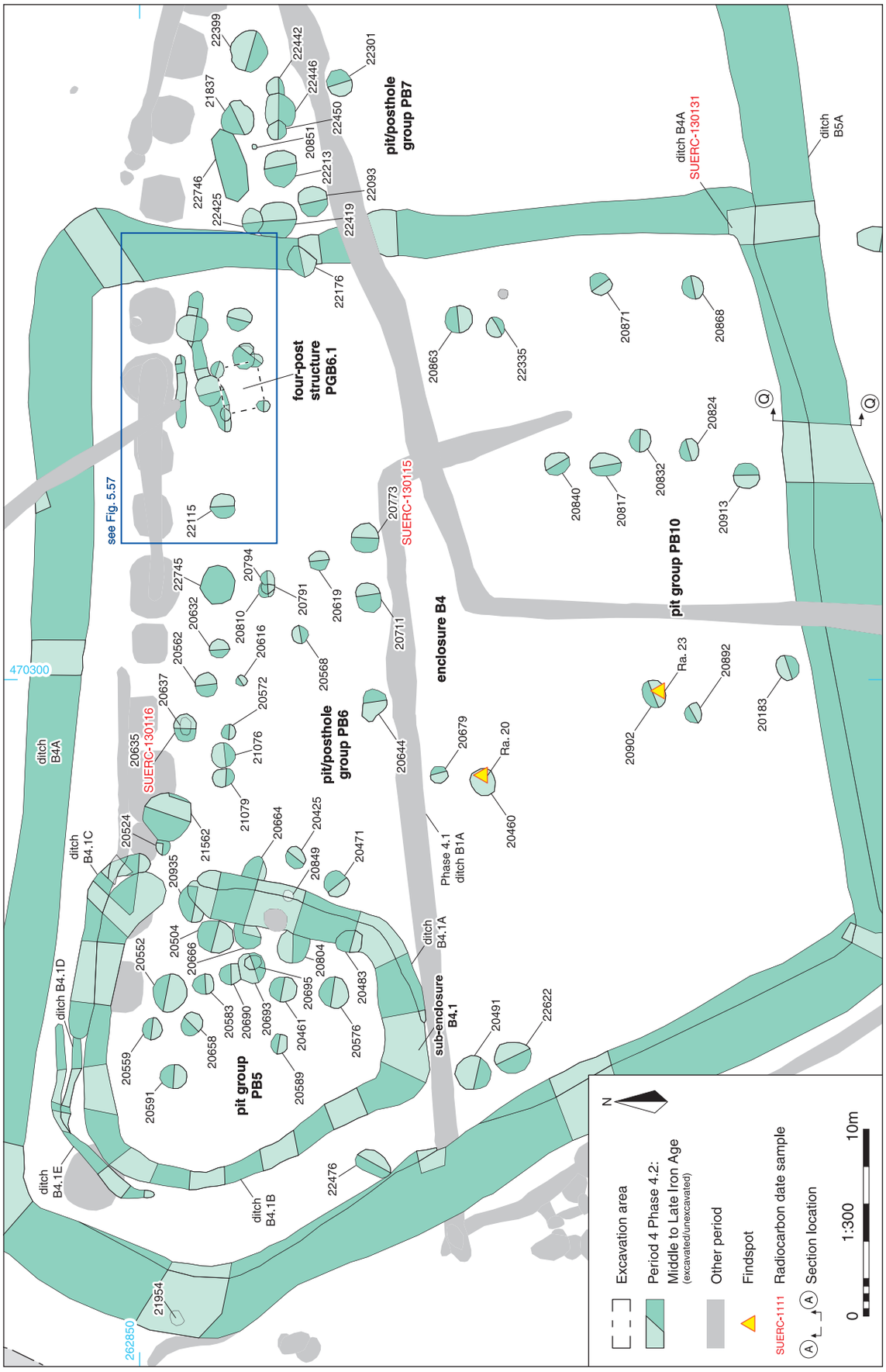


Fig. 5.52 Detailed plan of enclosure B4 and associated features

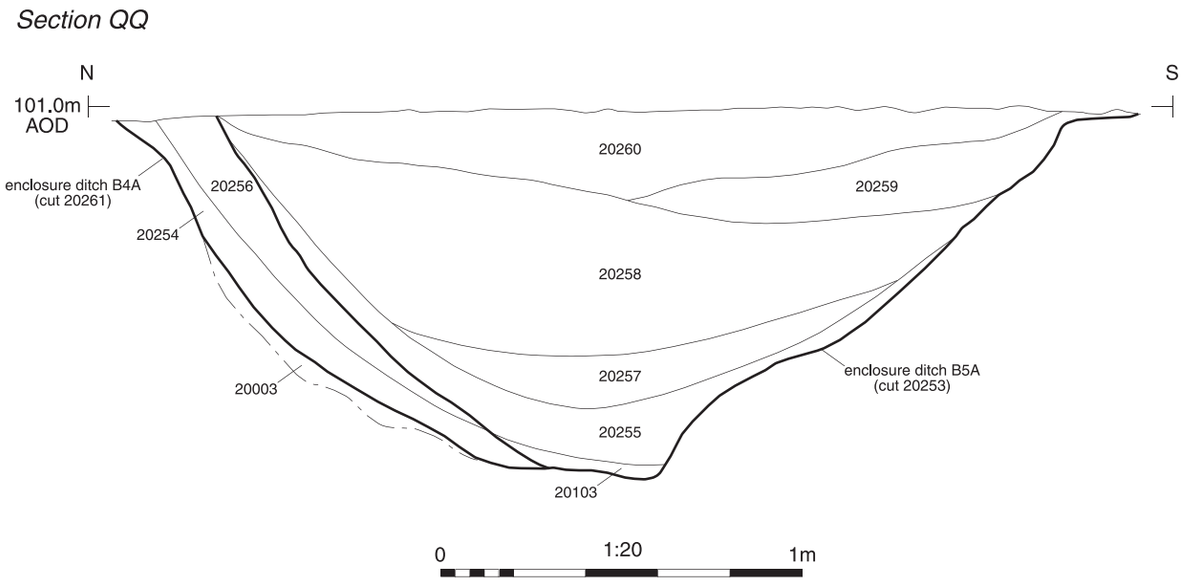


Fig. 5.53 Section QQ of enclosure ditches B4A and B5A

Fig. 5.54 Aerial photograph of sub-enclosure B4.1, under excavation, looking north-east

Fig. 5.55 Photograph of sub-enclosure B4.1 ditches, under excavation, looking south-west

Fig. 5.56 Photograph of pit 20461, looking north-east (1m scale)

to the enclosure B4 ditches and produced 106 sherds (803g) of Middle to Late Iron Age pottery, 36 fragments of animal bone and 26g of fired clay.

Pit group PB5 comprised a cluster of 17 pits (Appendix 1) situated within sub-enclosure B4.1 (Fig. 5.51). Some of the features truncated or were cut by the sub-enclosure ditches suggesting they formed several episodes of activity, with some pre-dating the enclosure. The pits were circular or sub-circular in shape and generally had steeply sloping straight sides and flat bases (for example, pit 20461, Fig. 5.56). They ranged between 0.57–1.82m long, 0.57–1.81m wide and 0.26–1.07m deep. The pits contained multiple fills of light to mid-greyish or orangey brown silty sand, which produced a moderate assemblage of Middle to Late Iron Age pottery (42 sherds, 306g) and small quantities of fired clay (81g) and animal bone (2 fragments). There was no evidence with the fills (for example packing material) that the pits formed structural elements associated with a building within the interior of the sub-enclosure; rather the steep sides and flat bases of the pits are suggestive of a probable storage function. However, a broadly circular arrangement of six of the pits (20461, 20583, 20589, 20658, 20690, 20693 and 20695) may suggest some internal structure was present that influenced the arrangement of the pits.

Pit/posthole group PB6 (Figs 5.52 and 5.57–5.59)

A spread of 47 pits and two postholes were situated within the interior of enclosure B4, which could be broadly separated into two groups; a northern group (pit/posthole group PB6) and a southern group (pit group PB10) (Appendix 1; Fig. 5.52)

Pit/posthole group PB6 comprised 31 pits and six postholes (Appendix 1) situated within the northern half of enclosure B4 (Fig. 5.52). Some of the features were truncated by or cut sub-enclosure B4.1 ditches, suggesting they formed several episodes of activity. Notably some of the pits/postholes appeared to form linear arrangements suggesting the presence of internal boundaries that are not visible in the archaeological record. The linear arrangement of pits 20644, 20711 and 20773 broadly followed the same alignment as Phase 4.1 ditch B1A, suggesting some remnant of this former boundary remained during this Phase. This may also be evidenced by the arrangement of sub-enclosure B4.1, which seems to respect the former boundary.

The features were generally circular and ranged between 0.57–2.05m in diameter and 0.09–1.11m deep; though the pits and postholes were of similar size, shape and profile, a distinction has been made for six of the features (20827, 20829, 20954, 20983, 21076 and 21079, discussed below) which have been interpreted as postholes based on their spatial arrangements or packing fills. The pits generally contained multiple fills of predominantly mid-greyish brown silty sand. Pit/posthole group PB6 produced 82 sherds (682g) of Middle to Late Iron Age pottery and 85 fragments of animal bone. Fired clay (1228g) was also recovered, including fragments from pit 20902 that exhibited round-sectioned fragments with probable wattle impressions.

Moderately large charred plant assemblages were recovered from pits 20635 and 20773. Weed seeds were predominant in the assemblages and included brome grass, oats, clover, medick and sedge (Wyles, Appendix A3.4). Cereal remains included those of emmer, spelt and barley, with almost equal numbers of emmer and spelt recorded from pit 20635 (Wyles, Appendix A3.4). Grains outnumbered chaff in the assemblages from pit 20773, which may be representative of a mixture of late stage crop processing waste and domestic hearth/oven waste material, while chaff elements were more numerous in the assemblage from pit 20635, possibly reflecting late stage crop processing waste (Wyles, Appendix A3.4). Two samples of spelt grain from pits 20635 and 20773 produced Middle Iron Age radiocarbon date ranges

(SUERC-130116 and SUERC-130115; Table 5.1). A monolith sample recovered from pit 20635 potentially indicated that the lower fills derived from a mixture of decomposed organic matter, organic waste (bone) and burnt residues (Kowalska, Appendix A3.3).

Of particular note was pit 20460 (Fig. 5.52), which contained fills indicative of the deliberate deposition of burnt material (mid-blackish brown and dark-brownish black sandy silt). The pit contained fragments of fired clay that likely derived from the upper superstructure of an oven or hearth (Ra. 20; see Highlight 4), although no associated structures were identified in Area B during the excavation.

Four of the postholes (20827, 20829, 20954 and 20983) situated in the north-eastern corner of enclosure B4 appeared to form a possible square four-post structure (PGB6.1; Figs 5.52 and 5.57), which measured approximately 1.8m by 1.8m. Three of the postholes (20827, 20829 and 20954) had fills with large stone inclusions which potentially represents packing material (Fig. 5.57). The possible structure was truncated by subsequent pits 22009 and 20956, once more denoting

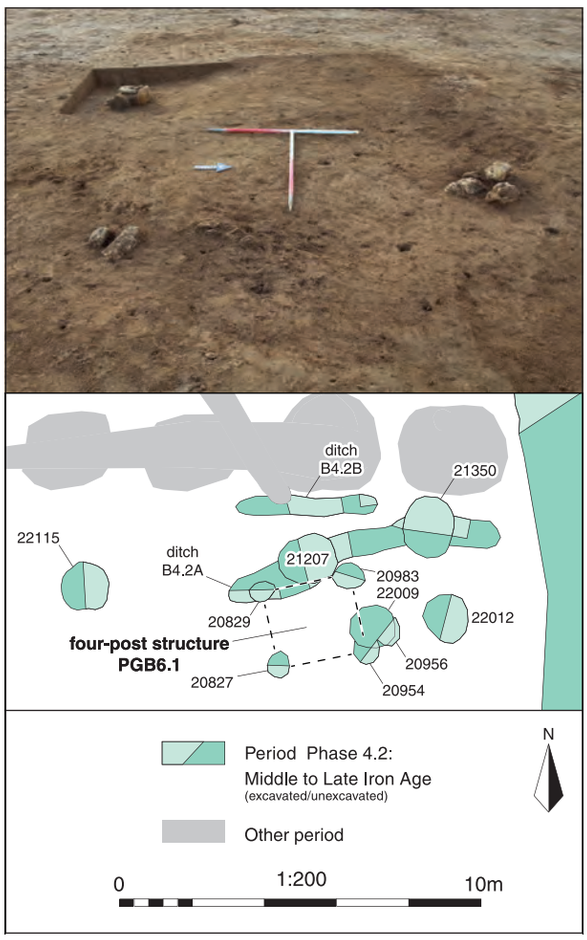


Fig. 5.57 Plan and photograph of possible structure PGB6.1 (1m scales)

Fig. 5.58 Photograph of postholes 21076 and 21079, under excavation, looking north-west (1m scale)

several episodes of activity within enclosure B4. No artefactual material was recovered from the pits.

Two stone-packed postholes (21076 and 21079; Figs 5.52 and 5.58–5.59) were identified within pit/posthole group PB6. The pits were situated immediately adjacent to one another and no corresponding features with potential packing were identified within their vicinity. Consequently it is unclear whether the features corresponded to a structure or had an alternative function.

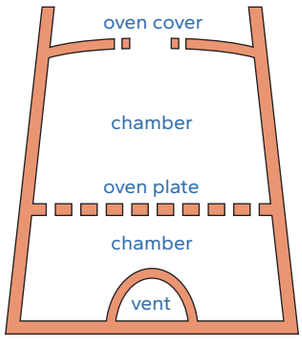
Fig. 5.59 Photograph of posthole 21076, looking south (1m scale)

Pit group PB10 (Fig. 5.52)

Pit group PB10 comprised 12 pits situated in the south-eastern corner of enclosure B4 (Fig. 5.52). The pits were generally circular and measured 1.03–1.6m in diameter and 0.31–0.83m deep with steeply sloping straight sides and rounded or flat bases. Like the pits in group PB6, they contained multiple fills of predominantly mid-greyish brown silty sand, which produced 62 sherds (596g) of Middle to Late Iron Age pottery, 160g of fired clay and 159 fragments of animal bone, some of which

Oven Cover

1



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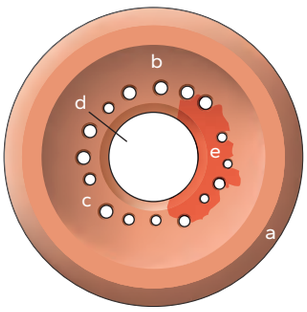


1 A diagram in section of a 'typical' Iron Age oven.
2 Oven cover fragments (Ra. 20).
3 A reconstruction of the oven cover in plan of how the oven cover might have looked (Fig. 1).
- a Exterior wall of the oven
- b Oven cover
- c Ventilation holes
- d Central opening
- e Surviving fragments

A number of fired clay fragments identified as from oven structures or portable oven furniture were found during the archaeological excavation. The most substantial example was from a pit (20460, pit/posthole group PB6) dated to the Middle to Late Iron Age (Fig. 5.51).

Ovens, defined here as structures with a permanent or portable superstructure subjected to heating or firing (Poole 2007), rarely survive in their entirety in the archaeological record. Nevertheless, they are well evidenced as fragments of their fired clay structure, the distinctive oven covers and the portable furniture. The latter includes ceramic plates, triangular bricks and bars, (Poole 2002, 369, fig. 2; 2024). The diagram on the left (1) shows the components of a 'typical' type of Iron Age oven (after Poole 2002, 369, fig. 2) and the location of the oven cover. This diagram depicts a doomed oven cover that has been permanently inset into the upper walls of the oven.

Some of the best surviving evidence for the form of Iron Age ovens comes from Southern England, from sites including Danebury, Hampshire. Based largely upon this evidence, Cynthia Poole was able to identify two forms of cover (Types 1 and 2), both featuring a central circular flue measuring 120–180mm (Poole 2002, 368). Type 1 covers had a single opening, often decorated with fingertip/stick end and rectangular impressions. Those of Type 2 were more domed in profile, with 8–12 perforations (approx. 25mm) encircling the central flue. Whilst the former were generally associated with larger oven structures and built into the top of the oven superstructure, Type 2 covers could be permanent installations, likewise built into the superstructure, or were fabricated as 'portable' items (ibid., 370). Type 2 oven covers were most likely designed to enable cooking in a pot. When this method was employed, the vessel was placed in the central opening, with the surrounding holes facilitating the through-flow of air and smoke (ibid.).

The excavations at Harlestone Park produced a number of fired clay fragments identified as part of an oven structures or portable furniture. Among the 81 fragments recovered from pit 20460 were joining portions identified as part of an oven cover (2). This preserves the circular upper opening with an estimated internal diameter of 180mm, and outside of this, circular perforations at irregular intervals of 20–40mm (3). Its form is broadly consistent with the largest examples of Type 2 oven covers described by Poole (2002, 368) and the poor firing characterising its extremities is similarly typical. It was however notably thicker, measuring 50–55mm; this more typical of Poole's Type 1 covers, which tend to be larger. A further difference is in the small size of the surrounding perforations, these measuring 15mm in diameter, which compares to the 25mm size usual for Type 2 covers from Southern England (ibid., 368).

The fired clay oven fragments identified from Harlestone Park add to similar evidence from across the South Midlands region, for example from Kilsby, Northamptonshire (McSloy 2015a, 208), Great Barford, Bedfordshire (Poole 2007, 265–278) and Ryton-on-Dunsmore, Warwickshire (Palmer 2005, 20). Whilst there are some differences in form, there is a marked degree of consistency with the evidence from Southern England and suggests that ovens were a common feature of domestic food preparation in the Iron Age period across a wide area of lowland Britain.

Laura Pearson

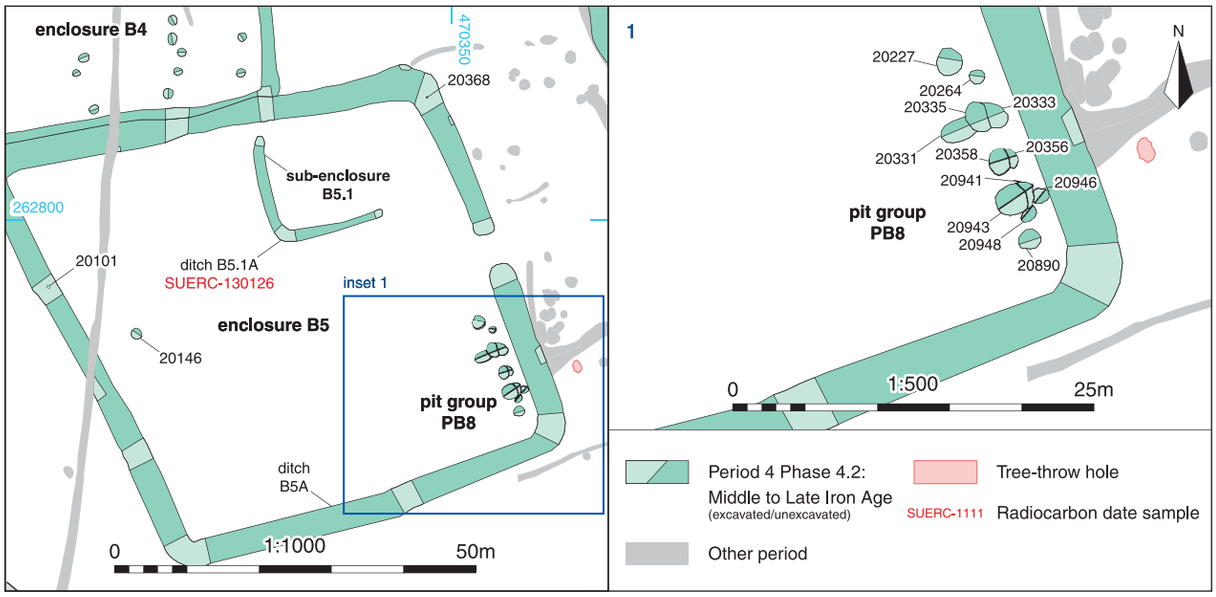


Fig. 5.60 Detailed plan of enclosure B5 and associated features

was burnt. A saddle quern stone (Ra. 23; Fig. 5.52) was also recovered from pit 20902. The quern is a fairly large example (350mm long and 160mm thick) with naturally smoothed edges and base and a mostly flat and smoothed grinding surface with traces of pecking visible (Shaffrey, Appendix A.10). Complete quern stones recovered from Iron Age pits are unusual and it is possible that the item represents a structured deposit (discussed further below).

Pits 20892 and 20902 both contained heat-affected material including charcoal and burnt stone. Pits 20902 and 20871 also contained a charred plant assemblage dominated by cereal remains and weed seeds, which probably represented domestic settlement waste (Wyles, Appendix A3.4).

Pit/posthole group PB7 (Fig. 5.52)

Pit/posthole group PB7 comprised a tight cluster of 12 pits and a posthole (Appendix 1) situated immediately outside of enclosure B4 at its north-eastern corner (Fig. 5.52). The pits were circular or oval in shape and generally ranged between 0.99–2.44m long, 0.99–2.09m wide and 0.21–1.1m deep, with steeply sloping sides and predominantly flat bases. The exception to this was posthole 20851, which was much smaller (0.27m diameter) and shallower (0.05m deep).

Some intercutting between the pits and the B4 enclosure ditch may indicate that not all were in use at precisely the same time, although they are likely to have been broadly contemporaneous, representing several episodes of activity in this area before and after the establishment of enclosure B4.

The pits contained multiple fills that ranged from light to mid-greyish, yellowish or orangey brown silty sand and clayey sand, which produced a small assemblage of Middle to Late Iron Age pottery (42 sherds, 248g) and a small amount of burnt animal bone (three fragments). A soil sample from posthole 20851 produced sparse environmental remains but the assemblage recovered from pit 22419 was dominated by cereal remains, with the chaff elements outnumbering the grain (Wyles, Appendix A3.4). The species represented predominantly comprised emmer and barley, with smaller quantities of spelt. The weed seeds included those of brome grass, oats and medick/clover and overall the assemblage is representative of late stage crop processing waste material (Wyles, Appendix A3.4).

Enclosure B5 and associated features (Figs 5.51, 5.53 and 5.60–5.61)

Enclosure B5 was defined by ditch B5A, which cut the southern boundary of enclosure B4 and enclosed an area of approximately 55m by 54m (Figs 5.51 and 5.60). An east-facing entrance was indicated by a 4m-wide gap in the enclosure ditch. Ditch B5A varied in width (1.27–3.6m) and depth (0.4–1.62m) but generally had steeply sloping straight to convex sides and a rounded base (Fig 5.53, Section QQ).

The ditch contained multiple fills of light to mid-brownish grey or yellowish brown silty sand, which produced a moderate assemblage of artefacts that included predominantly Middle to Late Iron Age pottery (101 sherds, 1143g), an iron awl and animal bone (186 fragments).

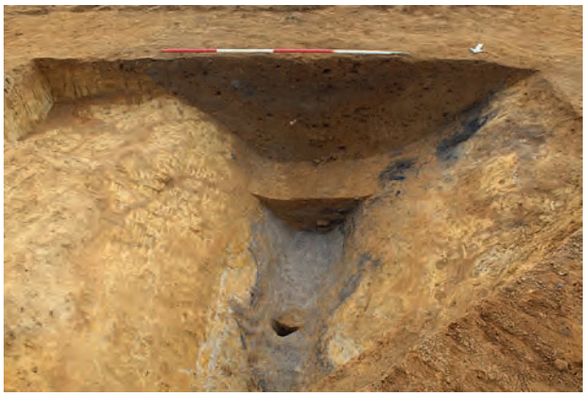


Fig. 5.61 Photograph of ditch B5A and posthole 20368, looking south-east (2m scale)

Two postholes (20101 and 20368) were identified at the base of the enclosure ditch within two of the interventions (Figs 5.60 and 5.61). The postholes measured approximately 0.4m in diameter and 0.2m deep and potentially suggest the presence of a fence or post structure within the enclosure ditch.

Sub-enclosure B5.1 (Fig. 5.60)
Two sides of a possible sub-enclosure (B5.1) were indicated by ditch B5.1A, positioned in the north-eastern corner of enclosure B5 (Fig. 5.60). Possible entrances were indicated by approximately 10m and 2m-wide gaps on the south side and in the north-west corner, respectively. Ditch B5.1A was 0.97–1.8m wide and 0.29–0.7m deep, with gentle to moderately sloping sides and a rounded base. It was predominantly filled with a mid-yellowish brown clayey sand that produced Middle to Late Iron Age pottery (25 sherds, 142g) and animal bone (111 fragments), including the articulated remains of a cattle upper foreleg (Holmes, Appendix A3.2). A sample of the cattle foreleg submitted for radiocarbon dating produced a Middle Iron Age date range (SUERC-130126; Table 5.1).

Pit group PB8 (Fig. 5.60)
Pit group PB8 comprised a cluster of 12 pits (Appendix 1) situated in the south-eastern corner of enclosure B5 (Fig. 5.60). The pits formed a linear arrangement that broadly mirrored the alignment of the enclosure ditch. The pits were circular or oval and ranged between 0.9–1.9m long and 0.95–2.02m wide. They generally had moderately sloping sides and rounded bases and did not exceed 0.73m deep. The pits contained up to three fills of mid-yellowish or greyish brown or dark-orangey brown silty sand, which produced a small amount of Middle to Late Iron Age pottery (10 sherds, 135g) and animal bone (five fragments)

One additional feature, pit 20146, was situated on the western side of enclosure B5, close to the ditch (Fig. 5.60). Pit 20146 was circular in shape and similar in size (1.6m in diameter) and depth (0.45m) to the pits in group PB8. It also had similar moderately sloping sides and a narrow, rounded base. It did not contain any dating evidence but is probably broadly contemporaneous with the other enclosure B5 features.

Enclosure B6 and associated features (Figs 5.62–5.72)
Enclosure B6 was situated in the centre of Area B, approximately 25m north-east of enclosure B5 (Fig. 5.62). Two roundhouses (RB1 and RB2), a sub-enclosure (B6.2) and a number of pits were situated within the interior of the enclosure (Fig. 5.62).

Enclosure B6 was defined by ditch B6A, which enclosed a square area (approximately 43m by 43m) and partially truncated Phase 4.1 enclosure B3. A south-facing entrance was indicated by a 2.5m wide gap in the enclosure ditch. Ditch B6A varied considerably in width (0.55–6.7m) and depth (0.38–1.56m) though it generally had steeply sloping convex or stepped sides and a rounded base. A moderate assemblage of Middle to Late Iron Age pottery (70 sherds, 378g) and animal bone (92 fragments) was recovered from the enclosure ditch. Multiple fills of light to mid-greyish brown silty sand and occasionally dark-blueish grey clayey silt filled the ditch. Monolith samples indicate that the lower fills accumulated as a result of natural silting, followed by grey silty/clay deposits which imply the presence of washed in sediments and could suggest standing water in the ditch (Kowalska, Appendix A3.3).

Roundhouse RB1 (Figs 5.62–5.67)
Roundhouse RB1 was situated in the northern half of enclosure B6 (Fig. 5.62). It had an internal diameter of 11m and was defined by a single ring gully (RB1) 0.66–1m wide and 0.2–0.32m deep, with moderately sloping sides and a narrow rounded base (Fig. 5.63, Section RR). The ring gully produced a moderate assemblage of artefacts including Middle to Late Iron Age pottery (200 sherds, 1301g) and animal bone (332 fragments), some of which was burnt. Notably, a moderate quantity of Middle to Late Iron Age pottery (103 sherds, 537g), including part of a possible strainer in a grog and shell-tempered fabric (Ra. 26), had been deposited within the eastern terminus of the ring gully (Fig. 5.64). Three soil samples were recovered from the ring gully, which produced a moderate quantity of charred plant remains, including spelt, emmer and barley, with grains outnumbering the chaff elements (Wyles, Appendix A3.4). Weed seeds were those typical of grassland, field margins and arable environments (Wyles, Appendix A3.4). A sample of spelt grain produced a Middle Iron Age radiocarbon date range (SUERC-130103; Table 5.1).

In the interior of roundhouse RG1 were four pits (21440, 21442, 21449 and 21472), two post-pits

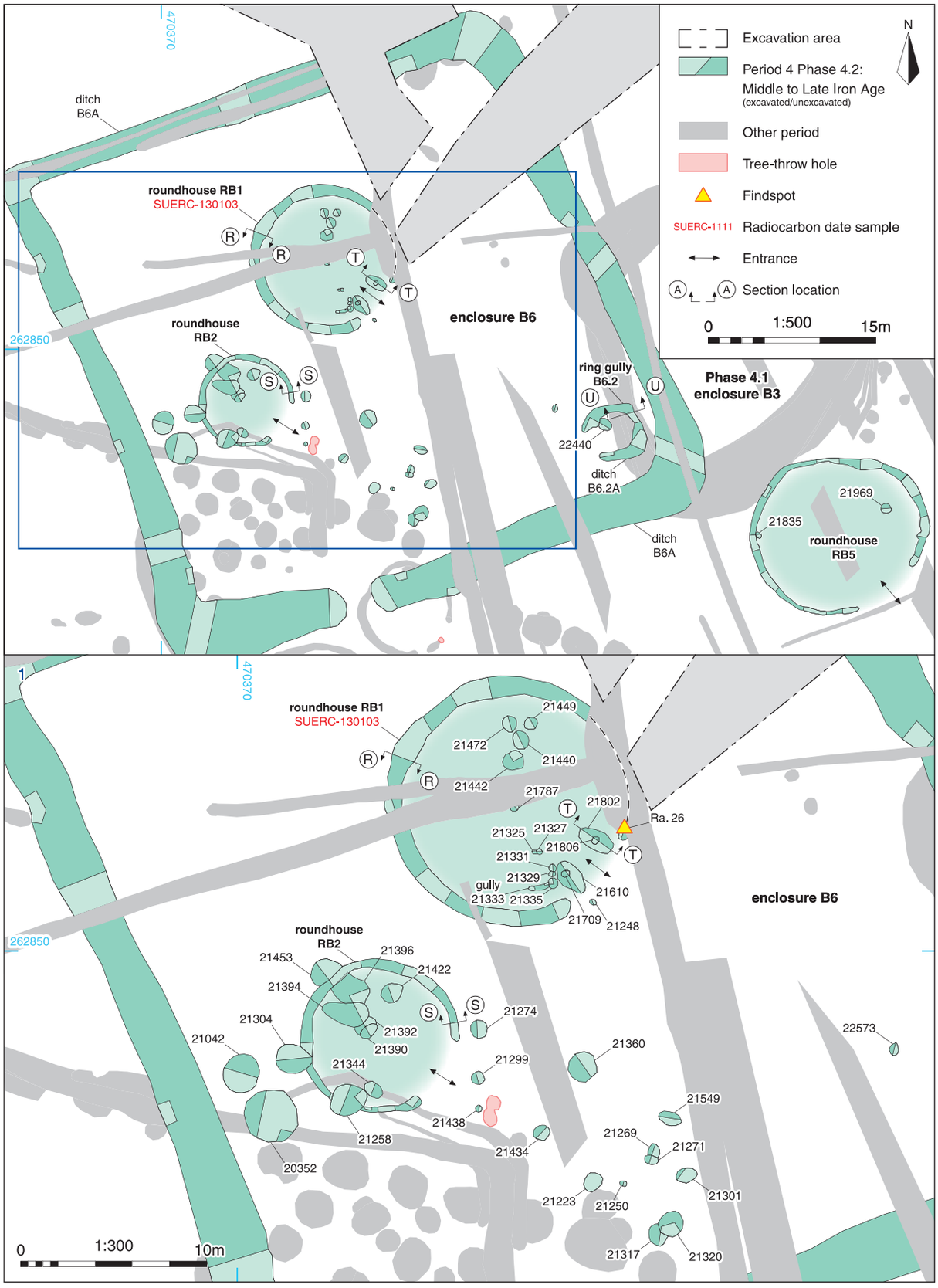


Fig. 5.62 Detailed plan of enclosure B6 and associated features

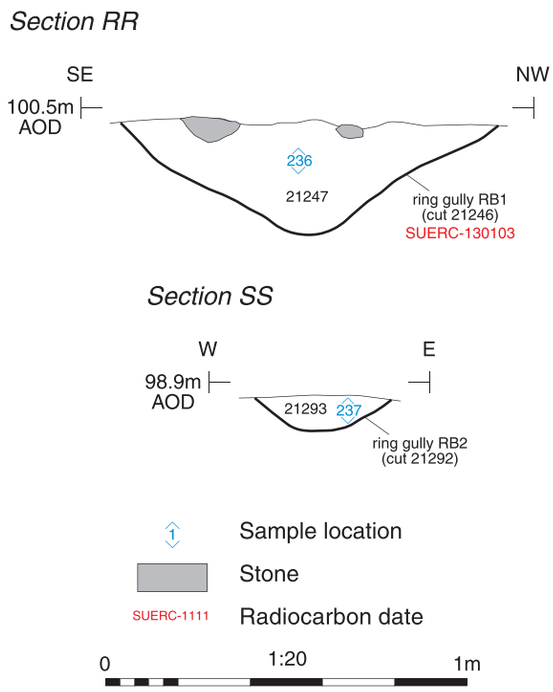


Fig. 5.63 Sections RR and SS of roundhouse ring gullies RB1 and RB2

(2161021709 and 21802/21804/21806), six postholes (21325, 21327, 21329, 21331, 21335 and 21787) and a short gully (21333), with an additional posthole (21248) located the entrance (Fig. 5.62). Notably the arrangement of two potential post-pits, comprising pits 21610 and 21802/21804 and their corresponding postholes 21709 and 21806, were situated near the entrance to the roundhouse, just within the arc of the ring gully (Figs 5.62 and 5.65–5.67). Pits 21610 and 21802 were oval in shape (2m long, 1–1.1m wide and 0.63–0.7m deep) with steeply sloping sides and irregular flat bases (Figs 5.65, Section TT and 5.66–5.67). The fill of pit 21802 consisted of horizontal deposits of light-yellowish white silty clay and light-greyish brown clay-silt. It was recut as pit 21084 (1.4m long, 1.1m wide and 0.35m deep), which had a concave base and moderately sloping sides and was filled by a dark-orangey brown silty clay. In contrast the fill of pit 21610 contained a more uniform

Fig. 5.64 Photograph of pottery (Ra. 26) within the eastern terminus of roundhouse RB1, under excavation

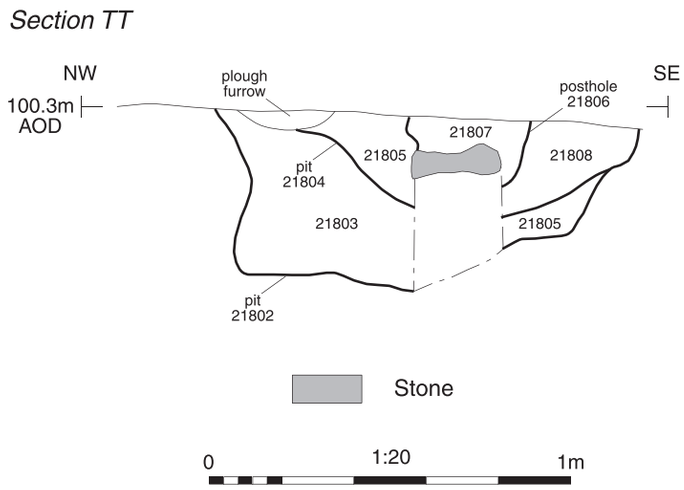


Fig. 5.65 Section TT of pit 21802 and posthole 21806

Fig. 5.66 Photograph of pit 21802 and posthole 21806, looking north-east (1m scale)

Fig. 5.67 Photograph of pit 21610 and posthole 21709, looking south (1m scale)

fill of light-orangey brown clayey silt. Postholes 21709 and 21806 were situated roughly within the centre of pits 21610 and 21804, respectively. Large stones were found in pit 21610, arranged around posthole 21709, most likely representing *in situ* post packing material, while a single flat stone found in posthole 21806 is presumed to be the remains of similar material. The position of the post-pits is consistent with them being doorposts associated with an entranceway structure and they are similar to examples recorded on numerous Iron Age sites across Northamptonshire, including The Lodge, Crick (Chapman 2015a, 127) and settlement 5, Wollaston Quarry (Atkins and Meadows 2024, 39–40). The replacement of pit 21802 with 21804 indicates that this doorpost represents two phases of use.

Gully 21333 was situated immediately to the west of the doorposts and could represent an associated structural element such as a wall trench or similar. It was ephemeral, at only 0.23m wide and 0.1m deep, with gradual sloping sides and a flat base.

An additional posthole (21248; Fig. 5.62) was situated slightly to the south of the entrance to roundhouse RB1 and could have formed part of the entrance structure, such as a porch, to roundhouse RB1. It was 0.05m deep and did not contain any evidence for packing material like doorposts 21610 and 21804.

The remaining internal features formed two clusters, situated in the northern and southern half of the roundhouse, with a posthole (21787) in the centre, possibly forming a central roof support. The southern cluster was situated close to the entrance to the ring gully, on its western side, and comprised five postholes (21325, 21327, 21331, 21329 and 21335) clustered in the vicinity of doorpost 21610. It is possible that they, along with posthole 21787, also represented structural elements of the roundhouse. Pits 21440, 21442, 21449 and 21472 were 0.75–2m in diameter and shallow at 0.08–0.15m deep, with gentle sloping sides and rounded bases. They each contained a single sterile mid-brownish grey silty sand fill, apart from pit 21440, which produced four sherds (16g) of Middle to Late Iron Age pottery. During excavation an assemblage of animal bone was recovered from posthole 21331, which was later identified as the partial skeleton of a young adult sheep/goat (Holmes, Appendix A3.2, Table A3.16).

Roundhouse RB2 (Fig. 5.62–5.63)

Roundhouse RB2 was situated approximately 4m to the south-west of roundhouse RB1 and was smaller in size (Fig. 5.62). It was defined by a single ring gully (RB2; Fig. 5.62) with an internal diameter of approximately 7.5m. The gully was 0.19–0.64m wide and 0.1–0.22m deep, with moderately sloping straight sides and a flat base (Fig. 5.63, Section SS). It had a south-east-facing entrance, as indicated by a 3.5m-wide gap in the ring gully, which mirrored the entrance to roundhouse RB1. No doorposts or postholes were associated with the entrance.

Six pits (21344, 21390, 21392, 21394, 21396 and 21422) were clustered within the interior of the roundhouse, several of which were intercutting. Two of the pits (21396 and 21453) were also truncated by ring gully RB2 (Fig. 5.62), indicating that they belonged to an episode of activity prior to the construction of the ring gully; however as the previous Phase 4.1 activity within the vicinity of RB2 did not extend beyond the northern boundary of enclosure B1 (see Fig. 5.9), pits 21396 and 21453 have been assigned to Phase 4.2, and are considered to be broadly contemporary with activity associated with RB2. The pits varied in width (1–2.4m) and depth (0.29–0.57m deep) but generally had steeply sloping sides and flat bases. The fills of the pits were sterile and comprised a mid-orangey brown clayey sand.

Ring gully B6.2 (Figs 5.62 and 5.68–5.70)

Ring gully B6.2 was situated in the south-eastern corner of enclosure B6 and was defined by sub-circular ditch B6.2A. It had an internal diameter of 3.5m (Figs 5.62 and 5.68) and a west-facing entrance was indicated by a 2m-wide gap. Ditch B6.2A measured 0.7–1.76m wide and 0.25–0.38m deep with gently sloping concave sides and a rounded base (Fig. 5.69, Section UU and 5.70). It truncated the Phase 4.1 enclosure B3 ditches, indicating these had fully silted up and were no longer in use prior to the construction of sub-enclosure B6.2.

Ditch B6.2A contained two fills of mid-yellowish orange and dark-greyish brown silty clay (0.34m thick) overlaid by a 0.2–0.4m thick layer of stone (fill 22318; Fig. 5.69, Section UU), comprising limestone, and sandstone. The stonework followed the course of ditch B6.2A, with the underlying fills (22320 and 22319) potentially acting as bedding layers. The possible bedding layers produced Middle to Late Iron Age pottery (20 sherds, 174g) and animal bone (58 fragments) but the stone layer was devoid of artefacts.

Pit 22440 was situated inside the ring gully and was partially truncated by ditch B6.2A (Fig. 5.62), suggesting that it was associated with an earlier episode of activity within enclosure B6. It measured 1.35m long, 0.75m wide and 0.19m deep. No datable artefacts were recovered from it.

Dispersed and clustered pits (Figs 5.62)

Sixteen dispersed pits (20352, 21042, 21223, 21258, 21269, 21271, 21274, 21299, 21301, 21304, 21317, 21320, 21360, 21434, 21549 and 22573) and two postholes (21250 and 21438) were situated within enclosure B6. Most of them were clustered around roundhouse RB2 but two pits (20533 and 20593) were situated in the north-east corner of enclosure B6 (Fig. 5.62). Some of the pits were either truncated by or cut the enclosure and roundhouse RB2 ditch and are therefore represent several episodes of activity.

Fig. 5.68 Photograph of stone-lined ring ditch B6.2, under excavation

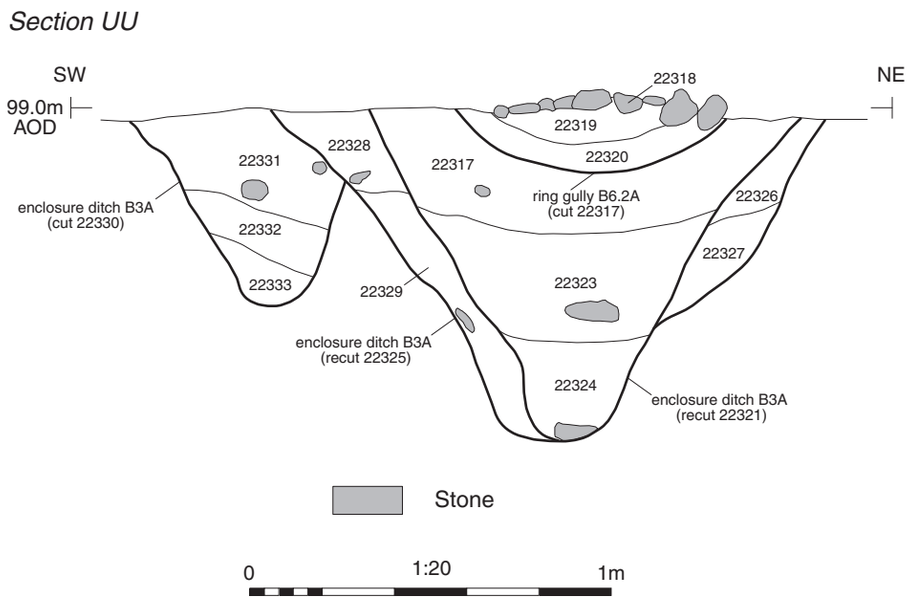


Fig. 5.69 Section UU of Period 4 Phase 4.1 enclosure ditch B3A and Phase 4.2 ring gully B6.2A

Fig. 5.70 Photograph of Period 4 Phase 4.1 enclosure ditch B3A and Phase 4.2 ring gully B6.2A, looking north-west (2m scale)

Fig. 5.71 Photograph of posthole 21969, looking north-west)1m scale)

The four largest pits (20352, 21042, 21304 and 21258) were grouped together on the west side of roundhouse RB2. They were 2–2.8m in diameter and 0.22–0.9m deep, with steeply sloping sides and flat bases. They contained two fills of mid to dark orangey or yellowish brown silty sand, which produced a small quantity of Middle to Late Iron Age pottery (seven sherds, 14g) and animal bone (13 fragments). Notably two of the pits (21304 and 21258) truncated ring gully RB2, suggesting they formed a later episode of activity in this location, potentially associated with the eventual disuse or decommissioning of the roundhouse.

The rest of the pits were much smaller (0.7–1.44m wide and 0.7–1.36m long) and shallower (0.08–0.43m) and were less consistent in profile, with some having gentle to moderately sloping sides and rounded bases and some steeply sloping sides and flat bases. They all contained single fills of mid to dark greyish brown silty sand and four pits produced Middle to Late Iron Age pottery (110 sherds, 948g) and animal bone (six fragments). Pit 22573 showed evidence for the fills being heat affected, comprising the presence of charcoal, heat-affected stones and heat-affected and reddened clay, indicative of an *in situ* fire.

Roundhouse RB5 (Figs 5.62 and 5.71)

Roundhouse RB5 was situated to the south-east of enclosure B6 and appeared to have been unenclosed. It was defined by a single, sub-circular ring gully (RB5) enclosing an internal diameter of 13m, the largest of all the ring gullies identified during the excavation. Like roundhouses RB1 and RB2, a 6m-wide gap in the gully indicated a south-east-facing entrance. Gully B5 was 0.55–1m wide and 0.15–24m deep with gentle to moderately sloping sides and a rounded base. It contained up to two fills of light to mid greyish brown silty sand, which produced a small amount of Middle to Late Iron Age pottery (60 sherds, 21g). A soil sample recovered from the terminus produced a small amount of charcoal.

Two postholes were situated in the interior of roundhouse RB5 (21835 and 21969; Fig. 5.62), one of which was located immediately adjacent to the west side of the ring gully and may represent a feature associated with the structure of the roundhouse. Additionally, posthole 21969 contained a concentration of large cobbles within the centre of the feature (Fig. 5.71), which potentially represent packing material or a post-pad for an associated post structure, such as a roof support.

Ditch BG (Fig. 5.51)

Ditch BG was situated along the southern edge of Area B in a similar position to fields 1–4, along the floodplain in Area A (Fig. 5.51). For a distance of 196m it followed a broadly north-east/south-west orientation that generally mirrored the current course of the Dallington Brook. At the north-eastern end it turned and took a north-west/south-east course for a further 22m. Ditch BG truncated several Period 4, Phase 4.1 ditches, but in particular it followed the same course and alignment as the southern boundary (B1F) of Phase 4.1 enclosure B1, indicating some remnant of this feature may have remained in the landscape during this phase of activity.

Ditch BG was fairly consistent in width (1.4–1.6m wide) but narrowed to 0.5m wide at the north-east end. Overall it was 0.1–0.51m deep, with moderately sloping sides and a rounded base. It contained multiple fills of light to mid greyish or yellowish brown silty sand, but no obvious indication of waterlogging.

Trackway B1 (Fig. 5.51)

Three parallel north-east to south-west aligned ditches (BT1A, BT1B and BT1C) were situated in the south-eastern corner of Area B (Fig. 5.51). The ditches were located to the south of ditch BG and although they took a slightly different alignment they could represent earlier or later iterations of this boundary feature.

Ditches BT1A–BT1C also followed the same course and alignment as the southern boundary of Period 4, Phase 4.1 enclosure B10 (ditch B10B), indicating that some remnant of this ditch had remained in the landscape.

Ditches BT1A and BT1B were spaced approximately 7m apart and ditch BT1C was positioned a further 4m south-east of ditch BT1B. Given the gaps between the ditches and their parallel arrangement it is feasible that they represent a trackway, potentially leading down to the brook, or alternatively may represent potential efforts at flood defences. The ditches measured 0.66–2.1m wide and 0.23–0.52m deep and had steeply sloping sides and rounded bases. They contained mid-greyish brown and mid-brownish orange fills that produced two sherds (6g) of Middle to Late Iron Age pottery.

Discussion

(incorporating analysis by Pete Banks, Alex Bliss, Dana Challinor, Sharon Clough, Michael Grant, Derek Hamilton, Agata Kowalska, Laura Pearson, Ruth Shaffery and Sarah Wyles)

Aspects of society

A significant number of Middle to Late Iron Age sites are known from Northamptonshire (Kidd 2000; Chapman 2023) but dating of sites from the period can be problematic (Hill 2002; Willis 2006; Mudd 2007, 163). Iron Age ceramic forms are long lived and often lack diagnostic decoration and this, combined with the imprecise nature of the calibration curve for radiocarbon dates for this period, often makes a definitive chronology difficult to define (Chapman 2023, 89; Knight 2002; Willis 2006). Together, the programme of radiocarbon dating and Bayesian modelling undertaken at Harlestone Park, along with the evidence from the pottery, indicate that the settlements on either side of the Dallington Brook were probably occupied simultaneously (Hamilton, Appendix A3.9), having commenced by the Middle Iron Age, potentially continuing well into the Late Iron Age.

In Northamptonshire, the Iron Age is characterised by significant landscape organisation, related to the growth of agricultural practices, the establishment of defended sites, including hillforts, and, from the Middle Iron Age onward, a proliferation of settlements (Kidd 2000, 1; 2004, 44). Evidence for occupation during the Early Iron Age is less common in Northamptonshire but is well attested by the Middle Iron Age and may suggest that there was a rise in population from this period onwards (Willis 2006, 102; Atkins 2018, 158). There are numerous examples of contemporaneous settlements in the county, such as at Pineham (Preece 2018; Harvey and Speed 2020) and Upton (Foard-Colby and Walker 2010; Walker and Maull 2010; Speed 2015), situated between 3km and 4.6km to the south, in the Nene Valley (Fig. 1.8). Contemporary settlements have also been found at Brackley (Radstone Fields and Northampton Road; Leslie 2021), Brackmills (Chinnock 2024), Wellingborough (Wilby Way/Bourton Way; Thomas and Enright 2003; Luke and Barker 2020), Silverstone (SL2–3 and SFF; Mudd 2007, 9–39), Crick and Kilsby (Crick Covert Farm, Crick Hotel, The Lodge, Nortoft Lane and Long Dole; Hughes and Woodward 2015; Masefield *et al.* 2015) and Twywell (Jackson 1975).

Settlement morphology (Figs 5.72–5.74)

Two main episodes (Phases 4.1 and 4.2) of Middle to Late Iron Age settlement activity were identified at Harlestone Park, based on changes in the morphology of enclosures and stratigraphic relationships. However, it is likely that the development of the settlements in Areas A and B was a more gradual, often piecemeal process than these divisions portray, with the utilisation of some elements of the Phase 4.1 settlement layout no doubt continuing during Phase 4.2, particularly in the case of enclosures.

Phase 4.1 was represented by a single semi-circular enclosure (A14) in Area A, whereas a more extensive, seemingly ad hoc system of enclosures (sub-square, rectilinear and D-shaped) was present in Area B. Domestic-related features were confined to Area B, comprising groups of pits and at least four roundhouses that appeared to lay outside of the enclosed areas. The purpose of enclosure A14.1 in Area A remains uncertain; of the few similar examples found in Northamptonshire, all were associated with roundhouses, for instance, the oval enclosure found at South Meadow Road, Upton (Speed 2015, 57–62). It is possible that any evidence of structures associated with enclosure A14.1 has been lost to truncation by later episodes of land-use. Nevertheless, the curved layout of A14.1 and its wide opening to the south-west could indicate that it was instead utilised for the purpose of corralling livestock, with the small internal sub-enclosure representing an animal pen, suggesting varied land-uses on either side of the Dallington Brook during Phase 4.1.

Phase 4.2 marked a significant episode of settlement development on both sides of the Dallington Brook, defined by an increase in the density of features and accompanied by a noticeable rise in artefactual and biological evidence. In Areas A and B, Phase 4.2 involved the alteration and at least partial replacement of the preceding Phase 4.1 enclosures and associated features, leading to the establishment of a series of individual square and rectangular enclosures that imply a far greater level of planned development. The majority of these enclosures contained sub-enclosures, postholes and clusters of pits; however, two of them (A8 and B6), located on opposite sides of the brook, contained substantial evidence for roundhouses. The probable existence of additional roundhouses in enclosures B4, A4 and A7 has been inferred from the curved grouping of

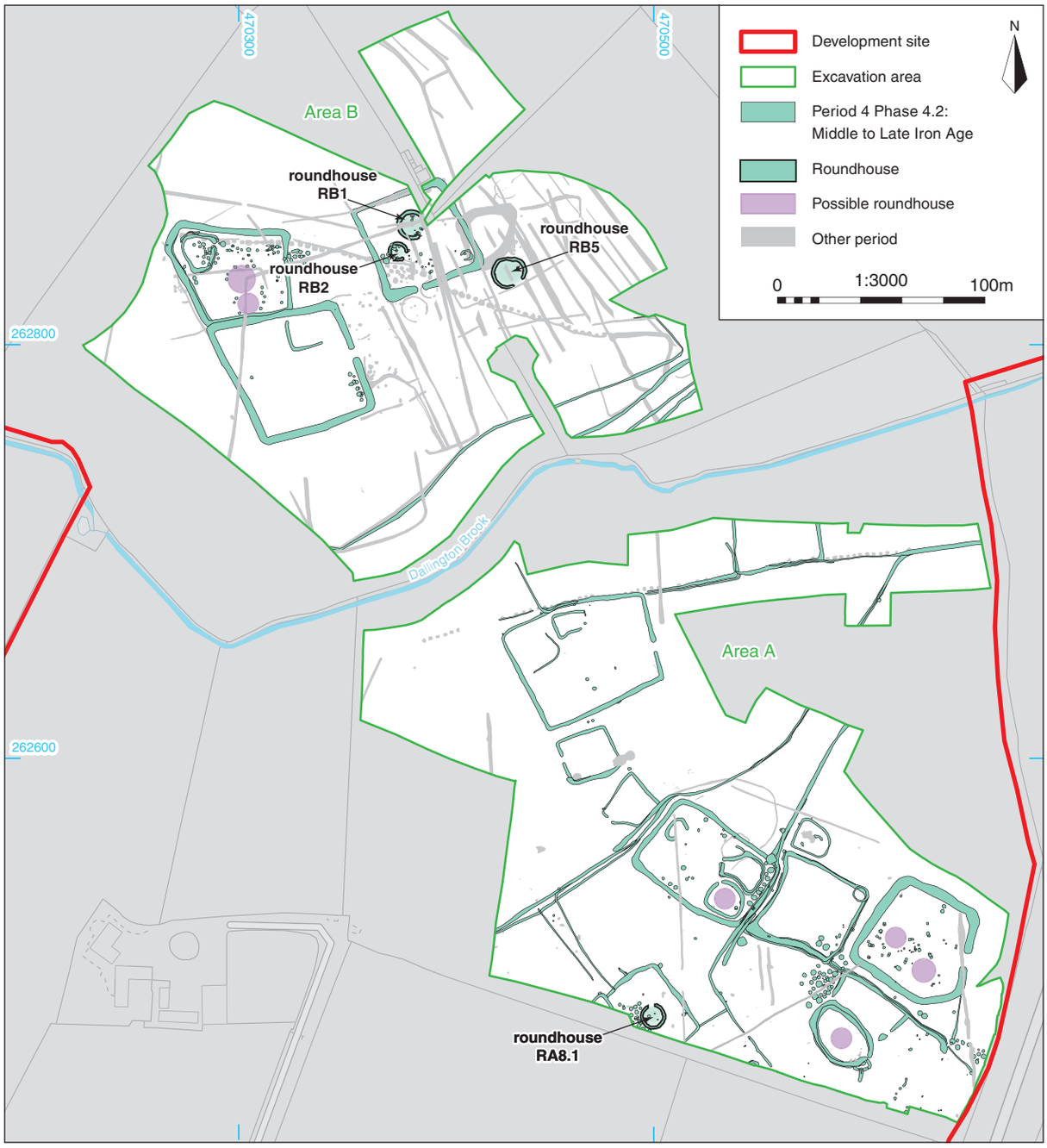


Fig. 5.72 Location of Middle to Late Iron Age (Period 4) roundhouses in Areas A and B

pits and the sub-circular layouts of sub-enclosures (Fig. 5.72). Furthermore, the oval shape of enclosure A10 and a pronounced curve in the ditch defining enclosure A7 could also suggest the presence of a roundhouse. In Area A two field systems were also established. They appeared to differ from the enclosures, as the fields were conjoined, more irregular in shape and associated with fewer internal features, indicating that they probably served a different purpose. The Phase 4.2 settlement enclosures on both sides of the brook were associated with trackways. In Area B this comprised a routeway that appeared to lead towards the brook. In Area A boundaries A1 and A2 could have defined another trackway that widened as it approached enclosure A4, potentially serving as a corral for livestock.

During the Middle Iron Age larger open settlements

with ring gully-defined houses and enclosed farmsteads appeared across Northamptonshire, Leicestershire and Warwickshire (Masefield 2015, 254; Deegan 2008b, 95). These domestic settlements have traditionally been divided into three broad morphological categories: open, enclosed and agglomerated (Kidd 2000, 6). Open settlements typically comprise multiple clusters of roundhouses, with associated structures and pits, which lack substantial enclosing ditches (Chapman 2023, 93; Kidd 2006, 54). An example of an open settlement in Northamptonshire is The Lodge, Crick (Chapman 2015a), which was defined by a linear arrangement of four, unenclosed roundhouse clusters and associated small enclosures (Chapman 2015a, 114). In contrast, settlement features associated with enclosed settlements lie within the confines of a larger enclosure. For example, a sub-rectangular enclosure containing two roundhouses and a roundhouse was stock pen were identified at South Meadow Road, Upton (Speed 2015, 57–62) and Silverstone SL2 of the A43 Towcester to M40 Improvement Scheme (Mudd 2007). The settlement evidence at Harlestone Park does not sit well within either of the aforementioned categories; elements of the Phase 4.1 activity in Area B can be observed to be unenclosed, such as the roundhouses, however the majority of the Phase 4.1 and 4.2 features were scattered between multiple, clearly defined enclosed areas.

Last, settlements described as 'agglomerated' (Willis 2023) emerged in the Early Iron Age in eastern England (Medlycott 2011, 29); however, current evidence suggests that in the East Midlands they did not develop until the Middle Iron Age, though appear to continue into the later Iron Age (Willis 2023). Until recently, this type of settlement had not been widely recognised in Northamptonshire; aerial survey and partial excavation means these they are commonly misinterpreted or misclassified as open or enclosed settlements due to smaller features such as pits, postholes and other structures being difficult to identify via non-invasive methods (Willis 2023). Following increased developer-led excavation numerous settlements of this type are now known from across Northamptonshire, including Crick Covert Farm (Hughes and Woodward 2015); King's Heath, Northampton (Shaw *et al.* 1990), Twywell (Jackson 1975), Bourton Way/Wilby Way (Thomas and Enright 2003; Luke and Barker 2020) and Brixworth (Barker *et al.* 2023, 245–71). Agglomerated settlements are distinguished by a combination of both enclosed and unenclosed elements, and they typically cover a much larger area compared to other types of settlements. Additionally, these settlements are notable for their longevity of occupation and a wide range of functions (Kidd 2000, 6–7).

The extent of settlement at Harlestone Park, with enclosed and unenclosed elements distributed over approximately 10 hectares, coupled with several core areas of domestic occupation, indicates that it developed as a small agglomerated-type settlement or farmstead (Fig. 5.73). However, many of the Northamptonshire examples, such as Crick Covert Farm, Wilby Way/Bourton Way and Clay Lane, Earls Barton (Hughes and Woodward 2015; Thomas and Enright 2003; Luke and Barker 2020; Chapman 2023, 82–83), do not include enclosure complexes comparable to the size and scale of those recorded in Areas A and B. Additionally, Harlestone Park lacked the significant number of roundhouses, post-built structures and storage pits identified at these other sites. A series of Late Iron Age square enclosures, linked by fields and smaller enclosures, has been uncovered at Pineham Barn/Pineham North, Northampton, which shares some characteristics with the Harlestone Park settlement (Fig. 5.74). Settlement exhibiting a remarkably similar organisational layout to Harlestone Park was recorded at Manor Farm, Humberstone, Leicester (Fig. 5.74; Thomas 2011, 29–41, figs 27 and 29). Here, a comparable series of conjoined and individual enclosures, featuring both enclosed and unenclosed elements, was noted, which also had a north-west/south-east orientation. As with Harlestone Park, only some of the enclosures contained roundhouses.

An interesting feature of Harlestone Park is the arrangement of the settlement on either side of the Dallington Brook. Elsewhere in Northamptonshire there is evidence for settlements being deliberately located in close proximity to one another during the Iron Age. For example, the settlements at Crick and Kilsby are thought to represent separate entities that formed part of a larger community that developed contemporaneously around major landscape boundaries and areas of shared common pasture (Masefield 2015, 300). Similarly, at Brackley the three sites of Radstone Fields, Northampton Road and Foxhills were situated along the course of a stream, approximately 200–600m apart (Leslie 2021; Morris 2023, 125–94; GSB 2007). The concentration of roundhouses in certain enclosures at Pineham Barns has also led to their interpretation as a polyfocal farmstead (Preece 2018, 63). This would fit with the pattern of evidence at Harlestone Park, with Areas A and B containing discrete coinciding settlements that developed in conjunction to one another.

The evidence from Harlestone Park and other contemporaneous settlements mentioned above demonstrate that no standardised pattern of settlement morphology is discernible for the Middle Iron Age in Northamptonshire. Instead, individual sites display variations in layout in terms of landscape setting, aspect, enclosure type, internal arrangement and functionality (Willis 2023), suggesting that they developed more fluidly, in direct correlation to the requirements of the individual communities.

Location of sites within the landscape

Middle Iron Age occupation is well attested in

Fig. 5.73 Reconstruction drawing of Middle to Late Iron Age settlement activity in Areas A and B

Northamptonshire, with the greatest concentration of recorded sites distributed along the Nene and Ise valleys and in some instances on the clay subsoils (Kidd 2004, 53–4; Chapman 2023). A similar distribution has been noted in the adjacent county of Bedfordshire during this period, with a general trend for settlements along the Great Ouse and other river valleys, situated on clay geologies (Luke 2008, 38). This was a pattern observed in the earlier prehistoric period, with the river valley gravels and associated light free-draining soils and easy access to water encouraging occupation, which continued to intensify during this period (Kidd 2004, 44). As mentioned above, the site is predominantly situated on freely draining soils, with small localised patches of clayey soils with impeded drainage at the northern and southern extents of the site (Soilscapes 2026), thus conforming to the overall pattern of occupation in Northamptonshire during this period.

The ditches and features within the vicinity of the floodplain of the Dallington Brook showed evidence for standing water within their fill sequences. It is notable that the roundhouses within Area B were positioned near the top of the slope and the enclosures containing the most domestic-related features in Area A were positioned at least 140m from the current course of the brook, which suggests that there was a concern with flooding. The depth of many of the Period 4 Phase 4.2 enclosure ditches at Harlestone Park may also be indicative of the need for improved drainage and it is probable that the recutting (for example ditch B3A, which was recut at least six times along broadly the same course) represented episodes of maintenance.

Settlement components

Enclosures and sub-enclosures

The enclosures linked to the earliest phase of settlement (4.1) at Harlestone Park were primarily rectilinear or D-shaped; however by Phase 4.2 they predominantly took on rectangular or square forms, with at least one enclosure in Area A being oval. Enclosures of comparable size and shape to those in Phases 4.1 and 4.2 have been discovered on Iron Age settlements across Northamptonshire, appearing in various combinations (Chapman 2023, 72–87). Deegan has argued that these enclosures probably served a range of functions, including habitation areas, stock management and areas for agricultural processing and industrial and/or craft activities, with specific functions potentially changing over time (2008b, 95). For example, at Hallam Fields,

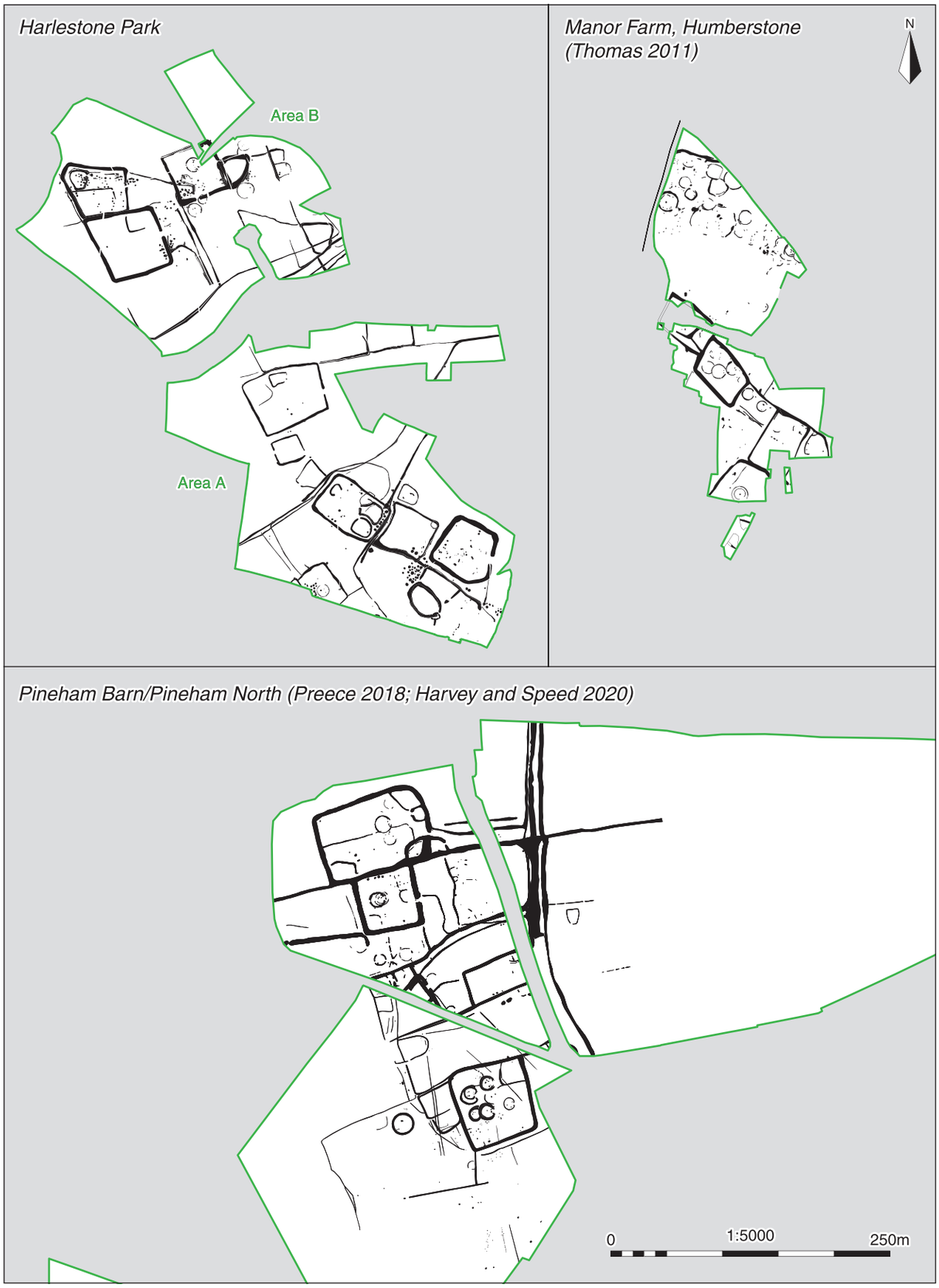


Fig. 5.74 Comparative plan of selected Middle to Late Iron Age settlements in Northamptonshire and Leicestershire

Leicestershire, phosphate analysis suggested that certain areas within the enclosures were designated for livestock, while concentrations of pits suggested that different activities were undertaken nearby (Speed 2010, 50–5, 61). At Harlestone Park, most of the Phase 4.1 pit clusters in Area B were situated in sub-enclosures within rectilinear enclosure B1, whereas other areas of enclosure B1 appeared devoid of features, implying that it could have been the focus for a range of activities.

The interiors of many of the Phase 4.2 enclosures were divided up by sub-enclosures and often contained discrete areas of pits and postholes, suggesting that they too served multiple purposes. Enclosures A8 and B6 (Phase 4.2) have been interpreted as habitation areas, based on the presence of roundhouses. However, blank spaces and the curved configurations of some of the pits and sub-enclosures in enclosures A7 and B4 suggest that they could have also contained roundhouses. The recovery of oven fragments from a pit in enclosure B4 appears to support a domestic function. Conversely other enclosures (A1, A2, A3 and B5) were almost devoid of domestic-related features, suggesting that they may have been used for livestock or other activities that have left no archaeological trace. In both Areas A and B these enclosures were situated closest to the brook, with easy access to water and grazing land.

The unusual layout of oval enclosure A10 shared some characteristics with examples recorded at Northampton Road and Radstone Fields, Brackley (Leslie 2021, 14–15, fig. 2.6 and 37–8, fig. 2.17), Hampton Drive, King's Sutton (Christie and Bain 2023, 276, fig. 2, 279) and Nortoft Lane, Kilsby (Hart and Mudd 181–2, fig. 5.16). However, most of these other instances were defined by narrower ditches that did not form a full oval, possibly due to subsequent truncation. Enclosure 1 at Nortoft Lane was the most comparable example to enclosure A10 in terms of size and shape (ibid.). An intriguing feature associated with enclosure A10 was the arrangement of short, steep-sided, deep ditches located adjacent to the entrance. It appears improbable that the exterior ditches represent an annex, as it would be quite small; however it is possible that they instead represent some form of entranceway structure.

Roundhouses (Fig. 5.75)

During the excavation, the remains of up to eight circular structures were identified from Phases 4.1 and 4.2 that could be classified as roundhouses (Fig. 5.75). They form the predominant building type identified during the Middle Iron Age within the East Midlands (Willis 2023) and may be regarded as having an occupational or domestic function, though this need not have been their role exclusively (Harding 2013, 27).

The surviving evidence for the roundhouses at Harlestone Park, predominantly consisted of shallow penannular gullies that did not appear structural in character (Fig. 5.75). These types of feature are frequently described as 'eaves-drip gullies' and are generally believed to have been designed to hold rainwater run-off from the roof (e.g. Pryor 1984, 214; Cunliffe 1991, 245; Knight 1984, 137). Where remains of an entrance had survived, all examples in Area B were orientated towards the south-east, while roundhouse RA8.1 (enclosure A8) in Area A had a north-facing entrance (Fig. 5.75). In northern and central Britain there is a clear inclination towards east to south-east-facing entrances and this pattern was observed at Radstone Fields and Northampton Road, Brackley (Leslie 2021, 177) as well as at Crick Covert Farm (Hughes and Woodward 2015). It has been surmised that east or south-east-facing entrances were designed to optimise sunlight levels within the structures and for protection against prevailing winds; however alternative theories have considered potentially symbolic reasons for the orientation of entrances (Pope 2007, 205, 211–13). Nonetheless, variations are known to exist and it is possible that the differing orientation of the entrance of roundhouse RA8.1 could imply a different use of the building, one that wasn't so reliant on sunlight levels, for example, although in all other aspects it seemed to be the same as the other roundhouses at Harlestone Park.

Overall there was a relative lack of structural elements associated with the Harlestone Park roundhouses, possibly suggesting that the buildings were constructed in such a way that left few traces in the archaeological record, such as the use of beam slots (Leslie 2021, 180). Nonetheless, a small number of pits and postholes was found in the interiors of roundhouses B4 and B6 (Phase 4.1) and A8.1, B1 and B5 (Phase 4.2), which could represent structural elements, such as roof supports. Two of the roundhouses (RB1 and RB3) exhibited evidence for an entranceway and/or porch structure, with the most compelling example being two doorposts located at the entrance to roundhouse RB1. Additionally a possible threshold sill beam was situated further inside, resembling an example found at Swan Valley Business Park, Northampton (Holmes and Chapman 2005, 29–31, fig. 7). It is noteworthy that the other roundhouses lacked similar evidence; the depth of the doorposts in roundhouse RB1 (0.63–0.7m) indicates that the absence of such evidence is unlikely to be due to truncation. Masefield (2015) has argued that porches may have defined areas of specialised functions and uses such as communal spaces or religious areas or specific associations with crop storage or stock housing. It is notable that roundhouse RB1 was the largest of the two structures in enclosure B6 and was associated with a relatively large quantity of pottery and charred plant remains, indicative of domestic hearth waste, suggesting that it could have been the main habitation. However, the other possible evidence for an entranceway structure was found in roundhouse RB3, the smaller of the two structures in Area B, Phase 4.1.

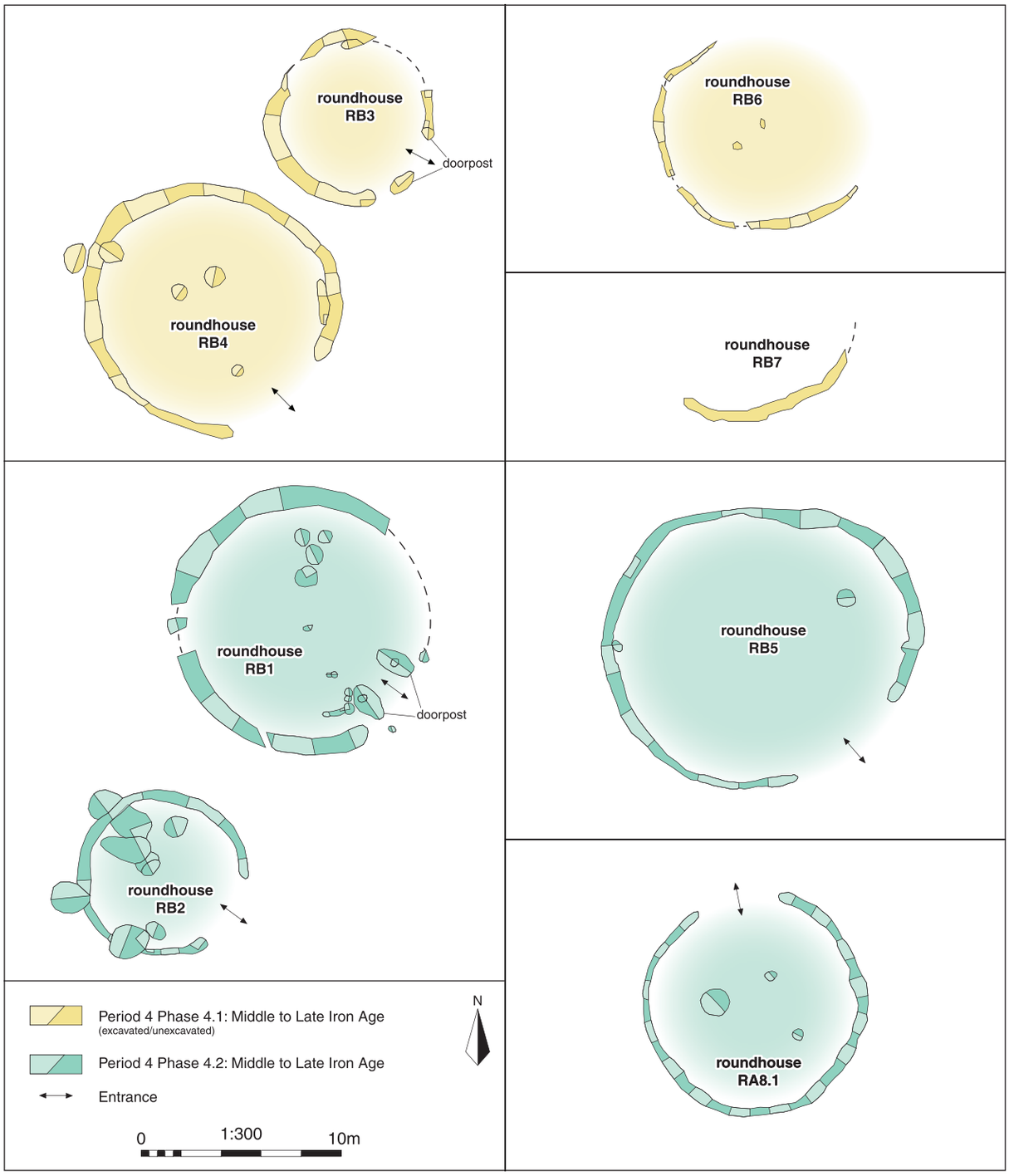


Fig. 5.75 Comparative plan of Middle to Late Iron Age (Period 4) roundhouses in Areas A and B

The roundhouses in Area B appeared to be arranged in pairs, with a larger roundhouse paired with a smaller one. Where multiple structures are found in close proximity to one another, Harding (2013) has observed that there is often a tendency to interpret the largest as the dwelling. In general the roundhouses at Harlestone Park produced assemblages of artefacts (pottery and a spindle whorl) and biological material (animal bone and charred cereal remains) that were small to moderately sized and limited in range but a slightly larger

proportion was recovered from roundhouses RB1 and RA8.1, potentially suggesting a domestic function. The function of roundhouses is likely to have varied, with some possibly used for sheltering livestock or storing food products, for instance.

Other circular structures

A further two ring gullies, one annular and one penannular, were recorded in the corners of Phase 4.2 enclosures A6 (ring gully A6.1A) and B6 (sub-enclosure B6.2). They had internal diameters of 6m and 3.5m, with B6.2 being the smaller of the two. Ring gullies similar in size to A6.1A have been recorded on Iron Age sites across Northamptonshire, such as structure 17 at Foxhills, Brackley (Morris 2023, 152–3, fig. 27) and RG8 at Long Dole (Chapman 2015, 23, 33, fig. 2.9). A common feature of these examples was the absence of a clearly defined entrance, unlike ring gully B6.2 at Harlestone Park. It is assumed, based on size, that ring gullies A6.1A and B6.2 had different functions to the larger roundhouses at Harlestone Park but there was little in the way of internal features to suggest a possible function. Structure 17 at Foxhills and RG8 at Long Dole contained evidence for post-built structures, suggesting that they could have been associated with grain storage or some other form of non-domestic activity (Morris 2023, 152–3; Chapman 2015, 33).

Another interesting aspect of ring gully B6.2 was the stone rubble in the top of the gully, which suggests that it might have been associated with a structure. No other stone structural remains were found at Harlestone Park but a similar, although larger (9m in diameter), stone structure (1556) was recorded on Land East of Kettering, Areas R7 and R8 (OA 2013, 11–12, fig. 4). Structure 1556 was defined by a sub-circular penannular ditch similar to B6.2 and the ditches defining it were similar in size and depth (1.8m wide and 0.4m deep) and shared the same gently sloping sides and rounded base. Like sub-enclosure B6.2, the stone rubble had been deposited in the final fill of the ditch (OA 2013, 11–12, fig. 4).

Post-built structures

In addition to the potential roundhouses identified at Harlestone Park, a four-post structure (PGB6.1), was identified in enclosure B4 and groups of postholes in enclosure A7 possibly represented further structures and fence lines. Four-post structures are not particularly common across the East Midlands, however they are best represented in Northamptonshire (Willis 2023), with examples identified at Wilby Way/Bourton Way (Thomas and Enright 2003; Luke and Barker 2020), Foxhills, Brackley (Morris 2023, 184–5) and Crick Covert Farm (Hughes and Woodward 2015). It is worth noting the dearth of these types of structure at Harlestone Park in comparison to sites such as Wilby Way/Bourton Way where a concentration of 23 four-post structures were found (Luke and Barker 2020, 15, fig. 2.7, 18). Four-post structures are commonly interpreted as granaries, used for storing the grain above ground level, although other functions have been suggested, including drying frames and funerary platforms or other ritualised structures (Ellison and Drewett 1971; Gent 1983; Knight 1984, 154; Beamish 1998, 29).

Storage pits

A common feature of the Harlestone Park Iron Age settlement was pits, with 294 of them clustered in groups within or just outside of the enclosures. Pit group PA1 were arranged along the south-east boundary of enclosure A4 (Fig. 5.22), while pit group PA5 in enclosure A8 was positioned around the west side of roundhouse RA8.1 (Fig. 5.41). There were also circular arrangements of pits, such as pit/posthole group PB2 (Phase 4.1; Fig. 5.12) in Area B, which might suggest that they had been enclosed, perhaps by a fence.

A large proportion of the pits at Harlestone Park were in excess of 0.5m deep with steeply sloping sides and flat bases. These characteristics conform to types of pits commonly found on Iron Age sites across England, which are traditionally interpreted as having a grain storage function, although they were probably used for the storage of other food types as well (Lodwick 2017, 66–7; Reynolds 1974, 1). Supporting evidence was not present in the pits, however, and charred cereal remains recovered from some of them were instead indicative of waste material from late stage crop processing, suggesting a secondary use of the pits.

Domestic life

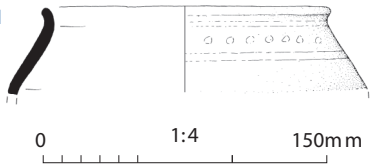
Alongside the evidence for potential domestic structures, indications of domestic life and associated activities being undertaken at the site are provided by the associated Period 4 artefact assemblage, although this was limited in range and quantity. Domestic activities such as cooking and food preparation, along with evidence for crafts, such as textile working, are evidenced by the pottery, fired clay, worked stone and metalwork assemblages.

Pottery

The ceramic assemblage largely consists of locally produced products, such as the Hunsbury-type bowls (see Highlight 5) and fabrics containing shell or other calcareous material, probably deriving from the readily available Jurassic clays that form the local geology (Banks, Appendix A2.2). This is comparable to assemblages recovered from contemporaneous sites within Northamptonshire, such as The Long Dole, DIRFT (Blinkhorn *et al.* 2015, 44). However, the dominance of shelly grog-tempered fabrics within the Harlestone Park assemblage is of particular note, as elsewhere within Northamptonshire there is a tendency

Hunsbury Bowl

1



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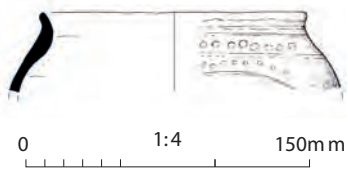

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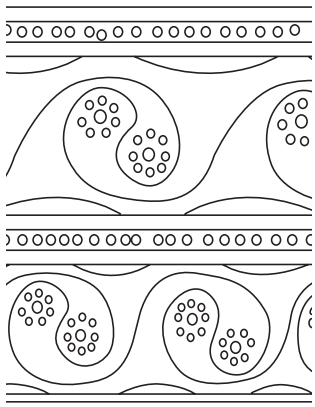

La Tène decorated bowls are found throughout much of southern and eastern Britain during the Middle and Late Iron Age (c. 4th/3rd to 1st centuries BC). A number of regionally distinctive styles have been defined within the British material, among which that known as Hunsbury bowls are usually found in the Northamptonshire region. The motifs characterising this style include rolling scrolls, impressed dots or 'cluster berries' and lozenges in rows or clusters and pendent arcs or lattices (1–3).

Most groups of La Tène decorated pottery in the Northamptonshire region are small. The assemblage from Hunsbury Hillfort, which gives its name to the regional style, was excavated in the 19th century (Fell 1936) and the surviving material numbers only a handful of sherds.

One of the largest assemblages from the Northamptonshire region is that recorded from Weekley, 15km to the north-east of Northampton, where over 360 sherds were found (Jackson and Dix 1987, 77). The apparent abundance of the fineware vessels suggests this site was of some significance, a supposition supported by the presence of several regionally imported vessels from the southwest of Britain (ibid., 41). Given the exceptional size of the La Tène ceramic assemblage from Weekley, it is possible that production of these ceramics was also taking place at or near this location. The decoration on the Weekley vessels differs slightly from those found at Hunsbury, incorporating single rather than multiple dots within rolling scrolls. It has been suggested that the Weekley material represents part of a group distinct from the traditional Hunsbury Bowls concentrated between the Welland and Nene rivers (Foster 1999, 131). Whether the differing designs relate to the community group that produced the pottery, a group of potters or a specific set of culturally held beliefs, is uncertain.

Residue analysis conducted on one of the Hunsbury bowl sherds from Harlestone Park provided moderate levels (664µg/g)* of adipose fats (e.g. animal meat) from a ruminant animal, meaning that the vessel was probably used for the processing or consumption of some sort of foodstuff that contained the meat from a cow or sheep, perhaps a stew or a broth (Davies *et al*. 2024, Appendix A2.4). A similar La Tène decorated bowl from a site in Wroughton, Wiltshire produced very high levels (13,377µg/g) of dairy lipids (Dunne 2021). While such analysis hints at differing uses for 'fineware' vessels, our understanding is incomplete. Fuller understanding may follow from future residue studies, although lipid preservation across sites is variable, affected by factors such as burial conditions, soil pH, vessel fabric and firing or how much the vessel was used.

* micrograms/grams

Hunsbury bowls

1 Illustration of a round bodied bowl with everted rim and decorated with a row of impressed dots between impressed parallel lines (Hunsbury Bowl). Fabric: GRM2. Form: V10. (Banks, Appendix A2.2, Fig. A2.2, no. 5)

2 Sherd and illustration of a round bodied bowl with everted rim, decorated with incised horizontal lines and rows of impressed dots (Hunsbury Bowl). Fabric: GR2. Form: V10. (Banks, Appendix A2.2, Fig. A2.3, no. 43

3 Illustrated example of Hunsbury bowl decoration

Pete Banks

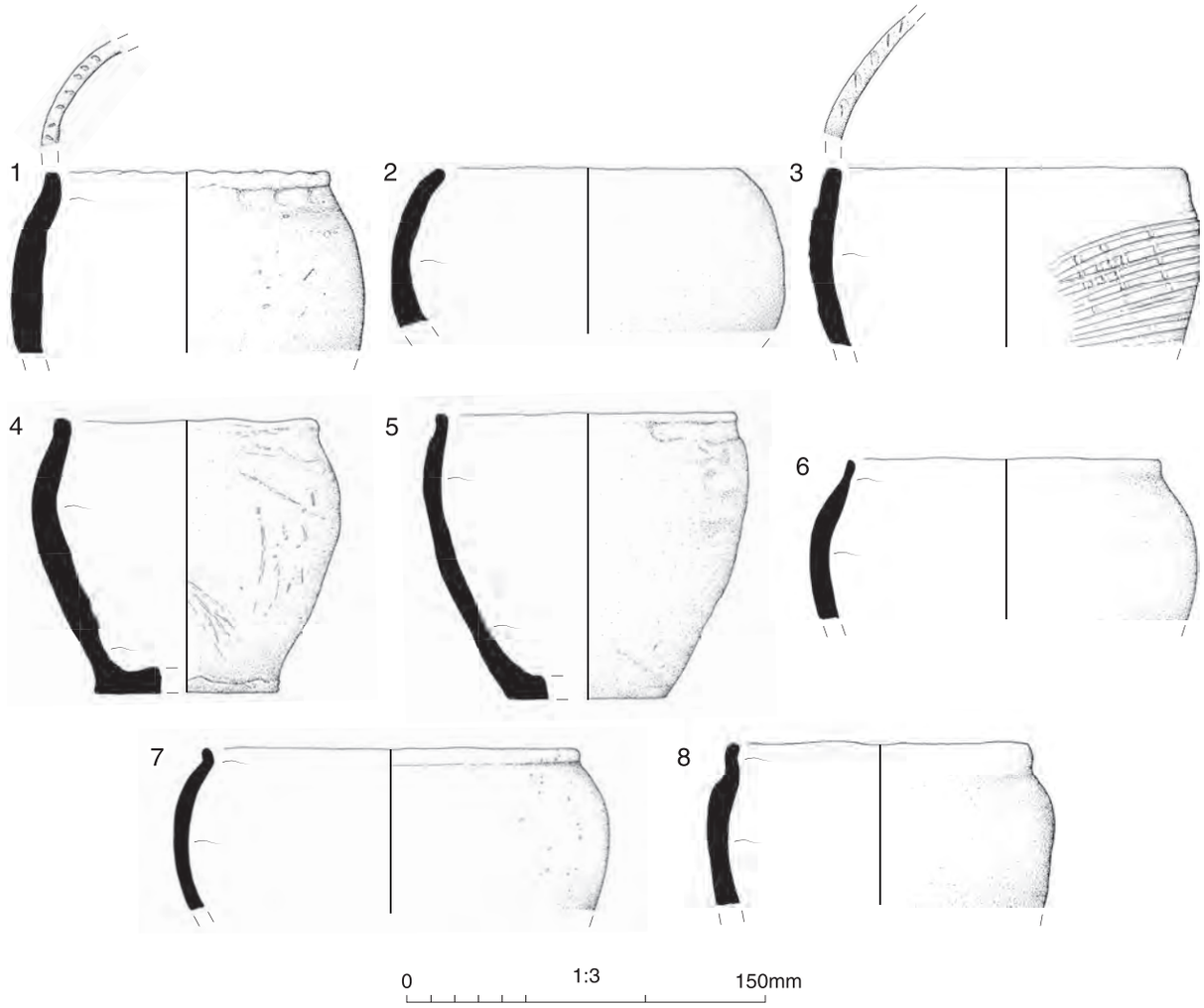

Fig. 5.76 Selection of late prehistoric pottery vessels recovered from Areas A and B

for shell-tempered fabrics to form the majority of the assemblages (Chapman 2023, 109). For instance, grog-tempered fabrics were recorded at Northampton Road (Wells 2021) and Nortoft Lane (McSloy 2015b) but in notably smaller quantities. There was no indication that the shelly grog-tempered fabrics at Harlestone Park characterise a chronologically discrete tradition, as vessels in these fabrics were present across Phases 4.1 and 4.2 and in a range of vessel forms including tall-necked and strong-shouldered vessels, as well as shorter necked slack-shouldered jars, globular and ovoid vessels (Fig. 5.76; Banks, Appendix A2.2, Figs A2.2–A2.5). Consequently, it is possible that the site had connections to a local pottery production site that preferred shelly grog-tempered fabrics.

The presence of granodiorite-tempered fabrics in small quantities is suggestive of trade or social links with communities outside of the Northamptonshire region (Banks, Appendix A2.2). These vessels originate in the Charnwood area of Leicestershire and have been identified at other Northamptonshire sites such as Pineham Barn, Crick Covert Farm and Long Dole (Sutton 2018, 41; Hughes and Woodward 2015, 135), which are thought to represent the most eastward expansion of this pottery type during the Iron Age (Knight *et al.* 2003). Furthermore, the possible example of a Darmsden-Linton style bowl from Harlestone Park may reflect similar links to the east; these vessels are common throughout East Anglia during the 5th to 3rd centuries BC and the presence of one here may represent contact with communities to the east (Banks, Appendix A2.2).

The majority of Iron Age vessels at Harlestone Park are of small to medium size with rim diameters between 100mm–190mm. Only eight vessels were recorded with rim diameters exceeding this range (between 200mm–

Spindle Whorls

1

2

3

1 Whorl-weighted spindle reconstruction, showing the whorl positioned at the lower end of the spindle.

2 The fired clay (Ra. 22) and stone (Ra. 12) whorls.

3 A reconstruction of an Iron Age woman engaged in 'drop' spinning.

A spindle is an implement used for the spinning of fibres into yarn. Most commonly it consisted of a narrow wooden rod, 12–25cm long, which was weighted near the bottom by a perforated disc, known as a whorl (1). Whorl-weighted or 'drop' spindles were first used in Britain during the prehistoric period and continued until at least the 16th century.

The wooden spindle rods rarely survive in the archaeological record, however spindle whorls were made from more durable materials (Alberti 2018). Consequently, they survive commonly from the Iron Age onwards, made from ceramics or stone, and less frequently of bone or antler, shale, jet or lead. Since the Bronze Age, spindle whorls are known from burials, possibly as symbols of status and gender (Crummy 2018, 187), and indicate that they may have been very personal, precious objects.

Two spindle whorls were recovered from ditches dating to the Middle to Late Iron Age (Figs 5.39 and 6.1). The fired clay example (Ra. 22) (2a) is an intact example of plano-convex form (circular in plan, one flat upper surface with an opposing domed surface), which was recovered from a Period 5 Late Iron Age/Early Roman ditch in Area B (Fig. 6.1). The clay used to form the object contains abundant fine quartz inclusions and frequent larger pieces of quartzite. The spindle whorl is not a uniform colour: the flat surface is black, whilst the domed exterior is pale brown to dark grey, due to uneven firing in a bonfire. A radial groove worn into the convex surface of the object (Pearson, Appendix A2.6) has likely resulted through repeated use.

The second spindle whorl (Ra. 12) (2b) was recovered from the gully defining roundhouse RA8.1 in Area A (Fig. 5.39). Only a fragment survives, which is made of sandstone. The surviving portion has a flat face and rounded sides but it is not possible to determine the form due to the breakage. The sides are interrupted by a lateral fracture along a bedding plane in the stone (Shaffrey, Appendix A2.10)

In use, a length of fibre would be wrapped around the rod before giving it a vigorous twist and letting it 'free-hang' and rotate. The weight of the whorl provided momentum, although it would gradually slow down, requiring the spinner to reset it into motion (Wild 1988). Carefully prepared fibres would be fed onto the spindle as it rotated. This created a twist in the fibre, which formed a yarn ready to be used for weaving and stitching. The yarn would be removed when the rod was full (Alberti 2017) The resulting yarn would be used to create textiles, such as tunics, blankets, or perhaps an intricately patterned tablet woven belt like the one pictured (3).

Iron Age spindle whorls similar to those described have been found in Northamptonshire (Chapman 2017c, 61). Interestingly, both whorls share a peculiarity in that their central perforations are larger than is typical, measuring 9mm and 12mm in diameter, which compares to the 4mm to 8mm range common to the Iron Age and Roman periods (Walton Rogers 2007, 23).

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300mm). Burnt food residues were found adhering to the interior of a small number of vessels that included a slack-shouldered and a globular jar, both of which exhibited traces of dairy fats in the interior and sooted residues on the exterior. This suggests that these pots had been utilised for both cooking and food preparation (Davis *et al.*, Appendix A2.4). Where the assemblage permitted comparison, the close grouping of vessel sizes and the preserved carbonised residues may indicate that the vessels recovered from the site were employed for the preparation of food items at a relatively small scale, perhaps for a small or extended family group (Banks, Appendix A2.2).

Craft activities

Limited evidence for spinning and textile working in Areas A and B comprised a spindle whorl (see Highlight 6), fragments of a triangular loomweight and an awl or similar tool, all of which are commonly found on Iron Age sites in Northamptonshire, such as Radstone Fields, Northampton Road and Foxhills, Brackley (Duncan 2021, 64–101; Hylton and Ridler 2023, 2019, 168) and Darsdale Farm, Raunds (Chapman 2017a, 113). A complete iron knife (Ra. 13) was also recovered from a pit within relatively close proximity to the aforementioned spindle whorl and loomweight in Area A. Knives are multifunctional tools that could be associated with domestic, hunting and/or craft-related activities. Examples of similar construction, with flat, riveted tangs and hooked blades, have been recovered from a number of contemporaneous sites, including Hunsbury, Northamptonshire (Fell 1936, 65).

Very small quantities of magnetic residue and hammerscale were recorded from two features within pit group PA5 in enclosure A8 and were the only material recovered from Harlestone Park to relate to metallurgical activities (Banks and Pearson, Appendix A2.6). Such material typically derives from iron-smithing activities, and although the quantity was small and the material was in poor condition, it was recovered from two pits within the same enclosure (A8), potentially suggesting that this activity was being undertaken somewhere nearby.

Ritual and funerary practices

A single example of formal burial was identified during the fieldwork, featuring a deposit of cremated remains from a three-year-old individual located in enclosure ditch B3A, Area B (Clough, Appendix A3.1). This section of the ditch also contained human bone fragments, comprising cranial fragments, teeth and femur from an adult, mixed with animal bone. In addition to this, possible evidence for ritual activity was represented by the occurrence of certain objects within pits and ditches that did not fit the usual pattern of discard.

The lack of evidence for human burial (inhumation or cremation) at Harlestone Park is not unusual for the East Midlands and wider Britain during the Iron Age, with only a selection of the population appearing to have received a burial that can be detected within the archaeological record (Chapman 2023, 106; Cunliffe 2005, 543–61). Conversely, deposits of disarticulated human bones are a common feature and the numerous examples from Northamptonshire include a fragment of skull and radius in an enclosure ditch at Pineham Barn (Deighton 2018, 53), a left humerus shaft from a sub-adult in an enclosure ditch at Banbury Lane, King's Sutton (Ingham 2017, 84) and two skull fragments from a ditch at Polwell Lane, Barton Seagrave (MOLA 2014). The recovery of disarticulated human remains has commonly been attributed to excarnation practices, with the eventual burial forming the completion of the funerary rite (Cunliffe 2005, 554). It is unclear whether this was a standardised practice during the Iron Age. There was no evidence for burial platforms or other funerary structures at Harlestone Park, but it is interesting to note that the human bone from enclosure B3 was worn and fragmented. A predominance for cranial fragments in these types of deposit has also been noted, leading to the suggestion that the skull held some form of significance (Chapman 2023, 106; Chinnock 2023, 179).

Possible 'ritual' activity was suggested by a small quantity of artefacts and an associated bone group (ABG) of a sheep/goat from ditches and pits in Areas A and B (Table 5.2). Assemblages of artefacts that deviate from typical patterns of domestic waste disposal are frequently discovered at Iron Age sites and are often referred to as 'unusual' or 'special' (Smith 2018a, 129–30). However, the identification of deposits arising from ritual activities versus those seemingly produced by everyday mundane activities is difficult, as there is the possibility that everyday activities may have been imbued with a sense of ritual (Hill 1995, 15–17). The condition/completeness of the artefacts and sheep/goat skeleton listed in Table 5.2, or the volume of pottery from roundhouse RB1, however, is noticeable in comparison with the general background scatter of pottery and animal bone present in the majority of the Middle to Late Iron Age ditches and pits. However, four of the artefacts/animal bones presented in Table 5.2 as potential examples of 'ritual' or 'unusual' deposits were associated with roundhouses and could reflect debris generated by the types of domestic activity most likely to be undertaken in these locations.

Across Britain, deposits thought to relate to ritual activity are commonly associated with pits, though there are notable geographical variations, with central and north-eastern Britain, within which area the site falls, seemingly evidencing a preference for ditched deposits (Smith 2018a, 130). This aligns well with the evidence for possible structured deposits at Harlestone Park, where the majority (pottery, spindle whorl, animal bone and human bone) were recovered from ditches or

Table 5.2: Summary of Middle to Late Iron Age 'unusual' deposits

Period/Phase	Feature	Location	Assemblage composition
Period 4/Phase 4.1	Ditch B1L (eastern terminus)	Enclosure B1	Complete globular bowl with a flat-topped rim (Ra. 25)
Period 4/Phase 4.2	Roundhouse gully RA8.1	Enclosure A8	Partially complete pottery vessel Spindle whorl (Ra. 12)
Period 4/Phase 4.2	Pit 20902	Enclosure B4	Saddle quern (Ra. 23)
Period 4/Phase 4.2	Roundhouse gully RB1 (eastern terminus)	Enclosure B6	Mixed assemblage of pottery (Ra. 26; 103 sherds, 537g)
Period 4/Phase 4.2	Posthole 21331	Roundhouse RB1/ Enclosure B6	Partial young adult sheep/goat skeleton (head, vertebrae, foot)

roundhouse gullies. Webley (2007, 62) noted that at the Great Barford bypass excavation (Bedfordshire) there was a recurring association in the Middle to Late Iron Age deposits for unburnt human remains and artefact-rich deposits within boundary ditches. Comparisons can also be drawn with King's Sutton, where the only human bone from the site was recovered from a Middle to Late Iron Age enclosure ditch, alongside a large amount of animal bone and pottery (Ingham 2017, 84). The deposits found at Harlestone Park could have been deposited as part of specific events, such as acts of remembrance, or to mark specific locations (Smith 2018a, 187–8). For example, the human bones in enclosure B3 were found in separate recuts of enclosure ditch B3A and potentially represent closure or foundation deposits, marking different phases of use/cleaning out of the ditch. The deposition of cremated bone in the ditch fill above the location of the earlier burial of disarticulated human bone could also signify a deliberate intention to create a connection to the previously deceased, or ancestors, as part of a claim to land (Parker Pearson 1996).

Saddle quern Ra. 23 was recovered from the basal fill of pit 20902 (enclosure B4, pit/posthole group PB6), where it had been placed with the grinding surface facing upwards. The recovery of complete querns from Middle Iron Age contexts is unusual as most querns were typically broken at the end of their working lives, either for reuse or deposition/disposal (Shaffrey, Appendix A2.10). However, where identified, there is seemingly a preference for the deposition of complete quernstones in pits, often placed within either the basal or upper fills (Watts 2014, 113). For example, at Upton a complete saddle quern was recovered from a Late Bronze Age/Early Iron Age pit (Chapman 2010, 18–21) and at Apex Park, Daventry a complete example was recovered from a Middle to Late Iron Age storage pit (Chapman 2019b, 56), while at Long Dole an almost complete saddle quern was recovered from a pit within the centre of a ring gully (Chapman 2015b, 27). Peacock (2013) highlighted the religious significance of quern stones throughout past and present cultures, suggesting they may represent the cycle of death, regeneration and new life. Moderate quantities of charred grain and weed seeds were recovered from Harlestone Park, suggesting arable farming formed a key component of the economy (discussed further below). So, while it is unsurprising for a saddle quern to be recovered from the site, it is possible that its deposition was intended to secure the continued agricultural prosperity of the land.

Landscape, environment and the economy

Climate/landscape character

Environmental evidence gathered from locations along the Nene Valley, including Wollaston (Meadows 1995), Raunds (Campbell and Robinson 2007), Blackthorn (Williams and McCarthy 1974) and Wilby Way (Thomas and Enright 2003), supports the notion of a landscape that had been cleared of woodland by the Late Bronze Age/Early Iron Age and remained open throughout the Iron Age. The molluscan assemblage recovered from the site was insufficient to draw any reliable conclusions regarding the nature of the local landscape; however a few open country snails were recovered from the Phase 4.1 and 4.2 assemblages, which are indicative of an open country landscape (Wyles, Appendix A3.4).

The Middle to Late Iron Age charcoal assemblage was predominantly composed of oak, with smaller quantities of cherry type, hawthorn group, hazel, ash, poplar/willow and field maple (Challinor, Appendix A3.5). Notably, there were no significant variations in fuel usage observed between the two phases of settlement (Phases 4.1 and 4.2; Challinor, Appendix A3.5). Taxa such as cherry and hawthorn types and ash favour open environments with partial or full sun, implying that woodland margins or areas of scrub were also exploited for fuel resources (Challinor, Appendix A3.5). Additional evidence of access to hedgerow and woodland edge environments is demonstrated by the presence of hazelnut (Wyles, Appendix A3.4).

The weed seeds were generally those typical of

grassland, field margins and arable environments and are likely to have been brought onto the settlement with the crops (Wyles, Appendix A3.4). Within this assemblage there is a tentative indication that a number of different localised environments were being exploited, including sandier heath soils, light drier soils and damper soils, most of which can be found within the development site or in the wider vicinity (Wyles, Appendix A3.4); the freely draining, slightly acidic but base rich soils within the site are particularly fertile, although a shortage of soil moisture has been noted in places (Soilscapes 2026).

Agricultural practices (arable farming)

The Middle Iron Age is commonly perceived as a period when arable farming and production accelerated significantly when compared with previous periods, which is attributed to contemporaneous sustained population growth (Willis 2023). Despite this, charred plant remain evidence is often limited from sites of this date in Northamptonshire, despite the clear evidence for an organised, cultivated and accessible landscape across Northamptonshire during the Middle Iron Age, facilitated by field systems, enclosures and trackways (Willis 2023).

The range of crops recorded within the Period 4 assemblages include spelt and emmer wheat and barley and this is broadly comparable with other contemporaneous assemblages (Wyles, Appendix A3.4), including from Saxon Rise, Brixworth (Wyles 2023, 265), Crick Covert Farm (Monckton 2015, 55–6) and Nortoft Lane, Kilsby (Cobain 2015, 215–17). Spelt wheat is not commonly observed in Late Bronze Age deposits in Northamptonshire, although it seems to have become predominant by the Middle Iron Age (Monckton 2012, 270; Greig 1991). However, at Harlestone Park emmer wheat appears to have been a more significant component of the assemblage when compared with contemporaneous Iron Age rural settlement sites within the vicinity (Wyles, Appendix A3.4). Although spelt is considered a hardier grain than emmer due to its increased tolerance of soil conditions and better yields in cold winters (Hughes and Woodward 2015), emmer has a greater adaptability to poorer soils than spelt, and it is possible that more marginal areas were being cultivated by the settlement's occupants (Wyles, Appendix A3.4). Potentially linked to this is the occurrence of a few charred seeds of fat-hen (*Chenopodium album* L.) and henbane (*Hyoscyamus niger* L.), both of which thrive in nitrogen rich soils and may indicate some manuring of the local fields during this period to improve yield and growing (Wyles, Appendix A3.4).

