Archaeological excavation at the Biomass Shed site Laurels Road, Offenham, Worcestershire

Worcestershire Archaeology

for Brodie Planning Associates

January 2019

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REGISTERED ORGANISATION CIfA

worcestershire county council

BIOMASS SHED SITE
LAURELS ROAD, OFFENHAM
WORCESTERSHIRE

Archaeological Excavation Report

Worcestershire Archaeology
Worcestershire Archive & Archaeology Service
The Hive
Sawmill Walk
The Butts
Worcester
WR1 3PD

SITE INFORMATION

Site name:	Biomass Shed site, Laurels Road, Offenham, Worcs
Site code:	WSM70440
Local planning authority:	Wychavon District Council
Planning reference:	18/00039/FUL
Central NGR:	SP 5740 5330
Commissioning client:	Brodie Planning Associates
Client project reference:	17.152-01
WA project number:	P5361
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Archaeological excavation at the Biomass Shed site, Laurels Road, Offenham, Worcestershire

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Summary

An archaeological excavation was undertaken at the Biomass Shed site, Laurels Road, Offenham, Worcestershire (NGR SP 5740 5330). It was commissioned by Brodie Planning Associates on behalf of their client, Valefresco Limited, in advance of the new agricultural building. Planning permission had been granted subject to a programme of archaeological works and, as a result, an area of approximately 892m² representing the outline of the footings for the building was excavated.

The site is located on sloping ground between the Broadway Brook and Laurels Road, Offenham, in an area of high potential for archaeological remains and in close proximity to a 19th-century discovery of Romano-British burials. There had been no preceding geophysical survey or evaluation trenching however, so the survival of archaeology in this specific location was uncertain before the project commenced.

Multiple phases of activity were identified. Early prehistoric remains were limited to a few small sub-oval features, likely to be tree-throw holes or natural hollows, whereas later prehistoric activity (from the middle Iron Age onwards) was clearly visible. Although this was not fully defined, the corner of a sub-rectangular enclosure, dating to the middle Iron Age, appeared to extend to the north-west beyond the limit of excavation. Possible storage pits internal to the enclosure suggest a domestic component to its use. This was also supported by the presence of decorated pottery in jar form. There was a small amount of briquetage in mid to late Iron Age deposits, indicating the use of salt, and a late Iron Age or early Roman oven/dryer in the western part of the site.

Archaeology dating to the Romano-British period, particularly the late 2nd to late 4th century, was the most prominent phase of activity. This mainly appeared to relate to a shifting pattern of agricultural land management, although the site location, high-status finds including window glass and box-flue tile, the presence of neonatal remains, an animal bone assemblage consistent with a Roman cultural influence, and a well-built rectangular stone structure thought to be a water tank, all suggested that the site was in close proximity to substantial high-status Roman structures, perhaps even a villa complex. The presence of a possible ‘curse tablet’, a rolled and flattened sheet of lead, found close to the water tank, may raise the possibility that there was also some votive focus.

There was no evidence of continuity into the Saxon period, with the site having been apparently abandoned in the late 4th or early 5th century. It is possible that there was deliberate demolition of stone structures in the vicinity, probably for recycling, particularly as the size of the stone rubble left behind in the pits and ditches suggests that the better material had been removed elsewhere.

Report

1 Introduction

1.1 Background to the project

An archaeological excavation was undertaken by Worcestershire Archaeology (WA) from 21 June until 13 July 2018 at the site of a new Biomass Shed on land off Laurels Road, Offenham, Worcestershire (NGR SP 5740 5330; Figure 1). The project was commissioned by Brodie Planning Associates on behalf of their client, Valefresco Ltd, in advance of the new agricultural building. Planning permission had been granted by Wychavon District Council, subject to a programme of archaeological works (planning reference 18/00039/FUL).

The site comprised the excavation of a single area in part of a larger field (Plate 1), representing the outline of the footings for the building. There had been no preceding geophysical survey or evaluation trenching, so the survival of archaeology in this specific location was uncertain before the project commenced. However, the Archaeological Advisor to Wychavon District Council (the Curator) had considered that the proposed development had the potential to impact upon possible heritage assets. Human remains, together with several Roman coins, had been discovered during 19th-century gravel quarrying nearby; these are not securely located but were thought to have been found to the immediate north-west of the present site.

No specific brief for the project was prepared but the project conforms to a model brief previously provided by Worcestershire County Council (WCC). A Written Scheme of Investigation (WSI) was prepared by Worcestershire Archaeology (WA 2018) and approved by the Curator.

The excavation also conforms to the *Standards and guidelines for archaeological projects in Worcestershire* (WCC 2010) and the industry guidelines and standards set out by the Chartered Institute for Archaeologists in *Standard and guidance: for archaeological excavation* (CIfA 2014a).

1.2 Site location, topography and geology

The site is located to the south-east of Offenham village centre, around 280m south of Laurels Road and approximately 2.4km to the north-east of Evesham (Figure 1). The excavation area was situated in a field in arable rotation, a small part of surrounding fields, greenhouses and other agricultural buildings on land managed by Valefresco Limited (Figure 2; Plates 1 and 2). This is adjacent to Broadway Brook to the south, and approximately 500m from the River Avon to the west.

The ground was broadly sloping, from approximately 28.5m AOD in the northern part of the field down to around 26.5m AOD in the south, close to the brook. The underlying bedrock geology is mapped as undifferentiated Blue Lias formation and Charmouth Mudstone formation; in the northern half of the site, this is overlain by superficial deposits of the Wasperton Sand and Gravel Member (BGS 2018).

2 Historical and archaeological background

2.1 Introduction

Offenham village itself is situated within the Vale of Evesham, on the east bank of the River Avon. The settlement area is bounded to the south by the Broadway Brook, a tributary which flows west into the main river. Historically, there has been a considerable amount of investigation and a number of significant archaeological sites have been identified within the village and its environs, which appear to indicate prolonged settlement. However, small-scale work, as part of more recent planning applications close to the site, did not encounter anything pre-dating the post-medieval period (e.g. WSM34043, Goad 2004; WSM36113, Phear 2007).

A search of the Worcestershire Historic Environment Record (HER) was completed in June 2018, centred on the current site. In addition, a detailed archaeological desk-based assessment (DBA) of

land 600m to the north-west, in the centre of Offenham, had been undertaken by Worcestershire Archaeology in 2012 (Keith-Lucas 2012; WSM47372) covering much of the surrounding area, including sites in proximity to Laurels Road. The results of these are summarised below.

2.2 Prehistoric

There is widespread evidence of prehistoric settlement activity in the locality, with the ford across the River Avon often considered likely to have been used as a crossing point in prehistory (WSM25302). A poorly located 19th-century find of a Neolithic black stone axe (WSM35820) is described as coming from Offenham, and a Bronze Age roundhouse settlement (WSM40495) was reported north of the Broadway Brook, approximately 200m to the west of the present site. A worked stone wrist guard was also discovered here in the 19th-century, together with 'two dome-shaped querns' (WSM02812).

More recently, excavation on land 900m to the south-west revealed an important Beaker period grave complete with well-preserved Beaker vessel, a stone wrist bracer and flint arrowheads, as well as adjacent prehistoric ditches and pits (Hayes 2018; WSM67766). West of the village church, around 1km to the north-west of the site, there are currently undated (possibly prehistoric) cropmarks interpreted as a ring ditch, a rectangular enclosure and possible droveway (WSM02811, WSM02813 and WSM05484).

2.3 Romano-British

The nearest large Roman road, Icknield Street (locally known as Buckle Street), runs broadly north to south approximately 5.5km to the east of Offenham. A secondary road has been traced branching south-west from Icknield Street, running through North Littleton and Offenham to the ford across the River Avon mentioned above (Cox 1953). It is likely that this road follows the course of Three Cocks Lane in Offenham, just over 500m north of the site. Cox (1953) suggests that evidence of Roman occupation was found immediately to the south of Three Cocks Lane and also along the northern bank of the Broadway Brook. This latter area includes both the area of the current site and the Romano-British cemetery (WSM02827) reported just over 150m to the north-west. Twenty skeletons were discovered here in 1887, together with associated artefacts including samian ware pottery, box-flue tiles, and some copper or bronze Roman coins, predominantly from the 2nd and 3rd centuries AD (WSM34735). It appears that these included three headless skeletons, and another one placed upon a stone slab (Cox 1953).

In addition, within a 1km radius of the site there are numerous Portable Antiquity Scheme (PAS) finds, primarily consisting of Romano-British coins. Around 800m north, to the north of Three Cocks Lane, a large key and coins from Tiberius (AD 14–37) to Allectus (AD 293–6) were found, possibly indicating another settlement site (WSM02810). Further Romano-British finds, including a handle, perhaps a chest fitting, were also found by a metal detectorist approximately 700m to the north-west (WSM07336).

2.4 Anglo-Saxon to medieval

The earliest historical references to Offenham are in a land grant to the Benedictine Abbey of Evesham in the early 8th century of 'Certain land or manses including one at Offeham' by Offa, King of Essex and Kendred, King of Mercia (VCH II 1971, 112–127). This would suggest that, at this time, Offenham was one of the smallest communities in the area, as the same document lists thirteen manses at Littleton, seven at Norton and 30 at Twyford (Cox 1953). Some traditional sources have argued that Offa of Mercia established a palace here in the later 8th century, perhaps the origin of the village name.

Certainly there was Anglo-Saxon occupation in the area, as a 5th to 7th century Saxon cemetery has been identified at Bennett's Hill, 1.2km to the north-east (WSM24394; NHLE1020258). The remains of three human burials were discovered during salvage recording following metal detecting (Dalwood and Ratkai 1997; WSM29654). A range of artefacts were closely associated with the burials, including

a number of amber and crystal beads and iron and copper alloy objects. Additional metal detecting, archaeological survey and surface finds suggest that further inhumations are present.

By the time of the Domesday Book the village of Offenham (WSM41461) was already well established and included fourteen households, with 25 villagers, 20 smallholders and four slaves (Thorn and Thorn 1982). Soon after AD 1160, the abbot of Evesham created a deer park at Offenham and erected a grange. Subsequent abbots built a dovecote near Court Farm, which has been argued to be the possible site of the grange (WSM02815), and also a large tithe barn for storage of produce. The site of this barn cannot now be traced, although there are several fields called 'Barn Ground' on the Tithe Map of 1841 (WSM24970). Evesham Abbey held the manor of Offenham until it was itself dissolved in 1539, and, shortly afterwards, the manor came into the hands of the Crown.

2.5 Post-medieval

Offenham village contains a number of post-medieval buildings, many of which are designated (listed buildings). Closer to the site are an undesignated, partly surviving threshing barn (WSM30498) and the remains of Faulk Mill (WSM07807), a former water-powered corn mill 200m to the west. Ordnance Survey maps from the 1st edition (1886) through to the present day show the dominance of fruit farming, and more recently of allotments and nurseries, in the wider area.

3 Project aims

The aim of the project, as outlined in the WSI (WA 2018), was to fully excavate archaeological remains within the footprint of the proposed new building, to the full depth of the impact horizon (where identified).

4 Project methodology

As noted above, a Written Scheme of Investigation (WSI) was prepared by Worcestershire Archaeology (WA 2018). A total area of approximately 892m² was excavated (Figure 2; Plate 2). Deposits considered not to be significant were removed under constant archaeological supervision using a 360º tracked excavator, employing a toothless bucket. Subsequent excavation was undertaken by hand. Clean surfaces were inspected and selected deposits were excavated to retrieve artefactual material and environmental samples, as well as to determine their nature. Deposits were recorded according to standard Worcestershire Archaeology practice (WA 2012) and the excavation area and feature locations were surveyed using a differential GPS with an accuracy limit set at <0.04m.

All fieldwork records were checked and cross-referenced. Analysis was undertaken through a combination of structural, artefactual and environmental evidence, allied to the information derived from other sources.

The project archive is currently held at the offices of Worcestershire Archaeology. Subject to the agreement of the landowner it is anticipated that it will be deposited with Museums Worcestershire.

5 Archaeological results

5.1 Introduction

The features and deposits recorded in the excavation area are shown in Figures 3–11 and Plates 2-11.

A sequence of site phases has been established, based on the stratigraphic sequence combined with the spot-dating from pottery and other artefacts. Features that could not be allocated to a particular period, mainly through a lack of finds or stratigraphic relationships, were defined as 'undated'.

Where applicable, deposits have been grouped together (e.g. elements forming an oven, or a similarly dated pit cluster, or multiple fill deposits along the length of the same ditch), and allocated context group numbers (CG) for ease of reference (Figure 4).

5.2 Site phasing

5.2.1 Natural deposits

The natural deposits were slightly variable, but consistently identified across the site. These mainly comprised light orange-yellow sandy limestone gravel, but changed to blue-grey clay in the lower-lying southern part of the excavation area. This reflects the British Geological Survey mapping as described above.

5.2.2 Phase 1: Early prehistoric

Two irregular sub-oval features located in the north-east quarter of the site area contained similar brownish-red gravelly fills — [1145] and [1168] (Plate 3; Figures 3 and 7). Neither contained any clear dating evidence: one fill (1143) included three flint flakes that were most likely to be from the earlier prehistoric period (Neolithic to Bronze Age), although these were typologically undiagnostic (Rob Hedge, pers. comm.). It is possible that these were tree-throw holes or just natural hollows.

5.2.3 Phase 2: Iron Age

The northern third of the site area, particularly the north-west part, contained a group of features dated to the Iron Age which clearly continued beyond the limits of excavation. Both the artefactual evidence and stratigraphic relationships suggested that there were sub-phases of activity within this overall phase.

Mid to late Iron Age (*c* 400-100 BC)

Possible enclosure

A large ditch (CG9), at least 0.90m wide and 0.64m deep, was partially visible in the north corner of the excavation area, potentially a sub-rectangular enclosure (Figure 7) with a pair of oval pits (CG25) within. The latter were heavily truncated by modern agricultural land use, only 0.18m in depth; they may have been used for storage.

The ditch had been re-cut on a similar alignment (CG10) but on a slightly larger scale (which had removed much of the earlier version), being 1.50m in width and 0.76m deep. There were numerous fills in the re-cut, some of which appeared to have been infilled from the (assumed) internal edge, whilst others were more indicative of weathering/slumping down the sides. Pottery of middle Iron Age date, including some decorated examples, was recovered from multiple contexts of the re-cut ditch.

Boundary

The ditch re-cut for the possible enclosure had also cut across the edge of a north-west to south-east aligned linear ditch (CG11) which continued across the site area (Plate 3; Figure 7). This was probably a boundary ditch, although it could perhaps have been an extension to the earlier version of the enclosure. It had a fairly steep-sided V-shape profile, 1.30m in width and 0.58m deep, and sterile gravelly fills, but a few small fragments of middle Iron Age pottery were recovered. The ditch had truncated an earlier gully on a similar alignment [1030].

Pit

To the south of the linear boundary was an isolated oval pit, very shallow at only 0.08m in depth [1094]. There was no pottery or other dating evidence within it, but the fill included heat-cracked stone and is considered most likely to be Iron Age in date, based on the surrounding archaeology.

Late Iron Age to early Roman (*c* 100BC-AD100)

Boundary re-cut

A smaller, shallower ditch with a U-shaped profile (CG12) had been re-cut along the length of the north-west to south-east linear boundary (CG11). This had a mid-dark grey fill with frequent heat-

cracked stones, animal bone, Iron Age briquetage, industrial waste, and a mixed assemblage of late Bronze Age, middle Iron Age and Roman pottery.

Oven/dryer

Cut into the top of the re-cut middle Iron Age enclosure ditch in the north-west corner of the site was the base of an oven or dryer (CG3), built in an oval pit 1.80m in length (Figure 5). The lower fill, possibly a bedding layer, contained Iron Age pottery and briquetage (1009). This was overlain by a deposit of burnt reddish-orange sand (1008) within the central area defined by a Blue Lias stone structure of the oven/dryer itself, placed as two parallel rows (Plate 4). The stones had been badly damaged by modern agricultural land use, with only a single rough course surviving.