Brome grass represents a significant portion of the Harlestone Park Middle to Late Iron Age assemblages (Wyles, Appendix A3.4), which is often the case across the Midlands (Carruthers and Hunter Dowse 2019). It is possible that this represents its deliberate cultivation for use as a fodder crop, as has been evidenced within contemporaneous assemblages from Northamptonshire, such as settlement to the north-west of Crick (Cobain 2017, 95). Barley may also have been used as fodder (Carruthers 2007).

The Middle to Late Iron Age charred plant remains assemblage from Harlestone Park comprised a mix of late stage crop processing waste, which involved the dehusking of hulled grain stored as semi-cleaned grain or in spikelet form (Hillman 1981, 1984; Wyles, Appendix A3.4), and domestic hearth/oven waste (Wyles, Appendix A3.4). The quantity of this type of material suggests that the scale of crop production was geared to the immediate local settlement rather than to create a regular surplus (Wyles, Appendix A3.4). Moderate to high concentrations of charred plant remains coincided with enclosures A4, A3, A8 and A10 in Area A and enclosures B4 and B6 in Area B, which between them contained the majority of the possible storage-type pits, sub-enclosures and roundhouses, and probably represent enclosures focused on domestic activity and habitation. The largest concentrations of waste material were found were found in Area B, although there was no evidence to indicate precisely where crop processing may have taken place. Debris from the early stages of crop processing, involving threshing, winnowing and sieving, was absent, possibly suggesting that the preparation of the cereal crop for storage was undertaken away from the main settlement, with crops brought onto site as semi-cleaned grain or in spikelet form for storage, as has been posited for a similar dearth of evidence from the Iron Age settlement at Nortoft Lane, Kilsby (Cobain 2015, 216) and Upton (Fryer 2010, 46), or that by-products such as chaff were not being used as a fuel source (Wyles, Appendix A3.4).

Alongside the evidence for crop cultivation, the charred plant assemblages also indicate that wild food sources supplemented the local diet. Hazelnuts seemingly continued to form an important part of the diet during this period, with large quantities of hazelnut shells recovered from pits 10017 and 21427 in Areas A and B respectively. These were probably gathered from nearby hedgerow/woodland edge environments, with limited evidence for apple/pear fruit fragments also observed within the environmental assemblages (Wyles, Appendix A3.4). Similar evidence for the gathering and consumption of wild food sources was evidenced at Radstone Fields and Northampton Road, Brackley, in the form of hazelnuts, possible sloe/blackthorn, elder and blackberries/raspberries (Leslie 2021, 194).

Agricultural practices (pastoral farming)

The land clearance undertaken within the Nene Valley prior to the Iron Age would have ensured that pasture was plentiful for livestock during this period (Thomas and Enright 2003, 60). However, it is probable that the rising prevalence of settlements and

the subsequent competition for grazing land may have become increasingly important during the Middle Iron Age (Knight 2007, 214) and it is unsurprising that land boundaries, field systems and trackways are well documented in Northamptonshire during this period (Willis 2023).

The Period 4 Phase 4.1 and 4.2 animal bone assemblages were similar in their composition, although a notably greater quantity was recovered from Phase 4.2 features. The small Phase 4.1 assemblage was dominated by cattle (41% of number of identified specimens (NISP)), alongside horse/donkey (24% NISP), sheep/goat (19.5% NISP), pig (7% NISP) and dog/fox (2% NISP) remains. The larger Phase 4.2 assemblage was also cattle dominated (45% NISP), followed by sheep/goat (24% NISP) and horse/donkey (12% NISP), with smaller quantities of pig (3% NISP) and dog/fox (2% NISP) (Holmes, Appendix A3.2, Table A3.17).

The predominance of cattle within the animal bone assemblage is not uncommon in the region, and similar emphases towards cattle and sheep/goat were also noted at Grange Park (Jones *et al*. 2006), Crick Covert Farm (Hughes and Woodward 2015) and Brackley, Radstone Fields and Northampton Road (Maltby 2021). However, the relatively high number of horse/donkey remains is unusual and may be a product of the small sample size (Holmes, Appendix A3.2). Small numbers of perinatal calf and lamb bones provide an indication that livestock were bred in the area, which is to be expected for a site with a self-sufficient economy (Holmes, Appendix A3.2).

Horses and dogs were probably used in herding cattle and controlling movements of the sheep flocks (Armitage 2015, 87), while horses would have also been used for transport. The horses from Harlestone Park were mostly adults and tooth-wear evidence suggests that at least one individual had been harnessed (Holmes, Appendix A3.2). Evidence for horses has been observed at other contemporaneous sites including Crick Covert Farm (Hammon 2015, 72–3), Radstone Fields, Northampton Road (Leslie 2021, 142–5) and Crick Hotel (Armitage 2015, 86). Cut marks on horse bones from Radstone Fields and Northampton Road indicated that, like the examples from Harlestone Park, horses were processed for their skin and meat, something which is common on Iron Age sites across Southern England (Maltby 2021, 142–5).

The animal bone assemblage is consistent with a largely self-sufficient economy, where animals were culled, processed and consumed on site, as reflected by the recovery of elements from all parts of the cattle and sheep/goat carcasses (Holmes, Appendix A3.2). The scarcity of horse/donkey head and foot bones suggests a slightly different pattern, with butchery undertaken elsewhere and joints of meat brought into this area of the settlement (Holmes, Appendix A3.2).

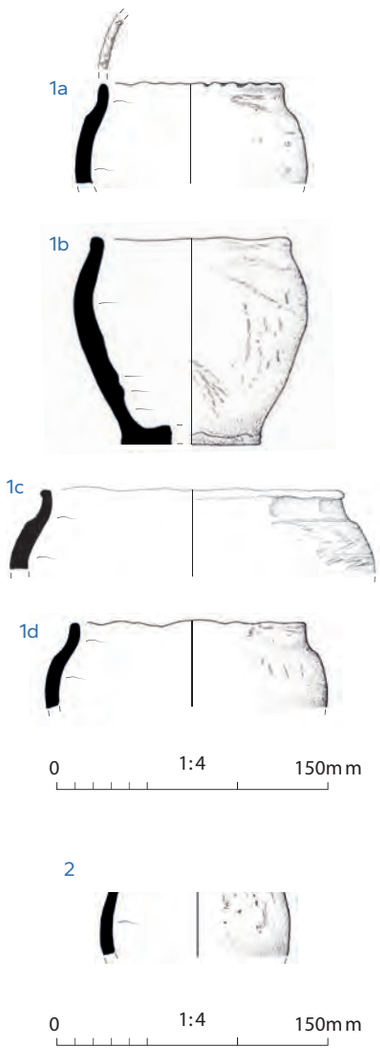
The ageing evidence indicates that most cattle died and/or were culled as older adults, implying a reliance on them for power and dairy products (Holmes, Appendix A3.2). This is further evidenced by a cattle pelvis of an older female that had eburnation of the acetabulum, suggesting wear on the hip bones (Holmes, Appendix A3.2). However, the presence of sub- or young adults within the assemblage implies that some cattle were killed younger, and their occurrence probably represents a cull of excess stock in order to manage the herd (Holmes, Appendix A3.2). Unlike the cattle, sheep/goats were seemingly culled at all ages from very young animals to older adults, suggesting they were raised for a mixture of meat, wool and milk (Holmes, Appendix A3.2). At Radstone Fields and Northampton Road sheep/goat were predominantly bred for meat, however there is some evidence from the kill patterns to suggest that they were also exploited for milk at the Northampton Road settlement (Leslie 2021, 194).

The importance of dairy and meat products in the Harlestone Park diet is also evidenced by carbonised residues present on a proportion of the pottery assemblage. Differing levels of dairy and animal fat noted on Early to Middle Iron Age vessels compared with those characteristic of the Middle to Late Iron Age tentatively suggests an increased focus on pastoral farming during Phase 4.1.

There is no evidence in the animal bone assemblages from Harlestone Park that wild mammals or birds supplemented the diet. This is typical of Middle Iron Age settlements of the region (Walker and Maull 2010, 49); wild animals, including fowl and fish, were seemingly not consumed with any regularity even in locations that would have presented this as an option (Dobney and Ervynck 2007). Perhaps the reliance on domestic livestock and plants would have made the realm of the 'wild' less attractive, maybe even considered dangerous, with hunting only undertaken to mark life events or by the elite (Groot 2018; Hambleton 2010; Rainsford and Roberts 2013). The poorly preserved and fragmentary antler bone recovered from Areas A and B included a shed fragment and there were no signs of butchery or working, suggesting that the antler fragments had been collected as chance finds for the manufacture of tools, rather than representing evidence for hunting (Holmes, Appendix A3.2).

Lipid extracts from one of the residue analysis samples taken from pottery potentially indicated the presence of degraded beeswax within the vessel (Davis *et al.*, Appendix A2.4), although further analysis produced inconclusive results. However, it is probable that honey supplemented the local diet, as one of the few sweeteners available at this time, and it may have been used as a food product, for alcoholic drinks such as mead and for medicinal purposes. There is evidence that honey bees were exploited in Britain from the Neolithic period onwards (Carreck 2008) and, although they are commonly regarded as a wild resource, some have argued the potential for beekeeping (Dalby 2003, 179).

Lipid Residue Analysis



Vessels selected for residue analysis

1 Selection of vessels with lipids derived from dairy fats (Banks, Appendix A2.2, Figs A2.2-A2.3, nos 12, 19 and 24, and Fig. A2.5, no. 9)."

2 Vessel containing lipids derived from plant and animal fats (Banks, Appendix A2.2, Fig. A2.5, no. 7).

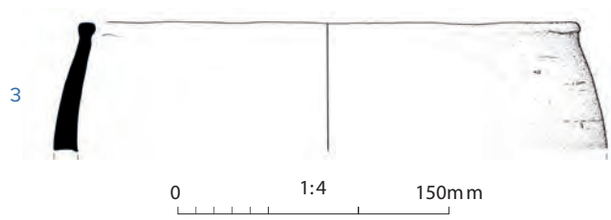
3 Vessel containing possible beeswax (Banks, Appendix A2.2, Fig. A2.5, no. 19).

Sherds from 20 late prehistoric vessels were selected for lipid residue analysis to try and ascertain vessel use (Davis *et al*. Appendix A2.4). This included examples of shouldered (1c-d), slack-shouldered (1a) and globular and ovoid jars and examples of shouldered and ovoid bowls (1b). Selection reflects a roughly even split across Area A and Area B (12:8 vessels) and these were made up of 8 probable Early to Middle Iron Age (E-MIA) and 12 Middle to Late Iron Age (M-LIA) vessels.

The process of sampling lipids involves taking a small piece of the sherd and grinding it into a fine powder. The powder sample is then analysed for traces of animal or plant fats that have been absorbed into the walls of a vessel during use. If a sample yields any results it is usually possible to distinguish between animal or plant fats. If animal fats are recovered it may be possible to determine whether those fats are from a ruminant (e.g. cattle or sheep) or non-ruminant (e.g. pigs) and dairy (e.g. milk) or adipose fats (e.g. animal meat).

The majority of samples (12 vessels) produced lipids derived from dairy fats. A further three samples produced ruminant adipose fats, whilst four samples produced unspecified degraded animal fats. All the samples from vessels dated to the E-MIA produced dairy fats (5 jars and 1 bowl) whilst M-LIA vessels (7 jars and 3 bowls) produced a mix of dairy and ruminant adipose fats. One M-LIA sample produced animal fats and plant wax and a second vessel produced animal fats and possible beeswax (e.g. beeswax or honey).

The results clearly demonstrate the use of almost all of the of the sampled vessels for cooking or food processing. Further interpretation and conclusions drawn with regard to patterns of use need to be tentative, due to the nature of the evidence and the small size of the sample. The common presence of dairy fats is notable, an indication that the preparation of milk-derived products may have been a primary function of vessels of differing forms. Adipose fats survived more rarely, in each instance these deriving from ruminant species, either cattle or sheep/goat. Their absence among the E-MIA samples and their occurrence in the M-LIA grouping may reflect a change in diet or 'foodways' at the site, perhaps that meat was cooked or prepared in different ways as the Iron Age period progressed. Evidence for the use of leafy vegetables in the form of plant waxes was confined to just one vessel (1). This vessel also contained animal fats, raising the possibility it was used to prepare some kind of meat stew with vegetables (2). The absence of surviving non-ruminant animal fats is also notable, supporting the evidence from the faunal remains which suggests that pigs were a significantly smaller part of the diet compared to cattle and sheep/goat. Finally the presence of possible beeswax in one sample is noteworthy (3). Possible interpretations are that the beeswax was applied the vessel to reduce the porosity and improve its liquid retention properties, or that the vessel was used to consume or prepare a form of mead or a warm honey drink.



Pete Banks

Summary

The evidence suggests that land surrounding the Dallington Brook at Harlestone Park was the focus of a long-lived polyfocal settlement during the Middle to Late Iron Age. Initially this community probably engaged in a mixed farming economy, combining both arable and pastoral practices. However, as the settlement evolved, particularly with the emergence of distinct enclosures and the establishment of field systems and a droveway in Area A, there appears to have been a shift towards a greater focus on pastoral farming. Cattle emerged as the dominant species in both Phases 4.1 and 4.2 and the brook's proximity would have provided ample access to quality grazing land and water.

Chapter 6
Periods 5 and 6 Late Iron Age/Early Roman (100 BC–AD 100) and Middle to Late Roman (AD 200–AD 410)

Introduction and dating

During the Late Iron Age/Early Roman period (Period 5) a new enclosure system was established in Area B (Fig. 6.1). This activity was notably different in character and layout to that of the preceding Middle to Late Iron Age settlement, and the associated features and activity were only observed in Area B.

Assignment to this period was predominantly based on the Period 5 features being stratigraphically later than the Middle to Late Iron Age (Phase 4.1 and 4.2) archaeology, along with differences in morphology and spatial organisation. A general dearth of artefactual material hindered precise dating, although small quantities of pottery were present, made in fabrics consistent with a Late Iron Age (transitional) or Early Roman date (*c.* 1st century AD). This, combined with the stratigraphic relationships, tentatively suggests a Later Iron Age to Early Roman date for the field/enclosure systems.

The only firm evidence of Middle to Late Roman (Period 6) activity within the development site comprised limekiln A and cremation burial 11283, both situated in Area A. No artefacts of Roman date were recovered from the features but charcoal recovered from the basal fill of limekiln A returned two Middle to Late Roman radiocarbon dates (Table 6.1; Fig. 6.2). Bayesian modelling of the two results has shown that they are statistically consistent and therefore could be the same age, with the later result (SUERC-130117) providing the best estimate for the use of the feature (*AD 240–380*) (Hamilton, Appendix A3.9). A small quantity of Roman pottery (nine sherds, 96g) was recovered from the site as either intrusive or residual finds. This included two sherds of Lezoux Central Gaulish samian ware and Lower Nene Valley grey ware (Banks, Appendix A2.3). Consequently, though the radiocarbon dating evidence recovered from limekiln A suggest activity on site during the 3rd to 4th centuries AD, the minimal quantities of contemporaneous pottery suggests the site was not the focus of any large-scale activity during this period.

Cremated bone and charcoal from burial 11283 was not suitable for radiocarbon dating but it has been tentatively assigned to Period 6 based on the presence of iron nails, a feature of Roman cremation burials (Smith 2018b, 259).

Archaeological evidence (Period 5)

Enclosure system (Figs 6.1 and 6.3–6.5)

A new expansive system of broadly north-west/south-east and north-east/south-west ditches appear to have defined an enclosure or field system that extended across Area B (Fig. 6.1). The ditches defined at least two sub-square enclosures (B7 and B11) situated in the western half of Area B, with a series of smaller conjoined square and rectangular enclosures (forming enclosure system B8) situated to the east. The ditches associated with enclosure system B8 were less well defined than those forming enclosures B7 and B11, therefore it is unclear whether the ditches form a large enclosure with several, smaller, internal sub-enclosures or a series of smaller conjoined enclosures. It is also possible that not all these ditches were open concurrently. The ditches varied in width (0.17–1.8m) and depth (0.08–0.78m), with those corresponding to enclosures B7 and B11 being more substantial than the ditches defining enclosure system B8 (Figs 6.3 and 6.4).

In addition to the pottery from the ditches, animal bone (including cattle, sheep/goat, pig, horse/donkey and dog) and a ceramic spindle whorl (Ra. 22; Fig. 6.5 and Highlight 6) were recovered. The spindle whorl was discovered in one of the enclosure B7 ditches and may provide tentative evidence for textile working within the vicinity, though is more likely residual, resulting from the previous Period 4 settlement.

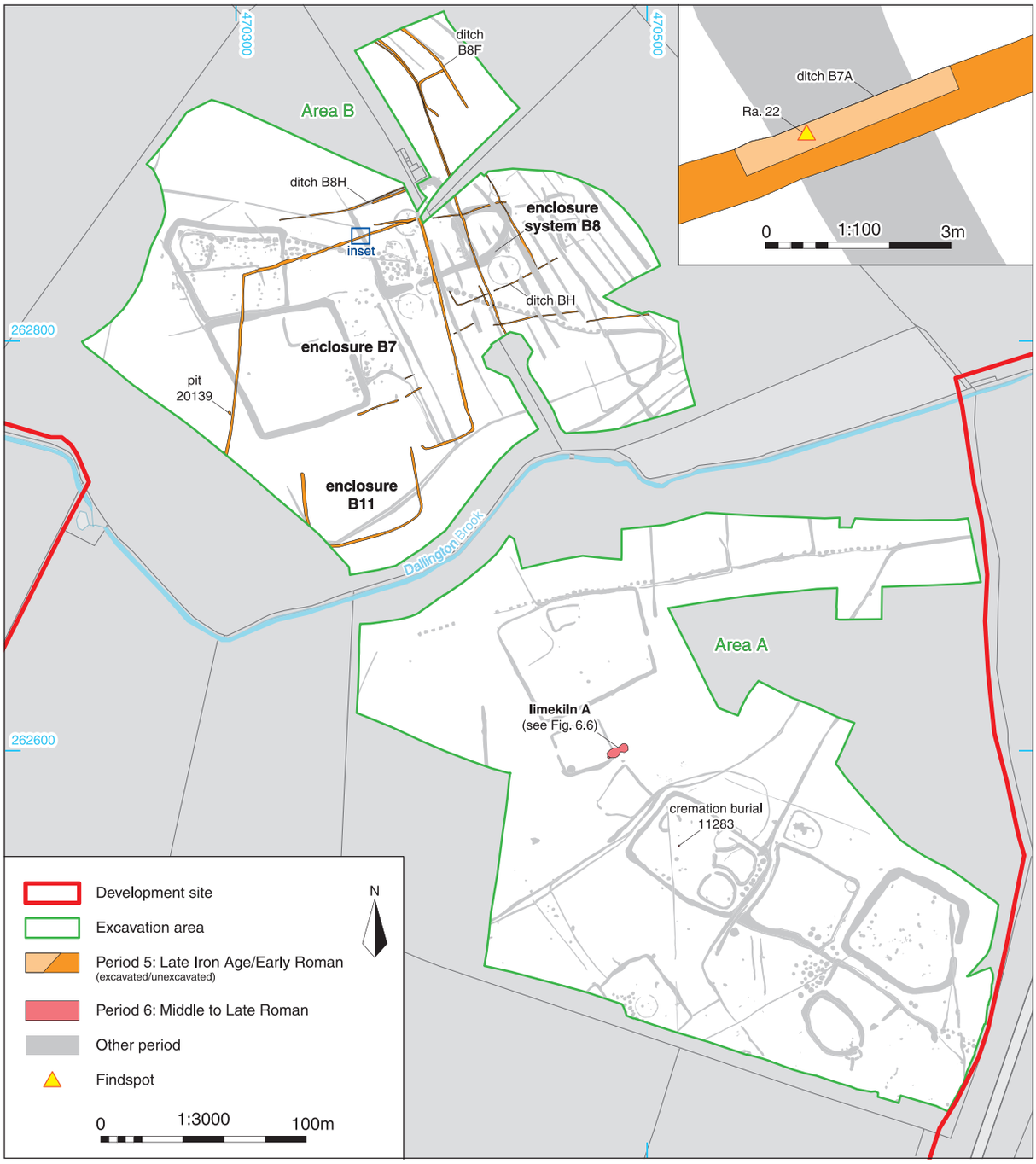


Fig. 6.1 Location and plan of Late Iron Age/Early Roman and Middle to Late Roman (Periods 5 and 6) features

There was a general paucity of evidence for activity within or external to the enclosure systems. The exception to this was one undated pit (20139), situated outside enclosure B7. This is assigned to Period 5 based on its proximity to enclosure B7, although it was possibly related to an earlier or later phase of activity. The pit was oval and measured 1.75m long, 1.1m wide and 0.57m deep.

Archaeological evidence (Period 6)

Limekiln A (Figs 6.1 and 6.6–6.12)

Limekiln A was situated at the south-eastern corner of Middle to Late Iron Age (Phase 4.2) enclosure A2 and truncated the enclosure ditches (Figs 6.1 and 6.6). The limekiln was situated in an area of underlying limestone and the substantial structure comprised

Table 6.1: Summary of radiocarbon dating results for limekiln A

Feature/ context	SUERC code	Material	Radiocarbon age (BP)	Calibrated radiocarbon age (95.4% probability)
Limekiln A				
Context 12465 Cut 12275	SUERC-122138	Charcoal fragment: birch (*Betula*)	1767 ± 24	234–361 cal AD (95.4%)
Context 12465 Cut 12275	SUERC-130117	Charcoal: hawthorn group (Pomoideae)	1751 ± 20	242–365 cal AD (95.4%)

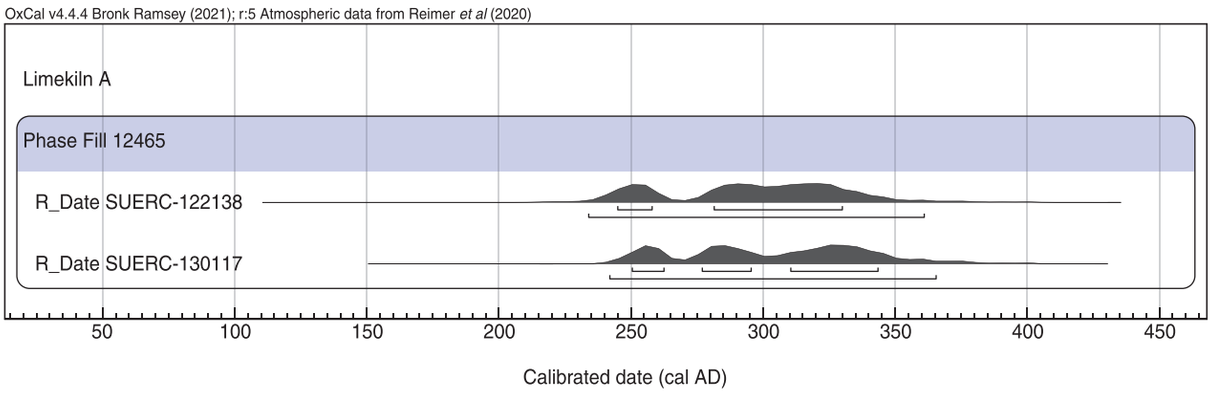


Fig. 6.2 Calibrated radiocarbon dates for limekiln A

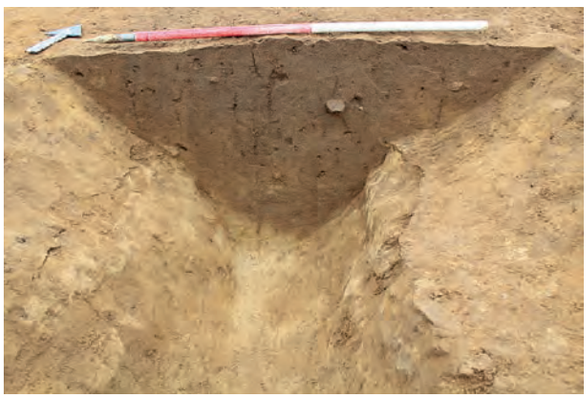


Fig. 6.3 Photograph of enclosure B7 ditch, looking north-west (1m scale)

Fig. 6.4 Photograph of enclosure B11 ditch, looking north-west (0.5m scale)

a large sub-circular charge chamber at the western end of the feature, thus sheltered from the prevailing southern winds, and an elongated flue or working area at the eastern end, connected to the charge chamber by a stone-built stoke-hole (Figs 6.6 and 6.7). The charge chamber measured approximately 4.2m in diameter and 2.35m deep (Figs 6.8 and 6.9, Section VV). In the interior of the chamber the upper portion of the structure comprised heat-affected clay walls, which gradually tapered in diameter (Figs 6.8 and 6.9, Section VV). At a depth of approximately 1.1m an internal lining had been constructed of large irregular limestone blocks. This stone walling continued the gradual taper of the chamber to form a bowl-shaped structure with an unlined clay base. The structure of this charge chamber is indicative of a Roman flare kiln.

Within the lower portion of the charge chamber a series of deposits comprising layers of heat-affected clay and burnt material were present (Fig. 6.10). Below these, the basal fill comprised a charcoal-rich deposit

Fig. 6.5 Fired clay spindle whorl (Ra.22) recovered from ditch B7A

that potentially represents the remains of the fuel source used during the kiln's final firing (Fig. 6.10).

The stoke-hole was located on the south-western side of the chamber, approximately 1m above the base of the chamber. It was approximately 0.65m wide and had a height of at least 1m. On either side of the flue aperture the flue walls were constructed of at least ten courses of roughly hewn stone blocks (Figs 6.9, Section WW and 6.11). This would initially have been taller but had either been pulled down following the kiln's final firing or had collapsed. Evidence of this was present to the south-west of the flue, where a backfill deposit was present that comprised stone blocks similar to those used in the stoke-hole walls (Fig. 6.12). The kiln structure as a whole would initially have been much taller, with the charge chamber potentially being 2–3m above ground level, but had largely been truncated by medieval to modern agricultural activity. The stone used to construct the flue walls showed signs of being heat-affected, indicating that the kiln had been used prior to its collapse.

To the south-west of the flue a 6.5m-long working area was present (Figs 6.6 and 6.7), which had a north-east/south-west orientation, gently sloping irregular to concave sides and an irregular base. The base of the working area immediately adjacent to the flue was heat-affected and stained with charcoal or burnt material, which was most probably the result of rake-out episodes associated with the kiln's use.

A large number of environmental samples was recovered from limekiln A, however charred plant remains were only recovered in sparse amounts and generally there were only small quantities of charcoal (Wyles, Appendix A3.4). Although ovens/kilns were occasionally used for a number of different functions during the Roman period, there is no evidence from these assemblages that this kiln was ever used during the different stages of crop processing (Wyles, Appendix A3.4). The charcoal assemblages included oak, hazel and poplar/willow, with some *Prunus*, Maloideae and broom/gorse roundwood (Challinor, Appendix A3.5).

Cremation burial 11283 (Figs 6.1 and 6.6)

Cremation burial 11283 was situated approximately 60m south-east of limekiln A and was a seemingly isolated burial, located within Middle to Late Iron Age Phase 4.2 enclosure A4 (Figs 6.1 and 6.6). The cremation pit was irregular in shape and profile, measuring approximately 0.54m in diameter and 0.15m deep. A small amount of cremated human bone (11.8g), probably that of a small adult or child, was recovered from the cremation pit (Clough, Appendix A3.1). No associated vessel was identified within the feature, suggesting that it was unurned. Three fragments (6.45g) of iron were associated with the burial, which comprised carpentry nails that potentially derived from a wooden coffin, the pyre, or could suggest that the cremated remains had been buried in a box (Bliss, Appendix A2.11). A large quantity of charcoal (dominated by oak, with some *Prunus* roundwood and ash) was recovered from the cremation burial (Challinor, Appendix A3.5).

Discussion

(incorporating analysis by Pete Banks, Alex Bliss, Dana Challinor, Sharon Clough, Matty Holmes, Dane Wright and Sarah Wyles)

Aspects of society

Only a small assemblage of Late Iron Age/Early Roman pottery was found at Harlestone Park, and no associated

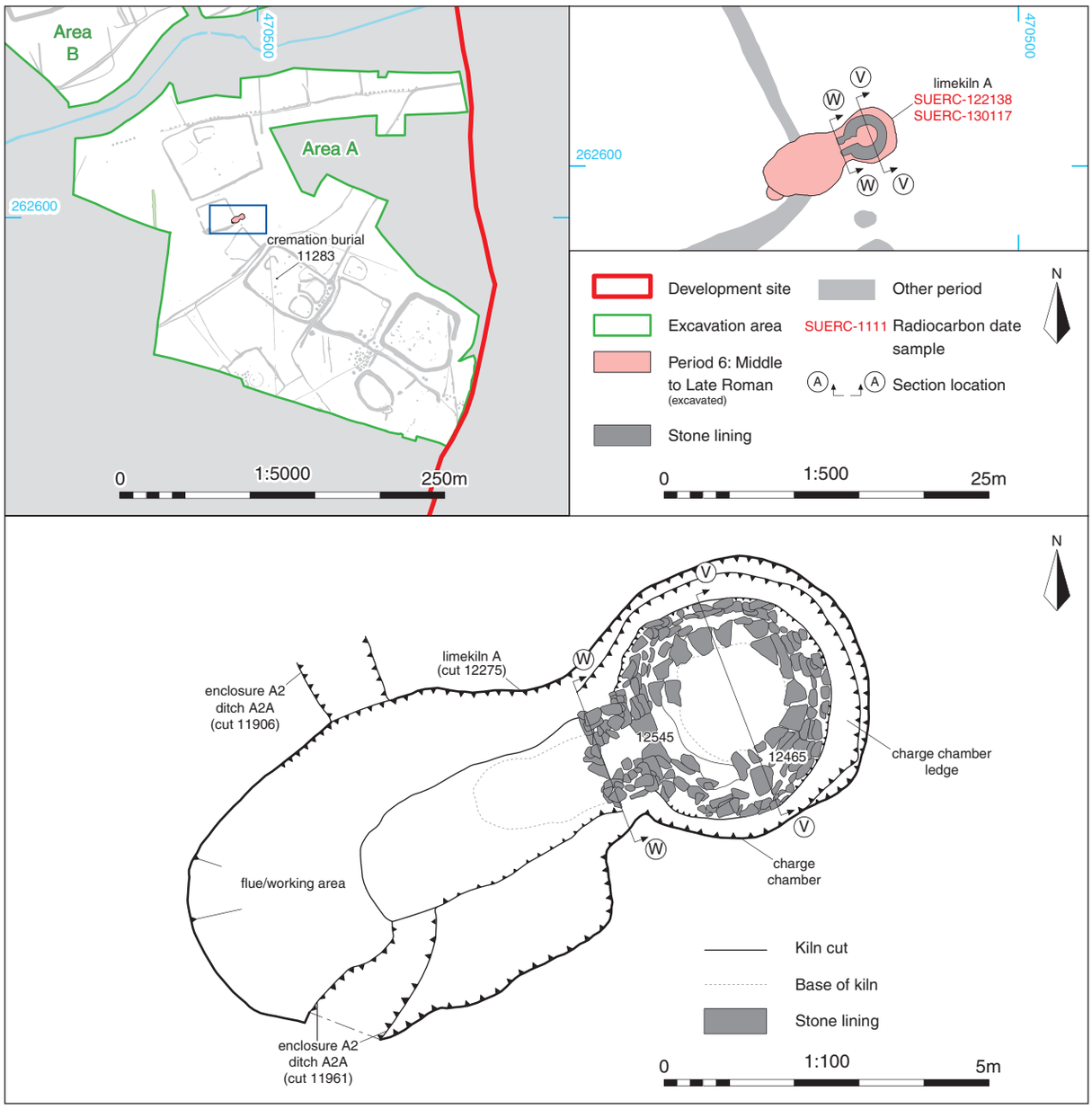


Fig. 6.6 Location and plan of limekiln A

domestic features were identified. This suggests that the ditches in Area B probably formed part of an outlying field or enclosure system situated on the periphery of settlement. The layout of the field/enclosure system and orientation of most of the individual ditches signify a notable shift in land-use from the earlier Middle to Late Iron Age settlement, hinting at a temporary abandonment of the site before the Late Iron Age/Early Roman period. Notably, some elements of the field system align closely with the enclosures from Period 4, implying that remnants of the previous settlement remained visible, serving as reference points such as hedgerows or depressions that corresponded to the Middle to Late Iron Age enclosure ditches.

The nearest known settlement of this period was situated directly to the west of Harlestone Park, on a site referred to as Land North of Roman Road (Fig. 1.6; AA 2024, 23; Magnitude Surveys 2022). This site extended over an area of at least 5ha and comprised multiple enclosures and sub-enclosures that produced over 1kg of pottery characteristic of the Late 'Belgic' Iron Age tradition of transitional late 1st century BC/early 1st

Fig. 6.7 Photograph of limekiln A, under excavation, looking north-east

Fig. 6.8 Photograph of the charge chamber of limekiln A, looking south

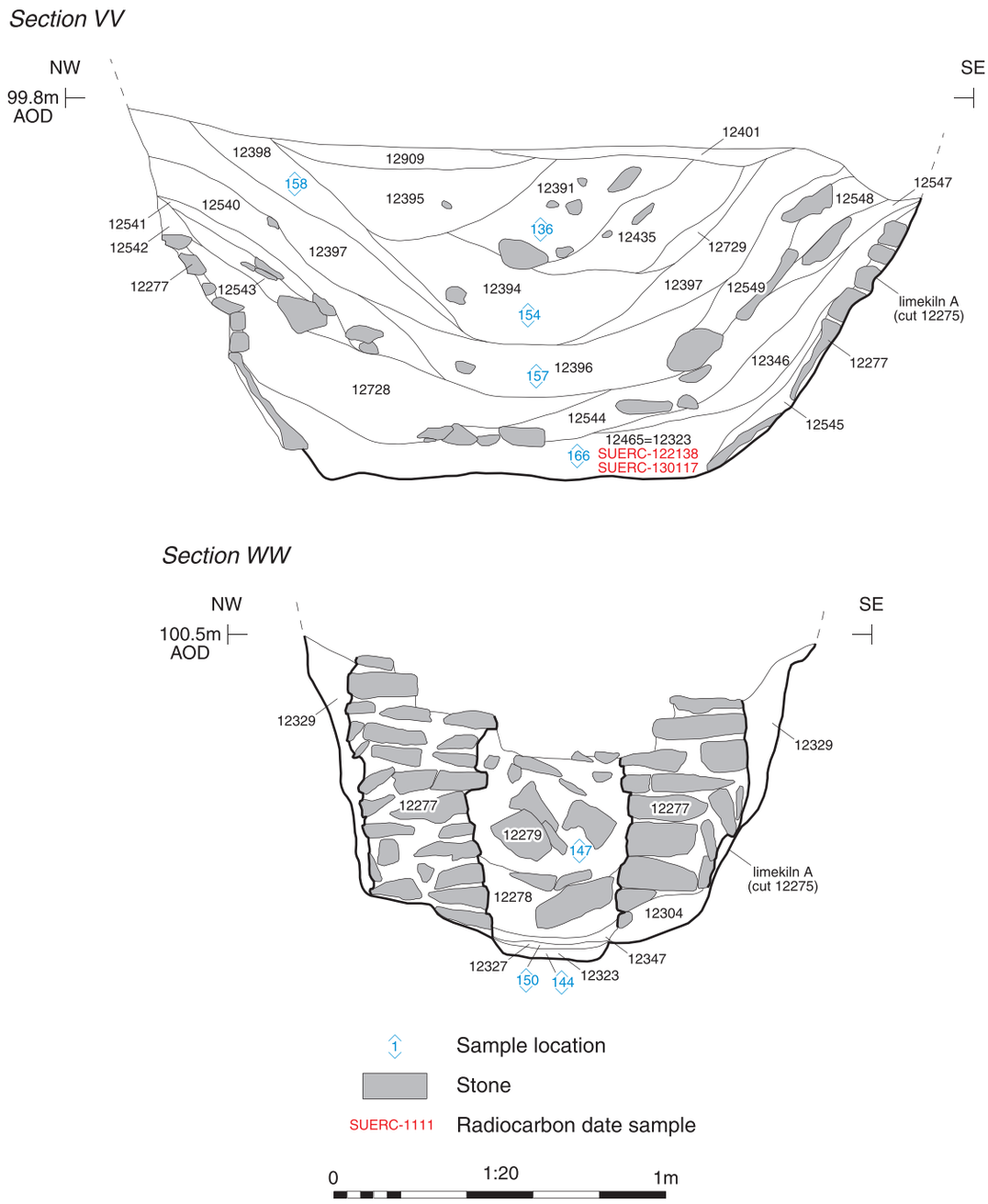


Fig. 6.9 Sections VV and WW of the charge chamber and flue structure of limekiln A

century AD date (AA 2024, 18). The dating of the settlement aligns closely with the field/enclosure system in Area B and it is feasible that the two were related. Based on the dearth of Roman pottery from Harlestone Park it appears likely that the field/enclosure system in Area B did not continue in use beyond the Early Roman period, broadly aligning with the date of abandonment of the settlement at Land North of Roman Road, which is believed to have taken place by the mid-2nd century AD (AA 2024, 23).

Evidence for Roman activity at Harlestone Park was restricted to Area A and comprised a limekiln, in use sometime during the 3rd to 4th centuries AD, and a cremation burial, both of which appear to represent isolated activity within the landscape. The development site is situated immediately north of Margary's route

Fig. 6.10 Photograph of the basal fills of the charge chamber of limekiln A, looking east (2m scale)

Fig. 6.11 Photograph of the limekiln A flue structure, looking north-east (1m scale)

Fig. 6.12 Photograph of the partially excavated flue of limekiln A with partial kiln or flue collapse in foreground, looking north-east (1m scale)

17 Roman road (Figs 1.5–1.6; Margary 1967, 187–8), which followed the higher ground north of the River Nene from Duston to a junction with Watling Steet, presumably linking Duston to Irchester (Simmonds and Lawrence 2022, 8). Evidence for a Roman roadside settlement, situated at the intersection of two roads, has been recorded at Duston (Simmonds and Lawrence 2022, 8) and numerous smaller settlements and/or farmsteads are indicated by arrangements of sub-rectangular and rectilinear enclosures recorded by the NNMP within the landscape surrounding the site (see Chapter 1, Archaeological and Historical Background). Additionally the site of a Roman villa has been identified approximately 900m to the south-west of Harlestone Park (Fig. 1.5), on the route of the Roman road (Fisher

Fig. 6.13 Reconstruction drawing of Roman flare kiln

2003; Butler 2008). Although the Roman features at Harlestone Park appear to be in a seemingly isolated location it is evident that they were situated within a densely occupied and interconnected landscape.

Limekiln A

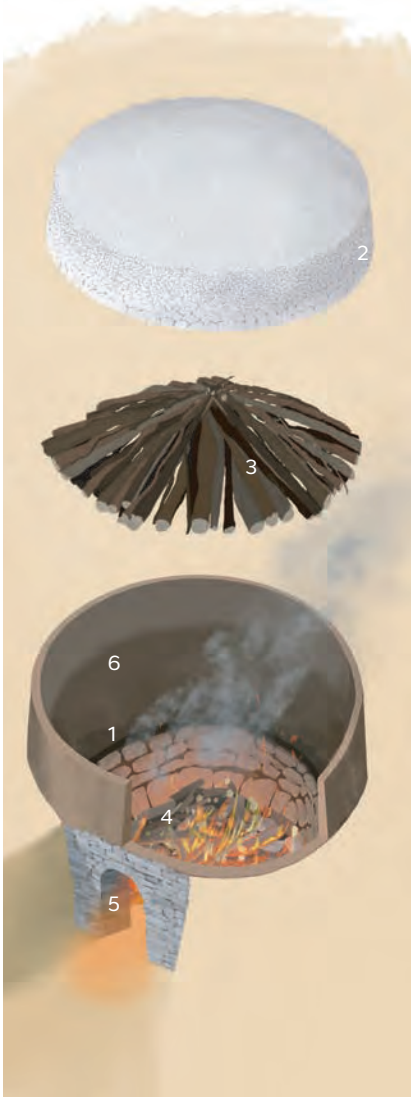
Limekiln technology first appeared in Britain during the Roman period and a graphic description of the construction and use of such kilns is provided by the Roman author Cato writing in the 2nd century BC (*De Agri Cultura*). The similarities and differences between Cato's limekilns and those of later date found in Roman Britain are generally accurate as evidenced in the report on a kiln identified at Weekley (Jackson *et al.* 1973, 136), which provides a good parallel for limekiln A (Fig. 6.13; see Highlight 8).

Considerable quantities of materials and fuel would have been required for the construction and use of the kilns. It has been estimated that a limekiln excavated at Weekley, which was of similar size and construction to limekiln A, would have produced enough lime to erect a stone building with each firing (Jackson *et al.* 1973, 138; Fig. 6.14). Layers within the Weekley kiln suggest that it was used at least five times, including two firings following a phase of reconstruction and alteration of the kiln's structure (ibid., 128–34). This implies that the Weekley kiln was used for producing lime on a large, perhaps commercial, scale (ibid., 134).

The two basic requirements of lime production, water and a source of calcium carbonate, are readily available within the development site. Limestone was still being quarried in the area in the late 19th century and a quarry pit and limekiln are marked on the 1883–84 OS map at Harlestone Lodge Farm, now Fleetlands Farm (Fig. 6.14, discussed further in Chapter 8), situated approximately 500m to the immediate north-east of limekiln A.

The abundance of large charcoal fragments recovered from the basal fill of limekiln A's charge chamber represents remnants of fuel from the kiln's final firing (Challinor, Appendix A3.5). Flare kilns required more fuel than later kiln types due to the slow firing process, which often spanned several days. The dominance of oak in the charcoal recovered from the lower fill of limekiln A is therefore expected, with oak being renowned for its consistent, slow-burning properties (Challinor, Appendix A3.5; Jackson *et al.* 1973, 138), and oak was also prevalent in the limekilns found at

Roman Limekiln



Reconstruction showing what limekiln A might have looked like when in use

1 Ledge
2 Limestone charge
3 Wooden support frame
4 Stone lined fire pit
5 Stoke-hole
6 Clay/stone walls

The Roman limekiln (A) found in Area A was used to produce good quality 'quick lime', which would then be combined with water, to 'slacken' the lime for use in a range of construction processes, such as mortar, plaster and concrete (HE 2018). Limekiln technology first appeared in Britain during the Roman period and evidence for lime production is often found close to villas and towns, where the main building projects occurred.

Limekiln A was probably a 'periodic' or 'flare' kiln (Davey 1961) and is similar to examples found at Weekley, Northamptonshire (Jackson 1973); Kiln 3 at Hardwick Park, Wellingborough (Foster *et al.* 1977); and Cardington Mill, Bedford (White 1977). Flare kilns have a single charge of limestone that would be burnt, then the kiln partially deconstructed and emptied before being relined, rebuilt and recharged. While this was more time consuming, the kiln would produce a much higher quality material than that of a 'draw' kiln, used from the post-medieval period onwards, in which layers of lime are covered with layers of fuel (HE 2018). Experiments carried out at Ivershim, Germany, where a battery of six lime kilns of this type were discovered, have given some insight into how flare kilns functioned and suggest that the firing process would take approximately a week, with a second week for cooling, prior to the extraction of the lime blocks.

The characteristics of limekiln A are consistent with the other examples cited above, in that they all had a rounded base, situated under a charge chamber, and a similar internal shelf or shoulder positioned above the base. To prepare the kiln for firing, wood was set on the internal shelf (1) to create a supporting framework. Lime stone blocks (2) would then be loaded onto the wooden frame (3) from above, packed tight so when the wood burnt away, the charge would be self-supporting and not fall into the fire below (Dix 1982, 334). A fire would be placed within the pit at the base of the kiln (4), it's bowl-shape reducing exposure to the wind and enabling maintenance of the fire during the process via the stoke-hole (5). The circular form of the fire pit would also allow fuel to fall in on itself and meant that the ash didn't need clearing out during the firing (Dix 1982, 332). The lower section of the walls of limekiln A was lined with stone, possibly to protect the sides from erosion caused by removal of the ash. No stone was found above the internal ledge but it is probable that the above-ground part of the charge chamber had been stone built (6) to provide a strong support for the limestone charge (Dix 1982, 333).

There were no Roman stone built structures present at Harlestone Park; however, industrial activity such as this usually lies outside of a settlement, preventing fire from breaking out, or to remove industrial smells from living areas. The closest known building to limekiln A is the Roman villa at Harpole, situated approximately 1.5km to the south-west of Area A, but a major settlement was also established during the Roman period at Duston, approximately 3km to the south-east.

Dane Wright

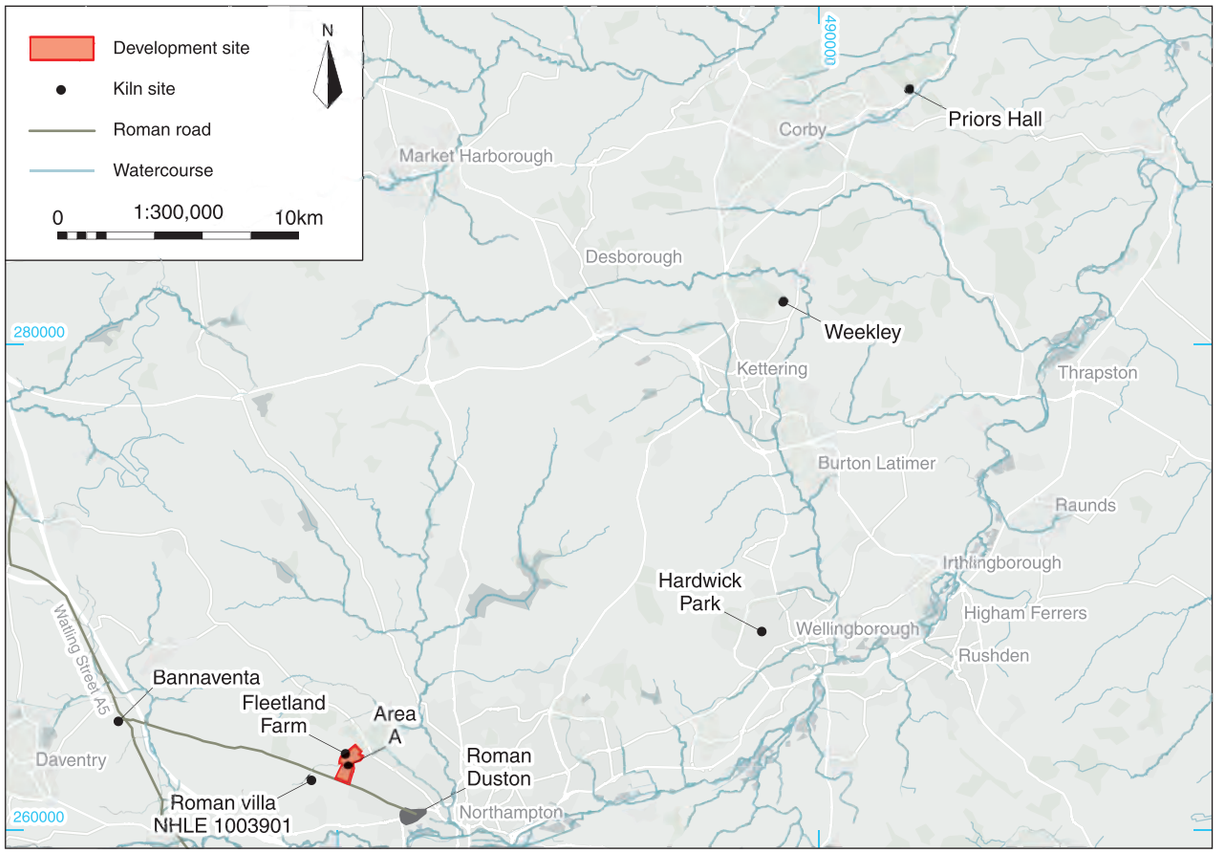


Fig. 6.14 Location of nearby Roman kilns and Fleetlands Farm post-medieval kiln

Maylands Gateway, Hemel Hempstead, Hertfordshire (Druce and Cook 2020), Northfleet, Kent (Barnett 2011, 117) and Weekley, Northamptonshire (Jackson *et al.* 1973, 138). In contrast, the charcoal assemblage recovered from an upper fill of the charge chamber at Harlestone Park exhibited greater variety, primarily consisting of broom/gorse along with some presence of cherry type, oak, hazel and poplar/willow (Challinor, Appendix A3.5). This suggests a different type of fire, fuelled by wood sourced from various habitats. Broom/gorse generates a high but rapid heat, making it suitable for quick-burning activities but inadequate for the sustained burning necessary for lime production (Challinor, Appendix A3.5). Consequently it is likely that the upper fill of the limekiln represents a post-use deposit, possibly linked to domestic or agricultural-related activities rather than lime burning (Challinor, Appendix A3.5). Similar fill sequences were observed in a limekiln from Whitehill, Newton Abbot, Devon, which produced oak as the primary fuel and broom/gorse and other supplementary taxa within post-use deposits (Challinor 2022c).Such kilns may therefore have been used for multiple functions beyond their initial use, including perhaps for malting or other forms of crop drying (Challinor, Appendix A3.5; Wyles, Appendix A3.4). There was, however, no conclusive evidence from the charred plant remains from limekiln A to indicate this and it is plausible that the material represents dumps of material from nearby domestic fires.

Cremation burial 11283

The cremation burial of a small or young adult or possibly a child in Area A represents the only evidence of Roman funerary practices at Harlestone Park. Although the burial could not be definitively dated, the discovery of three nail shanks may suggest a Roman date, with nails commonly found in graves of this period (Dungworth 1998, 153). It is generally acknowledged that, when found alongside cremation deposits, iron nails and tacks were probably derived from funerary structures such as a wooden bier, pyre or objects placed with the individual, or from a wooden casket used to contain the cremated remains (Philpott 1991, 16–17, 47; Smith 2018b, 259). However, it is likely that a greater number of nails would have been present in burial 11283 if they had come from an *in situ* casket, suggesting that they were probably accidental inclusions from the funeral pyre.

The low weight of the recovered cremated bone could be attributed to truncation of the burial; however, similar to the Iron Age burials, this may also stem from selective collection of bone from the pyre site or the interment of a 'token' deposit (McKinley 2000b, 42). The charcoal assemblage also predominantly consisted of finely comminated material, suggesting that larger pieces had been avoided during the collection process (Challinor, Appendix A3.5), further suggesting a deliberate purpose to the selection of materials from the pyre. Such deposits may have been associated with particular funerary practices and beliefs regarding the afterlife, the perception of the relationship between the body and spirit after death and the status of the deceased (McKinley 2000b, 270).

The charcoal assemblage associated with the burial was dominated by oak, with smaller quantities of roundwood of cherry type (*Prunus)* and ash (Challinor, Appendix A3.5). The use of oak within Roman cremation burial contexts is common, indicative of the material's high calorific value, as evidenced by the full calcification of the bones in cremation burial 11283 (Challinor, Appendix A3.5; Clough, Appendix A3.1). This also attests to the availability of an oak source in the vicinity of the site, sufficient to supply the wood for the pyre. A preference for oak as pyre fuel can be seen at other contemporaneous Roman sites, such as Rugby Southern Urban Extension (Key Phase 1), Warwickshire (Boardman 2023). However, there is variability; for example, three cremation burials from Burton Latimer, Northamptonshire, produced charcoal assemblages notably different in character to those discussed above, with discrete dominant taxa of ash, Maloideae and poplar/willow (Challinor 2019), suggesting some localised practices (Challinor, Appendix A3.5).

The isolated nature of the cremation burial is somewhat perplexing, with no contemporaneous settlement in the development area. It is possible that additional funerary features may have been present but were removed via truncation by later features or that the burial is in fact earlier in date and corresponds to the Late Iron Age/ Early Roman settlement situated to the west at the Land North of Roman Road site. However, the relationship between cremation burial 11283 and limekiln A should also be considered. During the Roman period a connection between human burials and industrial sites has been noted (Smith 2018b, 253); for example, at Laxton Lodge, Northamptonshire, a major ironworking complex was associated with an inhumation cemetery comprising at least 87 graves (Jackson and Tylecote 1988). A similar association, though on a notably smaller scale, was identified at Jubilee Corner, Kent, where six cremation burials were situated in close proximity to an iron bloomery furnace (Aldridge 2005). Although both these examples were associated with ironworking features there is a possible link between the placements of burials and agricultural or industrial rituals with, for instance, two infant burials placed alongside a corndryer at Campbell Park Canalside, Milton Keynes (Barker 2019, 62). However, due to the relative paucity of evidence for Roman limekilns this association cannot currently be substantiated.

Landscape and environment

Although limited, the composition of the environmental assemblages recovered from the Late Iron Age/Early Roman (Period 5) and Middle to Late Roman (Period 6) features suggest that the landscape present in the Middle to Late Iron Age continued broadly unchanged into the Roman period, characterised by an open landscape interspersed with pockets of woodland. The Period 5 and 6 charcoal assemblages indicate a similar variety of species to those present in Period 4, including oak, cherry type, hawthorn group, hazel and poplar/ willow (Challinor, Appendix A3.5). A few species of open country snail species were also present within the Period 5 and 6 assemblages (Wyles, Appendix A3.4).

The agricultural potential of the site has been discussed in Chapter 5 and it is likely that the Period 5 field/ enclosure system represents continued arable or pastoral farming in Area B. By the end of the Iron Age into the Early Roman period most of the Northamptonshire landscape had become densely populated and intensively utilised as part of a mixed agricultural economy (Kidd 2004). A limited number of bones of cattle, sheep/goat, pig and horse/ donkey were recovered from Period 5 ditches but presumably represent animals farmed as part of a mixed economy at Harlestone Park (Holmes, Appendix A3.2).

Chapter 7:
Period 7 Early Medieval (AD 410–1066)

Introduction and dating

Evidence for early medieval activity comprised a pit (22732), containing a fragment of human skull, and an inhumation grave (21497), both located in Area B (Fig. 7.1). A very small amount of early medieval pottery was recovered from the excavation area in general, comprising three sherds of St Neots-type wares dating to the 9th to 11th centuries (Addyman 1973), all of which were intrusive within a single Middle to Late Iron Age (Phase 4.2) ditch in Area A (Banks, Appendix A2.5). Radiocarbon analysis undertaken on the fragment of human skull recovered from pit 22732 produced an early medieval date range during the 8th to 10th centuries (Table 7.1; Fig. 7.2). A comparable date was recovered from a fragment of human femur associated with grave 21497 (Table 7.1; Fig. 7.2). The radiocarbon results are statistically consistent and suggest that the dated burial activity was relatively restricted in time (Hamilton, Appendix A3.9).

Archaeological evidence

Pit 22732 was cut into the top of one of the Late Iron Age/Early Roman enclosure B7 ditches (Fig. 7.1). The pit cut was not visible on the surface, however it was identified in section to have had moderately sloping concave sides and a rounded base (Fig. 7.3, Section XX and Fig. 7.4). The feature had a single fill that contained the skull of a single male individual (SK3 22189; Fig. 7.4), possibly of mature to elderly age. No artefacts were associated with the burial and it is unclear whether some remnant of the enclosure B7 ditches, such as a bank or hedgerow, remained in the landscape and was therefore deliberately chosen for deposition.

Grave 21497 was sub-oval, measuring 2.09m long and 0.9m wide (Figs 7.1 and 7.5). The grave was heavily truncated and only survived to a shallow depth (0.09m); consequently much of the recovered bone was fragmented. The human bone comprised cranial fragments, a tooth and a femoral fragment from an adult individual (SK 21498a) and cranial fragments and dentition from a child aged 4–5 years (SK 21498b) (Clough, Appendix A3.1), suggesting the inhumation of at least two individuals. It is considered likely that the individuals were complete when placed in the grave but that the bones had been removed and damaged by subsequent truncation. A small fragment of copper-alloy ring was also found in the grave, potentially a grave good or an item of clothing/jewellery associated with one of the individuals.

Discussion

Aspects of society

(incorporating analysis by Sharon Clough and Derek Hamilton)

Two features corresponding to the early medieval period were discovered in Area B, both relating to funerary activity. The two human burials were of a very different nature to one another: a skull burial in pit 22732 and a double inhumation in grave 21497 comprising an adult and child. No evidence for settlement-related features or artefacts was identified, suggesting that the site was not the focus for domestic habitation during this period.

Radiocarbon dating of the two burials places them within a fairly tightly defined period, probably during the 8th–9th century, potentially extending into the early 10th century (Hamilton, Appendix A3.9). This was a dynamic period of great societal and political change across England (Rippon 2010, 45), and the 7th century saw what is now Northamptonshire absorbed into the kingdom of Mercia (Wright 2012, 47–8; Foard 2000a, 13). It is believed that the Mercian king, Peada, played a significant role in the conversion of the local population to Christianity (Vince 2026). Despite the increasing prevalence of Christianity across England during the conversion period (roughly AD 600–850), there was little evidence for an immediate change in funerary

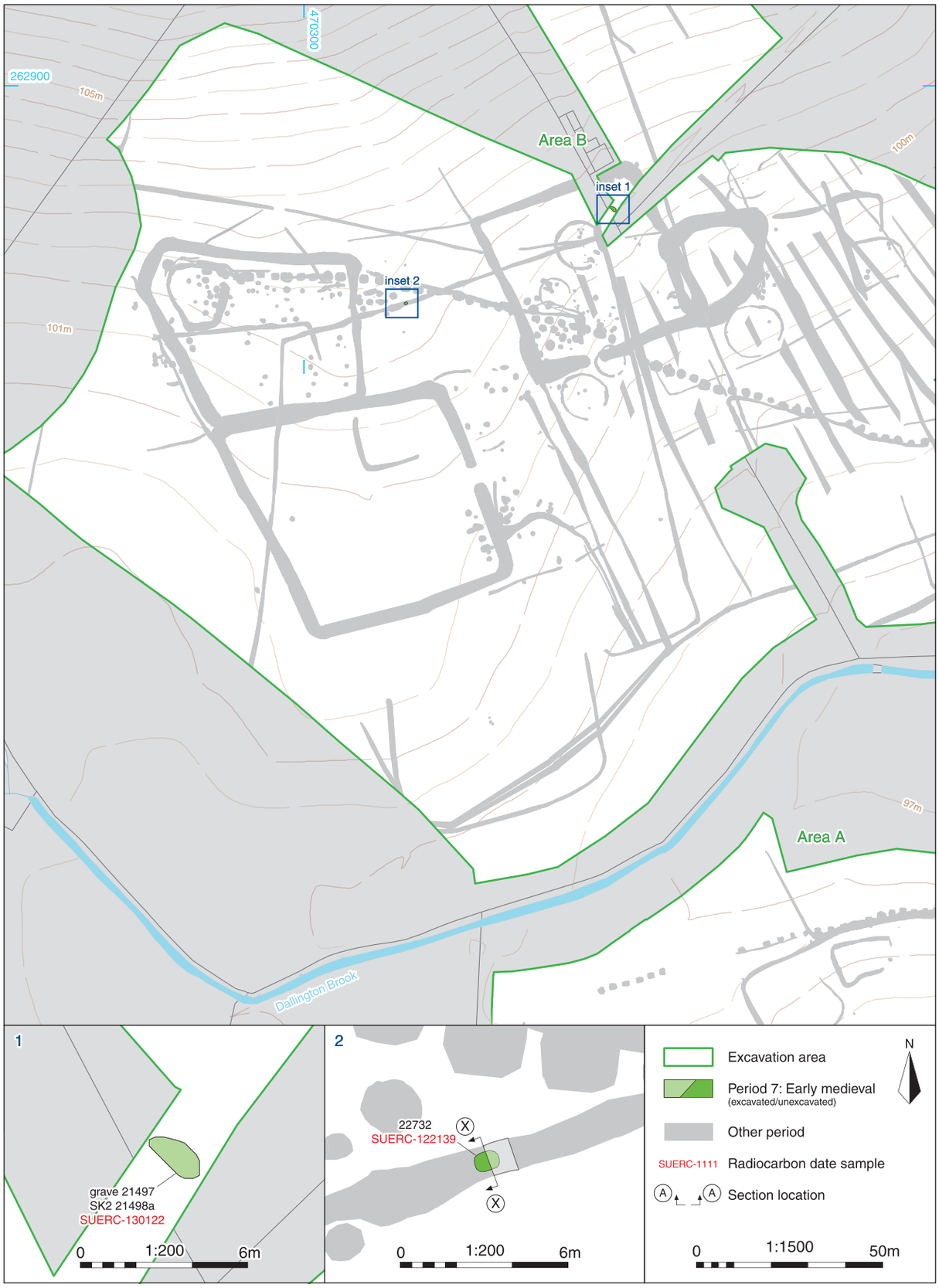


Fig. 7.1 Location and plan of early medieval (Period 7) features, showing contours

Table 7.1: Summary of radiocarbon dating results for early medieval features

Feature/ context	SUERC code	Material	Radiocarbon age (BP)	Calibrated radiocarbon age (95.4% probability)
SK3 22189 From pit 22732	SUERC-122139	Human bone: cranial fragment	1179 ± 26	772–897 cal AD (86.4%) 923–952 cal AD (9%)
SK2 21498a Inhumation 21497	SUERC-130122	Human bone: femur fragment	1223 ± 22	705–738 cal AD (12.8%) 772–883 cal AD (82.6%)

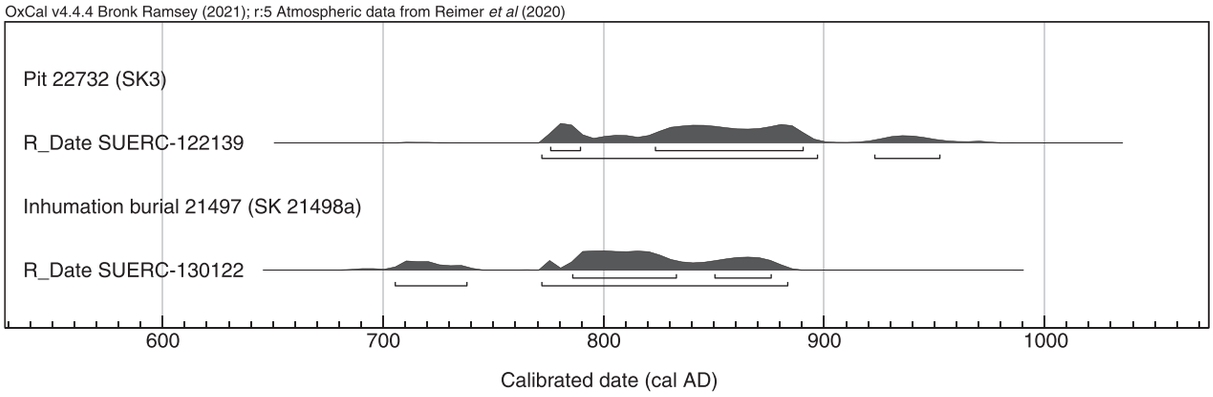


Fig. 7.2 Calibrated radiocarbon dates for Period 7 features

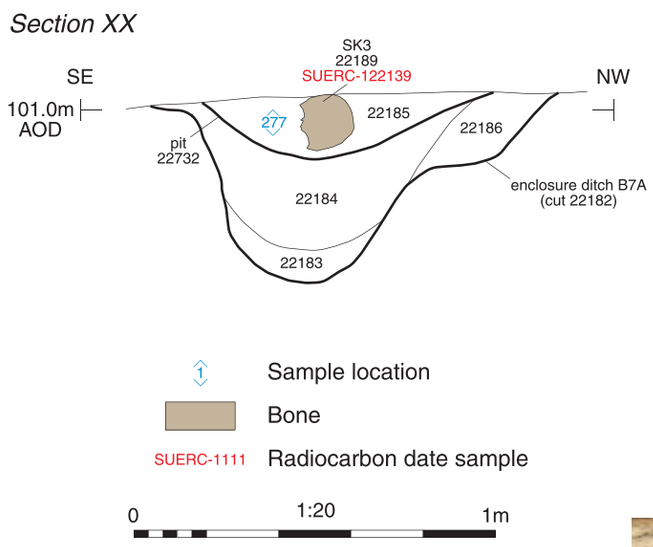


Fig. 7.3 Section XX of pit 22732 and Period 5 enclosure B7 ditch

Fig. 7.4 Photograph of SK3 22189 within pit 22732 and Period 5 enclosure B7 ditch, looking west (1m scale)

Fig. 7.5 Photograph of grave 21497, under excavation, looking south-west (1m and 2m scales)

practices from the preceding 'pagan' burial traditions; cremation had begun to decrease in popularity before the conversion period and graves orientated east–west had begun to gain prevalence (Hoggett 2007, 29; Foster 2008, 8). However, from the 7th to 9th centuries, most burials took place as supine inhumations with the head to the west, and were typically placed in small unenclosed field cemeteries or in consecrated cemeteries associated with a minster church for example (Clough Appendix A3.1; Hoggett 2007, 29). From the later 7th century onwards, burials placed outside community cemeteries, like those at Harlestone Park, were often those of social outcasts (Reynolds 2011, 893).

Pit 22732

At Harlestone Park the skull of an adult male (SK3 22189) was found lying on its left side in pit 22732. There was no indication that the skull had been buried with the rest of the body. If this is indeed an intentional deposition, it might possibly represent a 'deviant' or 'heathen' burial – so-called due to the divergence from the normative burial ritual of the period. During the early medieval period decapitation served as a form of capital punishment and from the 8th century those who suffered this fate were excluded from communal cemeteries. Instead they were interred on the peripheries of society, often along the boundaries of hundreds (administrative areas serving as sub-divisions of a county or shire), far removed from populated areas (Dyson 2014, 37–8). This practice effectively created a physical and social distance between the deceased and the local community (Reynolds 2011, 897; Dyson 2014, 37–8). It notable that pit 22372 is situated approximately 80m north of the Dallington Brook, which may have marked the boundary between the parishes of Harlestone and Harpole since at least the early medieval period (Partida *et al.* 2013, 10). Even if this was not the case, it may have fulfilled a similar purpose by creating a separation between individuals and the local community.

It is unusual to find isolated crania of this period (Clough, Appendix A3.1) and overall there is very little evidence for decapitation burials in Northamptonshire at this time. However, disarticulated human remains dating to the late 8th to early 9th century were recovered from a ditch at Higham Ferrers, Northamptonshire (Hardy and Charles 2007), suggestive of a final location for bodies that had been judicially executed. A contemporaneous skull burial was also identified at Cottam, East Yorkshire, where the cranium of an adult female had been placed face down at the base of a pit (Richards 2001).

There is also a possibility that the skull identified in pit 22372 was associated with a 'head stake' burial; the term '*heafod stoccan*' or 'head stakes' is frequently encountered in early medieval charters. This has been interpreted as representing a practice involving decapitated heads, most probably of individuals deemed deviant and subjected to judicial penalties, which were displayed on stakes, typically along important boundaries (Reaney 1960, 158). While it is important to acknowledge that the meaning/translation of '*heafod stoccan*' remains contentious, with Grundy (1919) suggesting that the term related to ploughing and Kitson (1995) arguing that the term may refer to trees pollarded at head height, the archaeological record and historical documentation together provide a strong argument for '*heafod stoccan*' relating to decapitated heads placed on spikes within the landscape.

The placement of skull SK3 22189 on a stake may provide an explanation for the poor preservation of the skull and its lack of the lower cranium. Reynolds (2002, 104) has noted how 'evidence for the public display of skulls comes in the form of weather-worn skulls buried without the lower jaw, which had presumably dropped off'. However, the presence of head stakes typically indicates a public display but the site of the skull found at Harlestone may not qualify as a prominent public location.

Inhumation burial

The double inhumation burial of an adult and child in Area B represents a very different funerary rite to the skull in pit 22372, although the grave (21497) was positioned at a similar distance to the parish boundary (Dallington Brook) and in a seemingly isolated location away from settlement. The oval shape of the grave suggests that the bodies may originally have been laid in a flexed or crouched position, though this could not be definitively confirmed (Clough, Appendix A3.1).

Multiple burials increase in frequency around the 7th century (Stoodley 2002, 106), with the combination of a double burial of an adult and a child not uncommon during this period (Palmer 2020). They can be either contemporaneous or consecutive, that is, the burial of the two individuals is simultaneous, with both bodies interred at the same time, or the grave of a

single individual may be reopened for the deposition of additional individuals (Stoodley 2002). Due to the heavy truncation of the burial at Harlestone Park it was not possible to conclusively determine the sequence of events for the burial of the individuals. The sex of the individuals within grave 21497 could not be determined and recent studies of early medieval burials have found that male and female adults occur alongside children in roughly equal numbers (Palmer 2020, 51); it does not automatically follow that this was a female adult and her child.

The location of grave 21497 is intriguing, as during the 7th to 9th centuries AD the practice of burial within formal cemeteries became increasingly prevalent, with graves typically oriented east/west. This pattern can be seen across Northamptonshire; for example, a late 7th to 8th century burial ground at Great Houghton comprised 23 tightly spaced burials, aligned east/west (Chapman 2001). However, isolated burials have been found at Harpole, 1.8km to the south (Blackmore and Barham 2023) and at Wollaston Quarry, 18km to the east (Meadows 2019). These two isolated graves, dating to the 7th century, belonged to individuals of high status and were richly furnished. While burial 21497 contained only a fragment of a copper-alloy ring as a grave good, it is notable that the Wollaston burial was situated near the floodplain of the River Nene (ibid.) and would have overlooked it. Grave 21497 was positioned in a comparable location relative to the Dallington Brook.

It is commonplace for burials, cemeteries or execution sites to be placed within or near to pre-existing monuments in the landscape (Reynolds 2011, 902). Such monuments are commonly Bronze Age barrows, however an association with linear earthworks has also been observed (ibid.). The proximity of grave 21497 to the former Late Iron Age/Early Roman ditches, and its apparent alignment with them, may suggest that remnants of the former field/enclosure system survived as visible earthworks. At Bozeat Quarry most of the burials were grouped together and aligned east/west, reflecting the general orientation for graves during this period (see discussion above), however one of the inhumation burials respected the alignment of one of the nearby Roman settlement ditches (Atkins 2018, 66). The significance of such reuse/association with pre-existing monuments has been attributed to the construction of social identities, myths, expressions of territoriality and a desire to create tangible relationships with the distant past (Williams 1998; Brown and Foard 2006, 90).

Chapter 8:
Periods 8–9 Medieval to Post-Medieval/Modern (1066–Present)

Introduction and dating

Evidence for Period 8 medieval activity comprised features associated with agricultural practices such as ridge-and-furrow cultivation, possibly dating from the Middle to Late medieval periods (Fig. 8.1).

Post-medieval/modern (Period 9) land-use comprised a series of ditches in Areas A and B (Fig. 8.1), which probably related to post-medieval field boundaries associated with the former use of the land within the development site. Some of these features aligned well with field boundaries depicted on 19th-century OS mapping (NLS 2026a–c). Furthermore, these features were the latest in the stratigraphic sequence and had different alignments to the earlier ditches identified during the fieldwork. Additionally, five pits, a posthole and five modern animal burials were identified in Areas A and B.

A small assemblage of medieval and post-medieval/modern pottery was recovered from the site, largely as intrusive finds within earlier features. The earliest material comprised a sherd of medieval Brill Boarstall-type ware dating to the late 12th to 14th centuries (Mellor 1994, 111), which was recovered from a tree-throw hole in Area A (Banks, Appendix A2.5). Post-medieval pottery consisted of single sherds of tin-glazed earthenware, dating to the 16th to 18th centuries, and 17th to 19th-century British stoneware (Banks, Appendix A2.5). The late post-medieval/modern wares were more common and include sherds of Black Basalt stoneware, North Midlands earthenwares, refined red and white earthenwares and the most frequently recorded post-Roman fabric, transfer printed white earthenware, all of which date to the 17th or late 18th to 20th centuries AD (Banks, Appendix A2.5). Additionally, an unusual sherd in a fine deep reddish brown earthenware with good quality brown and green glaze was also recorded; though this sherd is probably of modern origin (19th to 20th centuries) it could not be assigned to any known production centre (Banks, Appendix A2.5).

Archaeological evidence

Period 8 (Figs 8.1–8.4)

A north-west/south-east aligned array of plough furrows was observed within the two excavation areas (Figs 8.1–8.3). The preservation was better in Area B, with very few identified in Area A. Where present in Area B, they were found to truncate the earlier Period 3, 4 and 5 features (Fig. 8.4). The plough furrows were spaced at broadly 6m intervals and varied in width between 0.6–2.8m dependent on preservation. They were all of similar profile with gently sloping concave sides and rounded bases (for example see Fig. 8.4).

Period 9 Area A (Figs 8.1–8.2 and 8.5–8.6)

Ditches (Figs 8.1–8.2)

The course of a north-west/south-east aligned post-medieval field boundary (AAD), visible on the 1886 OS map (NLS 2026b), was observed crossing the centre of Area A and extended beyond the northern and southern limits of the excavation (Figs 8.1–8.2). The ditch was on a similar alignment to the Period 8 plough furrows and may relate to the continued use of an earlier field boundary or headland.

Parallel ditches AQ, AR and AZ were situated in the eastern half of Area A and had the same alignment as ditch AAD, which was situated 30m to the west (Fig. 8.2). Consequently it is likely that these ditches formed agricultural activity associated with former field boundary AAD. The ditches measured 0.34–2.72m wide and 0.11–0.58m deep. Three pits (10080, 10390 and 10540) were associated with the ditches and considered to be broadly contemporary, although their function is unknown.

Ditch AAB was situated at the western edge of Area A and was more than 23m long, 0.4m wide and 0.38m deep. The ditch does not have a similar alignment to 19th-century field boundaries depicted on OS mapping (e.g. NLS 2026a), though it does have a similar orientation to field drains situated within the vicinity

Fig. 8.1 Location and plan of medieval to post-medieval/modern (Periods 8 and 9) features in Areas A and B, overlying the medieval township boundaries of the site and its surrounding area

of the feature (Fig. 8.1). Consequently it is possible that this feature was associated with drainage.

Ditch AAC was situated to the north of ditches AQ, AR and AZ and measured 77m long, 0.23–1.28m wide and 0.1–0.58m deep (Fig. 8.2). The ditch produced one sherd of residual Roman pottery. The ditch has the same orientation as post-medieval field boundaries marked on OS mapping (e.g. NLS 2026a and c), as well as the extant southern field boundary of Area A, and may therefore be related to this activity.

Animal burials 10619 and 10808 (Figs 8.2 and 8.5)
Two pits (10619 and 10808) were situated in the southern half of Area A, within Period 4 Phase 4.2

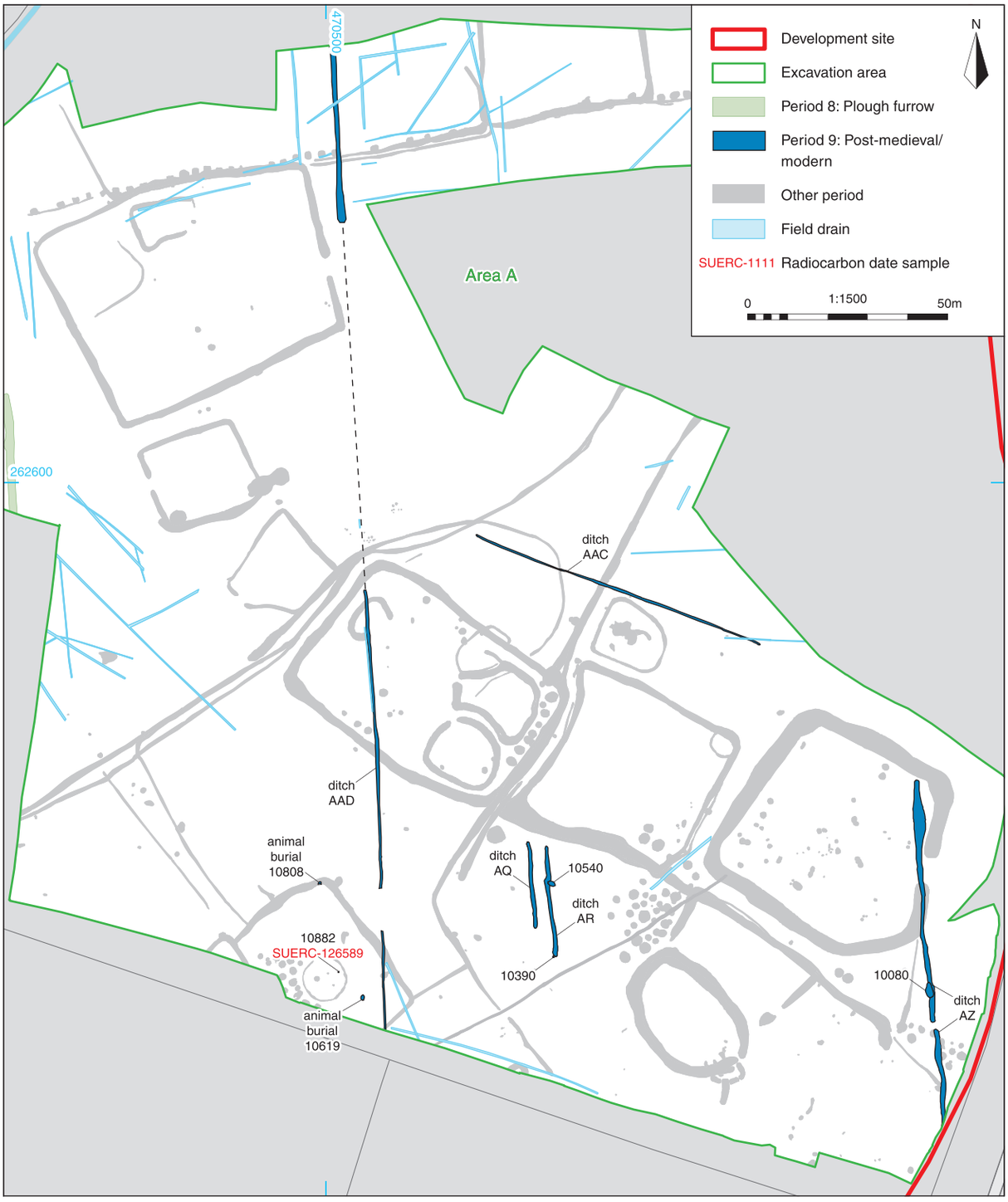


Fig. 8.2 Location and plan of medieval to post-medieval/modern (Periods 8 and 9) features in Area A

enclosure A8. Pit 10619 (Fig. 8.2) was the southern of the two and oval in shape, measuring 1.2m long, 0.8m wide and 0.1m deep. Within the pit was the partial remains of an articulated unidentified animal skeleton, alongside modern pottery (Fig. 8.5).

Pit 10808 was situated approximately 35m north-west of pit 10619 and truncated the northern boundary ditch of Period 4 Phase 4.2 enclosure A8 (Fig. 8.2). It measured at least 0.35m in diameter and 0.1m deep and contained the articulated remains of a sheep.

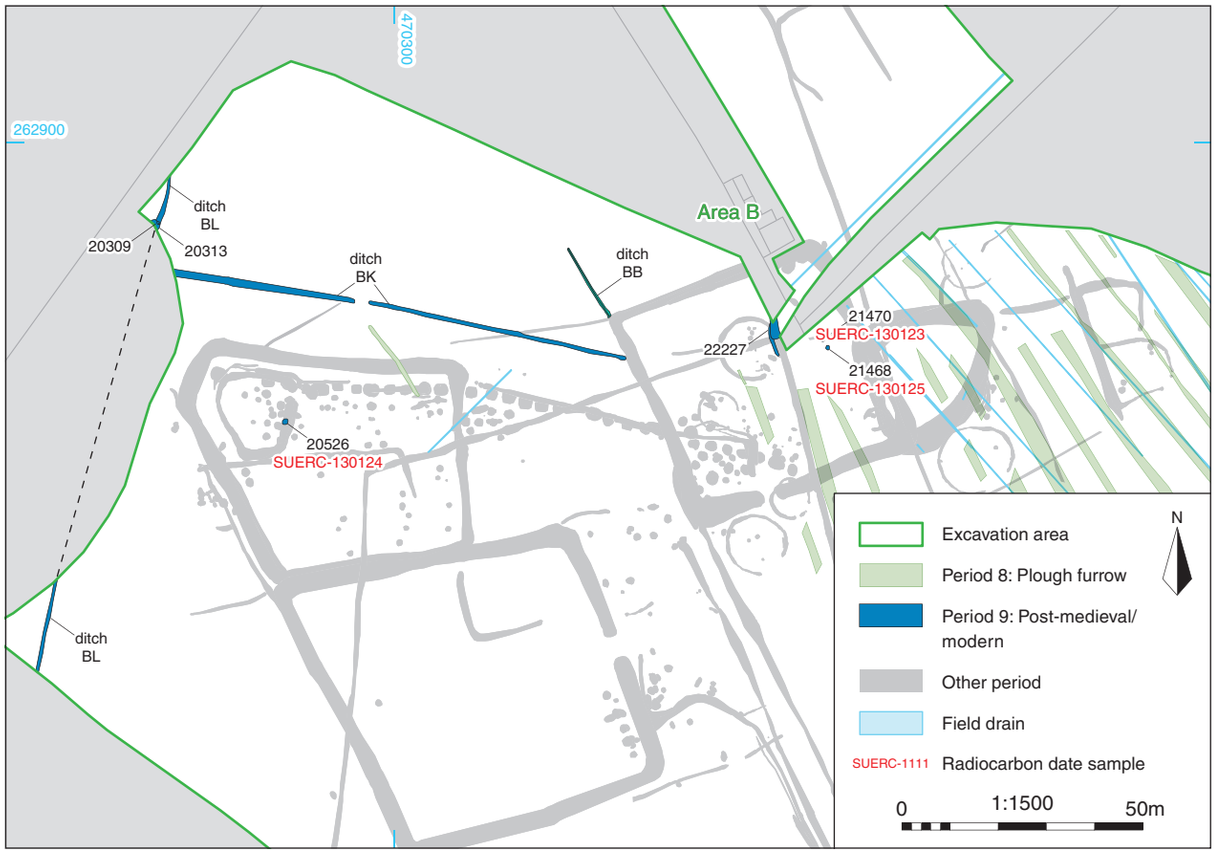


Fig. 8.3 Location and plan of medieval to post-medieval/modern (Periods 8 and 9) features in Area B

Posthole 10882 (Fig. 8.2)

Posthole 10882 was situated within Period 4 Phase 4.2 roundhouse RA8.1 (Fig. 8.2). However, radiocarbon dating undertaken on a sample of wood recovered from this feature produced a post-medieval/modern date (1655–1918+ cal AD at 94.5% probability, SUERC-126589; Appendix A3.9). The posthole measured approximately 0.4m in diameter and 0.22m deep and contained the remains of a wooden stake (Ra. 14; Cobain, Appendix A3.6).

Period 9: Area B (Figs 8.3 and 8.6–8.7)

Ditches BK and BL (Fig. 8.3)

Ditches BK and BL formed two perpendicular ditches situated on the western edge of Area B (Fig. 8.3). The ditches had north-east/south-west or north-west/south-east orientations and measured 0.5–1.46m wide and 0.24–0.55m deep with concave profiles (Fig. 8.6). Ditch BL aligns well with a former field boundary depicted on the 1829 Harlestone Park Estate map (discussed further below; NAS 2025a).

Pits 20309 and 20313 truncated ditch BL and extended beyond the limit of the excavation (Fig. 8.3). Due to their stratigraphic relationship with ditch BL, the features are considered post-medieval or modern in date but their function remains unclear.

Animal burials 20526, 21468 and 21470 (Figs 8.3 and 8.7)

Three animal burials (20526, 21468 and 21470) were identified in Area B (Fig. 8.3); pit 20526 was situated

Fig. 8.4 Photograph of an example of a plough furrow cutting a Period 5 enclosure B8 ditch, looking north-west (1m scale)

Fig. 8.5 Photograph of animal burial in pit 10619, looking south (0.5m scale)

Fig. 8.7 Photograph of partial calf skeletons in pits 21468 and 21470, pre-excavation, looking north (1m scale)

Fig. 8.6 Photograph of ditch BK, looking east (0.5m scale)

within Period 4 Phase 4.2 sub-enclosure B4.1, and pits 21468 and 21470 were situated within Period 4 Phase 4.2 enclosure B6. Due to this the features were initially thought to be associated with the Iron Age activity, however radiocarbon dating undertaken on the animal bone produced post-medieval/modern dates (Table 8.1).

The pits containing the animal were circular and measured 0.5–0.8m in diameter and 0.05–0.27m deep, with moderate to steeply sloping concave sides and irregular rounded bases. Within each of the pits were the articulated remains of a calf (for example, pits 21468 and 21470; Fig. 8.7).

Table 8.1: Summary of radiocarbon dating results for post-medieval/modern features in Area B

Feature/ context	SUERC code	Material	Radiocarbon age (BP)	Calibrated radiocarbon age (95.4% probability)
Context 20527 Pit 20526	SUERC-130124	Animal bone: calf	185 ± 24	1655–1695 cal AD (20.9%) 1725–1812 cal AD (56.1%) 1840–1842 cal AD (0.2%) 1874–1876 cal AD (0.2%) 1916 cal AD (18%)
Context 21469 Pit 21468	SUERC-130125	Animal bone: calf	189 ± 24	1655–1693 cal AD (21.8%) 1726–1810 cal AD (57%) 1919 cal AD (16.6%)
Context 21471 Pit 21470	SUERC-130123	Animal bone: calf	247 ± 24	1526–1556 cal AD (6.2%) 1631–1675 cal AD (64.4%) 1743–1749 cal AD (0.5%) 1765–1800 cal AD (24.3%)

Discussion

By Abby Antrobus

Aspects of society

The medieval and post-medieval/modern features identified during the fieldwork mainly comprised traces of former ploughing and field boundaries, with some associated agricultural activity (Figs 8.1–8.3). Chronologically the features span a period that saw a broadly observed cultural shift from medieval open field systems and communal farming practices to the more private holding of land associated with the process of 'enclosure' around the late 18th century. These changes were inherently social, related to factors such as changing land organisation, administration and access, but they also related significantly to agricultural practice (see Land-use, environment and the economy, below).

In 1066 the East Midlands, along with the remainder of England, fell under the rule of the Duke of Normandy, and the majority of holdings previously held by Anglo-Saxon lords were redistributed among his followers (Lewis 2026). The impact of this change was visible across feudal society and the period from 1066–1300 was one of increased agricultural and economic intensification, coinciding with major demographic and settlement growth (Foard 2000b, 4). However, in the 14th century famines, disease and climatic impacts drastically affected the population, which led to the shrinkage of villages, the abandonment of marginal agricultural land and a significant economic recession (ibid.). Following this, the 15th century saw demographic and economic recovery, along with a major agricultural restructuring, with the period *c.*1500–1750 generally viewed as a period of transition between the feudal world and the Industrial Revolution (Holton 1984; Courtney 2026).

The medieval and post-medieval/modern landscape of Northamptonshire has been extensively studied (e.g. Deegan and Foard 2008; Foard 2000b, 2004; Hall 1995, 2004; Partida 2014; Partida *et al.* 2013; Williamson *et al*. 2011, 2013). Northamptonshire was defined in the early medieval period and remained largely unchanged in terms of its extent until the late 19th century, with Northampton and the Nene Valley viewed as the core of the Shire (Foard 2004, 102).

Northamptonshire, along with other counties in the Midland region, had a medieval settlement pattern predominantly comprising nucleated villages with surrounding systems of open fields, which fell into a system of townships. Either singly or combined, townships often formed the basis of modern civil parishes (Hall 1995, 1), and they broadly comprised geographical areas of land offering a self-contained farming regime around a vill and/or one or more hamlets (Foard 2004, 113; Hall 1995, 1). The origin date for this pattern has been debated; although many villages have long been considered to have had origins in, or by, the early medieval period (see Deegan and Foard 2008, 136; Hall 1995, xi and 130–4; 2013, 39; Partida 2014; Partida *et al*. 2013), a recent review has suggested an 11th or 12th-century date for the 'classic' form of nucleated settlements in the county (Williamson *et al.* 2013).

The development site straddles the boundaries of the 'townships' of Harpole to the south of Dallington Brook and Harlestone to the north (Partida *et al.* 2013, 9–10, maps 44m and 55m). The earliest historical references to both Harpole and Harlestone are those in the Domesday Book of 1086, where the lands were situated within the hundred of Nobottle and fell under four lords (Northamptonshire, Folios 2, 9–10 and 14–15, Open Domesday 2026a–e; Williams and Martin 2002, 592–611, 1436). The entry for Harpole (or 'Horpol', meaning 'dirty or muddy pool', EPNS 2026a) gives a census of seven slaves, fourteen villains, a priest and five bordars, and records arable land, meadow and woods (Williams and Martin 2002, 611–12; Northamptonshire Folio 15, Open Domesday 2026e). For Harlestone (or 'Herolvestune' or 'Erlestone', meaning 'the farm (*tun*), of Herewulf or Heoruwulf'; EPNS 2026b), there were two mills, a priest, five sokemen, ten villains and thirteen bordars, and lands included arable, meadow and some waste, which had either been devasted around the time of the Norman Conquest or where dues were either withheld or attached to holdings elsewhere (Williams and Martin 2002, 592–611, 1436; Northamptonshire Folios 2, 9–10 and 14, Open Domesday 2026a–d). This is suggestive of a polyfocal settlement pattern of land largely agricultural in nature aligning well with evidence from medieval field names, which are largely descriptive of landscape or function. Examples of medieval field names within the vicinity of the development site are given in Fig. 8.8, taken from the 13th/14th-century de Bray family estate book (BL 2025a and b; Willis 1916) and work undertaken in 1932 for the EPNS (NAS 2025c), and are overlain onto the 1829 Harlestone Park Estate Map (NAS 2025 a and b).

The de Bray family estate book, compiled during the 13th and 14th centuries, recorded the business matters and personal commentary of Henry de Bray, who held the manor of Bray or Dyve (situated at the modern Manor Farm, Fig. 8.8) at the time (Willis 1916). Unfortunately, no field names for land situated within the development site were provided by Henry de Bray (Fig. 8.8), hindering insight into the potential use of the land within the areas excavated but nevertheless providing evidence for areas just outside the site to the north. Tithe maps and apportionments records, produced in the early 19th century, can sometimes provide additional documentary evidence for the development of a landscape. However, Harpole and Harlestone lack tithe maps, as across Northamptonshire tithes had largely been extinguished by the earlier process of enclosure (Partida *et al*. 2013, 14). Enclosure

maps, and the written awards which accompany them, can sometimes give similar information, although only the latter exist for Harpole and Harlestone, which makes specific identification of parcels more difficult. It is possible to infer that this land would have come under the administrative unit of a medieval manor or estate, which can often open avenues of enquiry into earlier documents and help identify former landholders and field names . However, ownership of the lands in which the development site is located has not been traceable prior to 1829, and this has only been possible for Area B. There is potential that the lands were held by lords further afield (for example, see Baker 1822, 170 and 178 for ecclesiastical establishments with lands in the parishes), however there were also several local manors to which the lands may have belonged. Within Harpole, these included Tanfield (or Salecto) and St Hilary (or Vaux Manor) and within Harlestone the manors comprised Lumley, The Manor (or Bulmer Share) and Bray (or Dyve).

In 1829 Area B and the northern half of the development site lay within the Harlestone Park Estate (NAS 2025a and b; Fig. 8.8). Harlestone House, built in 1715, was at that date owned by the Andrew family, who had acquired Lumley Manor in 1500 and Bulmer or The Manor in 1756 (NA 2026a). The land that included Area B could have belonged to either of these or may have been added to the estate at a different date. The National Manorial Documents Register does not indicate a good survival of early documents from these manors, with just two 18th-century court rolls listed for Bulmer Manor and no rentals or cartularies that might give evidence of early land tenure (NA 2026b).

Harleston House and Park were redesigned by John Adey and Humphrey Repton between 1808 and 1811 and the estate, which included a large swathe of the parish, was sold to Earl Spencer of neighbouring Althorp in 1831 (NA 2026a). This later ownership history provides a context for considering land-use changes in the post-medieval period, particularly the establishment of farms in the vicinity of the development site. Further information on the earlier estates may lie in the Spencer family archive held at the Northamptonshire Archives Service, although these have not been consulted at the time of writing. The paper-bound indexes list numerous deeds and papers from the 14th to 16th centuries, including a 16th-century rental (SOX490(1)), although without knowledge of which manor the lands belonged to, or earlier field names , there is no shortcut into these and other documents.

Land-use, environment and the economy

During the medieval and post-medieval periods townships often spanned a range of landscape types and resources, including open arable fields, meadows, grazing pastures, woods and enclosures (Partida 2014, 29–30; Partida *et al*. 2013, 4). During the medieval period Area A lay in an area of former heath, while Area B lay in an area of land with discernible earthwork evidence for arable cultivation (Partida *et al.* 2013, maps 44m and 55m; Hall 2013, 33–4; Fig. 8.9). Between the two excavation areas a belt of open field grassland pasture or 'slade'-type meadow was situated to the north of Dallington Brook, broadly following its course (Hall 2013, 32). Such open pasture along brooks and rivers was a common feature for parishes in the central Nene Valley at this time (Hall 1995, 95).

Field pasture and heathland in Area A

The field pasture to the north of Area A continued north-westwards along a tributary of the brook (Figs 8.9 and 1.10); in 1829 this parcel was bordered by Fleetlands Close, which probably equates to a piece of land called 'Flitlond' in 1312 (Willis 1916, 85; Fig. 8.8) and is likely the predecessor of modern Fleetlands Farm, situated to the north of Area B (Fig. 1.1). These names are similar to Flitnell Barn, Harpole, the name of which has been suggested as deriving from 'land in dispute'; thus this name may reflect the locations of such pasture along the potentially 'disputed' borders of ploughed, and therefore owned, land (Hall 1995, 95). Conversely, in 1729 Reverend John Glendon of Harlestone describes 'flitting land' in relation to glebe land (i.e. land owned by the Church to support a parish priest), as well as '…flitting grass in ye field eat by unprofitable cattle…' and '…flitting grass in ye becks and in an about ye old pitts…' (NAS 2025c), which may be indicative of an association of the name with pasture or meadow. Consequently it is possible that this small strip of pasture land along the Dallington Brook provided the name for medieval fields to the north of the development site, which have survived to the present day via 'Fleetlands Farm'.

As mentioned above, Area A is recorded as being situated within an area of heathland during the medieval period (Fig. 8.9), concentrated on the sand and ironstone geologies situated to the north of Northampton (Foard 2004, 110). The well-drained geologies of heathland landscapes made them valuable areas of pasture and grazing, and suitable for rabbit warrens, as well as providing fuel sources such as furze and gorse (Foard 2004, 110). A 16th-century document, the Calendar of Patent Rolls for 1550, includes reference to 'le croppe of heath called le ffurres… in Harpole' (EPNS 2026c), indicating that Area A was under well-established heathland by 1550, and the relative dearth of archaeological evidence at Harlestone Park from the Roman period onwards may suggest that heathland was established at the site from as early as the early medieval period, as has been observed in other parts of Northamptonshire with good evidence for prehistoric and Roman settlement (Foard 2004, 110).

Boundaries to townships were often delineated in

Fig. 8.8 Plan of medieval field names, where known, labelled on the 1829 Harlestone Park Estate map

such a way that areas of heath were peripheral and could perhaps have been shared, with a formal splitting of heathland between parishes of later rather than medieval date (Partida *et al*. 2013, 4–5). It is therefore of note that the heathland of which Area A forms a small part is situated at the peripheries of the parishes of Harpole, Harlestone to the north and Duston to the east. Harlestone Heath, located to the north-east of the development site, is also situated at the boundaries of Harlestone, Dallington and Duston (Fig. 1.10), and may represent a further area of shared heathland.

The slight evidence for ridge-and-furrow and/or plough scars identified during geophysical survey across Area A (Fig. 8.9; GSB 2016) was represented by a single plough furrow during the excavation (Figs 8.1 and 8.2). These traces may represent medieval efforts to cultivate the heathland, possibly in the 13th century when pressures on resources caused by rapid agricultural intensification led to expansion into poorer areas (Foard 2000b, 7; Foard 2004, 102); however, the shared alignment of the plough furrows with post-medieval ditches (Figs 8.2, 8.9 and 8.10), most prominently ditch AAD, which is recorded on the estate map of 1829 (NAS 2025a) and the 1st edition OS map of 1885 (NLS 2026a; Fig. 8.10), suggests that they are more likely to represent later attempts to cultivate the acidic soils of former heathland, a trend which has been noted elsewhere in Northamptonshire during the 18th and 19th centuries following parliamentary enclosure (Foard 2004, 110).

The springy heathland ground that resounded 'to the stroke of the horses feet when they are ridden upon it… having never been open'd and disturb'd by plowing' (Morton 1712, 9) may also have supported recreational activities, as on Harlestone Heath, where the Harlestone Races were run from 1632 to 1739 (Baker 1822, 171), and the bloodsports recorded in the landscape around Northampton, Dallington, Harpole Hills and Nobottle Wood (Markham 1906) may also have taken place on the former heathland in Area A.

Medieval ridge-and-furrow cultivation in Area B

The medieval ridge-and-furrow recorded within Area B forms part of the extensive spread of evidence for medieval agriculture that is especially observable across the East Midlands, with patterns captured from earthwork survey, aerial reconnaissance and archival research (e.g. Partida *et al.* 2013). Across medieval Northamptonshire the former early medieval common field systems, which comprised large parcels of land, were divided and redistributed into long and narrow cultivation strips that were allocated between individuals, so that overall they had a share of different soil types and resources in the fields of a community (Foard 2004, 106; Partida 2014, 114). This, combined with a ploughing pattern that facilitated the drainage of water down a slope, led to the formation of the easily recognisable ridge-and-furrow cultivation pattern (Partida 2014, 114).

Medieval ploughs had a single share that cut soil to the right (see Fig. 8.11 for reconstruction drawing), and plough furrows developed characteristic reverse S-shapes (Hall 1995, 40). Ploughs were pulled by a team of animals working up and down each strip from the centre out to the edges, with a turn at the top or bottom of each strip and a return along the outside of the previously turned earth, in a circular fashion until the edges were reached. At the centre of each strip, where ploughing started, the upcast from two cuts lay against each other while the edges had furrows where upcast lay to either side on the main ridges (Hall 1995, 2), creating a mounded profile (e.g. Fig. 8.12). Furlongs were subdivisions of the fields that contained groups of strips, and they were oriented to reflect the topography, with furrows usually aligned to run down a slope (Hall 1995, 2). The plough furrows identified in Area B adhere to this pattern, following the natural contour and slope of Dallington Brook valley. Where the ploughs were turned headlands developed along the furlong boundaries, which often remained as land divisions into later periods. It is possible that the north-west/south-east aligned boundary recorded through the central part of Area B on the 1829 Harlestone Park Estate map (see Fig. 8.10) formed one of these furlong boundaries, situated at the point where two neighbouring and perpendicular plough furrow arrays met (Fig. 8.9).

Evidence for ridge-and-furrow cultivation has been observed across much of the parishes of Harpole and Harlestone, excluding areas of heath, hills and those liable to flood, and were arranged in interlocking furlongs (Hall 1995, 288–9; 2013, 32; RCHME 1981, 73–4; 1982, 100; Fig. 1.10). The results of the LiDAR and geophysical surveys of the development site, along with the excavation, adds to a growing body of data recorded from earthwork and other surveys (Partida *et al.* 2013, maps 44m and 55m). The remains of a north-west/south-east oriented array of plough furrows identified in the eastern half of Area B corresponds well with previously recorded earthworks by Partida *et al.* (2013, map 44m; Fig. 8.9). These lay within a field labelled 'Bottom Close' on the 1829 Harlestone Park Estate map (Figs 8.9 and 8.10). However, a north-east/south-west oriented array of earthworks recorded across the western part of Area B, situated within an additional field called 'Bottom Close' on the 1829 Harlestone Park Estate map, were not observed during the excavation (Figs 8.9 and 8.10). It is possible that a divergence in later land management accounts for the differing preservation between the eastern and western arrays; Area B was formerly divided into two by a north-west/south-east aligned boundary between the two 'Bottom Closes', depicted on both the 1829 Harlestone Park Estate Map (NAS 2025a) and 1st Edition OS mapping (1885, NLS 2026a). Comparison between aerial photographs taken in the 1940s and those of the present

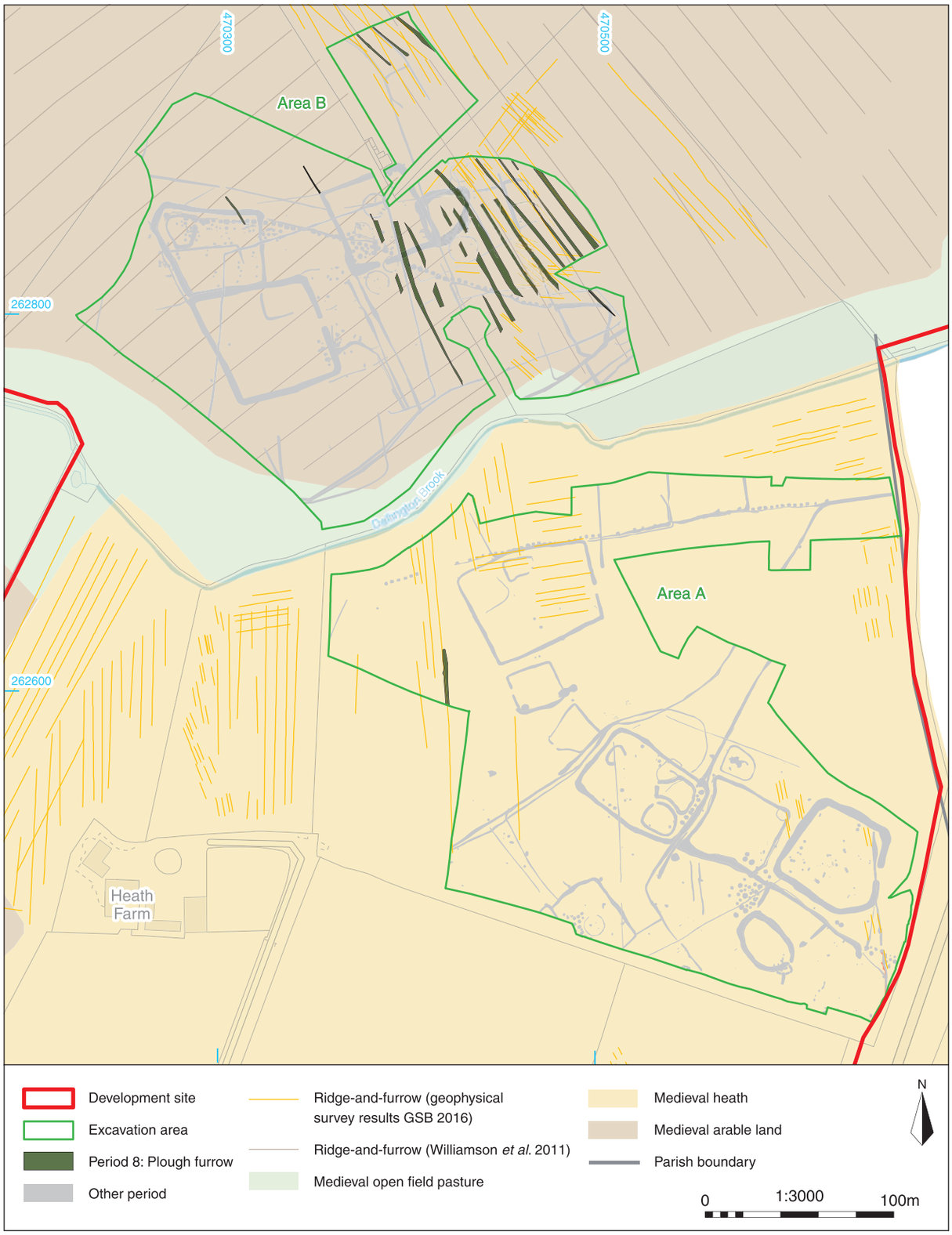


Fig. 8.9 Plan showing the medieval landscape (after Williamson et al. 2011) and Period 8 features in Areas A and B

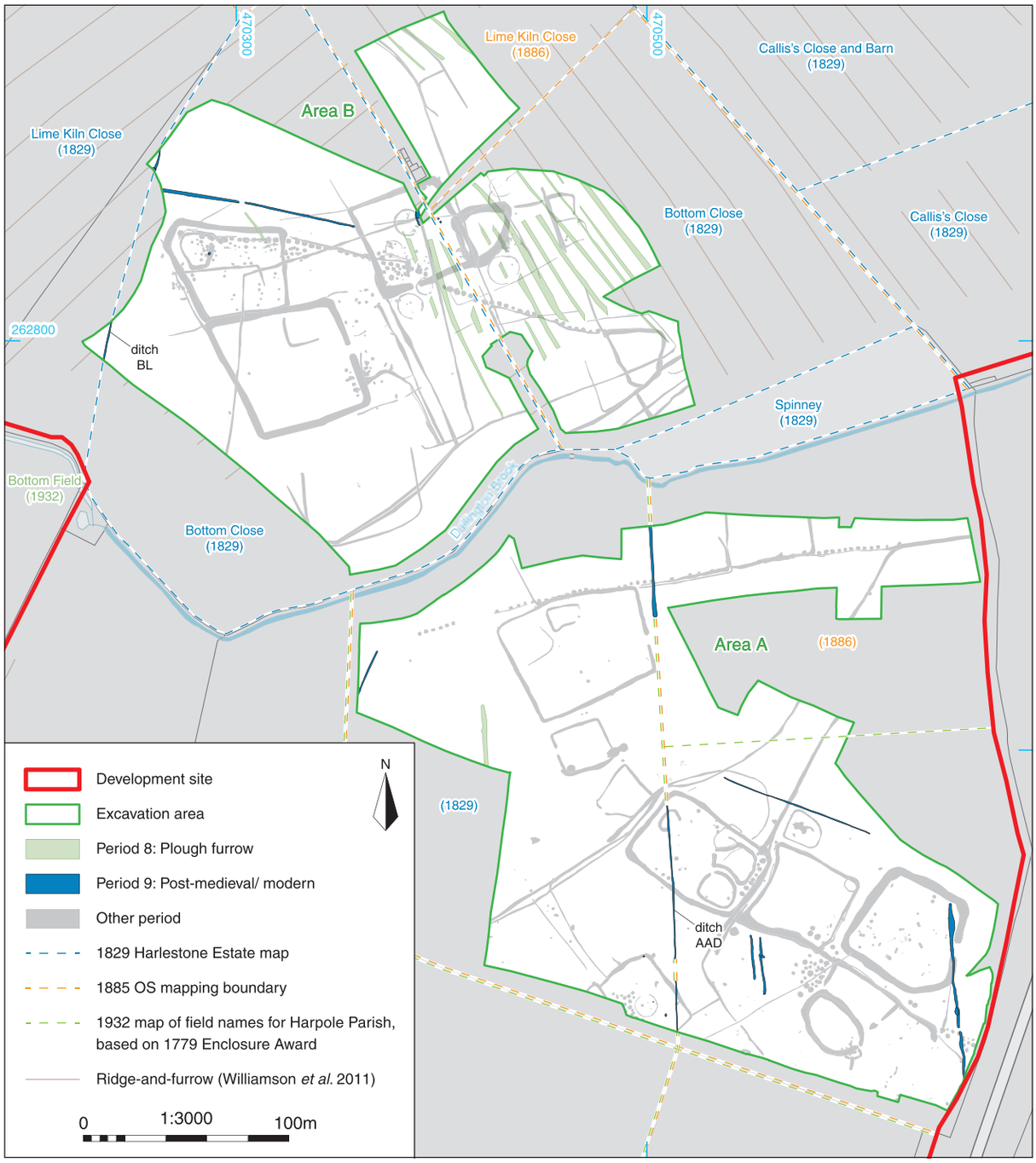


Fig. 8.10 Plan showing Periods 8 and 9 features in Areas A and B with mapped historic boundaries and field names (where known)

day have shown that generally there was a dramatic loss of ridge-and-furrow earthworks in the second half of the 20th century (Deegan 2008a, 31; Hall 2004, 134; 2013, 48). Further, ridge-and-furrow cultivation may have been more or less pronounced in different pieces of land, as the height and depth of the feature depends on how long ridge ploughing continued (Hall 1995, 40). The excavation results do not shed any further light on the chronological development of the ridge-and-furrow system in Area B, although ploughs were mentioned in the Domesday surveys for both Harpole and Harlestone (Williams and Martin 1992, 592, 602–3, 611).

It is not known whether the lands in Areas A or B were farmed or exploited communally or were demesne

Fig. 8.11 Reconstruction drawing of medieval ploughing

lands serving a lord but the arable land probably formed part of the rotational open-field system of Harlestone. For communal fields, crop rotations, generally comprising two or three fields within a township over a period of two or three years, respectively, would cycle between crops (Hall 1995, x; Partida 2014, 121). Across Northamptonshire there was a general evolution from 1300 onwards towards a three-field system, which would often support a cycle of grains, legumes and fallow; documentary evidence from Harpole and Harlestone supports this trend and it is possible that the fields within the development site formed part of this pattern (Hall 1995, x, 51–8, 288–9; Partida 2014, 121). Although open, the common fields were managed and regulated, with customs relating to the types and timings of crops and pasture uses, and with access linked to tenure and holdings (Hall 1995; Partida 2014, 114–15).

Fig. 8.12 Photograph of the prominent ridge-and-furrow earthworks observed at Fleetlands Farm

Land enclosure in Areas A and B

Enclosure was the widespread process by which open field systems, with communal rotational regimes across shared resources, were changed, or in some cases formalised, into a system of enclosed and generally privately accessed and exploited lands (Partida 2014). This involved the division of formerly common land and its distribution through negotiations involving the transfer of strips and parcels of land to consolidate individual estates. It also involved the physical enclosure of pieces of land, contributing to the hedged fields of the modern landscape (Partida 2014, 27–9). Enclosure of a parish or township was either piecemeal or general, by an Act of Parliament or through private agreements, and Northamptonshire had the highest percentage of land enclosed in the parliamentary period, 1727–1901 (ibid.). To place this in perspective, in 1500 approximately 97% of the county remained open, whereas by 1800 this had fallen to 23% (Hall 2004, 134). By the point of enclosure much of the Northamptonshire landscape was dominated by pasture, the cause of which has been cited as population decline following the Black Death, which resulted in less pressure on arable land as well as fewer hands to work it (Hall 1995, 20–2; Partida 2014, 110).

Harpole and Harlestone were enclosed by Acts of Parliament in 1778 and 1766 respectively (NAS 2025d; PA 2025a and b) and the development site spanned a number of post-enclosure fields. Elements of former post-medieval boundary ditches depicted on historic maps were identified during the fieldwork within both Areas A and B, although some depicted boundaries were notably absent from the excavation areas (Fig. 8.10).

The landscape around the development site is a microcosm of the continuity and change that was inherent in the enclosure process, which is discussed more widely by Partida (2014). To the north of the site the Enclosure Award for Harlestone notes that Port Road, situated between New Duston and Harlestone

(Fig. 1.1) was to be a 'publick road or highway… heretofore called Portway in or nearly in the same track the same hath been heretofore used etc' (NAS 2025d, 55). Notably Port Road potentially appears to truncate blocks of former ridge-and-furrow (Partida *et al.* 2013, fig. 44m; Fig. 1.9). A similar phenomenon can be observed within the profile of the extant farm track to Fleetlands Farm within the northern half of the development site (Fig. 1.1), which overlays and truncates former plough furrows (Fig. 8.13) and captures the essence of a medieval landscape that was ultimately overwritten.

There were also elements of continuity between the medieval and post-medieval landscapes, indicated by a degree of correlation between the arrangement of former plough furrows and furlongs to early 19th-century boundaries. This can be observed within the correspondence between recorded medieval plough furrow earthworks situated within the eastern half of Area B and beyond into the north-eastern part of the development site with later post-medieval field boundaries for Callis's Close and Callis's Close and Barn (Fig. 8.10). In the Harlestone Enclosure Award 'several old enclosures' are mentioned in relation to land bordering Dallington and Duston (NAS 2025d, 39 and 55), which may refer to the aforementioned fields. However, the name for them appears more recent, with the will of a Simon Callis of Northampton, dated 1785, bequeathing 'three closes in Harlestone' to his wife and daughters (NAS 2025e).

It has been noted that after enclosure owners had freedom to divide and subdivide pieces of land as they wished (Partida 2014, 173), a pattern reflected in the archaeological features recorded within Area B and corresponding map evidence. Area B spanned two 'Bottom Closes' recorded on the 1829 Harlestone Park Estate map (Fig. 8.10), with 'Lime Kiln Close' situated to the north-west (Fig. 8.10). Ditch BL, which represents the curving field boundary to Lime Kiln Close (NAS 2025a; Fig. 8.10), had gone by the time of the 1st edition OS map in 1885 (NLS 2026a; Fig. 8.10). Similarly, the north-eastern portion of Bottom Close was divided by 1885 (NLS 2026a; Fig. 8.10). The ownership of larger parcels of land paved the way for farms and buildings to be situated within fields and across the county the immediate post-enclosure period, from the later half of the mid-18th century, saw an increase in dispersed farms and barns away from nucleated settlement cores, sometimes by larger estates and landowners (Partida 2014, 218–21; Partida *et al.* 2013, 77-8). Heath Farm in Harpole, situated in the southern half of the development site (Figs. 1.1 and 8.9), may have origins of this date. It appears on the 1885 OS map (NLS 2026a) but a 'Heath Farm Field South' was also mentioned in 1779 (NAS 2025f). Furthermore, two stone-built barns have been noted as the surviving components of a late 18th or early 19th-century farmstead which was later run as a dairy farm during the 20th century (CA 2016a). It is possible that the two Period 9 animal burials identified in Area A may relate to contemporaneous activity.

Fig. 8.13 Photograph of the prominent ridge-and-furrow earthworks observed at Fleetlands Farm (foreground), with the later farm trackway (background)

An L-shaped building of unknown purpose potentially corresponds to the site of Fleetlands Farm (Fig. 1.1) on the 1829 Harlestone Park Estate Map (Fig. 8.8), although the location is somewhat offset. However, by the time of production of the 1885 OS map, the building is shown as a large three-sided range, called 'Harlestone Lodge Farm' (Fig. 8.14), a name also shown on the 1946 map (NLS 2026d). The name and the similarities between the mid 19th- century red brick farmhouse and outbuildings to workers cottages at Upper Harlestone suggest that the farm could have been an estate building (CA 2016a, 29). The farm was later labelled as 'Fleetlands Farm' on the 1952 OS map (NLS 2026e), reflecting the historic name for a parcel of land called Fleetlands (Fig. 8.8).

On the 1829 Harlestone Park Estate Map, land situated to the west of Area B was called 'Lime Kiln Close' (Fig. 8.10) and the 1885 OS map depicts a limekiln to the west of Harlestone Lodge/Fleetlands Farm (Fig. 8.14) within the northern boundary of the development site. This reflects the continued importance of the site for the production of lime during the post-medieval period, an industry which stretches back to the Middle to Late Roman (Period 6) occupation of the development site. In 1712 Morton observed that Northamptonshire's heaths produced sods of turfs and such resources as ling, furze, broom, or brakes, all of which provided 'a good sort of firing for the Bakers, and very proper for the burning of lime…where in many places we have both fern, and limestone enough lying near each other' (Morton 1712, 10).

It is notable that the limekiln depicted on the 1885 OS map was not shown on the 1901 OS map (NLS 2026f) but appears as an earthwork on OS mapping

from 1927 (NLS 2026g) and 1940 (NLS 2026b). This indicates that the limekiln was operated in, or before, the 19th century. It is possible that the aforementioned L-shaped building, depicted within the vicinity of Fleetlands Farm on the 1829 Harlestone Park Estate map, represented related activity although, as discussed above, it may also have been an agricultural or domestic building.

Lime Kiln Close and the two parcels of land called Bottom Close in which Area B lay (Fig. 8.10) were both included in the wider land holdings of a Henry Sanderson, whose lands included a sand pit, brick pit and kiln (NAS 2025b). The earliest trade directories date to 1841 (University of Leicester 2026) and no further information has been obtained about Henry Sanderson. However, it is possible that the 'limekiln' and quarrying depression within the northern half of the development site may have been related to his industries. Alternatively

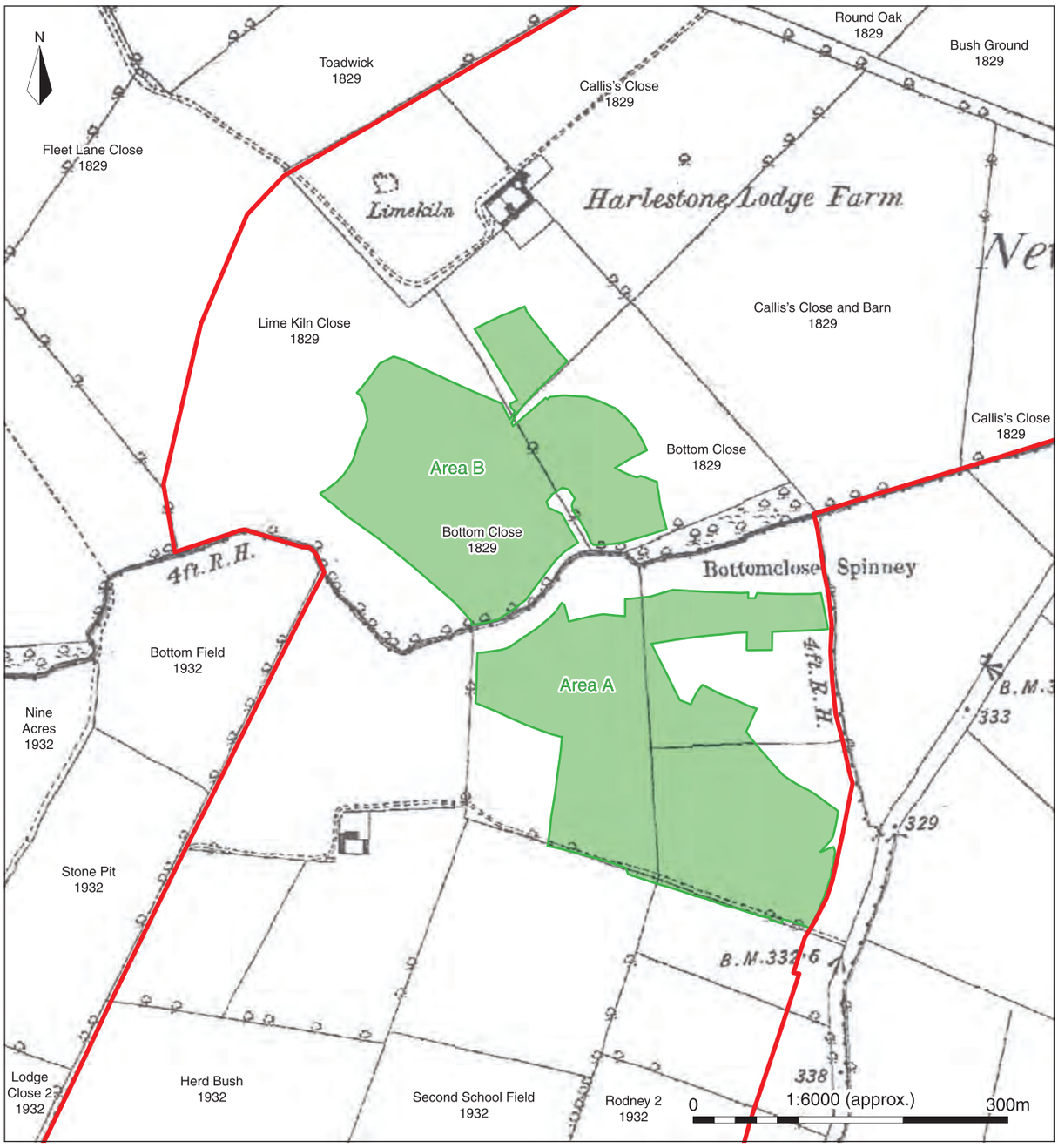


Fig. 8.14 Post-medieval field boundaries and names from the 1829 Harleston Estate Map and 1779 enclosure award for Harpole mapped onto 1880s OS mapping

Fig. 8.15 Photograph of the earthworks of historic lime-quarrying at Fleetlands Farm

the kiln may have served the Harlestone estate. The Spencer family archives include various papers relating to the estate both before and after the sale of 1829 and could include more details, although the summary catalogue does not list a limekiln.

The site of the limekiln recorded on the historic mapping correlated with a large scooped depression, indicative of quarrying, which was identified near Fleetlands Farm during the preceding desk-based assessment (Fig 8.15; CA 2016a). Stone quarrying was a significant industry for the wider area (Bridge 1791, 511; Foard 2004, 130; Hall 2004, 144; Serjeantson and Adkins 1906, 298; Willis 1916, ix–x and 33), the land still being utilised for its natural limestone resources, with Harlestone Quarry forming the closest extant limestone quarry to the site, situated approximately 500m north.

Chapter 9: Continuity and Discontinuity

Introduction and chronology

The archaeological investigations at Harlestone Park have revealed a pattern of land-use and settlement spanning the Early Neolithic to the post-medieval/modern periods. The extensive duration of activity, combined with archaeological data from nearby excavations and the NNMP, has enabled an in-depth exploration of continuity and change across several key areas, including settlement and land-use patterns, burial and ritual practices, landscape character and the local economy. At first glance it would appear that both sides of the Dallington Brook saw similar levels of activity, with both areas for instance being used for cremation burial in the Middle Bronze Age and with pit alignments established in the Late Bronze Age/Early Iron Age. However, during other periods there was considerable variation in the extent and configuration of land-use on either side of the brook, with people at times seemingly favouring one side over the other.

Our understanding of the past use of the development site has been significantly enhanced by the application of radiocarbon dating and Bayesian modelling. These methods have helped establish a temporal framework for the archaeological evidence, aiding our understanding of how the site was inhabited over time. We now know that the site was not continuously occupied from the Early Neolithic period to the present, and its usage varied. The longest periods of uninterrupted occupation occurred during the Middle to Late Iron Age and the medieval to modern periods, with more sporadic patterns of land-use during the other periods. The Early Neolithic pits, for instance, contained flint assemblages that were typologically similar, yet Bayesian modelling has revealed that these pits actually represent multiple episodes of short-term, potentially seasonal, occupation, spanning a possible timeframe of 55–865 years (Hamilton, Appendix A3.9, Fig. A3.19). Furthermore, analysis of the isolated Roman limekiln and early medieval burials has enabled these features to be accurately placed within the site's chronological framework of the site, which, due to their isolation and lack of dating evidence, might have otherwise remained imprecisely dated.

The scientific dating programme for the Middle to Late Iron Age features has provided valuable dating evidence, revealing probable date ranges for the establishment of the settlements either side of the Dallington Brook. However, the relatively small number of dates available from secure contexts does somewhat reduce the confidence with which we are able to recognise the chronological extent of the settlements; while the radiocarbon dates consistently suggest a timeframe predominantly within the Middle Iron Age, the chronological range suggested by the pottery and some elements of the morphology of the Phase 4.2 enclosures may suggest that settlement was longer lived than is suggested by the radiocarbon dates alone. While outside the scope of this project, future work by others involving radiocarbon dating of lipid residues present on some sherds of the Middle to Late Iron Age pottery might enable this question to be resolved.

Settlement and land-use

The evidence for occupation found along the river valleys and tributaries in Northamptonshire has emphasised their importance as sources of material, food and water, as key landscape boundaries, but also as probable routeways for communities in the past. Consequently it is likely that the Dallington Brook played a major role in defining the repeated use of land within the development area over time.

The Mesolithic period at Harlestone Park was solely represented by a residual assemblage of worked flint, which is consistent with evidence from sites in the wider landscape, such as Dallington Gateway, the Northampton North-West Relief Road and Upton (Chapman 2019a, 41–4; OA 2025, 28; Walker and Maull 2010, 16), all of which are situated on the Nene Valley or close to one of its tributaries. The good condition

of the Harlestone Park flint artefacts implies that they were deposited during transitory settlement within the site, reinforcing the general riverine pattern of early prehistoric occupation observed in Northamptonshire (Phillips 2000, 4; Phillips and Kidd 2004, fig. 2.6, 22).

The first definitive evidence of settlement activity at Harlestone Park occurred during the Early Neolithic period and was found on both sides of the brook. In Area B this took the form of pit clusters but in Area A the pits were dispersed, appearing either individually or in pairs. Despite these clear differences all of the pits were positioned at least 50m from the brook on slightly higher ground, possibly located to avoid the wetter floodplain area. Evidence for Neolithic occupation in the wider landscape predominantly comprises small quantities of worked flint found during excavation at the sites of Sandy Lane, Land North of Roman Road, Harlestone Quarry and Dallington Gateway (Garland *et al.* 2019, 81; AA 2024, 19–20; Chapman *et al.* 2017, 54–5; Chapman 2019a, 41–3), which were found to be in a similarly good condition to those at Harlestone Park. A single Late Neolithic posthole at Dallington Gateway is the only other example of a Neolithic cut feature (Chapman 2019a, 35) found in the vicinity of the site to date. However, similar evidence for settlement was observed at Pineham North in the Nene Valley, where over 20 Neolithic pits were found, occurring either individually or in clusters (Harvey and Speed 2020, 22–31).

No features corresponding to the Early Bronze Age period were identified at Harlestone Park but a few pieces of worked flint indicative of Beaker/Early Bronze Age technologies were recovered as residual finds. On the whole evidence for the Early Bronze Age period in the vicinity of the site is sparse, consisting of single pits at Harlestone Quarry and Northampton North-West Relief Road (Chapman *et al.* 2017, 39; OA 2025, 29) and an enclosure and pits in Area 3, Sandy Lane (Garland *et al.* 2019, 78). By the Middle Bronze Age the development site had become the focus of two groups of cremation burials, situated on opposite sides of the Dallington Brook. Like the Early Neolithic pits, the cremation burials were located on higher ground away from the floodplain. The development site does not appear to have been settled during this period, which may suggest that it was viewed as a liminal zone, suitable for the burial of the dead but not for domestic habitation. The nearest contemporaneous settlement evidence was found 500m to 800m to the north-east, on the north side of the brook (Fig. 9.1; Garland *et al.* 2019, 78), but it is not known how or if the two cemeteries were linked to it. It is possible that the two groups were associated with separate communities located on opposite sides of the Dallington Brook.

A seemingly dramatic change in land-use occurred during the Late Bronze Age/Early Iron Age with the construction of two pit alignments, one following the floodplain in Area A and the other following a north-west to south-east slope in Area B. The establishment of pit alignments A and B occurred during a period of increased enclosure of land in this part of Britain and numerous pit alignments have been identified through archaeological excavation and as cropmarks in the wider landscape to the west of Northampton. The full extent of the Harlestone Park pit alignments appear to have been captured within the excavated areas but a pit alignment identified from cropmarks to the west of Area B follows a very similar orientation to pit alignment B and could represent a continuation (908/0/9 MNN1297; Fig. 4.12). Again, no evidence of associated settlement was found in the development site, which is consistent with a general lack of information regarding the relationship between these boundaries and areas of domestic activity in Northamptonshire (Wolframm-Murray *et al.* 2023, 90). It is possible that pit alignments A and B were linked to an area of occupation located approximately 600m to the north-east of pit alignment A, within the Sandy Lane site (Fig. 9.1; Garland *et al.* 2019, 78). However, as discussed in Chapter 4, these pit alignments could represent components of a broader planned landscape.

The main period of occupation at Harlestone Park occurred during the Middle to Late Iron Age with the establishment of a polyfocal settlement that occupied both sides of the brook. Some of the ditches had been dug along the same course as the Period 3 pit alignments, perhaps to reinforce landownership ties that were forged with the construction of the pit alignments or possibly because the ground where the pits had been dug was easier to work; we know from the presence of Middle to Late Iron Age pottery in the upper fills of the pits in Area B that at least some of them remained partially open, probably as shallow depressions in the ground surface. A notable relationship between pit alignments and the orientation of Middle to Late Iron Age boundaries has been observed at several sites, including Pineham Zone H (Fig. 1.8; Simmonds 2017, 30, fig. 23), Upton (Walker and Maull 2010, 17, fig. 5) and Wollaston Quarry (Atkins and Meadows 2024, 124). This observation reflects a broader trend recognised across Northamptonshire (Deegan 2008b, 94–5).

The main focus of the first phase (4.1) of Middle to Late Iron Age settlement was on a south-east-facing slope to the north of the brook. Area A, however, was occupied by a solitary enclosure that may have been used for activities related to pastoralism, such as grazing and livestock management. The Phase 4.2 settlement encompassed the most intensive use of the site, with the majority of excavation Areas A and B divided up by enclosures, fields and trackways. Period 4 provided the first evidence for domestic structures at the development site in the form of roundhouses. These were concentrated in several enclosures, indicating the possibility of a polyfocal settlement inhabited by multiple potentially related family units.

The Dallington Brook would have undoubtedly

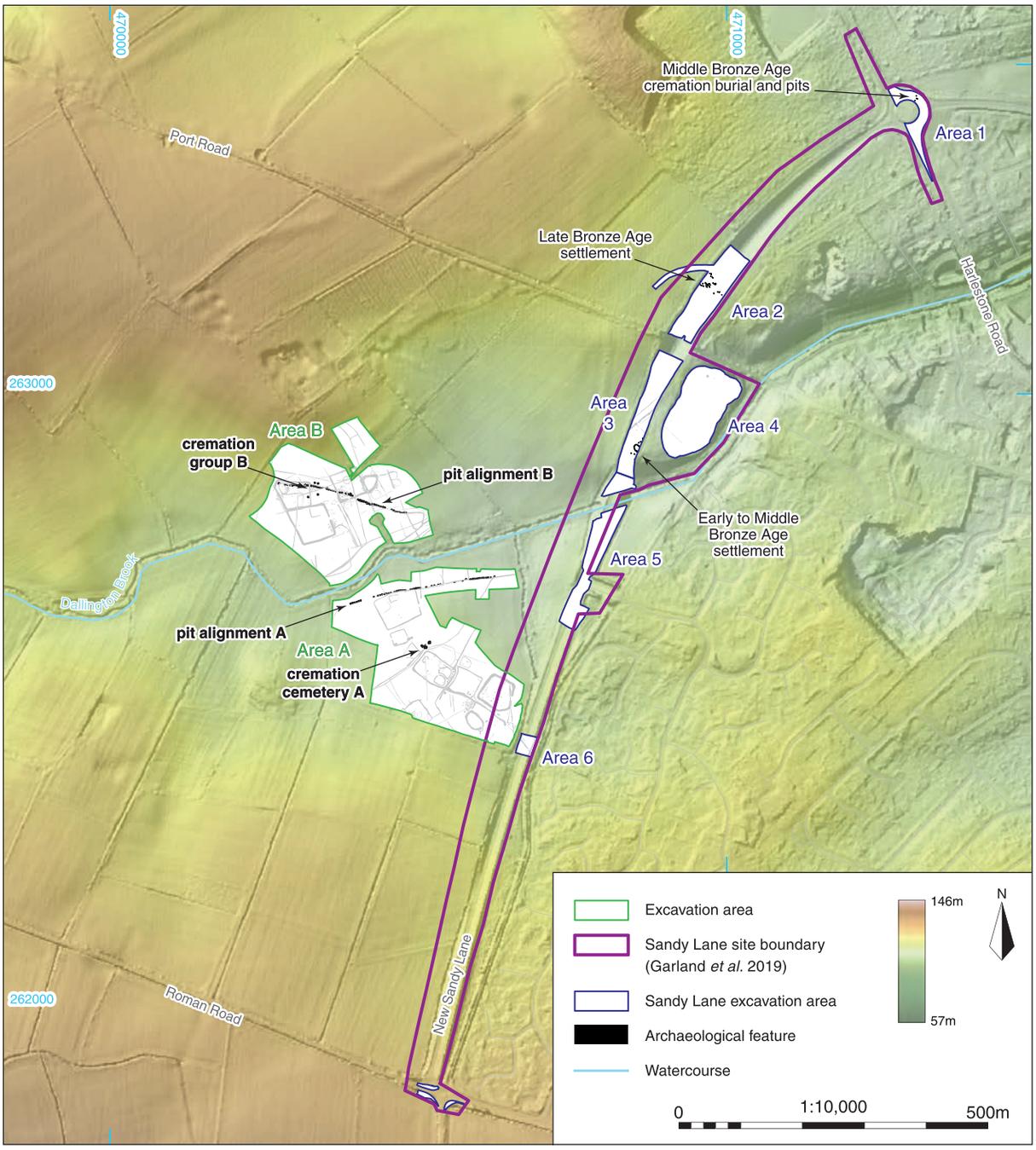


Fig. 9.1 Plan showing Period 3 (Middle Bronze Age) features in Areas A and B and Bronze Age features at Sandy Lane, overlying LiDAR survey of the surrounding area

played an important role in the location and success of the settlement; access to a water source would have been paramount to both arable and pastoral farming practices as well as for sustaining activities associated with domestic habitation. It is notable that the Middle to Late Iron Age roundhouses were all situated in areas of higher ground within the development site, away from areas prone to flooding, a pattern that was also noted in the location of the Early Neolithic pits and Middle Bronze Age cremation burials.

Within Area A many of the Middle to Late Iron Age settlement features appeared to extend beyond the limit of the excavation and the alignment of some correlated well with both the recorded cropmarks in

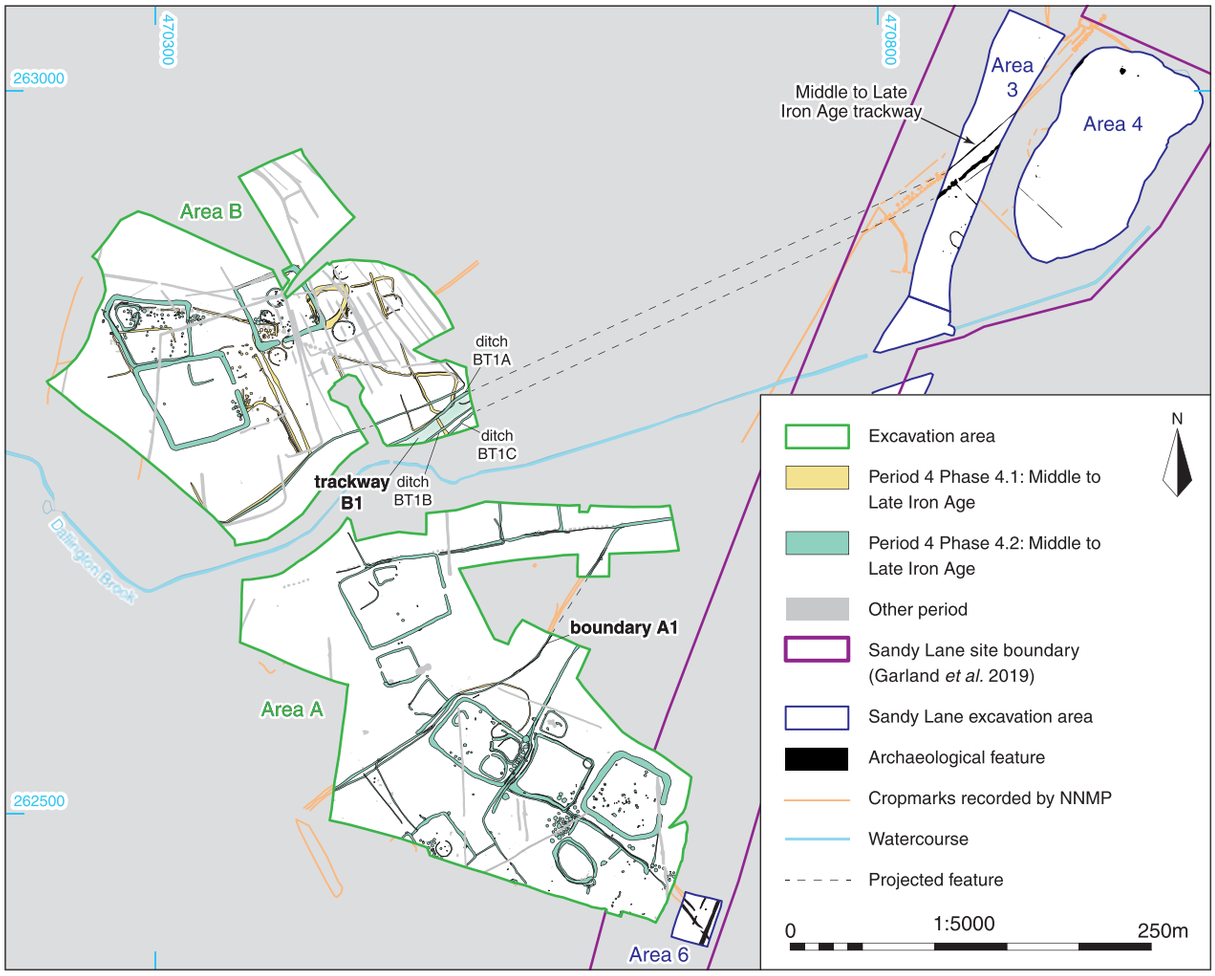


Fig. 9.2 Plan showing Period 4 (Middle to Late Iron Age) features in Areas A and B and continuations of these features identified at Sandy Lane and via cropmark data

this location and with ditches found at Sandy Lane (Garland *et al.* 2019; Fig. 9.2). The apparent absence of contemporaneous features identified during excavations at Land North of Roman Road (AA 2024), immediately to the west of the development site, suggests that the Middle to Late Iron Age settlement in Area A did not extend that far. The situation in Area B is less certain but based on the layout of the Phase 4.1 enclosures it is possible that the settlement continued beyond the excavation area to the south, east and west. Moreover, a probable continuation of trackway B1 was identified at Sandy Lane, Area 3 (Garland *et al.* 2019; Fig. 9.2).

A field system was established during the Late Iron Age/Early Roman period (Period 5) in Area B, with many of the ditches traversing the Middle to Late Iron Age enclosures. The fields lacked features associated with settlement and it has been proposed in Chapter 6 that they may represent an area designated for agricultural use linked to the Late Iron Age/Early Roman settlement found to the west, at the site of Land North of Roman Road (AA 2024; Fig. 1.7). By the 2nd century AD the neighbouring settlement had fallen out of use and there is no indication that the field system in Area B remained operational beyond the Early Roman period, potentially ceasing at a similar time.

In contrast to Area B, land to the south of the brook (Area A) seems to have remained unoccupied from the end of the Middle to Late Iron Age until the construction of limekiln A in the Middle to Late Roman period. Aside from a solitary cremation burial no evidence for contemporaneous domestic activity was identified. However, this is not uncommon as industrial operations such as lime production were often situated away from domestic centres. Access to a water source would have been necessary for both lime production and fire management and the brook was a likely influence on the choice of location for the limekiln, as well as the availability of limestone within the development area.

After the abandonment of limekiln A, the site experienced intermittent use, with Areas A and B seemingly unused until the early medieval period, when two individuals and a human skull were interred in Area B. During the medieval and post-medieval/modern periods the development site became incorporated into a formalised landscape of dispersed farmsteads, fields, heathland and manorial complexes. Medieval activity at the site solely comprised features relating to ridge-and-furrow cultivation, with the best preserved remains identified in Area B. The ridge-and-furrow system was orientated perpendicular to the brook and followed the same alignment as some of the preceding Late Iron Age/Early Roman field ditches. Documentary evidence suggests that during this period Area A formed part of an area of heathland but by the post-medieval/modern periods the entire development site was under arable cultivation or pastoral land, again probably facilitated by access to a water source and the fertile nature of the land. Many of the field boundaries found during the excavation correspond to the field layouts depicted on 19th-century maps (Fig. 8.10) and many of these have continued to be used for agricultural purposes to the present day.

Ritual and funerary practices

Land within the Harlestone Park site was the focus of funerary activity during the Bronze Age, Middle to Late Iron Age, Roman and early medieval periods. The burial practices were found to be variable, comprising both formal internments (cremation and inhumation) as well as the deposition of disarticulated human remains. Potential expressions of ritual behaviour was indicated by the presence of various artefact deposits, many of which were intact, alongside groups of associated animal bone, specifically within Middle to Late Iron Age features.

The overall number of burials across the periods remained low, with the notable exception of 19 cremation burials from Middle Bronze Age Period 2. This limited quantity has hindered a comprehensive analysis of the continuity and change of burial practices at Harlestone Park across the periods. Furthermore, the predominance of cremation burials and disarticulated bones limits the available data regarding age, sex and pathology, which would be available if complete skeletons were present. Nonetheless the evidence does show that the site repeatedly saw some degree of use for funerary activity over time, reflecting the evolving cultural norms of each period.

Cremation burial was the main form of funerary practice observed at Harlestone Park, although instances from the Middle to Late Iron Age and Roman periods were confined to single examples. In Area A the Middle Bronze Age cremation burials were unique in being part of a formal cemetery, arranged in tightly spaced clusters. In contrast, the three cremation burials of the same date forming group B (Area B) were more dispersed. The Middle to Late Iron Age burial was notably placed within an enclosure ditch, marking it as the only burial directly linked to settlement. In contrast, the Roman cremation burial appeared isolated, yet it may have been related to limekiln A, which was situated 60m to the north-west. The large majority of the cremation deposits lacked evidence for urns and none of them contained grave goods; the nails recovered from Roman burial 11283 most probably originated from the pyre.

The only example of an inhumation was the grave of an adult and a child located in Area B during the early medieval period. This reflects the predominant burial rite of the time across England. However, it is important to note that during the period when these individuals were interred the majority of the population was typically placed in communal cemeteries (Hoggett 2007, 29; Reynolds 2011, 893).

Two instances of disarticulated human bone were found at Harlestone Park, both within Area B. These comprised a single deposit of cranial fragments, teeth and a femur in a Middle to Late Iron Age enclosure ditch and a skull in an early medieval pit. The inclusion of partial human remains within Iron Age settlement contexts is common and it is likely that both the location and the selection of particular skeletal elements, such as skulls, were imbued with significance for the community (see Chapter 5, Ritual and funerary practices). The importance of place was also a likely factor in the location of the early medieval skull, which, like the early medieval inhumation, could have been deliberately positioned on the edge of the parish, possibly to reflect the individual's status in life or the circumstances surrounding their death.

Other expressions of ritual behaviour were seemingly represented by the placement of particular artefacts and groups of associated animal bones in pits and ditches. These all occurred during the Middle to Late Iron Age use of the site and comprised deposits of pottery, a spindle whorl, saddle quern and the partial remains of a sheep skeleton. Some of the artefacts and the animal bone were associated with roundhouses and could have derived from associated domestic activities. However, these deposits differed from the typical discard patterns observed throughout the settlement, particularly due to their level of completeness, indicating that their placement may have held special meaning for the community. This is reminiscent of the disarticulated human bone found in the enclosure ditch in Area B, which also suggests ritualistic practices. Notably no similar deposits were identified from other periods of site use, although such ritual expressions were prevalent in prehistoric and the Roman Britain, with their meaning probably evolving over time and across different locations (Smith 2018a, 144–6; Brück 2006, 77–80; Yates 2007, 136–7).

Landscape and economy

Landscape character

Environmental evidence from sites in Northamptonshire, such as Turnells Mill Lane, Wellingborough (Brown and Meadows 1997), has indicated that deforestation of the Nene Valley was underway by the Middle to Late Neolithic period, although this would have been characterised by cycles of both clearance and regeneration. By the Middle Bronze Age the floodplain would still have been wooded and only in the Late Bronze Age to Early Iron Age did large-scale deforestation occur (Brown and Meadows 1997, 189–90). There was no direct evidence for land clearance at Harlestone Park but a similar pattern of landscape change could be envisaged for land on either side of the Dallington Brook. For example, the absence of alder in the charcoal assemblages from the Late Bronze Age/Early Iron Age onwards could be taken as evidence for clearance along the brook edge and the large-scale nature of pit alignments A and B would suggest that they had been constructed in a predominantly open landscape.

The Neolithic and Bronze Age charcoal assemblages from the site indicate that there was access to mixed deciduous woodland containing elements of oak, hawthorn and hazel. Continued access to mature trees was also evident during the Middle to Late Iron Age, alongside the exploitation of woodland edge environments (such as hazelnut and hawthorn). Weed seeds suggestive of grassland, field margins and arable environments were also recovered from the Middle to Late Iron Age charred plant assemblages and coincide with the site's reorganisation and increased focus on agriculture during this period. It is notable that the weed seeds are indicative of a range of environments including drier soils, heathland, heavier soils and damp ground. It is likely that this mixed environment facilitated the prosperity of the settlement, enabling both pastoral and arable agriculture.

The presence of oak and other woodland taxa within the vicinity of the site is also attested to during the Roman period, suggesting that the overall landscape character of the site remained consistent despite the vast reduction in the site's use. During the medieval period documentary evidence and archaeological features suggest a continued focus on agriculture within the northern half of the site, with evidence for ridge-and-furrow cultivation. Conversely, documentary evidence suggests that the southern half of the development site was heathland. The extent of the woodland during the medieval period is unclear; however a spinney is recorded on 19th–20th-century mapping (including the 1829 Harlestone Park Estate Map (NAS 2025a) and OS mapping from 1885–1969 (NLS 2026a–h)) immediately north of the Dallington Brook, along the southern boundary of Area B (Fig. 8.12).

Economy

Similar species of animals were represented across the different periods of use of the site, including cattle (Periods 3–9), sheep/goat (Periods 4–9), equid (Periods 4–5), pig (Periods 4–5) and dog/fox (Periods 4–5). However, only the Period 4 animal bone assemblage was large enough to provide meaningful data on species representation, with cattle being the dominant species, followed by sheep/goat. The only evidence for wild species at the site was fragments of red deer antler recovered from Period 4 Phase 4.2 features, which probably represent the opportunistic collection of shed antlers, rather than providing firm evidence for hunting to supplement the local diet.

Cereal remains were recovered from most periods of activity at Harlestone Park but only recovered in sufficient numbers from Middle to Late Iron Age features to suggest that arable cultivation was being undertaken by the site's occupants. The presence of cereal grains within Period 1–3 assemblages implies that arable cultivation was being practised nearby, although these were too few in number to determine either the scale of production or whether farming took place within the development site itself. The underlying permeable geologies and freely draining soils of the development site would have provided ideal conditions for cultivation during the Middle to Late Iron Age but the absence of material from the early stage of crop processing implies that crops were being grown and processed away from the settlement, with the partially processed grain subsequently brought onto site in order to be stored and used.

During the Roman period the development site was used for lime production. Limekiln A was found in isolation but probably served a building project near to the site; the proximity of Roman Road means that the finished product could have been transported to the known Roman settlement at Duston or the villa site at Harpole or perhaps to another as yet unknown site with masonry buildings. Evidence for the continued exploitation of limestone during the post-medieval/modern period can be observed both within the development site and the wider landscape. Within the northern half of the development site, near Fleetlands Farm, a limestone quarry is depicted on 1st edition OS mapping, along with the label 'lime kiln', which probably gave its name to a field labelled 'Lime Kiln Close' on the 1829 Harlestone Park Estate map immediately to the north and west of Area B (Fig. 8.10). Within the wider landscape Duston and Harlestone both saw heavy limestone quarrying during the post-medieval to modern periods, with those in Harlestone continuing to the present day.

Conclusion

The extensive archaeological investigations at Harlestone Park have provided the opportunity to examine how humans experienced and shaped the landscape of the Dallington Brook over several millennia. The work has highlighted the enduring economic, domestic, strategic and ritual significance of the location for occupants of the local landscape over time, from the Mesolithic period, through the peak of occupation in the Middle to Late Iron Age, into the modern day, now that the site is once again being transformed into a new hub of residential activity at Harlestone Park.

Appendix 1

Table A1.1: Summary of pits and postholes within the Middle to Late Iron Age (Period 4) Phases 4.1 and 4.2 pit/posthole groups

Group no.	Cut no.	Feature type	Shape	Description	Length (m)	Width (m)	Depth (m)	Summary of artefacts (count: weight)	Radiocarbon date (95.4% probability)	Sample no.
Period 4 Phase 4.1 Middle to Late Iron Age										
PB1	20413	Pit	Circular	Steeply sloping concave sides, concave base	1.6	>0.71	0.46			
PB1	20415	Pit	Circular	Steeply sloping concave sides, concave base	2.45	1.74	0.72	M–LIA pottery (1: 11g)		
PB1	20417	Posthole	Circular	Steeply sloping concave sides, concave base	>0.33	>0.47	0.34			
PB1	20449	Pit	Circular	Moderately sloping concave sides, concave base	1.2	0.9	0.24			
PB1	20458	Pit	Circular	Steeply sloping concave sides, concave base	1.62	1.6	0.35			
PB1	20754	Pit	Oval	Moderately sloping concave sides, flat base	3.3	>0.85	0.28			
PB1	20756	Pit	Circular	Steeply sloping straight sides, flat base	2.2	1.48	0.9			
PB1	20759	Pit	Circular	Steeply sloping straight sides, flat base	>1.6	1.24	0.52	M–LIA pottery (5: 29g)		
PB1	20836	Pit	Circular	Steeply sloping concave sides, flat base	1.7	1.62	0.61			
PB1	20838	Pit	Circular	Steeply sloping concave sides, concave base	1.46	>0.88	0.31			
PB1	20878	Pit	Circular	Steeply sloping concave sides, flat base	1.54	1	0.18			
PB1	21108	Pit	Circular	Steeply sloping concave sides, irregular base	1.4	1.4	0.63	M–LIA pottery (4: 21g) Fired clay (4: 58g) Burnt animal bone (50: 3g) Glass (1: 1g)		230
PB1	21702	Pit	Sub-oval	Steeply sloping concave sides, concave base	1.09	>0.92	0.23			
PB1	21811	Pit	Sub-oval	Moderately sloping concave sides, concave base	>1.3	>0.5	0.27			
PB1	21816	Pit	Oval	Steeply sloping concave and stepped sides, concave base	1.2	1.86	0.55			
PB1	21852	Pit	Oval	Steeply sloping straight sides, concave base	2	>0.94	0.45			
PB1	21855	Pit	Oval	Steeply sloping straight sides, concave base	1.5	0.93	0.53			
PB1	21858	Pit	Oval	Steeply sloping straight sides, concave base	1.09	1.29	0.26			
PB1	21896	Posthole	Sub-circular	Steeply sloping concave sides, concave base	0.33	0.27	0.13			
PB2	20213	Pit	Circular	Steeply sloping straight sides, flat base	1.4	1.2	0.6	M–LIA pottery (2: 64g)		
PB2	20216	Pit	Circular	Steeply sloping straight sides, flat base	1.5	1.2	0.46	M–LIA pottery (1: 97g)		
PB2	20244	Pit	Circular	Steeply sloping straight sides, flat base	1.43	1.4	0.65	M–LIA pottery (2: 19g) Animal bone (3: 1g) Burnt animal bone (36: 5g)		204

Group no.	Cut no.	Feature type	Shape	Description	Length (m)	Width (m)	Depth (m)	Summary of artefacts (count: weight)	Radiocarbon date (95.4% probability)	Sample no.
PB2	20251	Pit	Oval	Moderately sloping concave sides, concave base	3.2	1	0.19			
PB2	20916	Pit	Oval	Moderately sloping concave sides, concave base	>1.21	1.21	0.59	E–MIA pottery (1: 229g) M–LIA pottery (30: 357g) Animal bone (1: 1g) Burnt animal bone (23: 3g)	386–207 cal BC (SUERC-130102)	225
PB2	20919	Pit	Circular	Steeply sloping straight sides, flat base	1.5	1.21	0.38	Animal bone (6: 8g)		
PB2	20921	Pit	Circular	Steeply sloping straight sides, flat base	1.6	1.5	0.72	E–MIA pottery (35: 338g) M–LIA pottery (32: 291g) Animal bone (22: 62g) Fired clay (3: 30g) CBM (2: 3g)		226, 227
PB2	20933	Pit	Oval	Moderately sloping concave sides, irregular base	0.86	0.86	0.2			
PB2	20950	Pit	Oval	Moderately sloping straight sides, flat base	1.16	0.33	0.25			
PB2	20962	Pit	Circular	Asymmetrical sides, flat base	1.47	1.47	0.78	M–LIA pottery (24: 122g) Burnt animal bone (13: 1g) Fired clay (4: 36g)		228
PB2	20972	Pit	Circular	Steeply sloping straight sides, flat base	0.76	0.74	0.15			
PB2	21003	Pit	Oval	Steeply sloping concave sides, irregular base	1.74	1.74	0.41	M–LIA pottery (6: 52g) Flint blade (1: 1g)		
PB2	21026	Pit	Circular	Moderately sloping concave sides and base	0.84	0.84	0.1			
PB2	21161	Pit	Circular	Moderately sloping concave sides, concave base	0.5	0.5	0.07			
PB2	21164	Pit	Circular	Moderately sloping concave sides, concave base	0.72	0.72	0.11			
PB2	21170	Pit	Circular	Moderately sloping concave sides, concave base	0.55	0.55	0.12			
PB2	21189	Pit	Oval	Moderately sloping concave sides, irregular base	1.92	0.5	0.5	E–MIA pottery (1: 51g) M–LIA pottery (3: 126g) Fired clay (6: 112g)		
PB2	21615	Posthole	Circular	Steeply sloping straight sides, concave base	0.28	0.26	0.16	M–LIA pottery (1: 4g)		
PB2	21617	Pit	Circular	Steeply sloping concave sides, irregular base	0.76	0.7	0.13			
PB4	20219	Pit	Circular	Moderately sloping concave sides, flat base	2.8	2.86	0.7			
PB4	20731	Pit	Sub-circular	Moderately sloping concave sides, concave base	1.8	1.8	0.66			
PB4	20734	Pit	Circular	Steeply sloping straight sides, flat base	0.5	0.5	0.42			
PB4	21016	Pit	Sub-oval	Slightly convex sides, flat base	2.8	2.8	0.98			
PB4	21024	Pit	Sub-circular	Moderately sloping concave sides, concave base	0.94	0.94	0.14	M–LIA pottery (2: 52g)		
PB4	21039	Pit	Circular	Steeply sloping straight sides, flat base	1.3	1.3	0.5			

Group no.	Cut no.	Feature type	Shape	Description	Length (m)	Width (m)	Depth (m)	Summary of artefacts (count: weight)	Radiocarbon date (95.4% probability)	Sample no.
PB4	21111	Pit	Oval	Steeply sloping concave sides, flat base	2.2	1.98	0.9			
PB4	21113	Pit	Oval	Steeply sloping concave sides, flat base	1.28	1.24	0.48			
PB4	21129	Pit	Circular	Steeply sloping straight sides, flat base	0.75	0.65	0.3	Flint flake (1: 6g)		
PB4	21135	Pit	Circular	Moderately sloping concave sides, concave base	2.1	1.6	0.86			
PB4	21151	Pit	Circular	Steeply sloping straight sides, flat base	1.1	1.1	0.52			
PB4	21153	Pit	Circular	Steeply sloping concave sides, flat base	1.9	1.9	1.18	Flint core and flake (2: 96g)		
PB4	21232	Pit	Oval	Steeply sloping concave sides, irregular base	1.14	1.14	0.44			
PB4	21260	Pit	Sub-circular	Steeply sloping concave sides, flat base	1.2	1.6	0.83			
PB4	21769	Pit	Oval	Steeply sloping concave sides, irregular base	>1.65	>1.65	0.58			
PB4	22004	Pit	Sub-oval	Steeply sloping straight sides, flat base	1.1	0.42	0.5			
PB9	21785	Pit	Sub-circular	Moderately sloping concave sides, concave base	1.05	1.05	0.18			
PB9	21800	Pit	Sub-circular	Moderately sloping concave sides, concave base	1.3	1.3	0.21			
PB9	21861	Pit	Circular	Steeply sloping concave sides, concave base	1.6	>1.6	0.96	M–LIA pottery (10: 122g) LIA–ER pottery (1: 47g)		
PB9	21865	Pit	Sub-circular	Steeply sloping concave sides, concave base	0.69	0.69	0.25			
PB9	21975	Pit	Circular	Steeply sloping concave sides, flat base	1.1	>1.1	0.32			
PB9	21993	Pit	Circular	Steeply sloping concave sides, flat base	>0.57	>1	0.23	M–LIA pottery (1: 4g)		260
PB9	21999	Pit	Sub-circular	Steeply sloping concave sides, concave to flat base	1.2	1.2	0.52			
PB9	22636	Pit	Oval	Moderately sloping concave sides, flat base	2.6	>0.79	0.26	Fired clay (26: 277g)		
Period 4 Phase 4.2 Middle to Late Iron Age										
PA1	11380	Pit	Circular	Steeply sloping concave sides, flat base	1.41	1.5	0.61			
PA1	11383	Pit	Circular	Steeply sloping concave sides, flat base	1.9	1.9	0.4	M–LIA pottery (2: 51g) Fired clay (26:277g)		
PA1	11417	Pit	Circular	Steeply sloping concave and straight sides, flat base	1.1	2.3	1	Animal bone (23: 71g)		
PA1	11446	Pit	Circular	Steeply sloping concave and straight sides, concave base	2.3	2.3	1.07			119
PA1	11453	Pit	Circular	Moderately sloping concave sides, irregular base	0.85	1.07	0.42			
PA1	11458	Pit	Circular	Steeply sloping concave sides, flat base	0.82	0.7	0.42			
PA1	11461	Pit	Circular	Steeply sloping concave and stepped sides, convex base	2.2	1.04	0.86			
PA1	11468	Pit	Sub-circular	Steeply sloping concave sides, flat base	1.95	1.95	0.72			117

Group no.	Cut no.	Feature type	Shape	Description	Length (m)	Width (m)	Depth (m)	Summary of artefacts (count: weight)	Radiocarbon date (95.4% probability)	Sample no.
PA1	11474	Pit	Circular	Moderately sloping concave and convex sides, concave base	4.75	4.75	1.4	M–LIA pottery (4: 102g) Animal bone (1: 1g)		104, 105
PA1	11530	Pit	Circular	Steeply sloping concave and stepped sides, flat base	3.6	3.6	1.04	M–LIA pottery (3: 15g)		98
PA1	11630	Pit	Sub-circular	Steeply sloping concave sides, irregular base	1.66	0.6	0.3	M–LIA pottery (2: 33g)		
PA2	12549	Pit	Sub-circular	Steeply sloping concave sides, flat base	3.73	3.73	1.4	E–MIA pottery (1: 21g) Flint flake (1: 8g)		
PA2	12782	Pit	Sub-circular	Steeply sloping straight sides, flat base	>1.85	>1.85	0.46			
PA2	12796	Posthole	Circular	Moderately sloping concave sides, concave base	0.47	0.47	0.07			
PA2	12798	Pit	Circular	Moderately sloping concave sides, irregular base	1.04	1	0.21			
PA2	12800	Pit	Circular	Moderately sloping concave sides, concave base	0.8	0.8	0.36			
PA2	12802	Posthole	Circular	Moderately sloping concave sides, concave base	0.4	0.4	0.26			
PA2	12813	Posthole	Circular	Moderately sloping concave sides, concave base	0.42	0.42	0.05			
PA2	12828	Pit	Sub-circular	Steeply sloping convex sides, flat base	2.72	2.6	0.95			
PA2	12836	Pit	Circular	Steeply sloping concave sides, concave base	>1.3	>1.3	0.78			
PA2	12847	Pit	Circular	Steeply sloping concave sides, convex base	2.02	1.2	0.33			
PA2	12866	Pit	Circular	Steeply sloping concave sides, concave base	>0.4	>0.52	0.5			
PA2	12993	Pit	Circular	Moderately sloping concave sides, irregular base	2.1	2.1	1.41			185
PA3	12405	Posthole	Circular	Moderately sloping concave sides, concave base	0.34	0.34	0.09			
PA3	12407	Pit	Circular	Moderately sloping concave sides, concave base	1.45	1.45	0.26	M–LIA pottery (15: 138g) Burnt animal bone (1: 1g)		161
PA3	12410	Posthole	Circular	Moderately sloping concave sides, concave base	0.32	0.32	0.18			
PA3	12412	Pit	Circular	Moderately sloping concave sides, concave base	0.81	0.81	0.14			
PA3	12414	Pit	Circular	Moderately sloping concave sides, concave base	0.93	0.93	0.16			
PA3	12416	Pit	Sub-circular	Steeply sloping concave sides, flat base	>1.3	0.56	0.46			
PA3	12419	Pit	Sub-circular	Steeply sloping concave sides, concave base	>1	0.95	0.41			
PA3	12423	Pit	Sub-circular	Moderately sloping irregular sides, concave base	1.24	1.25	0.46			
PA3	12427	Pit	Oval	Steeply sloping concave sides, flat base	1.43	1.7	0.46	M–LIA pottery (6: 309g) Flint blade (1: 6g)	374–200 cal BC (SUERC-130112)	162–163
PA3	12431	Pit	Sub-oval	Steeply sloping concave sides, concave base	>1.43	1.12	0.23	M–LIA pottery (1: 10g) Worked flint (2: 0.9g)		164
PA3	12433	Pit	Sub-oval	Steeply sloping concave sides, irregular base	1.63	1.04	0.35	M–LIA pottery (1: 11g)		165
PA3	12466	Pit	Circular	Steeply sloping concave sides, flat base	1.4	0.98	0.28			167

Group no.	Cut no.	Feature type	Shape	Description	Length (m)	Width (m)	Depth (m)	Summary of artefacts (count: weight)	Radiocarbon date (95.4% probability)	Sample no.
PA3	12469	Pit	Circular	Moderately sloping concave sides, flat base	>1	0.64	0.11	Flint microdenticulate (1: 6g)		
PA3	12515	Pit	Sub-circular	Moderately sloping concave sides, concave base	1.22	1.22	0.81	M–LIA pottery (2: 99g) Animal bone (1: 13g)		
PA3	12517	Pit	Circular	Moderately sloping concave sides, concave base	1.7	1.7	0.3			
PA3	12521	Pit	Circular	Moderately sloping concave sides, concave base	1.78	1.78	0.35			
PA3	12527	Pit	Sub-oval	Moderately sloping concave sides, concave base	0.75	0.75	0.24			
PA3	12529	Pit	Circular	Moderately sloping concave sides, concave base	1.56	1.56	0.29			
PA3	12531	Pit	Circular	Moderately sloping concave sides, concave base	0.68	0.68	0.22			
PA3	12538	Posthole	Circular	Steeply sloping concave sides, concave base	0.4	0.4	0.31			
PA3	12564	Posthole	Sub-circular	Moderately sloping concave sides, concave base	0.41	0.38	0.25			
PA3	12575	Pit	Oval	Moderately sloping straight and concave sides, flat base	0.92	0.55	0.26			
PA3	12616	Pit	Circular	Moderately sloping concave sides, concave base	1.26	1.26	0.24			
PA3	12648	Pit	Sub-circular	Moderately sloping concave sides, concave base	1.26	1.26	0.08	RB pottery (1: 2g)		
PA3	12650	Pit	Sub-circular	Moderately sloping concave sides, concave base	1.12	1.12	0.09			
PA3	12652	Pit	Circular	Moderately sloping concave sides, concave base	>1.37	>1.37	0.3	Burnt animal bone (31: 1g) Flint chip (1: <1g)		171
PA3	12659	Pit	Circular	Moderately sloping concave sides, concave base	0.66	0.66	0.33			
PA3	12666	Pit	Circular	Moderately sloping concave sides, concave base	>1.38	1.38	0.83	Burnt animal bone (4: 1g)		170
PA3	12667	Pit	Sub-oval	Steeply sloping concave sides, concave base	0.9	0.9	0.32			
PA3	12672	Pit	Sub-oval	Steeply sloping concave sides, irregular base	>1	>1	0.46	Animal bone (3: 30g) CBM (3: 17g)		
PA3	12730	Pit	Circular	Moderately sloping concave sides, flat base	0.84	0.84	0.22			
PA3	12732	Pit	Oval	Moderately sloping concave sides, concave base	0.75	0.75	0.28			
PA3	12734	Pit	Sub-oval	Moderately sloping concave sides, flat base	0.58	0.58	0.15			
PA3	12736	Pit	Oval	Moderately sloping concave sides, flat base	0.7	0.7	0.16			
PA3	12749	Pit	Circular	Moderately sloping concave sides, concave base	0.55	0.55	0.19			
PA3	12765	Pit	Circular	Moderately sloping concave sides, concave base	0.8	0.6	0.18			
PA3	12767	Pit	Sub-circular	Steeply sloping concave and stepped sides, flat base	0.6	0.58	0.15			
PA3	12773	Pit	Circular	Steeply sloping concave sides, concave base	1.1	1.1	0.19	M–LIA pottery (3: 9g)		179
PA3	12776	Pit	Sub-circular	Moderately sloping concave sides, flat base	0.8	0.94	0.15			

Group no.	Cut no.	Feature type	Shape	Description	Length (m)	Width (m)	Depth (m)	Summary of artefacts (count: weight)	Radiocarbon date (95.4% probability)	Sample no.
PA3	12778	Pit	Circular	Steeply sloping concave sides, concave base	1	0.82	0.29			
PA3	12788	Posthole	Sub-circular	Vertical, straight sides, flat base	0.34	0.19	0.11			
PA3	12792	Pit	Sub-oval	Moderately sloping concave sides, concave base	0.9	0.9	0.2			
PA3	12794	Pit	Circular	Moderately sloping concave sides, irregular base	1	1.38	0.15			
PA3	12808	Pit	Oval	Moderately sloping concave sides, concave base	0.88	0.88	0.13	Flint chip (1: 0.1g)		180
PA3	12816	Pit	Sub-circular	Moderately sloping concave sides, flat base	1.06	1.06	0.4	Fired clay (2: 96g)		
PA3	12818	Posthole	Circular	Moderately sloping concave sides, concave base	0.45	0.45	0.2			
PA3	12820	Pit	Circular	Steeply sloping straight sides, flat base	0.69	0.69	0.26			
PA3	12822	Posthole	Circular	Steeply sloping straight sides, flat base	0.28	0.28	0.22			
PA3	12824	Pit	Circular	Steeply sloping concave sides, flat base	0.55	0.55	0.31			
PA3	12826	Posthole	Circular	Moderately sloping concave sides, concave base	0.39	0.39	0.12			
PA3	12870	Pit	Circular	Steeply sloping concave sides, concave base	1.4	1.4	0.46			
PA3	12874	Pit	Circular	Steeply sloping irregular sides, flat base	1.33	1.14	0.52			
PA3	12882	Pit	Sub-oval	Moderately sloping concave sides, concave base	1.55	1.55	0.36			
PA3	12887	Pit	Sub-circular	Moderately sloping concave sides, irregular base	>1.23	>1.23	0.29			
PA3	12915	Pit	Sub-circular	Moderately sloping concave sides, flat base	>1.3	>0.36	0.25			
PA3	12918	Pit	Sub-circular	Steeply sloping concave sides, flat base	1.3	1.65	0.34	M–LIA pottery (4: 126g)		182–183
PA3	12937	Pit	Circular	Steeply sloping straight sides, concave base	0.5	0.5	0.27	M–LIA pottery (6: 50g)		
PA3	12956	Pit	Sub-circular	Moderately sloping concave sides, concave base	0.8	0.8	0.24			
PA3	12958	Pit	Oval	Moderately sloping concave sides, concave base	1.18	1.18	0.15			
PA4	10171	Pit	Circular	Steeply sloping concave sides, flat base	1.5	>1.06	0.18			
PA4	10178	Pit	Circular	Steeply sloping straight sides, flat base	1.79	1.45	0.55	Flint blade (1: 10g)		
PA4	10197	Pit	Circular	Moderately sloping concave sides, flat base	0.8	0.6	0.17			
PA4	10199	Pit	Circular	Steeply sloping straight and stepped sides, flat base	>2.59	2.59	0.81	M–LIA pottery (1: 8g)		
PA4	10204	Pit	Circular	Moderately sloping convex sides, concave base	>0.74	>0.74	0.7	Animal bone (6: 102g)		
PA4	10228	Pit	Circular	Moderately sloping straight sides, flat base	2.4	1.6	1.2	M–LIA pottery (2: 37g)		
PA4	10230	Pit	Sub-circular	Steeply sloping concave sides, flat base	2.17	1.35	0.85			
PA4	10251	Pit	Sub-oval	Steeply sloping concave sides, flat base	2.86	2.86	1.35	Flint blade (1: 2g)		17
PA4	10252	Posthole	Sub-oval	Moderately sloping concave sides, irregular base	0.49	0.4	0.1			
PA4	10260	Pit	Circular	Moderately sloping concave sides, flat base	1.55	1.03	0.74			

Group no.	Cut no.	Feature type	Shape	Description	Length (m)	Width (m)	Depth (m)	Summary of artefacts (count: weight)	Radiocarbon date (95.4% probability)	Sample no.
PA4	10264	Pit	Oval	Moderately sloping concave sides, flat base	1.58	1.39	0.37			
PA4	10267	Pit	Sub-circular	Steeply sloping concave sides, flat base	1.84	1.1	0.62			
PA4	10269	Pit	Circular	Steeply sloping concave sides, flat base	1.5	1.5	0.6	Animal bone (1: 11g)		
PA4	10273	Pit	Circular	Steeply sloping concave sides, concave base	1.15	1.15	0.52			
PA4	10279	Pit	Sub-circular	Steeply sloping concave sides, flat base	1.88	1.62	0.55	M–LIA pottery (3: 12g) Animal bone (1: 2g)	380–201 cal BC (SUERC-30113)	18
PA4	10289	Pit	Circular	Steeply sloping concave sides, flat base	1.76	1.76	0.73			
PA4	10296	Pit	Sub-circular	Moderately sloping concave sides, irregular base	2.04	2.04	0.91	M–LIA pottery (2: 27g)		19
PA4	10300	Pit	Oval	Moderately sloping concave sides, irregular base	2.74	2.74	1.7	M–LIA pottery (7: 98g)		
PA4	10318	Pit	Circular	Steeply sloping concave sides, flat base	1.33	1.33	0.3	M–LIA pottery (6: 104g)		
PA4	10365	Pit	Circular	Steeply sloping concave sides, flat base	2.9	2.8	0.92			
PA4	10371	Pit	Circular	Moderately sloping concave sides	3.8	>2.75	>1.07			
PA4	10379	Pit	Circular	Steeply sloping concave sides, flat base	1.59	1.59	0.82	M–LIA pottery (5: 44g)		
PA4	10398	Pit	Sub-circular	Steeply sloping straight sides, flat base	>1.2	1.2	0.65			
PA4	10402	Pit	Sub-circular	Moderately sloping concave sides, flat base	2.4	2.4	0.8			
PA4	10435	Pit	Circular	Steeply sloping straight sides, flat base	>1.8	1.8	0.88			
PA4	10442	Pit	Sub-circular	Moderately sloping concave sides, base	1.38	1.38	0.5			
PA4	10456	Pit	Sub-oval	Steeply sloping convex sides, flat base	2.06	1.94	0.93	M–LIA pottery (10: 209g) Animal bone (23: 37g)		
PA4	10460	Pit	Circular	Steeply sloping straight sides, flat base	>2.84	2.84	1.32			
PA4	10465	Pit	Circular	Moderately sloping concave sides, concave base	2.9	2.9	0.76	M–LIA pottery (1: 27g)		
PA4	10502	Pit	Circular	Moderately sloping concave sides, irregular base	1.6	>1.1	0.38			
PA4	10508	Pit	Circular	Moderately sloping concave sides, flat base	1.65	1.65	0.79			
PA4	10520	Pit	Sub-circular	Steeply sloping concave sides, flat base	1.86	1.85	0.94			
PA4	10547	Pit	Circular	Steeply sloping concave sides, flat base	1.68	>0.99	0.47			
PA4	10549	Pit	Circular	Steeply sloping concave sides; base not reached	2.2	2.1	>0.97			
PA5	10581	Pit	Sub-circular	Steeply sloping concave sides, flat base	1.78	1.78	0.82	M–LIA pottery (5: 124g)		
PA5	10594	Pit	Sub-oval	Irregular, concave sides, concave base	2.1	>1.17	0.41			
PA5	10597	Pit	Sub-oval	Irregular, concave sides, concave base	2.1	>1.17	0.4			
PA5	10599	Pit	Sub-circular	Moderately sloping concave sides, concave base	1.07	1.17	0.24			
PA5	10604	Pit	Circular	Moderately sloping concave sides, irregular base	1.25	1.3	0.09			

Group no.	Cut no.	Feature type	Shape	Description	Length (m)	Width (m)	Depth (m)	Summary of artefacts (count: weight)	Radiocarbon date (95.4% probability)	Sample no.
PA5	10625	Pit	Circular	Moderately sloping concave sides, flat base	2	2	0.32	M–LIA pottery (1: 11g) LIA/ER pottery (1: 3g)		72
PA5	10629	Pit	Sub-circular	Steeply sloping concave sides, flat base	0.77	>0.8	0.63			
PA5	10633	Pit	Sub-circular	Steeply sloping concave sides, flat base.	0.86	1.35	0.66			
PA5	10641	Pit	Sub-circular	Steeply sloping concave sides, flat base	1.85	1.97	0.44	M–LIA pottery (1: 13g) Flint flake (1: 1g) P-med/mod glass (1: 1g)		
PA5	10652	Pit	Sub-circular	Moderately sloping concave sides, irregular base	1.2	1.20	0.55			24, 69
PA5	10657	Pit	Circular	Moderately sloping concave sides, flat base	1.6	1.6	0.5			23, 70
PA5	10667	Pit	Circular	Moderately sloping concave sides, flat base	0.68	1.6	0.28			
PA5	10672	Pit	Sub-circular	Moderately sloping concave sides, flat base	1	1.7	0.58	M–LIA pottery (1:50g)		
PA5	10681	Pit	Sub-circular	Steeply sloping concave sides, flat base	1	0.85	0.62	M–LIA pottery (2:40g) Industrial waste (173:42g)		25, 68
PA5	10697	Pit	Sub-circular	Steeply sloping concave sides, flat base	2	2	0.67			
PA5	10712	Pit	Oval	Steeply sloping concave sides, flat base	1.95	1.9	0.46	M–LIA pottery (1:7g) Unidentified iron (1:21.18g)	355–109 cal BC (SUERC-130105)	26, 71
PA5	10977	Pit	Sub-circular	Moderately sloping concave sides and base	>1.1	2.64	0.33			
PA5	10979	Pit	Sub-circular	Steeply sloping concave sides, flat base	1.19	1.08	0.34			
PA5	10980	Pit	Sub-circular	Irregular concave sides, irregular base	0.75	0.75	0.2			
PA6	10003	Pit	Sub-circular	Moderately sloping concave sides, irregular base	1.4	1.42	0.14			
PA6	10005	Pit	Sub-circular	Moderately sloping concave sides, concave base	0.7	0.76	0.12			
PA6	10007	Pit	Sub-circular	Steeply sloping concave sides, flat base	2.2	2.42	0.47			
PA6	10022	Pit	Sub-circular	Steeply sloping straight sides, flat base	1.67	1.67	0.48			
PA6	10033	Pit	Oval	Steeply sloping concave sides, irregular base	>1.8	1.7	0.6	LP pottery (1:1g)		
PA6	10035	Pit	Sub-circular	Steeply sloping straight sides, flat base	1.67	1.67	0.76			
PA6	10041	Pit	Sub-circular	Moderately sloping concave sides and base	0.84	0.84	0.3			
PA6	10067	Pit	Sub-oval	Steeply sloping concave sides, concave base	2.1	>1.65	0.83	M–LIA pottery (1: 4g)		
PA6	10073	Pit	Sub-oval	Steeply sloping concave sides, flat base	2.18	1.6	0.59			
PA6	10076	Pit	Sub-circular	Moderately sloping concave sides, flat base	1.45	1.2	0.27			
PA6	10088	Pit	Sub-circular	Steeply sloping concave sides, concave base	2.3	2	1.2			11

Group no.	Cut no.	Feature type	Shape	Description	Length (m)	Width (m)	Depth (m)	Summary of artefacts (count: weight)	Radiocarbon date (95.4% probability)	Sample no.
PA6	10095	Pit	Sub-circular	Steeply sloping concave sides, flat base	2.1	>1.85	1.05	M–LIA pottery (5: 58g) Animal bone (4: 1g) Burnt animal bone (13: 2g)		10
PA6	10100	Pit	Sub-circular	Steeply sloping concave sides, concave base	1.08	1.08	0.26			
PA7	10974	Pit	Sub-circular	Steeply sloping concave sides, flat base	1.9	1.9	0.49			
PA7	11051	Pit	Sub-circular	Steeply sloping concave sides, flat base	1.8	1.8	0.57			36
PA7	11061	Pit	Sub-circular	Moderately sloping concave sides, flat base	>1	1.15	0.11	M–LIA pottery (2: 2g) Iron carpentry nail (1: 1.87g) Flint scraper (1: 7g)		
PA7	11109	Pit	Circular	Steeply sloping concave sides, concave base	0.5	0.5	0.2			
PA7	11145	Pit	Circular	Steeply sloping concave sides, flat base	1.16	1.16	0.35	M–LIA pottery (7: 58g)		
PA7	11162	Pit	Circular	Moderately sloping concave sides, concave base	1.2	1.2	0.22	M–LIA pottery (1: 3g) Flint blade (1: 5g) Fired clay (2: 7g)		
PA7	11332	Pit	Sub-circular	Steeply sloping concave sides, flat base	1.9	1.9	1.25	E–MIA pottery (6: 122g) M–LIA pottery (142: 2036g) Animal bone (24: 108g) Burnt animal bone (17: 6g) Fired clay (16: 249g)	406–230 cal BC (SUERC-130114)	83–86, 88–96, 140–142
PA7	11348	Pit	Sub-oval	Steeply sloping concave sides, concave to flat base	1.76	2.16	0.54	M–LIA pottery (6: 32g)		87
PA7	11369	Pit	Sub-circular	Moderately sloping concave sides, flat base	>0.58	>0.58	0.22			
PA7	11493	Pit	Circular	Steeply sloping concave sides, concave base	1.7	1.69	0.74	M–LIA pottery (2: 6g)		
PA7	11496	Pit	Sub-circular	Moderately sloping concave sides, concave base	0.84	0.79	0.2	M–LIA pottery (1: 40g)		
PA7	11498	Pit	Circular	Moderately sloping concave sides, concave base	0.7	0.7	0.3			
PA7	11505	Pit	Sub-circular	Moderately sloping straight sides, flat base	>1	0.95	0.27			
PA7	11600	Pit	Oval	Moderately sloping stepped, irregular sides, concave base	1.5	0.8	0.48	M–LIA pottery (5: 159g)		102
PA8	10020	Pit	Sub-circular	Moderately sloping concave sides, concave base	0.65	0.50	0.12	M–LIA pottery (40:37g)		
PA8	10024	Pit	Oval	Moderately sloping concave sides, concave base	0.94	0.46	0.14			
PA8	10027	Pit	Circular	Moderately sloping concave sides, concave base	>1.9	>1.65	0.37			
PA8	10029	Pit	Sub-circular	Steeply sloping concave sides, concave base	1.25	0.74	0.27			
PA8	10116	Pit	Sub-circular	Steeply sloping concave sides, concave base	1.2	1.14	0.41			

Group no.	Cut no.	Feature type	Shape	Description	Length (m)	Width (m)	Depth (m)	Summary of artefacts (count: weight)	Radiocarbon date (95.4% probability)	Sample no.
PA8	10126	Pit	Sub-circular	Steeply sloping concave sides, concave base	0.8	0.8	0.37			
PA8	10143	Pit	Sub-circular	Moderately sloping concave sides, concave base	0.61	0.53	0.19			
PB5	20461	Pit	Circular	Steeply sloping straight sides, flat base	1.82	1.33	1.3	M–LIA pottery (9: 42g) Flint bladelet (1: 0.7g)		
PB5	20483	Pit	Sub-circular	Moderately sloping concave sides, concave base	1.24	1.3	0.4			
PB5	20504	Pit	Circular	Moderately sloping concave sides, flat base	1.76	1.76	0.71	M–LIA pottery (3: 6g)		207
PB5	20552	Pit	Circular	Steeply sloping straight sides, flat base	1.68	2	0.88	M–LIA pottery (99: 46g) EIA–MIA pottery (1: 5g) Worked flint (5: 21g)		
PB5	20559	Pit	Circular	Steeply sloping straight sides, flat base	1.1	1.13	0.65	M–LIA pottery (6: 11g)		
PB5	20576	Pit	Circular	Steeply sloping straight sides, flat base	1.36	1.49	1.03	M–LIA pottery (1: 24g) Flint flake (1: 1g)		
PB5	20583	Pit	Circular	Steeply sloping straight sides, flat base	1.1	1.1	0.47			
PB5	20589	Pit	Oval	Steeply sloping straight sides, flat base	1.02	0.73	0.22	M–LIA pottery (3: 35g)		
PB5	20591	Pit	Sub-circular	Steeply sloping concave sides, flat base	0.8	1.3	1.07			
PB5	20658	Pit	Circular	Steeply sloping straight sides, flat base	1.4	1.1	0.4	M–LIA pottery (2: 4g)		
PB5	20666	Pit	Sub-circular	Steeply sloping straight sides, flat base	>1.62	1.62	0.44			
PB5	20690	Pit	Circular	Steeply sloping convex sides, flat base	>1.09	1.09	0.47			
PB5	20693	Pit	Circular	Steeply sloping straight sides, flat base	>1.55	1.55	0.61	M–LIA pottery (2: 21g) Flint blade (1: 20g)		
PB5	20695	Pit	Circular	Moderately sloping concave sides, concave base	0.68	0.68	0.26			
PB5	20804	Pit	Circular	Steeply sloping straight sides, base not reached	>1.75	1.75	>1.04	M–LIA pottery (6: 102g)		
PB5	20849	Pit	Circular	Steeply sloping straight sides, flat base	0.57	0.57	>0.26			
PB5	20935	Pit	Circular	Steeply sloping straight sides, flat base	>1.81	1.81	0.74	Worked flint (7: 73g)		
PB6	20425	Pit	Circular	Steeply sloping straight sides, flat base	1.1	1.1	0.53	MIA–LIA pottery (1: 12g) Animal bone (3: 29g)		
PB6	20460	Pit	Sub-oval	Steeply sloping straight sides, concave base	1.15	1.6	1.12	M–LIA pottery (8: 113g) E–MIA pottery (1: 12g) Fired clay (83: 1218g) (poss. oven furniture) Animal bone (14: 46g)		208, 210
PB6	20471	Pit	Circular	Steeply sloping straight sides, flat base	1.27	1.27	0.94			
PB6	20491	Pit	Circular	Steeply sloping straight sides, flat base	1.7	1.7	0.46	Flint flake (1: 1g) Animal bone (1: 5g)		

Group no.	Cut no.	Feature type	Shape	Description	Length (m)	Width (m)	Depth (m)	Summary of artefacts (count: weight)	Radiocarbon date (95.4% probability)	Sample no.
PB6	20524	Pit	Oval	Steeply sloping concave sides, concave base	>0.4	>0.4	>0.37			
PB6	20562	Pit	Circular	Steeply sloping straight sides, flat base	1.1	1.1	0.9	M–LIA pottery (5: 53g) E–MIA pottery (1: 9g)		209
PB6	20568	Pit	Circular	Moderately sloping concave sides, concave base	1	0.6	0.09			211
PB6	20572	Pit	Circular	Steeply sloping concave sides, flat base	0.64	0.67	0.23			
PB6	20616	Pit	Circular	Steeply sloping straight sides, flat base	0.6	0.59	0.33	Animal bone (1: 2g)		
PB6	20619	Pit	Circular	Steeply sloping straight sides, flat base	1.01	1.01	0.38			
PB6	20632	Pit	Circular	Steeply sloping straight sides, flat base	1	0.97	0.48			
PB6	20635	Pit	Circular	Steeply sloping irregular sides, flat base	0.9	0.9	0.45	M–LIA pottery (4: 34g) E–MIA pottery (1: 10g) Animal bone (37: 134g) Burnt animal bone (11: 11g)	389–206 cal BC (SUERC-130116)	212
PB6	20637	Pit	Circular	Steeply sloping straight sides, flat base	0.57	0.59	0.56	M–LIA pottery (29: 143g) Animal bone (1: 3g)		
PB6	20644	Pit	Oval	Steeply sloping concave sides, concave base	1.2	1.44	0.43			
PB6	20664	Pit	Sub-circular	Moderately sloping concave sides, concave base	>0.92	0.92	0.37			
PB6	20679	Pit	Sub-circular	Steeply sloping straight sides, flat base	1	0.7	0.28			
PB6	20711	Pit	Sub-circular	Steeply sloping straight sides, flat base	1.1	1.3	0.83	M–LIA pottery (13: 125g) Flint flake (1: 0.7g) Animal bone (1: 1g) Fired clay (3: 7g)		
PB6	20773	Pit	Sub-circular	Steeply sloping straight sides, flat base	0.7	1.5	0.87	M–LIA pottery (2: 75g) Flint flake (1: 3g) Burnt animal bone (14: 1g) Fired clay (1: 3g)	404–234 cal BC (SUERC-130115)	217
PB6	20791	Pit	Circular	Steeply sloping straight sides, concave base	>0.7	>0.72	0.49			
PB6	20794	Pit	Circular	Steeply sloping concave sides, flat base	0.7	0.74	0.36	M–LIA pottery (7: 26g) Flint chip (1: 0.1g) Animal bone (13: 10g)		216
PB6	20810	Pit	Circular	Steeply sloping straight sides, concave base	>0.9	>0.88	0.35			
PB6	20827	Posthole	Circular	Steeply sloping straight sides, concave base	0.6	0.6	0.23			
PB6	20829	Posthole	Circular	Moderately sloping concave sides, concave base	0.6	0.6	0.2			
PB6	20954	Posthole	Circular	Moderately sloping concave sides, concave base	>0.7	0.7	0.16	M–LIA pottery (1: 3g)		
PB6	20956	Pit	Sub-circular	Moderately sloping concave sides, concave base	0.8	0.8	0.27			

Group no.	Cut no.	Feature type	Shape	Description	Length (m)	Width (m)	Depth (m)	Summary of artefacts (count: weight)	Radiocarbon date (95.4% probability)	Sample no.
PB6	20983	Posthole	Sub-circular	Steeply sloping straight sides, flat base	0.9	0.9	0.16			
PB6	21076	Posthole	Circular	Moderately sloping concave sides, concave base	1.33	1.33	0.58			229
PB6	21079	Posthole	Circular	Steeply sloping concave sides, concave base	0.95	0.95	0.7			
PB6	21207	Pit	Circular	Steeply sloping straight sides, flat base	1.35	1.35	1.1			
PB6	21350	Pit	Circular	Steeply sloping straight sides, flat base	1.45	1.45	1.11			
PB6	21562	Pit	Circular	Moderately sloping concave sides, concave base	2.4	2.4	0.34	M–LIA pottery (6: 94g)		
PB6	22009	Pit	Circular	Steeply sloping straight sides, flat base.	1.28	1.2	0.6	M–LIA pottery (6: 4g)		
PB6	22012	Pit	Circular	Steeply sloping straight sides, flat base	1.26	1.26	0.87			
PB6	22115	Pit	Circular	Steeply sloping straight sides, flat base	1.3	1.24	0.28			
PB6	22476	Pit	Oval	Steeply sloping straight sides, flat base	2.05	1.14	0.61			
PB6	22622	Pit	Oval	Steeply sloping concave sides, concave base	2	1.7	0.49			
PB6	22745	Pit	Circular	Unexcavated	2.05	2.05	–			
PB7	20851	Posthole	Circular	Moderately sloping concave sides, concave base	0.27	0.23	0.05			218
PB7	22176	Pit	Circular	Steeply sloping straight sides, flat base	1.68	1.68	0.65	M–LIA pottery (1: 91g)		
PB7	21837	Pit	Oval	Steeply sloping convex sides, flat base	1.8	1.58	0.91			
PB7	22093	Pit	Sub-circular	Steeply sloping straight sides, flat base	2.44	1.53	1.1			
PB7	22213	Pit	Circular	Steeply sloping straight sides, flat base	1.73	1.85	0.76	M–LIA pottery (1: 8g)		
PB7	22301	Pit	Oval	Steeply sloping convex sides, concave base	1.4	1.35	0.52			
PB7	22399	Pit	Oval	Steeply sloping straight sides, flat base	2.25	2	0.72	M–LIA pottery (8: 9g)		
PB7	22419	Pit	Circular	Steeply sloping straight sides, flat base	>2	>2.09	0.82	M–LIA pottery (23: 112g) Burnt animal bone (3: 1g) Worked flint (2: 27g)		284
PB7	22425	Pit	Circular	Steeply sloping irregular sides, irregular base	1	1.1	0.34	M–LIA pottery (7: 13g)		
PB7	22442	Pit	Sub-circular	Steeply sloping straight sides, flat base	>0.99	0.99	0.44	M–LIA pottery (2: 15g)		
PB7	22446	Pit	Circular	Steeply sloping concave sides, irregular base	>1.6	1.6	0.55			
PB7	22450	Pit	Circular	Moderately sloping concave sides, concave base	1.07	1.07	0.21			
PB7	22746	Pit	Oval	Unexcavated	4	1.43	–			
PB8	20227	Pit	Circular	Steeply sloping concave sides, flat base	1.9	1.47	0.48			
PB8	20264	Pit	Circular	Moderately sloping concave sides, flat base	0.9	0.95	0.14			
PB8	20331	Pit	Circular	Moderately sloping concave sides, concave base	>2	2.02	0.35			
PB8	20333	Pit	Circular	Moderately sloping concave sides, concave base	>1.42	>1.3	0.53			

Group no.	Cut no.	Feature type	Shape	Description	Length (m)	Width (m)	Depth (m)	Summary of artefacts (count: weight)	Radiocarbon date (95.4% probability)	Sample no.
PB8	20335	Pit	Circular	Moderately sloping concave sides, concave base	1.3	1.58	0.73			
PB8	20356	Pit	Circular	Steeply sloping concave sides, concave base	>1.5	>1.08	0.34			
PB8	20358	Pit	Circular	Steeply sloping concave sides, concave base	1.84	1.3	0.44	M–LIA pottery (3: 114g)		
PB8	20890	Pit	Circular	Moderately sloping concave sides, concave base	1.4	1.48	0.38	M–LIA pottery (1: 8g)		
PB8	20941	Pit	Oval	Moderately sloping concave sides, flat base	2	>0.98	0.72			
PB8	20943	Pit	Circular	Moderately sloping concave sides, flat base	2	1.9	0.73	M–LIA pottery (6: 13g) Animal bone (5: 6g)		
PB8	20946	Pit	Circular	Moderately sloping concave sides, flat base	1.6	>1.4	0.2			
PB8	20948	Pit	Circular	Steeply sloping concave sides, flat base	1	>1.26	0.24			
PB10	20183	Pit	Circular	Steeply sloping concave sides, flat base	1.2	1.2	0.66	MIA–LIA pottery (2: 11g)		
PB10	20817	Pit	Oval	Steeply sloping straight sides, flat base	1.68	1.2	0.65	M–LIA pottery (27: 236g) E–MIA pottery (5: 104g) Retouched flint flake (1: 4g) Animal bone (12 :85g)		
PB10	20824	Pit	Circular	Steeply sloping straight sides, flat base	1	1.11	0.5	M–LIA pottery (5: 35g) Animal bone (1: 4g) Burnt animal bone (1: 2g)		
PB10	20832	Pit	Sub-circular	Steeply sloping straight sides, flat base	1.2	1.12	0.38	Animal bone (5: 9g)		
PB10	20840	Pit	Sub-oval	Moderately sloping concave sides, flat base	1.43	1.43	0.34	M–LIA pottery (6: 99g) Fired clay (1: 12g)		
PB10	20863	Pit	Circular	Steeply sloping straight sides, flat base	1.42	1.31	0.83			220
PB10	20868	Pit	Sub-circular	Steeply sloping straight sides, flat base	1.2	1.2	0.42	M–LIA pottery (7: 55g) E–MIA pottery (2: 26g) Animal bone (2: 24g)		
PB10	20871	Pit	Circular	Steeply sloping straight sides, flat base	1.04	1.04	0.58	M–LIA pottery (2: 24g) E–MIA pottery (1: 12g) Animal bone (9: 1g) Burnt animal bone (18: 1g)		221
PB10	20892	Pit	Circular	Steeply sloping concave sides, flat base	1.05	1.05	0.38	M–LIA pottery (4: 62g) LIA/ER pottery (1: 3g) Animal bone (1: 3g) Burnt animal bone (51: 2g) Fired clay (3: 20g)		222

Group no.	Cut no.	Feature type	Shape	Description	Length (m)	Width (m)	Depth (m)	Summary of artefacts (count: weight)	Radiocarbon date (95.4% probability)	Sample no.
PB10	20902	Pit	Sub-circular	Steeply sloping concave sides, flat base	1.52	1.52	0.74	M–LIA pottery (9: 74g) Saddle quern (Ra. 23) Animal bone (25: 45g) Burnt animal bone (35: 14g) Fired clay (4: 128g)		223
PB10	20913	Pit	Circular	Steeply sloping concave sides, concave base	1.42	1.42	0.4	Flint arrowhead (1: 3g)		224
PB10	22335	Pit	Circular	Steeply sloping concave sides, concave base	1.67	1.7	0.6	Animal bone (1: 1g)		280

Key: E–MIA = Early to Middle Iron Age; M–LIA = Middle to Late Iron Age; LP = late prehistoric; RB = Romano-British; P-med/mod = Post-medieval to modern; CBM = Ceramic Building Material

Appendix 2
The Artefacts

A2.1: Early prehistoric pottery
By Pete Banks

Introduction and methodology

A total of 80 sherds (291g) of handmade early prehistoric pottery was recovered during excavation. The material was recovered by hand from five deposits and from five bulk soil samples (23 sherds, 28g). The majority of the early prehistoric pottery dates to the Middle Bronze Age (53 sherds, 83g), though a smaller Early Neolithic group is also recorded (27 sherds, 208g).

The pottery was recorded direct to a Microsoft Access database. This now forms part of the archive. The assemblage was examined by sherd count (NoSH) and weight by fabric. The fabrics (Table A2.1) are described in accordance with the national guidelines (Barclay *et al.* 2016) and those set out by the Prehistoric Ceramics Research Group (PCRG 2010). Vessel and rim forms have been recorded where the material has allowed for this; rim diameters have been measured (mm) together with estimated vessel equivalents (EVEs) and a minimum number of vessels (MNV), which are provided where possible. The minimum number of vessels used here is a value based on joining rim sherds and associated sherd 'families'. Decoration, surface treatment and residues have been recorded when present. The typology of the Early Neolithic forms is based on that used at Staines Causewayed Enclosure (Robertson-Mackay 1987).

Condition and provenance

The condition of the early prehistoric pottery is poor. Sherds exhibit signs of heavy abrasion and overall the group is highly fragmented. The mean sherd weight for the early prehistoric pottery is 3.7g.

The Early Neolithic assemblage was recovered from a small number of pits within Period 1 pit group PB3 while the Middle Bronze Age pottery derives from a number of cremation burials from Period 2 cremation cemetery A.

Assemblage range (Early Neolithic)

Fabrics, forms and stylistic affinities

For a relatively small group the Early Neolithic pottery is made in a diverse range of fabrics. Most common of these are shell-tempered fabrics (SH1). These shell-tempered fabrics are very corky, the calcareous material within them having leached, most likely the result of the hostile conditions of the burial environment. A small number of sherds made in fine sandy (Q1), sand and shell-tempered (QSH1) and flint and grog-tempered (FLGR1) fabrics are also recorded. The origin of the pottery is not precisely known but all fabrics were probably made locally. Raw materials used in these fabrics would have been readily available at a local level. The sandy and shelly fabrics would have been produced using clays from easily accessible deposits of Jurassic geologies and sandy river terraces around Northamptonshire and the Nene River Valley region (BGS 2026a) and the flint could have been sourced locally from riverine nodules. The use of grog-temper is more difficult to provenance given its anthropogenic origin; however, it is also most likely of local origin.

Rim sherds from three Early Neolithic plain bowls (MNV) were recovered from Period 1 pit group PB3. One externally expanded rim, probably from an open form (V16), is made in shell-tempered fabric SH1 (Period 1 pit 20171 (fill 20172)). A highly burnished, open uncarinated plain bowl (V16) with an expanded rim (FLGR1) and a small bowl (V17; rim diameter <180mm) with a crudely finished, simple upright rim (Q1) were recovered from of the same pit (fill 20173). Although Classic Carinated Bowls are known to begin as early as the late 5th millennium BC (*c.* 4095–3990 cal BC) (Barclay *et al.* 2018, 12) these vessels most probably belong to the Developed or Secondary Plain Bowl tradition and are probably slightly later in date *c.* 3800–3500 BC (Whittle *et al.* 2011, 761; Gibson 2024, 29). Period 1 pits 11979, 12170 and 20174 all produced early prehistoric pottery and each returned

Table A2.1: Summary of early prehistoric pottery by fabric

Period	Fabric description	Fabric code	Count	% of count	Wt (g)	% of wt	EVEs	MNV
Early Neolithic pottery	Common, moderately sorted, angular medium flint and moderate, poorly sorted, sub-round, medium grog. Dark brown/black ext. mid–light brown int. Flint <2mm red grog <2mm.	FLGR1	1	1.4	87	31.5	0.09	1
	Common, moderately sorted, sub-angular fine quartz. Red throughout. Quartz <0.5mm.	Q1	2	2.7	19	6.9	0.06	1
	Sparse, moderately sorted, sub-round, fine quartz and sparse, poorly sorted, medium shell or plate like voids. Buff ext. dark/mid brown int. Quartz <0.5mm, shell <2mm.	QSH1	2	2.7	9	3.3		
	Very common to abundant, poorly sorted, plate like voids. Mid brown throughout. Shell <2mm.	SH1	16	21.6	78	28.3	0.14	1
Middle Bronze Age pottery	Sparse, poorly sorted, sub-round, medium grog. Buff ext. black int. Buff/cream/orange grog < 2mm.	GR4	1	1.4	2	0.7		
	Common, poorly sorted, medium shell or plate like voids. Very corky and friable fabric. Mid brown int, reddish brown ext. Shell <2mm.	SH3	52	70.3	81	29.3		
		Total	**74**	**100**	**276**	**100**	**0.29**	**3**

Key: EVE = estimated vessel equivalents; MNV = a minimum number of vessels

radiocarbon dates supporting an Early Neolithic date (3632–3381 cal BC (SUERC-130092); 3618–3374 cal BC (SUERC-130091) and 3643–3528 cal BC (SUERC-130121) at 95.4% probability, respectively).

Form descriptions

V16 Open bowls with externally expanded rims and without a shoulder carination. 0.23 EVEs; 2 MNV. (Fig. A2.1, nos 1 and 2)

V17 Small bowl with simple upright rim. 0.06 EVEs; 1 MNV. (Fig. A2.1, no. 3)

Illustration catalogue (Early Neolithic) (Fig. A2.1)

1. Externally expanded rim, probably from plain bowl. Fabric: SH1. Form: V16. Period 1 pit 20171 (fill 20172).
2. Expanded rim, from plain, open (uncarinated) bowl. Surfaces highly burnished. Fabric: FLGR1. Form: V16. Period 1 pit 20171 (fill 20173).
3. Simple, crudely finished rim, from small bowl. Fabric: Q1. Form: V17. Period 1 pit 20171 (fill 20173).

Assemblage range (Middle Bronze Age)

Fabrics and stylistic affinities

A total of 53 sherds (83g) of shell-tempered pottery (SH3) was recorded from several cremation burials within cemetery A. Although diagnostic sherds were absent, a Middle Bronze Age date (*c.* 1500–1100 BC) is considered most likely, based on the fabrics and

Table A2.2: Rim diameters of Early Neolithic vessels (mm)

Form code	160–179mm	180–199mm	200–219mm	220–239mm	240–259mm	Total
V16			1		1	2
V17	1					1
Total	**1**	**0**	**1**	**0**	**1**	**3**

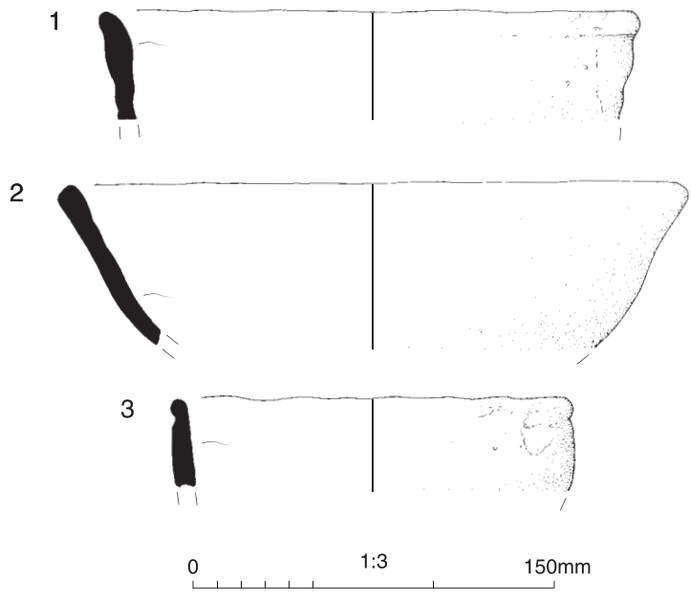


Fig. A2.1 Selected Early Neolithic pottery

characteristics of firing. This dating is supported by radiocarbon dates from cremated human bone recovered alongside pottery from Period 2 cremation cemetery A burials 11175 (fill 11177) and 11129 (fill 11130) (1492–1304 cal BC (SUERC-122135) and 1418–1266 cal BC (SUERC-130094), at 95.4% probability respectively, as well as from cremation burials within cemetery A that did not produce any pottery: cremation burials 11112, 11120 and 11194 (1496–1307 cal BC (SUERC-122136), 1434–1296 cal BC (SUERC-130093) and 1420–1279 cal BC (SUERC-130095) at 94.4% probability respectively. A single grog-tempered sherd (GR4) recovered from Period 2 cremation burial 11099 is probably contemporaneous with the cremation burials, although due to its small size and lack of diagnostic features dating remains uncertain.

Discussion

The pottery provides evidence for activity in the vicinity of the site during the Early Neolithic and Middle Bronze Age periods.

The deposition of Early Neolithic pottery into pits in pit group PB3 may have been broadly contemporaneous with the activity at Dallington Causewayed Enclosure approximately 3km north-east of the site. A flint assemblage that contained Early Neolithic components was recovered from the causewayed enclosure, although no Early Neolithic pottery was recovered (Chapman 2019a, 42). A significant assemblage of Early Neolithic pottery (1523 sherds) was recovered from Briar Hill, Northamptonshire, approximately 5km to the south-east of the site. Although a considerably larger assemblage, comparative forms can be recognised including both open uncarinated forms (Bamford 1985, 113, fig. 52, no. NP12) and small bowls (ibid., 114, fig. 53, no. NP32).

A2.2: Late prehistoric pottery

By Pete Banks

Introduction and methodology

A total of 3242 sherds (33,859g) of handmade late prehistoric pottery was recovered from the site. The assemblage was recovered by hand from 468 deposits and from 30 bulk soil samples (190 sherds, 462g). Late prehistoric pottery of Iron Age date was recovered from both Area A (1043 sherds, 17,481g) and Area B (2044 sherds, 15,914g). The trial trench evaluation phase of work produced 155 sherds (464g) of pottery (CA 2016b, 54).

The assemblage was recorded direct into a Microsoft Access database. The pottery was examined by context, using a x10 stereo microscope and quantified by sherd count (NoSH) and weight per fabric. Pottery fabrics are defined in accordance with national guidelines (Barclay *et al.* 2016) and those set out by the PCRG (2010). Vessel and rim forms have been recorded where the material has allowed for this; rim diameters have been measured (mm) together with estimated vessel equivalents (EVEs) and a minimum number of vessels (MNV), which are provided where possible. The minimum number of vessels used here is a value based on joining rim sherds and associated sherd 'families'. Decoration, surface treatment and residues have been recorded when present.

Condition and provenance (Table A2.3)

The condition of the pottery is variable although sherd surfaces and fractures overall exhibit moderate or heavy abrasion. The mean sherd weight for the assemblage is moderately high for a late prehistoric assemblage

Table A2.3: Summary of pottery by feature distribution

	Count	% of count	Wt	% of wt	EVEs	MNV
Area A						
Cremation burial	1	0.1	8	0.05		
Ditches	596	57.1	11460	65.6	5.71	58
Pits	393	37.7	5841	33.4	4.77	55
Postholes	41	3.9	38	0.2	0	1
Tree-throw holes	11	1.1	98	0.6	0.15	2
Unstratified	1	0.1	36	0.2		
Total	**1043**	**100**	**17481**	**100**	**10.63**	**116**
Area B						
Ditches	1223	59.8	8925	56.1	3.85	41
Layers	13	0.6	147	0.9	0.05	1
Pits	766	37.5	6659	41.8	3.28	34
Postholes	34	1.7	170	1.1		
Ring ditches	8	0.4	13	0.1	0.04	1
Total	**2044**	**100**	**15914**	**100**	**7.22**	**77**
Trial trench evaluation						
Ditches	32	20.6	93	20.0		
Pits	123	79.4	371	80.0	0.14	2
Total	**155**	**100**	**464**	**100**	**0.14**	**2**

Key: EVE = estimated vessel equivalents; MNV = a minimum number of vessels

at 10.4g. A notable feature of the assemblage is the apparent differences in fragmentation when comparing pottery from Areas A and B; the mean sherd weight for Area A was more than double that for Area B (16.8g compared to 7.7g). Rim EVEs (10.63:7.22) and minimum number of vessels (116:77) were also higher in Area A. The reasons for the disparities are unclear but may include factors such as differing depositional practices between the two areas or differences in the burial environment.

Over half of the assemblages (NoSH) from Areas A and B came from ditches, with pits the only other feature type to produce significant amounts of pottery from either area. The pottery from ditches in Area A, however, was less fragmented than the pottery from pits in the same area. The inverse is true of the pottery from Area B. Cremation burials, postholes, layers, natural features and ring ditches also produced nominal amounts of late prehistoric pottery (<4% NoSH).

Assemblage range

Fabrics (Table A2.4)

Grog and shell-tempered fabrics (GRSH1/GRSH2) dominate the assemblage, accounting for one third of all sherds. Also frequently recorded are grog-tempered (GR1–3), shell-tempered (SH4–6) and vesicular grog-tempered fabrics (GRV1–2), which make up roughly equal proportions of the assemblage (*c.* 13% NoSH each). Micaceous grog-tempered fabrics (GRM1–2), sand and shell-tempered fabrics (QSH1–2), sand and organic-tempered fabrics (QV1–2) and organic-tempered fabrics (V1–2) while uncommon are all present in enough quantities to form a noticeable part of the assemblage (4–6% NoSH each). Organic material was no longer present in these latter two fabrics (V1-2) and was recognised based on the organic shaped voids left in the matrix following the carbonisation of organic material during the firing process. Sandy grog-tempered fabrics (QGR1–2), shell and organic tempered fabrics (SHV1–2), sandy fabrics (Q2–3) and micaceous shell-tempered fabrics (SHM2) are all present in small quantities (<3% NoSH) while fabrics containing coarse rock (RGR2), granodiorite (GNV2) or quartzite (QZ2) are represented by only a few sherds (<1% NoSH).