Possible enclosure

In the north-east of the excavation area was the corner of a further possible sub-rectangular enclosure ditch (CG5), up to 2m in width and 0.71m deep: this truncated the earlier linear boundary and one of the early prehistoric sub-oval features. The upper fill contained animal bone and fragments of Iron Age pottery. Like the middle Iron Age example to the north-west, this ditch had also been re-cut (CG6), although in this case the re-cut was smaller and followed a route along the middle of the preceding ditch. The re-cut was up to 1.53m wide and 0.56m deep, containing animal bone, slag, flint, and prehistoric and Roman pottery. A tiny fragment of mid to late Roman pottery from the uppermost fill may be intrusive from an overlying furrow, although it could also suggest that the ditch was still visible as a depression throughout the Roman period, the main phase of site use.

5.2.4 Phase 3: Romano-British

The central part and southern third of the site area was dominated by features of Roman date, mainly linear ditches or gullies that clearly continued beyond the limits of excavation. Re-cutting of these ditches was extensive and the stratigraphic relationships, combined with the artefactual evidence, suggested that there were different periods of activity within this overall phase.

Mid to late Roman (late 2nd to late 3rd/early 4th century AD)

The linear features were orientated both north-east to south-west and north-west to south-east, in some cases intersecting, appearing to form an ordered arrangement of land management for drainage or small paddocks. A number of the ditches continued across the site area and may have acted as boundaries.

Ditch sequence

Close to the southern edge of the site, a ditch aligned north-west to south-east continued beyond the site area, perhaps forming a long boundary (CG16). This was 1.60m wide and 0.50m in depth in places and exhibited a moderately steep profile with a possible ‘ankle-breaker’ at the base, dated by late 2nd to 3rd century pottery. It had truncated a smaller gully on a similar alignment that also included 2nd to 3rd century pottery [1122].

A number of parallel north-east to south-west ditches and gullies cut across the top of this ditch (CG16). Close to the centre of the southern limit of excavation were two shallow gullies containing 2nd-century pottery, probably residual material (CG18, CG19). In the south-east of the site was another small gully that included mid-2nd to late 3rd century pottery (CG17). This had also cut across a small oval pit [1218], 0.80m by 0.48m in size, dated to the 3rd to 4th century, backfilled with a dump of animal bone (sheep/goat and cattle) as well as an isolated perinatal human bone (1217). In the south-west, a long linear continued from the southern boundary up into the northern part of the site. An earlier cut, up to 1.74m wide, had a brown silty fill containing mid-2nd to late 3rd century pottery and building rubble (CG13); a re-cut of the ditch was smaller, with similarly dated pottery, but had been backfilled with compacted grey-blue clay (CG14) (Plate 5).

In the central part of the site was a north-west to south-east possible boundary ditch that, like the parallel ditch to the south (CG16), continued all the way across the area (CG15). It was up to 1.17m wide and 0.48m deep and the upper fill included 3rd to 4th century pottery. A short stretch of ditch ran

parallel with this from the eastern limit of excavation [1147]; this was very shallow, containing mid-2nd to late 3rd century pottery, and may have been an earlier version of the boundary.

Pit cluster

Also close to the eastern edge of the site was a cluster of discrete features comprising three shallow pits or postholes in alignment, perpendicular to a short stretch of gully, potentially a beam slot (CG22). It was not certain, but these may have formed a small structural arrangement. Pottery, probably 3rd to early 4th century in date, was recovered from one of the pits/postholes.

Grave

Around 3m to the south of these was a small oval grave cut, 0.60m by 0.52m in size [1104]. The grave was very shallow but included a sub-adult individual, SK(1105), in an extended position, orientated approximately north to south with the head at the north end (Figure 6). Pottery dated to the 2nd to 3rd century was found in the fill, although this was fragmentary and may be residual material incorporated into the backfill (1106). Osteological analysis suggests that the individual was approximately one month old at the time of death (Section 7 below).

Late Roman (late 3rd to early 5th century AD)

Later Roman ditches mirrored the north-east to south-west and north-west to south-east alignment and layout of the previous ditches, suggesting continuity of land management.

Ditch sequence

Another possible boundary ditch (CG20) ran north-west to south-east across the centre of, and beyond, the site area. This example had been re-cut on at least one occasion (CG21), and was parallel with earlier ditches on the same alignment (CG15 and CG16). It contained mid-3rd and 4th century pottery and tile. This post-dated a linear ditch in the south-west part of the site, which continued to the north-east away from the southern boundary (CG8), on the same alignment and partially truncating the edge of previous ditches (CG13/CG14) (Plate 5). Ditch (CG8), up to 1.38m wide and 0.45m deep, with a dark silty fill rich in animal bone, stone rubble, tile, metal and 3rd to late 4th century pottery, also cut across an earlier boundary ditch (CG15/CG16). At the southern edge of the site this ditch included a cluster of dog and cattle skulls (fill 1158), which could perhaps be interpreted as a closure deposit (Plate 7); further north-east a piece of rolled lead was found, possibly a ‘curse tablet’ (from 1189 in the top of the ditch).

To the west of ditch (CG8) was a further shallow ditch forming an ‘L’ shape (CG24). Partially truncating the terminus of the ‘L’ shape ditch was a large oval pit 1.40m by 1.07m in size, 0.42m in depth [1226]; this contained a relatively substantial assemblage of 3rd to late 4th century pottery, animal bone, tile and stone rubble (1225).

Waterhole

Just to the east, slightly cut on one edge by ditch (CG8), was a large pit, likely to have originally been used as a waterhole (CG2; Figure 10). The pit was oval in shape, 1.96m by 1.68m in size and 1.28m deep, and had been dug through the earlier sequence of Roman ditches (CG13/CG14/CG15) down to the water table (Plate 6). The northern side had a staggered, more gradual profile, perhaps for ease of access, with the south-east more steeply sloping. In the base, sandy basal fills were overlain by deposits of clay, with some stone rubble inclusions but few finds overall. The upper, siltier fills contained animal bone, stone rubble and general 2nd to 4th century pottery, including part of a repaired jar (Plate 12), perhaps indicating that the feature had been used to dispose of waste. Environmental remains included charred wheat chaff, suggesting dumped waste from crop processing, and there were waterlogged plant remains indicative of both cultivated ground and grassland in the surrounds.

Drainage gully

The southern edge of the pit was cut by a shallow linear gully, up to 0.26m deep and 0.65m in width: this was aligned north-west to south-east across the centre of the site (CG7), although part of it had

been removed by a plough furrow. Above a clay fill in the base, the gully was partially but deliberately lined with fragments of stone rubble, suggesting it was used for drainage. This gully (CG7) is heading directly towards a rectangular stone-built structure (CG1) and may once have channelled water into (or away from) it.

Stone-built structure

Structure (CG1) had been constructed within a rectangular cut 2.70m long and 1.75m wide, lined with a thick deposit of impermeable blue-grey clay packing around the sides and base (1013), probably for water retention (Plates 10 and 11; Figure 11). It was dug down at least 0.68m from the current surface (machined level), though as the structure was left for preservation *in situ* the base of the cut was not fully observed. The tops of the walls were first encountered within the topsoil and had, therefore, been heavily damaged by modern agricultural practices.

The floor had been laid using unbonded large rough-hewn Lias stone slabs (1021), with a slight incline from north-east to south-west (0.10m fall). A roughly shaped stone pad (0.40m by 0.36m in size) placed centrally on the floor had been levelled using a wedge on one side (Plate 10). The walls were also constructed using rough-hewn Lias slabs, neatly finished in a slightly irregular stretcher bond form; these were variable sizes and often fractured, but invariably appeared to have once been trapezoidal or rectangular in shape, averaging around 0.24m long by 0.20m wide and 0.04m thick (1012). There was no indication of plastering or any other internal finishing on the walls. Up to sixteen courses were still present on the south-west side, with fifteen on the south-east and north-east, but the north-west side had suffered damage/collapse and only six courses remained. The overall outline of the structure was slightly tapered, so the internal space at the north-eastern end (1.06m) was not as wide as the south-western end (1.20m). Clearly, the part of the structure that had survived was that which would have been below the ground surface in the Roman period: it is possible that this was a subterranean cistern/water tank, or alternatively a small ornamental pool, with the central stone pad used either as a step/platform to aid access, or maybe as a pedestal for display of a decorative feature. On-site experimentation showed that it was still capable of holding water.

A gravel-rich silty fill in the base of the structure contained frequent charcoal-rich patches, with small fragments of Roman pottery, animal bone and nails (1020). Environmental remains from this deposit included poorly preserved charred cereal crop waste, perhaps part of dumped material after the structure was no longer in use. Above this was a dark silty fill containing abundant stone rubble (possibly from the west side of the structure itself), nails, slag, a copper pin, late 3rd to late 4th century pottery, and fragments of Roman window glass (1011; Plate 9; Figure 12), all indicative of demolition material and deliberate infill, and including material from a high status structure (especially the glass).

Pits

In the south-east of the site area were two slightly irregular sub-oval pits, both close to 2m in diameter and up to 0.61m in depth, located only 2m apart (CG23; Figure 8 and Figure 9). These had wide, moderately sloping profiles (Plate 8). The upper fills of each contained large assemblages of animal bone, tile, stone rubble and 3rd to late 4th century pottery; one also contained over 50 hobnails.

Pits and gully

To the north-east was a further cluster of later Roman features. One shallow pit [1088] cut the edge of an earlier ditch and contained late 3rd to 4th century pottery; another pit [1049] which included a small late 4th century Roman coin had been dug into the top of the late Iron Age to early Roman enclosure ditch in this area (CG5/CG6). Just to the west was a 3m long elongated sub-rectangular pit [1042] with late 3rd to late 4th century pottery in the fill and an oval pit [1046] that contained some Roman tile. Cut across the top of these was a thin and shallow curving gully, 10m in length (CG4): this was associated with a small posthole and dated to the 4th century.

5.2.5 Phase 4: Medieval to post-medieval

Overlying some of the Roman features was a thin layer of silty sand subsoil (1001), a former ploughsoil up to 0.12m in depth, only really present in the southern half of the excavation area. This deposit included residual Iron Age and later Roman pottery, as well as box-flue tile, and was undoubtedly created by agricultural disturbance.

Furrows and drains

Aligned approximately north to south across the central part and in the north-east corner of the site, and cut across the earlier archaeology, were remnants of two wide but shallow linear features identifiable as plough furrows (CG26). Medieval pottery of 13th-15th century was recovered; residual Roman pottery and building material were also present.

A series of post-medieval ceramic land drains were present in the southern half of the site.

5.2.6 Phase 5: Modern

Modern cultivation topsoil covered the site area (1000), 0.32m in depth and containing a large amount of residual Roman material, as well as stone rubble, suggesting extensive modern agricultural disturbance of the site. A former foul water drain pipe was present within the topsoil.

The north-east corner of the site had been heavily disturbed by a large intrusion [1130] backfilled with re-deposited natural gravels including modern greenhouse glass and metalwork.

5.2.7 Undated

A small number of features across the site remain undated and could not be allocated to a specific phase due to a lack of either artefactual or stratigraphic evidence, or both. This included two shallow pits or hollows in the south-east part of the site, a small isolated posthole, and a linear terminus extending beyond the northern limit of excavation.

6 Artefacts by Laura Griffin

The assemblage was dominated by artefacts of Roman date but smaller quantities of earlier prehistoric and Iron Age pottery were also present. Other contemporary finds varied in quantity and range, including other ceramic objects (Roman box flue tile, fired clay), glass, metal objects, iron slag and building stone (Table 1). Finds of later periods were found in only very small quantity and have not been included below.

material	total	weight (g)
Bronze Age pottery	4	38
middle Iron Age pottery	32	151
briquetage	7	37
Roman pottery	364	5260
medieval pottery	1	6
modern pottery	1	1
Roman tile	48	2201
medieval tile	1	163
fired clay	4	48

building stone	505	46202
flint	10	89.1
copper alloy	4	9
iron	92	377
lead	2	38
slag	37	1037
window glass	2	19
vessel glass	1	12

Table 1: Quantification of the artefact assemblage

6.1 Methodology

The finds work reported here conforms with the following guidance: for findswork by CIfA (2014b), for pottery analysis by PCRG/SGRP/MPRG (2016), for archive creation by AAF (2011), and for museum deposition by SMA (1993).

Recovery of artefacts was undertaken according to standard Worcestershire Archaeology practice (WA 2012). All hand retrieved finds were examined and identified, quantified and dated to period. Where possible, a *terminus post quem* was produced for each stratified context, which was used for determining the broad date of structural phases. Records were entered into a Microsoft Access database. Artefacts from environmental samples were examined and those worthy of comment are included below. Iron and copper alloy objects, but excluding hobnails, were radiographed by Drakon Heritage and Conservation, in order to aid identification where possible.

Pottery was examined under x20 magnification and recorded by fabric type and form (see Table 2 below). All fabrics were referenced to the fabric reference series maintained by Worcestershire Historic Environment and Archaeological Service (Hurst and Rees 1992; see http://www.worcestershireceramics.org). Sherds that could not be identified, or were too small to be identified accurately by fabric, were grouped within miscellaneous Roman fabric 98. The pottery was classified into form types on the basis of shape, size, rim type and decoration. Where possible, forms were categorised and dated using the appropriate published typology for the specific fabric type.

The preservation of sherds varied, with some displaying surface abrasion and softening (fine, oxidised fabrics, colour-coated wares and samian being most affected), whilst others were in good condition. Despite the surface abrasion, sherds were generally of a good size, as reflected in a higher than normal average weight of 13.34g, indicating that much of the material was likely to be relatively undisturbed since deposition. The assemblage also contained a high enough number of diagnostic sherds to enable a measure of 'Estimated Vessel Equivalent' (EVE) using rim measurement.

Where possible, the results from analysis of this assemblage have been compared to assemblages from other local and regional sites in an attempt to identify common themes. A selection of pottery forms is illustrated in Figure 12.

6.1.1 Catalogue of illustrated pottery and other finds (Figure 12)

1. Jar with fingernail impressions around the top of the rim in fossil shell and grog-tempered ware (fabric 4.7), late Bronze Age, context 1050, CG6
2. Jar with band of decoration below the rim in Palaeozoic limestone-tempered ware (fabric 4.1), middle Iron Age, context 1033, CG10

3. Jar with band of decoration below the rim in Palaeozoic limestone tempered ware (fabric 4.1), middle Iron Age, context 1015, CG10
4. Pulley-rimmed jar in oxidised Severn valley ware (fabric 12), 3rd-4th century AD, context 1154, CG23
5. Jar with simple, out-turned rim in South Midlands shell-tempered ware (fabric 23), mid-3rd to early 4th century AD, context 1117, CG23
6. Plain-rimmed bowl in Worcestershire imitation black-burnished ware (fabric 149), late 3rd-mid/late 4th century AD, context 1158, CG8
7. Fish dish in Worcestershire imitation black-burnished ware (fabric 149), late 3rd to mid/late 4th century AD, context 1011, CG1
8. Wide-mouthed jar in oxidised Severn valley ware (fabric 12) with lead repair, late 3rd-4th century AD, context 1246, CG2
9. Fragments of Roman window glass, context 1011, CG1
10. Folded lead 'curse tablet', context 1189, CG8

6.2 Pottery

fabric number	fabric name	total	weight (g)
2	Organic briquetage (BD 121)	8	69
3	Malvernian ware	6	20
4.1	Palaeozoic limestone-tempered ware	8	34
4.11	Shell and quartzite-tempered ware	1	9
4.2	Oolitic limestone-tempered ware	3	38
4.3	Fossil shell-tempered ware	2	3
4.4	Shell and sand-tempered ware	5	30
4.7	Fossil shell and grog-tempered ware (Earlier prehistoric)	3	29
5.1	Sand-tempered ware	2	3
12	Severn Valley ware	216	3208
12.1	Reduced Severn Valley ware	26	370
12.2	Oxidised organically tempered Severn Valley ware	2	43
13	Sandy oxidized ware	6	65
14	Fine sandy grey ware	9	101
15	Coarse sandy grey ware	7	225
19	Wheel-thrown Malvernian ware	2	11
22	Black-burnished ware, type 1 (BB1)	30	348

23	South Midlands shell-tempered ware	15	177
28	Nene Valley ware	3	13
29	Oxfordshire red/brown colour coated ware	3	24
33.1	Oxfordshire white mortaria	4	122
33.3	Oxfordshire red mortaria with red-brown slip	2	175
38	Oxfordshire white ware	1	29
43.1	Southern Gaulish samian ware	1	6
43.2	Central Gaulish samian ware	2	3
44	Rhenish ware (*Mosel Keramik*)	1	1
69	Oxidized glazed Malvernian ware	1	6
98	Miscellaneous Roman wares	32	91
101	Miscellaneous modern wares	1	1
149	Worcestershire imitation black-burnished ware	10	243

Table 2: Quantification of the pottery assemblage by fabric type

6.2.1 Bronze Age

Four sherds of Bronze Age pottery comprised three of a fossil shell and grog-tempered ware (fabric 4.7; contexts 1031, 1050 and 1192), and one of a shell and quartzite-tempered fabric (fabric 4.11; context 1146). Both fabric types were consistent with those identified at nearby Huntsman's Quarry, Kemerton (Woodward and Jackson 2015, 68), and are likely to be of local production. This group included a flat-topped jar rim decorated with incised finger nail impressions around the top (Figure 12, no.1), similar in form to a late Bronze Age vessel from Kemerton (Woodward and Jackson 2015, fig.57, no.10).