Most of the fabrics probably represent production at a local level, with raw material such as clays containing sandy or shelly inclusions readily available in the Upper Nene Valley area of Northamptonshire. The inclusion of grog in many fabrics is more difficult to pin down, its source being anthropogenic. The only fabrics unlikely to have been made locally are those which include granodiorite. Such fabrics are associated with production in the Charnwood Forest region of

Table A2.4: Summary of late prehistoric pottery by fabric

	Fabric description	Fabric code	Ct	% of ct	Wt (g)	% of wt	EVEs	MNV
Late prehistoric pottery	Sparse, poorly sorted, angular, medium granodiorite and common, poorly sorted, medium organic voids. Granodiorite <3mm, organic voids <2mm.	GNV2	11	0.3	220	0.6		
	Moderate, moderately sorted, sub-round, fine grog. Light brown/buff int. dark brown ext. Black/grey grog <1mm.	GR1	32	1.0	177	0.5	0.1	2
	Moderate, poorly sorted, sub-round, medium grog. Light brown/buff surface. Dark brown/greyish brown cores and buff ext. black int. Red/grey/buff grog <2mm.	GR2	381	11.8	6815	20.1	3.12	24
	Common, poorly sorted, sub-angular, coarse grog. Mid-brown surfaces and black core. Light grey grog <3mm.	GR3	11	0.3	126	0.4		
	Very common to abundant, well-sorted, sub-round, fine grog and very common to abundant, well-sorted, fine silver mica. Dark brown or orange throughout. Grey/buff grog <1mm, mica <0.1mm.	GRM1	45	1.4	352	1.0	0.63	7
	Fine silty matrix. Moderate to common, poorly sorted, sub-round, medium grog and very common to abundant, well-sorted, fine silver mica. Mid-brown surfaces, greyish brown core. Black/red grog <2mm, mica <0.1mm.	GRM2	153	4.7	1274	3.8	0.43	5
	Moderate, poorly sorted, sub-angular, fine grog and sparse, moderately sorted, fine shell. Buff ext. black int. Black/grey grog <1mm, shell <1mm.	GRSH1	268	8.3	2795	8.3	1.55	22
	Moderate, poorly sorted, sub-angular, medium grog and sparse, moderately sorted, fine shell or plate like voids. Black throughout. Reddish brown/mid-brown/buff surfaces. Greyish brown dark brown cores. Grey/red/buff grog <2mm, shell <0.5mm.	GRSH2	848	26.2	9516	28.1	4.64	49
	Fine silty matrix. Sparse, poorly sorted, sub-angular, fine grog and sparse, moderately sorted, medium unknown voids (poss. shell or organic). Black throughout. Grey-brown grog <1mm, voids <2mm.	GRV1	41	1.3	377	1.1	0.38	7
	Fine silty matrix. Sparse, moderately sorted, sub-round, medium grog and sparse, moderately sorted, medium unknown voids (poss. shell or organic). Dark brown/black throughout with buff patches. Dark grey/red grog <2mm, voids <2mm.	GRV2	362	11.2	4404	13.0	2.47	23
	Common, moderately sorted, sub-angular, fine quartz. Dark brown/black. Quartz <0.5mm.	Q2	25	0.8	232	0.7	0.28	3
	Abundant, moderately sorted, sub-round, fine quartz. Buff/orange throughout. Quartz <0.5mm. Very distinct from other sandy fabric Q1.	Q3	11	0.3	67	0.2	0.07	1
	Common, well-sorted, sub-round, fine grog and sparse, well-sorted, sub-round fine quartz. Black throughout. Red grog <1mm, quartz <0.5mm.	QGR1	6	0.2	97	0.3	0.11	1
	Moderate, moderately sorted, sub-round medium quartz and sparse, poorly sorted, sub-round, medium grog. Orange throughout. Black int. buff ext. Quartz <1mm, orange/buff grog <2mm, occasional flint <2mm.	QGR2	77	2.4	918	2.7	0.95	9
	Moderate to common, well-sorted, sub-round, fine quartz and sparse to moderate, moderately sorted, fine shell. Mid–dark brown or orange throughout. Quartz <0.5mm, shell <1mm.	QSH2	16	0.5	224	0.7	0.17	2

Table A2.4 (cont.): Summary of late prehistoric pottery by fabric

Fabric description	Fabric code	Ct	% of ct	Wt (g)	% of wt	EVEs	MNV
Moderate, moderately sorted, sub-round medium quartz and moderate, poorly sorted, medium shell. Buff ext. black int. Quartz <1mm, shell <3mm.	QSH3	120	3.7	1019	3.0	0.8	6
Common, well-sorted, sub-round, fine quartz and common, moderately sorted, medium organic voids. Mid–dark brown/black throughout. Orange ext. black int. Quartz <0.5m, organic voids <2mm.	QV1	43	1.3	218	0.6	0.12	1
Common, well-sorted, sub-round, medium quartz and sparse, poorly sorted, medium organic voids. Mid-brown ext. orange int/orange ext. black int. Quartz <1mm, organic voids <2mm.	QV2	110	3.4	891	2.6	0.68	7
Common, poorly sorted, angular, medium quartzite. Dark brown throughout. Quartzite <2mm.	QZ2	1	0.03	9	0.0		
Moderate, moderately sorted, angular, medium rock and moderate, poorly sorted, sub-angular, coarse grog. Dark brown surfaces and reddish brown core. Rock <2mm, Red grog <4mm.	RGR2	2	0.1	67	0.2		
Abundant, well-sorted, fine shell. Light/mid-brown surfaces. Black core. Shell <1mm.	SH4	41	1.3	552	1.6	0.2	3
Very common to abundant, moderately sorted, medium plate like voids/shell. Buff ext. dark brown/black int. Dark brown/black throughout. Shell <2mm.	SH5	372	11.5	1830	5.4	0.67	11
Common, poorly sorted, coarse shell or plate like voids. Orange surfaces. Buff cores. Shell <5mm.	SH6	3	0.1	96	0.3		
Fine silty matrix. Sparse, moderately sorted, medium shell or plate like voids and abundant, moderately sorted, fine silver mica. Mid brown ext./int. grey brown core. Shell <2mm mica <0.2mm.	SHM2	4	0.1	29	0.1	0.04	1
Common, moderately sorted, fine shell or plate like voids and sparse poorly sorted, fine to medium organic voids. Red-brown ext. Mid–dark brown int. Shell <1mm, organic voids <1mm.	SHV1	38	1.2	286	0.8	0.05	1
Moderate to common, poorly sorted, coarse shell or plate like voids and sparse, poorly sorted coarse organic voids. Reddish brown ext. dark brown int. Shell <3mm, organic voids <3mm.	SHV2	5	0.2	36	0.1		
Fine silty matrix. Moderate, moderately sorted, fine organic voids. Mid–dark brown surfaces. Black core or orange surfaces buff–light brown core. Organic voids <1mm.	V1	57	1.8	399	1.2	0.15	5
Common, poorly sorted, medium unknown voids. (Poss. mix of shell and organic.) Black/dark-brown ext. red-brown core. Voids <2mm.	V2	159	4.9	833	2.5	0.38	5
Total		**3242**	**100**	**33859**	**100**	**17.99**	**195**

Key: EVE = estimated vessel equivalents; MNV = a minimum number of vessels

Leicestershire and are known to have been traded in the Northamptonshire area (Blinkhorn *et al.* 2015).

Forms (Tables A2.5 and A2.6)

Based on rim sherd count a minimum of 195 late prehistoric vessels are recorded (17.99 EVEs). Due to the variable levels of fragmentation it was not always possible to fully determine the profile of the vessel, in such cases a generic jar/bowl category has been assigned and the rim type described. The earliest vessels recorded are a number of shouldered jars (V1) and bowls (V7), tall-necked jars (V2) and a single example of a carinated bowl (V8) all with simple upright, everted or externally expanded rims. A strong-shouldered vessel (V15), which on the basis of its small rim diameter (approximately 70mm) is identified as a cup, is thought to be contemporaneous with the larger strong-shouldered vessels. These strong-shouldered forms with taller necks are suggestive of an Early to early Middle Iron Age date (*c.* 600–250/200 BC), although the scarcity of carinated bowls probably favours a date closer to *c.* 400 BC (Chapman 2023, 110). T-shaped and externally expanded rims and two lug handles, all chronologically characteristic of Early Iron Age activity, are also present. More frequently recorded, however, are slack-shouldered jars (V3) and bowls (V11), ovoid or round bodied jars (V4) and bowls (V10) and globular jars (V5) and bowls (V12) and hemispherical, open bowls (V9). An individual example of a straight-sided bowl (V13) was also recorded. These vessels, which tend to have shorter necks, are commonly associated with Middle to Late Iron Age activity in the Northamptonshire region (Wells 2021, 59; Chapman 2023, 110) and outnumber the Early Iron Age forms by nearly 3:1 (MNV). The small number of open bowls (V9) also recorded can be broadly dated to the Iron Age.

Table A2.5: Summary of pottery by vessel/rim form

Form code	EVEs	% of EVEs	MNV	% of MNV
V1	2.01	11.2	13	6.7
V2	0.12	0.7	2	1
V3	2.39	13.3	13	6.7
V4	0.94	5.2	13	6.7
V5	0.91	5.1	8	4.1
V6	0.75	4.2	7	3.6
V7	0.74	4.1	6	3.1
V8	0.17	0.9	1	0.5
V9	1.02	5.7	8	4.1
V10	2.34	13.0	21	10.8
V11	0.06	0.3	1	0.5
V12	0.17	0.9	1	0.5
V13	0.1	0.6	1	0.5
V14	0.24	1.3	2	1
V15	0.12	0.7	1	0.5
L	0.05	0.3	1	0.5
R1	0.11	0.6	2	1
R2	0.56	3.1	12	6.2
R3	0.73	4.1	15	7.7
R4	3.8	21.1	56	28.7
R5	0.66	3.7	11	5.6
Total	**17.99**	**100**	**195**	**100**

Key: EVE = estimated vessel equivalents; MNV = a minimum number of vessels

Jars (7.12 EVEs; 56 MNV)

V1 Shouldered jars with simple upright, flat-topped or externally expanded rims. 2.01 EVEs; 13 MNV. (Figs A2.2–A2.5, nos 14, 22, 24 and 45; Fig. A2.6, nos 9, 10, 12 and 13)

V2 Tall-necked jars with simple upright or flat-topped rims. 0.12 EVEs; 2 MNV.

V3 Slack-shouldered jars with simple upright, everted or flat-topped rims. 2.39 EVEs; 13 MNV. (Figs A2.2–A2.5, nos 3, 8, 12, 23, 37, 40 and 44; Fig. A2.6–A2.7, nos 3, 11 and 19)

V4 Ovoid/round bodied jars with simple upright, everted or flat-topped rims. 0.94 EVEs; 13 MNV. (Figs A2.3–A2.5, nos 25, 26, 30, 39 and 54; Fig. A2.6, no. 7)

V5 Globular jars with simple upright, everted or flat-topped rims. 0.91 EVEs; 8 MNV. (Figs A2.2–A2.5, nos 6, 10, 20, 36, 47 and 52; Fig. A2.6, no. 7)

V6 Jars of indeterminate form with simple upright, everted, flat-topped or externally expanded rims. 0.75 EVEs; 7 MNV. (Figs A2.3, no. 16; A2.5, no. 48; A2.6, no. 8)

Bowls (4.84 EVEs; 41 MNV)

V7 Shouldered bowls with simple upright, everted or externally expanded rims. 0.74 EVEs; 6 MNV. (Figs A2.2–A2.5, nos 7, 32, 46 and 50; Fig. A2.7, nos 14 and 16).

V8 Carinated bowls with everted rims. 0.17 EVEs; 1 MNV. (Fig. A2.7, no. 20)

V9 Hemispherical open bowls with simple upright, everted or flat-topped rims. 1.02 EVEs; 8 MNV. (Figs A2.2–A2.5, nos 9, 34, 35, 38 and 51; Fig. A2.7, no. 15)

V10 Round bodied or ovoid bowls with simple upright, everted or flat-topped rims. 2.34 EVEs; 21 MNV. (Figs A2.2–A2.5, nos 1–2, 4–5, 11, 15, 17–19, 21, 27–28, 42–43 and 53; Fig. A2.6–A2.7, nos 1–2, 5 and 17–18)

V11 Slack-shouldered bowls with simple upright rims. 0.06 EVEs; 1 MNV. (Fig. A2.5, no. 41)

V12 Globular bowls with flat-topped rims. 0.17

Table A2.6: Summary of identifiable vessels by rim diameter (mm)

Form code	<100mm	100–119mm	120–139mm	140–159mm	160–179mm	180–199mm	200–219mm	220–239mm	240–259mm	260–279mm	280–299mm	>300mm	Unmeasured	Total
V1			2	2	2	3		1	1				2	**13**
V2							1	1						2
V3		3	1	5	2	1						1		13
V4		1	3	5	2	2								13
V5		1	3	1	1	2								8
V6			1	1	3	1		1						7
V7			2	1	3									6
V8		1												1
V9		1	2	1	2	1	1							8
V10		4	3	5	8		1							21
V11				1										1
V12						1								1
V13				1										1
V14				1	1									2
V15	1													1
Total	1	11	17	24	24	11	3	3	1	0	0	1	2	98

EVEs; 1 MNV. (Fig. A2.3, no. 21)

V13 Straight-sided bowls with simple upright rims. 0.1 EVEs; 1 MNV. (Fig. A2.3, no. 13)

V14 Indeterminate bowls with simple upright rims. 0.24 EVEs; 2 MNV.

Cups (0.12 EVEs; 1 MNV)

V15 Shouldered cup with simple upright rims. (Fig. A2.6, no. 4)

Lid (0.05 EVEs; 1 MNV).

L Possible lid. (Fig. A2.4, no. 31)

Jar/bowls (EVEs; MNV).

R1 T-shaped rims. 0.11 EVEs; 2 MNV.

R2 Externally expanded rims. 0.56 EVEs; 12 MNV.

R3 Flat-topped rims. 0.73 EVEs; 15 MNV.

R4 Simple upright rims. 3.8 EVEs; 56 MNV. (Fig. A2.4, no. 33)

R5 Everted rims. 0.66 EVEs; 11 MNV. (Fig. A2.4, no. 29)

Decoration and stylistic affinities (Table A2.7)

Decoration and surface treatments are an uncommon feature of the assemblage, recorded on just over 10% of sherds (NoSH) (Table A2.7). Impressed fingertip decoration was recorded from six sherds, all to the rim top (Figs A2.2, nos 4 and 12; A2.6, nos 8 and 13). Such decoration is commonly associated with Early or early Middle Iron Age activity (*c.* 600–250/250 BC) (Chapman 2023, 110). The absence of fingertip decorations to other parts of the vessel and its appearance on Middle Iron Age forms may suggest a date towards the beginning of the Middle Iron Age. Also indicative of Early to Middle Iron Age activity are three sherds which exhibit incised decorative motifs. One sherd decorated with incised 'swags' is consistent with Cunliffe's (2009) Chinnor-Wandlebury style zone (*c.* 5th–3rd centuries BC) (Fig. A2.5, no. 49) and a single sherd decorated with a grooved linear pattern, possibly representative of Darmsden-Linton style decoration is probably of similar date and most probably intrusive in Period 2 (Middle Bronze Age) cremation burial 11099 (fill 11100). Two other sherds, one from a carinated bowl and one from a shouldered jar, are decorated with incised linear bands; both the form and the style of decoration are indicative of an Early Iron Age date. One jar is decorated with both a fingertip impressed rim and incised linear bands (Fig. A2.6, no. 8). The overall scarcity of decoration is probably indicative of the largely Middle to Late Iron Age (400 BC–1 AD) dating for the majority of the assemblage; this is a period when plainer pottery prevailed. A single example of La Tène style burnished decoration (Period 4 Phase 4.2 (Middle Iron Age) pit 12427 (fill 12430; pit/posthole group PA3)) and two sherds decorated with impressed rows of dots between linear bands (Period 4 Phase 4.2 ditch A7A (cut 12437, fill 12448) and Period 9 (post-medieval/modern) ditch AZ (cut 10031, fill 10032) (Figs A2.2–A2.5, nos 5 and 43) are also recorded. The latter style of decoration was observed on similar bowls from Hunsbury, Northamptonshire (Fell 1936, 75) and together with the La Tène decoration can be dated to the late Middle to Late Iron Age (*c.* 2nd to 1st centuries BC). Although combing is known from both Late Iron Age and Early Roman material in the region, a Late Iron Age date is favoured for a single example of combing exhibited on a handmade, shelly grog-tempered sherd (Period 4 Phase 4.2 ditch B4A (cut 20360, fill 20367)).

Table A2.7: Summary of pottery by decoration/surface treatment

Decoration type	Count	% of total count
Burnished	179	5.52
Combed	1	0.03
Fingertip (rim)	7	0.22
Fingertip (rim)/incised	1	0.03
Grooved	1	0.03
Impressed	2	0.06
Incised	11	0.34
La Tène	1	0.03
Scored	119	3.67
Scored/Fingertip (rim)	3	0.09
Wiped	1	0.03
Total	**326**	**10.05**

Surface treatments are a more common feature of the assemblage, with both burnishing and scoring recorded on just under 300 sherds. The scoring on 122 sherds is consistent with East Midlands Scored Wares and Northampton is located in the heartland of the tradition. This technique commenced during the 5th/4th centuries BC and has currency as late as the 1st century AD (Knight 2002, 134). Scoring was rarely seen on identifiable vessels in the assemblage but where it was vessels tended to be slack-shouldered or ovoid types. It was largely associated with shelly/shelly grog-tempered fabrics (SH4–6/GRSH1–2) and on five sherds with granodiorite-tempered fabrics (GNV2). The scoring noted within the assemblage tends to be boldly incised with some instances of crosshatching on the upper body of vessels (Figs A2.2–A2.3, nos 7, 17, 23 and 25). It has been suggested that these characteristics are more common among later Scored Ware assemblages (*c.* 250/200 BC–1 AD) (Chapman 2023, 110–1). Burnishing is more frequently recorded (179 sherds) and is also commonly associated with Middle to Late Iron Age activity. Burnishing was recognised on a number of vessel types most of which are likely from

Middle to Late Iron Age tradition; slack-shouldered and ovoid jars and round bodied bowls, although a few examples of burnishing did appear on shouldered jars or bowls. Although also common in shelly grog-tempered fabrics (GRSH1–2) a higher proportion of burnished sherds were recorded in grog-tempered fabrics (GR2/GRV2). This may represent a slightly later chronology towards the later Middle or Late Iron Age periods. A round bodied bowl (Fig. A2.5, no. 45) exhibits clear finger-wipe marks on the exterior surface.

Evidence of use

Surface residues preserved well on a number of sherds; a total of 192 sherds was recorded with carbonised residues. Sooting, carbonised residue adhered to the exterior surface of a vessel, was very common (160 sherds) and, although most occurred on unfeatured body sherds, a minimum of 40 identifiable vessels exhibit sooted residues. Over half of these were round bodied or ovoid jars and bowls (V4/V10), slack-shouldered jars and globular jars. It might be suggested that these vessels were favoured for cooking and sooting residues are the result of them being placed in – or close to – a heat source. Burnt food residues adhered to the interior surface of the vessel are less common (32 sherds) and were largely recorded on unfeatured body sherds. A slack-shouldered and a globular jar were the only vessels to preserve carbonised food residues, both of which produced evidence of dairy fats (Appendix A2.4, Davis *et al.)*. In both cases they were also found with sooted residues on the exterior, which does tend to support the evidence that they were used for cooking. Residues are entirely absent from all vessels identified as open bowls (V9). Although their absence does not provide conclusive evidence for function, it has been suggested that these bowls may have been used for dairying in much the same way as a post-medieval pancheon, thus making it unlikely that visible surface residues would remain (Chapman 2015c, 45).

Five of the seven vessels sampled dating to the Early to Middle Iron Age, comprising four shouldered jars (V1) and a shouldered bowl (V7), contained evidence of dairy fats. None of these vessels contained evidence for ruminant adipose fats (Davis *et al.*, Appendix A2.4), whereas at least three Middle to Late Iron Age vessels sampled, all ovoid vessels (V4/V10) and including a Hunsbury Bowl, returned evidence of such fats (ibid.). A globular jar (V5) provided evidence for the processing of leafy plants and a slack-shouldered jar (V3) for the potential processing of beeswax or honey (ibid.).

The majority of vessels are of small to medium size with most rim diameters between 100mm and 190mm and particular focus on vessels with rim diameters between 120mm and 170mm (Table A2.6). The small cup is the only vessel with a rim diameter of less than 100mm and only eight vessels were recorded with rim diameters between 200mm and 300mm. It was not possible to measure the rim diameters of two vessels. Where the assemblage allowed for comparison, the tight clustering of vessel sizes and preserved carbonised residues might suggest that the ceramics recovered from the site were used for the preparation of foodstuffs at a relatively small scale, perhaps for a small or extended family group rather than large feasting events.

Stratigraphy and dating (Table A2.8)

Period 3: Late Bronze Age/Early Iron Age

Late Bronze Age/Early Iron Age features produced only a small group of pottery (151 sherds; 986g). Most common are shelly grog (GRSH1–2), shell-tempered (SH5) and grog-tempered fabrics (GR2). Vesicular (V2) and sandy fabrics (Q2/QV2/QSH3) are present in small numbers. The only rim form recovered from Period 3 features was an externally expanded rim (R2).

Period 4 Phase 4.1: Middle to Late Iron Age

A moderately sized group of pottery (1061 sherds, 8201g) was recovered from Period 4 Phase 4.1 (Middle to Late Iron Age) deposits. The use of shelly grog (GRSH1–2), shell-tempered (SH4–6) and grog-tempered fabrics (GR1–2) remains common, although there is a greater reliance on mixed fabrics (GRV1–2/GRM1-2/QSH1–2/QV1–2). Plain sandy fabrics (Q2) remain uncommon but vesicular fabrics (V1–2) are seen more often. Identifiable vessel forms are more common and while five shouldered jars (V1; Period 4 Phase 4.1 roundhouse RB4 (cut 21290), ditch B1L (cut 21592), ditch B2A (cut 22085), ditch B12A (cut 22549) and pit 20916 (pit/posthole group PB2)), a shouldered bowl (V7; Period 4 Phase 4.1 pit 20921 (pit/posthole group PB2)), a carinated bowl (V8; Period 4 Phase 4.1 ditch B10A (cut 21510)) and five externally expanded rims (R2; Period 4 Phase 4.1 roundhouse RB7 (cut 20696), ditch B10A (cut 21656), ditch B3A (cut 21952), pit 21835 and roundhouse RB4 (cut 21267)) are possibly residual, their presence in Period 4 Phase 4.1 deposits may suggest that these features are more closely associated with the transitional period between the Early and earlier Middle Iron Ages (600–250/200 BC). Vessels more consistent with Middle and Late Iron Age dating (250/200 BC–1AD) are present in smaller quantities: slack-shouldered jars (V3; Period 4 Phase 4.1 ditches B1L (cut 21592) and B2C (cut 22378)), round bodied bowls (V10; Period 4 Phase 4.1 ditch B1L (cut 21592) and pit 21189 (pit/posthole group PB2)) and a globular bowl (V12; Period 4 Phase 4.1 ditch B1L (cut 21592)). Fingertip impressed rims and incised vessel decoration, both likely to be of Early or early Middle Iron Age origin, also occur (Period 4 Phase 4.1 pit 20916 (pit/posthole group PB2) and ditches B10A (cut 21510) and B12A (cut 22549)). Burnishing (37 sherds) and scored surfaces (20 sherds) are present in roughly equal quantities but as an overall proportion of

Table A2.8: Summary of pottery fabrics by stratigraphic period

Fabric codes	Unphased		Period 2 (MBA)		Period 3 (LBA/EIA)		Period 4 Phase 4.1 (M–LIA)		Period 4 Phase 4.2 (M–LIA)		Period 5 (LIA/ER)		Period 9 (P-med/mod)		Total	
	Ct	Wt (g)	Ct	Wt (g)	Ct	Wt (g)	Ct	Wt (g)	Ct	Wt (g)	Ct	Wt (g)	Ct	Wt (g)	Ct	Wt (g)
GNV2									11	220					**11**	**220**
GR1	1	15					7	42	24	120					**32**	**177**
GR2					27	130	90	1149	259	5401	2	15	3	120	**381**	**6815**
GR3									11	126					**11**	**126**
GRM1	2	3					7	73	35	266			1	10	**45**	**352**
GRM2	2	17					94	763	57	494					**153**	**1274**
GRSH1	2	57			5	70	90	436	164	2189	7	43			**268**	**2795**
GRSH2	6	50			27	370	337	2820	450	6047	28	229			**848**	**9516**
GRV1	3	27					8	47	30	303					**41**	**377**
GRV2	4	43			4	51	71	877	280	3416			3	17	**362**	**4404**
Q2	1	44	1	8	1	2	11	36	11	142					**25**	**232**
Q3									11	67					**11**	**67**
QGR1									5	96			1	1	**6**	**97**
QGR2	2	14					22	102	52	779	1	23			**77**	**918**
QSH2							6	82	10	142					**16**	**224**
QSH3					12	55	81	681	25	249	2	34			**120**	**1019**
QV1							9	25	26	150					**35**	**175**
QV2	1	13			8	43	8	81	99	783	2	14			**118**	**934**
QZ2									1	9					**1**	**9**
RGR2									1	32	1	35			**2**	**67**
SH4	1	4					13	88	27	460					**41**	**552**
SH5	1	9			63	239	133	611	175	971					**372**	**1830**
SH6							1	4	2	92					**3**	**96**
SHM2							1	6	3	23					**4**	**29**
SHV1									38	286					**38**	**286**
SHV2							2	10	3	26					**5**	**36**
V1							2	30	55	369					**57**	**399**
V2					4	26	68	238	83	556	2	3	2	10	**159**	**833**
Total	**26**	**296**	**1**	**8**	**151**	**986**	**1061**	**8201**	**1948**	**23814**	**45**	**396**	**10**	**158**	**3242**	**3859**

Key: Wt = weight; Ct = count; MBA = Middle Bronze Age; LBA/EIA = Late Bronze Age/Early Iron Age; M–LIA = Middle to Late Iron Age; LIA/ERB = Late Iron Age/Early Roman; P-med/mod = Post-medieval/modern

the assemblage they are relatively insignificant (3% and 1% respectively).

Period 4 Phase 4.2: Middle to Late Iron Age

The largest group of late prehistoric pottery derives from Period 4 Phase 4.2 features (1948 sherds; 23,814g). Shelly grog-tempered fabrics (GRSH1–2) again comprise the largest fabric group, accounting for over 20% (NoSH) of the Phase 4.2 pottery. Overall the fabric profile of the Phase 4.2 assemblage is similar to that of the Period 4 Phase 4.1 group, although in almost all cases quantities increase by both count and weight in the later period. The range of vessel forms exhibits greater diversity than the preceding periods. A minimum of 148 vessels are identified by rim count from Phase 4.2 features spread across 13 vessel types (V1–V7, V9–V11 and V13–V15). Although strong-shouldered vessels (V1/V7/V15) are still recorded, these are most probably residual and more subtle vessel profiles dominate the group. Slack-shouldered (V3) and ovoid jars (V4) and round bodied bowls (V10) with shorter necks are most frequently recorded, and the Phase 4.2 assemblage accounts for most of their numbers.

Decoration and surface treatments are also more common and, although instances of fingertip rim-top decoration still occur, examples of incised decorative techniques drop from 11 recorded incidents to none. Surface treatments such as burnishing and scoring become a greater part of the assemblage, proportionally increasing to just under 7% and 5% respectively (NoSH) in Phase 4.2. The first occurrences of Late Iron Age decorative techniques are noticed during this phase with single examples of La Tène decoration and Hunsbury-type bowls (Phase 4.2 pit 12427 (fill 12430, pit/posthole group PA3) and ditch A7A (cut 12437, fill 12448) respectively).

Period 5: Late Iron Age/Early Roman

A small assemblage (45 sherds, 396g) of handmade late prehistoric pottery is recorded from Period 5 (Late Iron Age/Early Roman) features. Fabrics include grog-tempered (GR2), shelly grog-tempered (GRSH1–2), sandy grog-tempered (QGR2), sand and shell-tempered (QSH2), sandy organic-tempered (QV2) and vesicular (V2) wares. An ovoid jar (V4) and an open bowl (V9) are the only two vessels recorded. This group of late prehistoric pottery is most probably residual.

Period 9: Post-medieval/modern

Ten sherds (158g) of late prehistoric pottery are recorded as residual in post-Roman features attributed to Period 9 (post-medieval/modern), including the second example of a Hunsbury-type bowl (Period 9 ditch AZ (cut 10031, fill 10032)).

Illustration catalogue (late prehistoric) (Figs A2.2–A2.5)

AREA A

Fig. A2.2

1. Round bodied bowl with simple upright rim. Fabric: GRSH1. Form V10. Period 4 Phase 4.2 pit 10318 (fill 10319; pit/posthole group PA4).
2. Round bodied bowl with simple upright rim. Fabric: GR2. Form V10. Period 4 Phase 4.2 roundhouse RA8.1 (cut 10818, fill 10819).
3. Slack-shouldered jar with simple upright rim. Fabric: QGR2. Form: V3. Period 4 Phase 4.2 ditch AU (cut 10063, fill 10064).
4. Round bodied bowl with flat-topped, fingertip impressed rim and scored surface. Fabric: GRSH2. Form: V10. Period 4 Phase 4.2 pit 11027 (fill 11028; pit/posthole group PA4).
5. Round bodied bowl with everted rim and decorated with a row of impressed dots between impressed parallel lines (Hunsbury Bowl). Fabric: GRM2. Form: V10. Period 9 (post-medieval/modern) ditch AZ (cut 10031, fill 10032).
6. Globular jar with simple upright rim. Fabric: GRSH2. Form: V5. Period 4 Phase 4.2 roundhouse RA8.1 (cut 10798, fill 10799).
7. Sharp shouldered bowl with simple upright rim. Fabric: GRSH2. Form: V7. Period 4 Phase 4.2 pit 11027 (fill 11028; pit/posthole group PA4).
8. Slack-shouldered jar with simple upright rim. Fabric: GRSH2. Form: V3. Period 4 Phase 4.2 pit 11027 (fill 11028; pit/posthole group PA4).
9. Open bowl with simple upright rim. Fabric: GRM2. Form: V9. Period 4 Phase 4.2 ditch A4A (cut 11203, fill 11206).
10. Globular jar with simple upright rim. Fabric: GRSH2. Form: V5. Period 4 Phase 4.2 pit 11027 (fill 11028; pit/posthole group PA4).
11. Round bodied bowl with simple upright rim. Fabric: Q1. Form: V10. Period 4 Phase 4.2 ditch A4A (cut 11203, fill 11206).
12. Straight-sided bowl with simple upright rim. Fabric: QGR2. Form: V13. Period 4 Phase 4.2 pit 11332 (fill 11335; pit group PA7).

Fig. A2.3

13. Slack-shouldered jar with simple upright fingertip impressed rim. Fabric: QV2. Form: V3. Period 4 Phase 4.2 ditch A4.3A (cut 11214, fill 11216).
14. Shouldered jar with expanded rim. Fabric: GRSH1. Form: V1. Period 4 Phase 4.2 ditch A4A (cut 11203, fill 11206).

15. Jar with expanded rim. Fabric: GR2. Form: V6. Period 4 Phase 4.2 ditch A4.3A (cut 11218, fill 11219).
16. Round bodied bowl with simple upright rim. Fabric: GRV2. Form: V10. Period 4 Phase 4.2 pit 11332 (fill 11335; pit group PA7).
17. Round bodied bowl with in-turned rim. Fabric: QGR2. Form: V10. Period 4 Phase 4.2 pit 11332 (fill 11338; pit group PA7).
18. Round bodied bowl with simple upright rim. Fabric: QGR2. Form: V10. Period 4 Phase 4.2 pit 11332 (fill 11338; pit group PA7).
19. Round bodied bowl with simple upright rim. Fabric: GRV2. Form: V10. Period 4 Phase 4.2 pit 11332 (fill 11339; pit group PA7).
20. Globular jar with flat-topped rim. Fabric: GR2. Form: V5. Period 4 Phase 4.2 pit 11332 (fill 11339; pit group PA7).
21. Round bodied bowl with simple upright rim. Fabric: GR2. Form: V10. Period 4 Phase 4.2 pit 11332 (fill 11339; pit group PA7).
22. Shouldered jar with simple upright rim. Fabric: GR2. Form: V1. Period 4 Phase 4.2 pit 11332 (fill 11339; pit group PA7).
23. Slack-shouldered jar with simple upright rim and scored surface. Fabric: GRSH1. Form: V3. Period 4 Phase 4.2 pit 11341 (fill 11342; pit group PA7).
24. Shouldered jar with externally expanded rim. Fabric: GRV2. Form: V1. Period 4 Phase 4.2 pit 11332 (fill 11339; pit group PA7).
25. Round bodied/ovoid jar with simple upright rim and scored surface. Fabric: GRSH2. Form: V4. Period 4 Phase 4.2 pit 11341 (fill 11342; pit group PA7).
26. Round bodied/ovoid jar with simple upright rim. Fabric: GRSH2. Form: V4. Period 4 Phase 4.2 pit 11341 (fill 11342; pit group PA7).

Fig. A2.4

27. Round bodied bowl with simple upright rim. Fabric: GRSH2. Form: V10. Period 4 Phase 4.2 pit 11341 (fill 11342; pit group PA7).
28. Round bodied bowl with simple upright rim. Fabric: SH3. Form: V10. Period 4 Phase 4.2 pit 11341 (fill 11342; pit group PA7).
29. Vessel with everted rim. Fabric: GR2. Form: R5. Period 4 Phase 4.2 pit 11341 (fill 11342; pit group PA7).
30. Round bodied/ovoid jar with simple upright rim. Fabric: GRSH2. Form: V4. Period 4 Phase 4.2 pit 11341 (fill 11342; pit group PA7).
31. ?Lid. Fabric: V1. Period 4 Phase 4.2 pit 11341 (fill 11342; pit group PA7).
32. Shouldered bowl with simple upright rim. Fabric: GRV2. Form: V7. Period 4 Phase 4.2 ditch A4.2A (cut 11521, fill 11525).
33. Tall-necked, slack-shouldered vessel with simple upright rim. Fabric:SH4. Form: R4 Period 4 Phase 4.2 pit 11341 (fill 11342; pit group PA7).
34. Open bowl with simple upright rim. Fabric: QGR1. Form: V9. Period 4 Phase 4.2 ditch A4.2A (cut 11400, fill 11401).
35. Open bowl with simple upright (slightly beaded) rim. Fabric: GRV2. Form: V9. Period 4 Phase 4.2 ditch A4.2A (cut 11521, fill 11525).
36. Globular jar with flat-topped rim. Fabric: GRV2. Form: V5. Period 4 Phase 4.2 ditch A4.1A (cut 11652, fill 11656).
37. Slack-shouldered jar with simple upright rim. Fabric: GRV2. Form: V3. Period 4 Phase 4.2 ditch A4.2A (cut 11521, fill 11525).
38. Open bowl with simple upright rim. Fabric: GRM1. Form: V9. Period 4 Phase 4.2 ditch A4.1A (cut 11672, fill 11673).
39. Slack-shouldered jar with simple upright rim. Fabric: GRSH2. Form: V3. Period 4 Phase 4.2 ditch A2A (cut 11920, fill 11926).
40. Round bodied/ovoid jar with simple upright rim. Fabric: GR2. Form: V4. Period 4 Phase 4.2 ditch A1A (cut 12075, fill 12076).

Fig. A2.5

41. Slack-shouldered bowl with simple upright rim. Fabric: GRV2. Form: V11. Period 4 Phase 4.2 pit 12113 (fill 12114).
42. Round bodied bowl with simple upright rim. Fabric: V2. Form: V10. Period 4 Phase 4.2 ditch A7A (cut 12483, fill 12484).
43. Round bodied bowl with everted rim, decorated with incised horizontal lines and rows of impressed dots (Hunsbury Bowl). Fabric: GR2. Form: V10. Period 4 Phase 4.2 ditch A7A (cut 12437, fill 12448).
44. Slack-shouldered jar with simple upright rim. Fabric: GRSH2. Form V3. Period 4 Phase 4.2 pit 12427 (fill 12429; pit/posthole group PA3).
45. Shouldered jar with externally expanded upright rim and impressed horizontal grooves or finger wipe marks. Fabric: GR2. Form: V1. Period 4 Phase 4.2 ditch A7A (cut 12504, fill 12510).
46. Shouldered bowl with simple upright rim. Fabric: Q2. Form: V7. Period 4 Phase 4.2 pit 12549 (fill 12552; pit/posthole group PA2).
47. Jar with flat-topped rim. Fabric: GRSH2. Form: V6. Period 4 Phase 4.2 ditch A7A (cut 12565, fill 12574).

48. Globular jar with slightly everted rim. Fabric: GRSH2. Form: V5. Period 4 Phase 4.2 ditch A7A (cut 12565, fill 12569).
49. Decorated sherd with incised swags and horizontal lines. Fabric: GRSH2. Period 4 Phase 4.2 ditch A7A (cut 12676, fill 12679).
50. Shouldered bowl with everted rim. Fabric: GRM1. Form: V7. Period 4 Phase 4.2 ditch A7A (cut 12739, fill 12743).
51. Open bowl with flat-topped rim. Fabric: GRSH2. Form: V9. Period 4 Phase 4.2 ditch A7A (cut 12739, fill 12743).
52. Round bodied bowl with simple upright rim. Fabric: QSH2. Form: V10. Period 4 Phase 4.2 ditch A7A (cut 12967, fill 12976).
53. Round bodied bowl with everted rim. Fabric: GRSH2. Form: V5. Period 4 Phase 4.2 ditch A7A (cut 12739, fill 12746).
54. Round bodied/ovoid jar with simple upright rim. Fabric: GRV2. Form: V4. Period 4 Phase 4.2 ditch AU (cut 13015, fill 13016).

AREA B

Fig. A2.6

1. Round bodied bowl with everted rim. Fabric: Q1. Form: V10. Period 4 Phase 4.2 ditch B5A (cut 20116, fill 20120).
2. Round bodied bowl with everted rim. Fabric: GRSH2. Form: V10. Period 4 Phase 4.2 ditch B4A (cut 20205, fill 20210).
3. Slack-shouldered jar with everted rim. Fabric: GR2. Form: V3. Period 4 Phase 4.2 ditch B5A (cut 20238, fill 20239).
4. Small cup with simple upright rim. Fabric: GRSH2. Form: V15. Period 4 Phase 4.2 ditch B5A (cut 20280, fill 20281).
5. Globular jar with simple upright rim. Fabric: GRSH2. Form: V5. Period 4 Phase 4.2 ditch B5A (cut 20339, fill 20344).
6. Round bodied bowl with simple upright rim. Fabric: GRSH1. Form: V10. Period 4 Phase 4.2 pit 20358 (fill 20359; pit group PB8).
7. Round bodied/ovoid jar with flat-topped rim. Fabric: QV2. Form: V4. Period 4 Phase 4.2 ditch B4.1B (cut 20762, fill 20764).
8. Jar with everted fingertip impressed rim and incised linear neck bands. Fabric: GRSH1. Form: V6. Period 4 Phase 4.2 pit 20552 (fill 20555; pit group PB5).
9. Shouldered jar with flat-topped rim. Fabric: GRV2. Form: V1. Period 4 Phase 4.2 pit 20817 (fill 20818; pit/posthole group PB6).
10. Shouldered jar with simple upright rim. Fabric: GRSH2. Form: V1. Period 4 Phase 4.2 pit 20868 (fill 20870; pit/posthole group PB6).
11. Slack-shouldered jar with flat-topped rim. Fabric: V2. Form: V3. Period 4 Phase 4.2 ditch B5A (cut 20910, fill 20912).
12. Shouldered jar with simple upright rim. Fabric: GRM1. Form: V1. Period 4 Phase 4.1 roundhouse RB4 (cut 21290, fill 21291).
13. Shouldered jar with flat-topped, fingertip impressed rim. Fabric: GRV2. Form: V1. Period 4 Phase 4.1 pit 20916 (fill 20918; pit/posthole GROUP PB2).

Fig. A2.7

14. Shouldered bowl with simple upright rim. Fabric: GRSH2. Form: V7. Period 4 Phase 4.1 pit 20921 (fill 20926; pit/posthole group PB2).
15. Open bowl with everted rim. Fabric: GRSH2. Form: V9. Period 5 ditch B8H (cut 21070, fill 21071).
16. Shouldered bowl with externally expanded rim. Fabric: QGR2. Form: V7. Period 4 Phase 4.2 pit 21254 (fill 21255).
17. Round bodied bowl with externally expanded rim. Fabric: GRV2. Form: V10. Period 4 Phase 4.1 pit 21189 (fill 21191; pit/posthole group PB2).
18. Round bodied/ellipsoid jar/bowl with in-turned rim. Fabric: GRSH2. Form: V10 Period 4 Phase 4.1 ditch B1L (cut 21592, fill 21580).
19. Slack-shouldered jar with flat-topped rim. Fabric: GRSH2. Form: V3. Period 4 Phase 4.1 ditch B1L (cut 21592, fill 21580).
20. Carinated bowl with everted rim. Fabric: QSH2. Form: V8. Period 4 Phase 4.1 ditch B10A (cut 21510, fill 21512).
21. Globular bowl with flat-topped rim. Fabric: GR2. Form: V12. Period 4 Phase 4.1 ditch B1L (cut 21592, fill 21580).

Discussion

The late prehistoric group is mostly characteristic of Middle to Late Iron Age activity (*c.* 400 BC–1 AD) with limited evidence for some possible transitional activity around the Early to earlier Middle Iron Age (*c.* 600–400 BC). The tall-necked or strong-shouldered vessels most commonly associated with this latter period are present in smaller quantities when compared with the more prevalent short-necked, slack-shouldered globular and ovoid forms more dominant from Middle to Late Iron Age assemblages across Northamptonshire (Wells 2021, 59). The lack of published statistics relating to burnishing as a percentage of Iron Age assemblages means that direct comparisons are not always possible, however where comparative information is available the proportion of burnished sherds from Harlestone Park, across all phases of the site, is relatively low (5%

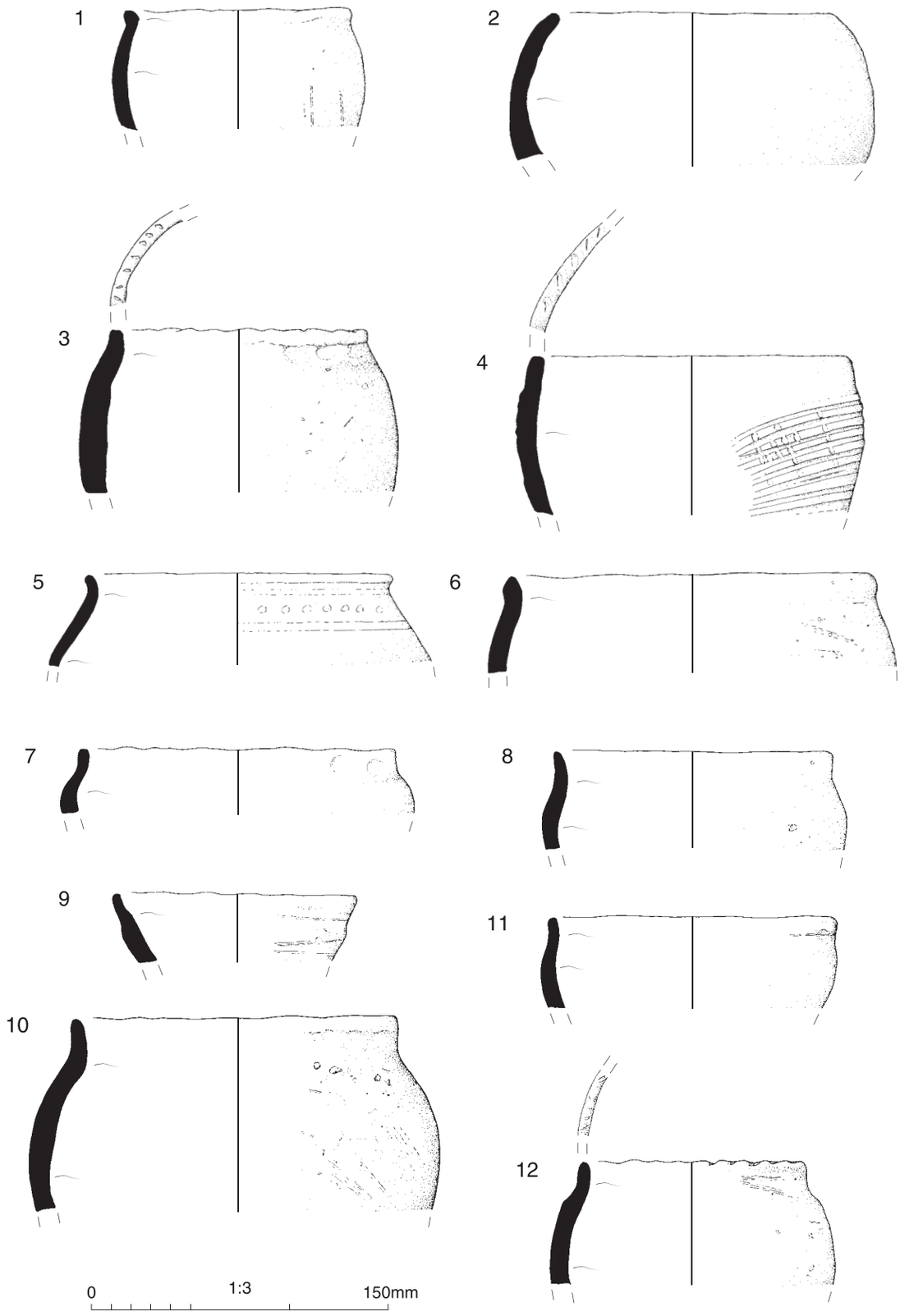


Fig. A2.2 Selected late prehistoric pottery from Area A (catalogue nos 1–12)

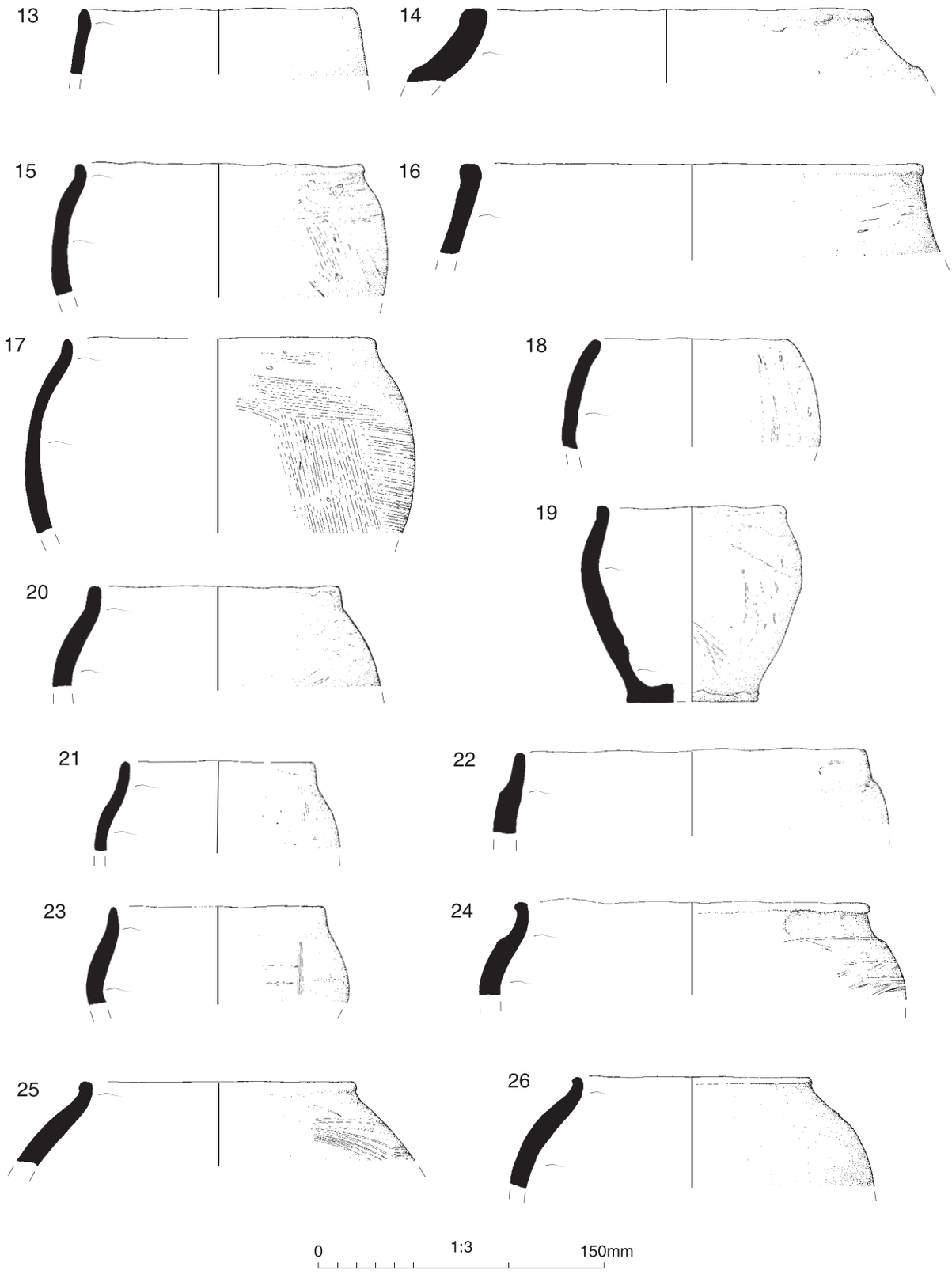


Fig. A2.3 Selected late prehistoric pottery from Area A (catalogue nos 13–26)

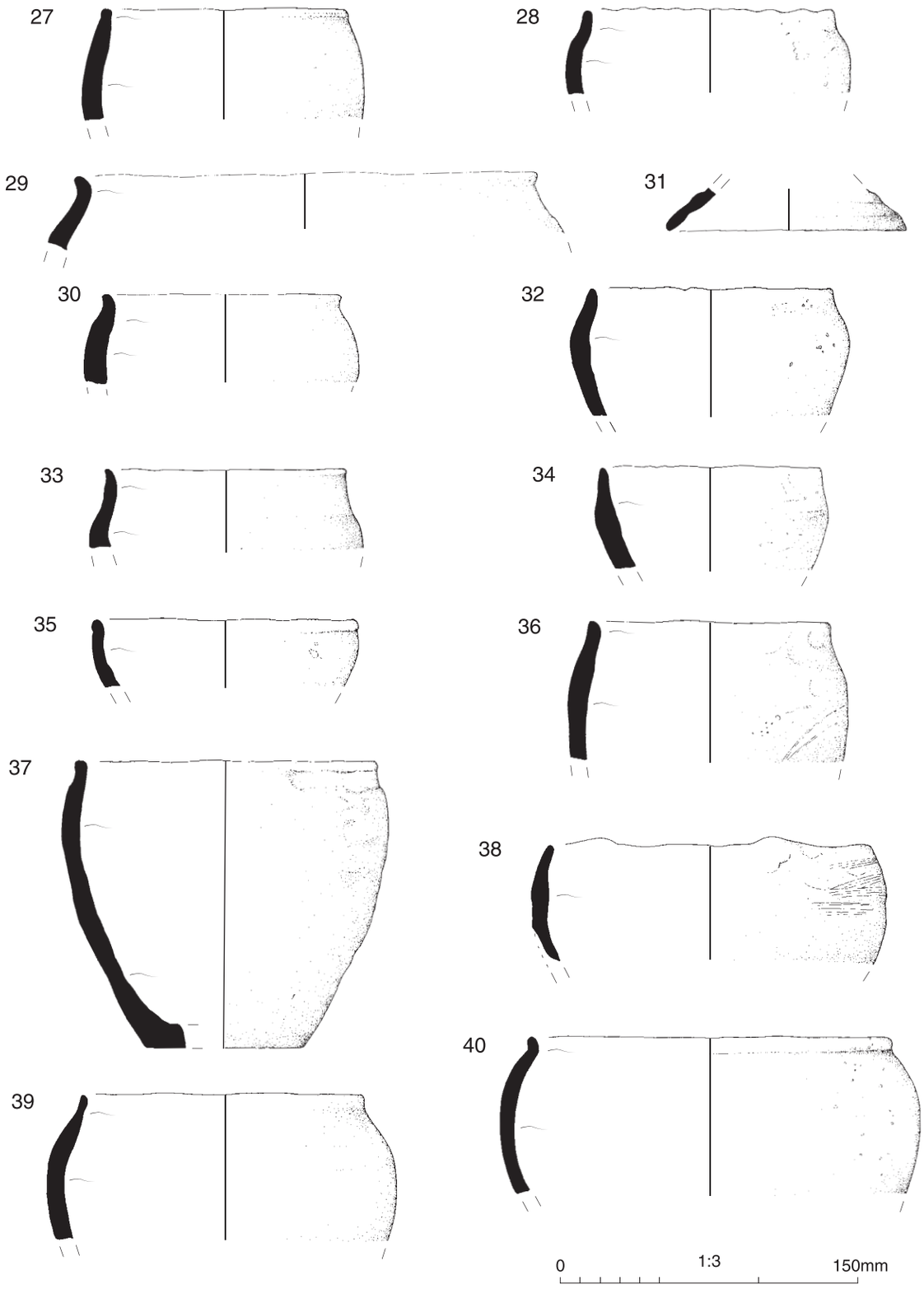


Fig. A2.4 Selected late prehistoric pottery from Area A (catalogue nos 27–40)

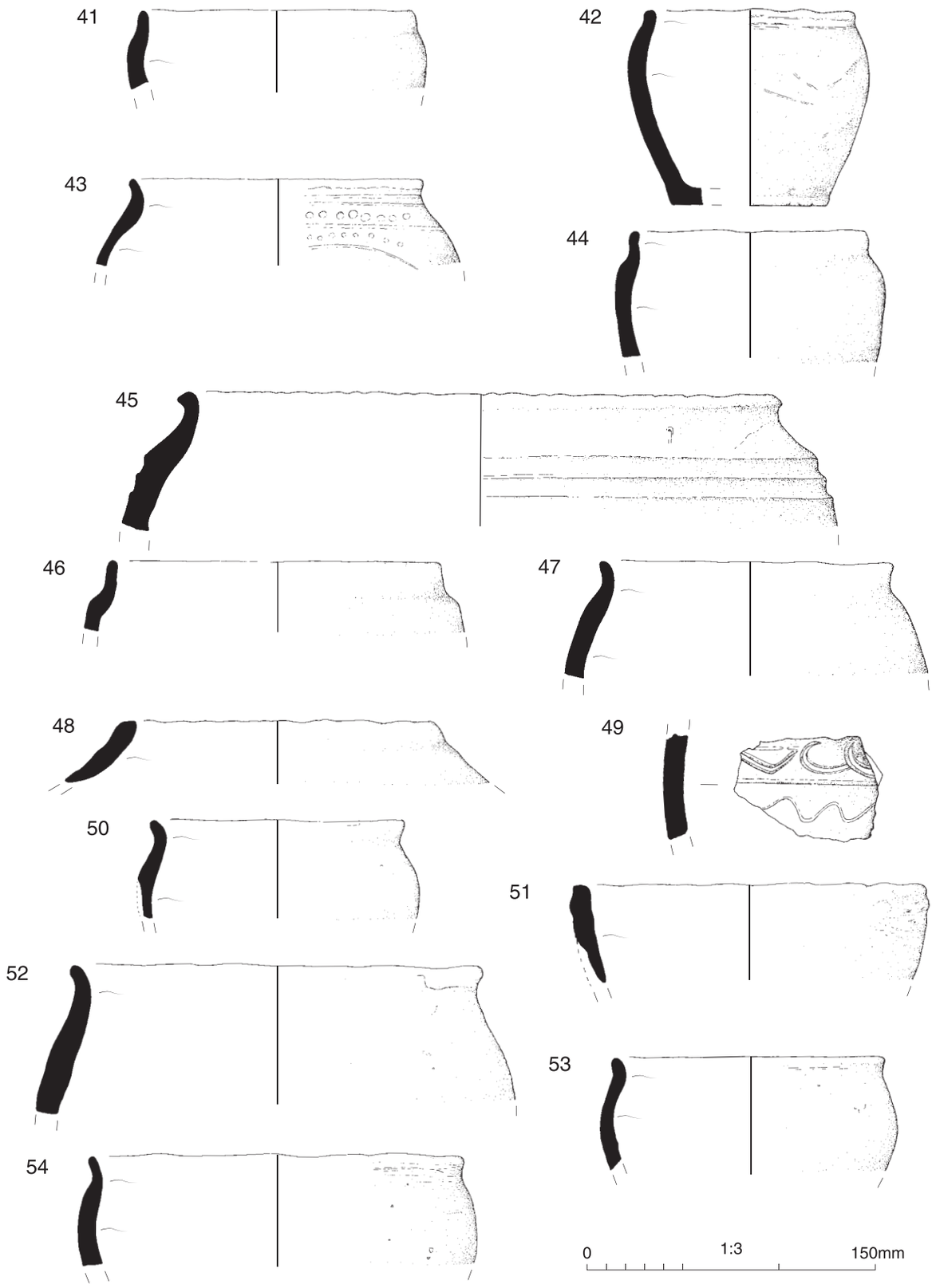


Fig. A2.5 Selected late prehistoric pottery from Area A (catalogue nos 41–54)

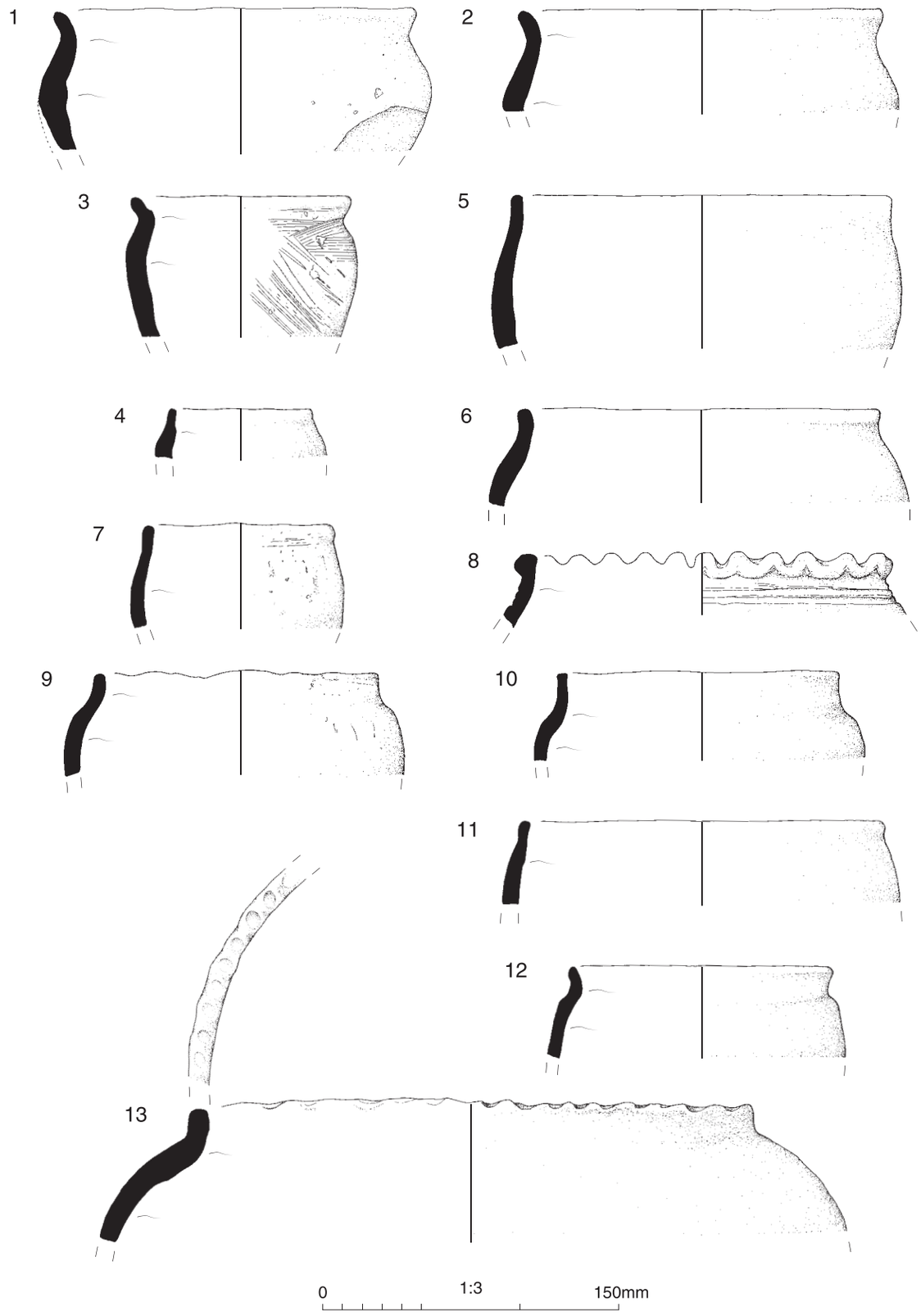


Fig. A2.6 Selected late prehistoric pottery from Area B (catalogue nos (1–13)

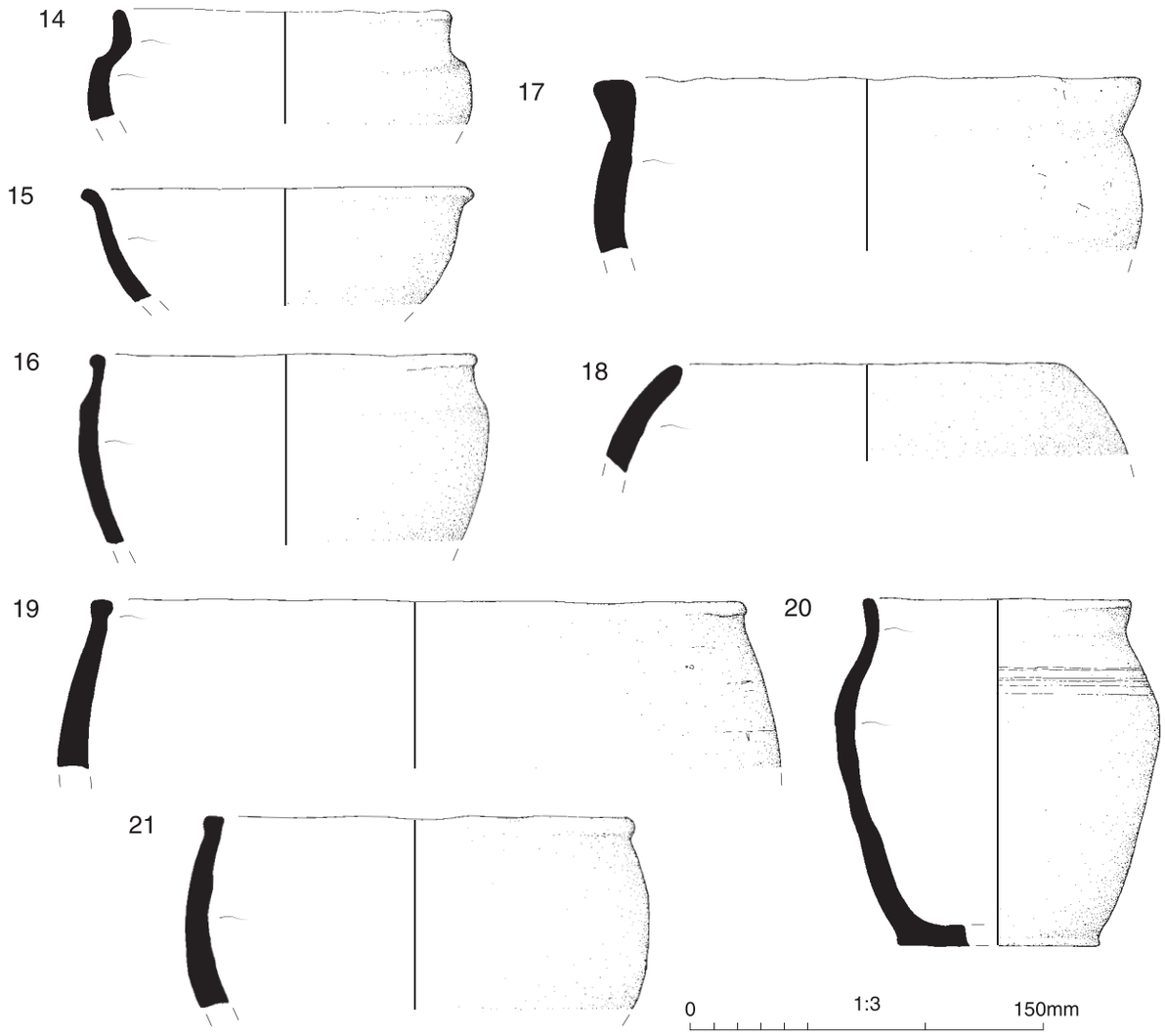


Fig. A2.7 Selected late prehistoric pottery from Area B (catalogue nos (14–21)

NoSH) for a largely Middle to Late Iron Age group. Comparisons with other Northamptonshire assemblages reveal similarly low levels of burnishing; such as those from Crick Covert Farm, Northamptonshire (3% NoSH; Hughes and Woodward 2015, 78) and Nortoft Lane, Northamptonshire (2%; McSloy 2015b, 204). Beyond the county incidence can be significantly higher including at Godwin Ridge, Cambridgeshire (14% NoSH; Brudenell 2016). Similarly, the rates of scoring (4% NoSH) overall were below those usually seen in Middle to Late Iron Age assemblages across the county (5–10%; Chapman 2016, 28). Given the dating of the assemblage the low incidence of scoring is difficult to account for unless reflective of local preference. A striking difference between this site and other Northamptonshire sites is the dominance of shelly grog-tempered fabrics, which comprise over 30% (NoSH) of the pottery found here. Elsewhere shell-tempered fabrics tend to dominate, making up around 80–90% of most Iron Age assemblages in Northamptonshire (Chapman 2023, 109). Although recorded at other sites across the county their occurrence is nowhere near as strong; Northampton Road, Brackley, Northamptonshire (Wells 2021) and Nortoft Lane, Northamptonshire (McSloy 2015b) both exhibit less than 4% each. The assemblage recovered from the Northamptonshire Uplands (Timby 2007) did produce a larger group of shelly grog-tempered late prehistoric pottery (48%

NoSH) although the late prehistoric group is a relatively small part (185 sherds) of a larger Roman group, which perhaps skews the results slightly. There are no indications that the shelly grog-tempered fabrics at this site characterise a chronologically discrete tradition; they are present here across Period 4 Phases 4.1 and 4.2 and in a range of vessel forms including both tall-necked (V2) and strong-shouldered vessels (V1/V7) as well as shorter necked slack-shouldered (V3), globular (V5) and ovoid vessels (V4/V10).

The ceramic assemblage largely consists of locally produced products, as attested to by the Hunsbury-type bowls and fabrics containing shell or other calcareous material, probably indicative of readily available Jurassic clays from the local geology. The presence of granodiorite-tempered fabrics in small quantities is suggestive of trade or social links with communities outside the Northamptonshire region; these vessels being known from the Charnwood area of Leicestershire. The possible example of a Darmsden-Linton style bowl may reflect similar links to the East, although identification of this decorative motif is less than certain.

Although the sample of vessels submitted for organic residue analysis was small and results therefore uncertain, some potential patterns emerge. The majority of Early to Middle Iron Age vessels that produced lipids associated with dairy fats may suggest a preference for the processing of dairy products in ceramic vessels during this period. More diverse use of ceramics during the Middle to Late Iron Age periods is hinted at by the presence of dairy and ruminant adipose fats and plant and bees' waxes.

Overall it is possible that late prehistoric activity at the site commenced as early as 600 BC, although a time towards the end of the 5th century/start of the 4th century BC is considered most likely. The predominance of short necked, slack profiled vessels, boldly incised Scored Wares, grog-tempering and the largely undecorated nature of the group suggest the main focus of activity was during the later Middle Iron Age. The presence of Hunsbury-type bowls and La Tène style decoration indicate activity could have continued into the 1st century BC, although the dearth of wheel-thrown 'Belgic' material suggests activity at the site had begun to wane by the turn of the millennium.

A2.3: Late Iron Age (transitional) and Roman pottery

By Pete Banks

Introduction and methodology

The excavation produced 22 sherds (167g) of Late Iron Age (transitional) and Roman pottery. The assemblage was recovered by hand from 20 deposits in both Area A (12 sherds, 51g) and Area B (10 sherds, 116g).

The assemblage was recorded direct to a Microsoft Access database. The pottery was examined by context, using a x10 stereo microscope and quantified by sherd count (NoSH) and weight per fabric. Pottery fabrics are defined in accordance with national guidelines (Barclay *et al.* 2016). Where appropriate a concordance with the National Roman Fabrics Reference Collection (NRFRC) is also provided (Tomber and Dore 1998). Vessel and rim forms have been recorded where the material has allowed for this; rim diameters have been measured (mm) together with the estimated vessel equivalents (rim EVEs) and a minimum number of vessels (MNV) is provided where possible. The minimum number of vessels used here is a value based on joining rim sherds and associated 'sherd families'. Thompson's (1982) form series is used for Late Iron Age/Early Roman 'Belgic' transitional vessels.

Condition

The assemblage is in moderately poor condition; surfaces and fractures exhibit signs of heavy abrasion. It is highly fragmented with a mean sherd weight of 7.6g, moderately low for a Late Iron Age (transitional) and Roman group.

Assemblage range (Table A2.9)

Fabrics and forms

The earliest and most numerous pottery from this group consists of Late Iron Age (transitional) and Early Roman wares. These include Southern British grog-tempered wares (SOB GT), unsourced transitional shell-tempered wares (UNS SH) and a few sherds of a wheel thrown transitional sandy ware (UNS Q). Of the fully Romanised fabrics unsourced sandy grey wares (UNS GW) were most common, with single sherds of unsourced colour coated ware (UNS CC), sandy oxidised ware (UNS OX) and Lower Nene Valley grey ware (LNV GW). While the Lower Nene Valley wares can be dated to the 2nd to 3rd centuries AD (Perrin 1999) the remainder of these coarsewares can be broadly dated to the Roman period. One sherd of Lezoux Central Gaulish samian ware (LEZ SA2), dating to the 2nd century AD, was also recorded (Webster 1996).

Rim sherds from a minimum of five vessel were recorded. Four are out-curved rims from necked jars or bowls (UNS CC/SOB GT); however, the vessel profile was not sufficiently preserved to allow full identification. The only closely datable vessel is a bead rim platter (Form

Table A2.9: Summary of pottery by fabric type

Period	Fabric description	Fabric code*	Count	% of count	Wt (g)	% of wt	EVEs	MNV
Late Iron Age / Roman pottery	Southern British grog-tempered ware	SOB GT	9	40.9	60	35.9	0.06	2
	Unsourced (transitional) sandy ware	UNS Q	3	13.6	8	4.8	0.03	1
	Unsourced (transitional) shell-tempered ware	UNS SH	1	4.5	3	1.8	0	1
	Unsourced colour coated ware	UNS CC	1	4.5	2	1.2	0.04	1
	Unsourced sandy grey ware	UNS GW	5	22.7	81	48.5		
	Unsourced sandy oxidised ware	UNS OX	1	4.5	1	0.6		
	Lower Nene Valley grey ware	LNV GW	1	4.5	9	5.4		
	Lezoux Central Gaulish samian ware	LEZ SA2	1	4.5	3	1.8		
		Total	**22**	**100**	**167**	**100**	**0.13**	**5**

*NRFRC codes in bold (Tomber and Dore 1998)

Key: EVE = estimated vessel equivalents; MNV = a minimum number of vessels

G1–3; 0.06 EVEs), from Period 4 Phase 4.2 ditch AM (cut 10760, fill 10761), which can be dated to the early to mid-1st century AD (Thompson 1982, 449).

A2.4: Lipid residue analyses from Iron Age pottery

By Izzy Davis, Isabel Wiltshire, Lucy Cramp and Mélanie Roffet-Salque (University of Bristol, School of Chemistry)

Introduction and methodology

A total of 20 pottery sherds was selected for organic residue analysis to investigate vessel use (Table A2.10). Vessels date to the Early to Middle Iron Age (n = 8) and Middle to Late Iron Age (n = 12). Vessel types included jars (n = 15) and bowls (n = 5) of various fabrics and the sherds were from the upper body and/or rim of the vessel.

Approximately 2g of ceramic fabric samples were taken (Table A2.10) and their surfaces cleaned using a solvent-cleaned modelling drill to remove any exogenous lipids (e.g. soil or finger lipids due to handling). The samples were then ground to a fine powder in a solvent-cleaned glass mortar using a pestle.

Acidified methanolic extraction of lipid residues

Lipid residue analyses and interpretations were based on established protocols (Evershed *et al.* 1990; Correa-Ascencio and Evershed 2014). Briefly, analyses proceeded as follows: the powdered ceramic was transferred to a glass culture tube and an internal standard was added for quantification (n-tetratriacontane, 20µg). The powdered sherd was extracted using an acidified methanol solution (H_2SO_4/MeOH, 4% v/v, 5mL, 70C, 1h) (Correa-Ascencio and Evershed 2014). The lipids were then extracted from the aqueous phase with hexane (2x3mL and 2x2 mL). The solvent was evaporated under a gentle stream of nitrogen to obtain the total lipid extract (TLE). Aliquots of the TLE (generally one quarter aliquots) were trimethylsilylated using N,O-bis(trimethylsilyl) trifluoroacetamide containing 1% trimethylsilyl chloride (20µL, 70C, 1h) and re-dissolved into hexane for analysis by gas chromatography (GC-FID).

Combined gas chromatography-mass spectrometry (GC-MS) analyses were also performed on trimethylsilylated aliquots of the lipid extracts enabling the elucidation of structures of components not identifiable on the basis of GC retention time alone. The samples were then submitted to GC-combustion-isotope ratio mass spectrometry (GC-C-IRMS) in order to distinguish between non-ruminant and ruminant fats, and dairy from adipose fats (Copley *et al.* 2003).

Results and discussion

Recovery rate and lipid concentration

Archaeological lipids were recovered from 19 sherds (95%), defined as sherds with a lipid concentration of >5µg/g of sherd. Lipids were recovered from all the jar sherds (n = 15), with concentrations ranging from 32µg/g to 5464µg/g and a mean concentration of 882µg/g (Fig. A2.8). Lipid concentrations for the bowl sherds (n = 4) ranged from 646µg/g to 1649µg/g with a mean of 928µg/g (Fig. A2.8). The higher mean lipid concentration for the bowl sherds may relate to vessel use, lipid preservation, or sample size.

Biomolecular composition

Animal fats

All lipid extracts (n = 19) were dominated by free fatty acids, principally palmitic acid (C16:0) and stearic acid (C18:0), which are characteristic of degraded animal

Table A2.10: Sample details and results of lipid residue analysis

Vessel type	Sample name	Context no.	Feature no.	Lipid concentration (µg/g)	Compounds	$\delta^{13}C_{16:0}$ (‰)	$\delta^{13}C_{18:0}$ (‰)	$\Delta^{13}C$ (‰)	Interpretation (molecular and isotopic compositions)
Early to Middle Iron Age Vessels									
Bowl (Ov)	C-NOR0594	21191	Pit 21189 (pit/post-hole group PB2)	43	Modern contamination	–	–	–	Modern contamination
Bowl (Sh)	C-NOR0593	20926	Pit 20921 (pit/post-hole group PB2)	1649	FA 12, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 26, 18:1	-28.8	-33.8	-5	Dairy fats
Jar (Sh)	C-NOR0580	11339	Pit 11332 (Pit group PA7)	159	FA 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 18:1; branched HYFA 18, 20	-27.7	-32.5	-4.8	Dairy fats
Jar (Sh)	C-NOR0587	12510	Ditch A7A (cut 12504)	32	FA 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 16:1, 18:1; OH 16, 18	–	–	–	Animal fats
Jar (Sh)	C-NOR0591	20818	Pit 20817 (pit/post-hole group PB6)	493	FA 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 28, 18:1	-29.1	-32.8	-3.8	Dairy fats
Jar (Sh)	C-NOR0592	20918	Pit 20916 (pit/post-hole group PB2)	135	FA 12, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 18:1	-28.8	-33.8	-5	Dairy fats
Jar (Sh)	C-NOR0595	21291	Roundhouse RB4 (cut 21290)	911	FA 12, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 18:1; branched HYFA 18, 20	–	–	–	Animal fats
Jar (Slack Sh)	C-NOR0578	11216	Ditch A4.3A (cut 11214)	394	FA 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 16:1, 18:1; branched HYFA 18, 20	-28.7	-33.1	-4.4	Dairy fats
Middle to Late Iron Age vessels									
Bowl (Ov)	C-NOR0577	11028	Ditch A4A (cut 11021)	752	FA 12, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 28, 16:1, 18:1; HYFA 18; OH 16, 18, 28, 30	-28.9	-30.6	-1.6	Ruminant adipose fats
Bowl (Ov)	C-NOR0579	11338	Pit 11332 (pit group PA7)	646	FA 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 18:1	-28.4	-32.3	-3.9	Dairy fats
Bowl (Ov)	C-NOR0586	12448	Ditch A7A (cut 12437)	664	FA 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 18:1	-28.2	-31.2	-3.1	Ruminant adipose fats
Jar (Glob)	C-NOR0581	11339	Pit 11332 (pit group PA7)	428	FA 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 16:1, 18:1; HYFA 18; branched HYFA 18, 20	-27.9	-33.6	-5.7	Dairy fats
Jar (Glob)	C-NOR0584	11656	Ditch A4.1A (cut 11652)	168	FA 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 28, 18:1	-27.7	-33.5	-5.9	Dairy fats
Jar (Glob)	C-NOR0589	20344	Ditch B5A (cut 20339)	69	FA 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 28, 30, 16:1, 18:1; HYFA 18; alkane 25, 27, 29, 31, 33	–	–	–	Animal fats and plant waxes

Table A2.10 (cont.): Sample details and results of lipid residue analysis

Vessel type	Sample name	Context no.	Feature no.	Lipid concentration (µg/g)	Compounds	$\delta^{13}C_{16:0}$ (‰)	$\delta^{13}C_{18:0}$ (‰)	$\Delta^{13}C$ (‰)	Interpretation (molecular and isotopic compositions)
Jar (Ov)	C-NOR0583	11342	Pit 11341 (pit group PA7)	5464	FA 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 18:1	-28.5	-33.9	-5.4	Dairy fats
Jar (Ov)	C-NOR0585	12076	Ditch A1A (cut 12075)	3799	FA 12, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 18:1	-28.8	-32.4	-3.6	Dairy fats
Jar (Ov)	C-NOR0590	20762	Ditch B4A (cut 20764)	271	FA 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 26, 18:1; branched HYFA 18, 20	-29.2	-31.6	-2.4	Ruminant adipose fats
Jar (Slack Sh)	C-NOR0582	11342	Pit 11341 (pit group PA7)	324	FA 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 26, 16:1, 18:1; branched HYFA 18, 20	-29.5	-34.1	-4.7	Dairy fats
Jar (Slack Sh)	C-NOR0588	20239	Ditch B5A (cut 20238)	513	FA 12, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 28, 18:1; HYFA 18; branched HYFA 18, 20	-28	-33.5	-5.4	Dairy fats
Jar (Slack Sh)	C-NOR0596	21580	Ditch B1L (cut 21592)	74	FA 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 28, 18:1; OH 16, 18, 26, 28; alkane 27, 29, 31	–	–	–	Animal fat and possible beeswax

Key: E–MIA = Early to Middle Iron Age; M–LIA = Middle to Late Iron Age; Ov = Ovoid; Sh = Shouldered; Glob = Globular; FA = fatty acid; HYFA = hydroxy FA; OH = n-alcohol; number n; n:i = acyl carbon number with zero or i degrees of unsaturation

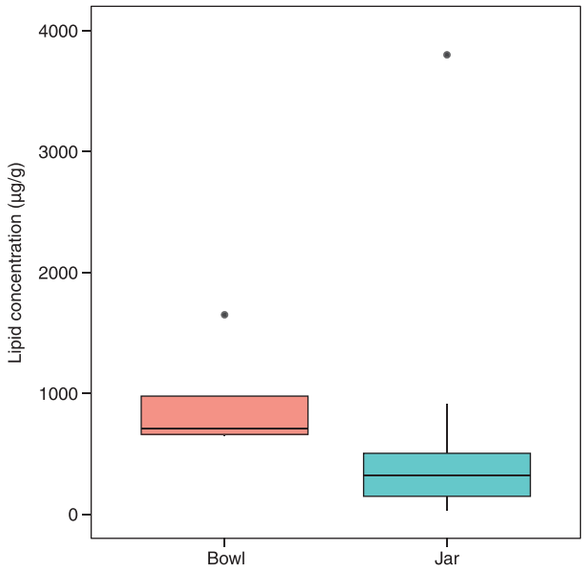


Fig. A2.8 Box plot showing the concentrations of archaeological lipids from the different vessel forms analysed

fats (Fig. A2.9a). Monounsaturated fatty acids (C16:1 and/or C18:1) were present in low abundance in all the extracts. These are the main fatty acids present in fresh animal fats but they are prone to oxidation and their low abundance shows that the lipids extracted are indeed archaeological. Oxidation products of unsaturated fatty acids (C18 hydroxy fatty acids) and n-alcohols (C16 and C18) were also identified in a small number of lipid extracts. Oxidation products can form naturally by degradation processes or under elevated temperatures during vessel use (Regert *et al.* 1998; Evershed 2008).

Extracts from all sherds include a series of long-chain fatty acids (LCFAs), ranging from C20 up to C26 or C28 carbon atoms, and are present in lower abundance than palmitic acid (C16:0) and stearic acid (C18:0). These LCFAs may originate from animal fats, incorporated into animal tissues via routing from the ruminant animals' plant diet (Halmemies-Beauchet-Filleau *et al.* 2013, 2014; Whelton *et al.* 2018) or directly from leaf or stem epicuticular waxes (Kolattukudy 1976; Kunst and Samuels 2003).

Animal fats mixed with plant resources

The lipid extract from C-NOR0589 contained compounds indicative of degraded animal fats alongside LCFAs and n-alkanes in a distribution indicative of plant resources (Fig. A2.9b). The extract contained a high abundance of LCFAs, up to C30 carbon atoms, dominated by the C22, C24 and C26 homologues, which may derive directly from leaf or stem epicuticular waxes (Kolattukudy 1976; Kunst and Samuels 2003) or potentially suberin, an aliphatic polyester found in all plants (Kolattukudy 1980). A series of odd-chain n-alkanes (C25, C27, C29, C31 and C33) were also present in the extract. Alkanes are a common component of leaf waxes, usually occurring in low concentrations, with long-chain n-alkanes distributions in the range C25 to C35 (Eglinton and Hamilton 1967). The presence of even-numbered long-chain fatty acids and n-alkanes suggests the processing of leafy plants in this vessel. The compounds are not diagnostic to families of plants and can only be used as a general indicator for plant processing. Plant resources may have been processed alongside animal products in the vessel, or at different times during the vessel's lifetime.

Branched C18 and C20 hydroxy fatty acids were identified in low abundance in several of the lipid extracts (n = 7). While these compounds occur in some plants (An *et al.* 2023), they are not currently a diagnostic biomarker for plant resources in archaeological residues and may derive from contamination, from the burial environment, handling or preservation treatments.

Potential beeswax

The lipid extract from C-NOR0596 contained palmitic acid (C16:0) and stearic acid (C18:0) in high abundance, characteristic of degraded animal fats, alongside a series of even LCFAs (C24, C26, C28), even-chain n-alcohols (C26, C28) and odd-chain n-alkanes (C27, C29, C31), with the C27 alkane present in highest abundance. The distribution of long-chain fatty acids, n-alcohols and n-alkanes points towards degraded beeswax. Sample C-NOR0596 was resampled for solvent extraction (Evershed *et al.* 1990, 1992) to confirm the presence of beeswax through the identification of wax esters and hydroxy wax esters (Roffet-Salque *et al.* 2015). However, lipid recovery from the solvent extraction was extremely low, likely due to a combination of inhomogeneous distribution of lipids in the fabric of the vessel (Hammann *et al.* 2020) and the lower efficiency of the solvent extraction method (Correa-Ascencio and Evershed 2014) and it was not possible to confirm the presence of beeswax in the sample.

Further characterisation of animal fat origins

The δ13C values of the individual C16:0 and C18:0 fatty acids were determined by GC-C-IRMS in order to identify the sources of the animal fats extracted from the sherds (n = 15). The δ13C values obtained for the residues deriving from pure animal fats or animal fats with low contributions of other compounds are plotted against the δ13C values of modern reference fats from animals raised on a pure C3 diet (Copley *et al.* 2003).

The majority of archaeological lipids recovered from the sherds have δ13C values consistent with fats from a dairy origin (n = 12, Fig. A2.10a). This is confirmed by the Δ13C values of the extracts. Plotting the isotope determinations in this way (Δ13C = δ13C18:0 – δ13C16:0), reduces localised environmental effects on the absolute δ13C values of fatty acids and emphasises their metabolic origins (Fig. A2.10b), with Δ13C

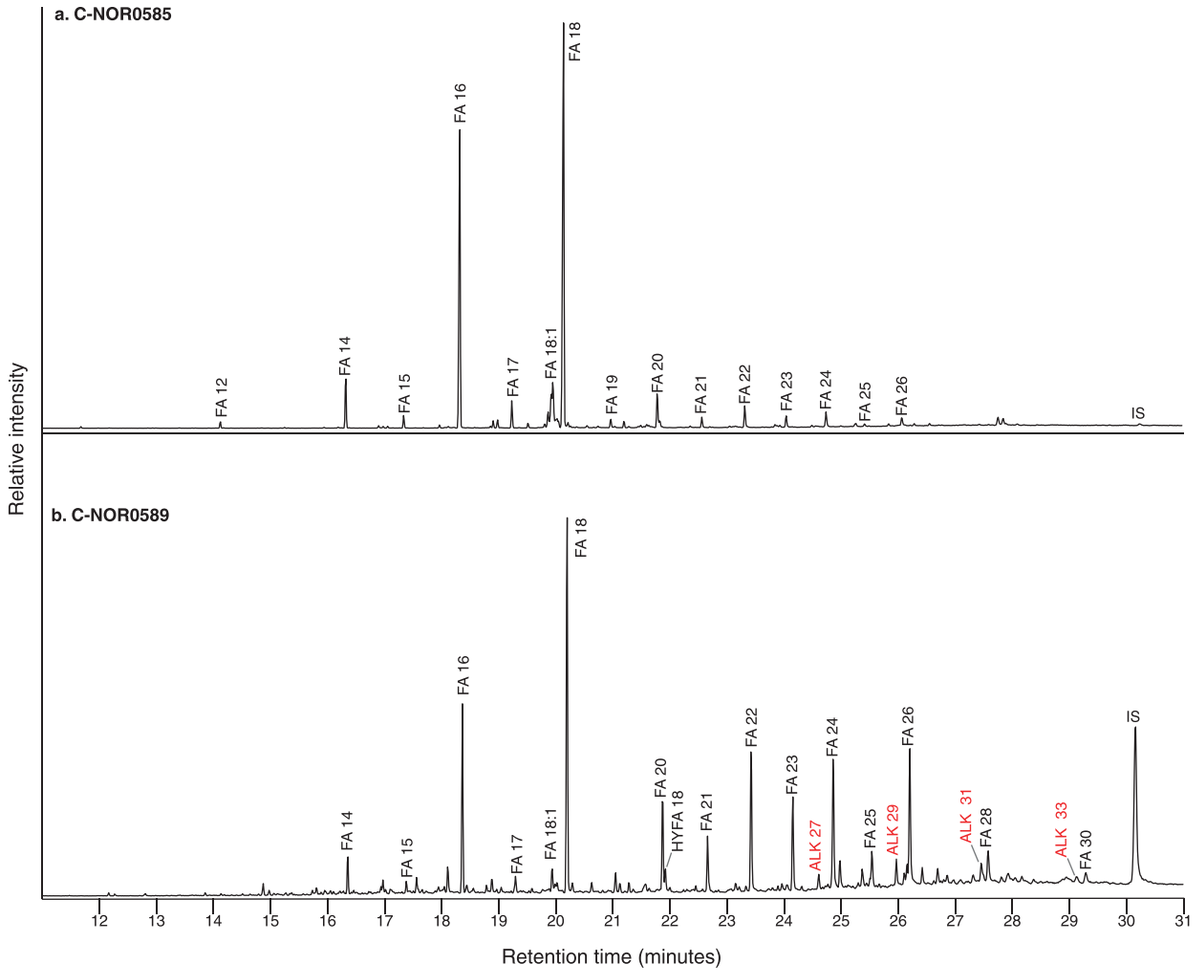


Fig. A2.9 Partial gas chromatograms of the lipid extracts from (a) C-NOR0585, characteristic of degraded animal fats and (b) C-NOR0589, degraded animal fats and plant resources

values ≤ −3.2‰ characteristic of fatty acids from dairy products (Copley *et al.* 2003). The lipid extracts from the remaining sherds (n = 3) probably derive predominantly from ruminant adipose fats (i.e. meat) such as cattle, sheep and goat (Fig. A2.10a). The extract from C-NOR0586 may derive from a mixture of ruminant adipose and dairy fats. No lipid extracts have δ13C values indicative of non-ruminant meat (i.e. pig) or mixtures of ruminant and non-ruminant fats (Mukherjee *et al.* 2005).

The Early to Middle Iron Age vessels (n = 5, 4 jars and 1 bowl) analysed here were all probably used for processing dairy products, while Middle to Late Iron Age vessels (n = 10, 7 jars and 3 bowls) were used for processing both dairy and ruminant meat. The sample size is too small to draw conclusions about changes in vessel use and ruminant animal exploitation between the two periods. The extracts from Middle to Late Iron Age bowls (n = 3) have higher Δ13C values than Middle to Late Iron Age jars (n = 7), which may indicate a tendency for bowls to be used predominantly for ruminant adipose products. However, analysis of a higher number of vessels would be required to investigate vessel specialisation.

Conclusions of the study

Degraded animal fats were recovered from 19 vessels, characterised by a high abundance of long chain saturated fatty acids (predominantly C16:0 and C18:0) alongside lower concentrations of unsaturated fatty acids and long chain fatty acids. Further characterisation of the archaeological animal fats indicates that the extracts derive exclusively from ruminant animal products (n = 15). The majority of extracts (n = 12) are consistent with dairy fat origins. The remaining extracts derive predominantly from ruminant adipose fats. Potential differences between Early to Middle Iron Age and Middle to Late Iron Age was observed, with Early to Middle Iron Age vessels (both jars and a bowl) used only for dairy products. Vessels from the Middle to Late Iron Age were

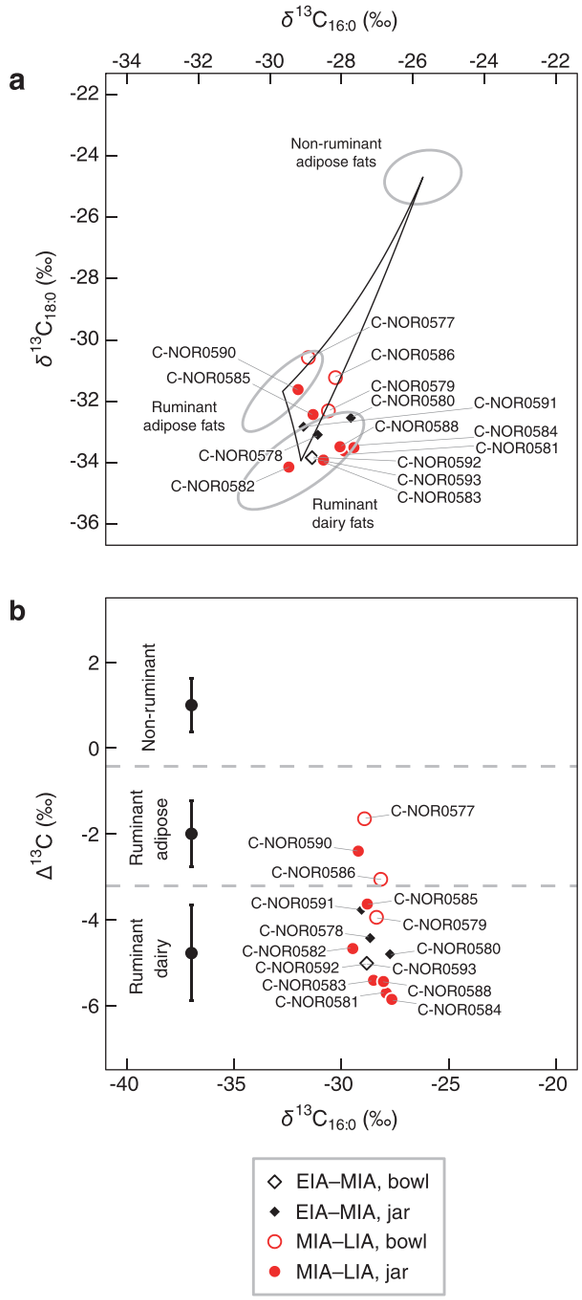


Fig. A2.10 (a) δ13C values for the C16:0 and C18:0 fatty acids from the lipid extracts of vessels from Land west of Northampton. (b) Difference in the δ13C values of the C18:0 and C16:0 fatty acids obtained for the same archaeological fats

used for both dairy and ruminant carcass products, with some indication of a higher contribution of ruminant carcass products in the bowls. However, these sample numbers are very low and analysis of additional vessels is required to strengthen this conclusion.

The extract from C-NOR0589 contained compounds indicative of plant resources alongside degraded animal fats, while the extract from C-NOR0596 may derive from beeswax. Degraded beeswax residues may derive from beeswax or honey and beeswax may have been exploited for a number of purposes, such as the waterproofing of ceramic vessels (Regert *et al.* 2001).

A2.5: Post-Roman pottery

By Pete Banks

Introduction and methodology

A small assemblage (33 sherds, 271g) recovered during the excavation can be dated to the post-Roman period. This pottery was recovered by hand from 27 deposits including one bulk soil sample (one sherd, 1g). Most of the post-Roman pottery was recovered from Area A (27 sherds, 246g) with a smaller portion coming from Area B (6 sherds, 25g). One sherd (1g) was recovered during the trial trench evaluation phase of works (CA 2016b, 54). Most of the pottery dating to this period is attributed to the post-medieval/modern period (29 sherds, 188g), with a small number of sherds dating to the Late Saxon or medieval period (4 sherds, 83g).

The assemblage was recorded direct to a Microsoft Access database. The pottery was examined by context, using a x10 stereo microscope and quantified by sherd count (NoSH) and weight per fabric. Pottery fabrics are defined in accordance with the national guidelines (Barclay *et al.* 2016). Vessel and rim forms have been recorded where the material has allowed for this; rim diameters have been measured (mm) together with the estimated vessel equivalents (rim EVEs) and a minimum number of vessels (MNV) is provided where possible. The minimum number of vessels used here is a value based on joining rim sherds and associated 'sherd families'.

Condition and provenance

The post-Roman pottery is in moderately poor condition. Surfaces and fractures exhibit signs of heavy abrasion and sherd size is generally small, as illustrated by the mean sherd weight of 8g.

Over half the assemblage is intrusive in features dated to earlier periods (Periods 2 (Middle Bronze Age), 3 (Late Bronze Age/Early Iron Age) and 4 (Middle to Late Iron Age)), most probably the result of agricultural or faunal activity or bioturbation. This disturbance and the burial environment may account for the poor condition of much of the assemblage.

Assemblage range (Late Saxon/Medieval) (Table A2.11)

Fabrics and forms

Four sherds (83g) of Late Saxon and medieval pottery were recovered. Three sherds of St Neots-type wares

Table A2.11: Summary of Late Saxon and medieval pottery by fabric

Period	Fabric description	Fabric code	Count	% of count	Wt (g)	% of wt	EVEs	MNV
Late Saxon/medieval pottery	St Neots-type ware	STNE	3	75	82	98.8	0.22	1
	Brill/Boarstall-type ware	BRIL	1	25	1	1.2		
		Total	**4**	**100**	**83**	**100**	**0.22**	**1**

Key: EVE = estimated vessel equivalents; MNV = a minimum number of vessels

(STNE) were recovered from Period 4 Phase 4.2 (Middle to Late Iron Age) ditch AC (cut 13130, fill 13131), including the rim of a jar with a lid-seat on the interior of the rim. St Neots wares date to the 9th to 11th centuries AD (Addyman 1973). A single body sherd of Brill Boarstall-type ware (BRIL), dating to the late 12th to 14th centuries (Mellor 1994, 111), was recovered from tree-throw hole 10472.

Assemblage range (post-medieval/modern) (Table A2.12)

Fabrics and forms

A total of 29 sherds (188g) of post-medieval or modern pottery were recovered from 25 deposits. The earliest material recorded is a single body sherd of tin-glazed earthenware (TGE) dating to the 16th to 18th centuries. A single body sherd of British stoneware (BRSW) was also recovered and dates to the 17th to 19th centuries. Most common, however, are the late post-medieval/modern wares. These include sherds of Black Basalt stoneware (BLSW), North Midlands earthenwares (NMEW), refined red (REFR) and white earthenwares (REFW) and the most frequently recorded post-Roman fabric, transfer printed white earthenware (TPE), all of which date to the 17th or late 18th to 20th centuries AD. A single sherd made in a fine deep reddish brown earthenware decorated with a good quality brown and green glaze was also recorded (MGRE). This latter sherd is unusual and could not be assigned to any known production centre, it is however of modern origin and a date of the 19th to 20th centuries is considered probable.

Based on rim sherd count the minimum number of vessels is 11 (0.91 EVEs). Forms made in early post-medieval fabric are entirely absent. The majority (7 MNV; 0.42 EVEs) are late post-medieval/modern tableware forms including plates, cups and bowls, all of which are made in white earthenware fabrics (REFW/TPE). A small ointment jar (REFW), probably used for the storage of cosmetic or pharmaceutical products, a large kitchenware bowl or pancheon (NMEW) and two flowerpots (REFR) were also recorded.

Table A2.12: Summary of post-medieval and modern pottery by fabric

Period	Fabric description	Fabric code	Count	% of count	Wt (g)	% of wt	EVEs	MNV
Post-medieval/modern pottery	Tin-glazed earthenware	TGE	1	3.4	2	1.1		
	British stoneware	BRSW	1	3.4	3	1.6		
	Black basalt ware	BLSW	1	3.4	13	6.9		
	North Midlands earthenware	NMEW	6	20.7	79	42.0	0.08	1
	Refined red earthenware	REFR	3	10.3	19	10.1	0.16	2
	Refined white earthenware	REFW	5	17.2	41	21.8	0.3	2
	Transfer printed white earthenware	TPE	11	37.9	27	14.4	0.37	6
	Modern glazed red earthenware	MGRE	1	3.4	4	2.1		
		Total	**29**	**100**	**188**	**100**	**0.91**	**11**

Key: EVE = estimated vessel equivalents; MNV = a minimum number of vessels

A2.6: Fired clay

By Pete Banks and Laura Pearson

Introduction and methodology

A total of 331 fragments (3575g) of fired clay were recovered by hand from 59 deposits, with an additional small quantity recovered from six bulk soil samples (42 fragments, 256g). The trial trench evaluation phase of work produced 20 undiagnostic fragments (57g) of fired clay (CA 2016b, 54). The assemblage was scanned and quantified by count and weight. Form and function were recorded where the material allowed for this.

The assemblage was largely in orange or red, fine, medium or coarse sandy fabrics, some with calcareous, clay pellet, ferrous, grog, quartzite, micaceous or shelly inclusions. Some fabrics exhibited voids, the result of the carbonisation of organic material within the fabric during the firing process. Fragments in white or cream-coloured fabrics were noted in a small number of cases. Most of the fired clay assemblage is highly fragmented and heavily abraded, except for a small number of examples where form could be determined through partially or wholly complete artefacts.

Assemblage range (Table A2.13)

Table A2.13: Summary of fired clay by description

Description	Count	Wt (g)
Daub	11	468
Loomweight	1	104
Oven structure/furniture	86	1501
Spindle whorl	1	35
Undiagnostic	232	1467
Total	**331**	**3575**

Portable objects

Period 4 Phase 4.2 (Middle to Late Iron Age) pit 11027 produced a corner fragment most likely from a triangular weight. The fragment is perforated through the corner angle and probably represents part of a triangular weight of the type usually interpreted as loomweights for use with vertical warp-weight looms. Such weights are commonly associated with Iron Age activity and are known, for example, from Iron Age deposits at Northampton Road, Brackley, Northamptonshire (Duncan 2021, 66) and Darsdale Farm, Raunds, Northamptonshire (Chapman 2017a, 113). Though commonly accepted as loomweights their function has been questioned. It has been suggested that some could have been portable oven or kiln furniture, or have served other functions (Poole 1995, 285–6; Poole 2024, 221–2), with ethnographic parallels cited from Serbia (Poole 2010, 133). Similar objects from a site on the south of Thanet, Kent have a suggested alternative use as oven/hearth pedestals to support briquetage evaporation vessels (Poole 2015, 304), although such a function would be unlikely away from coastal locations.

Registered artefact Ra. 22 is a complete plano-convex spindle whorl (35g) made in a buff/light brown quartzite-tempered fabric (Fig. A2.11). The spindle whorl was recovered from Period 5 (Late Iron Age/Early Roman) ditch B7A (cut 20822; fill 20823) and measures 45mm in diameter by 19mm in thickness, with a central perforation (12mm diameter). A radial groove has been worn into the convex surface of the object, possibly as the result of the positioning of the yarn during repeated use. Objects of similar form, dated to the Iron Age or

Fig. A2.11 Spindle whorl (Ra.22) from Period 5 ditch B7A (cut 20822)

Roman period, are known from Northampton Road, Brackley, Northamptonshire (Duncan 2021, 65). The size of the central perforation is larger than those observed in most Iron Age or Roman spindle whorls (4mm to 8mm diameter) when the use of thinner spindles was common (Walton Rogers 1997, 1731).

Daub

A total of 11 fragments, recovered from Period 4 Phase 4.2 pits 11027 (pit group PA4), 11383 (pit group PA1), 12816 (pit group PA3) and 20902 (pit group PB6) and Period 8 (medieval) plough furrow 20451, exhibit round-sectioned, probable wattle, impressions. These may represent fragments of daub from domestic or industrial structures preserved as a result of accidental firing.

Oven furniture and structure

Fired clay weighing 1.2kg (81 fragments; Ra. 20; Fig. 5.51) from Period 4 Phase 4.2 pit 20460 (pit group PB6; fill 20500) most probably represents elements from a single structure (Fig. A2.12). Although incomplete, it is of large size and is annular in form, perforated at intervals around its circumference. The perforations measure approximately 15mm in diameter and are spaced between 20 and 40mm apart. When complete the internal diameter was approximately 180mm, although the angle of the internal curve varies making precise measurement uncertain. All this material probably represents fragments of an oven, probably part of the upper superstructure. Some Iron Age ovens, made from wattle rods and covered in clay, are known to have been dome-shaped and with an opening at the top (Poole 2002). Similar examples of oven superstructure were recovered from Iron Age deposits at Nortoft Lane, Kilsby, Northamptonshire (McSloy 2015a, 208).

Additional quantities of fired clay from Period 4 Phase 4.1 pit 21189 (pit group PB2) and Phase 4.2 ditch A4.1A (cut 11672) may also represent oven furniture or structural elements. This material amounted to five fragments (300g), much of them characterised by a roughly cylindrical section.

Miscellaneous

The remainder of the assemblage comprises small and undiagnostic fragments (232 fragments). Of these, a total of 28 fragments of fired clay exhibited flat or hand moulded surfaces, with finger fluting or thumb/palm impressions evident in a small number of examples. It was not possible to determine the form or function of these fragments.