6.2.2 Mid to late Iron Age

A total of 32 sherds could be identified as middle Iron Age in date. All diagnostic sherds were from jar forms, with more complete and decorated examples being comparable with types published by Peacock (1968).

Fabric types identified comprised handmade Malvernian ware (fabric 3; context 1225), Palaeozoic limestone-tempered ware (fabric 4.1; contexts 1015, 1031 and 1033), oolitic limestone-tempered ware (fabric 4.2; contexts 1001 and 1161), fossil shell-tempered ware (fabric 4.3; context 1222), shell and sand-tempered ware (fabric 4.4; contexts 1009, 1015, 1033 and 1038) and sand-tempered ware (fabric 5.1; context 1124). All are commonly identified within assemblages of this date across south Worcestershire. A number of sherds were burnished and one vessel had additional decoration typical of this period in the form of a band of incised fingernail impressions just below the rim (contexts 1015 and 1033; Figure 12, nos 2–3).

The presence of these sherds would indicate domestic activity in close vicinity to the site during the middle Iron Age period. However, in the absence of any substantial structural remains, it is not possible to speculate on exactly what form this activity took.

Briquetage

Seven sherds of organic tempered briquetage were identified (fabric 2; contexts 1031, 1034 and 1081). All were abraded and none were diagnostic. However, the presence of these sherds indicates that salt from Droitwich was reaching the site during the mid to late Iron Age period.

6.2.3 Roman

Roman pottery formed the largest material group within the assemblage, amounting to 364 sherds and weighing 5.260kg.

Fabrics

A small number of Iron Age fabrics consisting of handmade Malvernian (fabric 3) and sand-tempered (fabric 5.1) and sandstone-tempered (fabric 5.2) wares continued to be produced in the early Roman period. A small number of sherds of these fabric types were identified in features of definite Roman date in areas of the site where no earlier activity is evident and, therefore, six sherds in these fabric types have been included for this period.

Typically for a rural site in Worcestershire, the group was dominated by locally produced pottery of Severn Valley (fabrics 12, 12.1 and 12.2) which formed 67% of the total Roman assemblage. Remaining fabrics were identified in smaller quantity but all save a handful were of types commonly found in Roman rural assemblages from this part of Worcestershire (see Table 2).

Local/regional wares

Severn Valley wares (fabrics 12, 12.1, 12.2 and 12.6)

As noted above, these formed the largest proportion of the locally produced pottery assemblage, totalling 244 sherds and remaining the dominant ware throughout this period of occupation. A significant proportion of these sherds was also diagnostic by form and could, therefore, be dated, providing much of the chronological data for the site sequence. Those that were undiagnostic were dated to the general established range for the production of Severn Valley ware, between the mid-1st and 4th centuries.

In addition to the most commonly identified standard Severn Valley ware fabric, two sherds of an organically tempered version (fabrics 12.2) were also present. This type is generally associated with forms of early Roman date and not thought to have been produced after the 2nd century AD. Although budget did not allow for more detailed quantification of the group, a range of further fabric variants were noted, all previously seen within assemblages from Worcestershire (Griffin 2015, 20). These include a very fine pinkish orange fabric with a powdery feel, an oxidised fabric with non-calcareous white inclusions (fabric 12.6) and a brownish orange fabric which was particularly notable for having distinct layers, often resulting in the flaking of sherd surfaces. Overall, the range of Severn Valley ware forms was standard for a rural site, with a narrow range of forms represented and jars dominating (Figure 12, nos. 4 and 8). A small number of tankards and bowls were also present.

Sandy oxidised ware (fabric 13)

Just six sherds within the assemblage could be identified as of this fabric type. None were diagnostic but sherds of this fabric are commonly mid-1st to early 3rd century in date.

Fine sandy grey ware (fabric 14)

As with the sandy oxidised ware, only a very small number of sherds were identified as being of fine sandy greyware – just nine sherds in total, all from jars. The source of this fabric is not clear, though the existing evidence suggests a number of production areas, possibly in Gloucestershire and Warwickshire.

Coarse sandy grey ware (fabric 15)

Just seven sherds could be identified as of this fabric type. Vessels of this fabric are commonly found in small amounts on Roman sites in Worcestershire and, as with the fine sandy greyware and sandy oxidised ware above, are likely to have been produced at more than one source, with forms and

decorative techniques indicating affinities with both Gloucestershire and Warwickshire products (Bryant and Evans 2004, 33). In general, vessels of this fabric date to the mid-1st and early 2nd centuries.

Wheel-thrown Malvernian ware (fabric 19)

Just two undiagnostic body sherds were identified as being of wheel-thrown Malvernian ware and dated 3rd–4th century. Both were highly abraded.

Worcestershire imitation black-burnished ware (fabric 149)

A small group of ten sherds were identified as being of this fabric, a type first identified within a late Roman assemblage from Upper Moor, which lies *c* 8.5km to the west of Offenham (Griffin 2005). In common with the examples from Upper Moor, the sherds had a distinctive black-surface finished with a scratchy burnish, and identifiable forms were all of bowls or dishes imitating those of Black-burnished ware type 1 (BB1).

All sherds were from contexts with *terminus post quem* dates of 3rd to mid/late 4th century onwards and therefore of significantly later date than their Dorset Black-burnished ware counterparts which they imitate, indicating that they were being produced to replace a narrow repertoire of BB1 bowl and dish forms following the decline of this industry around the mid-4th century (Figure 12, nos 6–7).

Non-local/traded wares

Black-burnished ware type 1 (fabric 22)

Although Dorset Black-burnished ware 1 (BB1) vessels formed the largest proportion of the non-local assemblage, it only amounted to 30 sherds (8.2%) of the assemblage. A number of sherds displayed sooting and/or evidence of burning attesting to use of the vessels over a fire, for cooking purposes. The majority of sherds were diagnostic and displayed a narrow range of forms, primarily bowls, dishes and jars, and all were of commonly identified types (Seager Smith 1993). Vessels spanned the period of supply ranging from the established date for the first occurrence of this ware in the Midlands region of AD 120 through to the mid-4th century.

South Midlands shell-tempered ware (fabric 23)

A total of fourteen sherds of South Midlands shell-tempered ware were retrieved. Vessels of this fabric are commonly dated later 4th-early 5th century in this region. However, the three diagnostic rim sherds (Figure 12, no. 5) from the group indicate these examples to be of a mid-3rd to early 4th century date (cf Brown 1994, fig. 29, no. 165). This earlier-than-expected date was confirmed by associated finds and the site phasing.

Nene Valley ware (fabric 28)

Three sherds were all dark brown-slipped as characteristic of this wear type and one was further decorated with rouletting. The two larger sherds (contexts 1001 and 1225) were from beaker forms of 3rd-4th century date (Howe *et al* 1980).

Oxfordshire wares (fabrics 29 and 38)

Oxfordshire wares comprised just three sherds of red/brown colour-coated ware (fabric 29) and one of white ware (fabric 38). One sherd of colour-coated ware was identified as being from a narrow-necked jar with out-turned rim which could be dated AD 270–400+ (Young 1977, form C16). The remaining sherds were undiagnostic and could only be given a general date range AD 240–400.

Oxfordshire mortaria (fabrics 33.1 and 33.1)

All mortaria from the site were of Oxfordshire production. Sherds included four of white-firing fabric (fabric 33.1) and two of the red/brown-slipped variant (fabric 33.3). Diagnostic sherds came from two dishes of a form thought to be copying samian Dr. 31 (Young 1977, C45), datable from AD 270 onwards (context 1360, CG45; context 1548, CG30). This mortarium had a hooked rim but the sherds were not diagnostic enough to identify a specific form type.

Imported wares

Samian ware (fabric 43.1 and 43.2)

Three sherds of samian ware were recovered, all small and highly abraded with little slip surviving. None were diagnostic but one was of South Gaulish production and could be dated 1st to mid-2nd century (fabric 43.1; context 1278), whilst the remainder were Central Gaulish and 2nd to mid-3rd century in date (fabric 43.2; contexts 1154 and 1243).

Rhenish ware (fabric 44)

A single fragment of black-slipped fabric was thought to be of this fabric type (context 1154).

Miscellaneous unidentified Roman sherds of note (fabric 98)

A total of 32 sherds could not be identified by fabric type. However, nineteen of these sherds were of a fine, micaceous oxidised fabric, reminiscent of Oxfordshire products. Although mainly small and abraded, a small number of sherds had identifiable decoration in the form of rouletting and one diagnostic sherd was identified as being from a beaker similar to an example published by Young (1977, O20.7), further supporting the likelihood that these sherds were in fact Oxfordshire products.

Functional composition of the assemblage

The rim sherds present within the assemblage amounted to a Rim Equivalent (RE) total of 4.03 (Table 3). Five main categories were identified and classified based on the accepted definitions (Millet 1979; Evans 1993). These were beaker, bowl/dish, jar, tankard and mortarium.

pot form type	EVE (RE)	% of group
bowl/dish	0.68	16.9
jar	2.44	60.0
mortarium	0.35	8.7
beaker	0.22	5.5
tankard	0.34	8.4

Table 3: EVE (RE) by form type

Range of forms

The relative proportions of vessels of each form as established by EVE rim equivalent (RE) is presented in Table 3. From these figures, it can be clearly seen that the jar was the dominant vessel type present, accounting for 60% of diagnostic forms identified. This figure, along with the relatively small proportion of bowl and dishes at just 16.9%, is consistent with a pattern of use frequently noted within assemblages from rural sites, where jars commonly constitute over 50% and bowls under 30% of forms identified (Jeremy Evans, pers. comm.). Likewise, the proportion of drinking vessels (tankards and beakers) at 13.9% and of mortarium at 8.7%, also fit into this established pattern of rural consumption. The high frequency of jar forms has been attributed to the versatile nature of this form, as it can serve a variety of functions, including the storage, cooking and serving of foodstuffs.

6.2.4 Summary and discussion of the Roman pottery

Dating of the assemblage, in combination with the structural analysis, indicated that the main phase of Roman activity/occupation (Phase 3) could be split into two sub-phases.

Mid to late Roman (late 2nd to late 3rd/early 4th century AD)

Pottery of this sub-phase totalled 59 sherds and largely came from ditch fills (CGs 13, 14, 15, 16, 17, 18 and 19), with smaller amounts retrieved from the pit cluster (CG22) and grave fill (context 1106). The above average weight of 14.3g suggested minimal disturbance following initial discard.

A narrow range of fabric types was represented, with oxidised Severn Valley ware (fabric 12) and BB1 (fabric 22) dominating. Identifiable forms fell into two distinct groups with those of Severn Valley ware, comprising wide-mouthed jars and tankards, and those of BB1, predominantly bowl/dish types.

Other fabrics of note included four sherds of Worcestershire imitation black-burnished ware (fabric 149; CG15 and context 1217), and a single rim of South Midlands shell-tempered ware (fabric 23; CG15). Both of these fabric types are traditionally taken to signify very late Roman activity (late 4th century onwards) in this region. However, stratigraphic relationships would appear to challenge this established dating. It was also noted that the form of the shell-tempered jar rim was of a simple out-curved type of mid-3rd to early 4th century, rather than the undercut rim form commonly associated with late 4th century assemblages (Brown 1994, fig.29, no.171). It should be noted that shell-tempered jars of similar date were identified within the assemblage from The Hive, Worcester (Evans 2018, 113). Here it was acknowledged that these earlier forms might indicate that this ware was reaching Worcestershire in small quantities earlier than previously thought, particularly in the south-east part of the county and in urban centres.

Late Roman (late 3rd to early 5th century AD)

A much larger assemblage amounting to 249 sherds was retrieved from contexts in this later sub-phase. Although a proportion of this material was residual and derived from earlier Roman occupation, the average sherd weight was once again above average at 14.2g. This could partly be due to the presence of more substantial sherds such as those from mortaria, but, in general, sherds were of similar size and preservation as those from the earlier phase, once again suggesting low levels of post-depositional disturbance. This is certainly the case for material retrieved from the waterhole (CG2) and the two pits in the south-east part of the site (CG23), which appear to have been deliberately backfilled with domestic waste and demolition debris.

In common with the previous sub-phase, the group is dominated by Severn Valley ware, followed by BB1. However, datable forms in these fabrics indicate that by the late 3rd/early 4th century, many of these sherds were residual. This is nicely illustrated by the presence of a repaired late 3rd-4th century Severn Valley ware wide-mouthed jar (Webster 1976, no.28) with a lead rivet still *in situ* (CG2, context 1246; Figure 12, no.8). This implied decline in Severn Valley wares appears to have coincided with an influx of non-local ware types such as Nene valley colour-coated ware (fabric 28) and Oxfordshire wares (fabrics 29, 33.1 and 38). The occurrence of these fabrics, alongside the continued presence of South Midlands shell-tempered ware (fabric 23) and Worcestershire imitation black-burnished ware (fabric 149), strongly suggests continuation of activity on the site into at least the late 4th century.

6.3 Ceramic building material

Ceramic building material amounted to 48 fragments of Roman tile weighing 2.201kg (Table 1). All were abraded and the average fragment weight was just 45.8g.

Fabrics

It was not possible to carry out formal fabric analysis within the constraints of this project. However, at least five different types were noted during quantification, all oxidised and largely having a fine sandy matrix.

Forms

All diagnostic pieces came from box-flue tiles. All were fragmentary but where measurable, thickness of these pieces varied between 15–24 mm. In addition, there were two fragments which were

noticeably thicker at 31 and 34 mm and although neither had any other diagnostic features, it is suspected that they could be *lydion*, a type of brick commonly used in the bonding courses of walls.

Just four fragments were sanded and a further three had what appeared to be gravel impressions on the lower surface.

Diagnostic features

Diagnostic features consisted primarily of combing to the surface of box flue fragments with evidence of 4-, 5- and 7-tooth combs having been used for this. In addition, one of these combed pieces also had notch in one corner, which was identified as being part of the air-circulation vent (*cf* Brodribb 1987, 75).

6.3.2 Summary

The vast majority of the ceramic building material fragments (40 in total) came from contexts associated with later Roman activity on the site (sub-phase 3.2), with just three very small pieces from earlier Roman ditch fills (CG13, CG15 and CG16). The remaining five were residual.

Although there were no remains of obviously domestic buildings within the excavated area, the presence of a stone-built water tank, the large amount of building stone, plus other structural and domestic debris, strongly indicates the presence of a fairly substantial building in the immediate vicinity. Furthermore, the large amount of stone roof tile observed (see below) would also account for the lack of ceramic *tegulae* and *imbrices* within the assemblage.

6.4 Stone building material

Stone building material amounted to 505 fragments of Roman roof tile weighing 462.02kg (Table 1). This total includes 466 fragments (416.0kg) which were recorded and discarded on site. All were damaged or abraded, and the average fragment weight was just 45.8g. All could be identified as being of locally occurring Blue Lias stone.

Forms

The majority of the assemblage comprised flat tile/slab forms measuring between 20–45mm in thickness. Although no complete dimensions were surviving, it would appear that some were very sizable with the largest example being greater than 470mm in length. In addition, there were five thicker brick/block types ranging between 59–145mm thick.

Diagnostic features

Few diagnostic features were noted. However, the pieces of brick/block had clearly been cut into shape and one had a right-angled notch cut into one edge, although the function of this was unclear. In addition, one tile had a partial circular hole indicating that it had been used for roofing.