Fired clay objects illustration catalogue (Figs A2.11 and A2.12)

1. Spindle whorl. Ra.22. Period 5 ditch B7A (cut 20822).
2. Oven furniture. Ra. 20. Period 4 Phase 4.2 pit 20460 (pit group PB6)

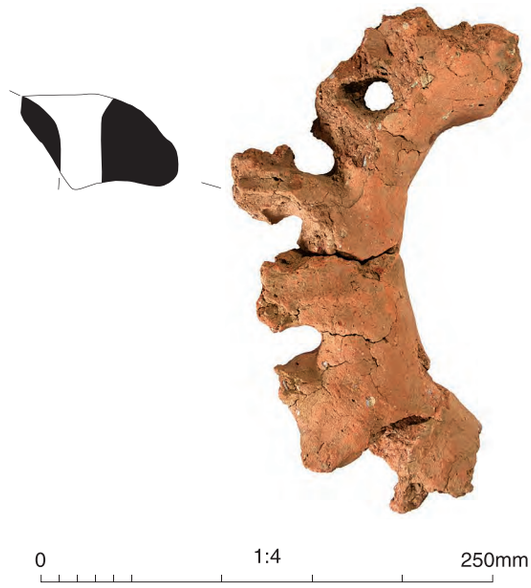


Fig. A2.12 Oven furniture (Ra. 20) from Period 4 Phase 4.2 pit 20460 (pit group PB6)

A2.7: Ceramic building material

By Pete Banks and Laura Pearson

Introduction and methodology

Eight fragments (126g) of ceramic building material (CBM) were recovered by hand from seven deposits. The CBM was scanned by context and quantified by count and weight. The majority of the assemblage is highly fragmented and in poor condition.

Assemblage range

Post-medieval/modern

Four fragments (115g) of CBM are made in oxidised orange or red fine or medium sandy fabrics, some with calcareous, ferrous or micaceous inclusions. Based on the fabric, thickness and characteristics of firing this material most probably dates to the post-medieval or modern period. One fragment of flat tile was recorded from Period 9 (post-medieval/modern) ditch AAD (cut 11029). A fragment of possible drain was recovered from Period 9 animal burial 20526.

Undated

The remainder of the assemblage (four fragments, 11g) is made in oxidised fine sandy fabrics, some with clay pellets, ferrous or micaceous inclusions. This material is highly fragmented and lacks diagnostic features; as such it could not be closely dated.

A2.8: Clay tobacco pipe

By Pete Banks and Laura Pearson

Introduction and methodology

Six fragments (13g) of clay tobacco pipe were recovered by hand from five deposits. The assemblage is highly fragmented and in moderately poor condition. The clay pipe assemblage was scanned and quantified by count and weight.

Assemblage range

Post-medieval

The assemblage comprises five stem fragments and one stem fragment with a partial bowl. The bowl is decorated on the exterior with fluting, a feature suggestive of a later 18th or 19th–century date. There are no makers marks/stamps preserved. The remainder of the assemblage broadly dates to the post-medieval/modern periods.

A2.9: Lithics

By Jacky Sommerville

Introduction and methodology

A total of 924 worked flints (1825g) and three pieces of burnt, unworked flint (43g) were recovered from 132 separate deposits and as unstratified finds. Of the worked flints, 610 (160g, 66% by count) were recovered from bulk soil samples, including all but three of the 481 chips. The rest of the assemblage was hand-excavated.

The artefacts were recorded according to broad debitage/artefact type (Table A2.14), as defined by Butler (2005), and catalogued directly onto a Microsoft Access database. Recorded attributes are raw material type and quality, weight, degree of edge damage (microflaking) and cortication (a white or blueish surface discoloration resulting from soil conditions (Shepherd 1972, 109)), cortex description, breakage and burning; in addition to knapping stage, butt and termination type for flakes, blades and bladelets. Chips were only quantified, as it is their presence which is significant. The burnt unworked flints have been discarded after recording.

Raw material

All of the items have been made using flint, the majority of which has been recorded as fine-grained (91%, 386 of the 424 items where this could be recorded, it was not recorded for chips and recording was not possible for some of the burnt items). One flake was made using Bullhead flint, which is a particularly good quality raw material, deriving from the Bullhead Bed in Kent and Surrey (Shepherd 1972, 114) and the Reading Formation (Anderson-Whymark 2013, 150) of the Thames Basin (Butler 2005, 21). Cortex is present on 209 flints: it is abraded on 151 (72%) and chalky on the remaining 58 (28%). This demonstrates the reliance mainly on secondary flint sources. Superficial deposits of the Oadby Till Member are located less than 1km to the north, south and east of the site (BGS 2026b). This glacial deposit contains fragments of flint (BGS 2026c) and may be the source of much of the raw material used. Currently the River Nene is located approximately 3km to the south of the site and one of its tributaries, Dallington Brook, runs through the site, so flints from river gravels should also have been readily available. It is typical for lithic assemblages in the area to be composed mostly of flint from local gravels (e.g. Bamford 1985, 60; Chapman 2019a, 41; Walker and Maull 2010, 16). The nearest chalk bedrock, of the Grey Chalk Subgroup, is approximately 46km to the south-east (BGS 2026b) and chalk flint may have been imported from there.

Provenance and condition

Most of the worked lithics were recovered from deposits assigned to Period 1 (early prehistoric) (638, 69.1% by count, although this includes 421 chips) or Period 4 (Middle to Late Iron Age) (261, 28.3% including 59 chips) (Tables A2.14–A2.15). The remainder are from Period 2 (Middle Bronze Age) cremation burials (2, 0.2%), Period 3 (Late Bronze Age/Early Iron Age) deposits (5, 0.5%), Period 5 (Late Iron Age/Early Roman) to Period 9 (post-medieval/modern) deposits (7, 0.8%) or from unphased deposits/recovered as unstratified finds (11, 1.2%). Edge damage was recorded on 406 flints (these exclude chips and some burnt items) and is moderate to heavy on only 36 (9%) and slight or absent on the other 91%. This suggests that the lithics are mostly stratified or have been subject to minimal disturbance since deposition. Cortication was recorded on 26 items (6%). Excluding chips, the worked flints total 443; just over half of these are broken (233, 53%) and 12% (52) are burnt.

Mesolithic flints

Mesolithic activity is demonstrated by the presence of several chronologically diagnostic items, although all but one were residual. For example, a multiplatform core from Period 4 Phase 4.1 pit 21427 (fill 21428) was used to produce flakes and bladelets (Figs A2.13, no. 1 and A2.15, no. 1). Seventeen bladelets (blades measuring less than 12mm in width) were recovered from Period 1 and Period 4 features. These are likely to represent Mesolithic debitage. One example, also from Period 4 Phase 4.1 pit 21427 (fill 21428), displays evidence for utilisation in the form of substantial microflaking and some rounding along both lateral dorsal edges and traces of silica gloss on both lateral ventral edges.

A probable microlith was recovered as a residual find from Period 4 Phase 4.2 ditch A10A (cut 10589, fill 10592) (Figs A2.13, no. 2 and A2.15, no. 2). This burnt distal fragment is likely to be an obliquely blunted point.

Table A2.14: Lithic assemblage by period (weight in grammes in brackets)

	Period 1 (EP)	Period 2 (MBA)	Period 3 (LBA/EIA)	Period 4 (M–LIA)	Periods 5 (LIA/ER) to Period 9 (P-med/mod)	Unstratified/ undated	Total
Burnt unworked				3 (43)			**3 (43)**
Primary technology							
Blade	30 (55.1)		1 (3)	31 (110.2)		4 (44)	**66 (212.3)**
Bladelet	7 (3.5)			10 (5.7)			**17 (9.2)**
Chip	421 (10.2)			59 (1.5)	1 (0)		**481 (11.7)**
Core	2 (151)			13 (317)			**15 (468)**
Core fragment				1 (5)			**1 (5)**
Core rejuvenation flake	3 (13)			1 (2)			**4 (15)**
Flake	165 (292.6)	2 (0.5)	3 (7)	114 (468.8)	5 (6.8)	7 (38.7)	**296 (814.4)**
Shatter	2 (1.3)			2 (10)			**4 (11.3)**
Secondary technology							
Arrowhead – leaf-shaped	1 (1)						**1 (1)**
Arrowhead – British oblique				1 (3)			**1 (3)**
Burin				1 (3)			**1 (3)**
Microdenticulate	1 (2)			4 (26)	1 (2)		**6 (30)**
Microlith	1 (0.2)			1 (2)			**2 (2.2)**
Miscellaneous retouched	1 (4)			3 (53)			**4 (57)**
Piercer	1 (1)			1 (3)			**2 (4)**
Retouched blade				1 (2)			**1 (2)**
Retouched flake	1 (2)			3 (22)			**4 (24)**
Scraper – end	1 (3)			9 (80)			**10 (83)**
Scraper – end-and-side				2 (14)			**2 (14)**
Scraper – side				1 (2)			**1 (2)**
Scraper – on a thermal blank				1 (21)			**1 (21)**
Spurred piece	1 (0.9)		1 (23)				**2 (23.9)**
Truncation				2 (8)			**2 (8)**
Total	**638 (540.8)**	**2 (0.5)**	**5 (33)**	**264 (1202.2)**	**7 (8.8)**	**11 (82.7)**	**927 (1868)**

Key: EP = early prehistoric; MBA = Middle Bronze Age; LBA/EIA = Late Bronze Age/Early Iron Age; M–LIA = Middle to Late Iron Age; LIA/ER = Late Iron Age/Early Roman; P-med/mod = Post-medieval/modern

It is a particularly broad example, measuring 15mm in width, which makes Early Mesolithic dating most likely. Period 1 pit 22384 (mentioned below), also produced an obliquely blunted point microlith represented by a distal fragment which displays very fine steep retouch along both lateral edges to form the point (Figs A2.13, no. 3 and A2.15, no. 3). This example measures only 5mm in width. Although obliquely blunted points were in use throughout the Mesolithic period (Jacobi 1978, 20), they tend to be larger during the Early Mesolithic (Pitts and Jacobi 1979, 170), compared to the Late Mesolithic, so this microlith is probably of Late Mesolithic date. Two oblique truncations were recovered as residual finds in Period 4 Phase 4.2 ditches A2A (cut 11936, fill 11939) and B5A (cut 20104, fill 20107). The example from ditch A2A (Fig. A2.13, no. 4) is represented by a distal fragment that was made on a blade blank and that from ditch B5A (Fig. A2.13, no. 5) was made using a platform-prepared flake as a blank. The latter truncation also displays evidence for utilisation in the form of microflaking along the right dorsal edge.

Illustration catalogue (Fig. A2.13)

1. Flakes/bladelets core. Period 4 Phase 4.1 pit 21427, fill 21428. See also Fig. A2.15, no. 1.
2. Microlith, obliquely blunted point, made using a blade blank. Distal fragment, burnt.

Table A2.15: Lithics from Early Neolithic features (weight in grammes in brackets)

	Pit 11979	Pit 11995	Pit 12062	Pit 12170	Pit group PB3		Pit 21684	Total
					Pit 20174	Pit 22384		
Primary technology								
Blade	12 (23.4)	6 (6.2)	7 (17)	3 (5.5)	1 (1)		1 (2)	**30 (55.1)**
Bladelet	4 (2.4)	2 (0.5)				1 (0.6)		**7 (3.5)**
Chip	145 (3)	236 (6.4)	2 (0.2)		5 (0.2)		33 (0.4)	**421 (10.2)**
Core	1 (102)		1 (49)					**2 (151)**
Core rejuvenation flake		2 (6)		1 (7)				**3 (13)**
Flake	79 (108.7)	51 (55.9)	20 (109.2)	7 (13)	1 (0.4)	1 (1)	6 (4.4)	**165 (292.6)**
Shatter		2 (1.3)						**2 (1.3)**
Secondary technology								
Arrowhead – leaf-shaped	1 (1)							**1 (1)**
Microdenticulate					1 (2)			**1 (2)**
Microlith						1 (0.2)		**1 (0.2)**
Miscellaneous retouched			1 (4)					**1 (4)**
Piercer		1 (1)						**1 (1)**
Retouched flake		1 (2)						**1 (2)**
Scraper (end)			1 (3)					**1 (3)**
Spurred piece		1 (0.9)						**1 (0.9)**
Total	**242 (240.5)**	**302 (80.2)**	**32 (182.4)**	**11 (25.5)**	**8 (3.6)**	**3 (1.8)**	**40 (6.8)**	**638 (540.8)**

Period 4 Phase 4.2 ditch A10A (cut 10589), fill 10592. See also Fig. A2.15, no. 2.

3. Microlith, obliquely blunted point made on a bladelet blank. Period 1 pit group PB3, pit 22384, fill 22385. See also Fig. A2.15, no. 3.
4. Truncation, oblique, made on a flake blank. Distal fragment. Period 4 Phase 4.2 ditch A2A (cut 11936), fill 11939.
5. Truncation, oblique, made on a platform-prepared flake blank. Utilisation (micro-flaking) visible on the right dorsal edge. Period 4 Phase 4.2 ditch B5A (cut 20104), fill 20107. See also Fig. A2.15, no. 4.

Mesolithic or Early Neolithic flints

Features of the debitage from Harlestone Park that indicate Mesolithic or Early Neolithic activity include the presence of 33 blades, 9 bladelets and a core rejuvenation flake, as well as evidence for soft hammer percussion on 10 flakes (8%). The blades and bladelets make up 25% of the debitage excluding chips, a very high figure for a mixed assemblage (Ford 1987, 79, table 2(A)) and indicates that many of the residual flints are likely to be of Mesolithic and/or Early Neolithic date. Tools which may date to either period include a burin, six microdenticulates, two retouched blades and an end scraper made on a blade blank.

The burin (Figs A2.13, no. 6 and A2.15, no. 5) from Period 4 Phase 4.2 ditch B4.1B (cut 20395, fill 20397), which also produced the rejuvenated core mentioned above, has been made using a flake blank, with a burin spall removed from the right-hand side of the proximal dorsal edge. The burin spall scar is broader and shorter than is typical and terminates in a step fracture but it does produce a relatively sharp 'corner'. Five of the microdenticulates display some silica gloss on the reverse of the retouched edge (Figs A2.13, nos 7, 8 and 9; A2.15, nos 6 and 7). The serrations on the example from Period 9 ditch AZ are particularly clear despite the evidence for utilisation (Fig. A2.14, no. 10). This example is also relatively unusual for a bilaterally serrated microdenticulate (in the author's experience), in that the retouch which forms the serrations is on the right ventral and right dorsal edges. It is more common for bilateral microdenticulates to be retouched on the lateral edges of the same face.

Illustration catalogue (Figs A2.13 and A2.14)

6. Burin, made on a flake blank. Period 4 Phase 4.2 ditch B4.1B (cut 20395), fill 20397. See also Fig. A2.15, no. 5.
7. Microdenticulate, made on the proximal fragment of a soft hammer blade blank. The denticulated edge is quite worn and a little silica gloss is visible on the reverse edge. Period 1 pit group PB3, pit 20174, fill 20176.

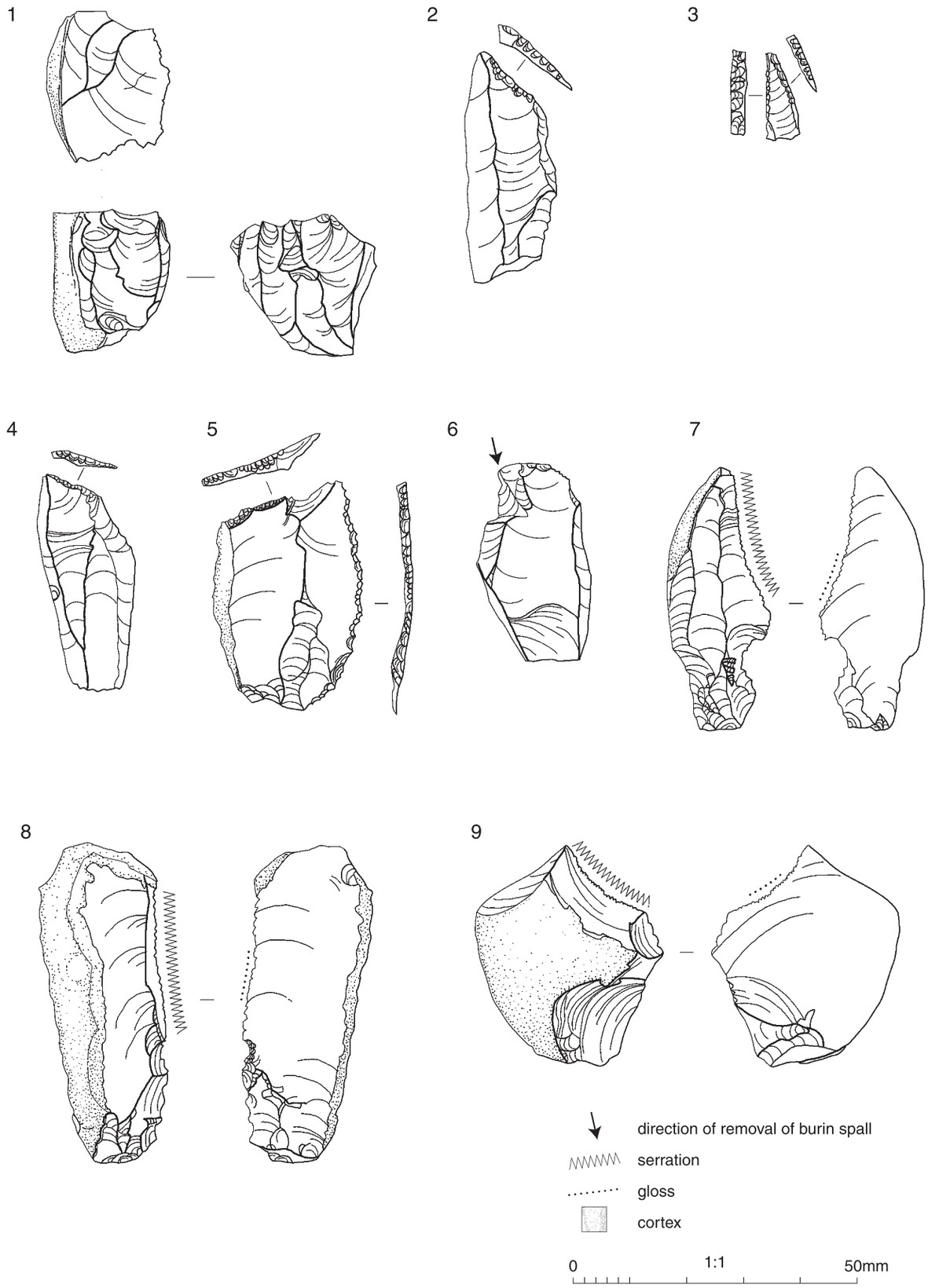


Fig. A2.13 Drawings of a selection of the worked flint (catalogue nos 1–9)

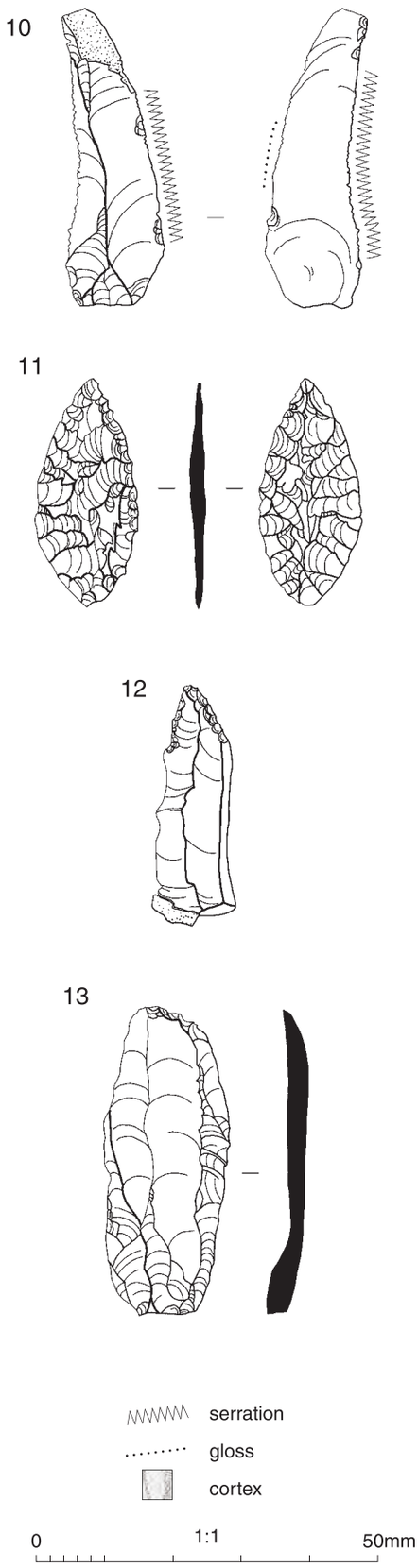


Fig. A2.14 Drawings of a selection of the worked flint (catalogue nos 10–13)

8. Microdenticulate, made on a blade blank. A little silica gloss on the left ventral edge. Period 4 Phase 4.2 pit/posthole group PA3, pit 12469, fill 12470. See also Fig. A2.15, no. 6.
9. Microdenticulate, made on a flake blank, with silica gloss on the left-hand side of the ventral distal edge. Period 4 Phase 4.2 pit group PB5, pit 20935, fill 20938. See also Fig. A2.15, no. 7.
10. Microdenticulate (bilateral), made on a blade blank, with a little silica gloss in the centre of the left ventral edge. Period 9 ditch AZ (cut 10051), fill 10052, Registered Artefact (Ra.) 1. See also Fig. A2.15, no. 8.

Period 1 pits

Seven pits assigned to Period 1 (four in Area A and two in Area B) produced a total of 638 worked lithics (540.8g), mostly from pits 11979 and 11995 (Table A2.15). The flints from these features are in particularly good condition, with moderate edge damage on only eight items (4% of the 197, where this could be recorded). The knapping stage of 107 flakes, blades and bladelets was ascertained but has not been possible for all items due to breakage. Of these flakes, 2 are primary (1.9%, with wholly cortical dorsal faces), 67 are secondary (62.6%, with partially cortical dorsal faces) and 38 tertiary (35.5%, with fully decorticated dorsal faces). These proportions indicate that initial decortication mostly occurred elsewhere (presumably at the raw material sources) but that knapping on site did include the relatively early stages of core reduction. The recovery of 145 chips from pit 11979, 236 from pit 11995 and 33 from pit 21684 indicates that the flint in these pits probably includes fresh knapping waste. Three core rejuvenation flakes also indicate knapping, however the number of cores recovered is low, at just two.

Pit 11979

This pit contained 242 flints (240.5g), including 145 chips, from the single fill 11980. There are 12 blades and 4 bladelets, which represent 17% of the debitage excluding chips. This proportion falls within the expected range (10–30%) for an Early Neolithic assemblage (Ford 1987, 79, table 2(A)). Of the 79 flakes, 23 (29%) display evidence of soft hammer percussion, a knapping strategy in use during the Mesolithic and Early Neolithic periods. The only tool from this feature is a leaf-shaped arrowhead (Ra. 19; Fig. A2.14, no. 11), which is an Early Neolithic type. It is a Green Type 4Cv (Green 1980, 72) and features fully bifacial pressure flaking in addition to fine nibbled retouch along one of the distal lateral edges. The flint assemblage is suggestive of Early Neolithic dating for this pit. A calibrated radiocarbon range of 3632–3381 cal BC (SUERC-130092, 95.4% probability) was returned from a sample recovered from

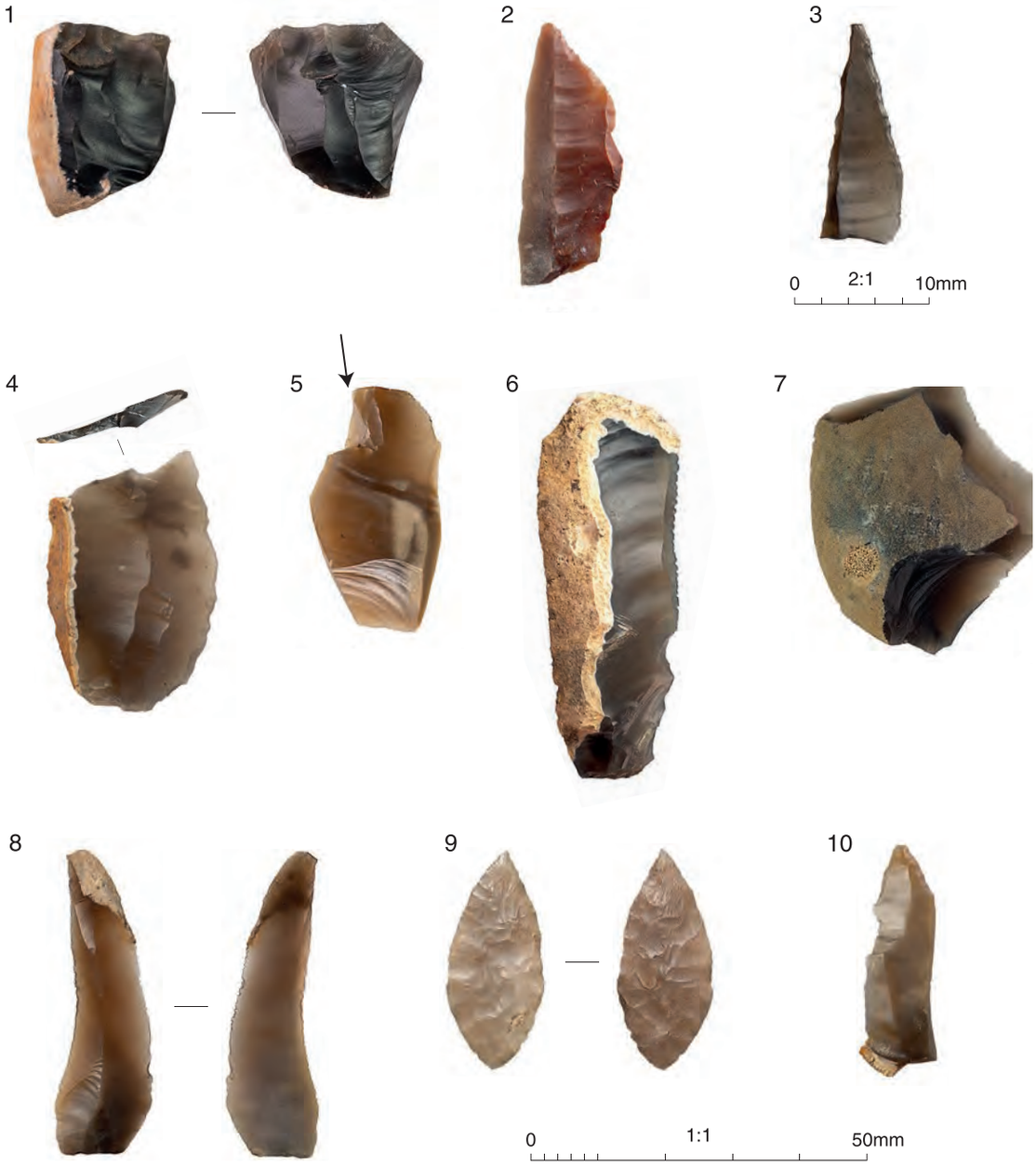


Fig. A2.15 Photographs of a selection of the worked flint

the pit, placing it at the end of the Early Neolithic period, which is consistent with the small amount of early prehistoric pottery recovered from the feature.

Pit 11995

A total of 302 flints (80.2g) was recovered from this pit, 66 of which are not chips, from single fill 11996. There are 6 blades and 2 bladelets, making up 10% of the debitage excluding chips. This is also consistent with Early Neolithic dating (Ford 1987). Indicators of soft hammer removal are present on 9 of the 51 flakes (19%, excluding the core rejuvenation flakes). The retouched flake is not closely datable; however the piercer (Fig. A2.14, no. 12) and spurred piece were both made using blade blanks, which suggests Mesolithic or Early Neolithic dating. This is supported by the presence of two core rejuvenation flakes. Overall the lithics from this pit also suggest an Early Neolithic date. The only other artefactual material recovered from the feature is a small fragment of post-medieval/modern window glass, considered to be intrusive.

Pit 12062

This pit produced 32 flints (182.4g) from its three fills but mostly from the upper fill, 10265. The flints include seven blades, which form 24% of the debitage, excluding the two chips. Although this is a higher proportion than the previous two pits, it still accords with Early Neolithic debitage (Ford 1987). Evidence for soft hammer percussion was observed on three flakes (15%), the opposed-platform core was used to produce flakes and blades and the end scraper was made on a blade blank (Fig. A2.14, no. 13); these are all typical features of Mesolithic or Early Neolithic flint working. Again, the lithics are consistent with Early Neolithic dating for the pit, however this is more tentative due to the small assemblage size. No other artefactual or environmental material was recovered from this feature.

Pit 12170

A small assemblage of 11 flints (25.5g), all of which are debitage, was recorded from the single fill (12171) of this pit. Two aspects of these flints are chronologically diagnostic and, again, they are most suggestive (although tentatively) of Mesolithic or Early Neolithic dating: the presence of a core rejuvenation flake and the inclusion of three blades, which make up 27% of debitage. The single sherd of pottery (8g) from this pit is of in poor condition and only broadly datable to the early prehistoric period. This feature was also dated to the Early Neolithic period via radiocarbon dating, which produced a calibrated date range of 3618–3374 cal BC (SUERC-130091, 95.4% probability).

Pit 20174, pit group PB3

Just eight flints (3.6g) were recovered from the upper fill 20176 of this pit (which contained two fills). All were retrieved from a soil sample and they comprise a blade, a flake, a microdenticulate (Fig. A2.13, no. 7) and five chips. The blade and the blade blank on which the microdenticulate was made had both been removed using a soft hammer and displayed evidence for preparation of the parent core. The serrations on the microdenticulate are rather worn and a trace of silica gloss is visible on the reverse edge, most probably as a result of working silicious (grassy) plants or wood (Keeley 1980, 60–1). Although the assemblage from this pit is very small, the datable features tentatively suggest Mesolithic or Early Neolithic activity. The latter dating has been confirmed by radiocarbon analysis, which produced a calibrated radiocarbon range of 3643–3528 cal BC (SUERC-130121, 95.4% probability).

Pit 22384, pit group PB3

This pit produced just three flints: a flake, a bladelet and a microlith from fill 22385. The flake has been soft hammer-struck. Bladelets most typically represent Mesolithic debitage as they were often used as blanks for microliths. The microlith (Figs A2.13, no. 3; Fig. A2.15, no. 3) is an obliquely blunted point and displays very fine steep retouch along both lateral edges to form the point. Although obliquely blunted points were in use throughout the Mesolithic period (Jacobi 1978, 20), they tended to be larger during the Early Mesolithic (Pitts and Jacobi 1979, 170) compared to the Late Mesolithic. This example measures 5mm in width and is probably of Late Mesolithic date. This could potentially be a Mesolithic pit, although the lithics were not recovered from the primary fill. No other artefactual or environmental material was recovered.

Pit 21684

Forty worked flints (6.8g) were recovered from the single fill (21685) of this pit. They comprise one blade, 6 flakes and 33 chips, so this small flint assemblage is also likely to include some fresh knapping waste. The flakes include two removed with a soft hammer. These, together with the blade, hint at activity during the Mesolithic or Early Neolithic periods. A calibrated radiocarbon range of 3643–3528 cal BC (SUERC-130104, 95.4% probability) was returned for this feature, so this pit is also Early Neolithic in date.

Illustration catalogue (Fig. A2.14)

11. Leaf-shaped arrowhead, Ra. 19. Green (1980) Type 4Cv. Period 1 pit 11979, fill 11980. See also Fig. A2.15, no. 9.
12. Piercer, made on a blade blank. Period 1 pit 11995, fill 11996. See also Fig. A2.15, no. 10.
13. End scraper, made on a blade blank. Period 1 pit 12062, fill 12065.

Middle/Late Neolithic flint

A British oblique arrowhead (Ra. 21) was recovered from Period 4 Phase 4.2 pit 20913 of pit/posthole group PB6 (upper fill 20915, of two fills). This type of arrowhead is Late Neolithic in date (Green 1980, 108). The retouch extends across the whole of the dorsal face but is present only on parts of the ventral edges. This tool exhibits a lateral break that has removed the proximal end of the right ventral edge.

Period 4 Middle to Late Iron Age features

A total of 261 worked flints (1159.2g) and 3 burnt unworked flints (43g) were recovered from Period 4 ditches and pits across Areas A and B (Table A2.14). Although the likelihood of flint knapping continuing into the Iron Age has become relatively widely accepted over the past couple of decades (e.g. Cooper and Humphrey 1998; Bevan 2015) there is no indication that the lithics from these Iron Age features are stratified as they include residual Mesolithic, Neolithic and Beaker/Early Bronze Age items. They are also in a more heavily edge-damaged condition than those from the Period 1 features (moderate/heavy edge damage was recorded on

20 of the 186 where it could be recorded, i.e. 11%). However, this still constitutes a relatively small degree of edge damage, so the flints appear not to have moved far from where they were originally deposited.

Discussion

Although the lithic assemblage includes a substantial residual component, it demonstrates activity during the Mesolithic and Early Neolithic periods. This is likely to be domestic in nature, as the flints are indicative of hide working (end scrapers), plant processing (microdenticulates) and flint knapping (chips, cores and core rejuvenation flakes). Other crafting or manufacturing processes are suggested by the burin (bone or antler working), piercer and truncations. According to microwear studies, truncations are likely to have functioned as multipurpose tools, used for cutting, scraping and grooving (Conneller *et al.* 2018, 528). The only tool that can be confidently dated to the Early Neolithic period is the leaf-shaped arrowhead from the most productive Period 1 pit, 11979. Such tools would have been used for hunting or interpersonal violence. For example, at Crickley Hill Early Neolithic enclosure, Gloucestershire approximately 600 were recovered, indicating that the monument had been subjected to a substantial attack (Savage 2014, 16) and the top of a leaf-shaped arrowhead was found embedded in an adult vertebra from a chambered cairn (Tulloch of Assery B) at Loch Calder, Caithness, Scotland (Young 1967, 63).

The surrounding area appears to have been extensively used by humans during the Mesolithic period as a substantial number of flints has been recovered from numerous sites. For example, at Duston, approximately 3km to the south-east, around 25,000 flints were recovered from topsoil during the early 20th century. They are mixed but include a substantial proportion of Mesolithic items. These include a large number of microliths (5% of the total flints) and the debitage was dominated by bladelets (RCHME 1985). During work on the Northampton north-west relief road, approximately 4km to the north-east of Harlestone Park, part of a flint scatter was excavated that contained approximately 7000 flints, 95% of which considered to be Mesolithic in date, including 21 microliths (OA 2023, 14–15). Excavations at Chalk Lane, Northampton, approximately 5km to the south-east, recovered 3123 worked flints, many of which are residual and include clearly Mesolithic material such as microliths (23% of retouched tools) and microburins. The burins from Chalk Lane were also thought to be of Mesolithic date (Williams and Shaw 1981, 126–9). Other excavations such as Brumut Hills, approximately 7km to the west (Wolframm-Murray 2019), and St Peter's Street and St Peter's Gardens, Northampton, both approximately 9km to the east (Moore 1975; Humble 1985, 71), have found smaller numbers of residual Mesolithic flints, including one or two microliths, and are therefore more similar to the current assemblage. Mesolithic sites in the Northampton area tend to be located on ironstone bedrock or river terrace gravel superficial deposits (Phillips 2000, 1) and it is common for Mesolithic settlements in general to be situated on well-drained soils or gravels (Phillips 2000, 4). Harlestone Park, Duston, Chalk Lane, St Peter's Street and St Peter's Gardens are all on ironstone bedrock of the Northampton Sand Formation (BGS 2026b).

Early Neolithic activity is also known in the area; for example, at causewayed enclosures at Dallington, approximately 2km to the north-east and Briar Hill, approximately 5km to the south-east. At Dallington Gateway, just over 1km north-east of Harlestone Park, Early Neolithic flints recovered as residual finds in Iron Age pits (including two leaf-shaped arrowheads and four core rejuvenation flakes) may potentially be related to the construction of the causewayed enclosure (Chapman 2019a, 41–4). At Briar Hill causewayed enclosure a substantial lithic assemblage of Early Neolithic date was recovered from prehistoric features and as residual finds. Diagnostic items include 12 leaf-shaped arrowheads, 83 microdenticulates and a laurel leaf (Bamford 1985, 60–77). The topsoil finds from Duston, approximately 3km to the south-east, also included Early Neolithic material such as leaf-shaped arrowheads (5% of retouched tools) and laurel leaves (1% of tools) (RCHME 1985). At Brixworth, approximately 9km to the north-east, a series of flint scatters were uncovered, which included four of Early Neolithic date. The lithics from the scatters included 17 leaf-shaped arrowheads and a laurel leaf (Martin and Hall 1980, 8).

Small numbers of Middle/Late Neolithic flints have been recovered in the area from sites including Briar Hill causewayed enclosure, which included transverse arrowheads and saws (Bamford 1985, 77) and Duston, which included petit tranchet arrowheads (RCHME 1985). The flint scatters at Brixworth, mentioned above, included 10 of Late Neolithic date and the lithics they produced include 12 transverse arrowheads (Martin and Hall 1980, 7–8).

A2.10: Worked stone

By Ruth Shaffrey

Introduction and methodology

In total 56 pieces of stone were retained and submitted for assessment (Shaffrey 2024). These were examined by eye to determine whether they were burnt or used. Worked stone was recorded with the aid of a x10 magnification hand lens. Most of the stones (49 items) are burnt but otherwise unworked; the remainder of the assemblage comprises four pieces of worked stone (one of which was modern, see Shaffrey 2024). No worked stone was found in Period 6 (Middle to Late Roman)

features but there was burnt stone, comprising reddened and heat-affected stones from contexts associated with kiln A; none of these stones demonstrate evidence for having been shaped but were presumably structural stone associated with the kiln (Shaffrey 2024).

Description

There are three worked stone objects from Iron Age features. A sandstone slab from Period 3 (Late Bronze Age/Early Iron Age) pit 21619 (pit alignment B) has been used for shaping and/or smoothing objects, probably of bone or wood, rather than metal. This use has resulted in two wide parallel U-shaped hollow grooves and a third at right angles to these (Fig. A2.16, no. 1).

Middle to Late Iron Age (Period 4) features contained a spindle whorl and a saddle quern. The sandstone spindle whorl was in Period 4 Phase 4.2 roundhouse RA8.1 (cut 10997, fill 10998, Ra. 12); it is broken but a flat face and rounded sides can be identified. The perforation measures 9mm in diameter and thus is larger than typical for Iron Age spindle whorls, which usually have perforations measuring 4–8mm (Walton-Rogers 2007, 23). It can be viewed in association with a ceramic spindle whorl (Ra. 22, see Appendix A2.6) as evidence for spinning at the site during the later Iron Age to Roman periods.

The saddle quern is a large sandstone boulder/dogger with naturally smoothed edges and base and a mostly flat and smoothed grinding surface with traces of pecking visible (Fig. A2.16, no. 2). At one edge is a large socket. This is naturally formed and unworn inside but the grinding surface around it is worn suggesting the stone was used regardless of the socket. The saddle quern was found in the basal fill of Period 4 Phase 4.2 pit 20902 (fill 20903; pit/posthole group PB6) where it had been placed with the grinding surface facing upwards. The recovery of complete querns from Middle Iron Age contexts is an unusual occurrence because most querns were broken at the end of their working lives, either for reuse or for deposition. Data suggests, however, that pits were the favoured choice for structured deposition of complete querns in the region during the Iron Age. At nearby Upton a complete saddle quern was found in a Late Bronze/Early Iron Age pit (Chapman 2010, 21), while at Apex Park, Daventry one was found in a Middle Iron Age storage pit (Chapman 2019b, 66). In neither case are details given of the position of the querns within the pits but at Long Dole, some 17km to the north-west, a slightly damaged saddle quern was placed in the uppermost fill of a Middle Iron Age clay-lined pit in the centre of a ring gully interpreted as a possible shrine (Chapman and Chapman 2015, 48). Interpreting querns in pit deposits is widely hindered by lack of records on their positions but querns from basal deposits of Middle Iron Age pits are known elsewhere (e.g. Philp *et al.* 1991, 178; Rahtz and Clevedon Brown 1959, 157) and a survey of querns from south-western England found a bias towards querns (both complete and broken) in the very bottom or top fill of pits (Watts 2014, 113). Further publication and collation of such data will eventually allow for more detailed analysis.

Catalogue of worked stone

1. Whetstone (Fig. A2.16, no. 1). Fine to medium-grained brown feldspathic and ferruginous sandstone. Slab with two wide parallel U-shaped hollow grooves and a third at right angles. The grooves are 27, 35 and 25mm in width and up to 15mm in depth. The slab measures 195 x 160 x 50mm in thickness. Weighs 1546g. Fill 21620, pit 21619. Period 3.
2. Saddle quern (Fig. A2.16, no. 2). Medium-grained hard and well-cemented micaceous sandstone, probably from the Northampton Sand. Large boulder/dogger with naturally smoothed edges and base. The edges are vertical and straight and the base and grinding surfaces are flat. The grinding surface is smoothed but with traces of pecking visible. At one edge is a large socket. This is naturally formed and unworn inside. Measures 350 x 290 x 160mm. Weighs 20,980g. Ra. 23. Fill 20903, pit 20902. Period 4 Phase 4.2.
3. Spindle whorl (not illustrated). Fine-grained brown micaceous sandstone. Broken in half and also laterally along a bedding plane. The surviving portion has a flat face and rounded sides. The perforation measures 9mm in diameter. Measures 42mm in diameter x >9mm in thickness. Weighs 13g. Ra. 12. Fill 10998, roundhouse RA8.1 (cut 10997). Period 4 Phase 4.2.

A2.11: Metalwork

By Alex Bliss

Introduction and methodology

The excavation produced a total of 34 metal objects, weighing 292g. Of these, 25 are iron, seven copper-alloy, one lead-alloy and one is manufactured from other metal. Seven were recovered unstratified via metal detecting of topsoil or subsoil contexts during initial site stripping, while the remainder were either hand-excavated from archaeological features or retrieved during processing of bulk soil samples. Area A produced the majority of the assemblage (23 finds, 68%) while noticeably fewer items were recovered from Area B (11, 32%). Only a relatively small quantity of objects could be dated accurately, those of a diagnostic nature ranging in date from the Middle Bronze Age to modern eras.

Finds were recorded directly onto the Microsoft Access

Fig. A2.16 Worked stone

database for the project in line with level 3 standards as set out in the CIfA Toolkit for specialist recording (CIfA 2021). All were recorded fully with regard to material, broad classification and dimensions, including narrative description and appropriate typological discussion where appropriate.

Within the scope of this report, all the metal objects have been assigned to functional categories based on those utilised by Crummy (1983) and Margeson (1993) for the Roman and multiperiod finds assemblages from Colchester and Norwich respectively. Each category is itself sub-divided by the different types of objects represented within it, discussing the appearance and dating of each both on individual grounds and by comparison with finds from excavated assemblages located elsewhere in Britain. Unstratified metalwork

of post-Roman date (mostly post-medieval to modern material) is included in the conclusion of this report. A summary of the metal finds per area, context/feature, period and functional category can be found in Table A2.16.

Dress accessories and items of personal adornment

The bow brooch

An incomplete copper-alloy two-piece bow brooch (Ra. 24) of Colchester B/Colchester Derivative double-lugged/Harlow type (Mackreth 2011, CD Ha; Crummy 1983, 12) was excavated from fill 21661 of Period 5 (Late Iron Age/Early Roman) ditch BH (cut 21659; Fig. A2.17, no.1). It represents the only dress accessory of Roman date recovered from the site. With its stubby-winged head, plain bow and flattened, apparently imperforate catchplate, this example best corresponds with Mackreth's type 2.e (see Mackreth 2011, 37, pl. 34 nos 1255 and 1264).

Harlow brooches are typically dated to around AD 50–80 or 50–100/120 (Riddler *et al.* 2022, 215; Plouviez 2004, 97), certainly falling from use by the start of the 2nd century AD. This form is defined by the presence of a double-perforated lug sited directly behind the head, through which are threaded the chord and axis bar. Corresponding with Plouviez's group F (Plouviez 2008, 171, table 4.1.1), this type is most strongly associated with southern and eastern England, i.e. the Trinovantian and Catavellaunian cultural zones, appearing in large numbers both within site assemblages and as stray finds (Riddler *et al.* 2022, 215; Plouviez 2008, 174). However, the form is also to be found (albeit to a much lesser degree of prevalence) in the Midlands and south-west.

Table A2.16: Metal objects by area, context/feature, period and functional category

Period/Phase	Context	Feature	DA/PA	CO/T	WEA	NI	FF	MISC
Area A								
–	10000	Topsoil	–	–	1	1	1	3
–	10001	Subsoil	–	–	–	–	–	1
Unphased	11578	Tree-throw hole 11577	–	–	–	–	–	1
M–LIA Phase 4.2	10691	Ditch A10.1B (cut 10689)	–	–	–	–	1	
M–LIA Phase 4.2	10713	Pit 10712 (pit group PA5)	–	–	–	–	–	2
M–LIA Phase 4.2	10752	Roundhouse RA8.1 (cut 10751)	1	–	–	–	–	–
M–LIA Phase 4.2	10763	Ditch A8A (cut 10762)	–	–	–	–	1	–
M–LIA Phase 4.2	10878	Pit 10877	–	1	–	–	–	–
M–LIA Phase 4.2	11062	Pit 11061 (pit group PA7)	–	–	–	–	1	–
M–LIA Phase 4.2	11206	Ditch A4A (cut 11203)	–	–	–	–	–	1
M–LIA Phase 4.2	12061	Ditch A2A (cut 12056)	–	–	–	–	1	–
M–LR	11285	Cremation burial 11283	–	–	–	–	3	–
M–LR	11968	Limekiln A (cut 11966)	–	–	–	–	2	–
M–LR	11982	Limekiln A (cut 11981)	–	–	–	–	–	1
Area B								
M–LIA Phase 4.1	22357	Pit 22355	–	–	–	–	1	–
M–LIA Phase 4.2	22431	Roundhouse RB1 (cut 22430)	–	–	–	–	4	–
M–LIA Phase 4.2	20350	Ditch B5A (cut 20339)	–	1	–	–	–	–
M–LIA Phase 4.2	20527	Pit 20526 (pit/posthole group PB5)	–	–	–	–	1	–
M–LIA Phase 4.2	21224	Pit 21223	–	–	–	–	1	–
LIA/ER	21661	Ditch BH (cut 21659)	1	–	–	–	–	–
EMed	21498	Grave 21497	1	–	–	–	–	–
med	20451	Plough furrow 20451	–	–	–	–	1	–

Key: DA/PA = dress accessories or items of personal adornment; CO/T = craft objects or tools; WEA = weaponry; NI = items of numismatic interest; FF = fixtures and fittings; MISC = miscellaneous objects from other functional categories, including unidentified objects and various unstratified items of post-Roman metalwork; M–LIA = Middle to Late Iron Age; LIA/ER = Late Iron Age/Early Roman; M–LR = Middle to Late Roman; EMed = early medieval; med = medieval

The wire ring

Bulk soil sample 276, recovered from fill 21498 of grave 21497 (Period 7, early medieval), produced a single metal object (Fig. A2.17, no. 2). This appears to represent an item interred alongside the deceased individual. It comprises a simple copper-alloy ring manufactured from wire of circular cross-section, though now broken into five fragments.

This item is challenging to identify precisely due to its lack of diagnostic features. The very small diameter (22.8mm) suggests that it is not likely to be a finger ring, while the fact that it is of very delicate construction eliminates any chance that it could have functioned as a penannular brooch. The 8th to 9th century radiocarbon date for the burial (705–883 cal AD, SUERC-130122, 95.4% probability) may be of some assistance in this regard, as fine copper-alloy rings of variously penannular, closed or slip-knot form are known from both Staunch Meadow, Brandon, Suffolk (Riddler 2014, 263–4 and fig. 8.18 nos 3303, 5017, 5171 and 7130) and Flixborough, Lincolnshire (Rogers 2009a, 23–4). An ear-scoop from Flixborough also retains part of a similar wire loop threaded through its perforated upper section, presumably for suspension (Rogers 2009b, 31, fig. 1.12 no. 230). At Brandon the stratified rings originated from contexts of phase 2.3 – i.e. the middle to later 9th century (Tester *et al.* 2014, 24), while the Flixborough ear-scoop and its associated partial ring was excavated from a context of phase 4ii, similarly dated to the mid 9th century (Rogers 2009b, 32). On the basis of these comparanda we might tentatively suggest that the ring recovered from grave 21497 may represent either a detached suspension ring for a cosmetic implement or, alternatively, a fine dress fitting of some kind.

The button

A small copper-alloy two-hole button (Ra. 9, not illustrated) was excavated from fill 10752 of Period 4 Phase 4.2 (Middle to Late Iron Age) roundhouse RA8.1 (cut 10751). As this object dates to the recent era it is thus intrusive, probably indicating modern disturbance of the feature. Buttons of the two-hole design, especially those of comparable size to this example (10.5mm diameter), were typically used on various undergarments between the late 19th and early 20th centuries (Ferris 1986, 99).

Craft objects and tools

The knife

Fill 10878 of Period 4 Phase 4.2 pit 10877 produced a complete iron knife (Ra. 13, Fig. A2.17, no. 3) of Danebury class 3 (Sellwood 1984). This object broke into three fragments on excavation but was originally deposited intact. In form it is effectively a scale-tang design of composite construction. The tang itself is flat and rectangular with slightly raised edges. Two cylindrical iron rivets retained through parallel apertures set along its centre line would originally have served to attach side-plates or grips of an organic material such as wood or antler, though no trace of these remains. The blade is single-edged with a triangular cross-section. While the blade back is slightly humped at the junction between the tang and blade, the cutting edge has a distinct, angular choil of some depth which effectively turns 90 degrees before angling again to form the tang. The form of the cutting edge itself is largely straight for almost two thirds of the blade length, curving upwards roughly parallel with the blade back to form a hooked tip.

One-piece knives with flat riveted tangs and hooked blades are known from a number of other British Iron Age sites, including Hunsbury, Northamptonshire (Fell 1936, 65 and pl. XIII no. 2); Gussage All Saints, Dorset (Wainwright 1979, 104–5, fig. 80 nos 1080 and 1108) and Danebury, Hampshire (Cunliffe and Poole 1991, 336, fig. 7.11 nos 2.223–2.224; Sellwood 1984, 350, fig. 7.10 nos 2.34 and 2.36). Of these, the closest parallel for the Northampton knife is a find from the 1969–78 Danebury excavations (Sellwood 1984, 350, fig. 7.10 no. 2.34), which differs only in that its back is markedly more humped. Although the Gussage All Saints knives originate from phase 1 deposits of the Early Iron Age, those from Danebury (including the hooked examples with riveted tangs) overwhelmingly derive from deposits of the later Middle to Late/Latest Iron Age, *c.* 300–100/50 BC or 210–80 BC onwards (Cunliffe and Poole 1991, 341; Cunliffe 1984a, 196, table 27; 1984b, 242, section 6.3.8). In line with the Danebury phasing it might therefore be suggested that the Harlestone Park knife is similarly of later Middle to Late/Latest Iron Age date, perhaps 3rd to 1st century BC. By their very definition, knives are inherently utilitarian, multifunctional objects with applications in personal, domestic and craft-related contexts. As such, it is difficult to suggest any specific or specialised use for the example discussed here.

The awl

A long, elongated iron implement (Fig. A2.17, no. 4) excavated from fill 20350 of Period 4 Phase 4.2 ditch B5A (cut 20339) probably represents an awl or similar tool, perhaps used within the context of textile or leather-working. Its upper portion appears to have an overhanging head, being initially rectangular in cross-section and expanding slightly. Above its midsection the cross-section transitions to become circular, the body then tapering along its length to a sharp point.

This item finds parallels with a relatively broad group of similar rod-like tools excavated at Danebury (Cunliffe and Poole 1991, 340, fig. 7.15, and 351; Sellwood 1984, 354–5, fig. 7.13). There it is suggested that at least some of these may have been hafted and used as punches for leather-working, although it is not impossible that others found application within fine working of metal or

wood (Sellwood 1984, 354). Similar objects have been found at other Iron Age occupation sites, including All Cannings Cross, Wiltshire (Cunnington 1923, 122, pl. 19 no. 7 and pl. 120 nos 6–8) and Hod Hill, Dorset (Brailsford 1962, 14, fig. 13, G44). Although the Hod Hill find does not have an expanding upper section, it is comparable to the Northampton find in that it has a rounded, overhanging head. Virtually all those from Danebury were associated with later Middle to Late Iron Age contexts, suggesting a date range similar to the knife discussed above.

Weaponry

The barbed-and-tanged arrowhead

Perhaps the most significant metal find discovered during the excavations at Harlestone Park is a copper-alloy arrowhead of barbed-and-tanged form (Ra. 3, Fig. A2.17, no. 5). Though found unstratified in Area A it was spatially located very close to Period 4 Phase 4.2 ditch A2A (cut 11920). These objects are usually dated to the Middle Bronze Age on the basis of a stratified example recovered from the Penard/Langrove hoard, Swansea (O'Connor 1980, 102–3; Grimes 1939; Crawford and Wheeler 1921, 137–8). However, it may well have been deposited at a later date, given that the circulation and curation of Bronze Age metalwork into the Iron Age is a known archaeological phenomenon (Hingley 2009).

The arrowhead essentially survives complete except for one barb, though its edges show signs of chipping and abrasion commensurate with recovery from agriculturally turbated topsoil. Triangular in plan with slightly incurved sides, it has a plano-convex cross-section suggestive of casting in an open mould. One face is smooth and finely finished, with bevelled edges and numerous striations or filing marks covering its surfaces. These in particular concentrate around the barbs, notches and tang. The opposing face is much rougher in appearance, though similar marks (albeit noticeably fewer) again cluster around the tang/barbs area. Presumably, these refer to final shaping or finishing of the object.

There are now over 30 barbed-and-tanged arrowheads of copper-alloy known from Britain, the vast majority of which have emerged thanks to the recording of stray metal-detecting finds. A summary of all other known and securely identified examples is presented in Table A2.17. All except the Penard/Langrove find cited previously are unstratified, an unhelpful situation which contributes little to refining overall dating of the type. On the basis of continental parallels (Watson 1993, 11, no. 90 and 26, no. 328) it has been suggested that at least some of these items may represent contemporaneous imports from Central Europe, although precious little compositional work has been done which might shed light on this issue.

Objects of numismatic interest

The Roman coin

Metal-detecting of topsoil in Area A produced the sole coin find from the excavation (Ra. 4), which dates to the Roman period. Though highly worn, it can be identified as an As or Dupondius of Flavian attribution, most likely struck for Domitian (AD 81–96). Despite its 1st-century date, this coin could realistically have been lost at any point up till the middle of the 3rd century AD (Reece 2002, 42–4).

Fixtures and fittings

Items identifiable as fixtures and fittings within the metalwork assemblage comprise entirely of generic iron nails or tacks utilised for various purposes. In total, 18 could be securely attributed. Of these, 11 originate from deposits of Period 4 (mostly Phase 4.2), 5 from Period 6, one from Period 8 and one is unstratified. Nails were generally recovered from features on a singular basis, although larger groups of three and four were recovered from Period 6 cremation burial 11283 and Period 4 Phase 4.2 roundhouse RB1 respectively. No spatial concentration was observed, nails being spread in roughly equal numbers across Areas A (10) and B (8). In this report they have been analysed and discussed in line with the typological conventions and specialised guidance recently set out by Manby (2024).

Only 7 nails out of the 18 recovered survive complete, ranging in length from 9mm to 47mm. Of these 7, 3 (one each from Period 4 Phase 4.1 pit 22355, Period 4 Phase 4.2 pit 21223 and Period 6 limekiln A (cut 11966)) are less than 20mm in length. The remaining 11 are all either incomplete in some way or survive only as fragments. In terms of condition, the entire group ranges from fair (Manby 2024, 191, category 3) to poor/very poor (ibid., categories 4/5), which is to be expected given the propensity for excavated ironwork to preserve badly.

Overall, the group is of limited typological range. Six nails can be identified to Manby's type 1 (2024, 188), a general use form classified by flat round heads and tapering shanks of rectangular cross-section. This group includes the three very small nails/tacks discussed above. Due to their size, these may be best interpreted as examples used in wooden furniture. Indeed, the example recovered from bulk soil sample 234 (taken from Period 4 Phase 4.1 pit 21223) may represent an upholstering tack of relatively recent date, as inferred by its uncorroded state and potentially machine-made form. Three further nails from Phase 4.2 ditch A8A (cut 10762) and pit 11061 (pit group PA7); and Period 6 limekiln A (cut 11966) are of Manby type 3 (ibid.), with rectangular, domed heads of facetted appearance. As with type 1, this form finds wide use within the scope of general carpentry purposes. The remaining six nails

are all unattributable to type due to being incomplete or in poor states of preservation. Three out of the four fragmentary examples recovered from fill 22431 (Phase 4.2 roundhouse RB1 (cut 22430)) via bulk soil sample 283 appear to have the rounded heads and stubby shanks characteristic of Roman hobnails, but this is a tentative observation given their extremely poor condition. Of more specialised function is an incomplete nail shank recovered from the topsoil in Area A (Ra. 11), which at over 50mm in length and 10mm thick at its truncated upper edge is definitely more substantial than others recovered from the site. It is probably of structural origin, though its state of preservation suggests a relatively recent date.

As with the overall nail types, shank morphologies represented are equally restricted. Generally, complete nails or better-preserved fragments show evidence of slight to moderate shank curvature suggestive of use (i.e. created due to off-centre hammering or knots in the wood), although one nail from Phase 4.2 ditch A10.1B (cut 10689) has a shank of turned or hooked form.

The majority of nails recovered from Areas A and B appear to reflect either examples thrown away as refuse or those lost incidentally before being incorporated into open features. However, the three shank fragments recovered in association with Period 6 cremation burial 11283 stand in stark contrast to this, undoubtedly reflecting aspects of the cremation rite. It has often been suggested that, when found in association with cremations, iron nails and tacks may variously derive from the wooden bier, pyre or wooden boxes used to contain the burnt remains (Philpott 1991, 16–17, 47). However, that iron nails could also play the role of inherently symbolic objects, possessing both apotropaic and magical qualities within frameworks of Roman belief is equally undeniable (Claeys *et al.* 2023, 167; Hingley 2006, 218). As such, a non-functional purpose for the inclusion of these objects is possible, their presence perhaps intended as a way of 'fixing the restless dead' (Claeys *et al.* 2023, 170).

Miscellaneous objects

A total of nine metal finds could be assigned to this category, recovered during hand-excavation of features and via metal detecting the topsoil/subsoil. It encompasses items from functional categories beyond those set out previously, unidentifiable/undiagnostic objects and all the securely post-Roman metal finds from topsoil or subsoil contexts.

The ratchet-chain link

A large and very solidly made 'C' shaped object with perforated terminals formed by drilling was excavated from fill 11206 of Period 4 Phase 4.2 ditch A4A (cut 11203). This can be identified as a detached link originating from a ratchet chain used on agricultural machinery (Michael Green pers. comm. 2024) and is clearly intrusive.

Unidentifiable stratified material

Four metal finds comprise objects for which no use could be suggested, due to either their lack of diagnostic features or fragmentary state of preservation. All are manufactured from iron. Probably of recent origin is a heavily fragmented piece of curved sheet iron excavated from tree-throw hole 11577. The appearance of these fragments is very similar to that of modern corrugated iron sheeting. Additionally, two small iron fragments from fill 11982 of Period 6 limekiln A (cut 11981) refit to form what appears to be part of a thin rectangular object with a large central aperture, though its date and function are unknown. Discussed last within this small group of unattributable objects are two items from fill 10713 of Phase 4.2 pit 10712 (pit group PA5), both recovered via bulk soil sampling. Sample 26 contained a thin, slightly tapered fragment of iron strip, heavily corroded and with a sub-triangular cross-section. Although the latter may indicate that it represents a fragment of knife blade, this is uncertain. The second unidentifiable object was found during processing of sample 71. Its stubby appearance and angular top possibly indicate a bolt-head, but the item is too heavily corroded to be completely sure of this.

Unstratified non-ferrous metalwork of post-Roman or uncertain date

Four non-ferrous objects (two copper-alloy, one lead-alloy, one other metal) are either of definitively post-Roman origin or could not be assigned a specific date. All were recovered from topsoil or subsoil contexts during initial stripping of the site. These finds include a fragment of Georgian shoe-buckle (topsoil, Area A); a small clock or cabinet key of probable 18th to 19th-century date (Ra. 6, subsoil, Area A); a fragment of modern toy cap-gun ammunition in uncertain white metal (topsoil, Area A) and a small, misshapen piece of melted, undiagnostic lead-alloy (Ra. 5, topsoil, Area A).

Catalogue of illustrated objects (Fig. A2.17)

1. Bow brooch, copper-alloy. Length: 38mm. Surviving width of head: 9.4mm. Thickness at midpoint of bow: 3.4mm. Ra. 24, fill 21661of ditch BH (cut 21659). Period 5.
2. Ring/loop, copper-alloy. Estimated diameter: 22.8mm. Thickness: 1.9mm. Unregistered, bulk soil sample 276, fill 21498 of grave 21497. Period 7.
3. Knife, iron. Length: 128mm. Width of blade at widest point: 34mm. Thickness of blade-back at midpoint: 2.26mm. Width of tang at midpoint: 21.75mm. Length of complete rivet: 9.89mm. Diameter of complete rivet at

Fig. A2.17 Photographs of a selection of the metalwork

Table A2.17: Gazetteer of all securely identified copper-alloy barbed-and-tanged arrowheads known to exist, excepting the example recovered from Harlestone Park

Find reference	County	Findspot	Publication reference	Notes
BH-E49DD8	Bedfordshire	Battlesden	https://finds.org.uk/database/artefacts/record/id/1146232	
SF-4014B0	Cambridgeshire	Isleham	https://finds.org.uk/database/artefacts/record/id/258381	Tang with expansion at terminal – unfinished?
NARC-7ED438	Cambridgeshire	Meldreth	https://finds.org.uk/database/artefacts/record/id/1062715	
WILT-8171F0	Dorset	Frampton	https://finds.org.uk/database/artefacts/record/id/773686	
ESS-A41D75	Essex	Hadstock	https://finds.org.uk/database/artefacts/record/id/72288	
Antiquarian find – Penard Hoard	Glamorgan (Wales)	Penard	O'Connor 1980, 102–103; Grimes 1939	
LEIC-13A0FE	Leicestershire	Melton Dorian	https://finds.org.uk/database/artefacts/record/id/916969	
LIN-0855F8	Lincolnshire	Caythorpe	https://finds.org.uk/database/artefacts/record/id/1078163	
LIN-BAB90B	Lincolnshire	Horncastle	https://finds.org.uk/database/artefacts/record/id/1043032	
SWYOR-3A2CF7	Lincolnshire	Scotter	https://finds.org.uk/database/artefacts/record/id/503323	
SWYOR-453A2D	Lincolnshire	Temple Bruer with Temple High Grange	https://finds.org.uk/database/artefacts/record/id/1007031	Possibly reworked spearhead fragment
NMS-477E93	Norfolk	Barton Bendish	https://finds.org.uk/database/artefacts/record/id/573866	
NMS-DDFF5A	Norfolk	Bradenham	https://finds.org.uk/database/artefacts/record/id/987985	
NMS-105598	Norfolk	Methwold	https://finds.org.uk/database/artefacts/record/id/916904	Similar in appearance to SWYOR-453A2D
NMS-B061B6	Norfolk	Mileham	https://finds.org.uk/database/artefacts/record/id/887651	
SWYOR-0CAB39	North Yorkshire	Hellifield	https://finds.org.uk/database/artefacts/record/id/1123558	
BERK-138F31	Oxfordshire	Grove	https://finds.org.uk/database/artefacts/record/id/487173	Highly abraded
WMID-777E0A	Staffordshire	Longdon	https://finds.org.uk/database/artefacts/record/id/1103523	
SF6680	Suffolk	Bradfield Combust with Stanningfield	https://finds.org.uk/database/artefacts/record/id/21488	
ERL050	Suffolk	Eriswell	Pendleton 1999, 164, no. 322; O'Connor 1980, 103, list 58.3, fig. 38.7	
SF-E1E72A	Suffolk	Halesworth	https://finds.org.uk/database/artefacts/record/id/984346	
Antiquarian find – Lakenheath	Suffolk	Lakenheath	Pendleton 1999, 164, no. 323, indirectly referenced in Cunnington 1926	From the so-called 'Fenton collection'
SF-C931F4	Suffolk	Worlingworth	https://finds.org.uk/database/artefacts/record/id/752526	

WMID-CE6A76	Warwickshire	Easenhall	https://finds.org.uk/database/artefacts/record/id/137216	
WILT-6612D9	Wiltshire	Chippenham Without	https://finds.org.uk/database/artefacts/record/id/1161359	
DOR-969968	Wiltshire	Coombe Bissett	https://finds.org.uk/database/artefacts/record/id/1007938	
Antiquarian find – Water Dean Bottom	Wiltshire	near Compton (Water Dean Bottom, Salisbury plain)	Mercer 1970, 192; Cunnington 1926, 182	Location approximate
SUR-D9AFD8	Wiltshire	Ogbourne St George	https://finds.org.uk/database/artefacts/record/id/922787	Tang atypically long
WILT-807272	Wiltshire	Salisbury	https://finds.org.uk/database/artefacts/record/id/595655	
WILT-6B6CD4	Wiltshire	Teffont	https://finds.org.uk/database/artefacts/record/id/595407	Tang atypically long
SOM-212890	Wiltshire	West Knoyle	https://finds.org.uk/database/artefacts/record/id/632866	Miscast, half missing

wider end: 6.12mm. Ra. 13, fill 10878 of pit 10877. Period 4 Phase 4.2.

4. Awl/punch, iron. Length: 147mm. Thickness at midpoint: 9.5mm. Unregistered, fill 20350 of ditch B5A (cut 20339). Period 4 Phase 4.2.
5. Barbed-and-tanged arrowhead, copper-alloy. Length: 56.4mm. Width at widest point (between barbs): 25.1mm. Thickness at mid-point: 2.2mm. Width of tang at midpoint: 6.31mm. Ra. 3, topsoil (Area A).

Discussion

The assemblage of metalwork recovered from the excavations at Harlestone Park is indicative of human use of the site and wider landscape from the Middle Bronze Age onwards. Specifically, the majority of diagnostic material relates to occupation that took place during the Middle to Late Iron Age (Period 4), Middle to Late Roman (Period 6) and post-medieval/modern (Period 9) eras. This material appears to have been deposited via several different processes.

A relatively large proportion of the metalwork has the overall character of 'background noise', some of it probably buried as a result of general occupation and other items (i.e. at least some of the unstratified material) from wider site-use. Items such as the Roman coin and bow brooch are typical examples of this, with currency and dress accessories in particular representing two object classes lost frequently on a casual basis in most periods. This, combined with the low prevalence of Roman archaeology encountered and dearth of other contemporaneous finds, suggests that they represent material associated with activity occurring in the wider vicinity. Much the same can be said about the post-medieval to modern metalwork, particularly the unstratified material. This does not appear to be connected with any buried archaeology, probably accumulating over the last few centuries as incidental losses (i.e. post 1700).

Among the stratified material, the small quantity of nails recovered widely dispersed across areas A and B is probably best interpreted at a comparable level. Excepting the three nails excavated from Period 6 cremation burial 11283, there is little evidence that these artefacts were intentionally deposited. Given that some show evidence of use, it is likely that the majority were deposited still attached to timber (i.e. disposed of as refuse) or alternatively became inadvertently incorporated into open features. Both the latter possibilities are corroborated by fact that the assemblage of nails was by and large recovered on a singular basis, specifically originating from features well attested in acting as artefact traps (e.g. pits, ditches and a plough furrow). Although many originate from features assigned to Period 4, the potential for intrusivity is relatively high given the recovery of several clearly modern metal objects from contexts of this date. It should also be stressed that nails are very rare finds prior to the Late Iron Age (Major 2004b, 33) and even in the Late Iron Age itself they are uncommon (Major 2004b, 135), as illustrated by the fact that at Danebury hillfort fewer than ten were recovered from contexts spanning the entirety of the period (Major 2004a, 33; Sellwood 1984, 370). On this basis it seems logical to suggest that the dearth of nails encountered within Period 4 contexts indicates that any Iron Age structures either utilised them minimally (if at all) in their construction, or that structural ironwork was being meticulously collected/recycled after buildings fell out of use.

Of potentially more interesting character from a depositional point of view are the copper-alloy barbed-and-tanged arrowhead, the iron knife and the iron probable awl or punch. Although the arrowhead itself is likely to be of Middle Bronze Age date and could relate to use of the landscape for hunting during this period (if indeed, a functional object), the potential for it to represent a curated, redeposited item cannot be eliminated. This is especially true given the established phenomenon of Iron Age reuse of earlier prehistoric metalwork (Bliss 2020, 4–7; Farley 2011; Hingley 2009; Stead 1998) and that the Iron Age appears to represent the most intense phase of activity on the site. Although this find is unstratified, the presence of the knife and awl in a Phase 4.2 pit and ditch may be best interpreted within the parameters of structured deposition, reflecting placements of a special nature rather than being indicators of on-site activities or domestic processes (Hingley 2006, 213 and 217). Indeed, each was buried in a location of relative significance: the knife in a pit located just under 12m south-west from Phase 4.2 ditch A4A (cut 11083) and the awl/punch in the north-eastern corner (cut 20339) of enclosure B5's boundary ditch (B5A, cut 20141). The deposition of iron objects, both singly and in groups, within or close to boundary-type contexts in the Iron Age is a well attested trend (Hingley 2006, 221–2, see also figs 1–2). Though it is self-evident that not all iron objects found within such locations should be interpreted as deliberate deposits of religious character, at least some may represent material placed to emphasise or solidify the formal creation of boundary features, or alternatively at the end of their use as a way of marking closure or abandonment (ibid., 237–9).

Considering the size of the areas excavated, quantities of other artefactual material and high proportion of archaeological features dating to the Iron Age (Period 4, specifically Phase 4.2) the metalwork assemblage recovered from the site is clearly disproportionally small. Despite this, it is highly typical in many respects for the period. Indeed, sites of Early to Middle Iron Age date tend to produce relatively little, if any, metalwork (Duncan and Mackreth 2005, 134). A brief glance at sites either of exclusively Iron Age occupation or those

with substantial Iron Age phases from within the wider region illustrates this trend. The Early to Middle Iron Age site at Glinton, Cambridgeshire (Rees and Brudenell 2019) produced only a single copper-alloy ring-headed pin, while other Early/Middle to Late Iron Age sites at Butterfield Green, Luton, Bedfordshire (Luke and Preece 2017); Norse Road, Bedford (Meckseper and Ingham 2017); Topler's Hill, Bedfordshire (Luke 2004); Salford, Bedfordshire (Dawson 2005); Banbury Lane, King's Sutton, Northamptonshire (Ingham 2017) and Crick, Northamptonshire (Mudd *et al.* 2017) produced no metal objects at all, stratified or otherwise. Even large occupation sites seem to be largely devoid of metal finds in this period. The four hectares of settlement excavated at Wilby Way, Great Doddington, Northamptonshire, produced only a pin, several knife fragments, a file fragment and a rod (Bircher 2003, 44–5), while a mere 13 metal objects, mostly iron, were excavated at Twywell, Northamptonshire (Jackson 1975).

In summary, considering that some of the finds from Period 4 features at Harlestone Park have the potential to be intrusive, the quantities recovered seem to follow the above trend when compared with the quantities and types of metal finds recovered from other Iron Age sites in the area.

A2.12: Industrial waste

By Pete Banks and Laura Pearson

Introduction and methodology

A total of 43g (approximately 173 fragments) of industrial waste was recovered. All material was recovered from bulk soil sample residues, sorting of which included a scan for magnetic materials. The assemblage has been scanned and quantified by count and weight.

Assemblage range

A small quantity of magnetic residue (42g) was recorded from a sample taken from Period 4 Phase 4.2 (Middle to Late Iron Age) pit 10681 (pit group PA5). This includes three fragments of lightly magnetic, vitrified fired clay. The remainder probably consists of natural ferruginous rock particles that have become magnetic through heating. Three pieces (<1g) of spheroidal hammerscale from a sample taken from Period 4 Phase 4.2 pit 10712 (pit group PA5), were the only materials recovered certain to relate to metallurgical activities. Such material typically derives from iron-smithing activities, although the small quantities and poor condition may indicate the material is redeposited.

A2.13: Glass

By Pete Banks and Laura Pearson

Introduction and methodology

A total of 16 fragments (191g) of glass was recovered by hand from nine deposits and from one bulk soil sample (one fragment, 1g). The trial trench evaluation phase of work produced two fragments (87g) of glass (CA 2016b, 54). The glass was scanned by context and quantified by count and weight. Most of the glass assemblage is highly fragmented and in poor condition.

Assemblage range (post-medieval/modern)

Seven fragments of green or brown glass, probably from wine/spirits and other bottles, were recovered from Period 6 (Middle to Late Roman) limekiln A (cut 12275), Period 9 (post-medieval/modern) ditch AAD (cuts 5503 and 11030) and Period 9 animal burial 10808, and as unstratified material. The fragment (<1g) from limekiln A was from a bulk soil sample and is clearly intrusive in this context. Nine fragments of colourless window or vessel glass of post-medieval or later date were recorded. The fragments from Period 1 (early prehistoric) pit 11995 and Period 4 Phase 4.2 (Middle to Late Iron Age) ditches A4.2C (cut 4805) and AK (cut 11776), and pits 10641 (pit group PA5) and 12113, are clearly intrusive, the result of later disturbance. The remaining pieces were from Period 9 (post-medieval/modern) ditch AAD (cut 10814) or were unstratified.

Appendix 3
Biological Evidence

A3.1: Human bone
By Sharon Clough

Introduction

Human remains, including both cremated and skeletal elements, were recovered from Areas A and B. They comprised four individual skeletal remains and 21 cremated bone deposits. They are dated via radiocarbon dating and/or associated artefactual assemblages to the Middle Bronze Age (Period 2), Middle to Late Iron Age (Period 4 Phase 4.1), Middle to Late Roman (Period 6) and early medieval (Period 7) periods.

Methodology

All skeletal material was examined and recorded in accordance with national guidelines (Brickley and McKinley 2004, updated Mitchell and Brickley 2017 and Mays *et al.* 2018). Skeletal remains were recorded as presence/absence into Excel, long bones divided into five sections. Dentition was recorded using the Palmer notation. The completeness of each skeleton was classified as a percentage of the whole and divided into four groups: 0–25%; 25–50%; 50–75% and 75+%. The condition of the bone surface of each skeleton was graded 1–5 after McKinley (2004, 16).

Age was estimated using a multi-method approach, then each indicator was weighted on reliability. Where only one (less reliable) method was available, this individual was determined to be only adult or non-adult. The individual was then allocated an age category. For non-adults dental eruption (Moorrees *et al.* 1963; AlQahtani *et al.* 2010) was used to estimate age. Due to the poor preservation adult age estimation was limited to cranial suture closure (Meindl and Lovejoy 1985) and dental attrition (Mays *et al.* 2022). The biological sex of all adult skeletons was based on the examination of standard characteristics of the skull and pelvis (Ferembach *et al.* 1980; Schwartz 1995).

Cremated bone

The analysis methodology followed McKinley's standard procedure (McKinley 1997, 2004). The sample was sieved through stacks of 10mm, 5mm and 2mm mesh size. The relative weights of bone from each sieve were low and illustrate the degree of bone fragmentation. Identifiable bone was further separated into skull, axial, upper and lower limb categories in order to identify any deliberate collection bias and to examine the bone for age, sex and pathological lesions. The 2mm fraction is not normally included in the weights as it is mixed with pea grit. However, when there was a substantial amount of bone in the fraction it was extracted and included. Animal bone (if identified) was also removed.

The prevalence of identifiable bone is largely dependent on the degree of fragmentation, whereby larger fragments are easier to identify than smaller ones. It must also be taken into consideration that some skeletal elements are more diagnostic and more easily identifiable than others and, therefore, more often recorded. This may create bias in calculations of the relative quantities of skeletal elements collected for burial. Fragments below a certain size are not distinguishable as to whether they are human or animal except microscopically or chemically.

Age estimations from cremated remains are dependent on the survival of particular age diagnostic elements. In adult cremations the most useful age indicators are degenerative changes to the auricular surface (Lovejoy *et al.* 1985), pubic symphysis (Brooks and Suchey 1990) and cranial suture closure (Meindl and Lovejoy 1985). For non-adults unerupted teeth, cranial thickness and size of bones help to identify age.

Sex estimation of adult burnt bone relies on the preservation of specific elements and is uncommon in cremated material. The quantity of warping and shrinkage of the bone during the cremation process must also be taken into consideration when estimating sex using the standard analytical techniques used on dry bone.

Results (Tables A3.1–A3.14)

Period 2 Middle Bronze Age

Area A

There were 19 pits organised into three distinct clusters (CBG 1–3) of burials in Area A, which formed a cremation cemetery (A). In total, there were 16 pits that produced cremated human bone (Table A3.1), two of which were associated with urns. Radiocarbon analysis was carried out on five samples of cremated human bone from five cremation burials in Area A, which were all dated to the Middle Bronze Age (SUERC-130093, SUERC-130094, SUERC-130095, SUERC-122135 and SUERC-122136; Appendix A3.9).

Of the 16 with cremated bone, the total weights ranged from 0.1–624g, with five of the burials having very low quantities of bone recovered that could not be confirmed as human. The highest adult weight was from an urned burial (11175). Vertical truncation had clearly removed substantial elements of the cremation burials, demonstrated by only the base remaining from an urn associated with cremation burial 11175. The shallowest grave was 0.04m (cremation burial 11079) and the deepest 0.28m (cremation burial 11171). There appeared to be no correlation between the remaining depth of pit and the quantity of bone collected. For example, the greatest quantity (624.2g) was recovered from grave 11175, only 0.08m deep, whereas cremation burial 11194 was the same depth but had only 21.9g.

As mentioned above the cremation burials appeared to be spatially arranged in three groups (CBG 1–3) but given how shallow some were there is the possibility that other features had been completely truncated. The most northerly group (CBG 3) comprised cremation burials: 11120, 11112, 11097, 11099, 11081 and 11079. Pit 11095 was also part of this cluster but produced no

Table A3.1: Total weight of Middle Bronze Age cremation burials from Area A and by sieve fraction size

Cut no.	Fill no.	Sample no.	Total wt (g)	Total wt 10mm (g)	%10mm	Total wt 5mm (g)	%5mm	Total wt 2mm (g)	%2mm
CBG1									
11129	11130	49	0	0	0	0	0	0	0
	11131	50	13.1	0	0.0	8.7	66.4	4.4	33.6
11132	11133	51	14.1	0	0.0	6.2	44.0	7.9	56.0
CBG2									
10908	10909	60	0	0	0	0	0	flecks	0
11149	11150	53	0.9	0	0.0	0	0.0	0.9	100.0
11158	11159	55	0.8	0	0.0	0	0.0	0.8	100.0
11164	11165	56	3.2	0	0.0	0	0.0	3.2	100.0
11171	11172	57	3.5	0	0.0	0	0.0	3.5	100.0
	11172	59	0.3	0	0.0	0	0.0	0.3	100.0
11175	11176	58	80.3	13.9	17.3	49.6	61.8	16.8	20.9
	11176	spit 1	210	133.4	63.5	73	34.8	3.6	1.7
	11177	spit 2	197.5	130.5	66.1	50.5	25.6	16.5	8.4
	11178	66	136.4	51.5	37.8	73.6	54.0	11.3	8.3
	11178	67	0	0	0	0	0	0	0
11192	11193	63	3.2	0	0.0	0	0.0	3.2	100.0
11194	11195	61	21.9	0	0.0	11.9	54.3	10	45.7
CBG3									
11079	11080	37	4	0	0.0	0.7	17.5	3.3	82.5
11081	11082	38	12	0	0.0	6.7	55.8	5.3	44.2
11097	11098	43	4.5	0	0.0	0	0.0	4.5	100.0
	11101	65	48.3	0	0.0	14.6	30.2	33.7	69.8
11099	11102	42	1.7	0	0.0	0	0.0	1.7	100.0
11112	11113	45	122.8	30.6	24.9	66.9	54.5	25.3	20.6
11120	11121	46	19.3	0.8	4.1	8.6	44.6	9.9	51.3

Key: CBG = Cremation burial group; wt = weight; g = gram

bone. The total weight of bone for this cluster ranged from 4.5g to 122g. The pits appeared to be in pairs, with one having more cremated bone than the other. For example, cremation burial 11112 contained 122g of cremated bone and adjacent burial 11120 only 19g. This may of course be a coincidence but, since most of the graves are not intercutting, there is likely to have been some sort of above-ground marker for the location that persisted long enough for the other pits to be created. Cremation burial 11099 contained sherds of Middle Bronze Age pottery, suggesting there may have been an associated urn, but only 50g of cremated bone was recovered.

All the cremated bone recovered was fully white in colour, indicating that the pyre was very hot and remained so long enough to fully calcine all the bone. This is a frequent finding among Bronze Age cremation burials (Caswell and Roberts 2018, 10). Due to the low cremated bone weights there were few fragments to identify other than cranial for the lower weights (Table A3.2). For cremation burial 11112 there were additionally femur, tibia, maxilla or mandible and one tooth root (Table A3.2). The fragments were adult sized except for cremation burial 11099, where the fragments were small and thin and nearly all collected from the 2mm sieve fraction size, perhaps indicating a child (Table A3.3). Additionally, cremation burials 11079 and 11081, weighing 4g and 12g respectively, may also be a neonate and child (Table A3.3) based on the small thin nature of the fragments. However, without any identifiable elements, this is unconfirmed.

Two graves (11129 and 11132) and a pit (11122)

Table A3.2: Quantity of identified skeletal elements of Middle Bronze Age cremation burials in Area A

Cut no.	Fill no.	Sample no.	Total wt (g)	Skull (g)	Axial (g)	Lower limb (g)	Upper limb (g)	Unid. (g)
10908	10909	60	0	0	0	0	0	0
11079	11080	37	4	0	0	0	0	4
11081	11082	38	12	0	0	0	0	12
11097	11098	43	4.5	0	0	0	0	4.5
11099	11101	65	48.3	0	0	0	0	48.3
	11102	42	1.7	0	0	0	0	1.7
11112	11113	45	122.8	6.2 (5.1%)	0	12.9 (10.5%)	1.9 (1.5%)	101.8 (82.9%)
11120	11121	46	19.3	0	0	0	0	19.3
11129	11130	49	0	0	0	0	0	0
	11131	50	13.1	0	0	0	0	13.1
11132	11133	51	14.1	0	0	0	0	14.1
11149	11150	53	0.9	0	0	0	0	0.9
11158	11159	55	0.8	0	0	0	0	0.8
11164	11165	56	3.2	0	0	0	0	3.2
11171	11172	57	3.5	0	0	0	0	3.5
	11172	59	0.3	0	0	0	0	0.3
11175	11176	58	80.3	2 (2.5%)	0	4.9 (6.1%)	0	73.4 (91.4%)
	11176	spit 1	210	9.3 (4.4%)	6.8 (3.2%)	58.2 (27.7%)	20.6 (9.8%)	115.1 (54.9%)
	11177	spit 2	197.5	11.1 (5.6%)	14.6 (7.4%)	37.3 (18.9%)	29.2 (14.8%)	105.3 (53.3%)
	11178	66	136.4	3.2 (2.3%)	0	20.3 (14.9%)	0	112.9 (82.8%)
	11178	67	0	0	0	0	0	0
11192	11193	63	3.2	0	0	0	0	3.2
11194	11195	61	21.9	0	0	0	0	21.9

Key: Unid. = unidentifiable

Table A3.3: Identified elements, age and sex from the Middle Bronze Age cremation burials in Area A

Cut no.	Fill no.	Sample no.	Bone element identification	Sex	Age
10908	10909	60	No identification	–	U
11079	11080	37	Very small, thin rounded long bone shaft	–	?neonate
11081	11082	38	No identification. Possibly child, due to size of fragments	–	?child
11097	11098	43	No identification. Very small and abraded	–	U
11099	11101	65	Possible fragments of long bone and cranial of child. Very thin, small	–	?child
	11102	42	–	–	–
11112	11113	45	Femur, fibula, tibia, cranial, maxilla/mandible, 1x tooth root	–	Adult
11120	11121	46	No identification. Appear to be adult sized	–	Adult
11129	11130	49	–	–	–
	11131	50	No identification. Appear to be adult sized	–	Adult
11132	11133	51	1x tooth root fragment	–	Adult
11149	11150	53	No identification	–	U
11158	11159	55	No identification	–	U
11164	11165	56	No identification	–	U
11171	11172	57	No identification	–	U
	11172	59	No identification	–	U
11175	11176	58	2x tooth root. Proximal foot phalanges. Cranial fragment, fem fragment	–	Adult
	11176	spit 1	MT1, cranial, tibia, femur, ?patella, humerus, radius, ulna, ?ilium	–	Adult
	11177	spit 2	Femur, tibia, distal femur JS, ilium, rib, humeral head, scapula, distal humerus JS, cranial	–	Adult
	11178	66	cranial, femur, tibia	–	U
	11178	67	–	–	–
11192	11193	63	1x cranial and long bone	–	Child
11194	11195	61	No identification	–	?small adult or child

Key: U = unidentified; JS = joint surface

lie offset to the main group of cremation burials. Both the cremation burials have almost the same weight of cremated bone at 13.1g and 14.1g respectively (Table A3.1). Cremation burial 11129 also contained pottery fragments dating to the Middle Bronze Age (confirmed by radiocarbon date SUERC-130094). Both burials contained cremated bone that was fully white in colour and fragments of adult size (Table A3.3); only cremation burial 11132 had a single fragment that could be identified as a tooth root (Table A3.3).

The largest group of eight cremation burials and a pit were the southernmost cluster, though one grave (11158) lay off to the north-west, slightly apart from the others. Seven of the cremation burials had bone weights ranging from a few flecks (less than 0.1g) to 21.9g (Table A3.1). One grave had significantly more than all the others, comprising cremation burial 11175, with 624.2g of cremated bone (Table A3.1). The smaller grave adjacent to this, cremation burial 11149, had only 0.9g of cremated bone comprising a few tiny fragments not identifiable to human or animal (Tables A3.1–A3.3). This was also the case for cremation burial 11158 with only 0.8g (Tables A3.1–A3.3). Cremation burial 11192 had the only identifiable fragments (other than burial 11175), which were cranial and long bone. These were all small and thin, possibly from a child, but at only 3.2g this limits the accuracy of this observation (Tables A3.1–A3.3).

Cremation burial 11175 had been truncated so that most of the urn was not present and the contents

Table A3.4: Total weight of Middle Bronze Age cremation burials from Area B and by sieve fraction size

Cut no.	Fill no.	Sample no(s)	Total wt (g)	Total wt 10mm (g)	%10mm	Total wt 5mm (g)	%5mm	Total wt 2mm (g)	%2mm
20157	20158	201	212.1	45.8	21.6	105	49.5	61.3	28.9
20159	20160	202	81.9	7	8.5	40.6	49.6	34.3	41.9
20880	20881	219	670.6	120.7	18	359.4	53.6	190.5	28.4

Table A3.5: Quantity of identified skeletal elements of Middle Bronze Age cremation burials in Area B

Cut no.	Fill no.	Sample no.	Total wt (g)	Skull (g)	Axial (g)	Lower limb (g)	Upper limb (g)	Unid. (g)
20157	20158	201	212.1	17.1 (8.1%)	0	2.8 (1.3%)	6.7 (3.2%)	185.5 (87.4%)
20159	20160	202	81.9	0	0	0	0	81.9
20880	20881	219	670.6	25.8 (3.8%)	2.2 (0.3%)	21.8 (3.3%)	10.4 (1.6%)	610.4 (91%)

had spilled into the surrounding soil. About half the collected cremated bone remained within the lower part of the urn. Skeletal elements from across the body were identified with medium fragmentation and a maximum fragment size of 50mm. Large and small bones were identified, including tooth roots, foot phalanges, patella, lower and upper limbs, ilium and ribs and cranial (Table A3.3). Spongy bone was mostly absent; this is commonly observed as it is more easily destroyed due to taphonomic factors. There were no fragments that indicated the sex of the individual and no animal bone was observed.

Area B

A dispersed group of three cremation burials was located in the northern half of Area B. Radiocarbon analysis was carried out on three samples of cremated human bone from three of the burials, which produced Middle Bronze Age dates (SUERC-122133, SUERC-122134 and SUERC-122924; Appendix A3.9). An additional pit (21194) was initially thought to be a cremation burial but produced no bone from the samples. The cremated bone of these three deposits was also fully white in colour. These burials had also been truncated with depths of the graves ranging between 0.05–0.17m deep. Despite this the total weights of cremated bone recovered ranged in weight from 81.9g–670.6g (Table A3.4), notably greater in quantity than most of those from cremation cemetery A.

These greater weights meant there were more fragments identified to skeletal elements. Cremation burial 20157, with a total weight of 212.1g, had cranial fragments and two tooth roots (Tables A3.4 and A3.5). Cremation burial 20880, with a total weight of 670.6g, had cranium fragments including a right supraorbital fragment and petrous portion, radius, ulna, humerus, femur, tibia, four proximal hand phalanges and one tooth root (Tables A3.4 and A3.5). Cremation burial 20159, with a total weight of 81.9g, had no identifiable fragments; they were all very small and abraded, a large quantity of which was from the 2mm sieve fraction size (Tables A3.4 and A3.5).

Cremation burials 20157 and 20880 were both adults but for cremation burial 20159 it was not possible to identify age (Table A3.6). They were all white fragments except cremation burial 20159, which had one grey fragment. No animal bone was identified.

Table A3.6: Identified elements, age and sex from the Middle Bronze Age cremation burials in Area B

Cut no.	Fill no.	Sample no.	Bone element identification	Sex	Age
20159	20160	202	No identification	–	–
20157	20158	201	Cranial, 2x tooth root	–	Adult
20880	20881	219	Cranial (thin), fragment of right supraorbital, radius, ulna, humerus, femur, tibia, 4x proximal hand phalanges, petrous fragments, 1x tooth root	–	Adult

Table A3.7: Skeletal remains summary for Middle to Late Iron Age Phase 4.1

Skeleton no.	Age	Sex	Completeness %	BSC grade	Fragmentation	Other	Samples taken
SK1 21708	Adult	U	5	2	Heavily fragmented	New and old breaks	Petrous bone (failed), 2nd lower incisor

Key: BSC = bone surface condition; U = unidentified

Table A3.8: Total weight of Middle to Late Iron Age Phase 4.1 cremation burial from Area B and by sieve fraction size

Cut no.	Fill no.	Sample no(s)	Total wt (g)	Total wt 10mm (g)	%10mm	Total wt 5mm (g)	%5mm	Total wt 2mm (g)	%2mm
21952	21953	254	100.8	0	0.0	37.6	37.3	63.2	62.7

Period 4 Phase 4.1 Middle to Late Iron Age

Cranial fragments, teeth and a fragment of femur were all that were recovered from an adult skeleton (SK1 21708, fill 21935) from within Period 4 Phase 4.1 ditch B3A (cut 21934) (Table A3.7). A radiocarbon date was estimated using a sample of incisor tooth (a sample using the petrous bone failed) 380–197 cal BC (SUERC-122925, 95.4% probability; Appendix A3.9), indicating the individual died in the Middle Iron Age. The identifiable skeletal remains comprised parietal, frontal, occipital and petrous portion cranial fragments, as well as a highly fragmented proximal femur fragment (side uncertain), which had been mixed in with animal bone (Table A3.7). There were also five loose mandibular teeth. All the bones were highly fragmented with new and old breaks and had grade 2 surface erosion. The cranium was thick with a wide, rounded supraorbital margin, tentatively indicating a male individual. The teeth comprised third and second molar crowns only, so that root development could not be observed, but there was light attrition on the second molar occlusal surface. A fragment of the premolar crown had some dental attrition, as did a second incisor. Attrition suggested that the individual was not young but there was insufficient evidence to be more precise.

Another recut of the ditch directly where the fill with skeletal remains was located was then filled with a deposit that contained a small quantity of cremated human bone (21953). The total weight was 100.8g (Table A3.8), the colour was consistently white and the largest fragment was 20mm.

The identified fragments were cranial, seven tooth roots, mandible, radius and a distal hand phalanx (Tables A3.9 and A3.10). The size of the fragments and the development of the tooth roots indicated that the individual was about three years old. It is therefore not surprising that there was only 100g recovered since the average total weight of cremated bone for a child is about 500g (Trotter and Hixon 1974) and the smaller size of the fragments is reflected in all the cremated bone being in the 2–5mm and 5–10mm sieve fraction sizes (Table A3.8).

Table A3.9: Quantity of identified skeletal elements from the Middle to Late Iron Age Phase 4.1 cremation burial

Cut no.	Fill no.	Sample no.	Total wt (g)	Skull (g)	Axial (g)	Lower limb (g)	Upper limb (g)	Unid. (g)
21952	21953	254	100.8	7.9 (7.8%)	0	0	0.8 (0.8%)	92.1 (91.4%)

Table A3.10: Identified elements, age and sex from the Middle to Late Iron Age Phase 4.1 cremation burial in Area B

Cut no.	Fill no.	Sample no.	Bone element identification	Sex	Age
21952	21953	254	Cranial, 7x tooth roots, mandible, radius, distal hand phalanx	–	*c.* 3 years

Table A3.11: Total weight of Middle to Late Roman cremation burial from Area A and by sieve fraction size

Cut no.	Fill no.	Sample no(s)	Total wt (g)	Total wt 10mm (g)	%10mm	Total wt 5mm (g)	%5mm	Total wt 2mm (g)	%2mm
11283	11285	73	11.8	0	0	5	42.4	6.8	57.6

Table A3.12: Quantity of identified skeletal elements from the Middle to Late Roman cremation burial

Cut no.	Fill no.	Sample no.	Total wt (g)	Skull (g)	Axial (g)	Lower limb (g)	Upper limb (g)	Unid. (g)
11283	11285	73	11.8	0.7 (5.9%)	0	0	0	11.1 (94.1%)

Period 6 Middle to Late Roman

Cremation burial 11283 (fill 11285) was seemingly isolated, located approximately 60m south-east of limekiln A, in the interior of Period 4 Phase 4.2 enclosure A4, with no contemporaneous funerary features identified. The cremation grave survived to 0.15m deep and was approximately 0.54m in width but only produced 11.8g of cremated human bone (Table A3.11). Cranial fragments were the only identifiable elements and these were thin and small, perhaps from a small or young adult or a child (Tables A3.12 and A3.13). The fragments were all white in colour, indicating that the pyre had cremated the individual thoroughly. The presence of three iron nails in the feature suggested that it might be Roman in date, as iron nails are commonly found in Roman period graves (Dungworth 1998, 153). With only 11.8g of cremated bone, there is little more that can be discussed with regard to the cremated bone deposit.

Period 7 early medieval

A human cranium (22189) was recovered from fill 22185, of pit 22732, where it has been laid on the left side. The pit had been cut into the top of Period 5 (Late Iron Age/Early Roman) ditch B7A (cut 22182). The frontal and parietal bones were complete but the temporal and occipital were fragmented (Table A3.14). No facial bones were present, nor sphenoid bones. The bone surface was poorly preserved (grade 4) obscuring any more subtle changes. The morphology of the cranial bones suggested a male individual and the presence of arachnoid granulations (which increase with age) on the endocranium of the left and right parietals and the fused but not closed cranial sutures tentatively suggest someone mature to older age range (Table A3.14). A radiocarbon date was estimated from a sample of cranium (SUERC-122139, 95.4% probability; Appendix A3.9) which most probably placed the death of the individual in the 8th–9th century AD.

Table A3.13: Identified elements, age and sex from the Middle to Late Iron Age Phase 4.1 cremation burial in Area B

Cut no.	Fill no.	Sample no.	Bone element identification	Sex	Age
11283	11285	73	Cranium, thin	–	?small adult or child

Table A3.14: Skeletal remains summary for early medieval burials

Skeleton no.	Age	Sex	Completeness %	BSC grade	Fragmentation	Other	Samples taken
SK2 21498a	Adult	U	10	3	Heavily fragmented	–	–
SK2 21498b	Child 4–5 years	U	2	3	Heavily fragmented	–	–
SK3 22189	Adult ?mature–older range	Male	10	4	Parietal and frontal complete, other parts fragmented	–	Cranial fragment

Key: BSC= Bone surface condition

Grave 21497 was sub-oval and very shallow as it had been heavily truncated. This meant that the remaining skeletal remains were few and fragmented. Adult-sized bone fragments from the occipital (back of the cranium), mid-shaft of the femur and a single lower second molar tooth were all that survived of SK21498a (Table A3.14). Two thin cranial fragments and eight deciduous teeth were all from a child (SK21498b) aged 4–5 years (aged from the tooth development stage) (Table A3.14). A small fragment of copper-alloy ring was also recovered and may be part of a grave good or item of clothing/jewellery. A radiocarbon date was estimated from a sample of the femur of the adult individual (SUERC-130122, 95.4% probability; Appendix A3.9) of 705–883 cal AD.

Discussion

Period 2 Middle Bronze Age

A total of 16 and 3 Middle Bronze Age cremation burials were identified in Areas A and B respectively. These appear to fit with the pattern of burial seen across Britain during this period, as noted in a study published by Caswell and Roberts (2018). They noted the vast majority of Middle Bronze Age cremation burials (94%) are found on a site with at least one other burial, while only 11% of sites (40 out of 378) have more than 20 burials. Therefore most cremation cemeteries in the Middle Bronze Age do not have evidence for extended family units being buried together (ibid.).

The low number of urned burials present is also typical of the period, where there is little visible social differentiation, with few urned burials and very few grave goods (Caswell and Roberts 2018). What is also clear from the number of cremation burials identified for this period at Harlestone Park and many others is that only a minority of the population received this archaeologically visible funerary rite (Caswell and Roberts 2018).

Truncation has contributed significantly to the low total weights of bone recovered; however this is unlikely to be the only factor involved. Local ground conditions are likely to have contributed (taphonomy) as there was no spongy or cortical bone recovered; this is susceptible to destruction by environmental factors. In addition the edges of the cremated bone fragments were frequently abraded demonstrating the erosive action of the soil. The lack of an urn protecting the cremated bone is also likely to have contributed.

Despite these factors it is unlikely that all the cremated bone from the pyre was originally deposited in the ground. Rarely are cremated bone weights recovered that would represent an entire person and it is much more common to find a token amount. This is evidenced by the lack of correlation between the depth of the feature and the quantity of bone recovered. A similar finding was observed at the Bronze Age cremation cemetery at Eye Kettleby, Leicestershire (Finn 2011), where there was also no relation between bone weight and depth of feature. For example, a total bone weight for one of the cremation burials at Eye Kettleby was 1047g and the feature was 0.13m deep. Interestingly none of the total weights from Harlestone Park were this high and features were up to 0.28m deep. At Eye Kettleby the average bone weight was 691g, which is much higher than at Harlestone Park.

The fully white colour appears to be important in the Bronze Age for the cremated body, as there is a fairly consistent pattern of all cremated bone deposits from the period being evenly white in colour (Caswell and Roberts 2018). It has been observed that children and thin adults are much harder to cremate well due to the lower levels of body fat (Dunlop 2004). The even white colour across all the burials suggests that the pyres were well tended, turning the body to keep it in the hottest area and perhaps adding additional fuel when needed. There is evidence of curation and manipulation of human remains in Middle Bronze Age (Brück and Booth 2022), so manipulation of the pyre is in keeping with these activities. The selection of some cremated remains from the pyre to be placed in the ground (in an organic container is most likely for the burials without a ceramic urn) from the identified fragments suggests there was no bias and that elements were from all areas of the body, large and small.

There is possibly a mix of ages (but the fragments were very few and small, so it is a tentative identification) among the burials at Harlestone Park, which may fit with a family grouping but it also reflects the range of ages at death of the wider community. Interestingly, at Eye Kettleby the older adults were in urns more commonly than younger individuals and oak was excluded from the pyre wood used for unurned younger individuals (Finn 2011). Due to the lack of accurate aging for all the burials any patterning is lacking all the data. Challinor (Appendix A3.5) notes that single taxon dominance was evident for most burials, comprising either alder or oak. Adults (where identified), except one, had alder and the one identified neonate had oak. Whether this is a true pattern is difficult to assert due to the lack of data regarding age.

Middle Bronze Age flat cemeteries away from pre-existing monuments may reflect the new divisions of the landscape which were being undertaken at the time. Middle Bronze Age cemeteries do not show a strong spatial association with occupation sites, many being over 1km away (Caswell and Roberts 2018). At Eye Kettleby groups 1, 2 and 5 were of a Middle Bronze Age date and located in and around earlier barrows, unlike at Harlestone Park. Interestingly, at Eye Kettleby, where there was an urn (a total of three were recovered overall) they were all in an upright position, the rest of the cremation burials were unurned.

A similar flat cremation cemetery not associated with

any monuments was identified at Chapel Brampton, Northamptonshire in 1970 (Moore 1971, 1973). Twenty-eight cremation burials were found with about half deposited in urns, though these were plough damaged. Two of the burials were radiocarbon dated to the Middle Bronze Age. No further details are available regarding the cremated bone. With a similar low number of burials and flat location not associated with a monument, these cremation burials from Chapel Brampton appear similar to those from Harlestone Park.

Period 4 Phase 4.1 Middle to Late Iron Age

A common place to find human remains in the Iron Age is in pits and ditches (Harding 2016, 105), particularly in the middle and upper fills. They are also frequently found with animal bones. This indicates that the placement of skeletal remains in the ditch along with animal bone is typical in this period. Fragments of skull and long bone are the most frequently found, which matches the bones recovered from the ditch.

By the pre-Roman Iron Age cremation became the predominant rite (Harding 2016, 8). A study (Carroll 2019) found that there was a shift from unurned to urned cremation burial from the Late Iron Age to Early Roman period but this varied according to region and settlement type. It also observed that rural cremations are often more calcined than those in settlements, suggesting a closer attention to tending the pyre in rural areas, something also noted by McKinley (2008). The consistent white colour of the cremated remains in the ditch appears to follow this trend.

Period 7 early medieval

It is unusual to find isolated crania during the 8th to 9th centuries AD. Isolated inhumation burials, though uncommon, are a feature of the period and can be individual interments at rural settlements or 'deviant' (Reynolds 2009a, 37). From the 7th to 9th centuries most burials took place as supine inhumations with the head to the west, with the location in small unenclosed field cemeteries or in consecrated cemeteries associated with a minster church, for example. The location of the cranium in the top fill of a pit may indicate an intentional placement. No other elements of the skeleton were recovered and, since the uppermost part of a supine skeleton is very often the skull, this is usually the first part to be removed by later truncation. If this is indeed an intentional deposition it might fall into the 'deviant' category.

At Higham Ferrers, Northamptonshire (Hardy and Charles 2007), SK6678 (female, aged 30–50 years), dating to the late 8th to early 9th century, was located in the backfill of an enclosure ditch. The skeleton was prone, tightly flexed with the knees drawn up so that the feet were under the pelvis, probably bound to retain this position. There were three puncture marks from tooth bites of a dog and the arms, head and neck were missing. The evidence was consistent with the body having been bound and strung up upside down after death, displayed and exposed to scavenging dogs. Then the remaining body parts were interred unceremoniously in the ditch. Further disarticulated skeletal human remains were also found in the ditch. This is all suggestive of a final location for bodies that had been judicially executed.

Additionally a pit at Cottam, East Yorkshire, had the cranium of an adult female placed face downwards in the base of the pit (Richards 2001). A radiocarbon date suggested a 7th or 8th-century date. An isolated cranium was also recovered from a rescue excavation in the 1960s in Oakridge, Basingstoke, Hampshire, unprovenanced (so the rest of the skeleton may have been present) but radiocarbon dating provided a date of AD 776–899 (87.3% confidence) (Cole *et al.* 2020) for the bone. This young female individual had evidence of mutilation to the face, removal of the nose and upper lip and possible scalping.

The cranium from pit 22732 completely lacked facial features and the lower part of the cranium, so these could not be examined for any cut marks. The suggestion though is that it is possible that the individual was subjected to judicial punishment and the head removed and placed in the pit. The fact there is only one other early medieval dated feature (burial 21497) on the Harlestone Park site indicates this was a liminal location, ideal for burials of deviants. There is, however, the possibility that this was an inhumation burial and the entire postcranial skeleton had been truncated from the head down.

Grave 21497 was a double burial of an adult and child, a fairly common combination in the early medieval period (Palmer 2020). The shape of the grave suggests they may have been laid flexed or crouched. The location less than 100m from the cranium in the pit, may or not be a coincidence. Other burials may have been located close by but the heavy truncation in this area could have easily removed all traces.