6.4.2 Summary

As in the case of the ceramic building material, the vast majority of building stone (390 in total) came from contexts associated with later Roman activity on the site (sub-phase 3.2). It was also noted that of the 40 pieces which came from contexts in the earlier Roman sub-phase 3.1, 38 were from a ditch fill (CG13) which was heavily truncated by a later Roman ditch (CG8) and, therefore, there may have been some mixing of material. There was, however, no definite sign of a building within the excavated area, despite the presence of a stone water tank, plentiful building stone, plus other structural and domestic debris, all strongly indicating the presence of a fairly substantial building in the immediate vicinity. Furthermore, the lack of ceramic roofing tile proves that stone tiles were used for roofing; a 3rd/4th-century date for this method of construction is in keeping with the use of stone roofing tiles at the Childswickham villa *c* 7km to the south-east in this period (Hurst and Roe 2004), and a move away from ceramic to stone roofing tile at the Bays Meadow villa, Droitwich, by the 4th century (Roe and Barfield 2006).

6.5 Glass

Two adjoining fragments of window glass (Figure 12, no. 9) were retrieved from the general demolition debris forming the upper fill of the stone-built ?water tank (CG1). The pieces comprised the corner of a bluish-green pane of matt/glossy type. This, along with the thickened, uneven edges indicates it to a cast pane manufactured by pouring, a technique common to the 1st–2nd centuries AD (Harden and Price 1971, 367–8).

Window glass is an extremely rare find in this region, with Bays Meadow villa in Droitwich being the only other non-urban site in Worcestershire on which fragments have been found (Johnstone 2006, 211). Here examples of both the early matt/glossy and the later double-glossy types were identified.

The date of the glass from this site may indicate longevity or re-use of the glass, which is known to have been widely recycled (Cool and Jackson 2004, 443), or that any high status structure on the site was established in the earlier part of the Roman period (perhaps the late 2nd century). Its burial context suggested an association with demolition/abandonment in the later Roman period.

6.6 Metalwork

Iron

A total of 92 pieces of iron weighing 377g were retrieved from the site, the vast majority (85 fragments) coming from contexts in sub-phase 3.2. There were 70 hobnails of which 57 came from a single pit (fill 1154, CG23) and a further seventeen were retrieved from a shallow ditch (CG8). Although from different areas of the site, the fills of both features were similar, that is had been deliberately backfilled with construction rubble and other domestic debris towards the end of occupation. The pit in which the largest group of nails were found was fully excavated and, therefore, it would seem likely that these represent a single shoe. The remaining iron objects from Roman contexts were highly corroded, including nail fragments, a possible hinge and a number of fragments of undiagnostic iron sheet, one of which could possibly be a knife blade (context 1043). This could not be confirmed even following x-ray due to poor preservation, however.

Copper alloy

Just four copper alloy objects were present, two of modern date (topsoil) and two from later Roman features (CG1 and pit 1049). These latter finds included a small, radiate coin which was unfortunately too corroded to identify further (fill 1048, sub-phase 3.2). However, the dating for a coin of this type and size is consistent with that of the later Roman phase. The remaining find was very small and unidentifiable (CG1).

Lead

Four pieces of lead were retrieved from the site. These included part of the rivet associated with the repaired Severn Valley ware jar (CG2; see above), and two unidentifiable amorphous fragments (CG23 and topsoil).

‘Curse tablet’

In addition to the above, what appeared to be a rolled and flattened sheet of lead was also retrieved (upper fill of ditch CG8; Figure 12, no. 10). This was too corroded and unstable for an attempt to be made at unfolding this within the limitations of this project, although it is possible that future funding could be secured in order for an additional specialist to attempt stabilisation and further investigation, Similar finds have been found associated with the sacred spring at Bath, as well as on a number of temple/shrine sites across the Severn Estuary region including Uley, Gloucestershire (Woodward and Leach 1993, 112). These are normally considered to be votive objects or ‘curse tablets’, with a large number being inscribed with names of suspects in reported crimes, or invoking the gods to act and settle disputes. The tight folding and corrosion products on the Offenham example mean that it is not possible to tell at this stage whether any text or lettering survives, if in indeed it was inscribed.

However, it appears to be within the general size range for a curse tablet, and could measure *c* 70mm in length if rolled out to its full extent.

Although not obviously a temple or ritual site, water was clearly an important feature here: the stone-built structure (CG1) is thought to have contained water, either as part of a wider water management system or as an ornamental pond. There was potentially a villa complex, perhaps including a bath house, in close vicinity to the excavated area. It is also of note that the ditch fill from which this object came also contained dog and cattle skulls, potentially indicative of a closure deposit (see section 7.4 below).

6.7 Other finds

Fired clay

Four fragments of fired clay weighing 48g were retrieved from features of late Iron Age (CG3 and CG10) and Roman date (contexts 1062 and 1087). None were diagnostic.

Slag

An assemblage of 37 pieces of iron slag was retrieved. Although a small quantity, the presence of this material in contexts of late Iron Age and Roman date (sub-phases 2.2 and 3.2), suggests some iron working in the vicinity of the site. The group largely comprised smithing waste in the form of hammerscale, smithing slag and two possible smithing hearth bottoms (CG1, CG6, CG8 and CG12; contexts 1043 and 1087). However, four pieces of tap slag were also retrieved (CG23 and CG26).

The majority of this material (26 fragments), including hammerscale, smithing slag and a possible smithing hearth bottom, was retrieved from the demolition material backfilled into the stone-built tank (CG1, sub-phase 3.2). The other possible hearth bottom came from the upper fill of Late Iron Age/early Roman enclosure ditch, thought to have been deliberately backfilled (CG6).

7 Environmental evidence

Environmental sampling was undertaken according to standard Worcestershire Archaeology practice (WA 2012). The environmental project conforms to guidance by CIfA (2014a) on archaeological excavation and further guidance by English Heritage (2011) and the Association for Environmental Archaeology (1995).

7.1 Plant remains by Elizabeth Pearson

7.1.1 Methods and process

Samples were taken according to standard Worcestershire Archaeology practice (2012). A total of eleven samples (each of up to 40 litres), including one 25cm monolith (sample <9>) and a column of five spits from the base of a feature interpreted as a waterhole (CG2; sample <10>), were taken from the site (Table 4a).

For each of the samples from the possible waterhole, a sub-sample of 1 litre was processed by the wash-over technique as follows. The sub-sample was broken up in a bowl of water to separate the light organic remains from the mineral fraction and heavier residue. The water, with the light organic faction was decanted onto a 300µm sieve and the residue washed through a 1mm sieve. The remainder of the bulk sample was retained for further analysis. The remaining samples were processed by flotation using a Siraf tank. The flots were collected on a 300µm sieve and the residue retained on a 1mm mesh. This allows for the recovery of items such as small animal bones, molluscs and seeds.

The residues were fully sorted by eye and the abundance of each category of environmental remains estimated. A magnet was also used to test for the presence of hammerscale. The flots were scanned using a low power MEIJI stereo light microscope and plant remains identified using modern reference

collections maintained by Worcestershire Archaeology, and a seed identification manual (Cappers *et al* 2012). Nomenclature for the plant remains follows Stace (2010).

Of the non-waterlogged bulk samples, seven were processed and, as it was clear that these samples produced only a low level of environmental remains, five were assessed. Three out of five spits were assessed from the possible waterhole. The results of this assessment are presented in the report. Subsequently, analysis was carried out on two samples from the waterhole. Estimates of abundance for each species, rather than full counts, were produced in order to best make use of a limited budget.

context	sample	spit/sub-sample	feature type	fill of	period	phase	context group	sample volume (L)	volume processed (L)	flot & residue assessed
1008	1		Oven	1010	Iron Age	2.2	CG3	20	20	Yes
1011	2		Structure	1012	Roman	3.2	CG1	20	10	Yes
1020	3		Structure	1012	Roman	3.2	CG1	40	10	Yes
1050	4		Ditch	1128	Iron Age	2.2	CG6	20	0	No
1106	5		Grave	1104	Roman	3.1	-	20	20	Yes
1158	6		Ditch	1160	Roman	3.2	CG8	20	10	Yes
1217	7		Pit	1218	Roman	3.1	-	40	10	No
1245	8		Pit	1255	Roman	3.2	CG2	40	10	No
1249	10	0.00-0.05m	Pit	1255	Roman	3.2	CG2	3	1	Yes
1251	10	0.05 - 0.10m	Pit	1255	Roman	3.2	CG2	1	0	No
1251	11		Pit	1255	Roman	3.2	CG2	20	10	Yes
1252	10	0.10-0.15m	Pit	1255	Roman	3.2	CG2	3	1	Yes
1254	10	0.15 - 0.20m	Pit	1255	Roman	3.2	CG2	1.5	0	No
1254	10	0.20-0.25m	Pit	1255	Roman	3.2	CG2	1.5	1	Yes

Table 4a: List of bulk samples

25cm monolith/column	Level at metres AOD
0.00-0.05m	27.07-27.02m AOD
0.05-0.10m	27.02-26.97m AOD
0.10-0.15m	26.97-26.92m AOD
0.15-0.20m	26.92-26.87m AOD
0.20-0.25m	26.87-26.82m AOD

Table 4b: Spit/sub-sample level concordance

Discard policy

Remaining sample material and scanned residues will be discarded after a period of three months following submission of this report unless there is a specific request to retain them.

7.1.2 Results

The results are summarised in Tables 5, 6 and 7.

With the exception of waterlogged environmental remains from fills (1249 and 1252) in the possible waterhole (CG2), uncharred remains consisted of mainly small wood fragments and herbaceous root fragments. The latter are assumed to be modern and intrusive, as they are unlikely to have survived in the soils on site for long without charring or waterlogging.

Late Iron Age to early Roman (*c* 100 BC–AD 100)

Only a small quantity of unidentifiable charcoal fragments and mollusc remains were recorded in the burnt fill (1008) of an oven base (CG3). As most of the mollusc remains consisted of a burrowing snail, *Ceciliodes acicula*, these may be intrusive. These were associated with occasional fragments of fired clay and heat-cracked stone. As there were, therefore, no identifiable plant remains contemporary with the oven, it was not possible to determine its function.

Mid to late and Late Roman (late 2nd to early 5th century AD)

A moderate quantity of charred cereal crop remains were present in the lower fill (1020) of a stone-built structure (CG1). These consisted of emmer or spelt wheat (*Triticum dicoccum/spelta*), hulled barley (*Hordeum vulgare*) and oat (*Avena sp*) grains. A single glume base of emmer wheat (*T. dicoccum*) suggests that at least some of the glume wheat grains included emmer wheat. This material is most likely to have been dumped in the structure, as the fills appeared to represent demolition and disuse. Preservation of this material was poor, and hence no further work was carried out.

Occasional chaff (glume bases) of spelt wheat (*Triticum spelta*) was recorded in fill (1106) of grave [1104]. This is likely to derive from soil backfilled into the grave. Occasional charred remains (grains) of emmer or spelt wheat were also found in fill (1158) of ditch (CG8).

Waterlogged plant remains in the basal fill (1254, at 0.20–0.25 m) of the possible waterhole (CG2) consisted only of occasional unidentified wood fragments. Preservation of plant remains in overlying spits (0.10–0.15m and 0.00–0.05m) was good and of similar composition. The assemblages included weeds of nitrogen-rich cultivated ground, such as common nettle (*Urtica dioica*), henbane (*Hyoscyamus niger*) and fat hen (*Chenopodium album*), alongside weeds which could derive from either cultivated ground or grassland. The latter included, for instance, knapweed/cornflower (*Centaurea* sp), black mustard (*Brassica nigra*), white horehound (*Marrubium vulgare*), smooth sow-thistle (*Sonchus oleraceus*) and prickly sow-thistle (*Sonchus asper*). The *Centaurea* species is most likely to be a knapweed, as *C. jacea*-type pollen was also identified (see below). Lesser stitchwort (*Stellaria graminea*) was the only species specific to grassland. These remains are typical of waterhole assemblages, suggesting a mosaic of cultivated ground and grassland, which is consistent with the presence of cereal pollen and dung fungi (see below). Although flax, in association with dodders (a plant parasitic on flax), and hemp or hop pollen was identified, no macroscopic remains of these plants were recorded. Small quantities of charred spelt wheat chaff were also recovered from

these samples, suggesting some processing of cereal crops in the vicinity of the waterhole, or dumping of cereal crop processing or hearth waste.

context	sample	spit/sub-sample	large mammal	small mammal	human bone	frog/td	mollusc	insect	charcoal	charred plant	waterlogged or uncharred plant	artefacts
1008	1		occ				occ**				occ*	occ fired clay,heat-cracked stone, chert; **mostly *Cecilioides acicula*, hence could be intrusive
1011	2		occ	occ		occ	occ			occ		occ hammersale, pot Fe slag, building stone, abt coal
1020	3		occ			occ	occ			occ	occ*	occ oystershell, pot, Fe slag, chert
1106	5				occ					occ	mod-abt*	occ pot
1158	6		occ	occ			occ		occ			mod coal, occ Fe slag, building stone, chert
1249	10	0.00 - 0.05 m					occ	occ		occ-mod	abt	
1251	11		occ	occ			occ			occ	abt	occ wood, building stone, chert
1252	10	0.10 - 0.15 m						occ-mod		occ	abt	

*Table 5: Summary of environmental remains from selected samples; occ = occasional, mod = moderate, abt = abundant, * = probably modern and intrusive, ** = uncertain whether intrusive or contemporary*

context	sample	preservation type	species detail	category remains	quantity/diversity	comment
1008	1			molluscs		Mostly *Ceciliodes acicula*, hence could be intrusive
1008	1	ch	unidentified wood fragments	misc	+/low	
1008	1	?wa*	*Chenopodium album*	seed	+/low	
1011	2	ch	*Hordeum vulgare* grain (hulled)	grain	+/low	Poorly preserved
1011	2	ch	*Triticum spelta* spikelet fork	chaff	+/low	
1011	2	?wa*	*Urtica urens*, *Chenopodium album*, *Sonchus oleraceus*	seed	++/low	
1020	3	ch	*Triticum dicoccum* glume base, *Triticum dicoccum*/*spelta* grain, *Hordeum vulgare* grain (hulled), *Avena* sp grain, *Rumex* sp, *Festuca*/*Lolium* sp grain, unidentified seed	grain	++/low	Poor preservation
1020	3	?wa*	*Ranunculus* sb gen *Batrachium*	seed	+/low	
1020	3	ch	*Triticum dicoccum*/*spelta* grain, *Hordeum vulgare* grain (hulled), *Avena* sp grain, *Bromus* sp grain	grain	++/low	
1020	3	ch	*Vicia sativa* ssp *nigra*, *Rumex* sp, *Agrostemma githago* fragments, *Festuca*/*Lolium* sp grain	seed	++/low	
1020	3	ch	*Triticum spelta* glume base	chaff	+/low	
1106	5	?wa*	*Ranunculus arvensis*, *Ranunculus* sbgen *Batrachium*, *Urtica urens*, *Betula pendula*, *Persicaria maculosa/lapathifolium*, *Stellaria media*, *Chenopodium album*, *Atriplex* sp, *Solanum nigrum*, *Marrubium vulgare*, Mentha aquatica, *Sonchus oleraceus*, *Alisma plantago-aquatica*, *Carex* sp (3-sided) nutlets	seed	++/low	
1106	5	ch	*Triticum spelta* glume base	chaff	+/low	
1158	6	ch	*Triticum dicoccum*/*spelta* grain	grain	+/low	
1158	6			molluscs	+/low	

Table 6: Assessment of plant remains from non-waterlogged bulk samples

Key for Table 6:

preservation	quantity
ch = charred	+ = 1 - 10
?wa = waterlogged or uncharred	++ = 11- 50
	?wa* = probably modern and intrusive

latin name	family	common name	habitat	1249 (0.00 – 0.05m)	1252 (10 – 0.15m)	1254 (0.20 -0.25m)
Waterlogged plant remains						
Fumaria sp	Papaveraceae	fumitory	ABC		+	
Ranunculus acris/repens/bulbosus	Ranunculaceae	buttercup	CD		+	
Urtica dioica	Urticaeae	common nettle	ABCD	++	++	
Urtica urens	Urticaeae	small nettle	AB		++	
Brassica nigra	Brassicaceae	black mustard	ABF		+	
Polygonum aviculare	Polygonaceae	knotgrass	AB	++	++	
Persicaria/Polygonum sp	Polygonaceae	knotgrass	AB	+		
Stellaria media	Caryophyllaceae	common chickweed	AB		+	
Stellaria graminea	Caryophyllaceae	lesser stitchwort	D	+		
Chenopodium album	Amaranthaceae	fat hen	AB	++	++	
Atriplex sp	Amaranthaceae	orache	AB	++	+/++	
Hyoscyamus niger	Solanaceae	henbane	AB	+	+	
Marrubium vulgare	Lamiaceae	white horehound	ABD	++		
Centaurea sp	Asteraceae	knapweed/cornflower	ABD	+		
Sonchus oleraceus	Asteraceae	smooth sow-thistle	ABD		+	
Sonchus asper	Asteraceae	prickly sow-thistle	ABD	+	+	
Aethusa cynapium	Apiaceae	fool's parsley	AB	+		
	unidentified wood fragment			+++	+++	+
Charred plant remains						
Triticum spelta glume base	Poaceae	spelt wheat	F	++	+	

Table 7: Plant remains from waterhole CG2

Key for Table 7:

habitat	quantity
A= cultivated ground	+ = 1 - 10
B= disturbed ground	++ = 11- 50
C= woodlands, hedgerows, scrub etc	+++ = 51 - 100
D = grasslands, meadows and heathland	
E = aquatic/wet habitats	
F = cultivar	

7.1.3 Summary and discussion

The site is situated on freely draining slightly acid loamy soils which support neutral and acid pastures and deciduous woodland (Cranfield Soil and AgriFood Institute 2018). This would suggest an environment which is not conducive to a high component of arable agriculture. Nevertheless, the surrounding soils are highly fertile base-rich pastures and classic chalky boulder clay, which is, today, mainly arable with some grassland. As the site features and artefacts appear to suggest that it is on the margins of a villa complex, it is likely, therefore, that the environmental assemblages reflect arable produce associated with a villa estate, possibly cultivated on fertile base-rich soils. As no weed seeds were associated to indicate the types of soils on which the cereal crops were grown, this interpretation is based on known soil types only.

Comparison with nearby sites

No environmental remains have been reported on from sites within the immediate vicinity. However, extensive sampling was carried out on an early Roman settlement and a later villa building at Perrin's Farm, Childswickham, along the Cotswold Spring Supply Trunk Main *c* 7km to the south-east of Offenham. Deposits of charred cereal crop waste were concentrated in early Roman deposits (1st century BC to mid-1st century AD) associated with a phase of activity pre-dating the villa-type building (Pearson 2004). Although no evidence of stored, processed grain was found, it is likely that the processing waste was the result of intensive arable cultivation, of which there is much evidence in south-east Worcestershire. In contrast, only low levels of charred cereal crop debris were recorded from the Biomass Shed site. There was an arable signature in the pollen spectrum from the waterhole however, associated with some charred cereal crop debris assumed to be dumped crop waste. The character of the soils on which the Biomass Shed site is located (lower fertility) and in the surrounding area (high fertility) suggests that arable produce was likely to have been brought in from the surrounding hinterland. The source of the arable produce is most likely to have come from agricultural land located on the same soil type as that surrounding the Perrin's Farm villa site at Childswickham.

7.2 Pollen by Suzi Richer

7.2.1 Methods and processing

A 25cm monolith, sample <9>, was taken through deposits within a feature interpreted as a waterhole (CG2, Phase 3). These deposits were considered to be of high potential for the recovery of pollen due to waterlogging. Three subsamples were taken from the monolith <9>. Subsampling for pollen analysis focused on the lower part of the monolith where preservation was expected to be at its best. The subsamples were submitted to the laboratories of the Department of Geography and Environment at the University of Aberdeen for chemical preparation. The full methodology is described in Appendix 4.

A GS binocular polarising microscope was used for identification at x400 magnification. Where preservation allowed, at least 300 land pollen grains (from trees and shrubs, heaths, and herbs) were counted per sample. The pollen reference manuals by Moore *et al* (1991) and Beug (2004) were used to aid in pollen identification alongside the author's own reference collection. Nomenclature for pollen

follows Beug (2004). Reference photographs from Aptroot and van Geel (2006), Bosi *et al* (2018), van Geel (1978), and van Geel *et al* (2003) were used to aid in the specific identification of NPPs.

The results of the pollen analysis have been presented as a percentage diagram (Figure 13) using Tilia 2.0.41 (Grimm 2015). The pollen from trees and shrubs, heaths, and herbs have been presented as percentages of Total Land Pollen (TLP), which excludes spores, aquatics, non-pollen palynomorphs (NPPs) and charcoal. These are expressed as counts.

7.2.2 Aims

The aim of the pollen analysis was to more fully understand the vegetation and land use practices at the site, in particular in relation to the use of feature thought to be a waterhole (CG2).

7.2.3 Results

Information about the subsamples and their associated sediments can be found in Table 8 below.

monolith	subsample depth (in monolith tin)	context	sediment description	pollen present	pollen preservation	pollen concentration
<9>	0.12–0.13m	1252	Brown grey silty clay. Inclusions: occasional sand.	yes	poor–excellent	very low
<9>	0.165–0.175m	1254	Brown grey silty clay. Inclusions: frequent sand and charcoal.	yes	poor–excellent	low
<9>	0.22–0.23m	1254	Brown grey silty clay. Inclusions: occasional sand and charcoal.	yes	poor–excellent	low

Table 8: Summary of subsample and sediment information for monolith <9>

Pollen was present in all three subsamples and preservation was variable from poor–excellent. Pollen concentration was low in all subsamples and was particularly low in the uppermost subsample at 0.12–0.13m, where full counts were unachievable. A full pollen diagram can be found in Figure 13 and raw pollen counts are presented in Appendix 5.

Herbaceous pollen dominated all the subsamples comprising 83–94% of total land pollen (TLP) with the main taxa coming from grasses (Poaceae; 11–28%) and a group which includes dandelions (*Taraxacum* is included within the *Crepis*-type group; 10–21%). Other notable taxa were cereals (Cerealia-type; 5–12%), yarrow (*Matricaria*-type; max. 7%), ribwort plantain (*Plantago lanceolata*-type; max. 5%), meadow sweet (*Filipendula*; max. 17%), dodders (*Cuscuta europea*-type; max. 15%) and knapweed (*Centuarea jacea*-type). Two other types of note were hemp/hop (Cannabinaceae includes *Cannabis sativa* and *Humulus lupulus*) and flax (*Linum usitatissimum*), although in both cases only single grains were recorded in the respective subsamples.

Trees were largely absent from the whole assemblage, with the exception of pine (*Pinus sylvestris*), hazel (*Corylus*) and alder (*Alnus*). A single grain of heather (*Calluna vulgaris*) pollen was also present in sample 0.22–0.23m.

Microcharcoal was observed throughout the profile in large quantities. Dung fungal spores dominated the non-pollen palynomorphs (NPPs) and were present in all three subsamples, but *Sporormiella*-type (Type 113) and *Sordaria*-type (Type 55a) dominated. Parasite ova *Trichuris trichiura/suis* (whipworm) was recorded in all three subsamples.

7.2.4 Summary and discussion

Pollen grains within all the subsamples were present in low concentrations and showed variable preservation. Subsamples were dominated by microcharcoal, dung fungal spores, and cereal and grass pollen, with rare but significant occurrences of flax pollen and parasite ova.

The analysis of non-pollen palynomorphs (NPPs) allows for a more detailed understanding of the use of features such as these. High numbers of the NPPs *Sporormiella*-type (Type 113) and *Sordaria*-type (Type 55a) – both of which are ascospores from fungi associated with herbivore dung (van Geel *et a*l 2003) – were present in all subsamples. Whilst these NPPs suggest that herbivores were present within the area and could, therefore, have been using this as a watering hole, other evidence from the pollen and NPP assemblage suggests that this feature was not solely used a watering hole for such animals.

Parasite ova from *Trichuris trichiura/suis* were found in all subsamples. Due to their presence in low numbers it was not possible to determine whether the ova were from the species that infects humans or pigs, but their presence suggests that: pigs were also using this area; or their faecal matter was present there; or that human waste was being deposited.

In addition to the NPPs, the high numbers of cereal pollen grains; the presence of other crops, such as hemp/hops and flax, and the occurrence of dodders (a parasitic plant on crops, including on flax) are not consistent with a pastoral landscape. Flax is self-pollinating and produces a heavy pollen grain: therefore, this pollen is unlikely to have blown into the site. Equally, dodders is insect/self-pollinated and, therefore, its pollen is likely to have arrived in the feature though backfilling, rather than by natural pollination processes. Dodders is a parasitic plant that grows on flax and given the fact that both pollen types were found together it is likely that they represent crop-processing waste.

In addition, the preservation of the pollen grains was variable within each subsample. This suggests that it was entering the fills of this feature via different mechanisms and would be consistent with material being dumped from different sources. To return to the indicators of grazing animals, it is also possible that animal bedding or animal waste was being disposed of rather than the animals being directly around the feature.

Overall the pollen and NPP evidence from the fills are indicative of waste disposal in this feature (CG2), possibly following its disuse as a waterhole.

The local landscape

With the pollen spectra being dominated by pollen types associated with cultural activities, very little can be determined about the surrounding landscape. The high levels of grasses (Poaceae) and low numbers of trees is indicative of a largely open landscape. There are two exceptions to this: the presence of alder (*Alnus*) and pine (*Pinus sylvestris*) pollen grains. The alder (*Alnus*) suggests that damp/waterlogged soils existed within the area and the presence of meadowsweet (*Filipendula*), which prefers moist soils, would also support this interpretation. Pine (*Pinus sylvestris*) pollen was present throughout the samples, but it was always highly degraded which suggests that it was not being deposited directly on the site, but had a more complex taphonomy, possibly being redeposited along with other waste material.

With both cereal (including wheat) pollen, and indicators of grazing animals being present, the wider landscape is likely to have been dominated by mixed agriculture.

7.3 Animal bone by Matilda Holmes

A small assemblage of animal bone was recovered, largely from mid- and late Roman features (Phase 3: late 2nd to early 5th century). Some bones were present in Iron Age (Phase 2) and medieval contexts (Phase 4), but sample sizes were too small for detailed analysis. The Roman material is considered in full.

7.3.1 Methods and process

Bones were identified using the author's reference collection. Due to anatomical similarities between sheep and goat, bones of this type were assigned to the category 'sheep/goat', unless a definite identification could be made (Zeder and Lapham 2010; Zeder and Pilaar 2010). A method for rapidly recording animal bones was adopted based on Davis (1992) where only 'countable' fragments were recorded. 'Countable' fragments are those which contained at least half the epiphysis or metaphysis (the ends) of any long bone, scapula, phalange, and vertebra; the acetabulum of the pelvis; tuber calcis of the calcaneus; and the astragalus, where over half was present. The zygomatic arch and occipital areas of the skull were recorded if present, as were mandibles and maxillae with teeth and loose teeth. All other fragments 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).

Tooth wear and eruption were recorded using guidelines from Grant (1982) and Payne (1973), as were bone fusion, metrical data (von den Driesch 1976), anatomy, side, zone (Serjeantson 1996) and any evidence of pathological changes, butchery (Lauwerier 1988) and working. The condition of bones was noted on a scale of 0–5, where 0 is fresh bone and 5, the bone is falling apart (Lyman 1994, 355). Other taphonomic factors were also recorded, including the incidence of burning, gnawing, recent breakage and refitted fragments. All fragments were recorded. A number of sieved samples were collected but because of the highly fragmentary nature of such samples a selective process was undertaken, whereby fragments were recorded only if they could be identified to species and/or element, or showed signs of taphonomic processes. Bones were only included in analysis if they came from features that could be securely dated. Mortality profiles were constructed based on tooth eruption and wear of mandibles and loose 3rd molars (Grant 1982; Jones and Sadler 2012) and bone fusion (O'Connor 2003).

7.3.2 Condition and taphonomy

Bones were generally in good to fair condition, although the high proportion of fresh breaks and refitted fragments suggests that they were friable and prone to breakage during excavation and subsequent processing (Table 9). The high proportion of teeth remaining within the mandible indicates that bones were disposed of fairly quickly following discard, and that there was minimal post-depositional disturbance.

A number of bones bore tooth marks from dogs (Table 9), implying they were made available for dogs to chew prior to burial. A few butchery marks were observed throughout the assemblage, consistent with an origin as food waste. None were burnt, however, indicating that the bones were not routinely exposed to fire during processing, cooking or as a means of disposal. There were no associated bone groups or deposits indicating the disposal of waste specifically from craft working, butchery or skin-processing.

condition	phases			
	mid to late Iron Age	late Iron Age to early Roman	mid to late and late Roman	medieval to post-medieval
Fresh				
Very good		1	25	1
Good		6	61	4
Fair	2	4	43	

Poor			1	
Very poor				
Total	2	11	130	5
Refit		2=16	16=133	
Fresh break		8	46	3
Gnawed		3	33	1
Loose mandibular teeth*			15	
Teeth in mandibles*	1	20	27	
Butchery		1	13	1
Burning				

*Table 9: Condition and taphonomic factors affecting the hand-collected assemblage identified to taxa and/or element. Teeth included where stated (*deciduous and permanent 4th premolar and molars)*

7.3.3 The assemblage

	phases				
	mid to late Iron Age	**late Iron Age to early Roman**	**mid to late and late Roman**		**medieval to post-medieval**
taxa	H	H	H	S	H
Cattle	3	12	122	3	5
Sheep/goat	1	5	25		
Sheep			4		
Pig			8		
Equid		3	5		
Canid		1	8		
Hare/rabbit				1	
Domestic fowl			1		
Passerine			1		
Frog/toad				2	
Human			1		
Total identified	4	21	175	6	5
Unidentified mammal	1	17	108		

Large mammal	20	57	365		8
Medium mammal	8	23	117		
Micro mammal			1	3	
Total	33	118	766	9	13

Table 10: Species representation (NISP). H= hand collected; S= from samples

Mid to late Iron Age (*c* 400-100BC)

A few cattle and sheep/ goat bones were recorded (Table 10). Sample sizes are too small for further analysis.

Late Iron Age to early Roman (*c* 100BC-AD100)

Cattle, sheep/goat, equid (horse or donkey) and canid (dog or fox) bones were recovered from late Iron Age features (Table 10). Mandibles of a very young cow at wear stage B, and an adult animal at wear stage G were recovered. The presence of a calf suggests that cattle were bred nearby.

Mid to late and Late Roman (late 2nd to early 5th century AD)

Cattle dominated the Roman assemblage (Table 10). Sheep/goat remains were the next most common, of which several sheep were positively identified. A few bones of pig, equid, canid, domestic fowl (chicken) and passerine (small bird) were also recovered. The bone of a hare or rabbit came from environmental sampling, which was most likely to have been the former, as rabbits were not widely introduced in England until the medieval period (Sykes and Curl 2010). Frog or toad remains were also recorded from samples, but no fish or small birds.

High proportions of cattle are not surprising at Roman sites, particularly villas (King 1999), but their numbers may have been inflated by their location at the periphery of the settlement. Work by Wilson (1996) has shown that the bones of larger animals, such as cattle and horses, are more likely to be disposed of at the outskirts of a site, as they are more easily cleared away from central areas than smaller fragments from sheep and pig. Even if this is taken into account, the predominance of cattle at this site is consistent with villas elsewhere in the county (Table 14 and Figure 14). It reflects the affiliation of those living at such sites with a Roman lifestyle (King 1999), contrasting with the greater number of sheep present at farms and roadside settlements in the area. The contemporary villa at Childswickham, *c* 7km to the south-east, is also broadly consistent with this trend, though the assemblage is not large enough to be directly comparable (Baxter 2004).

Cattle bones came from all parts of the carcass, suggesting they were killed, processed and consumed on site (Table 11). The same is most likely true of the sheep/goat and pig assemblages, but sample sizes are too small to draw firm conclusions. Butchery marks were consistent with the dismemberment of the carcass, reducing it down to joints of meat suitable for cooking. Removal of the horn cores and head was also evident. There was no indication of the large-scale, specialist butchery occasionally observed at urban sites, such as scapula blade removal or shave marks on long bones (Maltby 1985; Seetah 2006), which again implies that animals were processed locally.