At Seaton Road, Harringworth, Northamptonshire, 30 burials radiocarbon dated to the Middle to Late Saxon period were excavated (Atkins 2004). These were from within a well-planned inhumation cemetery with graves aligned west–east in rows, the bodies laid supine extended with no grave goods. This demonstrates that some contemporaneous burials were in organised cemeteries in single inhumation burials, highlighting that the double burial, seemingly isolated, is perhaps not typical for the period or area.

A3.2: Animal bone

By Matilda Holmes

Introduction

A small assemblage of 603 refitted, hand-collected fragments of animal bones and teeth was recovered, of which 207 could be identified to taxon. Further animal remains were produced from the samples. An additional eight fragments (14g) of animal bone were recovered from the trial trench evaluation (CA 2016b, 23). Only deposits from the Middle to Late Iron Age (Period 4) were large enough to consider in detail; those from other periods are summarised. Results are consistent with a self-sufficient rural site where inhabitants relied on domestic livestock for food, power and raw materials; in addition it is likely that small-scale antler working also took place.

Methodology

Bones were identified using the author's reference collection. Due to anatomical similarities between sheep and goats, bones of this type were assigned to the category 'sheep/goat' unless a definite identification (Zeder and Lapham 2010; Zeder and Pilaar 2010) could be made. Horses and donkeys and dogs/foxes were separated based on long bone measurements and morphology (Davis *et al.* 2008; Eisenmann 1986; Johnson 2015; Johnstone 2006; Ratjen and Heinrich 1978), wild and domestic cats using long bone measurements (O'Connor 2007) and rabbits/hares and micro-mammals were separated following morphological criteria (Callou 1997; Johnson 2016; Yalden 2020). Bones that could not be identified to species were, where possible, categorised according to the relative size of the animal represented (micro – rat/vole size; small – cat/rabbit size; medium – sheep/pig/dog size or large – cattle/horse size). Ribs were identified to size category where the head was present, vertebrae were recorded when the vertebral body was present and maxilla, zygomatic arch and occipital areas of the skull were identified from skull fragments. Sieved samples were collected but, because of the highly fragmentary nature of such material, 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.

Tooth wear and eruption were recorded using guidelines from Grant (1982) and Payne (1973). Bone fusion, metrical data (von den Driesch 1976), anatomy, side, zone (Serjeantson 1996) and any evidence of pathological changes, butchery (Lauwerier 1988) and working were noted. The surface condition of bones was recorded on a scale of 0–5, where 0 is fresh bone and 5 the bone is falling apart (Lyman 1994, 355). Other taphonomic factors included the incidence of burning, gnawing, recent breakage and refitted fragments. Articulated or associated fragments were entered as a count of one so as not to bias the relative frequency of species present.

Bones were included in the analysis if they came from securely dated features to a single phase. Quantification of taxa and anatomical elements used a count of all fragments (NISP – number of identified specimens). Mortality profiles were constructed based on tooth eruption and wear (Grant 1982; Jones 2006; Jones and Sadler 2012; Levine 1982) and bone fusion (Bennett 2008; O'Connor 2003; Smith 1969). Cattle and sheep/goats were sexed by the morphology of pelves (Davis 2000; Greenfield 2006) and metapodials (Albarella 1997; Davis 2000), and pigs and horses by their canines (Schmid 1972). Wither and shoulder heights were calculated for cattle (Fock 1966; Matolcsi 1970), sheep/goats (Teichert 1975) and dogs (Harcourt 1974).

Taphonomy and condition

Animal remains were in fair to poor condition and friable, with approximately 40% refitted and approximately 50% exhibiting signs of recent breakage (Table A3.15). Loose teeth were not uncommon, indicating a delay in burial and/or post-depositional movement, and this is reflected by a small quantity (10%) of canid gnawing, implying that bones were not always buried immediately.

Other bone modifications were scarce, potentially due to the poor surface condition of the bones leading to the obliteration of evidence for butchery, and not necessarily representative of an absence of carcass processing (Table A3.15). A few burnt bones were observed in the hand-collected material but larger quantities (over 30 fragments) of small, unidentified, burnt or calcined fragments were produced from the samples, particularly Middle to Late Iron Age (Period 4 Phase 4.2) pit/posthole groups PA3 and PA8.

There were no obvious groups of primary butchery, skin-processing or craft-working waste, and it is likely that most deposits derive from a combination of food and processing. Primary contexts are implied by several associated bone groups (ABGs) detailed in Table A3.16. Rabbits were often recovered in groups of more than one and were always better preserved than other finds from the same feature where present. As rabbits are burrowing creatures and not established in Britain until the medieval period (Sykes and Curl 2010), their presence in Iron Age deposits makes it likely that they are intrusive. Several ABGs with more secure taphonomic pathways were recovered from Middle to Late Iron Age (Period 4) and Late Iron Age/Early Roman (Period 5) features, including possible food waste (the cattle shoulder joint and foreleg), butchery waste (sheep/goat head, vertebrae and foot bones) and a possible disturbed burial or deliberate inclusion (dog head). It is possible these had symbolic roles as placed deposits, in combination with the functional act of disposing of carcasses or parts thereof, which is common on sites of this date (Morris 2011). The fox, sheep and calf ABGs

Table A3.15: Condition and taphonomic factors affecting the hand-collected assemblage identified to taxa and/ or element. Teeth included where stated

	Period/Phase					
Condition	**3: LBA/EIA**	**4.1: M–LIA**	**4.2: M–LIA**	**5: LIA/ER**	**6: M–L Rom**	**9: P-med/ mod**
Fresh						
Very good						
Good		3	13			5
Fair		5	37	2	2	1
Poor	1	4	24	1		1
Very poor	1		7	2		
Total	2	12	81	5	2	7
Refit	1	8	29	5		1
Recent break	1	6	38	5	1	1
Gnawed		1	8			
Loose mandibular teeth*		5	24	2		
Teeth in mandibles*		8	13			
Butchery		1				
Burning			4*			

*deciduous and permanent 4th premolar and molars; burnt fragments were not identified to taxon.

Key: LBA/EIA = Late Bronze Age/Early Iron Age; M–LIA = Middle to Late Iron Age; LIA/ERB = Late Iron Age/Early Roman; M–L Rom = Middle to Late Roman; P-med/mod = Post-medieval/modern

Table A3.16: Details of associated bone groups (ABGs)

Period/Phase	Context	Feature	MNI	Taxon	ABG	Description
M–LIA Phase 4.1	22381	Ditch B2.1A	1	Rabbit, adult	Partial skeleton	Vertebra, fore limb, tibia
M–LIA Phase 4.1	20923	Pit 20921, Pit group PB2	1	Cattle	Shoulder	Scapula, humerus
M–LIA Phase 4.2	11206	Ditch A4A	2	Rabbit, adult and juvenile	Partial skeletons	Fairly complete juvenile; adult head, vertebrae, hind limbs
M–LIA Phase 4.2	11226	Ditch A4A	4	Rabbits, adult, juvenile	Partial skeletons	Various elements
M–LIA Phase 4.2	21102	Ditch B5.1A	1	Cattle, sub-adult	Upper foreleg	Left scapula, humerus, radius and ulna
M–LIA Phase 4.2	21332	Posthole 21331	1	Sheep/goat, young adult	Partial skeleton	Head, vertebrae, foot
LIA/ER	20429	Ditch B8F	1	Dog	Head	Maxilla, occipital, 1st cervical vertebra
P-med/mod	10757	Pit 10756	1	Fox	Partial skeleton	Head, vertebrae, ribs, scapulae
P-med/mod	10809	Pit 10808	1	Sheep, large adult	Partial skeleton	Head, vertebrae, fore limbs and phalanges
P-med/mod	21469	Pit 21468	1	Calf	Partial skeleton	Mandible, vertebrae, ribs, pelvis, fore and hind limbs
P-med/mod	21471	Pit 21470	1	Calf	Partial skeleton	Vertebrae, mandible, fore and hind limbs and phalanges
P-med/mod	20527	Pit 20526	1	Calf	Skeleton	Complete

Key: M–LIA = Middle to Late Iron Age; LIA/ERB = Late Iron Age/Early Roman; P-med/mod = Post-medieval/modern

recovered from post-medieval pits are less likely to be symbolic and probably represent natural deaths and/or the killing of a fox to protect livestock. The calves indicate not only that animals were bred close by but also provide a season of deposition from late winter to early summer.

Results

Period 3 Late Bronze Age/Early Iron Age

A few cattle bones were recovered from pit alignment B (Table A3.17).

Period 4 Phase 4.1 Middle to Late Iron Age

A small assemblage was recovered from the first phase of Middle to Late Iron Age settlement, which was dominated by cattle and horses/donkeys, alongside a few sheep/goats, pigs and dog/fox remains (Table A3.17) and a micro-mammal bone from the samples. Small quantities of animal bones and teeth (fewer than ten identified fragments) came from enclosures B1 and B2, ditch B10A, pit/posthole group PB2, roundhouse RB3 and pit 22244 but a larger group came from enclosure B3 (Table A3.18).

Three horse mandibles had adult dentition, representing two animals between approximately 7 and 9 years and one approximately 12–15 years, and a loose incisor just in wear would have been from a younger animal less than 5 years old. This is reflected by a femur that was just fusing, suggesting a horse around 3.5 years. Wear on a second premolar indicates that the horse was bitted. The mandible of a calf at wear stage B was also recorded, suggesting they were bred close by.

Period 4 Phase 4.2 Middle to Late Iron Age

The largest quantity of animal remains came the second phase of Middle to Late Iron Age occupation, dominated by cattle, followed by sheep/goats and equids, with smaller quantities of pigs, dog/fox and red deer antler (Table A3.17). Further finds of micro-mammals (including vole) and frog/toad came from the samples.

Table A3.17: Species representation (NISP)

	Period/Phase								
	3: LBA/EIA	**4.1: M–LIA**		**4.2: M–LIA**		**5: LIA/ER**	**6: M–L Rom**	**9: P-med/mod**	
Taxa	**H**	**H**	**S**	**H**	**S**	**H**	**H**	**H**	**S**
Cattle	3	12*	5	74*	8	4	2	4*	1
Sheep/goat		5	3	31*	13	1		1	
Sheep								1*	
Pig		3		5		2			
Horse/donkey		5		20		2			
Horse		5		2					
Dog/fox		1		1	1				
Dog				2		1*			
Fox								1*	
Cat								1	
Red deer				3					
Rabbit		1*		14*					
Micro-mammal			1		3				
Field vole					1				
Frog/toad					4				
Total identified	3	32	9	153	30	10	2	7	1
Unidentified mammal		52		28		3			
Large mammal	4	34		217		8		2	
Medium mammal		14		33		1			
Total	**7**	**132**		**431**		**22**	**2**	**9**	

* Associated bone groups included as a count of 1.

Key: H = hand collected; S = samples; LBA/EIA = Late Bronze Age/Early Iron Age; M–LIA = Middle to Late Iron Age; LIA/ERB = Late Iron Age/Early Roman; M–L Rom = Middle to Late Roman; P-med/mod = Post-medieval/modern

Table A3.18: Taxa represented by feature (>9 NISP)

	Period/Phase					
	M–LIA Phase 4.1		M–LIA Phase 4.2			
Taxa	**E B3**	**E A7**	**E B4**	**E B5**	**E B6**	**P/PhG B6**
Cattle	4	5	18	10	9	16
Sheep/goat	2	2	3	6	1	10
Pig	1	2		1	2	
Horse/donkey	5	1	8	3	4	2
Dog/fox			1			1
Red deer		2	1			
Total	**12**	**12**	**31**	**20**	**16**	**29**

Key: E = enclosure; P/PhG = pit/posthole group; M–LIA= Middle to Late Iron Age

Larger groups (ten or more identified fragments) were recovered from enclosures A7, B4, B5 and B6 and pit/posthole group PB6 (Table A3.18), though most features produced smaller quantities (enclosures A4 and A8; pit groups PA1, PA7, PB5 and PB8; pit/posthole groups PA3 and PA4; pits 10092, 20352 and 21304; posthole 21709 and roundhouses RB1 and RB2). Species proportions largely reflected the overall pattern, though slightly more sheep/goats were recorded from pit/posthole group PB6. This is a common spatial pattern on contemporaneous sites, whereby smaller bones of animals such as sheep are more likely to be disposed of close to the domestic areas or within smaller features such as pits, compared to the bones of larger animals such as cattle, often more prevalent in ditches and at the periphery of a site (Wilson 1996). Roundhouse RA8.1 is of note, as it produced a diverse group including dog/fox remains.

Cattle remains came from all parts of the carcass (Table A3.19), indicating that they were culled, processed and consumed on site, with little redistribution of joints of meat or raw materials. Sample sizes were small for the other livestock, though there is an indication that sheep/goat tibiae were over-represented; none were from a specific feature. Horse/donkey remains were nearly all from the upper and lower limbs, suggesting that primary butchery involving the removal of skins, heads and feet took place or was disposed of elsewhere.

Cattle were largely culled as older adults at wear stages G to J that would have been vital for power and milk, though sub or young adults at wear stages D and E were also present (Table A3.20), probably representing a cull of surplus stock. Three cattle pelves were complete enough to record the sex, all three from females, and one had eburnation of the acetabulum. Two mandibles were recovered with missing or absent hypoconulids on the third molar.

Sheep/goats were culled at all ages, from very young

Table A3.19: Middle to Late Iron Age Phase 4.2 species representation by anatomical element (NISP). Hand-collected bones

Element	Cattle	Sheep/goat	Equid
Partial skeleton	1		
Zygomatic	1		
Mandible*	3	2	
Cervical vertebra	1		
1st cervical vertebra	2		
2nd cervical vertebra	1		
Scapula	2		
Humerus	5	2	1
Radius	1	1	1
Ulna	3		1
Carpal	1		
Pelvis	3	1	1
Femur	1		1
Tibia	1	5	1
Astragalus	1		2
Calcaneus	2		
Metacarpal	3	1	1
Metapodial			2
Metatarsal	3	1	2
1st phalanx*	1	1	
2nd phalanx*	1		
Total	**37**	**14**	**13**

* counts of phalanges adjusted for frequency bias; mandibles/loose mandibular teeth include deciduous 4th premolar and/or permanent molars

Table A3.20: Middle to Late Iron Age Phase 4.2 summary of tooth wear data with approximate ages (Jones and Sadler 2012; Jones 2006 and Halstead 1985)

Cattle stage	Approx age	Count	Sheep/goats stage	Approx age	Count
A	neonate		A	0–1	
B	0–6mth		B	1–3	
C	5–18mth		BC		1
CD			C	3–12	
D	16–28mth	1	CD		3
E	26–36mth	1	D	10–24	1
F	34–43mth		E	20–36	2
G	40m–6.5yrs	2	F	2.5–4.5yrs	1
GJ		3	G	4.5–7+yrs	
H	5–10yrs	1	GH		1
J	8–16yrs	2	H	7+yrs	
K	14–20+yrs		J	8–10 yrs	

animals at wear stage B or C to older adults at stage G or H, suggesting they were raised for a mixture of meat, wool and milk. The porous bone of a lamb suggests they were bred close by. A pelvis from a male was recorded.

There were very few data relating to pigs, though a canine from a male was identified.

A loose horse tooth was recovered from a bitted animal that was approximately 9–11 years old. A small dog was recorded, approximately 0.38m tall.

The antler was poorly preserved and fragmentary, one had been shed, and no signs of butchery or working were observed. They were recovered from Area A and Area B and do not indicate a particular activity area or that deer were hunted.

Discussion

The meat diet would have been dominated by beef, with lamb and horse occasionally consumed and pork less often. There is no evidence for hunting either mammals or birds for food. This is typical of Iron Age zooarchaeology, where it is likely that the reliance on domestic livestock and plants would have made the realm of the 'wild' less attractive, maybe even considered dangerous and 'other', with hunting only undertaken to mark life events or by the elite (Groot 2018; Hambleton 2008; Rainsford and Roberts 2013). The few antler fragments could have been collected up locally and used for the manufacture of tools.

The predominance of cattle in the assemblage is not uncommon in the region and similar species proportions can be observed at several other sites (Table A3.21). The relatively high number of horse/donkey remains is unusual, though not unique, and may be a product of the small sample size.

Dogs would have been present around the settlement, potentially used for hunting, herding and guarding as well as companions.

The zooarchaeology is consistent with a largely self-sufficient economy, where animals were culled, processed and consumed on site, reflected by the recovery of elements from all parts of cattle and sheep/goat carcasses. Horse remains potentially display a different pattern as their head and foot bones are scarce, suggesting either that their skins were removed (including the head and feet) or that primary butchery took place elsewhere and joints of meat brought into this area of the settlement. Occasional finds of perinatal calves and lambs further indicate that livestock were bred in the area, typical of a self-sufficient economy.

Most cattle died as adults, implying a reliance on them for power and dairy, with surplus animals occasionally culled for meat at younger ages. Sheep/goats were more likely to be kept for just a few years and killed for meat as they neared maturity, providing a yearly supply of wool, though a few would have been valued for milking and breeding. Horses were mostly adults and would have had considerable status; evidence they were harnessed is consistent with their importance for transport, managing territory and in warfare (Bendrey 2010).

Period 5 Late Iron Age/Early Roman

A few cattle, sheep/goat, pig, horse/donkey and dog remains were recovered from ditches B8F and B7A (Table A3.17).

Period 6: Middle to Late Roman

Limekiln A produced two cattle bones (Table A3.17), one of which was a metacarpal from a male approximately 1.2m tall.

Table A3.21: Comparative data from Northamptonshire for the Middle to Late Iron Age. Data from Albarella and Pirnie 2008 and Maltby 2022

Site	Period	NCSP	Cattle	Sheep/goat	Pig	Horse/donkey
Overdown Road, Banbury	MIA	141	75	23	2	25
Harlestone Park	M–LIA	110	67	28	5	18
Long Dole, DIRFT	MIA	252	67	22	11	6
Crick Hotel, DIRFT	MIA	542	62	36	2	7
Brackley sawmills	MIA	340	59	34	7	6
Sinawe Barn, Corby	MIA	526	56	28	16	4
Banbury Lane, King's Sutton	MIA	303	56	39	5	20
Bourton Way, Higham Ferrers	MIA	1250	46	45	9	7
Station Road, Higham Ferrers	MIA	563	45	38	17	4
Northampton Road, Brackley	MIA	1870	42	48	10	7
Radstone Fields, Brackley	MIA	1794	40	50	10	7
Segro Logistics Park	LIA	571	69	27	5	17
Moulton Park	LIA	364	53	22	22	10
Clay Lane, Earls Barton	LIA	1222	53	42	5	12
Irchester	LIA	131	50	40	9	5
Saxon Rise, Brixworth	LIA	94	48	50	2	6
Blackthorn	LIA	148	46	50	4	1
Wakerley	LIA	468	42	47	11	1
Hardingstone	LIA	992	38	48	14	8
Weekley	LIA	2090	13	63	23	2

Key: NCSP = total number of fragments recorded for cattle, sheep/goats and pigs, values for livestock are given as a mean of NCSP

Period 9 Post-medieval to modern

Pits 10756, 10808, 20313, 20526, 21468 and 21470 produced the sheep, calf and fox ABGs described above (Tables A3.16 and A3.17). The large size of cattle and sheep remains is consistent with the date of deposits. A sheep humerus produced a height of 0.58m.

A cat tibia recovered from Period 4, Phase 4.2 roundhouse RA8.1 was sampled for a research project at Exeter University under the direction of Dr Sean Doherty. As part of the research it was radiocarbon dated and found to be intrusive, from a modern animal (SUERC-136681; Hamilton, Appendix A3.9, Table A3.75). Given the likely rabbit burrowing activity on site the cat bone may have been incorporated into the Iron Age ditch in this manner. The tibia is no longer with the archive but Exeter University produced a 3D model prior to sampling the bone for scientific analysis (aDNA and radiocarbon dating). This will reside with the university as part of their research archive

A3.3: Geoarchaeology

By Agata Kowalska

Introduction

Thirty-six monolith samples were taken from twelve archaeological features in order to assess the formation processes leading to infilling. Eight features were sampled in Area A and six in Area B. A further two sequences (4 and 5; Table A3.22) in Area A were described in detail on site to augment this information. All recorded and sampled sections are summarised in Table A3.22.

The purpose of this report is to provide a detailed description of the results of the geoarchaeological assessment of monolith samples, to interpret the results within the wider archaeological context of the site. The assessment works comprised:

- describing and interpreting the sediments to characterise the depositional and post-depositional processes within the sampled features recorded on the site
- assessing the paleoenvironmental and archaeological potential of the sampled sediments in order to subsample selected monolith

samples for paleoenvironmental analysis that would contribute to a better understanding of the past landscape, any changes in it and its relationship with human activity on the site (Grant, Appendix A3.8).

Geological background

Location and topography

The site occupied the area on the northern and southern sides of the Dallington Brook valley. Dallington Brook, a tributary of the River Nene, flows west to east through the centre of the site. Area A lies on a north-west-facing slope with its highest point recorded at approximately 100.8m above Ordnance Datum (aOD) in the south-east corner of the Area. To the north of this point the ground height falls to approximately 97.7m aOD towards the valley floor, along the northern boundary of Area A. Area B occupies a roughly south-facing slope, with the highest elevation recorded at approximately 105m aOD along the northern boundary and the ground then gently sloping towards the current floodplain of Dallington Brook, with the lowest part of Area B recorded at approximately 97.8m aOD.

Geoarchaeological background

British Geological Survey (BGS) mapping of the site shows that most of Area A is situated on the Northampton Sand Formation that consists predominately of sandstone, limestone and ironstone dated to Middle Jurassic period (BGS 2026a). The solid geology of Area B is mapped as sandstone and siltstone of the Stamford Member, limestone of the Blisworth Limestone Formation and limestone of the Wellingborough Limestone Member, which are members of the Middle Jurassic Rutland Formation (BGS 2026a).

Pleistocene superficial deposit of Oadby Member (also known as 'chalky boulder clay') is mapped as occupying the higher elevations including the valley slopes and the areas surrounding the site from the north, west and south. The available archive borehole data (SP66SE31 and SP66SE14) characterised the Oadby Member as an approximately 16m thick deposit consisting of grey sandy clay with pebbles of chalk, flint and oolite limestones. This sediment represents a glacial till that has been deposited during the Anglian glaciation (BGS 2026a).

Superficial deposits within the site boundary comprise a band of alluvium associated with the floodplain of Dallington Brook, which extends through the central part of the site. The alluvium is likely to be Holocene in date, as the climatic amelioration in the early Holocene resulted in the gradual establishment of meandering channels and overbank accumulation of fine floodplain sediments covering the earlier deposits (Ballantyne 2018, 272–3).

The overlying soils comprise freely draining, slightly acid but base-rich soils across the northern and central parts of the site, with lime-rich loamy and clayey soils with impeded drainage in the south-eastern and north-western corners (Soilscapes 2026).

Methodology

The selection of sequences for detailed geoarchaeological recording and sampling was focused on targeting key archaeological features from all phases of activity on the site. It was hoped that this selection criteria would assist in placing the site in its wider archaeological and environmental context and provide supplementary data regarding specific human activities on the site.

The sections of ditch 10158 (ditch A10A and its recut 10164) and ditch 10187 (ditch AT) were described in detail on site in order to provide information about their infilling and an initial assessment of the likely preservation conditions on the site. Due to the sandy nature of the fills only features with favourable preservation conditions (such as waterlogged features with clay/silt fills and those with fills rich in cultural material) were targeted for monolith sampling. In total 12 features were sampled, including enclosure ditches and pits in both areas.

All sediment sequences were recorded in the field by the production of measured section drawings and the allocation of individual context numbers based on the lithological characteristics of the deposits encountered. The lithostratigraphy of the samples of the assessed sections was described according to standard geological criteria provided by Historic England (HE 2015a), Jones *et al.* (1999), Munsell Colour (2018) and Tucker (2011). The description includes a characterisation of texture; colour; compaction; clast size, shape and abundance; and inclusions (e.g. charcoal, shells and artefacts). Post-depositional features (e.g. rooting or mottling) and the nature of sediment contacts (e.g. sharp or diffuse) were also noted.

All monolith samples were retained in steel tins measuring 100 x 100 x 500mm and 100 x 100 x 250mm and were then wrapped and labelled following standard sampling procedures (CA 2012). The monolith samples were unwrapped and the deposits cleaned, photographed and recorded.

It should be emphasised that not all contexts visible in the field may be well defined in monolith samples on all occasions.

Results

This section presents a summary of depositional and post-depositional processes recorded on the site and within the assessed monolith samples. Each feature is presented separately and the detailed lithological description is provided in Tables A3.23–A3.61.

Table A3.22: Summary of monolith sample sections

Period/ Phase	Area	Sequence no.	Feature label	Feature type	Cut no.	Monolith sample no.	Height (m aOD)	Table no.	Fig. no.
LBA/EIA	B	1	Pit alignment B	Pit	21491	285	97.33m	A3.23	A3.1
						286	96.61m	A3.24	
		2	Pit alignment B	Pit	21638	287	97.60m	A3.28	A3.2
						288	97.48m	A3.27	
						289	97.24m	A3.26	
						290	97.80m	A3.25	
		3	Pit alignment B	Pit	21876	291	98.14m	A3.29	A3.3
						292	97.81m	A3.30	
M–LIA Phase 4.2	A	4	Ditch A10A	Ditch	10158	–	101.36m	A3.31	A3.4
					recut 10164	–	101.36m	A3.32	
		5	Ditch AT	Ditch	10187	–	100.93m	A3.33	A3.5
		6	Ditch A1A	Ditch	12197	149	96.66m	A3.34	A3.6
		7	Ditch A1A	Ditch	12176	151	93.86m	A3.35	A3.7
		8	Ditch A1A	Ditch	12075	152	96.98m	A3.36	A3.8
		9	Pit/posthole group PA4	Pit	10300	20	101.09m	A3.37	A3.9
						135	100.70m	A3.38	
						136	100.30m	A3.39	
						22	100.06m	A3.40	
		10	Ditch A10.1B	Ditch	11031 and recut 10689	47	101.07m	A3.41	A3.10
						137	100.65m	A3.42	
						138	100.08m	A3.43	
						139	99.52m	A3.44	
		11	Pit group PA7	Pit	11332	88	99.01m	A3.45	A3.11
						141	98.80m	A3.46	
						140	98.55m	A3.47	
						142	98.05m	A3.48	
	B	12	Pit/posthole group PB6	Pit	20635	213	100.85m	A3.49	A3.12
						215	100.5m	A3.50	
		13	Ditch B4A	Ditch	21092	261	101.46m	A3.51	A3.13
						262	101.18m	A3.52	
						263	100.89m	A3.53	
						264	100.42m	A3.54	
M–LIA Phase 4.2 and LIA/ER	B	14	Ditches B6A and B8H	Ditches	21070 (B8H)	268	100.79m	A3.55	A3.14
						269	100.67m	A3.56	
						270	100.45m	A3.57	
						271	100.26m	A3.58	
					21038 (B6A)	265	100.84m	A3.59	
						266	100.50m	A3.60	
						267	100.17m	A3.61	

Key: LBA/EIA = Late Bronze Age/Early Iron Age; M–LIA = Middle to Late Iron Age; LIA/ERB = Late Iron Age/Early Roman

Period 3 Late Bronze Age/Early Iron Age

Sequence 1: pit 21491 (pit alignment B) (Fig. A3.1; Tables A3.23 and A3.24)

Two monolith samples (285 and 286) were taken from pit 21491 (pit alignment B), situated along the floodplain edge in Area B.

The lowermost context (22531) consisted of a well-sorted, grey fine sand that derived from the local geological background and is likely to represent the initial erosion of the freshly exposed sides of the pit. The lower fill grades into the upper contexts 22530 and 22529, characterised by the same loose and sandy texture. Distinctive clayey bands were recorded throughout these contexts and their fine and depleted texture may be indicative of waterlain deposition. The clay could reflect seasonal flooding when muds, carried by the flood water, could then have settled down from suspension in the water across the site, however no alluvial sediments were recorded around the pits. Alternatively the fine sediments may have originated from former land surface material which had washed into the pit and settled in a standing water body present within the pit. Also the uppermost fill 22528 (monolith 285, Table A3.23) contained a higher content of clay which could be indicative of flooding and/or washed in fine sediments.

As shown on Figure A3.1 the upper part of the pit has been affected by post-deposition dark reddish mottling and iron pan suggesting fluctuation of the water table level and potentially mineralisation of organic matter.

Sequence 2: pit 21638 (pit alignment B) (Fig. A3.2; Tables A3.25–A3.28)

Four overlapping monoliths (287, 288, 289 and 290) were taken from pit 21638 (pit alignment B), recorded along the floodplain edge in Area B.

The lowermost contexts 21640 and 21641 in monolith 288 consisted of well-sorted and oxidised fine sand interbedded with horizontal clay bands. Similar to Sequence 1 the lowest fills accumulated from the erosion of the sandy bedrock into which the pit was cut. The presence of these horizontal clayey bands could be indicative of seasonal flooding and/or washed in former soil material that then settled down in standing water allowing an accumulation of the clay settling from suspension.

Towards the top of sequence the fills seem to be dominated again by sands derived from the local geological substrate with a lower fine-grained silt/clay component. The homogeneous nature of these fills and lack of cultural material may be indicative of intentional and quick backfill prior to the excavation of the later

Fig. A3.1 Photograph of Period 3 pit 21491 (pit alignment B), monolith samples 285 and 286 (top to bottom), looking west (2m scale)

Table A3.23: Monolith sample 285, pit 21491 (pit alignment B) (Late Bronze Age/Early Iron Age)

Monolith	Context	Depth (m)	Description
	21494	0–0.09	Disturbed.
	22528	0.09–0.17	7.5YR 6/1 grey, moderately cohesive to loose slightly clayey fine sand with common 2.5YR 4/4 reddish brown mottling. Diffuse contact with:
	21492	0.17–0.40	10YR 6/1 grey moderately cohesive to loose slightly clayey fine sand. Occasional fine pores and fine vertical channels after roots. Sharp contact with:
	22529	0.44–0.50	10YR 6/1, loose very fine to fine sand. At 0.4–0.43m clay band. Occasional pale yellow mottling.

Key: YR = yellow-red

Table A3.24: Monolith sample 286, pit 21491 (pit alignment B) (Late Bronze Age/Early Iron Age)

Monolith	Context	Depth (m)	Description
	22529/ 22530	0–0.18	*c. 0.05m overlap with monolith 285.* 10YR 6/1, loose very fine to fine sand with clay band at 0.03–0.04m, 0.07m and 0.18m. Occasional yellowish mottling. Diffuse contact with:
	22531	0.18–0.25	5Y 7/1 light grey, well-sorted loose very fine to fine sand.

Key: Y = yellow; YR = yellow-red

Fig. A3.2 Photograph of Period 3 pit 21638 (pit alignment B), monolith samples 287, 288, 289 and 290 (left to right), looking north-west (2m scale)

enclosure ditch. However, natural silting with later homogenisation as a result of bioturbation cannot be excluded.

The grey silty sand fill 21643, recorded in monoliths 288 and 289, may represent a stabilisation phase within the pit and replacement of the organic matter by oxides (Fig. A3.2). A pollen sample was taken from context 21646 suggesting presence of mixed local woodland with dominance of alder implying damp local conditions (Grant, Appendix A3.8).

Sequence 3: pit 21876 (pit alignment B) (Fig. A3.3; Tables A3.29 and A3.30)

Two monoliths (291 and 292) were taken from pit 21876 (pit alignment B) in Area B. The upper monolith (291) was heavily disturbed, so detailed lithological description was not possible (see Table A3.29).

The lowermost context, 21877, consisted of moderately cohesive to loose sand and probably represents the initial weathering of the pit sides. Thin bands and laminae comprised of grey clay with charcoal fragments were recorded within this context suggesting some level of in wash.

Overlying context 21878 was a firm, depleted (grey) slightly clayey sand with very few fragments of charcoal. This context probably accumulated due to inwash of

Table A3.25: Monolith sample 290, pit 21638 (pit alignment B) (Late Bronze Age/Early Iron Age)

Monolith	Context	Depth (m)	Description
	21646/ 21644/	0–0.20	*c. 0.2m overlap with monolith 289.* 10YR 6/2 light brownish grey, firm, moderately cohesive slightly clayey sand. Yellowish red to red mottling. Vertical fine rooting recorded. Diffuse contact with:
	21641	0.20–0.25	10YR 7/1 light grey, loose, slightly silty fine sand with yellowish red mottling.

Key: YR = yellow-red

Fig. A3.3 Photograph of Period 3 pit 21876 (pit alignment B), monolith samples 291 and 292 (left to right), looking north-west (2m scale)

sediments into the pit and the clay band may have been laid down from a suspension within a standing water body within the pit.

Period 4 Phase 4.2 Middle to Late Iron Age

Sequence 4: ditch A10A (cut 10158 and recut 10164) (Fig. A3.4; Tables A3.31 and A3.32)

Ditch A10A (cut 10598) and its later recut (10164) were located in the southern corner of Area A, forming part of enclosure A10.

Both ditches were filled with a sequence of deposits which consisted of very pale brown to brown fine to mid sand derived from the local geological background. The lack of cultural material and its homogenous character could be indicative of natural silting. It could be suggested that the fills consisted of the sandy bedrock which had been weathered and washed in from the unvegetated and unstable sides of the ditches, which were still prone to erosion shortly after the ditches were dug.

After the accumulation of the sandy material, post-depositional processes such as mineralisation (iron pans), leaching of minerals down the profile (some of the pale contexts) and homogenisation by deep roots and earthworm actions took place. The post-depositional processes could lead to mixing of these

Table A3.26: Monolith sample 289, pit 21638 (pit alignment B) (Late Bronze Age/Early Iron Age)

Monolith	Context	Depth (m)	Description
	21646	0–0.24	*c. 0.25m overlap with monolith 288.* 10YR 6/2 light brownish grey, firm, moderately cohesive slightly clayey sand. Yellowish red to red mottling. Vertical fine rooting recorded. At 0.13–0.16m grey clayey sandy band. Diffuse contact with:
	21643	0.24–0.31	10YR 6/1 grey, loose to moderately cohesive, slightly silty/clayey fine sand. Occasional yellowish red mottling. Diffuse contact with:
	21641	0.31–0.50	10YR 7/1 light grey, loose, slightly silty fine sand with yellowish red mottling.

Key: YR = yellow-red

Table A3.27: Monolith sample 288, pit 21638 (pit alignment B) (Late Bronze Age/Early Iron Age)

Monolith	Context	Depth (m)	Description
	?21643	0–0.06	*c. 0.25m overlap with monolith 289.* 10YR 5/1 grey, firm, silty sand with reddish mottling and fine roots channels. Sharp contact with:
	21649	0.06–0.26	10YR 6/1 grey, friable, moderately cohesive silty sand. Clay band at 0.17m. Occasional yellowish red mottling. Sharp contact with:
	21641	0.26–0.31	10YR 7/1 light grey, loose, slightly silty fine sand with yellowish red mottling. Clay band at 0.26m and 0.3m (*c.*10mm thick). Sharp contact with:
	21640	0.31–0.50	10YR 7/6 yellow to 10YR 6/4 light yellowish brown, loose fine sand. Clay, horizontal band at 0.46m–0.47m.

Key: YR = yellow-red

Table A3.28: Monolith sample 287, pit 21638 (pit alignment B) (Late Bronze Age/Early Iron Age)

Monolith	Context	Depth (m)	Description
	21643	0–0.17	10YR 6/1 grey, friable to cohesive silty/clayey sand with yellowish red to dark red mottling and fine root channels. Diffuse contact with:
	21642	0.17–0.25	10YR 7/1 light grey, loose fine sand with yellowish red mottling.

Key: YR = yellow-red

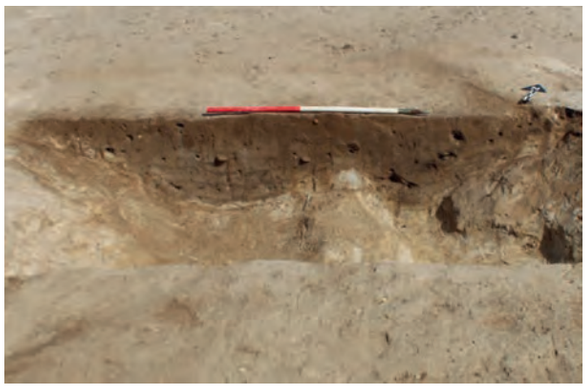


Fig. A3.4 Photograph of Period 4 Phase 4.2 ditch A10A (cut 10159 (left) and recut 10164 (right)), looking north-west (1m scale)

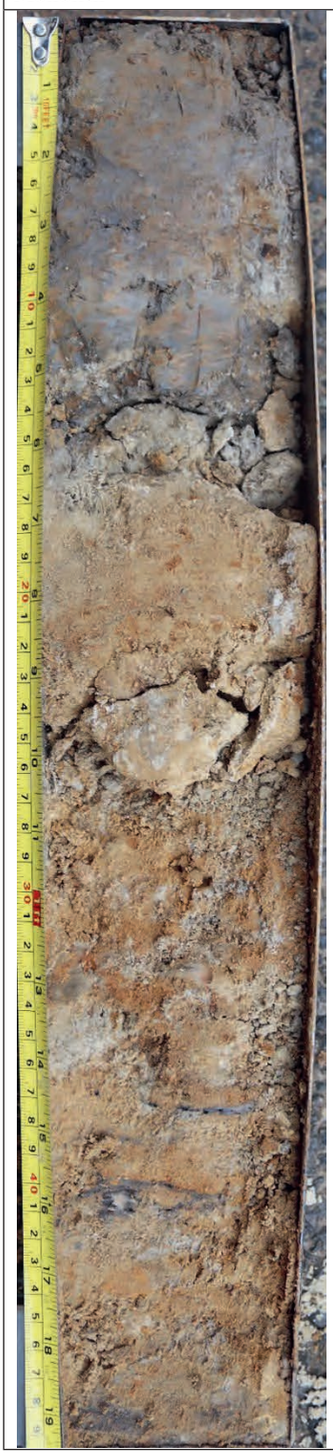
contexts by bioturbation (Bell 1990b, 245; Crabtree 1990) and blurring of contact boundaries between contexts (leaching/mineralisation) making the interpretation of depositional episodes and hiatuses in deposition (stabilisation layers) difficult to recognise. The presence of fine pores and root channels within context 10167/10166 may however indicate a period of stabilisation/vegetation within the ditch.

Due to the homogenised, weathered and sandy nature of the fills in this ditch and recut, no monolith samples were taken as any pollen is likely to be weathered and translocated through the loose sequence.

Table A3.29: Monolith sample 291, pit 21876 (pit alignment B) (Late Bronze Age/Early Iron Age)

Monolith	Context	Depth (m)	Description
	21880/ 21879/ 21878	0–0.50	Disturbed clay sand.

Table A3.30: Monolith sample 292, pit 21876 (pit alignment B) (Late Bronze Age/Early Iron Age)

Monolith	Context	Depth (m)	Description
	21878	0–0.13	*c. 0.15m overlap with monolith 291.* 7.5YR 5/1 grey, firm clayey fine sand. Occasional yellowish mottling. A band of clay at 0.13m. Very few coarse sand-sized charcoal fragments. Sharp contact with:
	21877	0.13–0.32	10YR 5/6 yellowish brown, moderately cohesive to loose, slightly clayey/silty sand with 10YR 7/1 light grey sand lenses. At 0.32m, 0.37m with black charcoal (<1mm), 0.4m, 0.048m grey horizontal laminations (<5mm) and band (*c.*11mm thick).

Key: YR = yellow-red

Table A3.31: Ditch A10A (cut 10158) (Middle to Late Iron Age Phase 4.2)

Context	Depth (m)	Description
10163	0–0.12	10YR 6/3 pale brown, slightly silty fine to medium loose sand. Homogenous. Common (10%) fine pores, possibly after roots. Deep modern root/earthworm channels recorded. Diffuse contact to:
10162	0.12–0.20	10YR 7/3 very pale brown, fine to medium loose sand. Homogenous. Common (10%) fine pores, possibly after roots. Deep modern root/earthworm channels recorded. Cemented/mineralised wavy pans through the context. Diffuse contact to:
10161/10160/10159 *Very diffuse contact boundaries, thus grouped as a one*	0.20–0.49	10YR 8/2 very pale brown, fine to medium loose sand. Homogenous. Massive structure. Common cemented/mineralised wavy pans through the context.

Key: YR = yellow-red

Table A3.32: Ditch A10A (recut 10164) (Middle to Late Iron Age Phase 4.2)

Context	Depth (m)	Description
10168/10167	0–0.30	10YR 6/3 pale brown, slightly silty fine to medium loose sand. Homogeneous. Rare (<5%) small to large sandstones (<100mm). Common (10%) fine pores, possibly after roots. Deep modern root/earthworm channels recorded. 10YR 5/2 brown pocket of sand (reworked stabilisation horizon at 0.3m – 10167). Diffuse contact to:
10166	0.30–0.40	10YR 7/3 very pale brown, fine to medium loose sand. 10YR 5/2 brown pocket of sand (reworked stabilisation horizon at 0.3–0.32m at the interface with upper context). Very rare (<1%) charcoal granules. Common cemented/mineralised wavy pans through the context. Diffuse contact to:
10165	0.40–0.49	10YR 8/2 very pale brown, fine to medium loose sand. Common cemented/mineralised wavy pans through the context.

Key: YR = yellow-red

Sequence 5: ditch AT (cut 10187) (Fig. A3.5; Table A3.33)

Ditch AT (cut 10187) was recorded on a north-west/south-east alignment running through Area A. This ditch was filled with relatively homogenous very pale fine to mid sand derived from the local geological background, which is likely to have accumulated due to natural erosional processes (Table A3.33). The fills have been washed in from the soft and prone to erosion sandy sides of the ditch (Crabtree 1990, 232). Greyish lenses recorded in context 10190 may represent material from the former topsoil/turf that has fallen into the ditch.

After the sandy fills had been deposited, post-depositional weathering, leaching of minerals and homogenisation by bioturbation took place. The lack of anoxic conditions, leaching, mineralisation and the fact that the grain size of the sediments is coarser than the pollen grains themselves suggests that the pollen may be weathered/not preserved and could be translocated

Fig. A3.5 Photograph of Period 4 Phase 4.2 ditch AT (cut 10187), looking south-east (2m scale)

Table A3.33: Ditch AT (cut 10187) (Middle to Late Iron Age Phase 4.2)

Context	Depth (m)	Description
10193/10192	0–0.13	10YR 5/3 brown, medium loose sand. Homogeneous. Deep modern root/earthworm channels recorded. Clear contact to:
10191	0.13–0.43	10YR 7/3 very pale brown, fine to medium loose sand. Rare fine micropores. Very rare (<1%) charcoal granules. Common cemented/mineralised wavy pans through the context. Diffuse contact to:
10190	0.43–0.67	10YR 8/3 very pale brown, fine to medium loose sand. Slightly more compacted than above, possibly cemented by minerals that leached down the profile. Rare fine micropores. Very rare (<1%) charcoal granules. Common cemented/mineralised wavy pans through the context. At 0.4m a pale grey sand recorded at the east slope of the ditch (possible fallen turf). Diffuse contact to:
10198/10188	0.67–0.80	10YR 7/3 very pale brown very pale brown, fine to medium loose sand. Rare fine micropores. Common cemented/mineralised wavy pans through the context.

Key: YR = yellow-red

down through the profiles, so no monolith sample was taken from this sequence.

Sequence 6: ditch A1A (cut 12197) (Fig. A3.6; Table A3.34)

Ditch A1A (cut 12197) is located at the edge of the floodplain in Area A and formed the boundary ditch for enclosure A1. One monolith (149) was recovered from the feature. The lowermost context 10002 recorded in the sequence consisted of loose, light grey fine sand and represents the upper part of the weathered sandy bedrock into which the feature was cut. The basal fill, context 12198, consisted of redeposited grey sand which was likely to have accumulated due to erosion of the ditch sides. A pollen sample taken from context 12198 suggests that at the beginning of the ditch's excavation woodland dominated by alder, with a low abundance of grass and heather pollen, was present in the area (Grant, Appendix 3.8).

The main fill of the ditch, context 12199, consisted of slightly darker silty sand. The grey colour and the silty texture could be indicative of the presence of humified organic matter, which could imply that the ditch was overgrown by vegetation. The location close to the floodplain suggests that the ditch could have contained standing water during wetter seasons.

The presence of redeposited sand (the lighter lenses) throughout the fills is a product of the continuous side erosion and/or could represent an in wash of sand from areas where the bedrock has been exposed higher up the slope. As shown in Figure A3.6 the fills were affected by post-depositional reworking by root and earthworm action.

Sequence 7: ditch A1A (cut 12176) (Fig. A3.7; Table A3.35)

Sample 151 was taken from ditch A1A (cut 12176) which forms part of the same enclosure ditch as monolith 149 (sequence 6, ditch A1A, cut 12197) discussed above.

Fig. A3.6 Photograph of Period 4 Phase 4.2 ditch A1A (cut 12197), monolith sample 149, looking south-west (1m scale)

Fig. A3.7 Photograph of Period 4 Phase 4.2 ditch A1A (cut 12176), monolith sample 151, looking west

Table A3.34: Monolith sample 149, ditch A1A (cut 12197) (Middle to Late Iron Age Phase 4.2)

Monolith	Context	Depth (m)	Description
	12199	0–0.37	10YR 5/1 grey, loose to moderately cohesive slightly silty sand; to 10YR 4/1 dark grey, humic silty sand. Pockets of light grey sand. At 0.3m and 0.34–0.37m silty humic bands. Sharp contact with:
	12198	0.37–0.39	10YR 4/1 grey, loose fine sand. Diffuse contact with:
	10002	0.39–0.50	10YR 6/1 light grey, loose, well-sorted sand.

Key: YR = yellow-red

Table A3.35: Monolith sample 151, ditch A1A (cut 12176) (Middle to Late Iron Age Phase 4.2)

Monolith	Context	Depth (m)	Description
	12326	0–0.10	7.5YR 5/1 grey, soft, moderately cohesive slightly silty clayey sand (fine). Rare reddish mottling. Very rare (<1%) medium-sized sandstone pebbles. Sharp contact with:
	12325	0.10–0.15	10YR 6/3 pale brown, loose very fine to medium sand. Occasional reddish mottling. Sharp contact with:
	12324/ 12308	0.15–0.40	10YR 4/1 dak grey, slightly silty sand (fine to medium). Very rare (<2%) small to large sized sandstone pebbles. Occasional, vertical fine roots. At 0.16m and 0.23m grey clayey bands (<20mm thick). Sharp contact with:
	12307	0.40–0.47	10YR 7/2 light grey, loose fine sand. Diffuse contact with:
	10002	0.47–0.50	2.5Y 7/3 pale brown, loose, well-sorted fine sand.

Key: YR = yellow-red; Y = yellow

The lowest context, 10002, represents the natural substrate into which the ditch was cut. As in the case of Sequence 6 the primary fill, 12307, consisted of redeposited sand, probably derived from the ditch sides. The symmetrical geometry of the lower part of the ditch indicates erosion of both sides, possibly shortly after the ditch was excavated. Fills 12324 and 12308 consisted of grey, slightly silty (humic) sand. The sand also represents wash-in/windblown material and the humic character indicates that the ditch was colonised by vegetation. An erosion of the south-facing side is visible as fill 12325 that consisted of redeposited sand. Two clayey bands, approximately 10mm thick, were recorded within this secondary fill. The clay component may have been derived from potential flooding episodes as the ditch is located close to the floodplain.

The uppermost fill, 12326, consisted of grey, slightly silty sand that was likely to be washed and/or windblown into the ditch. The post-depositional redox features (mottling) are suggestive of changing oxidation conditions due to fluctuations in the water table within the fills.

Sequence 8: ditch A1A (cut 12075) (Fig. A3.8; Table A3.36)

Sample 152 was taken from enclosure ditch A1A (cut 12075), which forms part of the same enclosure ditch from which monoliths 149 and 151 (Sequences 6 and 7, discussed above) were taken.

The majority of the monolith tin comprised fill 12076, which consisted of loose, grey sand with common tabular-shape sandstones. This sandy component of the fill and the sandstone inclusions derived from the erosion of the natural substrate into which the ditch was cut. The upper fill, 12077, represents the secondary fill that accumulated gradually due to reduction of supply material from exposed faces of the ditch.

Fig. A3.8 Photograph of Period 4 Phase 4.2 ditch A1A (cut 12075), monolith sample 152, looking east

Sequence 9: pit 10300 (pit/posthole group PA4) (Fig. A3.9; Tables A3.37–A3.40)

Four monolith samples (20, 22, 135 and 136) were taken from a large pit with almost straight symmetrical sides and a flat base. The pit was located in Area A, within pit/posthole group PA4, situated close to enclosure A10.

The fills recorded within monoliths 136, 135 and 20 (from the bottom to the top) and monolith 22, consisted of loose, pale brown to brown medium sand. No archaeological material was recorded within the monoliths that may indicate intentional backfill, however this cannot be ruled out. As shown in Figure A3.9 and monoliths 135 and 136 (contexts 10306 and 10305), darker lenses were recorded throughout that could represent the presence of organic matter such as former turves and/or topsoil that had fallen into the pit or material dumped into the pit. Granular-sized charcoal fragments were recorded within these darker lenses (monolith 135) and could indicate some intentional backfilling. Alternatively these darker lenses/bands could be post-depositional product of minerals leaching or mineralisation of sand/organic matter. The festoon-like geometry of the fills could be a product of post-depositional compaction of the layers (Karkanas and Goldberg 2019, 79).

The assessed sequence was characterised by reddish partially connected iron pans. These features are post-depositional in origin and, in grey literature, the reddish panning is also called illuvial bands, pseudofibres, lamellas, laminae, clay-iron bands or covarvany; they have been of interest to pedologists, geomorphologists and other specialists (Lisá *et al.* 2019). The formation processes are not fully understood and the most common pathways are pedogenic (such as illuviation/leaching), petrogenic (depend on parent material) and a combination of both (Rawling 2000).

Sequence 10: ditch A10.1B (cut 11031 and recut 10689) (Fig. A3.10; Tables A3.41–A3.44)

Four monolith samples (47, 137, 138 and 139) were taken from curvilinear (6.58m long and 1.83m wide) ditch A10.1B (cut 11031) and its later recut (cut 10689, monoliths 139 and 47).

The lowest recorded context, 11404, consisted of deposited sand and represents a primary fill of the feature. The overlying fill, 11039, consisted of loose sand affected by post-depositional horizontal iron panning. The sand was well sorted and no internal structure was recorded suggesting that the fill accumulated due to erosion of the ditch sides.

The sandy fills of cut 11031 were then covered by sands interbedded with silty clay (contexts 11032, 11033, 11034, 11035, 11036), which indicate that the erosion of the sides was slow and that the silt and clay deposits could have been washed in and then settled from suspension, suggesting the presence of a standing water body within the feature. The uppermost fills of the

Fig. A3.9 Photograph of Period 4 Phase 4.2 pit 10300 (pit/posthole group PA4), monolith samples 20, 135 and 136 (top to the bottom) (monolith sample 22 was taken from the right-side corner (not illustrated)), looking north-east

Fig. A3.10 Photograph of Period 4 Phase 4.2 ditch A10.1B (cut 11031 and recut 10689), monolith samples 47, 137, 138 and 139 (top to bottom), looking south-west (1m scale)

recut consisted predominately of slightly silty sand. The rise in silt component may be indicative of windblown silt particles and/or can suggest a higher mineralised organic content (thus darker colour). No finds were recorded that can suggest intentional backfilling. The tendency to break into aggregates indicates potential post-depositional bioturbation.

Sequence 11: pit 11332 (pit group PA7) (Fig. A3.11; Tables A3.45–A3.48)

The sequence of four monoliths (88, 140, 141 and 142) was taken from a large pit with steep symmetrical sides and flat base, situated within enclosure A4 in pit group PA7.

Recorded at the base of monolith 88 (the bottom monolith) was context 10002 which consisted of loose, well-sorted brown/yellow fine sand and represents the natural geological deposit. The two lowermost fills of pit 11332, contexts 11334 and 11333, were pinkish grey to grey loose fine sands interbedded with grey to dark grey silty sand horizontal bands (approximately 10mm thick). The well-sorted sand and the interbedded texture could be indicative of natural silting rather than an intentional backfilling of the pit. The darker bands seem to be more humic and could be derived from decaying turves (and topsoil), leaves and other organic matter, including dumped waste material. The regularity of the bands suggests several accumulation episodes. It should

Table A3.36: Monolith sample 152, ditch A1A (cut 12075) (Middle to Late Iron Age Phase 4.2)

Monolith	Context	Depth (m)	Description
	12077	0–0.16	10YR 4/2 dark greyish brown, loose slightly silty sand. Very few (<1%) red sandstones. Gradual contact with:
	12076	0.16–0.50	10YR 4/1 dark grey to 10YR 5/1 grey, loose, slightly silty sand (fine) with common tabular reddish sandstone.

Key: YR = yellow-red

Table A3.37: Monolith sample 20, pit 10300 (pit/posthole group PA4) (Middle to Late Iron Age Phase 4.2)

Monolith	Context	Depth (m)	Description
	10311/ 10310	0–0.14	10YR 5/6 yellowish brown (bands) to 10YR 6/2 light brownish grey, loose fine sand. Sharp contact with:
	10309	0.14–0.26	10YR 4/3 brown, loose fine sand with lensed of silty sand with very rare (<1%) granular-sized sandstone pebbles. Sharp contact with:
	10308	0.26–0.50	10YR 5/3 brown, loose fine sand with bands of 7.5YR 4/3 brown firm sand. Very rare (<1%) granular to small-sized (<8mm) sandstone pebbles.

Key: YR = yellow-red

Table A3.38: Monolith sample 135, pit 10300 (pit/posthole group PA4) (Middle to Late Iron Age Phase 4.2)

Monolith	Context	Depth (m)	Description
	10305	0–0.06	5YR 4/3 brown friable fine sand. Angled and sharp contact with:
	10306	0.06–0.35	10YR 4/2 dark greyish brown to 110YR 4/3 brown, friable, moderately cohesive silty fine sand with pockets of 10YR 7/1 light grey sand. Very rare (<1%) coarse sand-sized charcoal. Clear contact with:
	10306	0.35–0.40	10YR 8/2 very pale brown to 10YR 6/2 light yellowish brown, loose well-sorted fine sand. Sharp contact with:
	10305	0.40–0.50	10YR 5/3 brown, loose very fine to fine sand.

Key: YR = yellow-red

Table A3.39: Monolith sample 136, pit 10300 (pit/posthole group PA4) (Middle to Late Iron Age Phase 4.2)

Monolith	Context	Depth (m)	Description
	10306	0–0.10	10YR 4/2 dark greyish brown to 110YR 4/3 brown, friable, moderately cohesive silty fine sand. Sharp contact with:
	10305	0.10–0.21	10YR 4/3 brown, loose, slightly silty fine sand. Sharp contact with:
	10303/ 10304/ 10302	0.21–0.37	10YR 6/3 pale brown, loose fine sand with 10YR 4/2 dark greyish brown to 10YR 4/1 dark grey silty band. Sharp contact with:
	10301	0.37–0.50	10YR 7/3 very pale brown, loose fine sand with 10YR 5/4 brown sand band at 0.42–0.45m.

Key: YR = yellow-red

Table A3.40: Monolith sample 22, pit 10300 (pit/posthole group PA4) (Middle to Late Iron Age Phase 4.2)

Monolith	Context	Depth (m)	Description
	10301	0–0.20	7.5YR 5/4 brown to 10YR 7/3 very pale brown, loose fine sand. Uneven and sharp contact with:
	10326	0.20–0.36	7.5YR 4/4 brown, loose fine sand. Sharp and wavy contact with:
	10327	0.36–0.50	10YR 7/4 very pale brown, loose fine to very fine sand.

Key: YR = yellow-red

Table A3.41: Monolith sample 47, ditch A10.1B (recut 10689) (Middle to Late Iron Age Phase 4.2)

Monolith	Context	Depth (m)	Description
	10691	0–0.10	Disturbed.
		0.10–0.43	7.5YR 4/3 brown, loose, slightly silty sand. Tends to break into aggregated in its upper part. Pockets of dark brown sand filling deep root channels. Diffuse contact with:
	10690	0.43–0.50	10YR 4/4 dark yellowish brown, loose slightly silty fine sand.

Key: YR = yellow-red

Table A3.42: Monolith sample 137, ditch A10.1B (recut 10689) (Middle to Late Iron Age Phase 4.2)

Monolith	Context	Depth (m)	Description
	10690	0–0.17	10YR 4/4 dark yellowish brown, loose slightly silty fine sand. Sharp contact with:
	11032/ 11033/ 11034/ 11035/ 11036	0.17–0.34	10YR 6/3 pale brown, loose fine sand interbedded with 5YR 6/1 grey, firm clayey silty sand (fine) and reddish yellow iron panning. Sharp (disturbed) contact with:
	11037	0.34–0.50	10YR 7/3 pale yellowish brown, loose very fine to fine sand.

Key: YR = yellow-red

Table A3.43: Monolith sample 138, ditch A10.1B (cut 11031 and recut 10689) (Middle to Late Iron Age Phase 4.2)

Monolith	Context	Depth (m)	Description
	11039	0–0.22	10YR 7/3 pale yellowish brown, loose very fine to fine sand. Lenses of 10YR 5/8 yellowish brown silty sand. Sharp contact with:
	11404	0.22–0.50	10YR 8/2 very pale brown, loose very fine to fine sand.

Key: YR = yellow-red

Table A3.44: Monolith sample 139, ditch A10.1B (cut 11031) (Middle to Late Iron Age Phase 4.2)

Monolith	Context	Depth (m)	Description
	11040	0–0.50	10YR 8/2 very pale brown, loose very fine to fine sand.

Key: YR = yellow-red

Fig. A3.11 Photograph of Period 4 Phase 4.2 pit 11332 (pit group PA7), monolith samples 88, 140, 141 and 142 (bottom to top), looking north (1m scale)

Fig. A3.12 Photograph of Period 4 Phase 4.2. pit 20635 and recut 20637 (pit/posthole group PB6), monolith samples 213 and 215 (not illustrated), looking west (1m scale)

be noted that horizontal laminations/bedding may be characteristic of sedimentation in a calm standing water body, thus it is possible that the pit was filled with water, possibly from seepage (Karkanas and Goldberg 2019, 52–3). The well-preserved horizontal structure indicates that the lower fills were not disturbed after deposition. Alternatively the organic bands may be derived from an organic mat which would have needed to have developed at the base of the pit between the episodes of side erosion.

The upper fills recorded in monoliths 140, 141 and 142 were of very dark greyish brown silty sand mixed with possible burnt fragments of iron/sandstone, charcoal and lenses of sand and clay. The heterogeneous nature of the upper contexts suggest intentional backfilling, possibly several dumping episodes potentially still mixed with natural silting as the sides of the pit display erosion and slumping (Figure A3.11). Analysis of the plant macrofossil assemblages provided evidence for the disposal of late stage crop processing waste material and domestic hearth/oven waste material into the pit (Wyles, Appendix A3.4).

Sequence 12: pit 20635 and recut 20637 (pit/posthole group PB6) (Fig. A3.12; Tables A3.49–A3.50)

Two monolith samples (213 and 215) were taken from pit 20641 and its associated recut 20637, which had straight symmetrical sides and a flat base. The pits were recorded in Area B within enclosure B4 and formed part of pit/posthole group PB6.

The lowermost context, 20003, recorded in monolith 215 consisted of loose well-sorted brown/yellow fine sand and represents the natural substrate recorded in Area B. Fill 20636 of pit 20635 consisted of very dark greyish brown sandy silt. The silty texture could be indicative of the presence of a silt-sized component, probably a mixture of decomposed organic matter, organic waste (bone) and burnt residues. Analysis of the plant macrofossil assemblages recovered from pit 20635 is indicative of late stage crop processing waste (Wyles, Appendix A3.4).

Recut 20637 contained two different types of fills; the northern side formed of interbedded clays and sands (contexts 20638, 20639 and 20640), whereas the southern (contexts 20641 and 20642) consisted of loose, brown sand. The fills butting the northern side of the pit together with the large stones present within the feature (Figure A3.12) were interpreted in the field as possibly representing the remnants of packing material supporting a post; however the function of the pit remains unclear.

Sequence 13: ditch B4A (cut 21092) (Fig. A3.13; Tables A3.51–A3.54)

Four monolith samples (261, 262, 263 and 264) were taken from large enclosure ditch B4A (cut 21092) in Area B, which defined enclosure B4.

The lowermost context within monolith 264, 21096, consisted of yellowish brown, slightly oxidised clayey sand. During the field visit fine-grained (clayey) laminations (<2mm to 5mm) were noted within the primary fill, suggesting natural cyclical silting and sorting potentially in a standing water body within the ditch. The primary fill was covered by context 21095 which was a brown, soft silty sand (very fine to fine) with pockets of grey silt and very rare manganese/iron (Mn/Fe) staining. This context probably represents a natural silting (secondary fill) affected by fluctuating water table (mottling).

Context 21094 was separated by a clear boundary from underlying context 21095 and comprised a dark greyish brown firm silty sand with rare sandstones and granular-sized charcoal. Post-depositional iron mottling was recorded, often along root pores. The darker colour and presence of fine root pores could imply that the context represents a stabilisation horizon within the ditch.

Table A3.45: Monolith sample 88, pit 11332 (pit group PA7) (Middle to Late Iron Age Phase 4.2)

Monolith	Context	Depth (m)	Description
	11342	0–0.30	10YR 3/2 very dark greyish brown, friable humic silty fine sand. Diffuse contact with:
	11339	0.30–0.50	10YR 2/2 very dark brown, humic, friable silty fine sand. Lenses of black silty, possibly burnt residues.

Key: YR = yellow-red

Table A3.46: Monolith sample 141, pit 11332 (pit group PA7) (Middle to Late Iron Age Phase 4.2)

Monolith	Context	Depth (m)	Description
	11342/ 11339	0–0.24	*c. 0.3m overlap with monolith 142.* 10YR 3/2 very dark greyish brown, friable humic silty fine sand. Diffuse contact with:
	11339	0.24–0.50	10YR 2/2 very dark greyish brown, friable silty fine sand mixed with burnt black residues, red coarse sand, lenses of 10YR 8/2 very pale brown sand and 7.5YR 4/3 brown sand.

Key: YR = yellow-red

Table A3.47: Monolith sample 140, pit 11332 (pit group PA7) (Middle to Late Iron Age Phase 4.2)

Monolith	Context	Depth (m)	Description
	11339	0–0.29	*c. 0.25m overlap with monolith 141.* 10YR 3/2 very dark greyish brown, friable to moderately cohesive clayey silty fine sand. Mixed with dark red (?burnt) sand. Lenses of grey to light grey sand. Diffuse contact with:
	11338/ 11337	0.29–0.50	10YR 3/1 very dark grey, friable to moderately cohesive clayey silty fine sand. Mixed with dark red (?burnt) sand. Lenses of grey to light grey sand.

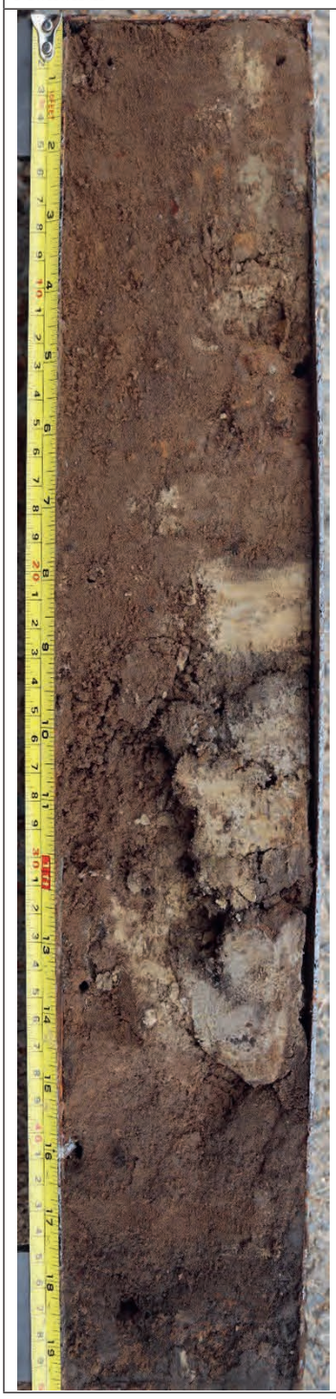
Key: YR = yellow-red

Table A3.48: Monolith sample 142, pit 11332 (pit group PA7) (Middle to Late Iron Age Phase 4.2)

Monolith	Context	Depth (m)	Description
	11335	0–0.14	*c. 0.1m overlap with monolith 140.* 5YR 4/6 yellowish red to 7.5YR 5/1 friable, slightly silty fine sand. Diffuse contact with:
	11334/ 11333	0.14–0.32	Interbedded 7.5YR 6/2 pinkish grey, loose fine sand with 10YR 5/1 grey slightly silty fine sand and 10YR 7/2 light grey loose fine sand. Sharp contact with:
	10002	0.32–0.40	10YR 6/6, loose brownish yellow, well-sorted very fine to fine sand.

Key: YR = yellow-red

Table A3.49: Monolith sample 213, pit 20635 and recut 20637 (pit/posthole group PB6) (Middle to Late Iron Age Phase 4.2)

Monolith	Context	Depth (m)	Description
	20642/20641	0–0.45	10YR 4/3 brown, loose slightly silty sand (fine). Sharp contact with:
	20640/ 20639/ 20638	0–0.37	10YR 7/3 very pale brown silt/clay interbedded with 10YR 4/1 and 10YR 6/1 grey silt/clay. Upper 0.2m mixed, mainly 10YR 4/3 brown, loose silty sand. Sharp contact with:
	20636	0.37–0.50	10YR 4/2 dark greyish brown, firm but soft, silty sand.

Key: YR = yellow-red

Table A3.50: Monolith sample 215, pit 20635 (pit/posthole group PB6) (Middle to Late Iron Age Phase 4.2)

Monolith	Context	Depth (m)	Description
	20638	0–0.05	*c. 0.25m overlap with monolith 213.* 10YR 7/3 very pale brown silt/clay. Angled and sharp contact with:
	20641	0.05–0.10	10YR 4/3 brown, loose slightly silty sand (fine). Sharp contact with:
	20636	0.10–0.42	10YR 2/2 very dark greyish brown to 10YR 3/2 very dark greyish brown, firm but soft, sandy silt to silty sand. Lenses of grey clay, At 0.18–0.24m black burnt residues mixed with red sandstone fragments. At 0.28m fragment of bone. Sharp contact with:
	20003	0.42–0.50	10YR 6/6 brownish yellow, well-sorted, loose fine sand.

Key: YR = yellow-red

Table A3.51: Monolith sample 261, ditch B4A (cut 21092) (Middle to Late Iron Age Phase 4.2)

Monolith	Context	Depth (m)	Description
	21093	0–0.28	10YR 5/4 yellowish brown, moderately cohesive to friable clayey fine sand. Very rare (<1%) medium-sized (12mm) sandstone pebbles. Rare yellowish mottling. Rare fine pores and fine channels after roots. Diffuse contact with:
	21094	0.28–0.39	10YR 4/2 dark greyish brown, friable, cohesive silt sand. Very rare (<2%) granular to small-sized (<8mm) ironstone and sandstone pebbles. Pockets of clay. Very rare (<1%) granular-sized charcoal (<3mm). Rare fine root pores and channels. Clear contact with:
	21095	0.39–0.50	10YR 5/3 brown, loose, well-sorted fine sand, slightly silty. Yellowish red mottling throughout.

Key: YR = yellow-red

Table A3.52: Monolith sample 262, ditch B4A (cut 21092) (Middle to Late Iron Age Phase 4.2)

Monolith	Context	Depth (m)	Description
	21094	0–0.13	*c. 0.2m overlap with monolith 261.* 10YR 4/2 dark greyish brown, friable, cohesive silt sand. Very rare (<2%) granular to small-sized (<8mm) ironstone and sandstone pebbles. Rare fine root pores and channels. Clear contact with:
	21095	0.13–0.50	10YR 5/3 brown, loose, well-sorted fine sand, slightly silty. Yellowish red mottling throughout.

Key: YR = yellow-red

Table A3.53: Monolith sample 263, ditch B4A (cut 21092) (Middle to Late Iron Age Phase 4.2)

Monolith	Context	Depth (m)	Description
	21095	0–0.40	*c. 0.2m overlap with monolith 262.* Disturbed. 10YR 5/3 brown, loose, well-sorted fine sand, slightly silty. Yellowish red mottling throughout. Diffuse contact with:
	21096	0.40–0.50	10YR 5/4 yellowish brown, firm to moderately cohesive clayey fine sand. Yellowish red/dark red mottling throughout.

Key: YR = yellow-red

Table A3.54: Monolith sample 264, ditch B4A (cut 21092) (Middle to Late Iron Age Phase 4.2)

Monolith	Context	Depth (m)	Description
	21095	0–0.24	*c. 0.05m overlap with monolith 263.* Disturbed. 10YR 5/3 brown, loose, well-sorted fine sand, slightly silty. Yellowish red mottling throughout. Clay, horizontal laminae at 0.08m, 0.16m and 0.23m. Diffuse contact with:
	21096	0.24–0.50	10YR 5/4 yellowish brown, firm to moderately cohesive clayey fine sand. Yellowish red/dark red mottling throughout. Clay horizontal band at 0.3m.

Key: YR = yellow-red

Table A3.55: Monolith sample 268, ditch B8H (cut 21070) (Late Iron Age/Early Roman)

Monolith	Context	Depth (m)	Description
	21075/ 21074	0–0.25	2.5Y 4/3 olive brown, firm clayey fine sand. Tendency to break into granular/crumb aggregates. Occasional fine root channels.

Key: Y = yellow

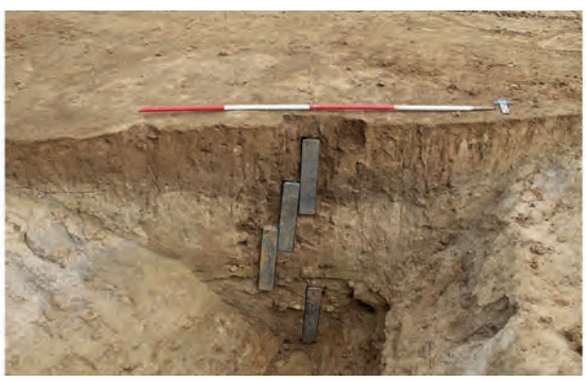


Fig. A3.13 Photograph of Period 4 Phase 4.2 ditch B4A (cut 21092), monolith samples 261, 262, 263 and 264 (top to bottom), looking north (2m scale)

The uppermost context, 21093, was separated by a sharp contact with the lower context and this is indicative of a change in depositional processes. Context 21093 was a brown, firm silty sand (very fine to fine fraction) with occasional pebble-sized ironstones and sandstones. This context was recorded inside the ditch (tertiary fill) and beyond the ditch section, thus was interpreted as a colluvium.

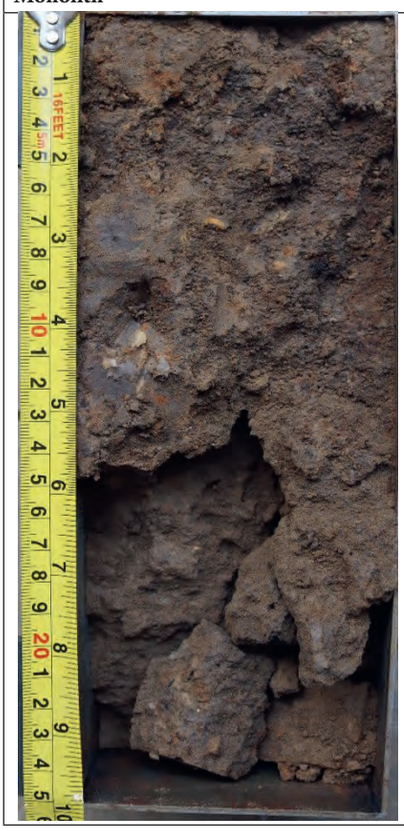
Sequence 14: ditch B6A (cut 21038) and ditch B8H (cut 21070) (Fig. A3.14; Tables A3.55–A3.61)

Three monoliths (265, 266 and 267) were taken from Period 4 Phase 4.2 (Middle to Late Iron Age) ditch B6A (cut 21038) and four monoliths (268, 269, 270 and 271) were taken from Period 5 (Late Iron Age/Early Roman) ditch B8H (cut 21070) in Area B.

The lower fills of ditch B6A (cut 21038) consisted of oxidated silty sand with some clay lenses indicating that the lower fills could have accumulated as a result of natural silting. The grey silty/clay contexts (21062 and 21064) imply washed in sediments and could suggest standing water within the ditch. Upper fills 21066, 21065 and 21075 are likely to be tertiary fills.

After the ditch had filled with sediments it was recut

Table A3.56: Monolith sample 269, ditch B8H (cut 21070) (Late Iron Age/Early Roman)

Monolith	Context	Depth (m)	Description
	21703/ 21074/ 21075	0–0.25	*c. 0.1m overlap with 268.* 2.5Y 4/3 olive brown, firm clayey fine sand. Tendency to break into granular/crumb aggregates. Occasional fine root channels.

Key: Y = yellow

Fig. A3.14 Photograph of Period 4 Phase 4.2 ditch B6A (cut 21038) and Period 5 ditch B8H (cut 21070) with monolith samples 265, 266 and 267, 268, 269, 270 and 271, looking east (2m scale)

by ditch B8H (cut 21070). The monoliths were taken through the following fills: 21071, 21072, 21703 and 21074. No clear boundaries were recorded between these fills during the assessment of the monolith samples. The fills could be interpreted as potential dumps due to the presence of fragmented weathered (?burnt) sandstone and very few charcoal flecks. However, the possibility that these represent an erosion of a former occupation surface/soil cannot be ruled out.

A pollen sample was taken from context 21071 with ditch B8H, which suggested the local presence of a mixed woodland consisting of oak, lime, alder and hazel (similar to the assemblage recorded in monolith 149 recovered from ditch A1A in Area A) (Grant, Appendix A3.8). Aquatic pollen within monolith 271 (ditch B8H, cut 21070) indicates local standing water (Grant, Appendix A3.8).

Table A3.57: Monolith sample 270, ditch B8H (cut 21070) (Late Iron Age/Early Roman)

Monolith	Context	Depth (m)	Description
	21071/ 21072	0–0.25	*c. 0.05m overlap with 269.* 2.5Y 4/2 dark greyish brown, friable/firm silty clayey fine sand with rare small-sized (<8mm) sandstone pebbles. Pockets of fine sand. Sandier than lower fills.

Key: Y = yellow

Discussion

The geoarchaeological assessment of the sampled features provided information about the depositional processes leading to accumulation of the fills.

Period 3 Late Bronze Age/Early Iron Age pit alignment B (Sequences 1–3)

Pit alignment B comprised 59 pits, 3 of which were assessed (21491, 21638 and 21876, Sequences 1, 2 and 3, respectively). The lower fills were predominately sandy and were likely to be derived from the weathered sides of the freshly dug pits. Regular horizontal bands and laminations, including clays, can be indicative of cyclical washing in of the sediments, so would suggest that the pits were left open and that there was potentially some standing water within the pits. The clay bands recorded in pit 21491 could be an indication of flooding, however the pits are located slightly higher than the current floodplain of the brook. The upper fills are dominated by sand and are likely to have accumulated due to natural silting. Post-depositional bioturbation indicates the mixing and homogenisation of the fills. The redox features are a result of changing water table levels on the site.

Period 4 Phase 4.2 Middle to Late Iron Age ditches and pits (Sequences 4–14)

The main process leading to the formation of the lower primary fills was a weathering of the ditch and pit sides. Some of the fine sands and clay/silts recorded in the lower fills could have been washed in from former soil horizons and/or accumulated during overbank flooding for features closer to the floodplain. Darker fills recorded in ditch A1A (cuts 12197 and 12176) suggest that after the primary infilling, the sediment accumulation rate slowed down in some of the ditch interventions and the hiatus in accumulation rate allowed colonisation of these areas of the ditch by vegetation. A potential stabilisation was also recorded within ditches A10.1B (cut 11031) and B4A (cut 21092).

Some of the sandy clay/silt fills recorded within the sequences could have been derived from turves that had fallen into these features, which would be visible as lenses or lumps. These were recorded in ditch AT (cut 10187) and ditch B6A (cut 21038). Also sand fills interbedded with clay/silts were noted within ditch A10.1B (cut 11031), pit 11332 (pit group PA7) and ditch B4A (cut 21092); these were potentially waterlain in the pools which could have occurred after prolongated

Table A3.58: Monolith sample 271, ditch B8H (cut 21070) (Late Iron Age/Early Roman)

Monolith	Context	Depth (m)	Description
	21071	0–0.25	*c. 0.05m overlap with 270.* 2.5Y 4/2 dark greyish brown, friable/firm silty clayey fine sand with occasional large to small-sized (20mm) sandstone pebbles.

Key: Y = yellow

rainfall (Crabtree 1990, 231). The majority of the dark and humic context recorded in Sequences 11 and 12 probably represents waste material, predominantly associated with crop processing (Wyles, Appendix A3.4).

The sand dominated uppermost fills are likely to be colluvial, washed in and/or wind/blown. If the area was under cultivation after the settlement's abandonment (or in its later phases) the bare ground during certain times of the year could be prone to erosion by wind and water action and this could contribute to the formation of the infills.

Across the southern part of Area B a colluvial deposit was present overlying the natural substrate, beneath the subsoil. A spread of potential colluvium filled ditch B4A (cut 21092) and was recorded within the central part of the excavated the area. The stratigraphic relationship of the colluvium with the archaeological features was difficult to establish due to the diffuse interface. Based on observation in the field and monolith 261 the colluvium appears to post-date ditch B4A (cut 21092). The colluvium is a product of soil and sediment erosion. When the soil surface is bare, for instance due to cultivation, it is subjected to wind and water erosion by sheet wash, rill formation and gullying. The sediment and soils can be washed along the slope and cover/fill archaeological features. The colluvial sequences are often the result of several phases of erosion rather than a single event (Deák *et al.* 2017; Goldberg *et al.* 2022, 82–7). The colluvium recorded on the site was localised and only observed in Area B. This could suggest that the colluviation was not extensive and may indicate a stable vegetation cover along the slopes.

Table A3.59: Monolith sample 265, ditch B6A (cut 21038) (Middle to Late Iron Age Phase 4.2)

Monolith	Context	Depth (m)	Description
	21075	0–0.23	10YR 4/3 brown moderately cohesive/friable silty fine sand. Diffuse contact with:
	21066	0.23–0.29	10YR 4/2 dark greyish brown, moderately cohesive/friable silty fine sand with occasional yellowish red mottling. Diffuse contact with:
	21065	0.29–0.34	10YR 5/2 greyish brown to 10YR 5/4 yellowish brown, mixed and friable silty sand to sandy silt. Diffuse contact with:
	21064	0.34–0.43	2.5Y 4/2 dark greyish brown, friable to firm sandy clay/silt with occasional, small pebble-sized (<8mm) sandstone and reddish mottling. Sharp contact with:
	21063	0.43–0.50	10YR 6/4 light yellowish brown to 10YR 5/3 brown, firm but soft sandy (fine) silt/clay with yellowish mottling and dark manganese mottling.

Key: YR = yellow-red; Y = yellow

Table A3.60: Monolith sample 266, ditch B8H (cut 21038) (Middle to Late Iron Age Phase 4.2)

Monolith	Context	Depth (m)	Description
	21066	0–0.10	*c. 0.25 overlap with monolith 265.* 10YR 4/2 dark greyish brown, moderately cohesive/ friable silty fine sand with occasional yellowish red mottling. Diffuse contact with:
	21065	0.10–0.17	10YR 5/2 greyish brown to 10YR 5/4 yellowish brown, mixed and friable silty sand to sandy silt.
	21064	0.17–0.25	2.5Y 4/2 dark greyish brown, friable to firm sandy clay/silt with occasional, small pebble-sized (<8mm) sandstone and reddish mottling. Sharp contact with:
	21063	0.25–0.48	10YR 6/4 light yellowish brown to 10YR 5/3 brown, firm but soft sandy (fine) silt/clay with yellowish mottling and dark manganese mottling. Diffuse contact with:
	21062	0.48–0.50	10YR 4/2 dark greyish brown, firm sandy silt/clay.

Key: YR = yellow-red; Y = yellow

Table A3.61: Monolith sample 267, ditch B6A (cut 21038) (Middle to Late Iron Age Phase 4.2)

Monolith	Context	Depth (m)	Description
	21063	0–0.14	*c. 0.25 overlap with monolith 266.* 10YR 6/4 light yellowish brown to 10YR 5/3 brown, firm but soft sandy (fine) silt/clay with yellowish mottling and dark manganese mottling. Diffuse contact with:
	21062	0.14–0.20	10YR 4/2 dark greyish brown, firm sandy silt/clay. Sharp contact with:
	21061	0.20–0.35	10YR 5/2 greyish brown, friable to firm, silty/clayey sand. Rare yellowish red mottling. Diffuse contact with:
	21060	0.35–0.50	10YR 6/4 light yellowish brown, friable silty fine sand. Lenses of 19YR 5/1 grey clay.

Key: YR = yellow-red

A3.4: Plant macrofossils

By Sarah Wyles

Introduction and methodology

A series of 246 environmental samples (3696.8 litres of soil) was processed and assessed for environmental remains from a range of feature types, mainly of Iron Age date, from Areas A and B. The samples were taken with the intention of recovering environmental evidence of domestic and industrial activity on the site and also of local funerary practices. A number of these samples were from potentially waterlogged deposits in Area A and it was hoped that these would provide some information on the landscape history of the site. The samples were processed by standard flotation or wet sieving procedures (CA 2012).

As a result of the assessment (Aitken and Wyles 2024) the charred plant remains from a total of 25 of these bulk samples were selected for further analysis. The breakdown of these by area and phase is tabulated in Table A3.62.

The bulk samples were processed following standard flotation methods, using a 250µm sieve for the recovery of the flot and a 0.5mm sieve for the collection of the residue. All identifiable charred plant remains from these samples were identified using a stereo-binocular microscope and with reference to modern seed reference material and the digital seed atlas (Cappers *et al.* 2006). Nomenclature follows that of Stace (2019) for wild plants and traditional nomenclature, as provided by Zohary *et al.* (2012), for cereals. The results are recorded in Tables A3.63 to A3.66. The preservation of the material varied with a significant number of the grains being poorly preserved, including some which were puffed up and distorted. This has resulted in varying numbers of grains in the assemblages (ranging up to 70% of the grains) not being identifiable to species.

Results

Period 1: Early prehistoric (Table A3.63)

Pits 11995, 11979 and 11124

Three samples from pits 11995 (sample 112), 11979 (sample 111) and 11124 (sample 54) were assessed. Sample 112 (pit 11995) contained moderate to moderately large amounts of charred material including hazelnut (*Corylus avellana*) shell and charcoal fragments. A moderate quantity of hazelnut shell fragments and a large quantity of charcoal pieces were recorded from pit 11979 (sample 111). A large charcoal assemblage was recovered from pit 11124 (sample 54). These assemblages may be indicative of dumps of domestic hearth waste material.

Pit 12170

Analysis was undertaken on a large charred plant assemblage recorded from pit 12170. The assemblage was rich in both hazelnut shell fragments and cereal remains, which were dominated by grain fragments rather than chaff elements. The cereal remains included those of emmer wheat (*Triticum dicoccum*) and also possible spelt wheat (*Triticum spelta*). Emmer is the typical wheat species for this period in this area (Greig 1991); however spelt wheat has not been securely dated from Early Neolithic deposits in southern Britain. Despite this, it has been dated to the end of the Early Bronze Age at Monkton Road Minster, Thanet (Barclay *et al.* 2011; Martin *et al.* 2012) and has been recovered from a number of Middle Bronze Age deposits including some at Brean Down, Somerset (Straker 1990), Princes Road Dartford (Pelling 2003) and Black Patch, East Sussex (Hinton 1982). As the spelt wheat identifications are tentative due to the condition of the grains, which is suggestive of some possible post-depositional movement within the deposit, it would seem more likely that this possible spelt is intrusive material in the assemblage rather than being an early occurrence. Previous work by Pelling *et al.* (2015) demonstrated the possible problems of potential residual or intrusive material within assemblages. This particular assemblage is likely to be representative of a dump of domestic hearth waste.

Pit 21684

A very large quantity of hazelnut shell fragments and a small number of grains, including those of barley (*Hordeum vulgare*) and emmer were recovered from fill 21685 (sample 248) of pit 21684. One of the hazelnut shell fragments was radiocarbon dated (3643–3528 cal BC at 95.4% probability, SUERC-130104; Appendix

Table A3.62: Breakdown of analysed samples by period and area

Period/Phase	Area	No. of samples	Features
Early prehistoric	A	1	Pit
	B	1	Pit
Middle Bronze Age	A	2	Cremation cemetery A
Middle to Late Iron Age Phase 4.1	B	6	pit/posthole group PB2, pit
Middle to Late Iron Age Phase 4.2	A	11	Ditch A10A, ditch AX, pit/posthole groups PA3, PA4, PA5, PA6 and PA7
	B	4	Roundhouse RB1; pit/posthole groups PB6 and PB7

Table A3.63: Charred plant identifications from early prehistoric and Middle Bronze Age features selected for detailed analysis

Area	A	B	A	
Period	Early prehistoric		Middle Bronze Age	
Feature label			Cremation cemetery A	
Feature type	Pits		Cremation burials	
Cut	12170	21684	11112	11120
Context	12171	21685	11113	11121
Sample	131	248	45	46
Vol (L)	4	6	18	12
Flot size	125	125	294	225
%Roots	15	1	50	60
Cereals	**Common Name**			
Hordeum vulgare L. *sl* (grain)	barley	–	3	–	–
Triticum cf. *dicoccum* (Schübl) (grain)	emmer wheat	5	1	–	–
Triticum dicoccum (Schübl) (glume base)	emmer wheat	2	–	–	–
Triticum dicoccum (Schübl) (spikelet fork)	emmer wheat	1	–	–	–
Triticum spelta L. (grain)	spelt wheat	cf. 9	–	–	–
Triticum dicoccum/spelta (grain)	emmer/spelt wheat	53	4	–	–
Triticum dicoccum/spelta (spikelet fork)	emmer/spelt wheat	1	–	–	–
Triticum sp. (grain)	wheat	15	–	–	–
Cereal indet. (grains)	cereal	34	8	–	–
Cereal frag. (est. whole grains)	cereal	14	4	–	–
Other species					
Crataegus monogyna Jacq.	hawthorn	–	–	–	3
Corylus avellana L. (fragments)	hazelnut	152	746	–	–
Brassica sp. L.	brassica	1	–	–	–
Arrhenatherum elatius Var. bulbosum St-Amans (tuber)	false oat-grass	–	–	2	–
Avena sp. L. (grain)	oat grain	1	–	–	–
Avena L./*Bromus* L. sp.	oat/brome grass	4	–	–	–
Monocot. Stem/rootlet frag		–	–	5	5
Tuber/Rhizomes		–	–	50	45

A3.9). Again this assemblage appears to be representative of a dump of domestic hearth waste.

Pits 20174 and 21692

Pit 20174 (pit group PB3) only produced low levels of charred material comprising indeterminate grain and hazelnut shell fragments. Moderately high numbers of charred remains were recorded from pit 21692 (sample 249). These remains included those of wheat grains (*Triticum* sp.), hazelnut shell fragments and curled dock (*Rumex crispus*).

Period 2 Middle Bronze Age (Table A3.63)

Cremation cemetery A

A total of 24 samples were taken from 19 cremation-related features of Middle Bronze Age date in Area A. These samples produced varying quantities of charcoal fragments and charred plant remains were noted in nine of them. These included tuber fragments and seeds of vetch/wild pea (*Vicia/Lathyrus* sp.).

The samples from cremation deposits 11113 (sample 45, cremation burial 11112) and 11121 (sample 46, cremation burial 11120) produced a very small number of charred plant remains (Table A3.63). These included hawthorn (*Crataegus monogyna*) haws and false oat-grass (*Arrhenatherum elatius var. bulbosum*) tuber fragments. Two radiocarbon dates were obtained on cremated human bone from context 11113 (1496–1307 cal BC at 95.4% probability, SUERC-122136; Appendix A3.9) and hazel charcoal from context 11121 (1434–1296 cal

BC at 95.4% probability, SUERC-130093; Appendix A3.9).

Cremation group B
Four samples taken from four cremation-related features of Middle Bronze Age date in Area B were assessed. Again these samples contained varying quantities of charcoal fragments and low levels of plant remains were noted in the majority of them. These remains included barley (*Hordeum vulgare*) and wheat grains and false oat-grass (*Arrhenatherum elatius var bulbosum*) tuber fragments. Plant tubers, in particular those of false oat-grass, can be found in cremation deposits (Godwin 1984; Robinson 1988) and it is thought that some of these tubers and stems may represent material uprooted while creating a fire break around the cremation site and then used as tinder (Stevens 2008).

Period 3 Late Bronze Age/Early Iron Age

Pit alignment A
Sample 148 from pit 12337 contained moderate to moderately large amounts of charred material including hazelnut shell and charcoal fragments. The remaining 12 samples (recovered from 8 pits) only produced sparse quantities of charred material and were not recommended for further analysis. They did however include varying quantities of waterlogged remains. These included a range of weed seeds indicative of a variety of different habitats, such as wet/damp ground favoured by species such as water crowfoot (*Ranunculus Batrachium*), rush (*Juncus* sp.) and sedge (*Carex* sp.); rough ground/waste ground where species such as small nettle (*Urtica urens*), sheep's sorrel (*Rumex acetosella*) and curled dock are favoured; and meadow, field margins or arable environments favoured by species such as buttercups (*Ranunculus* sp.), redshank/pale persicaria (*Persicaria maculosa/lapathifolia*), black-bindweed (*Fallopia convolvulus*) and clover/medick (*Trifolium/Medicago* sp.). There were also high numbers of insect remains, including water flea eggs, in samples 133, 143, 191 and 190 from pits 12200, 12309, 12371 and 13185 respectively.

Pit alignment B
Sparse quantities of charred remains were recovered from pits 21415 (sample 239) and 21491 (sample 244).

Period 4 Phase 4.1 Middle to Late Iron Age (Table A3.64)

Ditches
Assessment of samples 246 and 247 from ditch B1L identified low levels of charred material, while sample 254 from ditch B3A produced a moderate quantity of charcoal and a few cereal remains.

Pit/posthole groups PB1, PB2 and PB9
Of the seven assemblages recovered from pit groups PB1, PB2 and PB9, five contained low levels of charred material. In contrast samples 225 and 228, derived from pits 20916 and 20962 within pit/posthole group PB2, produced large assemblages that warranted further analysis. In both assemblages weed seeds were predominant, while the chaff elements outnumbered the grains in sample 228 from pit 20962. The cereal remains included those of spelt, emmer and barley. The weed seed assemblage recorded from pit 20916 was dominated by seeds of brome grass (*Bromus* sp.), while those from pit 20962 were dominated by species with larger seeds, such as oats (*Avena* sp.) and brome grass, seeds with appendages, such as docks (*Rumex* sp.) and twining species such as black-bindweed (*Fallopia convolvulus*). The weed seeds were mainly those of species typical of grassland, field margins or arable environments and are likely to have been brought in with the crops. The assemblage may be indicative of a mixture of crop processing waste material, derived from a late stage of crop processing involving the dehusking of hulled grain stored as semi-cleaned grain or in spikelet form (Hillman 1981, 1984), together with some hearth/oven waste material. The weed seeds would have been incorporated with the crop processing waste.

Other pits
A total of eight samples was assessed from six discrete Phase 4.1 pits in Area B. For the most part these features produced sparse to no charred plant remains and charcoal. These remains included those of hulled wheat and barley, hazelnut shell fragments and seeds of oat/brome grass, vetch/wild pea and curled docks.

Samples 278 and 279 were taken from separate halves of fill 22245 in pit 22244 in sub-enclosure B2.2A. High numbers of plant remains were recorded in both samples, with cereal remains being predominant. In both instances the chaff elements outnumbered the grains. The cereal remains included those of emmer, spelt and barley and a few of the grains showed traces of germination. The weed seeds were those of species typical of grassland, field margins or arable environments. These assemblages appear to be reflective of dumped late stage crop processing waste material.

Period 4 Phase 4.2 Middle to Late Iron Age (Tables A3.65 and A3.66)

Ditches
Twenty-one samples were assessed from ditches A1A, A2A, A3A, A4.1A, A4A, A7A, AB, AE, AG, AM, AN, AX and AY in Area A. Very little charred material was noted in 18 of the assemblages, the exception being ditch AX, where a large assemblage was recorded (cut 10155, sample 13). The chaff elements were predominant, with almost equal numbers of emmer and spelt. A small percentage of the grains showed traces of germination. The weed seeds were dominated by seeds of brome grass, oats, clover (*Trifolium* sp.) and medick (*Medicago* sp.). This assemblage appears to be reflective

Table A3.64: Charred plant identifications from Middle to Late Iron Age Phase 4.1 features selected for detailed analysis

Feature label	Pit/posthole group PB2		Sub-enclosure B2.2	
Feature type	Pit	Pit	Pit	
Cut	20916	20962	22244	
Context	20918	20965	22245	22245
Sample	225	228	278	279
Vol (L)	40	40	33	60
Flot size	35	25	25	22
%Roots	15	15	60	60

Cereals	**Common name**				
Hordeum vulgare L. *sl* (grain)	barley	11	7	3	5
Triticum cf. *dicoccum* (Schübl) (grain)	emmer wheat	1	–	–	–
Triticum dicoccum (Schübl) (glume base)	emmer wheat	17	12	19	8
Triticum dicoccum (Schübl) (spikelet fork)	emmer wheat	2	4	3	3
Triticum spelta L. (grain)	spelt wheat	15	–	–	1
Triticum spelta L. (glume base)	spelt wheat	25	8	9	3
Triticum spelta L. (spikelet fork)	spelt wheat	2	–	–	–
Triticum dicoccum/spelta (grain)	emmer/spelt wheat	27	3	7	12
Triticum dicoccum/spelta (germinated grain)	emmer/spelt wheat	–	–	–	3
Triticum dicoccum/spelta (spikelet fork)	emmer/spelt wheat	9	4	9	4
Triticum dicoccum/spelta (glume base)	emmer/spelt wheat	56	13	84	24
Triticum sp. (grain)	wheat	10	3	3	3
Triticum sp. (grain) germinated	wheat	–	–	–	2
Cereal indet. (grains)	cereal	43	9	5	14
Cereal frag. (est. whole grains)	cereal	24	6	3	3
Cereal frags (rachis frags)	cereal	1	–	–	–
Cereal frags (culm node)	cereal	–	1	–	–
Cereal frags (awns)	cereal	–	–	–	2
Other species					
Ranunculus sp.	buttercup	–	–	1	2
Vicia/Lathyrus sp. L.	vetch/wild pea	2	6	–	2
Vicia faba L./*Lathyrus oleraceus* Lam.	celtic bean/garden pea	–	2	–	–
Medicago sp. *L.*	medick	4	–	–	–
Medicago/Trifolium sp. L.	medick/clover	13	7	4	3
Trifolium sp. L	clover	2	–	–	–
Prunus spinosa L./ *Crataegus monogyna* Jacq (thorns/twigs)	sloe/hawthorn type thorns	–	1	–	–
Malus sylvestris/Pyrus communis type (fruit)	apple/pear fruit frags	–	–	–	–
Rubus sp.	brambles	–	1	–	–
Potentilla sp. L.	cinquefoils	–	2	–	–
Urtica dioica L.	common nettle	–	1	–	–
Corylus avellana L. (fragments)	hazelnut	2	–	2	–
Linum usitatissimum L.	flax	–	cf. 2	–	–
Malva sp. L.	mallow	–	–	1	–
Brassica sp. L.	brassica	1	3	1	2

Table A3.64 (cont.): Charred plant identifications from Middle to Late Iron Age Phase 4.1 features selected for detailed analysis

	Feature label	Pit/posthole group PB2		Sub-enclosure B2.2	
	Feature type	Pit	Pit	Pit	
	Cut	20916	20962	22244	
	Context	20918	20965	22245	22245
	Sample	225	228	278	279
	Vol (L)	40	40	33	60
	Flot size	35	25	25	22
	%Roots	15	15	60	60
Thlaspi arvense L.	field penny-cress	1	–	–	–
Persicaria maculosa/lapathifolia Gray/Delarbe	redshank/pale persicaria	4	2	2	3
Persicaria lapathifolia Delarbe	pale persicaria	–	–	–	2
Polygonum aviculare L.	knotgrass	2	3	–	2
Fallopia convolvulus (L.) À. Löve	black-bindweed	15	2	–	2
Rumex sp. L.	docks	8	2	6	6
Rumex acetosella L.	sheep's sorrel	2	1	2	2
Rumex crispus L. Type	curled dock	6	2	7	4
Stellaria sp. L.	stitchworts	–	2	1	–
Atriplex sp. L.	oraches	–	2	–	–
Chenopodium sp. L.	goosefoot	8	6	6	9
Chenopodium album L.	fat-hen	2	–	3	2
Montia fontana subsp. *Chondrosperma* (Fenzl) Walters	blinks	1	1	–	–
Galium sp. L.	bedstraw	5	5	–	–
Galium aparine L.	cleavers	2	2	–	–
Hyoscyamus niger L.	henbane	2	–	–	–
Plantago lanceolata L.	ribwort plantain	–	–	–	1
Odontites vernus (Bellardi) Dumort.	red bartsia	4	6	–	–
Tripleurospermum inodorum (L.) Sch. Bip.	scentless mayweed	–	1	–	–
Carex sp. L. trigonous	sedge	–	1	–	–
Lolium/Festuca sp. L.	rye-grass/fescue	2	3	2	1
Avena sp. L. (grain)	oat grain	3	1	–	1
Avena L./*Bromus* L. sp.	oat/brome grass	148	6	3	5
Poa/Phleum sp. L.	meadow grass/cat's-tails	2	5	1	3
Bromus sp. L.	brome grass	84	8	3	2
Monocot. Stem/rootlet frag		–	3	4	–
Bud		–	1	–	–
Parenchyma		3	–	3	–
Tuber		–	1	–	–
Tuber/Rhizomes		1	–	–	–

of dumped late stage crop processing waste material. A radiocarbon date was obtained on a spelt grain from this assemblage (356–110 cal BC at 95.4% probability, SUERC-130107; Appendix A3.9).

Nineteen samples were assessed from ditches A4.3A, A5A, A8.1A, A10.1A, A10.1B, A10A in Area A. They contained sparse to moderately low quantities of charred material and these assemblages are likely to be

representative of dispersed settlement waste material. A moderate number of charred plant remains was recovered from ditch A10A (cut 10521, sample 76), which warranted further analysis. This assemblage was dominated by weed seeds, in particular those of brome grass, and the cereal remains included those of spelt and barley.

A moderate assemblage of mainly charcoal was recorded from ditch B5A (sample 206) and sparse amounts of charred remains from ditches B4.2A and B6.2A in Area B.

Roundhouses RB1, RB2 and RB5

A moderate charred plant assemblage was recorded from fill 21247 (sample 236) of roundhouse RB1 (cut 21246). Cereal remains were predominant in this assemblage, with grains outnumbering the chaff elements. These cereal remains included those of spelt, emmer and barley. The weed seeds were those of species typical of grassland, field margins or arable environments.

Very little material was observed in the samples from roundhouses RB2 and RB5.

Pit/posthole groups (Area A)

Fifty samples taken from 32 pits/postholes in groups PA1–PA7 9 were assessed. Of these, eight assemblages from seven pits warranted further analysis.

Samples 83 and 84 from pit 11332 (pit group PA7) produced moderately high numbers of charred remains, while moderate quantities were recovered from pits 12652 (sample 171) and 12666 (sample 170) (both in pit/posthole group PA3), pit 10712 (samples 26 and 71; pit group PA5) and pit 10095 (sample 10) (pit group PA6). These large or moderate assemblages were generally dominated by cereal remains and weed seeds which were likely to have been brought in with the crops, and the assemblages appear to be reflective of domestic settlement waste or crop processing waste material. Although the samples from pits 11530 and 11474 (cut 11824, pit group PA1) and pit 11332 (pit group PA7) were examined for waterlogged material, little or no waterlogged material was recovered.

Samples 163 and 171 were analysed from pits 12427 and 12652 respectively (both in pit/posthole group PA3), with a moderate number of charred plant remains recorded from sample 163 and a high number from sample 171. A radiocarbon date was obtained on blackthorn/cherry charcoal from pit 12427 (374–200 cal BC at 95.4% probability, SUERC-130112; Appendix A3.9). Cereal remains were predominant in both assemblages and these included those of emmer, spelt and barley. There was a higher percentage of weed seeds in the sample from pit 12652 and these included those of brome grass, oats, cleavers (*Galium aparine*) and curled dock. These assemblages may be indicative of a mixture of crop processing waste material together with some domestic hearth/oven waste material.

High numbers of charred plant remains were recovered from pits 10279 (sample 18) and 11027 (sample 35) (both in pit/posthole group PA4). A radiocarbon date was obtained on a spelt grain from fill 10281 of pit 10279 (380–201 cal BC at 95.4% probability, SUERC-130113; Appendix A3.9). The assemblages were dominated by cereal remains, with that from pit 10279 being chaff rich and that from pit 11027 being grain rich. The cereal remains included those of emmer, spelt and barley and a small percentage of the grains showed traces of germination. The weed seeds include those of brome grass and oats. The assemblages may be representative of late stage crop processing waste and domestic hearth/oven waste material.

Samples 26 and 71 were analysed from fill 10713 of pit 10712 (pit group PA5), which produced large charred plant assemblages. A radiocarbon date was obtained on a spelt grain from sample 71 (355–109 cal BC at 95.4% probability, SUERC-130105; Appendix A3.9). Cereal remains were predominant within these assemblages and included spelt, emmer and barley. A small percentage of the grains showed traces of germination and a coleoptile fragment was recorded. The weed seeds included seeds of brome grass and medick/clover (*Medicago/Trifolium* sp.). The assemblages may be reflective of dumps of late stage crop processing waste and domestic hearth/oven waste material.

High numbers of charred plant remains were recovered from pit 10095 (sample 10; pit group PA6). The assemblage was dominated by cereal remains, including those of emmer, spelt and barley, with almost equal numbers of emmer and spelt remains. Seeds of brome grass and oats were predominated within the weed seed assemblage. The assemblage from pit 10095 is likely to be reflective of dumped late stage crop processing waste and domestic hearth material.

The large assemblage recovered from pit 11332 (sample 83; pit group PA7) comprised almost equal numbers of cereal remains and weed seeds. The cereal remains included those of spelt, emmer and barley and the weed seeds those of brome grass, oats, clover, medick, knotgrass (*Polygonum aviculare*) and curled docks. Again the assemblage may be representative of a mixture of late stage crop processing waste and domestic hearth/oven waste material.

Pit/posthole groups (Area B)

Eighteen samples recovered from pits and postholes in groups PB5, PB6, PB7 and PB10 were examined at assessment. Moderate or moderately high numbers of charred remains were recorded from pits 20635 (sample 212), 20773 (sample 217), 20871 (sample 221) and 20902 (sample 223) (pit/posthole groups PB6 and PB10) and pit 22419 (sample 284; pit/posthole group PB7). These assemblages were again generally dominated by cereal remains and weed seeds which were likely to have been brought in with the crops, and appear to be reflective of domestic settlement waste material.