A few mandibles were complete enough to produce wear stages, which indicated that both cattle and sheep were culled at specific ages (Table 12). Cattle were subject to two culls, a young group of calves under 18 months of age, and older animals over 3.5 years, with some very old animals at an advanced wear stage that would have been over 8 years at death. A group of loose incisors, presumably from the same individual, were worn down to stubs, and the animal may have had trouble eating. This suggests that cattle were used for secondary products – the presence of calves and older adults may imply dairy production, with the former group representing a cull of excess males (Payne 1972). However, dairy production does not require calves to be removed from their mothers, and the older animals could have been used for traction. A high number of pathologies observed on the lower

legs and feet, including lipping and exostosis, and eburnation of a femoral head, is consistent with their use for draught purposes (Bartosiewicz *et al* 1997). Joint inflammations also occur with age, so instead these pathologies may simply reflect the senility of the population. The fusion data are also consistent with the keeping of cattle into old age, with others culled at younger ages (Table 13). The increased use of cattle for secondary products in the later Roman period is well-established (Smith *et al* 2016) and can be tied in to the need for greater production of arable to supply the growing urban populations. A predominance of older cattle can be observed at other sites in Worcestershire (Table 14) and there have been suggestions that Roman Worcester (22km to the north-west) acted as a regional cattle trading and distribution centre in the later Roman period (Min Gan *et al* 2018).

Sheep/goats were also culled at an age consistent with their use for meat, with most animals culled between 2–4 years of age (Tables 12 and 13). Sheep culled at these ages would also have produced several clips of wool. Similar patterns have been recorded at other sites in the area (Table 14). The presence of medullary (woven) bone in a chicken bone tibia indicates that it came from a hen in lay when it died, reflecting the importance of these birds for eggs. Laying hens produce medullary bone on the surfaces and within cavities that acts as a source of calcium for shell formation (Whitehead 2004).

A single perinatal human bone was found mixed in the animal bone assemblage: this was recovered from a pit [1218] (fill 1217).

Dog and cattle skulls were recovered from ditch CG8 (fill 1158). This ditch is part of the later Roman phase of the site, and the placement of the heads of these animals in the ditch may have been a closure deposit made to mark the end of use of the settlement.

element	cattle	sheep/goat	pig
Horn core	1		
Horn core + frontal	1	2	
Skull	1		
Occipital	1		
Zygomatic	2		
Mandible with teeth	8	2	
Loose tooth	21	11	3
1st cervical vertebra	2		
2nd cervical vertebra	1		
Cervical vertebra	3		
Thoracic vertebra	2		
Lumber vertebra	2		
Scapula	9		
Humerus	9	3	
Radius	4		

Ulna	3		2
Carpal	2		
Pelvis	4		
Femur	4	2	
Tibia	4	4	1
Astragalus	1		
Calcaneus	3		
Tarsal	4		
Metacarpal	7	1	
Metatarsal	4	4	
3rd metatarsal			1
4th metatarsal			1
Metapodial	1		
1st phalanx*	3		
2nd phalanx*	1		
3rd phalanx*	1		
Phalanx	1		
Total	110	29	8

*Table 11: Carcass representation for the Roman period (restricted count; *counts adjusted for frequency bias). Hand collected bones.*

approximate age (months)	cattle	approximate age (months)	sheep/goat
0-1		0-2	
0-6	1	2-6	
5-18	3	6-12	
16-28		12-24	
26-36		24-36	1
34-43		36-48	3
40-78	2	48-72	1
60-120	1	72-96	

96+	3	96-120	

Table 12: Tooth wear data for cattle (Jones and Sadler 2012) and sheep/goat (Grant 1982)

	cattle			sheep/ goat		
stage	**U**	**F**	**%F**	**U**	**F**	**%F**
Neonatal		9	100		2	100
Early		41	100		3	100
Intermediate	2	11	85	4	1	20
Late	2	8	80	5	2	29
Final	2	9	82			
Total	6	78		9	8	

Table 13: Fusion data for the Roman period

site name and reference	site type	phase	total NISP	% cattle	% sheep/ goat	% pig	cattle mortality	sheep/ goat mortality
Upper Moor, Pershore (Vaughan 2005)	Farm	LR (3rd-4th C AD)	115	77	15	8		
Elm Farm, Beckford (Coleman *et al* 2006)	Farm	MR (2nd-3rd C AD)	147	53	41	5		
Longdon Marsh (Simmonds *et al* 2010)	Farm	MR (2nd-3rd C AD)	164	71	27	2	Subadult and elderly	
Old Bowling Green, Droitwich (Woodiwiss 1992)	Roadside settlement	MR (2nd-3rd C AD)	149	46	48	6	Mostly elderly	All ages, peak immature/ subadult
Hanbury Street, Droitwich (Hughes 2006)	Roadside settlement	MR (2nd-3rd C AD)	168	56	23	21	Elderly	
Old Bowling Green, Droitwich (Woodiwiss	Roadside settlement	LR (3rd-4th C AD)	2214	68	26	6	Mostly elderly, some young	Mostly immature

1992)								
Bays Meadow Villa, Droitwich (Barfield *et al* 2006)	Villa	MR (2nd-3rd C AD)	542	72	19	9		
Bays Meadow Villa, Droitwich (Barfield *et al* 2006)	Villa	LR (3rd-4th C AD)	3825	63	20	17		
Childswickham Villa (Baxter 2004)	Villa	M-LR (2nd-5th C AD)	90	53	31	16	Juvenile and elderly	Mostly subadult
Offenham Biomass (This report)	Villa	M-LR (2nd-5th C AD)	159	77	18	5	Juvenile and elderly	Subadult

Table 14: Comparative data from other rural sites in Worcestershire (based on Allen et al *2015)*

Medieval to post-medieval (13th to 19th century AD)

A few cattle bones were recovered (Table 10), but further analysis is unnecessary given the small sample size and wide time span.

7.3.4 Summary and discussion

The Roman population of the site and the surroundings would have been reliant on beef, with lamb, pork, chicken and eggs playing a lesser role in the diet. This is consistent with a group of people embracing the Roman culture, although there was no evidence in this admittedly small sample for the consumption of game that can be observed at large elite settlements such as Fishbourne (Allen 2014). Sheep were apparently kept purely for meat, but would also have provided some wool, while cattle were more important in the economy for traction and dairy production – some of these animals were kept until a considerable age. There was no evidence for joints of meat being brought in to the site, and so it is likely that the animals had been reared on surrounding farmland.

7.4 Human bone by Gaynor Western

During the course of the excavation, one sub-adult individual recorded as SK(1105) was discovered. The skeleton was extended, being orientated on an approximately north-south axis with the head placed at the north end. No grave goods were present that were directly associated with the skeleton. However, evidence from fragmentary finds in the fill of the burial indicated that it was Roman in date.

Osteoarchaeological analysis was undertaken to assess the condition and completeness of human remains SK(1105), as well as to determine the age, sex and stature of this individual. Any non-metric traits, skeletal and dental pathologies were also recorded. A summary catalogue of the human remains is attached as Appendix 3.

7.4.1 Methods and process

The skeletal material was analysed according to the standards laid out in the guidelines recommended by the British Association of Biological Anthropologists and Osteologists, in conjunction with CIfA (Brickley and McKinley 2004; Mitchell and Brickley 2018), as well as by English Heritage (English Heritage 2002).

Recording of the material was carried out using the recognised descriptions contained in *Standards for Data Collection from Human Skeletal Remains* (Buikstra and Ubelaker 1994). All skeletal data has been recorded using an MS-Access database.

The material was analysed macroscopically and where necessary with the aid of a magnifying glass for identification purposes. It was analysed without prior knowledge of associated artefacts so that the assessment remained as objective as possible. Comparison of the results was made with published osteological data from contemporary skeletal populations where relevant.

7.4.2 Skeletal inventory

An inventory of the skeletal elements present is undertaken to assess the completeness of the skeletal remains and identify the number of individuals present. An inventory also provides information on the specific elements within the skeleton that are present and can be assessed for pathological changes. Overall, most areas of the skeleton were represented, though the skeleton was not complete. Only a small percentage of the dentition was present.

7.4.3 Condition of the bone

The condition of the bone was assessed macroscopically according to the categories and descriptions provided by Brickley and McKinley (2004). Since most skeletons exhibit more than one grade of state of preservation, these categories are simplified into 4 main groups of preservation: Good (grades 0–2), Fair (grades 2–4), Poor (grades 4–5+) and Varied (more than 4 grades of condition). The condition of human bone can be influenced by both extrinsic (i.e. taphonomic conditions) and intrinsic (i.e. robustness) factors (Henderson 1987).

The remains of SK(1105) were recorded as being in ‘good’ condition, scored as grades 1-2.

7.4.4 Completeness of skeleton

A guide to the overall completeness of an individual's skeletal remains is calculated according to the percentage of the bones present in relation to the total number of bones in a complete human skeleton. Completeness of remains is gauged through an assessment of the amount of material representing different areas of the body. Each area of the skeleton was assessed and then placed into the following four categories of completeness: <25%, 25-50%, 50-75% and 75%> (Buikstra and Ubelaker 1994).

SK(1105) was more than 75% complete.

7.4.5 Age assessment

The age of sub-adults is assessed using both dental development (Smith 1991) and eruption (Ubelaker 1989) as well as long bone lengths (Schaefer *et al* 2009) and epiphyseal fusion (Scheuer and Black 2004). These methods can usually provide reasonably accurate age estimation due to a relatively narrow range of variation in normal sub-adult development. Thus, sub-adults can be placed into the following age categories: Foetal (<36 weeks), Neonate (0–1 month), Young Infant (1–6 months), Older Infant (6–12 months), Child (1–5 years), Juvenile (6–12 years) and Adolescent (13–17 years).

Given that SK(1105) was a sub-adult, assessment of age was based on dental development of the deciduous dentition, bone development and metric analysis of skeletal elements. Overall, age at death was estimated to be more than 40 weeks in utero but under six weeks post-partum, most likely to be approximately one month old.

7.4.6 Sex determination

Sex is assessed using the criteria laid out by Buikstra and Ubelaker (1994) in the analysis of morphological features of the skull and pelvis. In addition, metric data is also used where possible, taking measurements of sexually dimorphic elements such as the femoral and humeral head (Bass

1995). However, no sexing of sub-adult material is attempted due to the lack of reliable criteria available: therefore, no estimation of sex could be undertaken for this individual.

7.4.7 Non-metric traits

Non-metric traits are morphological features that occur both in bone and dentition. These features have no specific functional purpose and occur in some individuals and not in others. The origins of non-metric traits have now been shown to be highly complex, each having its own aetiology and each being influenced to differing extents by genetics, the environment and by physical activity. Due to the sub-adult nature of the individual, no non-metric traits were observed.

7.4.8 Stature and morphometric analysis

Since the long bones of sub-adults have not yet fully developed it is not possible to provide an estimate of stature for immature remains. Metric analysis was undertaken in order to assess bone development and age at death.

7.4.9 Skeletal pathology

Palaeopathology is the study of diseases of past peoples and can be used to infer the health status of groups of individuals within a population as well as indicate the overall success of the adaptation of a population to its surrounding environment. Pathologies are categorised according to their aetiologies (e.g. congenital, metabolic, infectious, traumatic, neoplastic; Roberts and Manchester 1997). No skeletal pathology was observed.

7.4.10 Dental pathology

Dental diseases include conditions that not only directly affect the teeth but also the soft tissue surrounding them, sometimes observable in changes to the underlying alveolar bone (Hillson 1986). Each condition can give an indication of different aspects of lifestyle and health of the individual. In total, four deciduous teeth were present in SK(1105) that were still undergoing development at the time of death. No dental pathology was observed.

7.4.11 Summary and discussion

Osteological analysis of the skeletal remains indicates that the age at death of this infant was approximately one month old. The extended position of the skeleton with the head at the north end as is traditional in other Roman burials, as well as its deposition within a feature apparently intended specifically for the burial of the infant, appears to indicate a level of care.

The burial of neonates and infants in Roman Britain has been subject to much speculation as to the funerary treatment of this age group and whether this reflects an attitude of marginalisation towards young infants in death (Pearce 2001). Textual evidence provided by Pliny in the 1st century (Natural Histories VII 15.72), Juvenal in the early 2nd century AD and Fulgentius around the late 5th century AD (*Expositio sermonum antiquorum* VII) suggest that infants were considered too young for the burial rite of cremation (see Pearce 2001). This is because until infants had reached the age of 40 days or the age at which they were 'cutting their teeth', they were considered to have no bones to be cremated nor were they big enough for a mound to be raised (Pearce 2001). The burial place of an infant may have been referred to as '*suggrundarium*' (referring to eaves) rather than a '*sepulchrum*' or grave. This has led to a debate between researchers as to whether infants were afforded little ceremony in their disposal during this period (Bonsall 2013).

A holistic analysis of two Romano-British burial sites in east Yorkshire by Millet and Gowland (2015) appears to confirm that neonates and infants could be buried in a domestic context, whereas adults were interred in a formal cemetery, and that infant burials were often located adjacent to walls or other features. In contrast, however, at other sites, neonates and infants are present in the larger Romano-British cemeteries, often associated with urban centres, although they remain relatively infrequent in these assemblages (Moore 2009). More locally, variation in the location of Romano-British burials in the west midlands is extensive. For example, the evidence to date of burial practice

for infants and neonates in Worcester itself indicates that remains could either be treated in a similar fashion to adults, with interment in a formal cemetery, or that they could be deposited in seemingly more secular contexts, such as ditches and rubbish pits (Western 2018). Elsewhere, at Alcester in Warwickshire for example, the skeletal remains of sixteen individuals aged between 0–5 years were excavated from late Roman ditches outside the town, while at Haymes in Gloucestershire, one neonate skeleton of the same period was located beneath a doorway into a villa shrine (Moore 2009).

Funerary rituals also appear to have differed for young infants compared to older children. Analysis of the infant burials from the Roman Lankhills cemetery, Winchester (Brødholt 2012), illustrates children over two years old were more likely to receive visible grave goods, whereas neonate and infants were more likely to be buried without any visible items. A lack of furnished infant graves from the Romano-British period has also been noted by Gowland (2002). This trend also appears to be reflected in the infant burial at Offenham, where no grave goods were recovered.

The post-mortem treatment of neonates and infants in Roman Britain, therefore, remains subject to much debate, particularly in light of the analysis of a large number of peri-natal human remains at Yewden villa, Hambleden, Buckinghamshire, where the high proportion of deaths of infants at, or around the time of birth, has been suggested as indicative of the practice of infanticide following unwanted pregnancies from a brothel site (Mays and Eyers 2011). However, this demographic spike of neonate deaths is also present in other Roman cemetery assemblages where formal funerary rituals have been undertaken (Bonsall 2013). Further Romano-British sites recently analysed, such as at Burnby Lane, Hayton, east Yorkshire, also consisted of a high number of infants. Here, 78.8% of the burials comprised infants (Millet and Gowland 2015). Furthermore, these burials spanned the late Iron Age and early Roman period. Evidence for the burials of infants within domestic contexts dating to the Iron Age Britain is widespread (Moore 2009), suggesting that the similarity in the location of numerous Romano-British infant burials is evidence of continuity of a practice that had already been established for some time.

A comprehensive analysis of Roman burials from south-east England, where the evidence for Roman inhumation practice is richest, indicates that 22.3% of all burials containing remains that could be assessed for age at death were identified as neonate (Smith nd), a figure consistent with and in some cases lower than other skeletal and historic populations (Chamberlain 2006). This survey also found that in comparison to the 22% of burials from nucleated settlements and 21% of burials from farms, 77% of burials from villas contain the remains of neonates and infants (Smith nd). Three major deposits of infant remains in Roman Britain occur within infant ‘cemeteries’ at villa sites (Yewden, Barton Court Farm and Keston); other infant remains at villas are deposited in small numbers and are dispersed in and around the villa and its outbuildings (Smith nd). One infant excavated from Yewden villa exhibited cutmarks on the right femur, suggesting that the practice of embryotomy had been undertaken in the case of an obstructed labour by a dead or dying foetus (Mays *et al* 2012); in the context of the large numbers of peri-natal remains found there, this perhaps points to the villa forming a base for the administration of obstetric medical aid. In comparison, only 9% of burials examined in the survey by Smith (2014) in the west midlands have been identified as neonate or infant, perhaps reflecting the comparatively poor bone preservation in the region or sparser archaeological investigations. Romano-British burials excavated on nearby rural sites in Worcestershire, such as at George Lane, Upper Moor and Furzen Farm, Wyre Piddle, and at Overbury, tend to consist of a single, or a pair of inhumations, located within field systems, usually in proximity to a boundary ditch and/or bank (Western, 2003; 2014; Western and Kausmally 2004). All these burials, to date, have consisted of adults.