Table A3.65: Charred plant identifications from Middle to Late Iron Age Phase 4.2 features in Area A selected for detailed analysis

Feature label	Ditch A10A	Ditch AX	Pit/posthole group PA3		Pit/posthole group PA4		Pit group PA5		Pit group PA6	Pit group PA7	
Feature type	Ditch	Ditch	Pit	Pit	Pit	Pit	Pit		Pit	Pit	Pit
Cut	10521	10155	12427	12652	10279	11027	10712		10095	11332	10017
Context	10522	10156	12429	12654	10281	11028	10713	10713	10098	11342	10019
Sample	76	13	163	171	18	35	26	71	10	83	3
Vol (L)	14	40	6	40	40	40	16	32	40	40	5
Flot size	10	20	12	30	25	20	12	50	30	25	72
%Roots	98	50	98	40	35	35	2	55	25	25	15
Cereals	**Common name**										
Hordeum vulgare L. *sl* (grain)	barley	2	–	2	3	1	–	2	1	9	5	–
Hordeum vulgare L. *sl* (rachis frag)	barley	–	–	–	–	–	–	1	–	–	–	–
Triticum cf. *dicoccum* (Schübl) (grain)	emmer wheat	–	–	–	2	–	–	–	–	3	–	1
Triticum dicoccum (Schübl) (glume base)	emmer wheat	–	23	4	9	9	1	5	13	12	3	–
Triticum dicoccum (Schübl) (spikelet fork)	emmer wheat	–	6	–	1	–	–	–	2	3	–	–
Triticum spelta L. (grain)	spelt wheat	–	5	–	–	3	3	3	3	4	8	–
Triticum spelta L. (germinated grain)	spelt wheat	–	–	–	–	–	–	–	3	–	–	–
Triticum spelta L. (glume base)	spelt wheat	8	27	8	6	12	1	5	25	11	8	–
Triticum dicoccum/spelta (grain)	emmer/spelt wheat	2	4	–	12	13	20	6	14	7	25	1
Triticum dicoccum/spelta (germinated grain)	emmer/spelt wheat	–	2	–	1	–	2	–	1	–	–	–
Triticum dicoccum/spelta (spikelet fork)	emmer/spelt wheat	1	32	–	2	6	–	5	21	4	2	–
Triticum dicoccum/spelta (glume base)	emmer/spelt wheat	4	59	17	8	18	8	10	98	25	26	–
Triticum sp. (grain)	wheat	1	1	cf.1	2	3	7	7	3	6	8	–
Cereal indet. (grains)	cereal	6	2	3	24	9	15	11	7	32	37	2
Cereal frag. (est. whole grains)	cereal	4	2	2	13	7	6	7	4	9	7	4
Cereal frags (rachis frags)	cereal	–	2	2	–	–	–	–	–	1	–	–
Cereal frags (culm node)	cereal	–	–	–	–	–	–	–	2	1	4	–
Cereal frags (awns)	cereal	–	–	1	–	–	–	–	–	–	–	–

	Feature label	Ditch A10A	Ditch AX	Pit/posthole group PA3		Pit/posthole group PA4		Pit group PA5		Pit group PA6	Pit group PA7	
	Feature type	Ditch	Ditch	Pit	Pit	Pit	Pit	Pit		Pit	Pit	Pit
	Cut	10521	10155	12427	12652	10279	11027	10712		10095	11332	10017
	Context	10522	10156	12429	12654	10281	11028	10713	10713	10098	11342	10019
	Sample	76	13	163	171	18	35	26	71	10	83	3
	Vol (L)	14	40	6	40	40	40	16	32	40	40	5
	Flot size	10	20	12	30	25	20	12	50	30	25	72
	%Roots	98	50	98	40	35	35	2	55	25	25	15
Other species												
Vicia L./*Lathyrus* sp. L.	vetch/wild pea	–	3	–	2	–	–	1	2	5	8	–
Vicia faba L.	celtic bean	–	–	–	–	–	–	–	–	1	–	–
Medicago sp. *L.*	medick	–	2	1	–	–	–	–	–	1	2	–
Medicago/Trifolium sp. L.	medick/clover	–	16	1	2	–	1	1	9	4	14	–
Trifolium sp. L	clover	–	3	–	–	–	–	–	–	1	2	–
Prunus spinosa L.	sloe stone	–	–	–	–	–	–	2	–	–	–	–
Corylus avellana L. (fragments)	hazelnut	–	1	–	1	–	–	–	–	–	1	170
Brassica sp. L.	brassica	–	2	–	5	–	–	–	2	2	2	–
Polygonaceae indet.	knotweeds	–	–	–	–	–	–	–	–	–	10	–
Persicaria maculosa/lapathifolia Gray/Delarbe	redshank/pale persicaria	–	–	–	–	–	–	–	–	–	2	–
Polygonum aviculare L.	knotgrass	–	1	–	2	–	–	–	–	2	10	–
Fallopia convolvulus (L.) À. Löve	black-bindweed	–	–	–	1	–	–	–	–	2	6	–
Rumex sp. L.	docks	–	4	–	5	2	5	1	–	2	12	–
Rumex crispus L. Type	curled dock	–	1	–	3	1	1	–	–	–	6	–
Atriplex sp. L.	oraches	–	–	–	1	–	–	–	–	–	–	–
Chenopodium sp. L.	goosefoot	–	3	–	1	–	–	1	–	1	2	–
Sherardia arvensis L.	field madder	–	1	–	–	–	–	–	1	–	1	–
Galium sp. L.	bedstraw	1	–	–	6	–	1	3	–	2	6	–
Galium aparine L.	cleavers	–	–	–	3	–	–	1	1	1	3	–
Plantago lanceolata L.	ribwort plantain	–	5	–	1	–	–	–	–	–	1	–
Odontites vernus (Bellardi) Dumort.	red bartsia	–	1	–	–	–	–	–	–	–	5	–
Centaurea cyanus L..	cornflower	–	–	–	–	–	–	1	–	–	–	–

Table A3.65 (cont.): Charred plant identifications from Middle to Late Iron Age Phase 4.2 features in Area A selected for detailed analysis

	Feature label	Ditch A10A	Ditch AX	Pit/posthole group PA3		Pit/posthole group PA4		Pit group PA5		Pit group PA6	Pit group PA7	
	Feature type	Ditch	Ditch	Pit	Pit	Pit	Pit	Pit		Pit	Pit	Pit
	Cut	10521	10155	12427	12652	10279	11027	10712		10095	11332	10017
	Context	10522	10156	12429	12654	10281	11028	10713	10713	10098	11342	10019
	Sample	76	13	163	171	18	35	26	71	10	83	3
	Vol (L)	14	40	6	40	40	40	16	32	40	40	5
	Flot size	10	20	12	30	25	20	12	50	30	25	72
	%Roots	98	50	98	40	35	35	2	55	25	25	15
Tripleurospermum inodorum (L.) Sch. Bip.	scentless mayweed	–	–	–	–	–	–	–	3	1	–	–
Carex sp. L. trigonous	sedge	–	2	–	–	–	–	–	–	1	–	–
Poaceae basal culm node/rootlets	grass	–	–	–	–	13	–	–	–	–	–	–
Poaceae culm node	grass	2	–	–	–	–	–	–	–	–	3	–
Lolium/Festuca sp. L.	rye-grass/fescue	–	3	2	–	1	1	1	2	2	2	–
Arrhenatherum elatius var. bulbosum St-Amans (tuber)	false oat-grass	–	–	–	1	–	–	–	–	–	–	–
Avena sp. L. (grain)	oat grain	–	2	1	1	1	2	–	2	10	3	–
Avena L./*Bromus* L. sp.	oat/brome grass	17	17	4	15	11	4	14	25	36	20	–
Poa/Phleum sp. L.	meadow grass/cat's-tails	–	2	–	1	–	–	–	–	1	3	–
Bromus sp. L.	brome grass	13	13	4	14	21	6	17	21	29	31	–
Monocot. Stem/rootlet frag		2	1	–	8	5	2	1	–	7	5	–
Parenchyma		–	–	–	–	–	–	–	–	–	6	–
Tuber		–	–	1	1	–	–	–	–	1	–	1
Tuber/Rhizomes		–	–	–	–	–	–	–	–	–	1	–

Table A3.66: Charred plant identifications from Middle to Late Iron Age Phase 4.2 features in Area B selected for detailed analysis

	Feature label	Roundhouse RB1		Pit group PB6		Pit group PB10	Pit group PB7
	Feature type	Ring Ditch	Pit	Pit	Pit	Pit	Pit
	Cut	21246	21427	20635	20773	20871	22419
	Context	21247	21428	20636	20774	20873	22423
	Sample	236	240	212	217	221	284
	Vol (L)	36	38	40	36	30	20
	Flot size	16	200	10	5	13	11
	%Roots	80	3	25	70	90	2
Cereals	**Common name**						
Hordeum vulgare L. *sl* (grain)	barley	8	–	–	5	37	8
Hordeum vulgare L. *sl* (rachis frag)	barley	–	–	–	–	–	9
Triticum dicoccum (Schübl) (glume base)	emmer wheat	4	–	5	–	1	14
Triticum dicoccum (Schübl) (spikelet fork)	emmer wheat	–	–	2	–	–	2
Triticum spelta L. (grain)	spelt wheat	3	11	2	1	–	1
Triticum spelta L. (glume base)	spelt wheat	1	–	6	2	–	2
Triticum dicoccum/spelta (grain)	emmer/spelt wheat	3	33	3	3	–	3
Triticum dicoccum/spelta (spikelet fork)	emmer/spelt wheat	–	–	10	1	–	4
Triticum dicoccum/spelta (glume base)	emmer/spelt wheat	7	–	26	1	1	11
Triticum turgidum/aestivum (grain)	free-threshing wheat	–	–	–	–	cf. 1	–
Triticum sp. (grain)	wheat	2	7	2	2	1	–
Cereal indet. (grains)	cereal	13	45	13	19	28	5
Cereal frag. (est. whole grains)	cereal	6	7	2	7	8	2
Cereal frags (rachis frags)	cereal	1	–	–	–	–	17
Cereal frags (culm node)	cereal	1	–	1	2	–	1
Cereal frags (awns)	cereal	–	–	1	–	–	–
Cereal frags (coleoptile)	cereal	–	–	1	–	–	–
Other species							
Papaver sp.	poppy	–	–	1	1	–	–
Vicia L./*Lathyrus* sp. L.	vetch/wild pea	5	–	1	6	5	2
Medicago sp *L.*	medick	–	–	1	–	4	–

Table A3.66 (cont.): Charred plant identifications from Middle to Late Iron Age Phase 4.2 features in Area B selected for detailed analysis

	Feature label	Roundhouse RB1		Pit group PB6		Pit group PB10	Pit group PB7
	Feature type	Ring Ditch	Pit	Pit	Pit	Pit	Pit
	Cut	21246	21427	20635	20773	20871	22419
	Context	21247	21428	20636	20774	20873	22423
	Sample	236	240	212	217	221	284
	Vol (L)	36	38	40	36	30	20
	Flot size	16	200	10	5	13	11
	%Roots	80	3	25	70	90	2
Medicago/Trifolium sp. L.	medick/clover	–	–	9	3	10	11
Trifolium sp. L	clover	–	–	–	–	3	–
Malus sylvestris/Pyrus communis type (fruit)	apple/pear fruit frags	–	2	–	–	–	–
Corylus avellana L. (fragments)	hazelnut	–	1260	–	–	–	–
Brassica sp. L.	brassica	–		1	2	4	–
Persicaria maculosa/lapathifolia Gray/Delarbe	redshank/pale persicaria	–	–	–	–	5	2
Persicaria lapathifolia Delarbe	pale persicaria	–	–	–	–	3	–
Polygonum aviculare L.	knotgrass	–	–	–	1	6	–
Fallopia convolvulus (L.) À. Löve	black-bindweed	–	–	–	–	3	–
Rumex sp. L.	docks	1	–	6	2	4	4
Rumex crispus L. Type	curled dock			1	–	3	1
Chenopodium sp. L.	goosefoot	1	–	1	6	4	5
Chenopodium album L.	fat-hen			–	–	2	1
Galium sp. L.	bedstraw	2	–	3	–	4	–
Galium aparine L.	cleavers	1	–	2	–	2	–
Plantago lanceolata L.	ribwort plantain			2	1	1	1
Odontites vernus (Bellardi) Dumort.	red bartsia			6	2	2	–
Tripleurospermum inodorum (L.) Sch. Bip.	scentless mayweed			6	1	–	2
Carex sp. L. trigonous seed	sedge			–	1	6	–
Carex sp. L. lenticular seed	sedge			–	1	4	–
Lolium/Festuca sp. L.	rye-grass/fescue			–	1	4	1
Avena sp. L. (grain)	oat grain	1	–	3	1	4	2

	Feature label	Roundhouse RB1		Pit group PB6		Pit group PB10	Pit group PB7
	Feature type	Ring Ditch	Pit	Pit	Pit	Pit	Pit
	Cut	21246	21427	20635	20773	20871	22419
	Context	21247	21428	20636	20774	20873	22423
	Sample	236	240	212	217	221	284
	Vol (L)	36	38	40	36	30	20
	Flot size	16	200	10	5	13	11
	%Roots	80	3	25	70	90	2
Avena L./*Bromus* L. sp.	oat/brome grass	5	–	15	21	18	11
Poa/*Phleum* sp. L.	meadow grass/cat's-tails			3	2	5	2
Bromus sp. L.	brome grass	10	–	16	22	17	10
Monocot. Stem/rootlet frag		–	–	2	–	1	–
Parenchyma		–	2	–	–	–	–
Tuber		1	–	–	–	–	–

Moderately large plant assemblages were recorded from pits 20635 and 20773 (pit/posthole group PB6) and 20871 (pit group PB10) (samples 212, 217 and 221 respectively). Weed seeds were predominant in all three assemblages. Grains outnumbered chaff in the assemblages from pits 20773 and 20871, while the chaff elements were more numerous in the assemblage from pit 20635. The cereal remains included those of emmer, spelt and barley, with almost equal numbers of emmer and spelt recorded from pit 20635 and a high number of barley grains from pit 20871. The weed seeds included those of brome grass, oats, clover, medick and sedge (*Carex* sp.). The assemblage from pit 20635 may be reflective of late stage crop processing waste while those from pits 20773 and 20871 may be representative of a mixture of late stage crop processing waste and domestic hearth/oven waste material.

Sample 284 from pit 22419 (pit/posthole group PB7) contained a high number of charred plant remains. The assemblage was dominated by cereal remains, with the chaff elements outnumbering grains. The cereal remains included those of emmer, spelt and barley, with those of emmer and barley being more numerous than those of spelt. The weed seeds included those of brome grass, oats and medick/clover. This assemblage may be representative of late stage crop processing waste material.

Dispersed pits and postholes in Areas A and B

High numbers of charred plant remains recovered from pits 10017 (sample 3) and 21427 (sample 240) were analysed. The assemblage from pit 10017 was almost entirely comprised of hazelnut shell fragments (approximately 95% of the assemblage). A very high number of hazelnut shell fragments was also recovered from pit 21427 (sample 240), alongside a smaller number of cereal grains, including those of spelt, and a few apple/pear (*Malus sylvestris/Pyrus communis*) fruit fragments. These assemblages are indicative of domestic hearth waste.

Sample 9 from pit 10092 contained a moderate number of plant remains, including hulled wheat and barley remains and seeds of oat/brome grass, sheep's sorrel and curled dock, which were examined at assessment. A large charcoal assemblage was also recovered from pit 12113 (sample 132; Appendix A3.5).

Period 6 Middle to Late Roman

Limekiln A

A total of 18 samples were taken from limekiln A, partly to see if there was any significant spatial distribution of charred material within it. Assessment revealed sparse amounts of charred plant remains and generally there were only small quantities of charcoal fragments recorded in these assemblages. A high number of charcoal pieces, including oak, non-oak, roundwood and heart wood fragments, was recorded from 12465 (sample 166), the basal fill of the kiln chamber (Appendix A3.5). This structure appears to have been a limekiln and although ovens/kilns/crop dryers were occasionally used for a number of different functions during the Roman period there is no evidence from these assemblages that this kiln was ever used during the different stages of crop processing.

Discussion

Predominance of hazelnut shell fragments has been recorded from other Neolithic deposits in southern Britain, such as at Saxon Rise, Brixworth (Wyles 2023). This dominance of hazelnut fragments and other wild food remains may be indicative of the exploitation and general reliance on these wild food resources as a significant part of the diet during this period (Moffett *et al.* 1989; Stevens 2007; Robinson 2000).

The Middle Bronze Age assemblages were from cremation burial deposits and were comparable with other assemblages from Bronze Age cremation related deposits. Plant tubers, in particular those of false oat-grass, can be found in cremation deposits (Godwin 1984; Robinson 1988) and it is thought that some of these tubers and stems may represent material uprooted while creating a fire break around the cremation site and then used as tinder (Stevens 2008).

The range of crops recorded in the Iron Age samples includes those of spelt wheat, emmer wheat and barley. Spelt wheat is the dominant wheat within the Iron Age period in this part of the British Isles (Greig 1991) and, although it does not appear to be common in Late Bronze Age deposits in Northamptonshire, it seems to be predominant by the Middle Iron Age in this area (Monckton 2012). Spelt wheat, emmer wheat and barley were also recovered from deposits from Iron Age settlements in the wider area at Saxon Rise, Brixworth (Wyles 2017, 2020), Crick Covert Farm (Monckton 2015), Grange Park, Courteenhall (Ciaraldi 2006), Nortoft Lane (Cobain 2015) and Stanwick (Bouchard-Perron 2019). On these sites spelt was the predominant wheat species and was generally more numerous than barley within the assemblages. Spelt and barley, but no definite emmer, were recorded from Land to the north-west of Crick (Cobain 2017). Of the 21 Iron Age cereal remains assemblages analysed from Harlestone Park, spelt was predominant in 8, emmer in 7 and barley in 3, with almost equal numbers of emmer and spelt in 2 of them and of emmer and barley in the last one. Emmer appears to have been more significant in the Middle to Late Iron Age on this site than on other sites of a similar date in the wider area. Emmer has a greater adaptability to poorer soils than spelt wheat and it is possible that more marginal areas were being cultivated on this site.

Brome grass often represented a significant part of the weed seed assemblage, following the trend for the Midlands region (Carruthers and Hunter Dowse 2019) and it is possible that it may also have been deliberately

cultivated for use as a fodder crop. This was observed in some assemblages from other local sites such as Land to the North-West of Crick (Cobain 2017).

The Iron Age assemblages from this site appear to be representative of dumps of late stage crop processing waste and/or domestic hearth/oven waste. It is possible that some of the crop processing waste was used as tinder/fuel, resulting in an underrepresentation of it. The level of crop processing waste material recovered would suggest that crop production was being done on the site on a scale to support the immediate local settlement rather than to create a regular surplus.

The range of weed seeds recovered within these assemblages are generally those that are typical of grassland, field margins and arable environments and are generally likely to have been brought in with the crops. The weed seeds were mainly those of the larger or intermediate seed size species such as brome grass and oats; of species with seeds with appendages such as curled dock; of species with seed heads such as scentless mayweed (*Tripleurospermum inodorum*) and of twining/binding species such as black-bindweed. The larger and intermediate weed seeds, those with appendages, those with seed heads and those from twining/binding species may remain with the spikelets in storage and become released when the spikelets are pounded to dehusk the hulled grain for use. The presence of twining species such as bindweed, and low growing species such as clover and medicks, suggests harvesting by sickle (Hillman 1981), which would be typical for these periods.

There is a small indication of the use of a number of different local environments, such as light drier soils as favoured by species such as ribwort plantain (*Plantago lanceolata*), field madder (*Sherardia arvensis*) and red bartsia (*Odontities vernus*); sandier heath soils favoured by sheep's sorrel (*Rumex acetosella*); heavier soils typified by species such as curled docks and damper soils favoured by species such as sedge, for growing crops and as a resource. The hedgerow/woodland edge environments typical of species such as hazelnut and hawthorn also appear to have been used as a resource. The occurrence of a few charred seeds of fat-hen (*Chenopodium album*) and henbane (*Hyoscyamus niger*) that thrive in nitrogen rich soils may indicate some manuring of the local fields during this period.

Summary

The range of crops and food sources recorded in these assemblages is broadly compatible for the periods but there appears to be a greater amount of emmer relative to spelt on this site than on other Iron Age rural settlement sites in the area. There is evidence for local crop production and for growing crops on a variety of different local environments during the Iron Age period. The results from this site add to the information for this area.

A3.5: Wood charcoal

By Dana Challinor

Introduction

Twenty-five samples were provided for the identification and analysis of wood charcoal, spanning Periods 1 (early prehistoric) to 6 (Middle to Late Roman) (Table A3.67). There was only a single sample from the earliest phase, a pit of early prehistoric date (Period 1), which was radiocarbon dated to the Early Neolithic period. Most of the samples came from Middle Bronze Age (Period 2) cremation cemetery A, offering an insight into pyre fuel and funerary practices. The Middle to Late Iron Age samples (Period 4) came from a series of pits, with assemblages associated with domestic fuel waste, and the Middle to Late Roman (Period 6) features yielded samples from a cremation burial and a flare kiln, probably used for the production of lime.

Methodology

Charcoal >2mm was considered for identification, though preference was given to those fragments >4mm to allow maturity determination. Between 30 and 50 fragments per sample were identified, depending upon the diversity and condition. The charcoal was fractured and sorted into groups based on the anatomical features observed in transverse section at X7 to X45 magnifications. Representative fragments from each group were then selected for further examination using a Meiji incident-light microscope at up to X400 magnification. Identifications were made by comparison with identification keys (Gale and Cutler 2000; Hather

Table A3.67: Summary of analysed charcoal samples

Period/Phase	Cremation burial	Limekiln	Pit	Total
Early prehistoric	–	–	3	**3**
Middle Bronze Age	12	–	1	**13**
Late Bronze Age/Early Iron Age	–	–	2	**2**
Middle to Late Iron Age Phase 4.2			4	**4**
Middle to Late Roman	1	2		**3**
Total	**13**	**2**	**10**	**25**

2000; Schweingruber 1990) and modern reference material. Heartwood was identified by the presence of multiple tyloses across more than one growth ring and sapwood was identified by the absence of tyloses. In the absence of pith and/or bark, roundwood was attributed to fragments that exhibited strong or moderate ring curvature. Additional observations on features relating to pre and post-burning conditions (e.g. vitrification, vivianite or iron staining, presence of insect tunnels and fungal hyphae) were also made. Classification and nomenclature follow Stace (2019), with the exception of the Maloideae (from earlier Stace editions), a particularly useful taxonomic grouping for identifications based upon wood anatomy.

Results

Charcoal was moderately well preserved, with abundant quantities and generally good-sized fragments (>4mm). Condition, however, was fair to poor, with strong iron and vivianite staining observed. There were also some samples with particularly strong covering of chalky/ whitish deposits. Variability in charcoal condition between samples probably relates to location within the site: higher levels of vivianite indicating deposition in areas of the site with impeded drainage and chalky deposits associated with lime-rich soils. In a few samples the condition was poor enough to inhibit positive identification to genus, e.g. between Alnus and Corylus.

Ten taxa were positively distinguished, all of which were consistent with native species:

FABACEAE:	*Cytisus/Ulex*, broom/gorse
ROSACEAE:	*Prunus spinosa*, blackthorn
	Prunus cf. *avium*, wild cherry
	Maloideae, hawthorn group:
	Pyrus (pear), *Malus* (apple), *Sorbus* rowan/service/ whitebeams),
	Crataegus (hawthorn)
FAGACEAE:	*Quercus* sp., oak
BETULACEAE:	*Alnus glutinosa*, alder
	Corylus avellana, hazel
SALICACEAE:	*Populus/Salix*, poplar/willow
ACERACEAE:	*Acer campestre*, field maple
OLEACEAE:	*Fraxinus excelsior*, ash

Period 1 Early prehistoric

The sample from pit 12170 produced an abundant assemblage of charcoal (Table A3.68), with mid-sized fragments. The majority of the charcoal from both assemblages derived from oak, including some heartwood and sapwood fragments in sample 131 (pit 12170), along with Maloideae type and hazel. Condition was fair, with some covering of sediment, but this did not extend into the internal structures. Some moderate vitrification was noted. The assemblage is typical for waste fuelwood from domestic uses, drawn from local woodland. Hazel commonly forms an understorey in oak woodland, while the Maloideae types tend to be more light-seeking on woodland margins. The presence of large quantities of hazelnut shell in pit 12170 (Wyles, Appendix A3.4) suggests that the single fragment of hazel wood in this pit is an incidental or accidental inclusion, in association with the gathering for nuts for consumption. The Maloideae are also commonly found in Neolithic domestic assemblages. The presence of spiral thickenings in the anatomical structure suggests that hawthorn or the whitebeam (*Sorbus* species) may have been utilised, rather than apple wood. These trees provide a dense wood, capable of producing high heat. All the charcoal appeared to be from trunkwood, with the oak heartwood signifying the use of mature trees. Notably the oak charcoal from pit 11124 was mostly from heartwood, with numerous tyloses present across all rings (>20 in some pieces) and exhibited slow growth, with little or no late wood pores present. Charred fungal hyphae were recorded in hazel fragments from pit 21684. At least one of the pits (11124) contained slow-grown oak heartwood, suggesting that the charcoal came from mature trees grown in suboptimal conditions, such as in strongly competitive or poor environmental conditions.

Period 2 Middle Bronze Age

Charcoal from 12 cremation burials in cremation cemetery A and cremation burial group B was analysed, plus one from an associated pit in cremation burial group B that did not produce cremated bone but was comparable in form and size (Table A3.69). Generally the assemblages were abundant, with mid-sized (4mm) fragments, and several samples with large pieces (20mm–35mm): cremation burials 11112, 11129, 11158, 11164 and 11175. Cremation burials 10908, 11079 and 20157 and pit 21194 produced highly comminuted charcoal (mostly oak), which inhibited maturity determination. Only 3 taxa were positively identified out of 560 examined fragments: *Quercus* (oak), *Alnus glutinosa* (alder) and *Corylus avellana* (hazel). A number of fragments were recorded as *Alnus* or *Corylus*, since poor condition impaired the visibility of perforation plates, the key diagnostic anatomical features used to distinguish the genera. However, general observations of other features' presence or absence (pore size/density, spiral thickenings, ray frequency and extension on ring boundaries) strongly suggest the presence only of alder in the cremation cemetery A burials. Certainly the fragments in these samples were comparable in condition and structure to the confirmed alder and there were no indicators to suggest that C*orylus* was present. Moreover, the only confirmed *Corylus* in the assemblage came from pit 21194 from cremation group B and this was immediately recognised as different to the alder (in addition to the confirmation of short perforation plates). A fragment of *Prunus* was also identified from this feature during the assessment but was not available for checking at the time of the analysis. The absence of

Table A3.68: Charcoal from early prehistoric pits (showing fragment counts)

Period		Early prehistoric	
Feature type		Pit	
Feature	12170	21684	11124
Context	12171	21685	11125
Sample	131	248	54

Species	**Common name**			
Maloideae	hawthorn grp	17		
Quercus sp.	oak	32 (hs)	21 (s)	30(hs)
Corylus avellana L.	hazel	1	9	–

Key: h = heartwood; s = sapwood; brackets = present in some frags only

human bone in this pit may indicate that the assemblage is not cremation-related, accounting for the additional taxa present.

Roundwood fragments were rare and the vast majority came from trunkwood or larger branches. Maturity data for the oak was hampered by high levels of fragmentation but some confirmed sapwood was noted in several samples. With the exception of a significant quantity of heartwood in cremation burial 11158, tyloses were rarely observed, suggesting that the majority of oak did not come from mature wood. The oak in cremation burial 11158 also exhibited frequent radial cracks and high levels of vitrification and some radial cracks were also recorded in alder fragments in cremation burial 11175. Charred fungal hyphae were noted in fragments of alder from cremation burial 11129.

Period 3 Late Bronze Age/Early Iron Age and Period 4 Middle to Late Iron Age

In contrast to the preceding period a mixed range of taxa was identified from the Late Bronze Age/Early Iron Age and Middle to Late Iron Age assemblages, comprising *Prunus* types, Maloideae, oak, hazel, poplar/willow, field maple and ash (Table A3.70). It is likely that two different *Prunus* species are represented. The identification of P. *spinosa* (blackthorn) was confirmed on the basis of consistently wide ray widths (4–6 seriate) in sample 112 (Period 3 pit alignment A, pit 11954) but there were no definitive fragments with the same clearly wide rays in samples 148 (Period 3 pit alignment A, pit 12337) or 132 (Period 4 Phase 4.2 pit 12113). The *Prunus* in both of these samples exhibited consistently narrow ray widths (mostly 2–4 seriate), which is appropriate for P. *avium* (wild cherry). However, in both samples, the charcoal derived from roundwood fragments, some of which were immature (three years' growth with pith and bark) and ray widths can be inconsistent (and therefore less diagnostic) in young wood; for this reason, the identification has been given as P. cf. *avium*. Roundwood fragments were also noted in the Maloideae charcoals, and rarely in oak and ash, but these were of moderate ring curvature rather than small, whole stems. Oak heartwood and sapwood were recorded in most samples (where fragmentation allowed).

Period 6 Middle to Late Roman

The two samples from the lower section of the charge chamber of limekiln A produced quite different charcoal assemblages: the lower fill (12465, sample 166) was dominated by oak, with some *Prunus* and Maloideae; the upper fill (12401, sample 173) was chiefly composed of broom/gorse roundwood, with Maloideae, oak, hazel and poplar/willow (Table A3.71). This was the sole identification of broom/gorse, which are typically heathland shrubs, from the site. Additional identifications made on charcoal from fill 12465 during the assessment (but not confirmed by the author) were *Betula* (birch) and *Acer* (field maple), suggesting that other incidental taxa may have been present. The character of the two limekiln assemblages was also different: fill 12465 contained abundant and large (up to 40mm) fragments, while fill 12401 produced small (≤4mm) fragments which were covered in chalky residue. The oak from fill 12365 was generally fast-grown with average ring widths of *c.* 2.5mm. Tyloses were present but not in quantity, suggesting that the majority was sapwood or sapwood-heartwood transition. The assemblage from cremation burial 11283 was also abundant but quite comminuted, dominated by oak, with some *Prunus* roundwood and ash.

Discussion

Middle Bronze Age cremation burials

Although the burials exhibited high levels of truncation, with frequently low quantities of bone (Clough, Appendix A3.1), the abundance of charcoal and frequent

Table A3.69: Charcoal from the Middle Bronze Age cremation burials (showing fragment counts)

	Feature label	Cremation cemetery A										Cremation group B		
	Feature type	Cremation burial										Cremation burial		Pit
	Cut	10908	11079	11099	11112	11120	11129	11158	11164	11175	11194	20157	20159	21194
	Context	10909	11080	11101	11113	11121	11131	11159	11165	11176	11195	20158	20160	21195
	Sample	60	37	42	45	46	50	55	56	58	61	201	202	233
Species name	**Common name**													
Quercus sp.	oak	50 (s)	29				14 (r)	50 (h)	15 (s)	6 (r)		30	30	16 (s)
Alnus glutinosa Gaertn	alder		1	21	31	30	26		29	34	25			
Corylus avellana L.	hazel													3
Alnus/Corylus	alder/hazel			11	13	13	9		6	7	16			1
	bark			2	1									3
	indeter-minate			6	5	7	1			3	9			7

Key: h = heartwood; s = sapwood; r = roundwood; brackets = present in some frags only

Table A3.70: Charcoal from Late Bronze Age/Early Iron Age and Middle to Late Iron Age Phase 4.2 pits (showing fragment counts)

Period/Phase	3		4.2			
Feature label	Pit alignment A		Pit group PA7			
Feature type	Pit		Pit	Pit	Pit	Pit
Cut	11952	12337	11600	10017	12113	21427
Context	11954	12338	11601	10019	12114	21428
Sample	112	148	102	3	132	240
Species name	**Common name**					
Prunus spinosa L.	blackthorn	1				
Prunus cf. *avium*	wild cherry		15 (r)			
Prunus sp.	cherry type		6r		16r	
Maloideae	hawthorn grp	5		4r		4 (r)
Quercus sp.	oak	40 (hs)	9 (hs)	25 (s)	26 (sr)	1	17 (sh)
Corylus avellana L.	hazel	1			1		4
Populus/Salix	poplar/willow			1		6	
Acer campestre L.	field maple					1	
Fraxinus excelsior L.	ash				3		5 (r)
Indeterminate		3				6	

Key: h = heartwood; s = sapwood; r = roundwood; brackets = present in some frags only

Table A3.71: Charcoal from Middle to Late Roman features (showing fragment counts)

Feature label	Limekiln A		
Feature type	Limekiln		Cremation burial
Cut	12275		11283
Context	12465	12401	11285
Sample	166	173	73
Species name	**Common name**		
Cytisus/Ulex	broom/gorse	32r	
Prunus sp.	cherry type	6 (r)	7r
Maloideae	hawthorn grp	5 (r)	5 (r)	
Quercus sp.	oak	35 (shr)	7 (r)	34 (sr)
Corylus avellana L.	hazel	1	
Populus/Salix	poplar/willow	1	
Fraxinus excelsior L.	ash		8 (r)
Indeterminate	4	4	1

Key: h = heartwood; s = sapwood; r = roundwood; brackets = present in some frags only

Fig. A3.15 Graph showing the taxonomic composition of charcoal from cremation burials in Areas A and B

large fragment sizes suggest that the removal/avoidance of charcoal from the pyre during bone collection was either ineffective or undesirable. It also suggests that a reasonable component of the pyre fuel is represented in the charcoal assemblages. In common with other Middle Bronze Age cremation cemeteries taxonomic diversity in the charcoal assemblages is low. Single-taxon dominance is also exhibited in the Harlestone Park assemblages, with either oak or alder representing >70% of individual assemblages (Fig. A3.15). Although alder is generally considered a lightweight and poor fuel (Edlin 1949; Warren 2006), the efficacy of cremation, attested by the white colour of the human bone remains (Clough, Appendix A3.1), clearly shows that it provided sufficiently high calorific temperatures in the Harlestone Park cremation burials. It is highly likely that the wood used would have been pre-seasoned to provide a high sustained heat and this is supported by the evidence of fungal decay.

Moreover, there is increasing evidence that alder is frequently used in Bronze Age cremations, whether deliberately selected or reflecting necessary use of available resources. Alder is a riparian tree that would have grown at the site along the banks of the Dallington Brook, so would have been locally available, but additional selection of oak suggests that the use of alder was not necessarily due to any lack of resources as posited at other sites (e.g. Gale 2000, 347–8). Of course the perception of alder as a poor fuel may be a later development, since it provides a high enough heat when well seasoned, and there may also be other cultural significance attached to it leading to its use in the Bronze Age. Interestingly, the general use of alder in other (non-cremation) contexts seems to be quite low, suggesting that it may have had significance in a funerary context. However, the absence of contemporaneous domestic archaeology at the site means that the use of alder cannot be assessed in relation to context-related variation. Recent research shows that there is no strong correlation between the location of Middle Bronze Age cremation cemeteries and proximity to settlement (Caswell and Roberts 2018), suggesting the use of alder for specifically funerary activities may be related to the location of cremation pyres and burials in liminal places, such as watercourses.

Potential links between preferential selection of taxa, combined with the tendency to single-taxon dominance, and demographics of the deceased have long been explored. At the Early Bronze Age cemetery at Raunds, Northamptonshire, Campbell (2007) suggested that the cremation of children was associated with a number of different species, while those of adults and infants tended to be single species. Applying that to the demographic data here (Fig. A3.15) shows that all the adults were cremated with a single taxon, all alder, with the exception of the adult burial cremated with oak in Area B. A neonate burial (11079) was also dominated by a single species, in this case oak. Only one burial (11094) was possibly that of a child but could also have been a small adult and it was, like the other Area A adults, cremated with alder. The pattern, however, is not replicated at all sites: of two groups of Middle Bronze Age cremation burials at Thrapston, for instance, one was dominated by ash and the other

by oak/mixed assemblages, yet both groups contained adults (Challinor 2022a). Moreover, the paucity of bone data in this cemetery means full comparison cannot be made and no assessment on the basis of gender is possible. Whether the use of alder specifically is relevant is also hard to evaluate. Out of 23 Early and Middle Bronze Age cremation burials from Northamptonshire, none were dominated by alder (Campbell 2007; Challinor 2022a, 2022b, 2017a, 2009). Further afield, in Middle Bronze Age cremations burials at Bourton-on-the-Water, Gloucestershire (Challinor 2017b) and Harbury, Warwickshire (Challinor 2020) both adults and children were cremated with alder (alongside cremations dominated by oak and other taxa).

Iron Age settlement activity

All the charcoal examined from the Late Bronze/Early Iron Age and Middle to Late Iron Age periods came from pits, including some associated with Period 3 pit alignment A and Period 4 Phase 4.2 pit groups PA6 and PA7. The latter produced charred plant assemblages indicative of late stage crop processing waste and/or domestic hearth/oven waste (Wyles, Appendix A3.4). With two exceptions (pits 12337 and 12113) the assemblages were chiefly composed of oak, with a smattering of other taxa: *Prunus*, Maloideae, hazel, ash, poplar/willow and field maple. Pits 12337 and 12113 were not contemporaneous but both contained significant quantities of *Prunus* roundwood along with oak and other taxa. The charcoal evidence does not indicate significant changes in fuel use during the Late Bronze Age/Iron Age but rather that the settlement had, and continued to have, access to mature woodland. Taxa such the *Prunus* and Maloideae types and ash favour open conditions in partial or full sun, suggesting woodland margins or scrub areas were also exploited. Finally, although there is some limited evidence for wet ground taxa (poplar/willow) and species such as ash will tolerate moist soils, there is no confirmed alder in the Iron Age dataset. Given the ideal riparian habitat at the site and the quantity seen in the Middle Bronze Age dataset, this seems a bit surprising. It suggests that the Iron Age inhabitants had a preference for oak as fuel and managed their fuelwood supplies appropriately and that, potentially, alder was seen as an inferior fuel in this period.

Roman cremation burial

Oak represents almost 70% of the charcoal assemblage from cremation burial 11283, along with some *Prunus* roundwood and ash. The quantity of charcoal was moderate, with generally comminuted material, suggesting that larger pieces had been avoided during bone collection, although the quantity of bone was also low so it may have been a token deposit. The human remains were consistent with a small/young adult or a child and were associated with iron nails (Clough, Appendix A3.1). The use of oak, generally for cremations and specifically in Romano-British contexts, is common, reflecting its high calorific value, as attested by the calcinity of the bones in cremation burial 11283. Some large cremation cemeteries of Romano-British date showed a marked preference for oak (and ash) pyre fuel: for instance, at Pepper Hill, Kent (Challinor 2006) and Westhampnett, Sussex (Gale 1997). However, there is variability, at Burton Latimer, Northamptonshire, for instance, three cremation burials produced charcoal assemblages that were notably different in character with discrete dominant taxa, ash, Maloideae and, most unusually, poplar/willow (Challinor 2019). This indicates that although oak was preferred as fuel in the burial at Northampton and at many other sites, there were localised practices.

Roman limekiln A

Radiocarbon dating on two fragments of birch and hawthorn group charcoal recovered from the basal fill (12465) of limekiln A produced Middle to Late Roman dates. The charcoal assemblage from this fill probably represents the fuel remnants from the final firing and *in situ* deposition is supported by the large fragment sizes and abundance of material. The limekiln was of a 'flare' kiln type, which would have been loaded with a single charge of limestone, with the fire kept separate from the lime to avoid mixing with ash (HE 2018). Since the basal fill (12465) came from the charge chamber, rather than the flue or stoke hole, it is likely that there would have been a surface above the fuel level on which the charge would sit. The absence/paucity of charcoal in the flue and stokehole deposits suggests that the fuel in the areas of greatest burning had burnt to ash (too small to be identifiable) and only the material away from the primary fire (i.e. under the main charge chamber) survived or there had been some limited cleaning out of residues after the final charge.

The manufacture of lime requires the burning of calcium carbonate at temperatures above 900°C (HE 2018). While hot, this does not, unlike iron smelting and smithing, require the use of charcoal as fuel, and wood (or later coal) was commonly used. Flare type kilns required more fuel than later kiln types as they would be refired for every charge and the process is a slow one, often over a period of days (depending upon the scale and quantity of charge). The use of predominantly oak, and mostly trunkwood, seen in the Harlestone Park kiln, would have provided the requisite sustained heat over a period of time, along with supplementary taxa, including roundwood, to aid ignition. Although there is little comparative charcoal data for limekilns, an Early Roman limekiln at Maylands Gateway, Hemel Hempstead was dominated by oak (mostly sapwood), with two fragments of blackthorn/cherry (Druce and Cook 2020) and a mid-Roman limekiln at Northfleet, Kent, contained charcoal consisting of a range of taxa, principally of oak (particularly roundwood) but also of

alder, ash, blackthorn, hazel and beech (Barnett 2011, 117). In this respect the assemblage from limekiln A is comparable. However, the charcoal assemblage from an upper fill (12401) of the charge chamber is surprisingly different: dominated by broom/gorse, with some additional presence of *Prunus*, oak, hazel and poplar/willow. This suggests the sourcing of fuel from different habitats (heathland) as well as a different type of fire since broom/gorse provides a high but fast heat, suitable for fast-burning activities but not sustained burns of longer duration, which would be needed for lime burning. This indicates that the upper fill (12401) represents a post-use deposit in the limekiln, probably representing other (potentially domestic) activities, rather than original lime burning activities. It is interesting that a similar mid-Roman limekiln from Whitehill, Newton Abbot, Devon, produced comparable charcoal assemblages: oak as the primary fuel (evidenced from stoke hole, flue and primary chamber) and a Later Romano-British (post-use) upper fill which was chiefly broom/gorse (with some supplementary taxa) (Challinor 2022c). This highlights the possibility of later uses of the kiln for other activities, however there was no direct evidence from the charred plant remains to suggest later Roman crop processing, malting or other corn drying type activities (Wyles, Appendix A3.4).

A3.6: Waterlogged wood
By Sarah Cobain

Introduction

A single waterlogged wood item (Ra. 14) comprising a small roundwood branch was recovered from Period 9 posthole 10882 (fill 10883), located within Phase 4.2 enclosure A8. It was located in the centre of the posthole and appeared to represent an *in situ* stake/post.

Results

The stake/post was in poor condition and highly degraded. No evidence of bark or any tool marks survived, although it did appear to taper to a point towards the base. It measures 14.5cm long and 6.4cm in diameter, decreasing to 3.5cm towards the base; approximately 15–20 tree rings were noted. Identification was carried out with reference to images and descriptions by Gale and Cutler (2000) and the piece was tentatively identified as oak.

The location of the item, in the centre of the posthole, suggested an *in situ* stake had been preserved. However, the preservation was unexpected in the well-drained sandy substrate close to the top of the feature. For this reason a sample (oak sapwood, three rings) of the stake was taken and submitted for radiocarbon dating, returning a date of 1655–1918 cal AD (SUERC-126589, 95.4% probability).

The post-medieval/modern date of the piece of wood confirms that the location of the stake within the centre of an Iron Age feature was purely coincidental and the item is likely to represent a fence or marker post close to the edge of the field.

A3.7: Molluscs
By Sarah Wyles

Introduction and methodology

A series of 246 bulk soil samples were processed and assessed for environmental remains from a range of feature types, mainly of Iron Age date, from Areas A and B. Mollusc shells were noted in nine of these samples during the assessment (Aitken and Wyles 2024) and were only present in very low numbers. The range of species in these small assemblages is tabulated in Table A3.72, including the nomenclature according to Anderson (2005) and habitat preferences according to Kerney (1999) and Davies (2008).

Results

The assemblages (Table A3.72) are too small and restricted to draw any inferences on the nature of the local landscape and whether this changed over time. The assemblages include the open country species *Vallonia costata* and *Helicella itala* and the shade-loving species *Discus rotundatus*. No aquatic species were recovered.

A3.8: Pollen
By Michael Grant

Introduction

Pollen analysis was conducted on three samples recovered from the excavation:

- Monolith 289: Period 3 pit alignment B pit 21638;
- Monolith 149: Period 4 Phase 4.2 ditch A1A (cut 12197); and
- Monolith 271: Period 5 ditch B8H (cut 21070).

The pollen analysis has been undertaken with the following aims:

- to ascertain whether pollen is preserved within the samples submitted for examination; and
- to provide an interpretation of the local environment based upon the pollen assemblage.

Methodology

Standard preparation procedures were used (Moore *et al.* 1991). Three samples were selected for preparation with

Table A3.72: Molluscan remains

Period/Phase	Feature type	Feature no.	Context no.	Sample no.	Number	Species
Early prehistoric	Pit	20174	20176	203	*	*Vallonia costata*
Middle to Late Iron Age Phase 4.1	Pit	21054	21055	231	*	*Helicella itala*
	Pit	21427	21428	240	*	*Vallonia costata*
Middle to Late Iron Age Phase 4.2	Pit	10092	10094	9	*	*Helicella itala*
	Pit	11074	11076	40	*	*Helicella itala*
	Pit	21223	21224	234	*	*Discus rotundatus* and *Vallonia costata*
	Ditch B6.2A	22607	22606	295	*	*Vallonia costata*
Late Iron Age/Early Roman	Ditch B7A	21790	21793	253	*	*Vallonia costata*
Middle to Late Roman	Limekiln A	12275	12401	176	*	*Helicella itala*

Table A3.73: List of pollen samples

Feature	Context	Period/Phase	Monolith sample no.	Depth in monolith
Ditch A1A (cut 12197)	(12198)	Middle to late Iron Age Phase 4.2	149	0.34m
Ditch B8H (cut 21070)	(21071)	Late Iron Age/Early Roman	271	0.120m
Pit alignment B, pit 21638	(21646)	Late Bronze Age/Early Iron Age	289	0.15m

1–2cm^3 of sediment processed from each sample (Table A3.73). To each sample a Lycopodium spike was added (one tablet from batch 3862) to allow the calculation of pollen concentrations (Stockmarr 1971). All samples received the following treatment: 20mls of 10% KOH (80°C for 30 minutes); 20mls of 60% HF (80°C for 120 minutes); 15mls of acetolysis mix (80°C for 3 minutes); stained in 0.2% aqueous solution of safranin and mounted in silicone oil following dehydration with tert-butyl alcohol. Due to the highly minerogenic nature of these samples additional sieving and decanting was undertaken between the KOH and HF stages.

Pollen counting was undertaken at a magnification of x400 using a Nikon Eclipse Ci-L transmitted light microscope. Determinable pollen and spore types were identified to the lowest possible taxonomic level with the aid of a reference collection kept at COARS, University of Southampton. The pollen and spore types used are those defined by Bennett (1994; Bennett *et al.* 1994), with plant nomenclature following Stace (2019). A total land pollen (TLP) sum of 400 grains was achieved for the Phase 4.2 and Period 5 ditch sequences samples in monoliths 149 and 271 respectively. Two full slides were counted for the sample from monolith 289 but only 30 TLP were encountered. Pollen concentrations for monoliths 149 and 271 were very high, at 1.2 million and 15780 grains cm^3 respectively, whereas in monolith 289 this was lower at 3620 grains cm^3.

Results

The results of the pollen analysis are provided in Table A3.74, with a pollen diagram produced for the samples from monoliths 149 and 271 presented in Figure A3.16 The pollen assemblages for all three samples were dominated by arboreal taxa, most notably *Alnus glutinosa* (alder), *Quercus* (oak) and *Corylus avellana*-type (hazel). Also present in the samples from monoliths 149 and 271 were *Tilia cordata* (small-leaved lime) and *Betula* (birch), with *Ulmus* (elm) also present in the sample from monolith 149. Tree and shrub/climber pollen account for 97% and 83% of the pollen assemblage for monoliths 149 and 271 respectively.

Non-arboreal pollen was in low abundance in the sample from monolith 149, with only Poaceae (grasses) and *Calluna vulgaris* (heather) present. Also present were *Pteridium aquilinium* (bracken) and *Polypodium* (polypody) along with Pteropsida (monolete) indet. (fern spores). A more diverse non-arboreal assemblage was present in the sample from monolith 271, with Cyperaceae (sedges) and *Cichorium intybus*-type (dandelions and chicory) present alongside Poaceae, with lower amounts of *Ranunculus acris*-type (buttercup family), *Calluna vulgaris* and Brassicaceae (cabbage family). Single occurrences of Filipendula (meadowsweet), Chenopodiaceae (goosefoots) and *Plantago lanceolata* (ribwort plantain) were also noted. *Nuphar* (yellow water-lilies) and *Hydrocharis morsus-ranae* (frogbit).

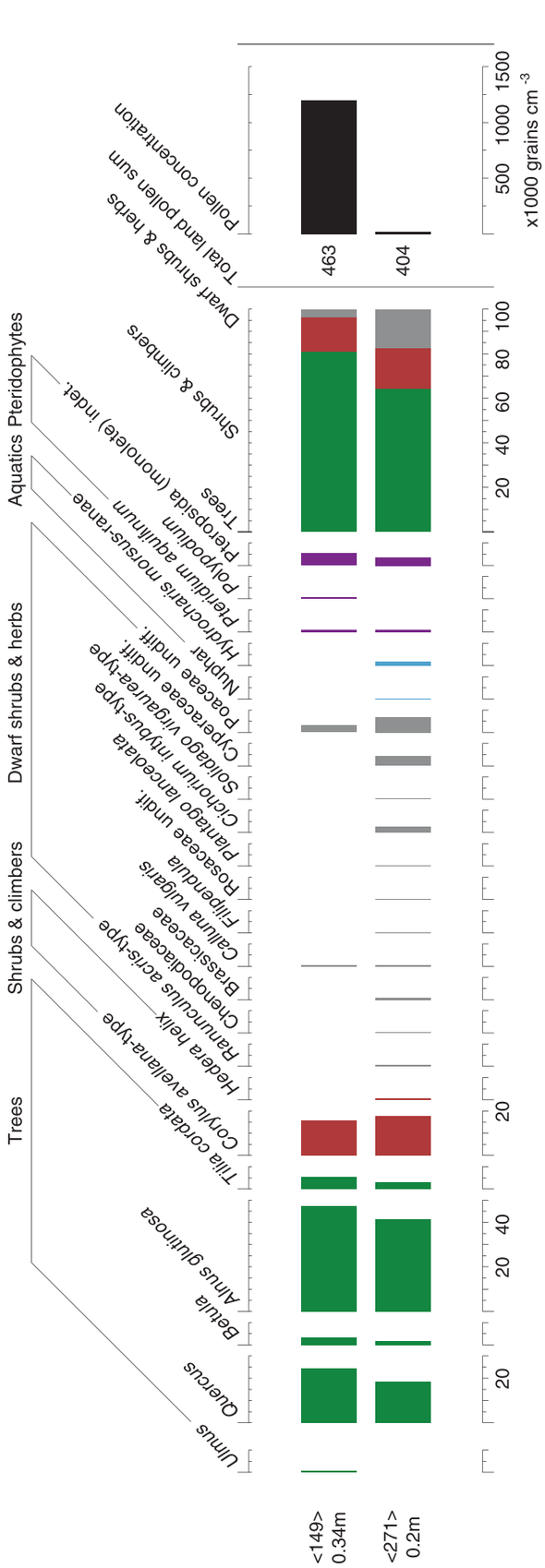


Fig. A3.16 Pollen diagram for samples from the Period 4 Phase 4.2 (Middle to Late Iron Age) and Period 5 (Late Iron Age/Early Roman) ditches (monoliths 149 and 271)

Table A3.74: Pollen counts

Taxa	Monolith 149	Monolith 271	Monolith 289
Ulmus	3		
Quercus	112	75	3
Betula	16	7	
Alnus glutinosa	220	167	6
Tilia cordata	24	11	
Corylus avellana-type	72	72	9
Hedera helix		2	
Ranunculus acris-type		3	
Chenopodiaceae		1	
Stellaria holostea			1
Brassicaceae		3	
Calluna vulgaris	2	2	2
Filipendula		1	
Rosaceae undif.		1	1
Plantago lanceolata		1	
Cichorium intybus-type		11	
Solidago virgaurea-type		1	
Cyperaceae		18	6
Poaceae	14	28	2
Nuphar		1	
Hydrocharis morsus-ranae		7	
Pteridium aquilinum	4	4	
Polypodium	3		
Pteropsida (monolete) indet.	27	15	
Bryophyta			1
Total Land Pollen Sum	463	404	30
Pollen concentration (grains cm^{-3})	1,201,000	15,780	3,625

Discussion

The two Middle and Late Iron Age ditches contain very similar pollen assemblages showing the local presence of a mixed woodland consisting of oak, lime, alder and hazel. The dominance of alder indicates local damp conditions associated with a floodplain, probably also associated with non-arboreal taxa such as *Ranunculus* acris-type, Filipendula and Cyperaceae, as well as Pteropsida (monolete) indet. Aquatic pollen within monolith 271 (cut 21070, ditch B8H) indicates local standing water. While local wetland woodland is implied by the dominance of alder, the mixed woodland components, including small-leaved lime, indicate the presence of more extensive woodland around the site on drier soils. Present in all three samples was heather, which might indicate some local heathland.

The non-arboreal pollen provides little information on the nature of activity around the site, with few taxa, except for some bracken and a single grain of ribwort plantain, suggesting local soil disturbance. The presence of *Cichorium intybus*-type, along with Brassicaceae and Chenopodiaceae, may be indicative of increased waste ground around the ditch. No cereal pollen was present in any samples.

The pollen assemblage from monolith 289 (pit alignment B) contains a similar assemblage to that seen in monoliths 149 and 271, suggesting some continuity in the local vegetation between the Late Bronze Age to Early Iron Age and Middle to Late Iron Age periods.

Conclusion

The pollen assemblages from the three sampled features all show the local dominance of woodland taxa, including local floodplain communities. The high arboreal pollen percentages indicate close proximity to woodland, probably on site. There is little evidence of local soil disturbance, with no evidence for cereal production or processing on site. Some local waste ground is indicated,

with standing water (or possibly overbank flooding) associated with ditch B8H (cut 21070).

A3.9: Radiocarbon dating and chronological modelling

By Derek Hamilton (SUERC-University of Glasgow)

Introduction and methodology

Radiocarbon dating was undertaken to confirm the dates of the features detailed in the first column of Table A3.75. Thirty-nine samples of charcoal, charred nutshell, inhumed human and animal bone and cremated human bone were submitted to SUERC-University of Glasgow for radiocarbon dating by accelerator mass spectrometry (AMS). The samples were analysed during September 2023, June 2024 and January 2025 at Scottish Universities Environmental Research Centre (SUERC), Rankine Avenue, Scottish Enterprise Technology Park, East Kilbride, Glasgow G75 0QF, Scotland. All the samples were single entities (Ashmore 1999) and were processed following methods outlined in Dunbar *et al.* (2016). SUERC maintains rigorous internal quality assurance procedures and participation in international inter-comparisons (Scott *et al.* 2010) indicates no laboratory offsets, thus validating the measurement precision quoted for the radiocarbon ages. Two samples failed to provide sufficient carbon and were replaced by further samples from the same feature (Table A3.75).

Conventional radiocarbon ages (Stuiver and Polach 1977) are presented in Table A3.75, where they are quoted in accordance with the Trondheim convention (Stuiver and Kra 1986). Calibrated date ranges were calculated using the calibration curves of Reimer *et al.* (2020) and OxCal v4.4 (Bronk Ramsey 1995; 1998; 2001; 2009) and rounded outward to 10 years for the calibrated 95% probability dates (Table A3.75). The results of the chronological modelling are given in *italics* and rounded outward to 5 years. Carbon isotope ($\delta^{13}C$) data was recorded and where collagen samples (human or animal bone) were submitted nitrogen ($\delta^{15}N$) and sulphur ($\delta^{34}S$) isotope data were obtained (Table A3.75).

The samples

The 39 dated samples came from excavated features from within the two areas of excavation, Area B to the north and Area A to the south. Dated samples are detailed below and in Table A3.75, with the calibrated date probabilities given in Figure A3.17. The statistical consistency of radiocarbon results was tested in OxCal using the R_Combine function, which calculates a *t*-score following the method of Ward and Wilson (1978). Where measurements are statistically consistent they could be the same radiocarbon age but where the samples are not from the same sample or context the interpretation is usually that they represent a shorter span of time. However, it is important to take into consideration the shape of the calibration curve, as a 'flatter' area of the calibration curve (e.g. the period 750–400 cal BC) is likely to produce statistically consistent results even if the dated samples died at either end of the plateau. That said, it is still an important test for better understanding the temporal coherence of the dates.

Period 1 early prehistoric activity

Five radiocarbon results were obtained from the fills of pits in both Areas A and B. The dates include:

- SUERC-130111 from a fragment of oak charcoal in fill 11125 of pit 11124;
- SUERC-130092 on a charred hazelnut shell in fill 11980 of pit 11979;
- SUERC-130091 on a charred hazelnut shell in fill 12171 of pit 12170;
- SUERC-130121 on a charred hazelnut shell in fill 20176 of pit 20174 (pit group PB3);
- SUERC-130104 on a charred hazelnut shell in fill 21685 of pit 21684.

The five results are not statistically consistent (T'=65.5; df=4; T'(5%)=9.5) suggesting some longevity to the dated activity. Even when excluding the single result from the oak charcoal (SUERC-130111), which is considerably younger than the dates on the hazelnut shell, the remaining four results are also not statistically consistent (T'=14.0; df=3; T'(5%)=7.8).

Period 2 Middle Bronze Age

Nine results were obtained from charcoal and cremated human bone associated with cremation burial activity in Areas A and B. The dates include:

- SUERC-122136 on a fragment of cremated human bone from fill 11113 of cremation burial 11112 (cremation cemetery A);
- SUERC-130093 on a fragment of hazel charcoal from fill 11121 of cremation burial 11120 (cremation cemetery A);
- SUERC-130094 on a fragment of hazel charcoal from fill 11130 of cremation burial 11129 (cremation cemetery A);
- SUERC-122135 on a fragment of cremated human bone from fill 11177 of urned cremation burial 11175 (cremation cemetery A);
- SUERC-130095 on a fragment of alder charcoal from fill 11195 of cremation burial 11194 (cremation cemetery A);
- SUERC-122134 on a fragment of cremated human bone from fill 20158 of cremation burial 20157 (cremation group B);
- SUERC-122924 on a fragment of cremated human bone from fill 20160 of cremation burial 20159 (cremation group B);

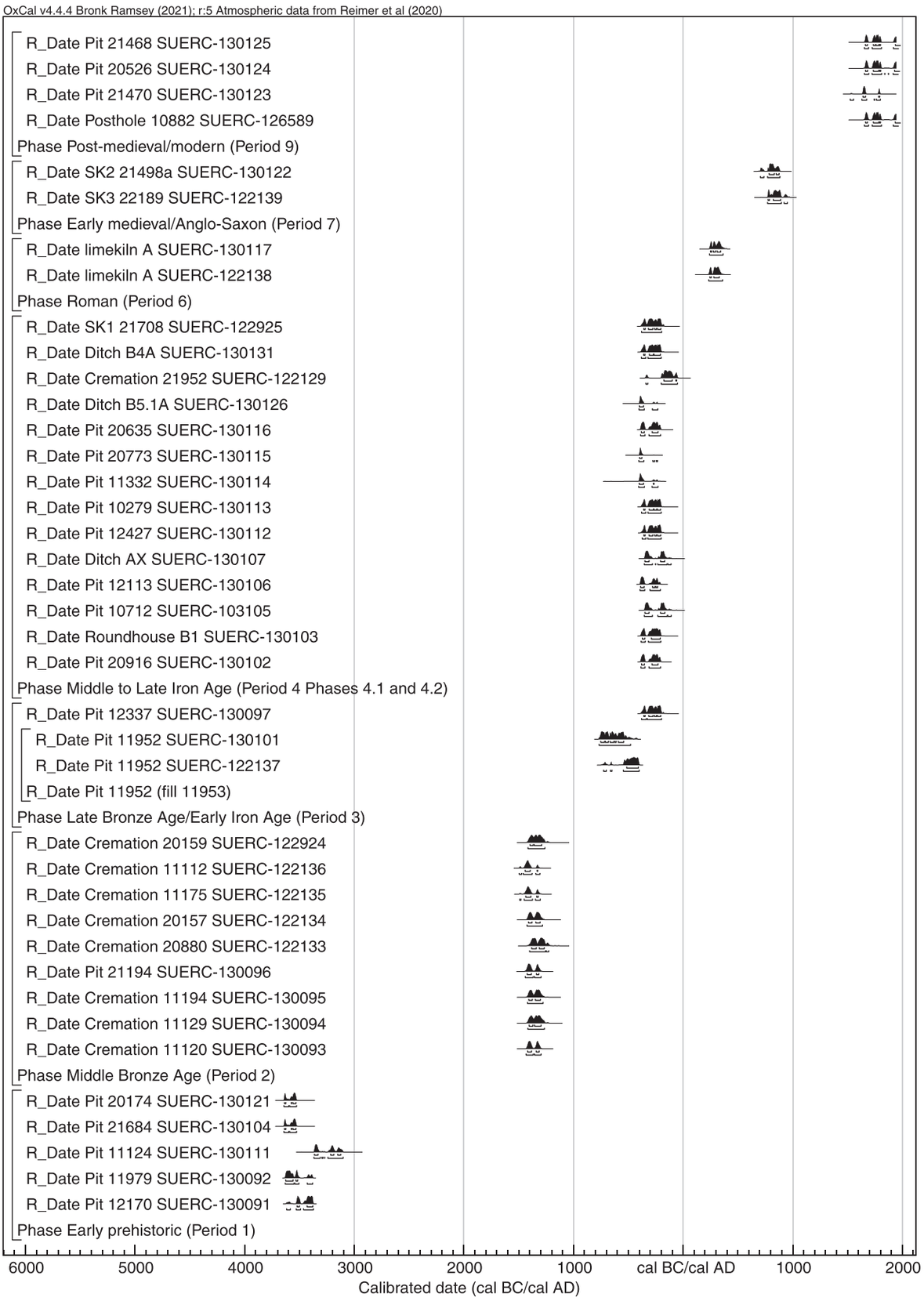


Fig. A3.17 All calibrated radiocarbon dates

- SUERC-122133 on a fragment of cremated human bone from fill 20881 of cremation burial 20880 (cremation group B);
- SUERC-130096 on a fragment of blackthorn charcoal from fill 21195 of pit 21194 (cremation group B).

The results from the eight cremation burials and associated pit are statistically consistent (T'=9.8; df=8; T'(5%)=15.5) so they could be the same radiocarbon age. Given the archaeology, this suggests the activity was not from a protracted period and probably covered a relatively short period of time across both areas.

Period 3 Late Bronze Age/Early Iron Age

Three radiocarbon dates were obtained from material excavated from two pits in pit alignment A, which ran east/west along the northern boundary of Area A.

There is a result (SUERC-122137) on a waterlogged hazel/alder twig and one (SUERC-130101) on a charred hazelnut shell from fill 11953 of pit 11952. The two measurements are statistically consistent (T'=3.6; df=1; T'(5%)=3.8) and could be the same age. The different character of the dated material (e.g. waterlogged and burnt) provides extra security in interpretating these dates as reflecting the date of the feature, with the later of the two results (SUERC-122137; Fig. A3.17) providing the best estimate for the pit being actively used in 720–400 cal BC (95% probability).

When examining these two dates with a third (SUERC-130097) on cf. blackthorn charcoal from fill 12338 of pit 12337, the three results are not statistically consistent (T'=61.2; df=2; T'(5%)=6.0). While this might represent a later reuse of the alignment in the Middle Iron Age, it could equally be the result of intrusive charcoal in this one context.

Period 4 Middle to Late Iron Age

Fourteen radiocarbon results were obtained from contexts in 13 features associated with the Middle to Late Iron Age settlement structures and enclosures. The features include pits, ditches and the remains of two burials.

From Area A there are six radiocarbon results:

- SUERC-130107 on a charred wheat grain from fill 10156 of ditch AX (cut 10155);
- SUERC-130113 on a charred wheat grain from fill 10281 of pit 10279 (pit group PA4);
- SUERC-130105 on a charred wheat grain from fill 10713 of pit 10712 (pit group PA5);
- SUERC-130114 on a charred wheat grain from fill 11339 of pit 11332 (pit group PA7);
- SUERC-130106 on a fragment of blackthorn charcoal in fill 12114 of pit 12113;
- SUERC-130112 on a charred wheat grain from fill 12429 of pit 12427 (pit/posthole group PA3).

From Area B there are eight radiocarbon results:

- SUERC-130116 on a charred wheat grain from fill 20636 of pit 20635 (pit/posthole group PB6);
- SUERC-130115 on a charred wheat grain from fill 20774 of pit 20773 (pit/posthole group PB6);
- SUERC-130131 on a pig scapula in fill 20909 of ditch B5.1 (cut 21098);
- SUERC-130102 on a charred wheat grain from fill 20918 of pit 20916 (pit/posthole group PB2);
- SUERC-130126 on a cattle bone in fill 21102 of ditch B5.1A (cut 21098);
- SUERC-130103 on a charred wheat grain from fill 21247 of roundhouse RB6 (cut 21246);
- SUERC-122129 on cremated human bone in fill 21953 in cremation burial in ditch B3A (cut 21952);
- SUERC-122925 on a lower incisor of SK1 (in fill 21708), an inhumation burial in ditch B3A (cut 21934).

Taken all together the results are not statistically consistent (T'=63.1; df=13; T'(5%)=22.4), suggesting the activity covered a protracted period in time. Even when breaking the dates down and considering them by area the groups are not statistically consistent (Area A: T'=22.1; df=5; T'(%5)=11.1 and Area B: T'=38.1; df=7' T'(5%)=14.1).

Period 6 Middle to Late Roman

Two radiocarbon results (SUERC-122138 and 130117) were obtained from birch and hawthorn group (Pomoideae) charcoal recovered from fill 12465 of limekiln A (cut 12275). The two results are statistically consistent (T'=0.3; df=1; T'(5%)=3.8) and could be the same age. The later result (SUERC-30117) provides the best estimate for the use of this feature in cal AD 240–380 (95% probability; Fig. A3.17).

Period 7 early medieval

Two radiocarbon results were obtained from human burials in Area B that date to the early medieval period (Fig. A3.17). One radiocarbon result (SUERC-130122) is from the femur of SK21498a from inhumation burial 21497, while the other (SUERC-122139) is from a cranial fragment from SK3 (fill 22189) from pit 22732. The two results are statistically consistent (T'=1.7; df=1; T'(5%)=3.8) and suggest the dated burial activity was relatively restricted in time.

Period 9 post-medieval/modern

There are four samples that were dated to the post-medieval period (Fig. A3.17). Three of these were from samples of calf bone in pits:

- SUERC-130123 from fill 21471 of pit 21470;

- SUERC-130124 from fill 20527 of pit 20526;
- SUERC-130125 from fill 21469 of pit 21468.

While SUERC-130123 dates from the 16th to 18th century AD, the other two results date from the mid-17th century to AD 1950.

The fourth result (SUERC-126589) was obtained from sapwood from a waterlogged stake of oak (fill 10883) recovered from posthole 10882, also dating the feature to sometime between the mid-17th century and AD 1950.

The models and results

While there are too few radiocarbon results from the Late Bronze Age/Early Iron Age, Middle to Late Roman and early medieval activity to develop robust chronological models, there are enough to consider the chronologies of other periods at the site. Since there are no direct stratigraphic relationships between dated samples that would provide informative prior information the models follow the basic bounded phase model type described in detail in Hamilton and Kenney (2015). Two types of model were constructed that considered the chronology of individual periods across the site (early prehistoric, Middle Bronze Age and Middle to Late Iron Age), with the Bronze Age and Iron Age archaeology broken down further between the two excavated areas.

Early prehistoric activity

The model for the early prehistoric dating in Areas A and B has good agreement (Amodel: 104) and estimates that this activity began in 3915–3530 cal BC (95% probability; Fig. A3.18; start: early prehistoric) or *3690–3550 cal BC (68% probability)*. The activity ended in *3490–2955 cal BC (95% probability*; Fig. A3.18; end: early prehistoric) or either *3485–3460 cal BC (5% probability)* or *3365–3180 cal BC (63% probability)*. The total span of the activity associated with the pits from this period covered *55–865 years (95% probability;* Fig. A3.19; span: early prehistoric) or *215–540 years (68% probability)*.

Middle Bronze Age

In looking at all of the dating from the cremation burials and associated activity, the model has good agreement (Amodel: 102) and estimates that the Middle Bronze Age cremation activity began in either *1455–1385 cal*

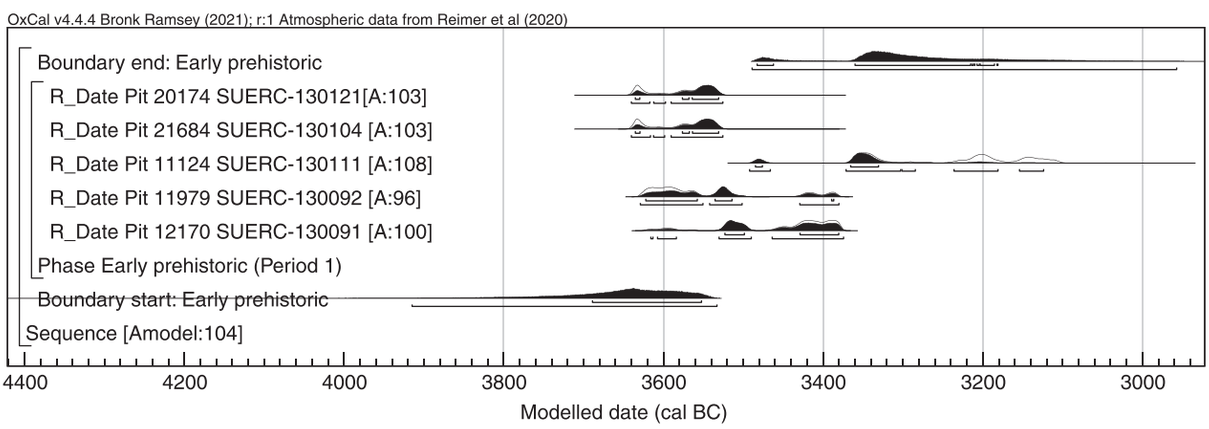


Fig. A3.18 Chronological model for early prehistoric activity

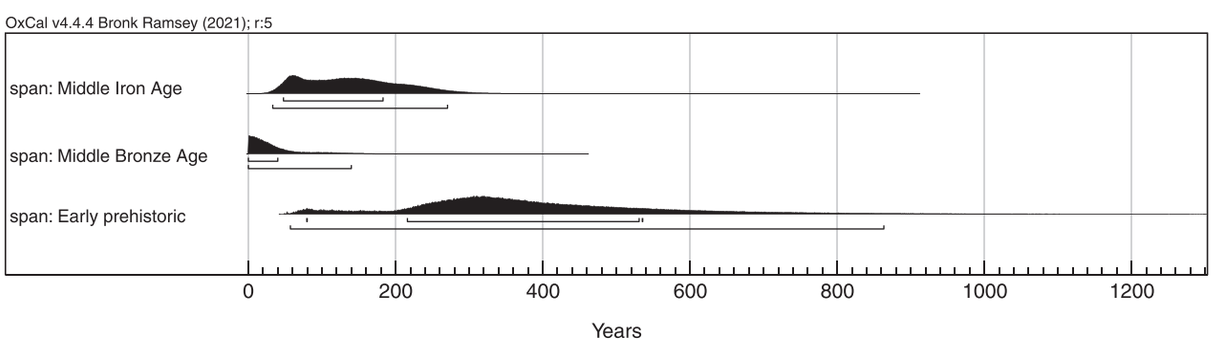


Fig. A3.19 Spans of the dated activity modelled

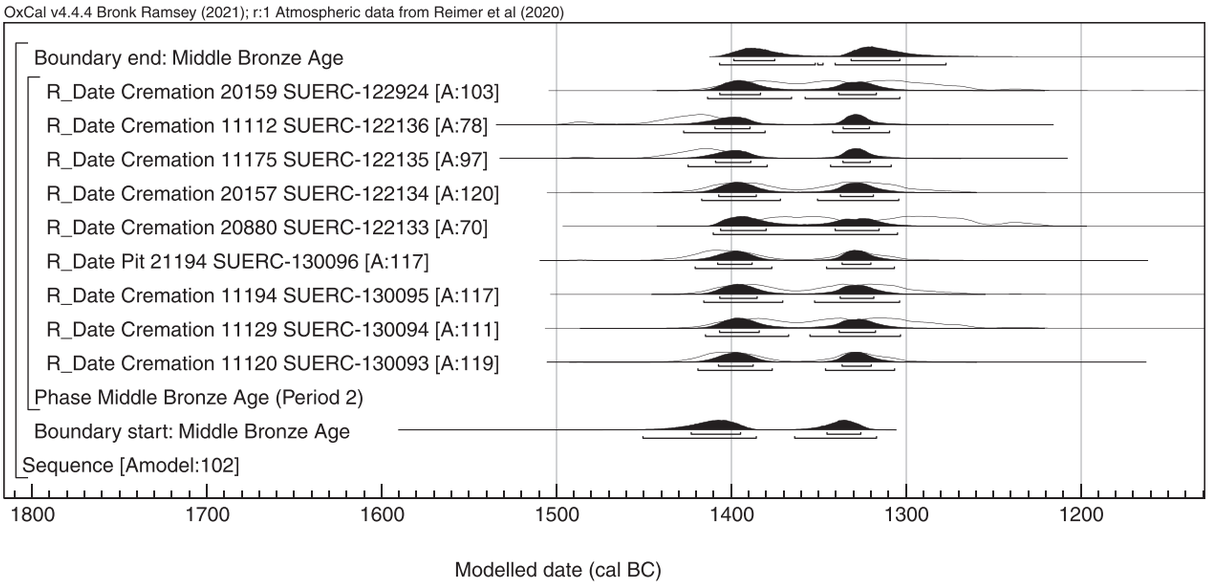


Fig. A3.20 Chronological model for the Middle Bronze Age cremation burials

BC (56% probability; Fig. A3.20; *start: MBA*) or 1365–1315 cal BC (39% probability), or perhaps either *1425–1395 cal BC (41% probability)* or *1350–1325 cal BC (27% probability)*. The activity ended in *1410–1275 cal BC (95% probability;* Fig. A3.20; *end: MBA*), or perhaps either *1400–1375 cal BC (30% probability)* or *1335–1300 cal BC (38% probability)*. The total span of Bronze Age cremation burial activity across the site was *1–140 years (95% probability;* Fig. A3.19; *span: MBA*) or 1–*40 years (68% probability)*. Given the bimodal nature of the start and end probabilities the chronological modelling of all the cremation activity dates suggests the dating for this activity is probably restricted to the early or later mode but not across both.

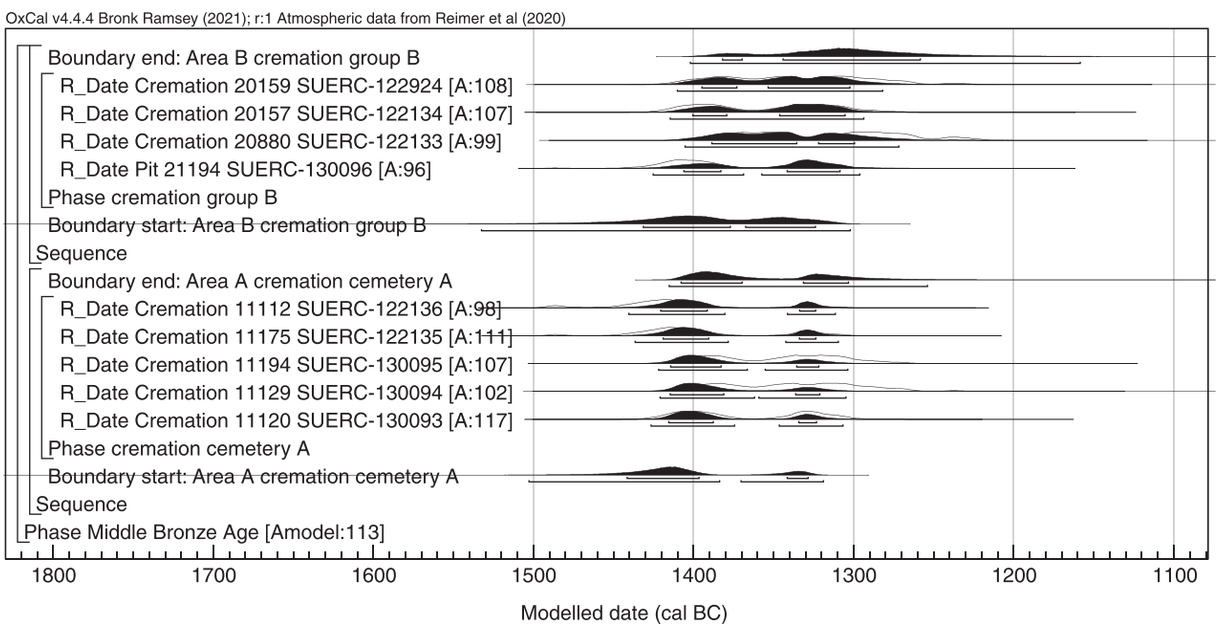


Fig. A3.21 Alternative chronological model for the Middle Bronze Age cremation burials that shows the probabilities for the start and end of the activity in each area

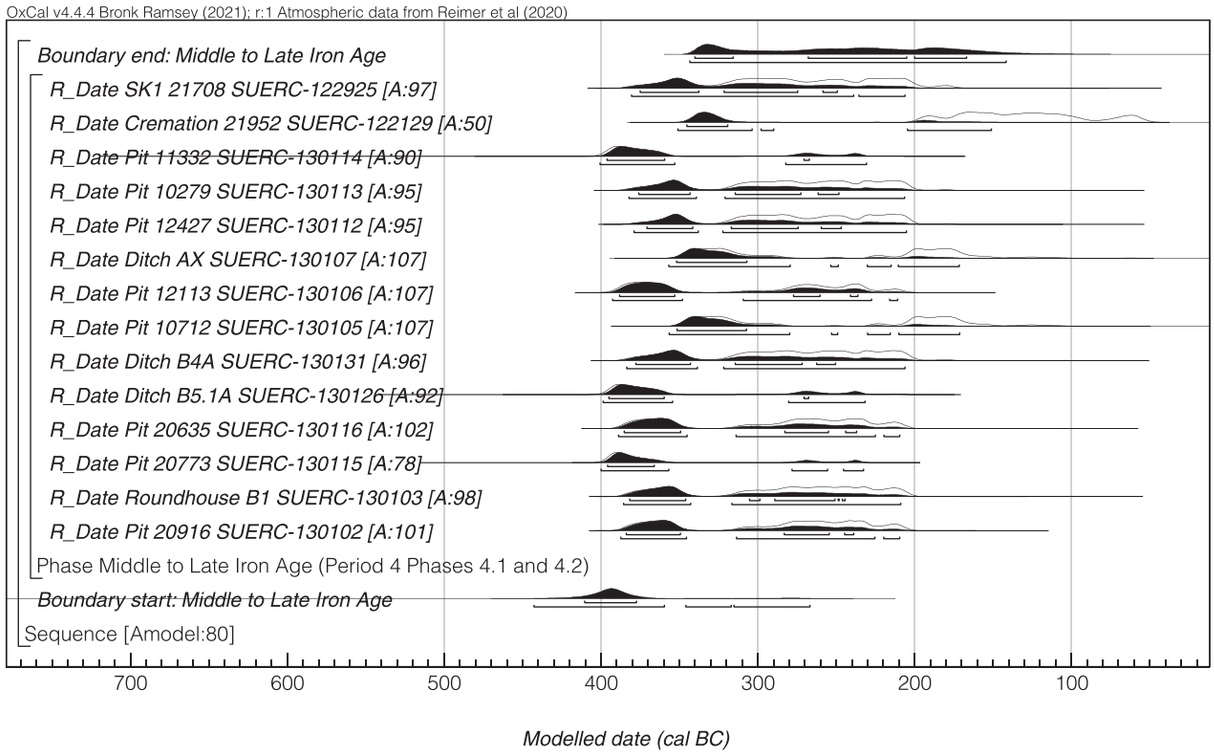


Fig. A3.22 Chronological model for the Middle to Late Iron Age settlement and enclosures

There are enough radiocarbon dates to consider if there might be chronological differences between the cremation activity in Areas A and B. In considering the activity in the areas separately, the model estimates cremation burial activity in Area A began in *1505–1315 cal BC* (*95% probability;* Fig. A3.21; *start: Area A cremation*) and in Area B it began in *1535–1300 cal BC* (*95% probability;* Fig. A3.21; *start: Area B cremation*). There is a 62% probability that cremations began in Area A prior to Area B. The modelling also estimates the cremations in Area A ended in *1420–1250 cal BC* (*95% probability;* Fig. A3.21; *end: Area A cremations*) and in Area B they ended in *1405–1155 cal BC* (*95% probability*; Fig. A3.21; *end: Area B cremations*). There is a 77% probability the cremations ended in Area A prior to Area B.

Although there is not enough data to look at the dating of cremation in finer detail, the dates provide a robust chronology for cremation activity across both excavated areas and suggest the group of dates from Area B could start and end prior to Area A, though the probabilities are relatively low.

Middle to Late Iron Age

The model for the Middle to Late Iron Age settlement and enclosure activity has good agreement (Amodel: 80) and estimates that activity began in *445–265 cal BC* (*95% probability;* Fig. A3.22; *start: M/LIA*) or *415–375 cal BC* (*68% probability*). The activity associated with these dated samples ended in *345–140 cal BC* (*95% probability;* Fig. A3.22; *end: M/LIA*) or either *345–315 cal BC* (*17% probability)* or *270–165 cal BC* (*51% probability*). The overall span of dated activity was *30–275 years* (*95% probability;* Fig. A3.19; *span: M/LIA*) or *45–185 years* (*68% probability*).

There are enough radiocarbon dates from Middle to Late Iron Age settlement and enclosures features in both areas to consider them separately. The modelling of the two areas estimates the dated activity in Area A began in *490–230 cal BC* (*95% probability;* Fig. A3.23; *start*), while it began is Area B in *480–255 cal BC* (*95% probability*; Fig. A3.23; *start*). The dated activity in Area A ended in *350–90 cal BC* (*95% probability;* Fig. A3.23; *end*) and in Area B in *350–80 cal BC* (*95% probability;* Fig. Fig. A3.23; *end*).

When comparing these start and end dates there is only a 62% probability that dated settlement activity began in Area B prior to Area A and 51% probability that it ended in Area B prior to Area A.

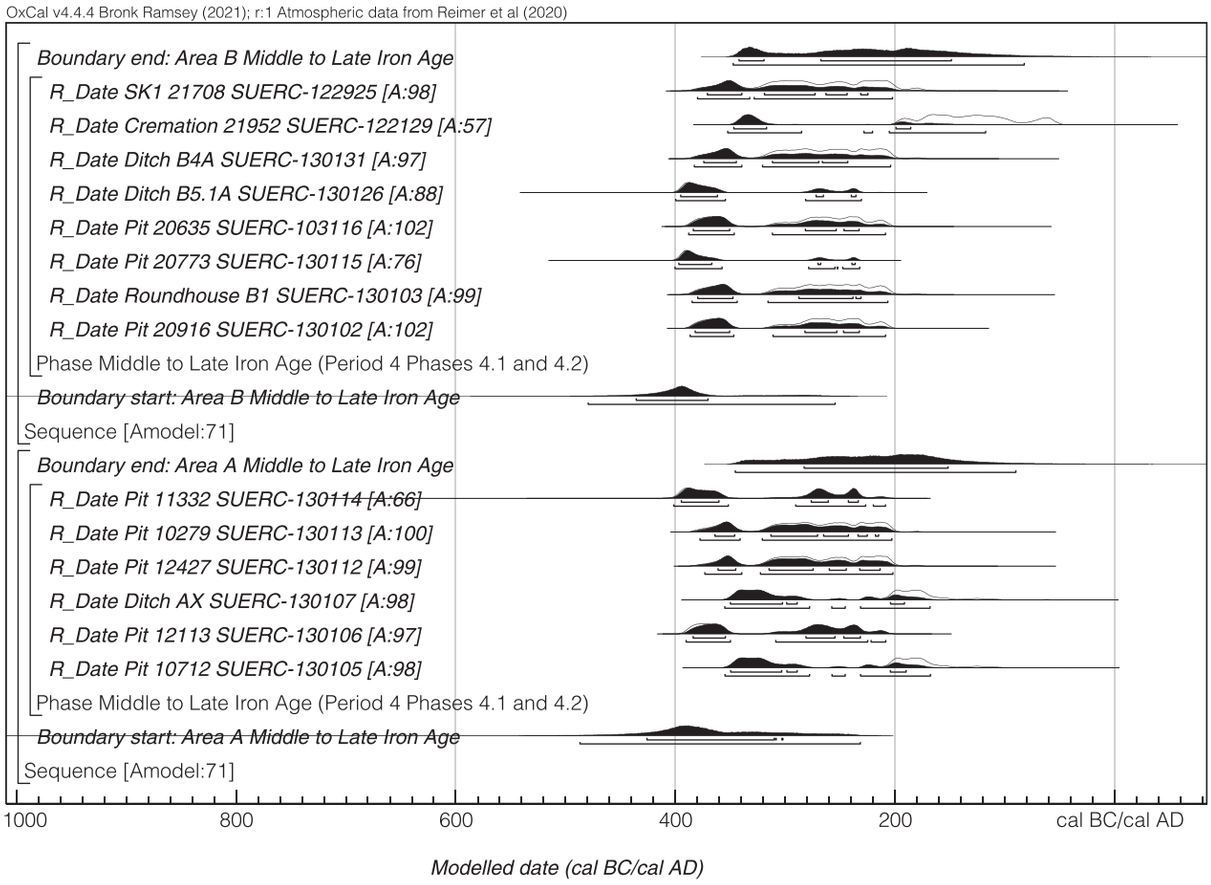


Fig. A3.23 Alternative chronological model for the Middle to Late Iron Age settlement and enclosures that shows the probabilities for the start and end of the activity in each area

Table A3.75: Radiocarbon dates from Harlestone Park

Lab ID	Context description	Material dated	$\delta^{13}C$ (‰)	$\delta^{15}N$ (‰)	$\delta^{34}S$ (‰)	C:N	C:S	N:S	Radiocarbon age (BP)	Calibrated date (95% probability*)	Calibrated radiocarbon age (95.4% probability; *68.3% probability*)
Early prehistoric											
SUERC-130091	Context 12171 Pit 12170	charred hazelnut shell (*Corylus avellana)*	–24.2						4707 ±21	3610–3370 cal BC	3618–3585 cal BC (6.7%) 3530–3492 cal BC (25.5%) 3464–3374 cal BC (63.3%) *3523–3502 cal BC (18.3%)* *3431–3380 cal BC (49.9%)*
SUERC-130092	Context 11980 Pit 11979	charred hazelnut shell (*Corylus avellana)*	–24.9						4742 ±23	3630–3380 cal BC	3632–3552 cal BC (59.2%) 3542–3506 cal BC (19.7%) 3430–3381 cal BC (16.6%) *3626–3560 cal BC (54.2%)* *3534–3517 cal BC (14.1%)*
SUERC-130104	Context 21685 Pit 21684	charred hazelnut shell (*Corylus avellana)*	–25.8						4807 ±25	3640–3530 cal BC	3643–3599 cal BC (31%) 3590–3528 cal BC (64.5%) *3639–3626 cal BC (19.2%)* *3576–3571 cal BC (4.9%)* *3561–3533 cal BC (44.2%)*
SUERC-130111	Context 11125 Pit 11124	charcoal: oak (*Quercus* sp.); sapwood; 3–5 rings	–24.2						4547 ±27	3370–3110 cal BC	3370–3312 cal BC (35%) 3297–3286 cal BC (1.3%) 3272–3270 cal BC (0.3%) 3241–3103 cal BC (59%) *3364–3331 cal BC (30.1%)* *3271–3187 cal BC (22.6%)* *3152–3124 cal BC (15.5%)*
SUERC-130121	Context 20176 Pit 20174 Pit group PB3	charred hazelnut shell (*Corylus avellana)*	–24.5						4807 ±25	3640–3530 cal BC	3643–3599 cal BC (31%) 3590–3528 cal BC (64.5%) *3639–3626 cal BC (19.2%)* *3576–3571 cal BC (4.9%)* *3561–3533 cal BC (44.2%)*
Middle Bronze Age											
SUERC-122133	Context 20881 Cremation burial 20880 Cremation group B	cremated human bone	–20.1						3051 ±25	1400–1220 cal BC	1402–1256 cal BC (89.6%) 1248–1226 cal BC (5.9%) *1383–1341 cal BC (33.2%)* *1312–1267 cal BC (35%)*
SUERC-122134	Context 20158 Cremation burial 20157 Cremation group B	cremated human bone	–25.4						3093 ±25	1420–1270 cal BC	1424–1283 cal BC (95.4%) *1412–1380 cal BC (30.2%)* *1345–1306 cal BC (38.1%)*

Table A3.75 (cont.): Radiocarbon dates from Harlestone Park

Lab ID	Context description	Material dated	$\delta^{13}C$ (‰)	$\delta^{15}N$ (‰)	$\delta^{34}S$ (‰)	C:N	C:S	N:S	Radiocarbon age (BP)	Calibrated date (95% probability*)	Calibrated radiocarbon age (95.4% probability; ***68.3% probability***)
SUERC-122135	Context 11177 Cremation burial 11175 Cremation cemetery A	cremated human bone	–22.4						3129 ±25	1490–1300 cal BC	1492–1481 cal BC (2.2%) 1451–1376 cal BC (69.5%) 1348–1304 cal BC (23.7%) *1436–1390 cal BC (56.2%)* *1336–1323 cal BC (12.1%)*
SUERC-122136	Context 11113 Cremation burial 11112 Cremation cemetery A	cremated human bone	–20.3						3138 ±25	1490–1310 cal BC	1496–1474 cal BC (6.3%) 1460–1379 cal BC (74.2%) 1345–1307 cal BC (15%) *1443–1396 cal BC (63.7%)* *1333–1327 cal BC (4.6%)*
SUERC-122924	Context 20160 Cremation burial 20159 Cremation group B	cremated human bone	–20.4						3072 ±28	1420–1240 cal BC	1417–1267 cal BC (95.4%) *1397–1368 cal BC (20.5%)* *1359–1290 cal BC (47.8%)*
SUERC-130093	Context 11121 Cremation burial 11120 Cremation cemetery A	charcoal: hazel (*Corylus avellana*)	–27.6						3107 ±22	1430–1290 cal BC	1434–1368 cal BC (52.5%) 1357–1296 cal BC (43%) *1419–1384 cal BC (39.8%)* *1340–1314 cal BC (28.5%)*
SUERC-130094	Context 11130 Cremation burial 11129 Cremation cemetery A	charcoal: hazel (*Corylus avellana*)	–27.3						3079 ±28	1420–1260 cal BC	1418–1266 cal BC (95.4%) *1406–1371 cal BC (24.4%)* *1356–1296 cal BC (43.8%)*
SUERC-130095	Context 11195 Cremation burial 11194 Cremation cemetery A	charcoal: alder (*Alnus* sp.)	–26.6						3087 ±24	1420–1270 cal BC	1420–1279 cal BC (95.4%) *1409–1377 cal BC (27.1%)* *1349–1303 cal BC (41.1%)*
SUERC-130096	Context 21195 Pit 21194	charcoal: blackthorn (*Prunus spinosa*)	–25.8						3113 ±24	1440–1300 cal BC	1441–1368 cal BC (56.9%) 1356–1296 cal BC (38.6%) *1423–1386 cal BC (44%)* *1339–1317 cal BC (24.3%)*
Late Bronze Age/Early Iron Age											
SUERC-122137	Context 11953 Pit 11952 Pit alignment A	waterlogged twig: alder/hazel (*Alnus* sp./*Corylus* sp.)	–27.0						2408 ±25	720–400 cal BC	726–701 cal BC (4.8%) 664–651 cal BC (2.9%) 546–401 cal BC (87.8%) *515–409 cal BC (68.3%)*

Lab ID	Context description	Material dated	$\delta^{13}C$ (‰)	$\delta^{15}N$ (‰)	$\delta^{34}S$ (‰)	C:N	C:S	N:S	Radiocarbon age (BP)	Calibrated date (95% probability*)	Calibrated radiocarbon age (95.4% probability; *68.3% probability*)
SUERC-130097	Context 12338 Pit 12337 Pit alignment A	charcoal: cf. black-thorn (*Prunus spinosa*)	–25.4						2217 ±24	380–190 cal BC	380–337 cal BC (17.9%) 327–198 cal BC (77.5%) *360–347 cal BC (8.2%)* *314–275 cal BC (26.8%)* *263–243 cal BC (12.2%)* *235–205 cal BC (21%)*
SUERC-130101	Context 11953 Pit 11952 Pit alignment A	charred hazel nutshell (*Corylus avellana)*	–24.8						2474 ±24	760–450 cal BC	767–481 cal BC (95.4%) 753–717 cal BC (16.2%) 710–683 cal BC (12.2%) 699–632 cal BC (13.6%) 624–611 cal BC (4.8%) 93–542 cal BC (21.4%)
Middle to Late Iron Age											
SUERC-122129	Context 21953 Cremation burial 21952 in ditch B3A	cremated human bone	–23.8						2125 ±24	340–50 cal BC	341–323 cal BC (5.6%) 201–52 cal BC (89.8%) *176–101 cal BC (63.5%)* *67–60 cal BC (4.8%)*
SUERC-122925	SK1 21708 from ditch B3A Cut 21934	human tooth: lower incisor	–20.5	12.2	–9.8	3.3	399	122	2214 ±28	380–180 cal BC	380–197 cal BC (95.4%) *359–346 cal BC (8.9%)* *317–276 cal BC (27.8%)* *261–244 cal BC (10.5%)* *234–204 cal BC (21.1%)*
SUERC-130102	Context 20918 Pit 20916 Pit/posthole group PB2	charred cereal grain: spelt wheat (*Triticum spelta*)	–23.1						2243 ±21	390–200 cal BC	386–349 cal BC (27.1%) 311–207 cal BC (68.4%) *380–354 cal BC (21.8%)* *284–229 cal BC (46.5%)*
SUERC-130103	Context 21247 Roundhouse RB1 (cut 21246)	charred cereal grain: spelt wheat (*Triticum spelta*)	–24.1						2234 ±23	380–200 cal BC	384–346 cal BC (22.1%) 317–204 cal BC (73.3%) *372–351 cal BC (14.4%)* *290–210 cal BC (53.9%)*
SUERC-130105	Context 10713 Pit 10712 Pit group PA5	charred cereal grain: spelt wheat (*Triticum spelta*)	–21.1						2166 ±23	350–110 cal BC	355–281 cal BC (44.7%) 231–146 cal BC (46.6%) 140–109 cal BC (4.1%) *349–311 cal BC (33.7%)* *206–168 cal BC (34.6%)*

Table A3.75 (cont.): Radiocarbon dates from Harlestone Park

Lab ID	Context description	Material dated	$\delta^{13}C$ (‰)	$\delta^{15}N$ (‰)	$\delta^{34}S$ (‰)	C:N	C:S	N:S	Radiocarbon age (BP)	Calibrated date (95% probability*)	Calibrated radiocarbon age (95.4% probability; ***68.3% probability***)
SUERC-130106	Context 12114 Pit 12113	charcoal: black-thorn/cherry (*Prunus* sp.)	–24.0						2261 ±24	390–210 cal BC	394–351 cal BC (40.6%) 302–208 cal BC (54.8%) *389–357 cal BC (34.8%)* *279–256 cal BC (20.1%)* *248–233 cal BC (13.4%)*
SUERC-130107	Context 10156 Ditch AX (cut 10155)	charred cereal grain: spelt wheat (*Triticum spelta*)	–22.7						2167 ±23	350–110 cal BC	356–280 cal BC (45.5%) 254–250 cal BC (0.4%) 232–147 cal BC (46%) 138–110 cal BC (3.5%) *349–311 cal BC (34%)* *206–168 cal BC (34.3%)*
SUERC-130112	Context 12429 Pit 12427 Pit/posthole group PA3	charred cereal grain: spelt wheat (*Triticum spelta*)	–26.4						2218 ±20	370–200 cal BC	374–341 cal BC (15.7%) 323–200 cal BC (79.8%) *359–348 cal BC (7.8%)* *312–276 cal BC (26.9%)* *261–244 cal BC (11.4%)* *234–206 cal BC (22.1%)*
SUERC-130113	Context 10281 Pit 10279 Pit group PA4	charred cereal grain: spelt wheat (*Triticum spelta*)	–23.7						2223 ±22	380–200 cal BC	380–342 cal BC (18%) 321–201 cal BC (77.4%) *361–349 cal BC (8%)* 310–272 cal BC (24.3%) 266–241 cal BC (16%) 236–207 cal BC (20%)
SUERC-130114	Context 11339 Pit 11332 Pit group PA7	charred cereal grain: hulled wheat (*Triticum dicoccum/spelta*)	–21.7						2298 ±27	410–230 cal BC	406–354 cal BC (73.1%) 283–230 cal BC (22.3%) *401–362 cal BC (65.2%)* *272–267 cal BC (3.1%)*
SUERC-130115	Context 20774 Pit 20773 Pit/posthole group PB6	charred cereal grain: spelt wheat (*Triticum spelta*)	–20.9						2300 ±20	400–230 cal BC	404–359 cal BC (87.1%) 276–261 cal BC (5.2%) 244–234 cal BC (3.2%) *399–377 cal BC (68.3%)*
SUERC-130116	Context 20636 Pit 20635 Pit /posthole group PB6	charred cereal grain: spelt wheat (*Triticum spelta*)	–23.5						2246 ±24	390–200 cal BC	389–349 cal BC (28.9%) 312–206 cal BC (66.5%) 381–355 cal BC (23.6%) 282–231 cal BC (44.6%)

Lab ID	Context description	Material dated	$\delta^{13}C$ (‰)	$\delta^{15}N$ (‰)	$\delta^{34}S$ (‰)	C:N	C:S	N:S	Radiocarbon age (BP)	Calibrated date (95% probability*)	Calibrated radiocarbon age (95.4% probability; *68.3% probability*)
SUERC-130126	Context 21102 Ditch B5.1A (cut 21098)	animal bone: cattle	−21.8	4.0	−2.1	3.4	502	148	2293 ±24	400–230 cal BC	403–356 cal BC (73%) 281–232 cal BC (22.5%) *400–362 cal BC (68.3%)*
SUERC-130131	Context 20909 Ditch B4A (cut 20908)	animal bone: pig; scapula	−21.6	4.0	−1.2	3.3	490	151	2224 ±24	380–200 cal BC	381–342 cal BC (18.9%) 322–201 cal BC (76.6%) *361–350 cal BC (7.7%)* *308–272 cal BC (23.4%)* *266–208 cal BC (37.1%)*
Middle to Late Roman period											
SUERC-122138	Context 12465 Limekiln A (cut 12275)	charcoal: birch (*Betula* sp.)	−26.6						1767 ±24	cal AD 230–370	234–361 cal AD (95.4%) *245–258 cal AD (13.8%)* *281–330 cal AD (54.5%)*
SUERC-130117	Context 12465 Limekiln A (cut 12275)	charcoal: hawthorn group (Pomoideae)	−26.4						1751 ±20	cal AD 240–380	242–365 cal AD (95.4%) 250–262 cal AD (12.8%) 277–295 cal AD (20.1%) 310–343 cal AD (35.4%)
Early medieval period											
SUERC-122139	SK3 22189 Pit 22732	human bone: cranial fragment	−20.2	10.8	−3.4	3.3	514	158	1179 ±26	cal AD 770–960	772–897 cal AD (86.4%) 923–952 cal AD (9%) *776–789 cal AD (11.7%)* 823–890 cal AD (56.6%)
SUERC-130122	SK2 21498a Inhumation burial 21497	human bone: femur	−20.5	12.2	−9.8	3.3	399	122	1223 ±22	cal AD 700–880	705–738 cal AD (12.8%) 772–883 cal AD (82.6%) *786–833 cal AD (49.6%)* *850–876 cal AD (18.6%)*
Post-medieval/modern period											
SUERC-126589	Context 10883 wooden stake Posthole 10882	waterlogged wood: oak (*Quercus* sp.); sapwood; 3 rings	−27.2						188 ±24	cal AD 1660–1950	1655–1693 cal AD (21.6%) 1726–1810 cal AD (56.8%) 1918+ cal AD (17%) *664–1683 cal AD (14.9%)* *1736–1785 cal AD (37.9%)* *1794–1802 cal AD (6%)* *1936+ cal AD (9.5%)*

Table A3.75 (cont.): Radiocarbon dates from Harlestone Park

Lab ID	Context description	Material dated	$\delta^{13}C$ (‰)	$\delta^{15}N$ (‰)	$\delta^{34}S$ (‰)	C:N	C:S	N:S	Radiocarbon age (BP)	Calibrated date (95% probability*)	Calibrated radiocarbon age (95.4% probability; *68.3% probability*)
SUERC-130123	Context 21471 Pit 21470	animal bone: cattle	–22.2	6.7	1.1	3.4	439	128	247 ±24	cal AD 1530–1800	1526–1556 cal AD (6.2%) 1631–1675 cal AD (64.4%) 1743–1749 cal AD (0.5%) 1765–1800 cal AD (24.3%) *1641–1665 cal AD (53.1%)* *1785–1794 cal AD (15.2%)*
SUERC-130124	Context 20527 Pit 20526	animal bone: cattle	–22.0	8.2	1.3	3.3	518	158	185 ±24	cal AD 1660–1950	1655–1695 cal AD (20.9%) 1725–1812 cal AD (56.1%) 1840–1842 cal AD (0.2%) 1874–1876 cal AD (0.2%) 1916 cal AD (18%) *1666–1638 cal AD (13.7%)* *1736–1784 cal AD (37.4%)* *1795–1803 cal AD (5.4%)* *1930 cal AD (11.7%)*
SUERC-130125	Context 21469 Pit 21468	animal bone: cattle	–21.8	8.7	1.1	3.5	421	121	189 ±24	cal AD 1660–1950	1655–1693 cal AD (21.8%) 1726–1810 cal AD (57%) 1919 cal AD (16.6%) *1664–1683 cal AD (15.8%)* *1737–1755 cal AD (14.9%)* *1761–1786 cal AD (21.7%)* *1793–1802 cal AD (6.5%)* *1937 cal AD (9.4%)*
SUERC-136681	Context 10998 Roundhouse RA8.1 (cut 10997)	Animal bone: Cat tibia	–19.8	9.9	1.6	3.4	516	152	Fraction Modern F: 1.4911±0.0048	–	–

References

Cartographic and archival sources

BL (British Library) 2025a Lansdowne MS 761 The estate book of Henry de Bray, *c*. 1289–1340

BL (British Library) 2025b Cotton Nero, C. xii The estate book of Henry de Bray, *c*. 1289–1340

NA (National Archives) 2026a Andrew of Harlestone collection *https://discovery.nationalarchives.gov.uk/details/r/27a5bdde-144c-4fe4-99b5-c936fdb4290c* (accessed 27 March 2026)

NA (National Archives) 2026b Manorial documents register *https://discovery.nationalarchives.gov.uk/manor-search* (accessed 27 March 2026)

NAS (Northamptonshire Archive Service) 2025a A95 1829 Sale catalogue of Harlestone House with print view of house and parish map

NAS (Northamptonshire Archive Service) 2025b Map/5255 Map 1829, redrawn in 1981 by B.L. Giggins (2 sheets)

NAS (Northamptonshire Archive Service) 2025c Hu(H)/01, 002 and 10–012 1932, files on Harlestone relating to the work of the English Place Name Society

NAS (Northamptonshire Archive Service) 2025d ZB1112, Copy of Harlestone Enclosure Award 1767 and extracts of first Harlestone parish register

NAS (Northamptonshire Archive Service) 2025e ZB1371/21 1785 Probate of the will of Simon Callis of Northampton

NAS (Northamptonshire Archive Service) 2025f Harpole field names, 1932

PA (Parliamentary Archives) 2025a HL/PO/PB/1/1778/18G3n83, Private act, 18 George III, *c*. 39

PA (Parliamentary Archives) 2025b HL/PO/PB/1/1766/6G3n152, Private act, 6 George III, *c*. 75

NLS (National Library of Scotland) 2026a 1885 Northamptonshire sheet XLIV.NE https://maps.nls.uk/view/101575615 (accessed 27 March 2026)