The archaeological evidence overall appears to support the documentary evidence that age was a significant factor in the burial location and treatment of neonates and infants, and that sites of domestic occupation, in particular villas, tended to form a focus for infant burials. The discovery of the infant burial from Offenham appears to corroborate these findings. The archaeological evidence also suggests, however, that the burial of infants within domestic contexts was not purely a Roman

phenomenon in Britain and to some extent may have had its roots in earlier prehistoric funerary rites. The wider context of infant burials in the region is an important future consideration.

8 Overview and discussion

Multiple phases of activity were in evidence on the site, but archaeology dating to the Romano-British period, particularly the late 2nd to late 4th century, was the most prominent. This mainly appeared to be related to agricultural land management, although the artefact assemblage, some of the features identified, and the location on south-facing high-quality agricultural ground all suggested that the site is likely to be in close proximity to substantial high-status stone-built structures of Roman date, such as a villa complex. It could be expected that this may be associated with the 19th-century discovery of the Romano-British cemetery, reported just over 150m to the north-west.

Due to the nature of the development and the scope of the site work, however, the excavation area is effectively just a small isolated snapshot in this landscape, with no wider information provided by geophysical survey or trial trenching in the surroundings. The full extent of many of the features, and the extent and exact nature of the site, therefore, presently remains unclear.

8.1 Prehistoric

There was limited evidence for early prehistoric activity with only a few small sub-oval features, likely to be tree-throw holes or natural hollows: the small lithic assemblage recovered from these was not typologically characteristic, although one piece demonstrated that the assemblage was broadly pre-Iron Age in date. No other features could be assigned an early prehistoric date and there was no direct evidence of occupation in this phase. A scatter of Bronze Age pottery residual in later features does, however, suggest at least some early prehistoric occupation or transitory land use in the vicinity. The presence of a watercourse nearby may be significant in this regard and there was a reported discovery of Bronze Age roundhouses, querns and a wrist guard, found to the west of the site in the 19th century.

Later prehistoric activity (from the middle Iron Age onwards) was most visible in the northern third of the site area. Although this was not fully defined, it appeared that the corner of a sub-rectangular enclosure, dating to the middle Iron Age, extended to the north-west beyond the excavation area. Re-cutting indicates some longevity, as well as perhaps reflecting the loose, easily weathered sand and gravel geology. The presence of possible storage pits internal to the enclosure may suggest a domestic component to its use. This was also supported by the contemporary presence of pottery. However, with such a small amount of the site visible, this is unclear and it is equally possible that it served an agricultural purpose for livestock management (e.g. corralling or protected grazing), such as similar examples found at Bengeworth, 1.5km to the south-west (Walsh and Lovett 2014), and Broadway, 8.5km to the south-east (Bradley 2019).

The comparable large enclosure ditch in the north-east of the site, dating to the late Iron Age to Roman period, may represent a migration or re-establishment of this enclosure system further along the terrace. This had cut across the middle Iron Age boundary ditch and so reflects a new phase of land use, although it did respect the alignment of the earlier boundary (and the re-cut), which must, therefore, have had at least some visibility at this point. The presence of a late Iron Age or early Roman oven/dryer in the western part of the site could demonstrate more domestic or craft activity in this period. Unfortunately, however, the environmental remains have not provided any evidence for the function of this feature. The small amount of briquetage in mid to late Iron Age deposits indicates the use of salt on the site (probably for the preservation of food). This would have been transported into the area from Droitwich. There was also some suggestion of iron working in the vicinity of the site through the recovery of a small amount of iron slag.

8.2 Romano-British

There were limited 1st or earlier 2nd century artefacts on site, suggesting that the social and economic upheaval following the Roman invasion is perhaps reflected with a short break in land use. There was also no obvious continuity of ditches through from the end of the Iron Age into the mid-Roman period, though the broad layout of the wider landscape seems to have continued in parallel with the stream to the south.

A succession of ditches and gullies, newly set out and then re-cut on multiple occasions, characterised the Romano-British period, dating from the late 2nd to late 4th century overall. The ditches were commonly orientated north-east to south-west and north-west to south-east, most likely representing an ordered arrangement of land management for drainage or small paddocks. A number of the ditches also continued across the site area and may have acted as boundaries. These appeared to have shifted the land use slightly further south than that seen in the Iron Age, closer to the brook. As with the Iron Age activity, however, these features extend beyond the excavation area, and so their definition and purpose is not certain.

Establishment of a clear Romano-British presence on site probably occurred in the late 2nd century/early 3rd century, which coincides with the dating reported for the Romano-British cemetery found to the north-west. This earlier phase continued to the end of the 3rd century or early 4th century. There were fewer artefacts deposited during this phase than later and it is possible that the land was mainly used for agricultural purposes, further away from domestic activity. In contrast, however, the presence of a small amount of stone rubble and box-flue tile in some 3rd century deposits, plus the dating of the type of the window glass (although deposited later), may suggest that high-status structures had indeed been present in the vicinity earlier on. The neonatal burial, possibly of 3rd century date, and the presence of a single perinatal human bone, would also support the indications of domestic occupation in this area; especially as these can often be associated with villa sites (see above). In addition, the animal bone assemblage suggested that cattle were killed, butchered and consumed nearby, and that they were important for traction and dairy production in the economy of the site. This reflects a population that had adopted a Roman lifestyle. The presence of chicken is of interest as, although it has been found in Iron Age deposits in Britain, chickens become rapidly more numerous during the Roman period (Best 2016). The single chicken bone found shows evidence of having been an egg laying hen (see above).

The later Roman phase had a similar pattern of ditches and gullies, showing some continuity of land use into and during the 4th century, though there was also more variation in the type of activity. New features, apparently associated with water management and retention, were visible. A large waterhole, allowing for watering of animals and perhaps arable land in an agricultural hinterland, had latterly been used to dispose of waste material including that from crop processing. The pollen remains from this suggest that the Roman landscape in the vicinity was now open with low tree cover and had mixed agriculture, while high numbers of cereal pollen, and the presence of flax, dodder (a plant parasitic on flax), and hemp/hop also suggested arable land use.

A stone-lined drainage channel crossed the site and may have been associated with the rectangular stone structure built in a pit lined with clay. This structure was of high quality construction and was probably a subterranean water tank, or possibly a small ornamental pool or fish pond (see Hurst 2016, 184). It is considered that the presence of this structure (combined with other finds) supports the indications that the site was in close proximity to a villa complex, particularly as comparable rectangular stone water features are known in association with Roman villas (perhaps within garden spaces; see Perring 2002, 182). A villa site at Stoke Gifford in Gloucestershire, excavated in 2016 by Cotswold Archaeology, had an analogous stone-built sunken feature of similar size (3.5m in length, 1.75m wide) with a natural clay base. This was located at the north-east corner of the villa and has been interpreted as a water tank (Mark Brett, pers. comm.). Larger examples of water tanks with stone floors have also been found at the Roman fort and *vicus* at Vindolanda, Northumberland. A rectangular cistern built with large stone blocks, containing a lead pipe at floor level and a soakaway

drain at the surface, was related to a natural spring close to Groundwell Ridge villa near Swindon. This was smaller (1.45m in length, 1.2m wide) and was suggested to be the base of a water shrine (*nymphaeum*) (Phillips and Walters 1998, 13; see also Brickstock *et al* 2006, 9–10). The presence of a possible 'curse tablet', a rolled and flattened sheet of lead, found here at Offenham close to the water tank, may raise the possibility that there was also some votive focus on the site.

Elsewhere, the later Roman pits had been infilled with waste, the later ditch fills had more abundant assemblages of pottery and animal bone, and there was a large amount of stone rubble (including roof tile), as well as finds of window glass, *imbrex* and box-flue tile. These also hint that there was high-status stone building nearby (as evidenced by the construction of the water cistern), although the higher frequency of deposition is suggestive of changing activity in the area, potentially a decline and deterioration of nearby settlement leading to backfill and abandonment in the later Roman period. The presence of smithing slag and a possible smithing hearth bottom within demolition material may also indicate an iron-working smith located nearby. Stone roof tile has been suggested to be a later Roman period characteristic (Perring 2002, 120), and has been associated with later phases of activity at sites such as Bays Meadow villa, Droitwich (Roe and Barfield 2006, 166), and from high-status buildings in the northern suburbs of Roman Worcester (see Bradley *et al* 2018, 395). However, in general, stone structural remains have more in common with Roman buildings further south and south-east, towards the Cotswolds, rather than in the Severn Vale to the west and north-west of the site. The use of stone walling for the probable water tank is, therefore, more suggestive of a cultural affinity with, and use of resources, from the Cotswold Hills. This potentially reflects the location of the site east of the River Avon, combined with the proximity of the Roman road through Offenham and North Littleton, which links the site to the major north to south Roman thoroughfare of Icknield Street.

There was no evidence of continuity on site into the Saxon period, with the site apparently being abandoned in the late 4th or early 5th century. It is possible that there was deliberate demolition of stone structures in the vicinity, probably for recycling, particularly as the size of the stone rubble infilled into pits and ditches suggests deliberate dismissal of this lesser material as rubbish.

8.3 Medieval and later

There was very limited later activity, and it is apparent that following the Roman period the site reverted to an undeveloped agricultural landscape which has continued until the present day. A thin former ploughsoil in the southern part of the site covered the Roman archaeology, with later Roman pottery and box-flue tile residual within this. Two plough furrows were dated to the 13th-15th century, probably part of an open field ridge and furrow system, and a series of post-medieval ceramic land drains showed an attempt at later land improvement. This change in land use may reflect a shifting settlement pattern, with both historical and archaeological evidence suggesting that Saxon settlement at Offenham was further to the north and north-west, where the later village has developed (see, for example, Dalwood and Ratkai 1997).

9 Conclusions

Conditions were suitable across the excavated area to identify the presence or absence of archaeological features and all were sampled excavated. The stone-built structure was left *in situ* and was protected from damage during the construction phase, so should survive on site if there is any future archaeological work in this area.

It is considered that the nature, density and distribution of the archaeological remains provide a general representation of this part of the landscape, although the limited size of the investigation means that the full extent of all of the features, and exact nature of the site, remains unclear. Overall, however, this can be characterised as a site with multiple phases of land use, with middle to late Iron Age enclosures associated with domestic and agricultural activity being superseded by a shifting pattern of agricultural land management in the mid- to late Romano-British period. In addition, the site location, high-status finds including window glass and box-flue tile, the presence of neonatal remains,

and an animal bone assemblage consistent with a Roman cultural influence, as well as a well-built rectangular stone structure (a possible water tank), also suggest that this site is likely to be in the proximity of substantial high-status structures of Roman date, perhaps a villa complex.

As such, the site contained archaeological feature of variable significance, being important in both a local and regional context. It can contribute towards a number of themes identified within relevant research frameworks, including that for the wider west midlands (Watt 2011) and for prehistory and the Roman-British period in this region (see Hurst 2017; White and Hodder 2018). In particular, the activity on the site provides evidence of a settled and managed agricultural landscape in prehistory and the Roman period, and shows changes in land use between these, as well as into the late Roman period. It also provides an artefact and ecofact assemblage that characterises local economic patterns, indicates the continuity/discontinuity of trading networks, highlights the cultural identities and social contacts of rural communities, and improves understanding of Roman rural settlement and burial traditions for this part of the Vale of Evesham.

10 Project personnel

The fieldwork was led by Richard Bradley, assisted by Graham Arnold, Jem Brewer, Elspeth Iliff, Peter Lovett, Morgan Murphy, Adrian Robins, Gywneth Thomas, Jesse Wheeler, Hazel Whitefoot, Jamie Wilkins and Beth Williams.

The project was managed by Tom Vaughan. The report was largely produced and collated by Richard Bradley, with assistance from Jem Brewer, and was reviewed and edited by Derek Hurst. Specialist contributions and individual sections of the report are attributed to the relevant authors throughout the text.