NLS (National Library of Scotland) 2026b 1940 Northamptonshire sheet XLIV.3 https://maps.nls.uk/view/114479552 (accessed 27 March 2026)

NLS (National Library of Scotland) 2026c 1900 Northamptonshire sheet XLIV.7 https://maps.nls.uk/view/114479588 (accessed 27 March 2026)

NLS (National Library of Scotland) 2026d 1946 Northamptonshire sheet XLIV.NE https://maps.nls.uk/view/101575606 (accessed 27 March 2026)

NLS (National Library of Scotland) 2026e 1952 Northamptonshire sheet XLIV.NE https://maps.nls.uk/view/101575603 (accessed 27 March 2026)

NLS (National Library of Scotland) 2026f 1901 Northamptonshire sheet XLIV.NE https://maps.nls.uk/view/101575612 (accessed 27 March 2026)

NLS (National Library of Scotland) 2026g 1927 Northamptonshire sheet XLIV.NE https://maps.nls.uk/view/101575609 (accessed 27 March 2026)

NLS (National Library of Scotland) 2026h *1969 SP76SW – A* https://maps.nls.uk/view/189237924 (accessed 27 March 2026)

Works cited in the text

AA (Albion Archaeology) 2024 *Land north of Roman Road, Northampton West, Northamptonshire: archaeological trial-trenching* AA Report No. **2024/07**

Addyman, P.V. 1973 'Late Saxon settlements in the St Neots area III', *Proc. Cambridge Antiq. Soc.* **64**, 45–99

Aitken, E. and Wyles, S.F. 2024 'Appendix M: plant macrofossils and charcoal', in CA 2024, 235–68

Albarella, U. 1997 'Shape variation of cattle metapodials: age, sex or breed? Some examples from medieval and postmedieval sites', *Anthropozoologica* **25–26**, 37–47

Albarella, U. and Pirnie, T. 2008 *A review of animal bone evidence from Central England* [data-set] York, Archaeology Data Service [distributor] https://doi.org/10.5284/1000317 (accessed 27 March 2026)

Alberti, M. 2017 *Datasheet 7: Spindle whorls* Roman Finds Group

Alberti, M. 2018 'The construction, use, and discard of female identities: interpreting spindle whorls at Vindolanda and Corbridge', *Theoretical Roman Archaeol. J.* **1(1)**, 2, 1–16

Aldridge, N. 2005 'A Belgic cremation cemetery and iron bloomery furnace at Jubilee Corner, Ulcombe', *Archaeo. Cantiana* **125**, 173–82

Allen Archaeology 2020 *Mobility and memory in prehistoric Harbury: archaeological excavations on Bush Heath Lane, in 2016* Archaeology Warwickshire Report No. **2020.1**

Allen, M., Lodwick, L., Brindle, T., Fulford, M. and Smith, A. 2017 *New visions of the countryside of Roman Britain volume 2: the rural economy of Roman Britain* Britannia Monograph Series **30**

Allen, M. and Poole, C. 2020 *An early Roman lime kiln and later Roman agricultural processing at Maylands, Hemel Hempstead: archaeological excavation report* Oxford, Oxford Archaeology Ltd

Allen, M.J., Leivers, M. and Ellis, C.J. 2008 'Neolithic causewayed enclosures and later prehistoric farming: duality, imposition and the role of predecessors at Kingsborough, isle of Sheppey, Kent, UK', *Proc. Prehist. Soc.* **74**, 235–322

Allen, T., Barclay, A., Cromarty, A.M., Anderson-Whymark, H., Parker, A., Robinson, M. and Jones, G. 2013 *Opening the wood, making the land: the archaeology of a Middle Thames landscape, Mesolithic, Neolithic and Early Bronze Age, The Eton College Rowing Course project and the Maidenhead, Windsor and Eton flood alleviation scheme* Oxford, Oxford Archaeology Ltd

AlQahtani, S.J., Hector, M.P. and Liversidge, H.M. 2010 'Brief communication: the London atlas of human tooth development and eruption', *American J. Physical Anthropol.* **142**, 481–90

An, N., Wang, Y., He, D.-X., Mei, P.-C., Zhu, Q.-F. & Feng, Y.-Q. 2023 'A dataset of branched fatty acid esters of hydroxy fatty acids diversity in foods', *Scientific Data* **10**, 790

Anderson, R. 2005 'An annotated list of the non-marine Mollusca of Britain and Ireland', *J. Conchology* **38**, 607–37

Anderson-Whymark, H. 2013 'The struck flint from Area 6', in Allen *et al.* 2013, 148–78

Andrews, P., Booth, P.M., Fitzpatrick, A.P. and Welsh, K. 2015 *Digging at the Gateway, archaeological landscapes of south Thanet: the archaeology of east Kent access (Phase III)* Oxford, Wessex Archaeology Monograph Series **8**

Armitage, P.L. 2015 'The animal bone', in Ellis and King 2015, 85–7

Ashmore, P.J. 1999 'Radiocarbon dating: avoiding errors by avoiding mixed samples', *Antiquity* **73**, 124–30

Atkins, R. 2004 'A Middle to Late Saxon cemetery at Seaton Road, Harringworth', *Northamptonshire Archaeol.* **32**, 95–106

Atkins, R. 2018 *Late Iron Age and Roman settlement at Bozeat Quarry, Northamptonshire: Excavations 1995–2016* London, Archaeopress Archaeology

Atkins, R. and Meadows, I. 2024 *Neolithic pits, Late Bronze Age/Early Iron Age pit alignments and Iron Age to Roman settlements at Wollaston Quarry, Northamptonshire* London, Archaeopress

Baker, G. 1822 *History and antiquities of the county of Northamptonshire, volume 1* London, John Bowyer Nichols and Son and John Bowell

Ballantyne, C.K. 2018 *Periglacial eomorphology* Hoboken, Wiley Blackwell

Ballin, T.B. 2021 *Classification of lithic artefacts from the British late Glacial and Holocene periods* Oxford, Archaeopress

Bamford, H.M. 1985 *Briar Hill: excavations 1974–1978* Northampton, Northampton Development Corporation Archaeological Monograph **3**

Barber, B. and Bowsher, D. 2000 *The eastern cemetery of Roman London: excavations 1983–1990* Museum of London Archaeology Monograph **4**

Barclay, A.J. 2007 'The Early Neolithic pottery and fired clay', in Benson *et al.* 2007, 263–82

Barclay, A.J., Stevens, C.J. and Wyles, S.F. 2011 'An Early Bronze Age field system from Monkton Road, Minster, Thanet, and an early date for the cultivation of Spelt', *PAST* **69**, 2–3

Barclay, A.J., Booth, P., Knight, D., Evans, J., Brown, D.H. and Wood, I. 2016 *A standard for pottery studies in archaeology* https://medievalpottery.org.uk/wp-content/uploads/2019/12/A-Standard-for-Pottery-Studies-in-Archaeology.pdf (accessed 27 March 2026)

Barclay, A.J., Bayliss, A., Bronk Ramsey, C., Cleal, R., Cook, G., Healy, F., Higbee, L., Marshall, P., Pelling, R. and Stevens, C.J. 2018 *Dating the earliest Neolithic ceramics of Wessex* Portsmouth, Historic England Res. Rep. **63**

Barker, J. 2019 'A Roman crop-processing site at Campbell Park Canalside, Milton Keynes', *Rec. Buckinghamshire* **59**, 39–72

Barker, J., Boyer, P. and Brindle, T. 2023 'Neolithic and Bronze Age pits, and Middle-Late Iron Age and Roman settlement at Brixworth, Saxon Rise', *Northamptonshire Archaeol.* **42**, 245–71

Barnatt, J. 1994 'Excavation of a Bronze Age unenclosed cemetery, cairns and field boundaries at Eaglestone Flat, Curbar, Derbyshire, 1984, 1989–1990', *Proc. Prehist. Soc.* **60**, 287–370

Barnett, C. 2011 'Wood charcoal', in Barnett *et al.* 2011, 113–19

Barnett, C., McKinley, J.I., Stafford, E., Grimm, J.M. and Stevens, C.J. 2011 *Settling the Ebbsfleet Valley, High Speed 1 excavations at Springhead and Northfleet, Kent: the Late Iron Age, Roman, Saxon, and medieval landscape, vol. 3: Late Iron Age to Roman human remains and environmental reports* Oxford, Oxford Wessex Archaeology

Barrett, J. and Bradley, R. (eds) 1980 *Settlement and society in the British Later Bronze Age* Oxford, Brit. Archaeol. Rep. Brit. Ser. **83**

Barrett, J., Bradley, R. and Green, M. 1991 *Landscape, monuments and society: the prehistory of Cranborne Chase* Cambridge, Cambridge University Press

Beamish, M. 1998 'A Middle Iron Age site at Wanlip, Leicestershire', *Trans. Leicestershire Archaeol. Hist. Soc.* **72**, 1–91

Bell, M. 1990a *Brean Down: excavations 1983–87* Swindon, English Heritage, Archaeological Rep. **15**

Bell, M. 1990b 'Sedimentation rates in the primary fills of chalk-cut features', in Robinson (ed.) 1990, 237–48

Bendrey, R. 2010 'The horse', in O'Connor and Sykes (eds) 2010, 10–16

Bennett, D. 2008 *Timing and rate of skeletal maturation in horses* https://www.sportingpost.co.za/wp-content/uploads/2014/03/Deb-Bennetts-Ranger-Piece.pdf (accessed 27 March 2026)

Bennett, K.D. 1994 *Annotated catalogue of pollen and pteridophyte spore types of the British Isles* University of Cambridge, unpublished manuscript

Bennett, K.D., Whittington, G. and Edwards, K.J. 1994 'Recent plant nomenclatural changes and pollen morphology in the British Isles', *Quaternary Newsletter* **73**, 1–6

Benson D., Case, H. and Whittle, A. 2007 *Building memories: the Neolithic Cotswold long barrow at Ascott-under-Wychwood, Oxfordshire* Oxford, Oxbow

Bevan, L. 2015 'Iron Age flint assemblage', in Hughes and Woodward 2015, 94–5

Bewley, R. (ed.) 1998 *Lincolnshire's archaeology from the air* Society for Lincolnshire History and Archaeology/RCHME, Occasional Papers in Lincolnshire and Archaeology **11**

BGS (British Geological Survey) 2026a *BGS geology viewer* https://www.bgs.ac.uk/map-viewers/bgs-geology-viewer/ (accessed 20 January 2026)

BGS (British Geological Society) 2026b *BGS GeoIndex (onshore)* http://bgs.ac.uk/map-viewers/geoindex-onshore/ (accessed 16 January 2026)

BGS (British Geological Society) 2026c *The BGS lexicon of named rock units* https://webapps.bgs.ac.uk/lexicon/lexicon.cfm?pub=ODT (accessed 20 January 2026)

Biddulph, E., Brady, K., Ford, B. and Murry, P. 2010 'Roman settlement, pottery production and a cemetery in the Beam Valley, Dagenham', *Essex Archaeol. Hist.* **1**, 129–37

Bircher, J. 2003 'The metalwork', in Thomas and Enright 2003, 44–5

Blackmore, L. and Barham, L. 2023 'A newly discovered Anglo-Saxon bed burial at Harpole, Northamptonshire, England', *The European Archaeologist* **77, 58–66** https://www.e-a-a.org/EAA/EAA/News___Publications/TEA_77_content/Research_Overview.aspx#77_harpole (accessed 27 March 2026)

Blagg, T., Plouviez, J. and Tester, A. 2004 *Excavations at a large Romano-British settlement at Hacheston, Suffolk in 1973–4* E. Anglian Archaeol. **106**, Ipswich, Suffolk County Council Archaeological Service

Blinkhorn, P., Jackson, D. and Chapman, A. 2015 'The Iron Age pottery from The Long Dole', in Masefield *et al.* 2015, 44–7

Bliss, A.G. 2020 'Re-appraising and re-classifying: a new look at the corpus of miniature socketed axes from Britain', *Proc. Hampshire Field Club Archaeol. Soc.* **75**, 1–27

Boardman, S. 2023 'Appendix R: charcoal', in CA 2023, 184–95

Bouchard-Perron, J. 2019 *Raunds Area Project: assessment of the later prehistoric plant assemblages from the excavations at Stanwick (1984–1992)* Swindon, Historic England Res. Rep. Ser. No. **74/2019**

Boulter, S. 2022 *Living with monuments: excavations at Flixton volume II* E. Anglian Archaeol. **177**, Kemble, Cotswold Archaeology

Boutwood, Y. 1998 'Prehistoric linear boundaries in Lincolnshire and its fringes', in Bewley (ed.) 1998, 29–46

Bradley, P. 2007 SS1.4 'The long barrow', in Harding and Healy 2007, 65–91

Bradley, R. 1981 'Various styles of urn–cemeteries and settlement in southern England circa 1400–1000 BC', in Chapman *et al.* (eds) 1981, 93–104

Bradley, R. 2007 *The prehistory of Britain and Ireland* Cambridge, Cambridge University Press

Brailsford, J.W. 1962 *Hod Hill volume one: antiquities from Hod Hill in the Durden collection* London, British Museum

Brickley, M. and McKinley, J. (eds) 2004 *Guidelines to the standards for recording of human remains* Reading, BABAO/Institute of Field Archaeologists Paper No. **7**

Bridge, J. 1791 *History and antiquities of Northamptonshire* London, T. Payne

Bronk Ramsey, C. 1995 'Radiocarbon calibration and analysis of stratigraphy: the OxCal program', *Radiocarbon* **37**, 425–30

Bronk Ramsey, C. 1998 'Probability and dating', *Radiocarbon* **40**, 461–74

Bronk Ramsey, C. 2001 'Development of the radiocarbon calibration program', *Radiocarbon* **43**, 355–63

Bronk Ramsey, C. 2009 'Bayesian analysis of radiocarbon dates', *Radiocarbon* **51 (1)**, 337–60

Bronk Ramsey, C. 2021 *University of Oxford radiocarbon accelerator unit calibration programme OxCal v4.4.4* https://c14.arch.ox.ac.uk/oxcal.html (accessed 4 March 2026)

Brooks, S. and Suchey, J.M. 1990 'Skeletal age determination based on the os pubis: a comparison of the Acsádi-Nemeskéri and Suchey-Brooks method', *Human Evolution* **5**, 227–38

Brown, A.G. and Edmonds, M.R. (eds) 1987 *Lithic analysis and later British prehistory: some problems and approaches* Reading Studies in Archaeology No. **2,** Oxford, Brit. Archaeol. Rep. Brit. Ser. **162**

Brown, A.G. and Meadows, I.D. 1997 'Environmental analysis of a Neolithic/Early Bronze Age palaeochannel of the River Nene at Turnells Mill Lane, Wellingborough, Northamptonshire', *Northamptonshire Archaeology* **27**, 185–91 https://doi.org/10.5284/1083263 (accessed 27 March 2026)

Brown, J. 2019 'The Brumut Hills: two Neolithic long barrows near Flore', *Northamptonshire Archaeol.* **40**, 5–31

Brown, T. and Foard, G. 2006 'The Anglo-Saxon period', in Tingle (ed.) 2006, 78–101

Brück, J. 1999 'Houses, lifecycles and deposition on Middle Bronze Age settlements in southern England', *Proc. Prehist. Soc.* **65**, 145–77

Brück, J. 2001a 'Body metaphors and technologies of transformation in the English Middle and Late Bronze Age', in Brück (ed.) 2001b, 149–60

Brück, J. (ed.) 2001b *Bronze Age landscapes: tradition and transformation* Oxford, Oxbow Books

Brück, J. 2006 'Fragmentation, personhood and the social construction of technology in Middle and Late Bronze Age Britain', *Cambridge Archaeol. J.* **16 (3)**, 297–315

Brück, J. and Booth, T.J. 2022 'The power of relics: the curation of human bone in British Bronze Age burials', *European J. Archaeol.* **25 (4)**, 440–62

Brudenell, M. 2016 'Later Iron Age pottery', in Evans *et al.* 2016, 524–30

Brundle, L. 2022 PAS record for LIN-BAB90B, 'Copper-alloy Middle Bronze Age barbed-and-tanged arrowhead from near Horncastle, Lincs' https://finds.org.uk/database/artefacts/record/id/1043032 (accessed 27 March 2026)

Butler, A. 2008 *Geophysical surveys at Barn Close and Harpit, Harpole, January 2006–December 2007* Northamptonshire Archaeology Report No. **08/70**

Butler, C. 2005 *Prehistoric flintwork* Stroud, Tempus

CA (Cotswold Archaeology) 2012 *The taking and processing of environmental and other samples from archaeological sites: technical manual No.* **2**

CA (Cotswold Archaeology) 2016a *Northampton West, Northamptonshire: heritage desk-based assessment* CA Report No. **16214**

CA (Cotswold Archaeology) 2016b *Land west of Northampton, Northamptonshire: archaeological evaluation* CA Report No. **162564**

CA (Cotswold Archaeology) 2016c *Peters Road, Locks Heath, Fareham, Hampshire: updated archaeological excavation report* CA Report No. **14411**

CA (Cotswold Archaeology) 2017a *Sandy Lane improvement north, Northampton: excavation report* CA Report No. **17479**

CA (Cotswold Archaeology) 2017b *Land east of Northampton Road (Saxon Rise I) Brixworth Northamptonshire excavation report* CA Report No. **17232**

CA (Cotswold Archaeology) 2017c *Land north of Roman Way, Bourton-on-the-Water, Gloucestershire: archaeological excavation* CA Report No. **16416**

CA (Cotswold Archaeology) 2023 *Saxon Rise 2, Northampton Road, Brixworth Northamptonshire: archaeological excavation* CA Report No. **669047_1**

CA (Cotswold Archaeology) 2022a *Land west of Northampton, Northamptonshire: written scheme of investigation for an archaeological excavation*

CA (Cotswold Archaeology) 2022b *Dallington Grange, Northampton: archaeological evaluation* CA Report No. **MK0495_3**

CA (Cotswold Archaeology) 2023 *Rugby Southern Urban Extension (SUE) and Dollman Farm Phase 2, Key Phase 1, Rugby, Warwickshire: archaeological excavation* CA Report No. **MK0819_1**

CA (Cotswold Archaeology) 2024 *Land west of Northampton, Northamptonshire: post-excavation assessment and updated project design* CA Report No. **MK0783_1**

Calkin, J.B. 1962 'The Bournemouth area in the Middle and Late Bronze Age, with the 'Deverel-Rimbury' problem reconsidered', *Archaeol. J.* **119**, 1–91

Callou, C. 1997 'Diagnose differentielle des principaux elements squelettiques du lapin (rabbit) et du lievre (hare) en Europe occidentale', *Fiches d'Osteologie Animale pour l'Archeologie Serie B* **8**, 3–23

Campbell, G. 2007 'Cremation deposits and the use of wood in cremation ritual', in Harding and Healy 2007, 30–3

Campbell, G. and Robinson, M. 2007 'SS4.1 introduction', in Harding and Healy 2007, 602–11

Cappers, R.T.J., Bekker, R.M. and Jans, J.E.A. 2006 *Digital seed atlas of the Netherlands* Groningen, Barkhuis Publishing and Groningen University Library

Carlyle, S. 2010 'An Iron Age pit alignment near Upton, Northampton', *Northamptonshire Archaeol.* **36**, 75–87

Carreck, N. 2008 'Are honey bees (Apis mellifera L.) native to the British Isles?', *J. Apicultural Res. and Bee World* **47(4),** 318–22

Carroll, E. 2019 'Burning by numbers: cremation and cultural transitions in Late Iron Age and Roman Britain (100BC–AD410)', Reading, PhD thesis, University of Reading

Carruthers, W. 2007 'Charred plant remains', in Mudd 2007, 147–59

Carruthers, W.C. and Hunter Dowse, K.L. 2019 *A review of macroscopic plant remains from the Midland counties* Historic England Res. Rep. Ser. **47/2019**

Caswell, E. and Roberts, B.W. 2018 'Reassessing community cemeteries: cremation burials in Britain during the Middle Bronze Age (*c.* 1600–1150 cal BC)', *Proc. Prehist. Soc.* **84**, 329–57

Cayless, S.M. and Tipping, R.M. 2002 'Data on mid-Holocene climatic, vegetation and anthropogenic interactions at Stanshiel Rig, southern Scotland', *Vegetation Hist. and Archaeobotany* **11 (3)**, 201–10

Chadwick, A.M. (ed.) 2008 *Recent approaches to the archaeology of land allotment* Brit. Archaeol. Rep. Int. Ser. **1875**, Oxford, Archaeopress Archaeology

Challinor, D. 2006 *The wood charcoal from Pepper Hill, Northfleet, Kent* CTRL specialist report series

Challinor, D. 2009 'The wood charcoal', in Lawrence and Smith 2009**,** 309–11

Challinor, D. 2017a 'Wood charcoal', in CA 2017a, 63–5

Challinor, D. 2017b 'Charcoal', in CA 2017c, 50–2

Challinor, D. 2019 'Charcoal', in Luke and Barker 2019, 110–14

Challinor, D. 2020 'Wood charcoal', in Allen Archaeology 2020, 43–9

Challinor, D. 2022a 'Charcoal', in Luke and Guy 2022, 63–5

Challinor, D. 2022b 'Charcoal', in Luke and Barker 2022a, 87–9

Challinor, D. 2022c 'Wood charcoal from the Romano-British lime kiln and a Middle Bronze Age pit from Land at Whitehill, Newton Abbott, Devon (ACD1842)', Unpublished client report

Champion, T.C. and Collis, J.R. 1996 *The Iron Age in Britain and Ireland: recent trends* Sheffield, Sheffield Academic Press

Chapman, A. 2000 *An archaeological resource assessment of the Neolithic and Bronze Age in Northamptonshire* Leicester, University of Leicester Archaeological Services (ULAS)

Chapman, A. 2001 'Excavation of an Iron Age settlement and a Middle Saxon cemetery at Great Houghton, Northampton, 1996', *Northamptonshire Archaeol.* **29**, 1–41 https://doi.org/10.5284/1083290 (accessed 27 March 2026)

Chapman, A. 2004 'The monument builders: the Neolithic and Bronze Ages (4500 BC–1000 BC)', in Tingle 2004, 25–43

Chapman, A. 2010 'The saddle quern', in Walker and Maull 2010, 18–21

Chapman, A. 2015a 'Chapter 4: Iron Age, Roman and Anglo-Saxon settlement at the Lodge', in Masefield *et al.* 2015, 114–66

Chapman, A. 2015b 'Iron Age settlement at the Long Dole', in Masefield *et al.* 2015, 13–60

Chapman, A. 2015c 'Chronology', in Masefield *et al.* 2015, 45–6

Chapman, A. 2016 'The Iron Age pottery', in Muldowney 2016, 27–32

Chapman, A. 2017a 'Loomweights', in Reid 2017, 112–13

Chapman, A. 2017b 'Other finds', in Chapman *et al.* (eds) 2017, 58–61

Chapman, A. 2019a 'Flint deposition in the vicinity of the Dallington Neolithic causewayed enclosure, Northampton', *Northamptonshire Archaeol.* **39**, 33–45

Chapman, A. 2019b 'The querns and rubbing stones', in Markus and Morris 2019, 63–6

Chapman, A. 2023 'Understanding Middle Iron Age settlement: an Iron Age pottery chronology and the introduction of the rotary quern', *Northamptonshire Archaeol.* **42**, 67–124

Chapman, A. and Chapman, P. 2015 'Other Iron Age finds from the Long Dole', in Masefield *et al.* 2015, 48–9

Chapman, A. and Jackson, D. 2023 'A review of the structure and date of the Iron Age hillfort rampart on Hunsbury Haill, Northampton', *Northamptonshire Archaeol.* **42**, 55–66

Chapman, A., Clarke, J. and Foard, A. 2017 'A Bronze Age and Early Iron Age landscape at Harlestone Quarry, Northampton', *Northamptonshire Archaeol.* **39**, 37–67

Chapman, R. Randsborg, K. and Kinnes, I 1981 'The archaeology of death' Cambridge, Cambridge University Press

Chinnock, C. 2023 'Human bone', in Morris 2023, 179–80

Chinnock, C. 2024 *An Iron Age settlement and Roman complex farmstead at Brackmills, Northampton* London, Archaeopress Archaeology

Chinnock, C. and Muldowney, M. 2016 *Archaeological mitigation at Dallington Gateway, Harlestone Road, Northampton August to October 2014* MOLA Report No **16/6**

Christie, C. and Bain, K. 2023 'A Middle–Late Iron Age settlement at Hampton Drive, King's Sutton', *Northamptonhsire Archaeol.* **42**, 273–88

Ciaraldi, M. 2006 'The plant economy', in Jones *et al.* 2006, 194–212

CIfA (Chartered Institute for Archaeologists) 2021 *Toolkit for specialist reporting.* https://www.archaeologists.net/work/toolkits/specialist-reporting/introduction (accessed 27 March 2026)

Claeys, J., Van de Vijver, K., Marinova, E., Cleymans, S., Degryse, P. and Poblome, J. 2023 'Magical practices? A non-normative Roman imperial cremation at Sagalassos', *Antiquity* **97 (391)**, 158–75

Clark, J., Cotton, J., Hall, J., Sherris, R. and Swain, H. (eds) 2008 *Londinium and beyond, essays on Roman London and its hinterland for Harvey Sheldon* York, Counc. Brit. Archaeol. Res. Rep. **156**

Clason, A.T. (ed.) 1975 *Archaeozoological studies* Amsterdam, North Holland/Elsevier

Clay, P. 2002 *Aspects of settlement and land-use from the Mesolithic to the Iron Age in Central England* University of Leicester, School of Archaeology and Ancient History

Clay, P. 2026 Neolithic and Early to Middle Bronze Age. https://researchframeworks.org/emherf/regional-overview/neolithic-and-early-to-middle-bronze-age/ (accessed 27 March 2026)

Clutton Brock, J. 1999 *A natural history of domesticated mammals* London, Natural History Museum

Cobain, S.L. 2015 'Charred plant macrofossils and charcoal', in Hart and Mudd 2015, 213–17

Cobain, S.L. 2017 'The plant macrofossils and charcoal', in Mudd *et al.* 2017, 94–7

Cole, G., Ditchfield, P.W., Dulias, K., Edwards, C.J., Reynolds, A. and Waldron, T. 2020 'Summary justice or the king's will? The first case of formal facial mutilation from Anglo-Saxon England', *Antiquity* **94 (377)**,1263–77

Colledge, S. and Conolly, J. 2007 *The origin and spread of domestic plants in Southwest Asia and Europe* University College London Institute of Archaeology Publications

Conneller, C., Little, A., Garcia-Diaz, V. and Croft, S. 2018 'The worked flint', in Milner *et al.* (eds) 2018, 493–534

Cooper, L. and Humphrey, J. 1998 'The lithics', in Beamish 1998, 63–74

Cooper, N.J. (ed.) 2006 *The archaeology of the East Midlands: an archaeological resource assessment and research agenda* Leicester Archaeology Monograph **13**

Copley, M.S., Berstan, R., Dudd, S.N., Docherty, G., Mukherjee, A.J., Straker, V., Payne, S. and Evershed, R.P. 2003 'Direct chemical evidence for widespread dairying in prehistoric Britain', *Proc. National Acad. of Sci. United States of America* **100**, 1524–9

Corcoran, J.X.W.P., Lunt, D.A. and Denston, C.B. 1967 'Excavation of three chambered cairns at Lock Calder, Caithness', *Proc. Soc. Antiq. Scot*. **98**, 1–75

Correa-Ascencio, M. and Evershed, R.P. 2014 'High throughput screening of organic residues in archaeological potsherds using direct methanolic acid extraction', *Analytical Methods* **6**, 1330–40

Courtney, P. 2026 'Post-medieval period' https://research-frameworks.org/emherf/regional-overview/post-medieval-period/# (accessed 27 March 2026)

Cox, M. and Mays, S. (eds) 2000 *Human osteology in archaeology and forensic science* London, Greenwich Medical Media Ltd

Crabtree, K. 1990 ' Experimental earthworks in the United Kingdom', in Robinson (ed.) 1990, 225–36

Crawford, O.G.S. and Wheeler, M. 1921 'The Llynfawr and other hoards of the Bronze Age,' *Archaeologia* **71**, 133–40

Crummy, N. 1983 *Colchester archaeological report 2: the Roman small finds from excavations in Colchester, 1971–9* Colchester, Colchester Archaeological Trust

Crummy, N. 2018 'Spindlewhorls', in Hinman and Zant (eds) 2018, 187–8

Cummings, V. 2017 *The Neolithic of Britain and Ireland* London, Routledge

Cummings, V. and Harris, O. 2011 'Animals, people and places: the continuity of hunting and gathering practices across the Mesolithic-Neolithic transition in Britain', *European J. Archaeol*. **14 (3)**, 361–82

Current Archaeology 2020 *Romano-Celtic villa: a temple-mausoleum and evidence of industry at Priors Hall, Corby* https://the-past.com/feature/romano-celtic-villa-a-temple-mausoleum-and-evidence-of-industry-at-priors-hall-corby/ (accessed 27 March 2026)

Current Archaeology 2023 *Return to Priors Hall: exploring a Roman villa estate near Corby* https://the-past.com/feature/return-to-priors-hall-exploring-a-roman-villa-estate-near-corby/ (accessed 27 March 2026)

Cunliffe, B. 1984a *Danebury, an Iron Age hillfort in Hampshire vol. 1: the excavations 1969–1978: the site* York, Counc. Brit. Archaeol. research report **52a**

Cunliffe, B. 1984b *Danebury, an Iron Age hillfort in Hampshire vol. 2: the excavations 1969–1978: the finds* York, Counc. Brit. Archaeol. research report **52b**

Cunliffe, B. 1991 *Iron Age communities in Britain* (3rd edition) London, Routledge

Cunliffe, B. 1995 *Danebury: an Iron Age hillfort in Hampshire, vol. 6: a hillfort community in perspective* London, Counc. Brit. Archaeol. Res. Rep. **102**

Cunliffe, B. 2005 *Iron Age communities in Britain* (4th edition) London, Routledge

Cunliffe, B. 2009 *Iron Age communities in Britain: an account of England Scotland and Wales from the seventh century BC until the Roman Conquest* London, Routledge

Cunliffe, B. and Miles, D. (eds) 1984 *Aspects of the Iron Age in central southern Britain* Oxford, Oxford University Committee for Archaeology Monograph **16**

Cunliffe, B. and Poole, C. 1991 *Danebury, an Iron Age hillfort in Hampshire vol. 5: the excavations 1979–1988: the finds* York, Counc. Brit. Archaeol. Res. Rep. **73**

Cunliffe, B. and Rowley, T. 1978 *Iron Age communities in Europe* Oxford, Brit. Archaeol. Rep. Int. Ser. **S-48**

Cunnington, M. 1923 *The Early Iron Age inhabited site at All Cannings Cross Farm, Wiltshire* Devizes, George Simpson and Co.

Cunnington, M. 1926 'Bronze arrow-head from Wilts', *Antiq. J*. **6**, 182

Dalby, A. 2003 *Food in the ancient world from A to Z* London, Routledge

Darvill, T. 2009 *Prehistoric Britain* Abingdon, Routledge

Davey, N. 1961 *A history of building materials* London, Phoenix House

Davies, P. 2008 *Snails, archaeology and landscape change* Oxford, Oxbow Books

Davis, S. 2000 'The effect of castration and age on the development of the shetland sheep skeleton and a metric comparison between bones', *J. Archaeol. Sci.* **27(5)**, 373–90

Davis, S., Gonçalves, M. and Gabriel, S. 2008 'Animal remains from a Moslem period (12th/13th century AD) lixeira (garbage dump) in Silves, Algarve, Portugal', *Revista Portuguesa de Arqueologia* **11(1)**, 183–258

Dawson, M. 2005 *An Iron Age settlement at Salford, Bedfordshire* Bedfordshire Archaeology Monograph **6**, Bedford, Bedfordshire County Council

Deák, J., Gebhardt, A. Lewis, H., Usai, M.R. and Lee, H. 2017 'Soil disturbed by vegetation clearance and tillage', in Nicosia and Stoops (eds) 2017, 233264

Deegan, A. 2008a 'Monuments and landscapes in the Neolithic and Bronze Age', in Deegan and Foard 2008, 45–77

Deegan, A. 2008b 'Late Bronze Age, Iron Age and Roman settlements and landscapes', in Deegan and Foard 2008, 81–124

Deegan, A. and Foard, G. 2008 *Mapping ancient landscapes in Northamptonshire* Swindon, English Heritage

Deighton, K. 2018 'The human bone', in Preece 2018, 53–4

Dix, B. 1979 'Roman lime-burning', *Britannia* **10**, 261–2

Dix, B. 1982 'The manufacture of lime and its uses in the western Roman provinces', *Oxford J. Archaeol.* **1(3)**, 331–45

Dobney, K. and Ervynck, A. 2007 'To fish or not to fish? Evidence for the possible avoidance of fish consumption', in Haselgrove and Moore (eds) 2007, 403–18

Drewett, P. (ed.) 1978 *Archaeology in Sussex to AD 1500* London, Counc. Brit. Archaeol. Res. Rep. **29**

Drewett, P. 1982 'Later Bronze Age downland economy and excavations at Black Patch, East Sussex', *Proc. Prehist. Soc.* **48**, 382–90

Druce, D. and Cook, S. 2020 'Charcoal', in Allen and Poole 2020, 64–7

Dunbar, E., Cook, G.T., Naysmith, P., Tripney, B.G. and Xu, S. 2016 'AMS ^{14}C dating at the Scottish Universities Environmental Research Centre (SUERC) Radiocarbon Dating Laboratory', *Radiocarbon* **58**, 9–23

Duncan, H. 2021 'Other artefacts', in Leslie 2021, 64–102

Duncan, H.B. and Mackreth, D.F. 2005 'Registered and non-ceramic bulk artefacts', in Dawson 2005, 125–34

Dungworth, D. 1998 'Mystifying Roman nails: *clavus annali*, *defixiones* and *minkisi', Theoretical Roman Archaeol. J.* **1997**, 148–59

Dunlop, J.M. 2004 'Cremation of body parts and fetuses', *J. Obstetrics and Gynaecology* **24 (4)**, 341–2

Dunne, J., Evershed, R.P., Salque, M., Cramp, L.J.E., Bruni, S., Ryan, K., Biagetti, S. and Di Lernia, S. 2012 'First dairying in green Saharan Africa in the fifth millennium BC', *Nature* **486**, 390–4

Dyson, G. 2014 'Kings, peasants, and the restless dead: decapitations in Anglo-Saxon saints' lives', *Retrospectives* **3 (1)**

Edlin, H.L. 1949 *Woodland crafts in Britain: an account of the traditional uses of trees and timbers in the British countryside* London, Batsford

Eglinton, G. and Hamilton, R.J. 1967 'Leaf epicuticular waxes: the waxy outer surfaces of most plants display a wide diversity of fine structure and chemical constituents', *Science* **156**, 1322–35

Eisenmann, V. 1986 'Comparative osteology of modern and fossil horses, half-asses, and asses', in Meadow and Uerpmann (eds) 1986, 67–116

Ellis, C., Davies, A. and Hayden, C. 2024 *Early Thame: archaeological investigations at Oxford Road, Thame, Oxfordshire 2015, volume 1: the Early Neolithic and Iron Age* Oxford Cotswold Archaeology Monograph **1**

Ellis, P. and King, R. 2015 'Crick Hotel', in Masefield *et al.* 2015, 61–113

Ellison, A. 1980 'Deverel-Rimbury urn cemeteries: the evidence for social organisation', in Barrett and Bradley (eds) 1980, 115–26

Ellison, A. and Drewett, P. 1971 'Pits and post-holes in the British Early Iron Age: some alternative explanations', *Proc. Prehist. Soc.* **37**, 183–94

EPNS (English Place Name Society) 2026a *Key to English place-names, Harpole* kepn.nottingham.ac.uk (accessed 27 March 2026)

EPNS (English Place Name Society) 2026b *Key to English place-names, Harlestone* kepn.nottingham.ac.uk (accessed 27 March 2026)

EPNS (English Place Name Society) 2026c *English place-names, Harpole* https://sepn.nottingham.ac.uk/view-only/data/placenames/?place_name=Harpole (accessed 27 March 2026)

Evans, C., Tabor, J. and Van Linden, M. 2016 *Twice crossed river: prehistoric and palaeoenvironmental investigations at Barleycroft Farm, Over, Cambridgeshire (The Archaeology of the Lower Ouse Valley/volume III)* Cambridge, McDonald Institute Monograph

Evans, D.H. and Loveluck, C. (eds) 2009 *Life and economy at early medieval Flixborough, c. AD 600–1000: the artefact evidence* Oxford, Oxbow Books

Evershed, R.P. 2008 'Experimental approaches to the interpretation of absorbed organic residues in archaeological ceramics', *World Archaeol.* **40**, 26–47

Evershed, R.P., Heron, C. and Goad, L.J. 1990 'Analysis of organic residues of archaeological origin by high-temperature gas chromatography and gas chromatography-mass spectrometry', *The Analyst* **115**, 1339–42

Evershed, R.P., Heron, C.P., Charters, S., Goad, L.J. 1992 'The survival of food residues: new methods of analysis, interpretation and application', *Proc. Brit. Acad.* **77**, 187–208

Fairbairn, A.S. (ed.) 2000 *Plants in Neolithic Britain and beyond* Oxford, Neolithic Studies Group Seminar Papers **5**

Farley, J. 2011 'The deposition of miniature weaponry in Iron Age Lincolnshire', *Pallas Revue d'Etudes Antiques* **86**, 97–121

Fell, C.I. 1936 'The Hunsbury hill-fort, Northants: a new survey of material', *Archaeol. J.* **93**, 57–100

Ferembach, D., Schwidetzky, I. and Stloukal, M. 1980 'Recommendations for age and sex diagnoses of skeletons', *J. Human Evolution* **9**, 517–49

Ferris, N. 1986 'Buttons I have known', in Fox 1986, 98–106

Finn, N. 2011 *Bronze Age ceremonial enclosures and cremation cemetery at Eye Kettleby, Leicestershire* Leicester, Leicester Archaeology Monograph No. **20**

Fisher, I. 2003 *A geophysical survey at Harpole, Northamptonshire, April 2003* Northamptonshire Archaeology Report No. **08/70**

Fisiak, J. (ed.) 1995 *Medieval Dialectology* Berlin, Mouton de Gruyter

Fitzpatrick, A.P. 1997 *Archaeological excavations on the route of the A27 Westhampnett Bypass, West Sussex, 1992* Wessex Archaeology Report **12**, Salisbury, Trust for Wessex Archaeology

Foard, G. 2000a *An archaeological resource assessment of Anglo-Saxon Northamptonshire (400–1066)* Leicester, University of Leicester Archaeological Services

Foard, G. 2000b *An archaeological resource assessment of Medieval Northamptonshire* Leicester, University of Leicester Archaeological Services

Foard, G. 2004 'Medieval Northamptonshire', in Tingle (ed.) 2004, 102–33

Foard-Colby, A. and Walker, C. 2010 'Iron Age settlement and medieval features at Quinton House School, Upton, Northampton', *Northamptonshire Archaeol.* **36**, 53–73

Fock, J. 1966 *Metrische Untersuchungen an Metapodien einiger europaeschen Rinderrassen Munich*, unpublished dissertation

Fokkens, H. and Harding, A. (eds) 2013 *The Oxford handbook of the European Bronze Age* Oxford, Oxford University Press

Ford, S. 1987 'Chronological and functional aspects of flint assemblages', in Brown and Edmonds (eds) 1987, 67–85

Foster, P.J. 1999 'Late Iron Age/Early Roman Northamptonshire: a study in the use of ceramic analysis to investigate social, economic and landscape changes', *Northamptonshire Archaeol.* **28**, 129–35

Foster, P.J., Harper, R. and Watkins, S. 1977 'An Iron Age and Romano-British settlement at Hardwick Park, Wellingborough, Northamptonshire', *Northamptonshire Archaeol.* **12**, 55–96

Foster, S. 2008 'Religion and the landscape: how the conversion affected the Anglo-Saxon landscape and its role in Anglo-Saxon ideology', *School of Historical Studies Postgraduate Forum E-Journal edition* **6**

Foundations Archaeology 2000 *Latimer Park, Burton Latimer, Northamptonshire: archaeological excavation*

Fox, W. (ed.) 1986 *Studies in southwestern Ontario archaeology* OAS occasional publication no. **1**, London, Ontario Archaeological Society

Fryer, V. 2010 'The charred plant remains', in Walker and Maull 2010, 45–7

Gale, R. 1997 'Charcoal', in Fitzpatrick 1997, 253

Gale, R. 2000 'Charcoal', in Guttmann and Last 2000, 319–59

Gale, R. and Cutler, D. 2000 *Plants in archaeology: identification manual of vegetative plant materials used in Europe and the southern Mediterranean to c. 1500* London, Kew Royal Botanic Gardens

Garland, N. Banks, P. and Stansbie, D. 2019 'A later prehistoric landscape at Sandy Lane, Northampton', *Northamptonshire Archaeol.* **40**, 77–86

Garwood, P. 2011 'Chapter 15: Making the dead', in Hey *et al.* 2011, 383–432

Gelling, M. 1988 *Signposts to the past* (2nd edition) Chichester Phillimore and Co. Ltd.

Gent, H. 1983 'Centralised storage in later prehistoric Britain', *Proc. Prehist. Soc.* **49**, 243–68

Gibson, A.M. (ed.) 1989 *Midlands prehistory* Oxford, Brit. Archaeol. Rep. Brit. Ser. **204**

Gibson, A. 2003 *Prehistoric pottery: people, pattern and purpose* Oxford, Brit. Archaeol. Rep. Int. Ser. **1156**

Gibson, A. 2024 *British pottery: the first 3000 years, ceramic art in the Neolithic and Early Bronze Age* Oxford, Oxbow Books

Godwin, H. 1984 *History of the British flora* (2nd edition) Cambridge, Cambridge University Press

Goldberg, P., Macphail, R.I, Carey, C. and Zhung, Y. 2022 *Practical and theoretical geoarchaeology* Hoboken, Wiley Blackwell

Grant, A. 1982 'The use of toothwear as a guide to the age of domestic ungulates', in Wilson *et al.* (eds) 1982, 91–108

Green, S.H. 1980 *The flint arrowheads of the British Isles* Oxford, Brit. Archaeol. Rep. Brit. Ser. **75**

Greenfield, H. 2006 'Sexing fragmentary ungulate acetabulae', in Ruscillo (ed.) 2006, 68–86

Greig, J. 1991 'The British Isles', in van Zeist *et al.* (eds) 1991, 229–334

Griffiths, C.J. 2023 'Axes to axes: the chronology, distribution and composition of recent Bronze Age hoards from Britain and Northern Ireland', *Proc. Prehist. Soc.* **89**, 179–205

Grimes, W.F. 1939 *Guide to the collection illustrating the prehistory of Wales* Cardiff, National Museum of Wales

Gronenborn, D. 2009 'Climate fluctuations and trajectories to complexity in the Neolithic: towards a theory', *Documenta Praehistorica* **36**, 97–110

Groot, M. 2018 'Animals and animal husbandry', in Haselgrove *et al.* (eds) 2018, 675–92

Grundy, G.B. 1919 'The Saxon land charters of Wiltshire (1st series)' *Archaeol. J.* **76**, 143–301

GSB (GSB Prospection Ltd) 2007 *The Robson Land, Radstone Fields, Northamptonshire: geophysical survey* GSB Prospection Ltd Report No. **G2007/37**

GSB (GSB Prospection Ltd) 2016 *Northampton west: geophysical survey report* GSB Prospection Ltd Report no. **G1641**

Guarino, P. and Barclay, A.J. 2023 *In the shadow of Segsbury: the archaeology of the H380 Childrey Warren water pipeline Oxfordshire, 2018–2020* Cirencester, Cotswold Archaeology Monograph **16**

Guttmann, E.B.A. and Last, J. 2000 'A Late Bronze Age landscape at South Hornchurch, Essex', *Proc. Prehist. Soc.* **66**, 319–59

Hall, D. 1985 'Survey work in eastern England', in Macready and Thompson (eds) 1985, 25-44

Hall, D. 1995 *The open fields of Northamptonshire* Northampton, Northamptonshire Record Society **38**

Hall, D. 2004 'Post-medieval Northamptonshire', in Tingle (ed.) 2004, 134–48

Hall, D. 2013 'Open fields', in Partida *et al.* 2013, 32–50

Halmemies-Beauchet-Filleau, A., Vanhatalo, A., Toivonen, V., Heikkilä, T., Lee, M. and Shingfield, K. 2013 'Effect of replacing grass silage with red clover silage on ruminal lipid metabolism in lactating cows fed diets containing a 60: 40 forage-to-concentrate ratio', *J. Dairy Sci.* **96**, 5882–900

Halmemies-Beauchet-Filleau, A., Vanhatalo, A., Toivonen, V., Heikkilä, T., Lee, M. and Shingfield, K. 2014 'Effect of replacing grass silage with red clover silage on nutrient digestion, nitrogen metabolism, and milk fat composition in lactating cows fed diets containing

a 60: 40 forage-to-concentrate ratio', *J. of Dairy Sci.* **97**, 3761–76

Halstead, P. 1985 'A study of mandibular teeth from Romano-British contexts at Maxey', in Pryor and French (eds) 1985, 219–24

Hambleton, E. 2008 *Review of Middle Bronze Age–Late Iron Age faunal assemblages from Southern Britain* Wiltshire, English Heritage Res. Dep. Rep. Ser.

Hambleton, E. 2010 *Review of Middle Bronze Age and Late Iron Age faunal assemblages from southern Britain* English Heritage Res. Dep. Rep. Ser. **71-2008**

Hamerow, H., Hinton, D.A. and Crawford, S. 2011 *The Oxford handbook of Anglo-Saxon archaeology* Oxford, Oxford University Press

Hamilton, D. and Kenney, J. 2015 Multiple Bayesian modelling approaches to a suite of radiocarbon dates from ovens excavated at Ysgol yr Hendre, Caernarfon, North Wales *Quaternary Geochronology* **25**, 72–82

Hammann, S., Scurr, D.J., Alexander, M.R., Cramp, L.J.E. 2020 'Mechanisms of lipid preservation in archaeological clay ceramics revealed by mass spectrometry imaging,' *Proc. National Acad. of Sci. United States of America* **117**, 14688–93

Hammon, A. 2015 'Animal bone', in Hughes and Woodward 2015, 72–6

Harcourt, R. 1974 'The dog in prehistoric and early historic Britain', *J. Archaeol. Sci.* **1**, 151–75

Harding, D.W. 2013 *The Iron Age round-house: later prehistoric building in Britain and beyond* Oxford, Oxford University Press

Harding, D. 2016 *Death and burial in Iron Age Britain* Oxford, Oxford University Press

Harding, J. and Healy, F. 2007 *The Raunds area project: a Neolithic and Bronze Age landscape in Northamptonshire* Swindon, English Heritage

Hardy, A. and Charles, B.M. 2007 *Death and taxes: the archaeology of a Middle Saxon estate centre at Higham Ferrers, Northamptonshire* Oxford, Oxford Archaeology Monograph **4**

Hart, J. and Mudd, A. 2015 'Nortoft Lane, Kilsby', in Masefield *et al*. 2015, 165–242

Harvey, J. and Speed, G. 2020 *Archaeological excavations at Pineham North (Residential Area), Upton, Northampton: assessment report and updated project design* University of Leicester Archaeological Services Report No. **2016/112**

Haselgrove, C.C. and Moore, T. (eds) 2007 *The Later Iron Age in Britain and beyond* Oxford, Oxbow Books

Haselgrove, C. and Pope, R. (eds) 2007 *The Earlier Iron Age in Britain and the near continent* Oxford, Oxbow Books

Haselgrove, C., Rebay-Salisbury, K. and Wells, P.S. (eds) 2018 *The Oxford handbook of the European Iron Age* Oxford, Oxford University Press

Hather, J.G. 2000 *The identification of Northern European woods: a guide for archaeologists and conservators* London, Archetype Publications

Havis, R. and Brooks, H. 2004 *Excavations at Stansted Airport, 1986–91 volume 1: Prehistoric and Romano-British* E. Anglian Archaeol. **107**, Chelmsford, Essex County Council

HE (Historic England) 2015a *Geoarchaeology: using earth sciences to understand the archaeological record* Swindon, Historic England

HE (Historic England) 2018 *Pre-industrial lime kilns: introductions to heritage assets* Swindon, Historic England

Healy, F., Harding, J. and Bayliss, A. 2007 'The development of the monuments', in Harding and Healy 2007, 37–198

Hey, G., Garwood, P., Robinson, M., Barclay, A. and Bradley, P. 2011 *The archaeology of the gravel terraces of the Upper and Middle Thames: early prehistory to 1500 BC, part 2, Mesolithic to Early Bronze Age* Oxford, Thames Valley Landscapes Monograph No. **32**

Higham, N.J. and Ryan, M.J. (eds) 2010 *The landscape archaeology of Anglo-Saxon England* Woodbridge, Boydell Press

Hill, J.D. 1995 *Ritual and rubbish in the Iron Age of Wessex: a study on the formation of a specific archaeological record* Oxford, Brit. Archaeol. Rep. Brit. Ser. **242**

Hill, J.D. 2002 'Just about the potter's wheel? Using, making and depositing Middle and Later Iron Age pots in East Anglia', in Woodward and Hill (eds) 2002, 143–60

Hillman, G.C. 1981 'Reconstructing crop husbandry practices from charred remains of crops', in Mercer (ed.) 1981, 123–62

Hillman, G.C. 1984 'Interpretation of archaeological plant remains: the application of ethnographic models from Turkey', in van Zeist and Casparie (eds) 1984, 1–41

Hingley, R. 1989 'Iron Age settlement and society in central and southern Warwickshire', in Gibson (ed.) 1989, 122–57

Hingley, R. 2006 T'he deposition of iron objects in Britain during the later prehistoric and Roman periods: contextual analysis and the significance of iron', *Britannia* **37**, 213–57

Hingley, R. 2009 'Esoteric knowledge? Ancient bronze artefacts from Iron Age contexts', *Proc. Prehist. Soc*. **75**, 143–65

Hinman, M. and Zant, J. 2018 *Conquering the claylands: excavations at Love's Farm, St Neots, Cambridgeshire* E. Anglian Archaeol. **165**

Hinton, P. 1982 'Carbonised seeds', in Drewett 1982, 382–90

Hoggett, R. 2007 'Charting conversion: burial as a barometer of belief?', in Semple and Williams (eds) 2007, 28–37

Holden, E.W. 1972 'A Bronze Age cemetery-barrow on Itford Hill, Beddingham, Sussex', *Sussex Archaeological Collections* **110**, 70–117

Holmes, M. 1992 *Northampton, north-west bypass: archaeological survey, stage 1* Northamptonshire Archaeology Unit

Holmes, M. and Chapman, P. 2005 'Iron Age settlement at Swan Valley Business Park, near Rothersthorpe, Northampton', *Northamptonshire Archaeol*. **33**, 19–46

Holst, M.K. 2013 'Burials', in Fokkens and Harding (eds) 2013, 102–20

Holton, R.J. 1984 *The transition from feudalism to capitalism* London, MacMillan Education

Hughes, G. and Woodward, A. 2015 *The Iron Age and Romano-British settlement at Crick Covert Farm: excavations 1997–1998*, DIRFT volume **1** London, Archaeopress Archaeology

Humble, J.L. 1985 'The worked flints', in Williams *et al*. 1985, 71–2

Humphrey, J. (ed.) 2003 *Re-Searching the Iron Age: selected papers from the IARSS Conference, 1999–2000* Leicester, University of Leicester

Hutchings, P. 2003 'Ritual and riverside settlement: a multi-period site at Princes Road, Dartford', *Archaeologia Cantiana* **123**, 736

Hylton, T. and Ridler, I. 2023 'Other finds from Foxhills', in Morris 2023, 125–94

Ingham, D. 2017 'A Middle Iron Age settlement at Banbury Lane, King's Sutton', *Northamptonshire Archaeol.* **39**, 69–84

Jacobi, R. 1978 'The Mesolithic of Sussex', in Drewett (ed.) 1978, 15–22

Jackson, D.A. 1975 'An Iron Age Site at Twywell, Northamptonshire' *Northamptonshire Archaeol.* **10**, 31–93

Jackson, D.A. 2010 *Dennis Jackson: a Northamptonshire archaeologist* Northampton, Northamptonshire Archaeological Society

Jackson, D.A., Biek, L. and Dix, B.F. 1973 'A Roman lime kiln at Weekley, Northants', *Britannia* **4**, 128–140

Jackson, D.A. and Dix, B. 1987 'Late Iron Age and Roman settlement at Weekley, Northants', *Northamptonshire Archaeol.* **21**, 41–93

Jackson, D.A. and Tylecote, R.F. 1988 'Two new Romano-British iron-working sites in Northamptonshire – a new type of furnace?' *Britannia* **19**, 275–98

Johnson, E.V. 2015 *A skeletal comparison of domestic dog (canis familiaris), red fox (vulpes vulpes), badger (meles meles) and domestic cat (felis catus)* https://ifeelitinmybones.wordpress.com/2015/09/24/a-skeletal-comparison-of-dog-fox-badger-and-cat/ (accessed 27 March 2026)

Johnson, E.V. 2016 *A skeletal comparison of selected small mammals*. https://ifeelitinmybones.wordpress.com/2016/01/12/small-mammal-skeletal-comparison/ (accessed 27 March 2026)

Johnstone, C. 2006 'Those elusive mules: investigating osteometric methods for their identification', in Mashkour (ed.) 2006, 183–91

Jones A.P., Trucker M.E. and Hart, J.K. 1999 *The description and analysis of quaternary stratigraphic field sections* Quaternary Technical Association Technical Guide No. **7**, London, Quaternary Research Association

Jones, G. 2006 'Tooth eruption and wear observed in live sheep from Butser Hill, the Cotswold Farm Park and five farms in the Pentland Hills, UK', in Ruscillo (ed.) 2006, 155–78

Jones, G.G. and Sadler, P. 2012 'Age at death in cattle: methods, older cattle and known-age reference material', *Environmental Archaeol.* **17**, 11–28

Jones, L., Woodward, A. and Buteux, S. 2006 *Iron Age, Roman and Saxon occupation at Grange Park: excavations at Courteenhall, Northamptonshire, 1999* Oxford, Brit. Archaeol. Rep. Brit. Ser. **425**

Karkanas, P.T. and Goldberg, P. 2019 *Reconstructing archaeological sites: understanding the geoarchaeological matrix* Oxford, Wiley

Keeley, L.H. 1980 *Experimental determination of stone tool uses: a microwear analysis* Chicago, University of Chicago Press

Keevil, G. 1992 'Life on the edge: archaeology and alluvium at Redlands Farm, Stanwick, Northants', in Needham and Macklin (eds) 1992, 177–84

Kerney, M.P. 1999 *Atlas of the land and freshwater molluscs of Britain and Ireland* Colchester, Harley

Kidd, A. 2000 *An archaeological resource assessment of the Later Bronze and Iron Ages (the first millennium BC) in Northamptonshire, East Midlands heritage: an updated research agenda and strategy for the historic environment in the East Midlands* https://doi.org/10.5284/1088152 (accessed 27 March 2026)

Kidd, A. 2004 'Northamptonshire in the first millenium BC', in Tingle (ed.) 2004, 44–62

Kitson, P. 1995 'The nature of old English dialect distributions, mainly as exhibited in charter boundaries', in Fisiak (ed.) 1995, 43–135

Knight, D. 1984 *Late Bronze Age and Iron Age settlement in the Nene and Great Ouse Basins* Oxford, Brit. Archaeol. Rep. Brit. Ser. **130**

Knight, D. 2002 'A regional ceramic sequence: pottery of the first millennium BC between the Humber and the Nene', in Woodward and Hill (eds) 2002, 119–42

Knight, D. 2007 'From open to enclosed: Iron Age landscapes of the Trent Valley', in Haselgrove and Moore (eds) 2007, 190–218

Knight, D., Marsden, P. and Carney, J. 2003 'Local or non-local? Prehistoric granodiorite-tempered pottery in the east Midlands', in Gibson (ed.) 2003, 111–25

Knight, D., Vyner, B. and Allen, C. 2012 *East Midlands heritage: an updated research agenda and strategy for the historic environment of the East Midlands* Nottingham/York, Nottingham Archaeological Monographs **6**

Kolattukudy, P. (ed.) 1976 *Chemistry and biochemistry of natural waxes* Amsterdam, Elsevier

Kolattukudy, P. 1980 'Biopolyester membranes of plants: cutin and suberin', *Science* **208**, 990–1000

Kolattukudy, P., Croteau, R. and Buckner, J. 1976 'Biochemistry of plant waxes', in Kolattukudy (ed.) 1976, 289–347

Kunst, L. and Samuels, A.L. 2003 'Biosynthesis and secretion of plant cuticular wax', *Progress in Lipid Research* **42**, 51–80

Lambrick, G. (ed.) 1988 *The Rollright Stones: Megaliths, monuments, and settlement in the prehistoric landscape* London, English Heritage Archaeol. Rep. **6**

Lambrick, G. 2009 'Dividing up the countryside', in Lambrick and Robinson 2009, 53–90

Lambrick, G. and Robinson, M. (eds) 2009 *Thames through time: the archaeology of the gravel terraces of the upper and middle Thames, volume 2, Late prehistory 1500BC–AD50* Oxford, Oxford Archaeology Thames Valley Landscape Monograph **29**

Lauwerier, R. 1988 *Animals in Roman times in the Dutch Eastern River Area* Amersfoort, ROB Nederlandse Oudheden **12**

Lawrence, S. and Smith, A. 2009 *Between villa and town: excavations of a Roman roadside settlement and shrine at Higham Ferrers, Northants, Oxford,* Oxford Archaeology Monograph **7**

Legge, A.J. and Rowley-Conwy, P. 1988 *Star Carr revisited: a re-analysis of the large mammals* London, Centre for Extra-Mural Studies, University of London

Leslie, I. 2021 *Radstone Fields and Northampton Road, Brackley, Northamptonshire: two major Iron Age settlements at the head of the River Great Ouse catchment* Bedford, Albion Archaeology Monograph **6**

Leslie, I. and King, A. 2021 *Milton Ham, Northampton: post-fieldwork assessment and updated project design for analysis, publication and archiving* Albion Archaeology Report No. **2021/29**

Levine, M. 1982 'The use of crown height measurements and eruption-wear sequences to age horse teeth', in Wilson *et al.* (eds) 1982, 223–43

Lewis, C. 2026 Medieval period https://research-frameworks.org/emherf/regional-overview/medieval-period/# (accessed 27 March 2026)

Lisá, L., Aleš Bajer, A., Rejšek, K., Vranová, V., Vejrostová, Wisniewski, A. and Krištu, P. 2019 'Review of illuvial bands origin: what might the presence of dark brown bands in sandy Infillings of archaeological features or cultural layers mean?', *Interdisciplinaria Archaeologica Natur. Sci. Archaeol.* **1**, 19–28

Lodwick, L. 2017 'Chapter 2: Arable farming, plant foods and resources', in Allen *et al*. 2017, 11–84

Lovejoy, C.O., Meindl, R.S., Pryzbeck, T.R. and Mensforth, R.P. 1985 'Chronological metamorphosis of the auricular surface of the illium: a new method for determination of adult skeletal age-at-death', *American J. Physical Anthropol.* **68**, 15–28

Lucy, S. and Reynolds, A. (eds) 2002 *Burial in early medieval England and Wales* London, Society for Medieval Archaeology Monograph **17**

Luke, M. 2004 'The investigation of an Early-Middle Iron Age settlement and field system at Topler's Hill', *Bedfordshire Archaeol.* **25**, 23–54

Luke, M. 2008 *Life in the loop: investigation of a prehistoric and Romano-British landscape at Biddenham Loop, Bedfordshire* E. Anglian Archaeol. **125**

Luke, M. 2016 *Close to the loop: landscape and settlement evolution beside the Biddenham Loop, west of Bedford* E. Anglian Archaeol. **156**

Luke, M. and Barker, J. 2019 *A Romano-British settlement and cemetery at Higham Road, Burton Latimer, Northamptonshire* Bedford, Albion Archaeology Monograph **4**

Luke, M. and Barker, J. 2020 *Bourton Way, Wellingborough and Station Road, Higham Ferrers: two Middle Iron Age settlements overlooking the River Nene in Northamptonshire* Bedford, Albion Archaeology Monograph **5**

Luke, M. and Barker, J. 2022a *Iron Age and Roman settlement and a Bronze Age ring-ditch at Main Road, Earls Barton, Northamptonshire* Bedford, Albion Archaeology Monograph **9**

Luke, M. and Barker, J. 2022b *Iron Age and Roman Settlement, including a Wootton Hill-Style enclosure, and Bronze Age ring-ditch, south of Main Road, Earls Barton, Northamptonshire* Bedford, Albion Archaeology Monograph **9**

Luke, M. and Guy, T. 2022 *From Bronze Age ringwork to Anglo-Saxon settlement: landscape evolution in the middle Nene Valley at Thrapston, Northamptonshire* Bedford, Albion Archaeology Monograph **10**

Luke, M. and Preece, T. 2017 'An Early–Middle Iron Age settlement on the eastern Chilterns at Butterfield Green, Luton', *Bedfordshire Archaeol.* **27**, 69–90

Lyman, L. 1994 *Vertebrate taphonomy* Cambridge, Cambridge University Press

Mackreth, D.F. 2011 *Brooches in Late Iron Age and Roman Britain*, v*olume 2: the plates, figures etc* Oxford, Oxbow Books

Macready, S. and Thompson, F.H. (eds) 1985 *Archaeological field survey in Britain and abroad* Society of Antiquaries of London Occasional Paper **6**

Magnitude Surveys 2022 *Geophysical survey report of land north of Roman Road, Northampton West, Northampton* Magnitude Surveys Report No. **MSSP1392A**

Major, H. 2004a 'Mesolithic to Middle Iron Age occupation: finds, iron objects', in Havis and Brooks 2004, 33

Major, H. 2004b 'Late Iron Age and Roman occupation: finds, iron objects, nails', in Havis and Brooks 2004, 135

Maltby, M. 2021 'Animal bone', in Leslie 2021, 103–48

Maltby, M. 2022 'Animal bone', in Luke and Barker 2022b, 59–66

Manby, K.B. 2024 'How do you solve a problem like nails? A new, multi-period methodology and typology for recording iron nails', *Oxford J. Archaeol.* **43/2**, 173–94

Margary, I. D. 1967 *Roman roads in Britain* London, John Baker

Margeson, S. 1993 *Norwich households: medieval and post-medieval small finds from Norwich survey excavations 1971–78* E. Anglian Archaeol. **58**. Norwich, Norfolk Museums Service

Markham, C.A. 1906 'Early foxhounds', in Serjeantson and Adkins 1906, 355–75

Markus, S. and Morris, S. 2019 'Early Bronze Age, Iron Age and Anglo-Saxon landscapes at Apex Park, Daventry', *Northamptonshire Archaeol.* **40**, 47–75

Martin, J., Schuster, J. and Barclay, A.J. 2012 'Evidence of an Early Bronze Age field system and spelt wheat growing together with an Anglo-Saxon sunken featured building, at Monkton Road, Minster in Thanet', *Archaeologia Cantiana* **CXXXII**, 43–52

Martin, P. and Hall, D. 1980 'Brixworth, Northamptonshire: new evidence for early prehistoric settlement and agriculture', *Bedfordshire Archaeol. J.* **14**, 5–14

Masefield, R. 2015 'Chapter 6: Discussion', in Masefield *et al.* 2015, 243–303

Masefield, R., Chapman, A., Mudd, A., Hart, J., Ellis, P. and King, R. 2015 *Origins, development and abandonment of an Iron Age Village*, DIRFT volume **2** London, Archaeopress Archaeology

Mashkour, M. (ed.) 2006 *Equids in time and space* Oxford, Oxbow Books

Matolcsi, J. 1970 ‚Historische Erforschung der Korpergrosse des Rindes auf Grund von ungarischem Knochenmaterial', *Zeitschrift fürTienuchtung und Zuchtungbiologie* **87 (2)**, 89–137

Mays, S., Brickley, M., Dodwell, N and Sidell, J. 2018 *The role of the human osteologist in an archaeological fieldwork project* Swindon, Historic England

Mays, S., Zakrzewski, S. and Field, S. 2022 'The relationship between dental wear and age at death in British archaeological human skeletal remains: a re-evaluation of the 'Brothwell chart', *J. Archaeol. Sci. Rep.* **46**

McKinley, J. 1997 'Bronze Age 'barrows' and funerary rites and rituals of cremation', *Proc. Prehist. Soc.* **63**, 129–45

McKinley, J. 2000a 'The analysis of cremated bone', in Cox and Mays (eds) 2000, 403–21

McKinley, J. 2000b 'Cremation burials', in Barber and Bowsher 2000, 264–77

McKinley, J. 2004 'Compiling a skeletal inventory: cremated human bone', in Brickley and McKinley (eds) 2004, 9–13

McKinley, J. 2008 'In the heat of the pyre: efficiency of oxidation in Romano British cremations – did it really matter?,' in Schmidt and Symes 2008, 163–85

McKinley, J. 2013 'Cremation: excavation and analysis', in Tarlow and Nilsson Stutz (eds) 2013, 147–72

McSloy, E.R. 2015a 'Fired clay', in Hart and Mudd 2015, 207–8

McSloy, E. R. 2015b 'Prehistoric pottery', in Hart and Mudd 2015, 198–207

Meadow, R. and Uerpmann, H-P. (eds) 1986 *Equids in the ancient world* Wiesbaden, Dr Ludwig Reichert Verlag Publishing House

Meadows, I. 1995 'Wollaston', *S. Midlands Archaeol.* **25**, 41–5

Meadows, I. 2019 *The pioneer burial: a high-status Anglian warrior burial from Wollaston, Northamptonshire* Oxford, Archaeopress Ltd

Meckseper, C. and Ingham, D. 2017 'An Early–Middle Iron Age settlement at Norse Road, Bedford', *Bedfordshire Archaeol.* **27**, 91–8

Medlycott, M. (ed.) 2011 *Research and archaeology revisited: a revised framework for the east of England* E. Anglian Archaeol. Occasional Paper **24**

Meindl, R.S. and Lovejoy, C.O. 1985 'Ectocranial suture closure: a revised method for the determination of skeletal age at death based on the lateral-anterior sutures', *American J. Physical Anthropol.* **68**, 29–45

Mellars, P. 1976 'Fire ecology, animal populations and man: a study of some ecological relationships in prehistory', *Proc. Prehist. Soc.* **42,** 15–45

Mellor, M. 1994 'A synthesis of Middle and Late Saxon, medieval and early post-medieval pottery in the Oxford region', *Oxoniensia* **59**, 17–218

Mercer, R.J. 1970 'Metal arrow-heads in the European Bronze and Early Iron Ages', *Proc. Prehist. Soc.* **36**, 171–213

Mercer, R. (ed.) 1981 *Farming practice in British prehistory* Edinburgh, Edinburgh University Press

Milles, A., Williams, D. and Gardner, N. 1989 *The beginnings of agriculture* Oxford, Brit. Archaeol. Rep. Int. Ser. **496**

Milner, N., Conneller, C. and Taylor, B. (eds) 2018 *Star Carr, volume 2: studies in technology, subsistence and environment* York, White Rose University Press

Mitchell, P. and Brickley, M. (eds) 2017 *Updated guidelines to the standards for recording of human remains* Reading, CIFA and BABAO

Moffett, L., Robinson, M.A. and Straker, V. 1989 'Cereals, fruit and nuts: charred plant remains from Neolithic sites in England and Wales and the Neolithic economy', in Milles *et al.* 1989, 243–61

MOLA (Museum of London Archaeology) 2014 *Archaeological excavation on land at Polwell Lane, Barton Seagrave Northamptonshire August to December 2012: assessment report and updated project design* Museum of London Archaeology Report No. **14/113**

Monckton, A. 2012 'Environmental archaeology in the East Midlands', in Knight *et al*. 2012, 259–86

Monckton, A. 2015 'Charred plant remains', in Hughes and Woodward 2015, 268–80

Moore, P.D., Webb, J.A. and Collinson, M.E. 1991 *Pollen analysis* (2nd edition) Oxford, Blackwell Scientific

Moore, W.R.G. 1971 'Chapel Brampton (SP 722664), Brampton Hill Farm, interim report on the excavation of a Middle or Late Bronze Age cremation cemetery', *Bulletin of the Northamptonshire Federation of Archaeological Societies* **5**, 1–2

Moore, W.R.G. 1973 'Chapel Brampton', *Northamptonshire Archaeol.* **8**, 3

Moore, W.R.G. 1975 'The flints', in Moore and Williams 1975, 19–26

Moore, W.R.G. and Williams, J.H. 1975 'A Later Neolithic site at Ecton, Northampton', *Northamptonshire Archaeol.* **10**, 3–30

Moorrees, C.F.A., Fanning E.A. and Hunt, E.E. 1963 'Age variation of formation stages for ten permanent teeth', *J. Dental Res.* **42**, 1490–502

Morris, J. 2011 *Investigating animal burials: ritual, mundane and beyond* Brit Archaeol. Rep. Brit. Series **535**

Morris, S. 2023 'A Middle Iron Age settlement at Foxhills, Brackley', *Northamptonshire Archaeol*. **42**, 125–94

Morton, J. 1712 *The natural history of Northamptonshire with some account of the antiquities, to which is annexed a transcript of Doomsday Book so far as it relates to that county* London, R. Knaplock and R. Wilkin

Mudd, A. 2007 *Iron Age and Roman settlement on the Northamptonshire Uplands: archaeological work on the A43 Towcester to M40 road improvement scheme in Northamptonshire and Oxford* Northamptonshire Archaeology Monograph **1**

Mudd, A., Powell, N. and Stone, D. 2017 'Iron Age and Roman settlement to the north-west of Crick', *Northamptonshire Archaeol.* **39**, 85–100

Mukherjee, A.J., Copley, M.S., Berstan, R., Clark, K.A. and Evershed, R.P. 2005 'Interpretation of δ13C values of fatty acids in relation to animal husbandry, food processing and consumption in Prehistory', in Mulville and Outram (eds) 2005, 77–95

Muldowney, M. 2016 *Archaeological mitigation at the Sawmills site, Northampton Road, Brackley, Northamptonshire, September to November 2014* MOLA Report No. **16/119**

Mulville, J. and Outram, A. K. (eds) 2005 *The zooarchaeology of fats, oils, milk and dairying, 9th Conference of the International Council of Archaeozoology 2002* Oxford, Oxbow Books

Munsell Colour 2018 *Munsell soil colour chart (2009 revision)* Michigan, X-Rite

Murray, H.K, Murray, J.C and Fraser, S.M. 2009 *A tale of the unknown unknowns: a Mesolithic pit alignment and a Neolithic timber hall at Warren Field, Crathes, Aberdeenshire* Oxford, Oxbow

Myers, A.M. 2026 *Mesolithic* https://researchframeworks.org/emherf/regional-overview/the-mesolithic/ (accessed 27 March 2026)

NCC (Northamptonshire County Council) 2008 *The Northamptonshire national mapping programme*. http://archaeologydataservice.ac.uk/archives/view/nnmp_eh_2003 (accessed 27 March 2026)

NE (Natural England) 2026 *National Character Area 95: Northamptonshire Uplands.* https://nationalcharacterareas.co.uk/northamptonshire-uplands (accessed 27 March 2026)

Needham, S. and Macklin, M.G. (eds) 1992 *Alluvial archaeology in Britain* Oxford, Oxbow Books

Needham, S. and Spence, T. (eds) 1996 *Refuse and disposal at Area 16 East Runnymede: Runnymede Bridge Research Excavations* London, British Museum Press **2**

Nicosia, C. and Stoops, G. (eds) 2017 *Archaeological soil and sediment micromorphology* Hoboken, Wiley Blackwell

Noble, G. and Brophy, K. 2017 'Cremation practices and the creation of monument complexes: the Neolithic cremation cemetery at Forteviot, Strathearn, Perth and Kinross, Scotland, and its comparanda', *Proc. Prehist. Soc.* **83**, 213–45

OA (Oxford Archaeology) 2013 *Iron Age structures and associated activity on land east of Kettering, Areas R7 and R8: post-excavation assessment and updated project design* OA Report No. **1530**

OA (Oxford Archaeology) 2023 *Northampton north-west relief road: interim excavation report* OA Report No. **8029**

OA (Oxford Archaeology) 2025 *Northampton north-west Relief Road, Northamptonshire: post-excavation assessment and updated project design* OA Report No. **8533**

O'Connor, B. 1980 *Cross-channel relations in the Later Bronze Age: relations between Britain, north-eastern France and the Low Countries during the Later Bronze Age and the Early Iron Age, with particular reference to the metalwork* Oxford, Brit. Archaeol. Rep. Int. Series **91 (i)**

O'Connor, T. 2003 *The analysis of urban animal bone assemblages: a handbook for archaeologists* York, Counc Brit. Archaeol.

O'Connor, T. 2007 'Wild or domestic? Biometric variation in the cat Felis silvestris schreber', *International J. Osteoarchaeology* **17**, 581–95

O'Connor, T. and Sykes, N. (eds) 2010 *Extinctions and invasions: a social history of British fauna* Oxford, Windgather

Open Domesday 2026a *Northamptonshire folio 2* https://opendomesday.org/book/northamptonshire/02 (accessed 27 March 2026)

Open Domesday 2026b *Northamptonshire folio 9* https://opendomesday.org/book/northamptonshire/09 (accessed 27 March 2026)

Open Domesday 2026c *Northamptonshire folio 10* https://opendomesday.org/book/northamptonshire/10 (accessed 27 March 2026)

Open Domesday 2026d *Northamptonshire folio 14* https://opendomesday.org/book/northamptonshire/14 (accessed 27 March 2026)

Open Domesday 2026e *Northamptonshire folio 15* https://opendomesday.org/book/northamptonshire/15 (accessed 27 March 2026)

Palmer, C. 2020 'Multiple datasets, multiple meanings? A reanalysis of multiple internment burials in early Anglo-Saxon England', *New frontiers in archaeology: Proceedings of the Cambridge Annual Student Archaeology Conference 2019*

Palmer, S.C. 2005 New Iron Age finds from Warwickshire, *The Archaeologist* **56**, 20

Parker Pearson, M. 1996 'Food, fertility and front doors in the first millennium BC', in Champion and Collis (eds) 1996, 117–32

Partida, T. 2014 *Drawing the lines: a GIS study of enclosure and landscape in Northamptonshire* Huddersfield, University of Huddersfield PhD thesis

Partida, T., Hall, D. and Foard, G. 2013 *An atlas of Northamptonshire: the medieval and early modern landscape* Oxford, Oxbow Books

Payne, S. 1973 'Kill-off patterns in sheep and goats: the mandibles from Asvan Kale', *Anatolian Studies* **XXIII**, 281–303

PCRG (Prehistoric Ceramics Research Group) 2010 *Prehistoric ceramics research group guidelines* Occasional Papers **1** and **2**

Peacock, D.P.S. 2013 *The stone of life: querns, mills and flour production in Europe up to c. AD 500* Southampton Monographs in Archaeology New Series **1**

Pelling, R. 2003 'Charred plant remains', in Hutchings 2003, 73–6

Pelling, R., Campbell, G., Carruthers, W., Hunter, K. and Marshall, P. 2015 'Exploring contamination (intrusion and residuality) in the archaeobotanical record: case studies from central and southern England', *Vegetational History and Archaeobotany* **24**, 85–99

Pendleton, C.F. 1999 *Bronze Age metalwork in northern East Anglia: a study of its distribution and interpretation* Oxford, Brit. Archaeol. Rep. Brit. Ser. **279**

Perrin, R. 1999 'Roman pottery from excavations at and near to the Roman small town of Durobrivae, Water Newton, Cambridgeshire, 1956–58', *J. Roman Pottery Stud.* **8**

Phillips, G. 2000 *An archaeological resource assessment of the Mesolithic in Northamptonshire* Leicester, University of Leicester Archaeological Services (ULAS)

Phillips, G. and Kidd, A. 2004 'Palaeolithic and Mesolithic', in Tingle 2004, 15–24

Philp, B., Parfitt, K., Wilson, J., Dutto, M. and Williams, W. 1991 *The Roman villa site at Keston, Kent, first report (excavations 1968–1978*) Kent, Kent Archaeological Rescue Unit Monograph Series **6**

Philpott, R. 1991 *Burial practices in Roman Britain: a survey of grave treatment and furnishing AD 43–410* Oxford, Brit. Archaeol. Rep. Brit. Ser. **219**

Piggott, C.M. 1938 'A Middle Bronze Age barrow and 'Deverel-Rimbury' urnfield at Latch Farm, Christchurch, Hampshire', *Proc. Prehist. Soc.* **4**, 169–87

Pitts, M.W. and Jacobi, R.M. 1979 'Some aspects of change in flaked stone industries of the Mesolithic and Neolithic in southern Britain', *J. Archaeol. Sci.* **6**, 163–77

Plouviez, J. 2004 'Brooches', in Blagg *et al.* 2004, 87–108

Plouviez, J. 2008 'Counting brooches: ways of examining Roman brooch assemblages in London and beyond', in Clark *et al.* 2008, 171–6

Pollard, J. 2002 'The nature of archaeological deposits and finds assemblages', in Woodward and Hill (eds) 2002, 22–33

Pollard, J. (ed.) 2008 *Prehistoric Britain* Oxford, Blackwell

Poole, C. 1995 'Clay weights', in Cunliffe 1995, 285–6

Poole, C. 2002 'Oven and hearths in the Iron Age in southern England', *Civilisations* **49**, 363–73

Poole, C. 2007 'Structural clay and ceramic building material', in Timby *et al*. 2007, 265–78

Poole, C. 2010 'The fired clay', in Biddulph *et al*. 2010, 129–37

Poole, C. 2015 'Fired clay and briquetage', in Andrews *et al*. 2015, 289–323

Poole, C. 2024 'Fired clay', in Ellis *et al.* 2024, 219–23

Pope, R. 2007 'Ritual and the roundhouse: a critique of recent ideas on the use of domestic space in later British prehistory', in Haselgrove and Pope (eds) 2007, 204–28

Preece, T. 2018 *Archaeological excavation, recording and analysis on land at Pineham Barn, Upton, sites SMS 1 and SMS 2, Northamptonshire* Museum of London Archaeology Report No. **18/99**

Pryor, F. 1984 *Excavation at Fengate, Peterborough, England: the fourth report* Northampton, Northamptonshire Archaeological Society Monograph **2**

Pryor, F. and French, C. (eds) 1985 *Archaeology and environment in the Lower Welland Valley, Vol 1* Norwich, East Anglian Archaeology **27**

Rahtz, P.A. and Clevedon Brown, J. 1958 'Clevedon Blaise Castle Hill, Bristol, 1957', *Proc. Bristol Speleological Soc.* **8 (3)**, 147–71

Rainsford, C. and Roberts, D. 2013 'Taboo or not taboo? Fish, wealth and landscape in Iron Age Britain', *Archaeological Review from Cambridge* **28 (2)**, 32–47

Ratjen, H. and Heinrich, D. 1978 *Vergleichende untersuchungen an den metapodien von fuchsen und hunden* Kiel, Schriften aus der Archiiologisch-Zoologischen Arbeitsgruppe Schleswig-Kiel **4**

Rawling, J.E. 2000 'A review of lamellae', *Geomorphology* **35**, 1–9

RCHME (Royal Commission on Historical Monuments of England) 1981 *An inventory of the historical monuments in the county of Northamptonshire, volume 3, archaeological sites in North-West Northamptonshire*

RCHME (Royal Commission on Historical Monuments of England) 1982 *An inventory of the historical monuments in the county of Northamptonshire, volume 4, archaeological sites in South-West Northamptonshire*

RCHME (Royal Commission on Historical Monuments of England) 1985 *An inventory of the historical monuments in the county of Northamptonshire, volume 5, archaeology and churches in Northampton*

Reaney, P.H. 1960 *The origin of English place-names* London, Routledge

Rebay-Salisbury, K. 2010 'Cremations: fragmented bodies in the Bronze and Iron Ages', in Rebay-Salisbury *et al.* (eds) 2010, 64–71

Rebay-Salisbury, K., Sørensen, M. and Hughes, J. (eds) 2010 *Body parts and bodies whole: changing relations and meanings* Oxford, Oxbow Books

Reece, R. 2002 *The coinage of Roman Britain* Stroud, Tempus

Rees, G. and Brudenell, M. 2019 'Early and Middle Iron Age settlement at Glinton, Peterborough', *Northamptonshire Archaeol.* **40**, 87–105

Regert, M., Bland, H.A., Dudd, S.N., Bergen, P.V. and Evershed, R.P. 1998 'Free and bound fatty acid oxidation products in archaeological ceramic vessels', *Proc. Royal Soc. of London, Series B: Biological Sciences* **265**, 2027–32

Regert, M., Colinart, S., Degrand, L. and Decavallas, O. 2001 'Chemical alteration and use of beeswax through time: accelerated ageing tests and analysis of archaeological samples from various environmental contexts,' *Archaeometry* **43**, 549–69

Reid, A. 2017 'Late Iron Age to Early Roman and Middle Anglo-Saxon settlement at Darsdale Farm, Raunds,' *Northamptonshire Archaeol.* **39**, 107–26

Reimer, P., Austin, W., Bard, E., Bayliss, A., Blackwell, P., Bronk Ramsey, C., Butzin, M. Cheng, H., Edwards, R., Freidrich, M., Grootes, P., Guilderson, T., Hajdas, I., Heaton, T., Hogg, A., Hughen, K., Kromer, B., Manning, S., Muschleler, R., Palmer, J., Pearson, C., van der Plicht, J., Reimer, R., Richards, D., Scott, E., Southon, J., Turney, C., Wacker, L., Adolphi, F., Büntgen, U., Capano, M., Fahrni, S., Fogtmann-Schulz, A., Friedrich, R., Köhler, P., Kudsk, S., Miyake, F., Olsen, J., Reinig, F., Sakamoto, M., Sookdeo, A. and Talamo, S. 2020 'The IntCal20 Northern Hemisphere radiocarbon ago calibration curve (0–55 cal, kBP)', *Radiocarbon* **62 (4)**, 725–57

Research Frameworks 2026 *East Midlands historic environment research framework* https://research frameworks.org/emherf/ (accessed 27 March 2026)

Reynolds, A. 2002 *Later Anglo-Saxon England: life and the landscape* Stroud, The History Press

Reynolds, A. 2009 *Anglo-Saxon deviant burial customs* Oxford, Oxford University Press

Reynolds, A. 2011 'Crime and punishment', in Hamerow *et al*. 2011, 892–913

Reynolds, P. J. 1974 'Experimental Iron Age storage pits: an interim report', *Proc. Prehist. Soc.* **40**, 118–31

Richards, J.D. 2001 *Burrow House Farm, Cottam: an Anglian and Anglo-Scandinavian settlement in East Yorkshire* [data-set] York, Archaeology Data Service https://doi.org/10.5284/1000339 (accessed 27 March 2026)

Riddler, I. 2014 'Miscellaneous objects', in Tester *et al.* 2014, 263–5

Riddler, I., Plouviez, J. and Cool, H. 2022 'Small finds: Roman brooches', in Boulter 2022, 215–17

Rippon, S. 2010 'Landscape change during the 'long eighth century' in southern England', in Higham and Ryan (eds) 2010, 39–64

Robbins, K.J. 2012 *From past to present: understanding the impact of sampling bias on data recorded by the Portable Antiquities Scheme* University of Southampton, unpublished PhD

Robbins, K.J. 2013 'Balancing the scales: exploring the variable effects of collection bias on data collected by the Portable Antiquities Scheme', *Landscapes* **14 (1)**, 54–72

Robbins, K.J. 2014 *Portable antiquities scheme: a guide for researchers, online resource* https://finds.org.uk/documents/guideforresearchers.pdf (accessed 27 March 2026)

Roberts, B.W. 2013 'Britain and Ireland in the Bronze Age: farmers in the landscape or heroes on the high seas', in Fokkens and Harding (eds) 2013, 531–49

Robertson-Mackay, R. 1987 'A Neolithic causewayed enclosure at Staines, Surrey: excavations 1961–63', *Proc. Prehist. Soc.* **53**, 23–128

Robinson, D. 1990 *Experimentation and reconstruction in environmental archaeology* Oxford, Oxbow Books

Robinson, M. 1988 'The significance of the tubers *of Arrhenatherum elatius* (L) Beauv from Site 4, cremation 15/11', in Lambrick (ed.) 1988, 102

Robinson, M.A. 2000 'Further considerations of Neolithic charred cereals, fruits, and nuts', in Fairbairn 2000, 85–90

Roffet-Salque, M., Regert, M., Evershed, R.P., Outram, A.K., Cramp, L.J.E., Decavallas, O., Dunne, J., Gerbault, P., Mileto, S., Mirabaud, S., Paakkonen, M., Smyth, J., Soberl, L., Whelton, H.L., Alday-Ruiz, A., Asplund, H., Bartkowiak, M., Bayer-Niemeier, E., Belhouchet, L., Bernardini, F., Budja, M., Cooney, G., Cubas, M., Danaher, E.M., Diniz, M., Domboroczki, L., Fabbri, C., Gonzalez-Urquijo, J.E., Guilaine, J., Hachi, S., Hartwell, B.N., Hofmann, D., Hohle, I., Ibanez, J.J., Karul, N., Kherbouche, F., Kiely, J., Kotsakis, K., Lueth, F., Mallory, J.P., Manen, C., Marciniak, A., Maurice-Chabard, B., Mc Gonigle, M.A., Mulazzani, S., Ozdogan, M., Peric, O.S., Peric, S.R., Petrasch, J., Petrequin, A.M., Petrequin, P., Poensgen, U., Pollard, C.J., Poplin, F., Radi, G., Stadler, P., Stauble, H., Tasic, N., Urem-Kotsou, D., Vukovic, J.B., Walsh, F., Whittle, A., Wolfram, S., Zapata-Pena, L., Zoughlami, J. 2015 'Widespread exploitation of the honeybee by early Neolithic farmers', *Nature* **527**, 226–30

Rogers, N. 2009a 'Buckles–non-ferrous buckles and other belt fittings: suspension rings', in Evans and Loveluck (eds) 2009, 23–4

Rogers, N. 2009b 'Toilet implements–ear scoop', in Evans and Loveluck (eds) 2009, 33–46

Ruscillo, D. (ed.) 2006 *Recent advances in ageing and sexing animal bones* Oxford, Oxbow Books

Rylatt, J. and Bevan, B. 2007 'Realigning the world', in Haselgrove and Moore (eds) 2007, 219–34

Savage, R. 2014 *Village fortress shrine: Crickley Hill, Gloucestershire, 4500BC–AD500* Crickley Hill Archaeological Trust

Schmid, E. 1972 *Atlas of animal bones* London, Elsevier Science

Schmidt, C.W. and Symes, S.A. 2008 *The analysis of burned human remains* London, Academic Press

Schulting, R.J. 2008 'Foodways and social ecologies from the Early Mesolithic to the Early Bronze Age', in Pollard (ed.) 2008, 90–120

Schwartz, J.H. 1995 *Skeleton keys: an introduction to human skeletal morphology, development and analysis* Oxford, Oxford University Press

Schweingruber, F.H. 1990 *Microscopic wood anatomy* (3rd edition) Birmensdorf, Swiss Federal Institute for Forest, Snow and Landscape Research

Scott, E.M., Cook, G.T. and Naysmith, P. 2010 'A report on phase 2 of the Fifth International Radiocarbon Intercomparison (VIRI)', *Radiocarbon* **52**, 846–58

Sellwood, L. 1984 'Objects of iron', in Cunliffe 1984b, 346–70

Semple, S. and Williams, H. 2007 *Anglo-Saxon studies in archaeology and history 14: early medieval mortuary practices* Oxford, Oxbow Books

Serjeantson, D. 1996 'The animal bones', in Needham and Spence (eds) 1996, 194–223

Serjeantson, R.M. and Adkins, W.R.D. (eds) 1906 *The Victoria history of the county of Northampton, volume 2* London, Archibald Constable and Company

Shaffrey, R. 2024 'Appendix F: Worked stone', in CA 2024, 201–4

Sharples, N.M. 1991 *Maiden Castle: excavations and field survey 1985–6* London, English Heritage Archaeol. Rep. **19**

Shaw, M., Webster, M. and O'Hara, P. 1990 *Archaeological evaluation at Kings Heath in Northampton* Northamptonshire Archaeological Unit unpublished report

Shepherd, W. 1972 *Flint: its origin, properties and uses* London, Faber and Faber

Sheridan A. 2009 'The pottery', in Murray *et al.* 2009, 81–93

Simmonds, A. and Lawrence, S. 2022 *Harpole: the landscape of a Roman villa at Panattoni Park, Northamptonshire* Oxford Archaeology Monograph **34**

Simmonds, C. 2017 *Archaeological excavation on land at Pineham, Zone H, Northamptonshire, September 2015 to May 2016: assessment report and updated project design* Museum of London Archaeology Report No. **17/29**

Smith, A. 2018a 'Chapter 5: Religion and the rural population', in Smith *et al.* 2018, 120–204

Smith, A 2018b 'Chapter 6: Death in the countryside: rural burial practices', in Smith *et al.* 2018, 205–80

Smith, A., Allen, M., Brindle, T., Fulford, M., Lodwick, L. and Rohnbogner, A. 2018 *New visions of the countryside of Roman Britain, volume 3: life and death in the countryside of Roman Britain* Britannia Monograph Series **31**

Smith, R.N. 1969 'Fusion of ossification centres in the cat', *J. Small Animal Practice* **10**, 523–30

Soden, I. and Dix, B. 1995 *The M1-A1 Link Road in Northamptonshire: archaeological observation along the A14 road-corridor 1989–94* Northamptonshire Archaeology, unpublished report

Soilscapes 2026 *Soilscapes viewer* https://www.landis.org.uk/soilscapes (accessed 2 February 2026)

Speed, G. 2010 'The excavation of an enclosed Iron Age settlement at Hallam Fields, Birstall, Leicestershire', *Trans. Leicestershire Archaeol. Hist. Soc.* **84**, 27–75

Speed, G. 2015 'A pit alignment, Iron Age settlement and Roman cultivation trenches west of South Meadow Road, Upton, Northampton', *Northamptonshire Archaeol.* **38**, 53–71

Stace, C. 2019 *New flora of the British Isles* (4th edition) Cambridge, Cambridge University Press

Stead, I. 1998 *The Salisbury hoard* London, British Museum

Stevens, C.J. 2007 'Reconsidering the evidence: towards an understanding of the social contexts of subsistence production in Neolithic Britain', in Colledge and Conolly 2007, 375–89

Stevens, C.J. 2008 'Cereal agriculture and cremation activities', in Allen *et al.* 2008, 296–9

Stockmarr, J. 1971 'Tablets with spores used in absolute pollen analysis', *Pollen et Spores* **13**, 615–21

Stoodley, N. 2002 'Multiple burials multiple meanings? Interpreting the early Anglo-Saxon multiple interment', in Lucy and Reynolds (eds) 2002, 103–21

Straker, V. 1990 'Charred plant macrofossils', in Bell 1990a, 211–19

Stuiver, M. and Kra, R.S. 1986 'Editorial comment', *Radiocarbon* **28**, ii

Stuiver, M. and Polach, H.A. 1977 'Reporting of ^{14}C data', *Radiocarbon* **19**, 355–63

Sutton, A. 2018 'The Iron Age pottery', in Preece 2018, 39–49

Sykes, N. and Curl, J. 2010 'The rabbit', in O'Connor and Sykes (eds) 2010, 116–26

Tarlow, S. and Nilsson Stutz, L. 2013 *The Oxford handbook of the archaeology of death and burial* Oxford, Oxford University Press

Taylor, J. 2026 *Roman period* https://researchframeworks.org/emherf/regional-overview/roman-period/ (accessed 27 March 2026)

Taylor, J. and Flitcroft, M. 2004 'The Roman period', in Tingle (ed.) 2004, 63–77

Teichert, M. 1975 ‚Osteometrische Untersuchungen zur Berechnung der Widerristhöhe bei Schafen', in Clason (ed.) 1975, 51–69

Tester, A., Anderson, S., Riddler, I. and Carr, R. 2014 *Staunch Meadow, Brandon, Suffolk: a high status Middle Saxon settlement on the fen edge* E. Anglian Archaeol. **151**. Bury St Edmunds, Suffolk County Council

Thomas, A. and Enright, D. 2003 'Excavation of an Iron Age settlement at Wilby Way, Great Doddington', *Northamptonshire Archaeol.* **31**, 15–70

Thomas, J. 2003 'Prehistoric pit alignments and their significance in the archaeological landscape', in Humphrey (ed.) 2003, 79–86

Thomas, J. 2008a 'An empty hole, or a meaningful whole? Approaches to the study of pit alignments', in Chadwick (ed.) 2008, 144–58

Thomas, J. 2008b *Monument, memory and myth: use and re-use of three Bronze Age Barrows at Cassington, Leicestershire* Leicester Archaeology Monograph **14**, Leicester, University of Leicester Archaeological Service

Thomas, J. 2011 *Two Iron Age 'aggregated' settlements in the environs of Leicester: excavations at Beaumont Leys and Humberstone* Leicester Archaeology Monograph **19**

Thompson, I. 1982 *Grog-tempered 'Belgic' pottery of south eastern England* Brit. Archaeol. Rep. Brit. Ser. **108**

Thompson, T. 2015a 'Fire and the body: fire and the people', in Thompson 2015b, 1–18

Thompson, T. 2015b *The archaeology of cremation: burned human remains in funerary studies* Oxford, Oxbow Books

Timby, J. 2007 'The Iron Age and Roman pottery', in Mudd 2007, 88–118

Timby, J., Brown, R., Hardy, A., Leech, S., Poole, C. and Timby, L. 2007 *Settlement on the Bedfordshire claylands: archaeology along the A421 Great Barford bypass* Bedfordshire Archaeology Monograph **8**

Tingle, M. (ed.) 2004 *The Archaeology of Northamptonshire* Gloucestershire, Past Historic

Tomber, R. and Dore, J. 1998 *The national Roman fabric reference collection: a handbook* London, Museum of London Archaeological Service

Trotter, M. and Hixon, B.B. 1974 'Sequential changes in weight, density, and percentage ash weight of human skeletons from an early age fetal period through old age' *The Anatomical Record: Advances in Integrative Anatomy and Evolutionary Biology* **179**, 1–18

Tucker M.E. 2011 *Sedimentary rocks in the field: a practical guide* (4th edition) Hoboken, Wiley Blackwell

University of Leicester 2026 *Historical directories of England and Wales* https://specialcollections.le.ac.uk/digital/collection/p16445coll4 (accessed 27 March 2026)

van Zeist, W. and Casparie, W.A. (eds) 1984 *Plants and ancient man. Studies in palaeoethnobotany* Rotterdam, Balkema

van Zeist, W., Wasylikowa, K. and Behre, K-E. (eds) 1991 *Progress in old world palaeoethnobotany* Rotterdam, Balkema

Vecchi, E. 2023 *Extension to Harlestone Quarry, A428 Harlestone Road, Northampton, NN7 4EJ: archaeological evaluation final report* PCAS Archaeology Report No. **2814** https://doi.org/10.5284/1121147 (accessed 27 March 2026)

Vince, A. 2026 *Anglo-Saxon period* https://researchframeworks.org/emherf/regional-overview/anglo-saxon-period (accessed 27 March 2026)

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

Wainwright, G.J. 1979 *Gussage All Saints, an Iron Age settlement in Dorset* London, HMSO

Walford, J. 2014 *Archaeological geophysical survey of the Dallington Grange causewayed enclosure, Northampton: May 2014* MOLA Northampton Report No. **14/122**

Walker, C. and Maull, A. 2010 'Excavation of Iron Age and Roman settlement at Upton, Northampton', *Northamptonshire Archaeol.* **36**, 9–52

Walton Rogers, P. 1997 *Textile production at 16–22 Coppergate* York, Counc. Brit. Archaeol.

Walton Rogers, P. 2007 *Cloth and clothing in early Anglo-Saxon England, AD 450–700* Counc. Brit. Archaeol. Res. Rep. **145**

Ward, G.K. and Wilson, S.R. 1978 'Procedures for comparing and combining radiocarbon age determinations: a critique', *Archaeometry* **20**, 19–32

Warren, P. 2006 *British native trees: their past and present uses, including a guide to burning wood in the home* Haywards Heath, Wildeye

Watson, P.J. 1993 *Catalogue of British and European prehistoric metalwork in Birmingham City museums* Oxford, Brit. Archaeol. Rep. Brit. Ser. **233**

Watts, S. 2014 *The life and death of querns: the deposition and use-contexts of querns in south-western England from the Neolithic to the Iron Age* Southampton, Highfield Press

Webley, L. 2007 'Chapter 3: The first settlers: overview of the prehistoric evidence', in Timby *et al.* 2007, 51–65

Webster, P. 1996 *Roman Samian pottery in Britain* Practical Handbook in Archaeology **13**, York, Counc. Brit. Archaeol.

Wells, J. 2021 'Pottery', in Leslie 2021, 59–64

Whelton, H.L., Roffet-Salque, M., Kotsakis, K., Urem-Kotsou, D. and Evershed, R.P. 2018 'Strong bias towards carcass product processing at Neolithic settlements in northern Greece revealed through absorbed lipid residues of archaeological pottery', *Quaternary International* **496**, 127–39

White, D.A. 1982 *The Bronze Age cremation cemeteries at Simons Ground, Dorset* Dorchester, Dorset Natural History and Archaeology Society Monograph **3**

White, R. 1979 A Roman lime kiln near Cardington Mill, Bedford', *Bedfordshire Archaeol. J.* **12**, 23–26

Whittle, A., Healy, F. and Bayliss, A. 2011 *Gathering time: dating the Early Neolithic enclosures of Southern Britain and Ireland volume 2* Oxford, Oxbow Books

Wild, J.P. 1988 *Textiles in archaeology* Aylesbury, Shire Publications

Williams, A. and Martin, G.H. 2002 *Domesday Book: a complete translation* London, Penguin

Williams, H. 1998 'Monuments and the past in Early Anglo-Saxon England', *World Archaeology* **30 (1),** 90–108

Williams, J.H. (ed.) 1974 *Two Iron Age sites in Northampton* Northampton, Northampton Development Corporation

Williams, J.H. and McCarthy, M.R. 1974 'A double ditched enclosure at Blackthorn', in Williams (ed.) 1974, 44–66

Williams, J.H. and Shaw, M. 1981 'Excavations in Chalk Lane, Northampton 1975–1978', *Northamptonshire Archaeol.* **16**, 87–136

Williams, J.H., Shaw, M. and Denham, V. 1985 *Middle Saxon palaces at Northampton* Archaeological Monograph No. **4**, Northampton, Northampton Development Corporation

Williamson, T., Liddiard, R., Partida, T., Foard, G., Hall, D. and McClain, A. 2011 *A GIS aided study of agriculture and landscape in Midland England [data set]* York, Archaeology Data Service https://archaeologydataservice.ac.uk/archives/view/midlandgis_ahrc_2010 (accessed 27 March 2026)

Williamson, T., Liddiard, R., and Partida, T. 2013 *Champion: the making and unmaking of the English Midland landscape* Exeter, Exeter University Press

Willis, D. (ed.) 1916 *The estate book of Henry de Bray of Harlestone, Co. Northants (c.1289–1340)* London, Royal Historical Society, Camden Third Series **27**

Willis, S. 2006 'The Late Bronze Age and Iron Age', in Cooper (ed.) 2006, 89–136

Willis, S. 2023 *Updated period resource assessment: the later Bronze Age and Iron Age East Midlands Historic Environment Research Framework* https://researchframeworks.org/emherf/2022/12/04/updated-period-resource-assessment-the-later-bronze-age-and-iron-age (accessed 27 March 2026)

Wilson, B. 1996 *Spatial patterning among animal bones in settlement archaeology* Oxford, Brit. Archaeol. Rep. Brit. Ser. **251**

Wilson, B., Grigson, C. and Payne, S. (eds) 1982 *Ageing and sexing animal bones from archaeological sites* Oxford, Brit. Archaeol. Rep. Brit. Ser. **109**

Wolframm-Murray, Y. 2019 'Worked flint', in Brown 2019, 17–20

Wolframm-Murray, Y., Burke, J. and Atkins, R. 2023 *Bronze Age barrow and pit alignments at Upton Park, south of Weedon Rad, Northampton* Oxford, Archaeopress

Woodbridge, J., Fyfe, R.M., Roberts, N., Downey, S., Edinborough, K. and Shennan, S. 2014 'The impact of the Neolithic agricultural transition in Britain: a comparison of pollen-based land-cover and archaeological ^{14}C date-inferred population change', *J. Archaeol. Sci.* **51**, 216–24

Woodward, A. and Hill, J.D. 2002 *Prehistoric Britain: the ceramic basis* Prehistoric Ceramics Research Group Occasional Papers **3**, Oxford, Oxbow books

Woodward, A. and Hughes, G. 2007 'Deposits and doorways: patterns within the Iron Age settlement at Crick Covert Farm, Northamptonshire', in Haselgrove and Pope (eds) 2007, 185–203

Wright, D.W. 2012 '*Middle Saxon' settlement and society: the changing rural communities of Central and Eastern England* University of Exeter, unpublished thesis

Wyles, S.F. 2017 'Appendix C: Plant macrofossils', in CA 2017b, 48–51

Wyles, S.F. 2023 'Appendix L: Plant macrofossils', in CA 2023, 219–27

Yalden, D.W. 2020 *The analysis of owl pellets* Blandford Forum, The Mammal Society

Yates, D.T. 2007 *Land, power and prestige: Bronze Age field systems in southern England* Oxford, Oxbow Books

Young, A. 1967 'Appendix A: human remains', in Corcoran *et al.* 1967, 55–65

Zeder, M. and Lapham, H. 2010 'Assessing the reliability of criteria used to identify post-cranial bones in sheep, Ovis, and goats, Capra', *J. Archaeol. Sci.* **37**, 2887–905

Zeder, M.A. and Pilaar, S. 2010 'Assessing the reliability of criteria used to identify mandibles and mandibular teeth in sheep, Ovis and goats, Capra', *J. Archaeol. Sci.* **37**, 225–42

Zohary, D., Hopf, M. and Weiss, E. 2012 *Domestication of plants in the old world: the origin and spread of cultivated plants in West Asia, Europe, and the Nile valley* (4th edition) Oxford, Clarendon Press

Zvelebil, M. 1994 'Plant use in the Mesolithic and its role in the transition to farming', *Proc. Prehist. Soc.* **60**, 35–74

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Between 2022 and 2023, archaeological investigations were undertaken at Harlestone Park, Northamptonshire, exposing evidence for a landscape shaped by humans over several millennia. Straddling the Dallington Brook near New Duston, the site has shed light on how this riparian landscape has been exploited in varying ways since the Early Neolithic through to the modern day. Initially occupied periodically, perhaps on a seasonal basis, the site eventually became a focus for funerary activity during the Middle Bronze Age, with two groups of cremation burials situated either side of the brook. Subsequently, during the Late Bronze Age to Early Iron Age, the site was incorporated into an area demarcated by an extensive network of boundaries defined by alignments of pits.

During the most intensive phase of occupation, in the Middle to Late Iron Age, a large polyfocal settlement developed, characterised by multiple enclosures spanning both sides of the brook. Some enclosures contained evidence for domestic activity, including roundhouse buildings, grain storage pits and concentrations of artefacts, animal bone and charred cereal remains, while other areas were used for the management of livestock, in particular cattle, benefitting from the nearby grazing land along the brook.

After the settlement's decline the site saw sporadic occupation, most notably marked by a lime kiln established south of the brook during the Middle to Late Roman period, possibly serving the nearby Roman settlement at Duston.

The excavations undertaken at Harlestone Park contribute to evidence gathered from numerous developer-led archaeological investigations in Northamptonshire in recent years, which together provide valuable insights into the varying ways that the landscapes of the region have been utilised over time.

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BLOOR HOMES