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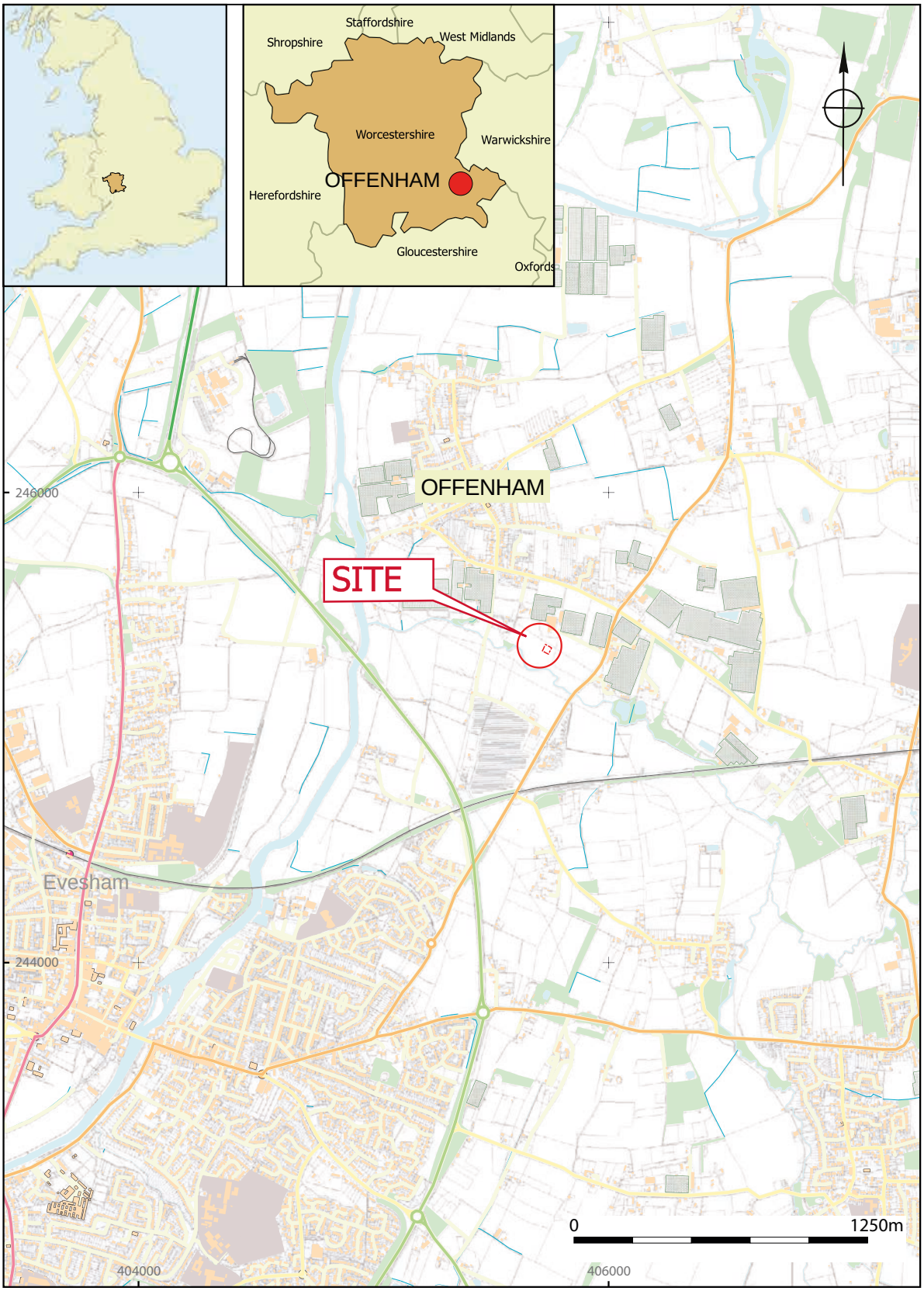
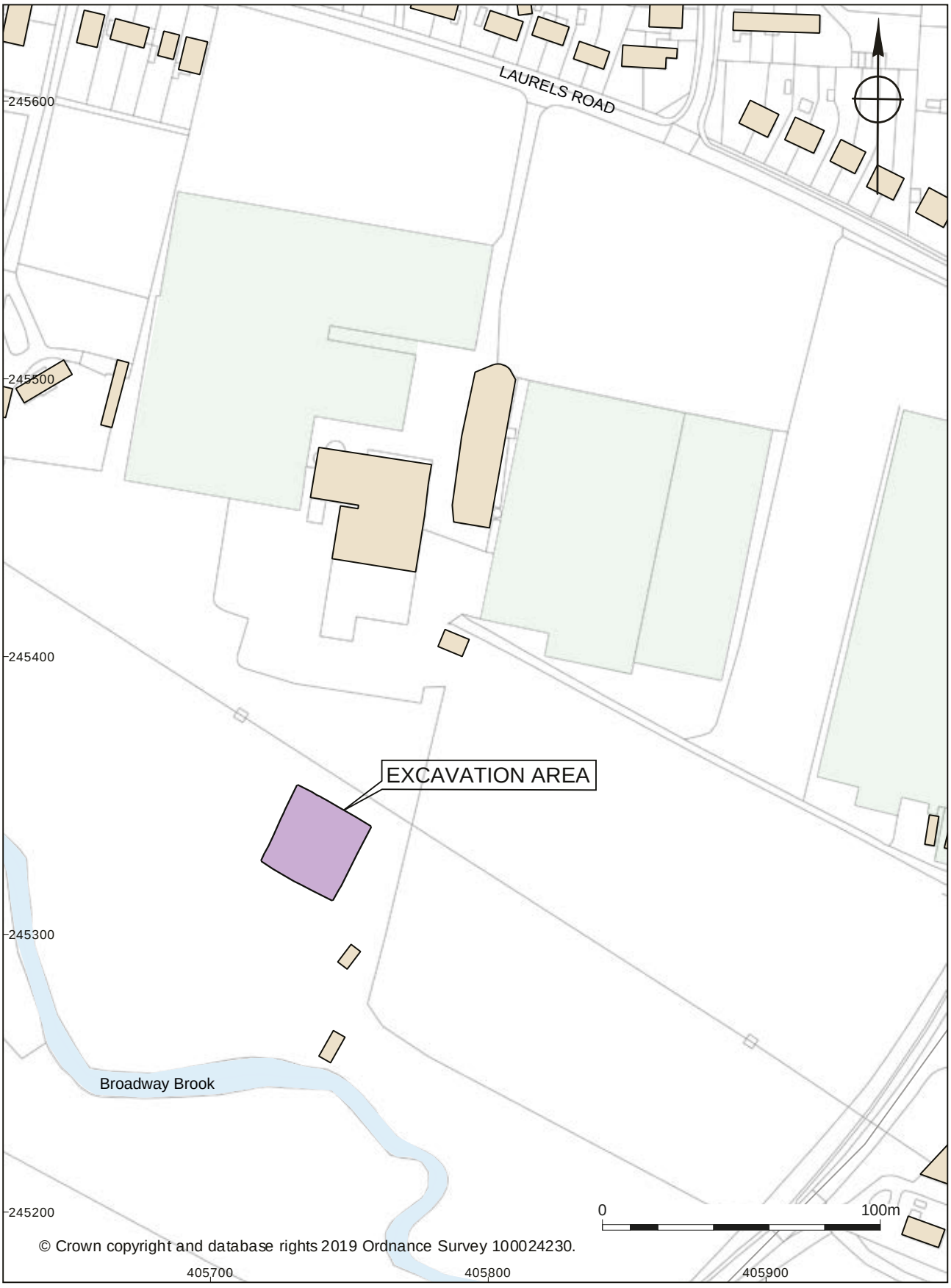
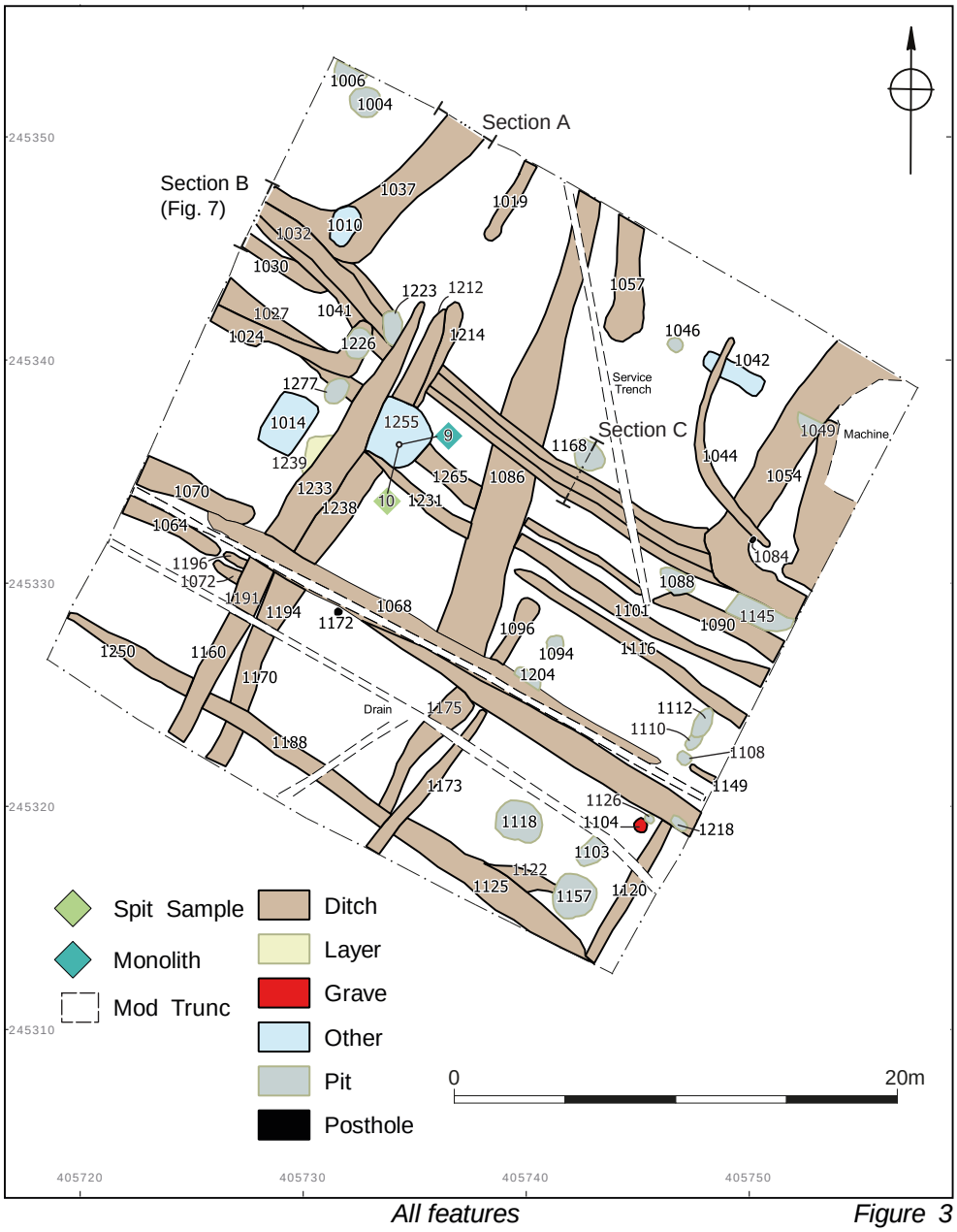
Figures



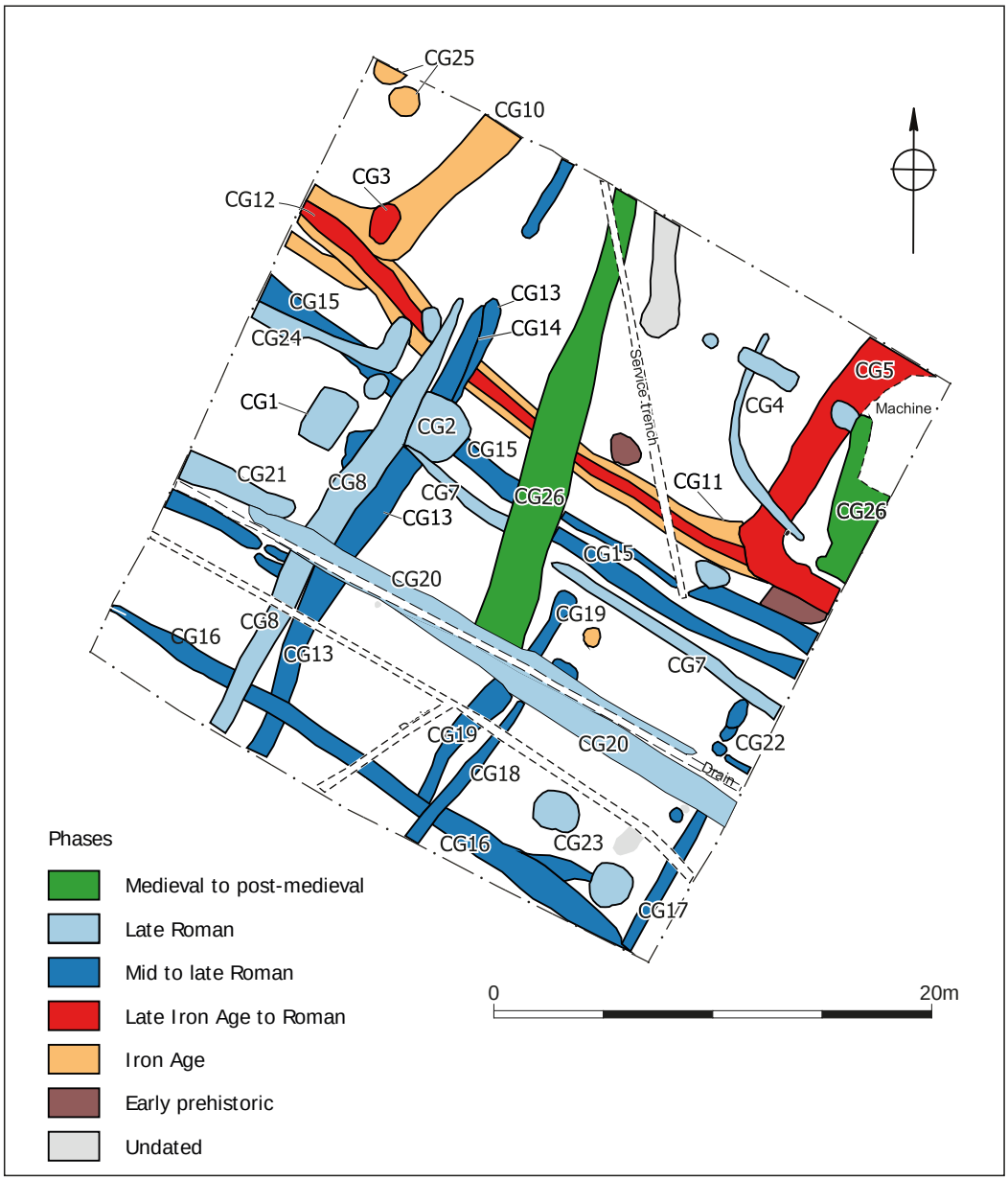
Location of the site *Figure 1*



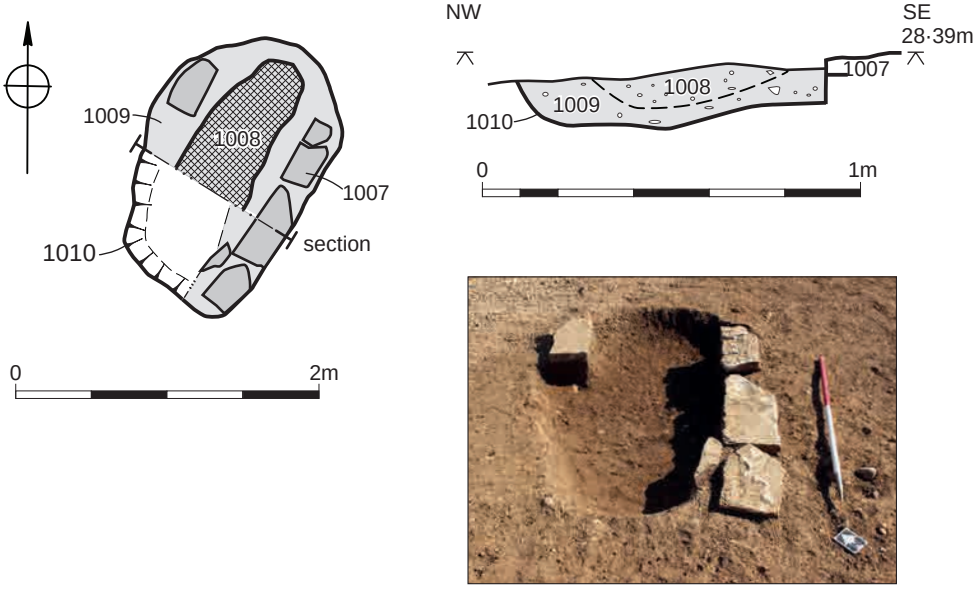
Location of excavation area *Figure 2*



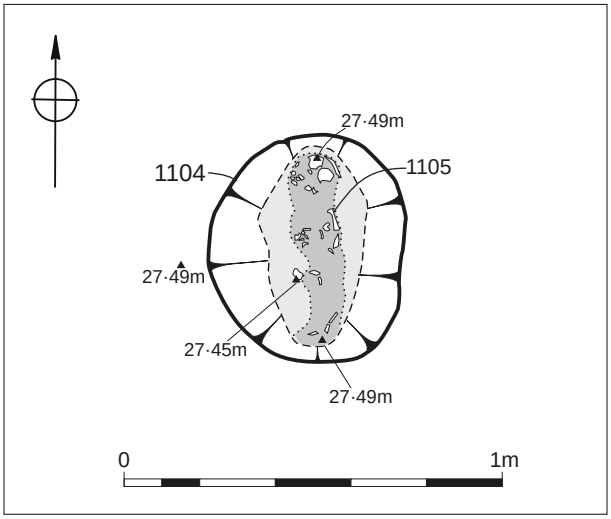
All features *Figure 3*



Site phases *Figure 4*

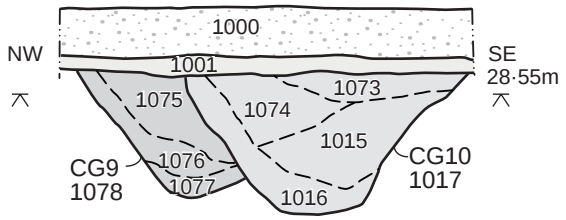


Oven, CG3 *Figure 5*

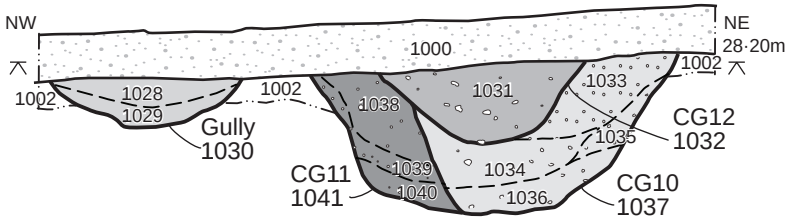


Grave 1104 *Figure 6*

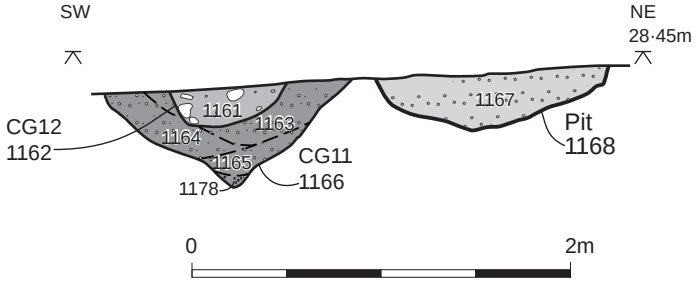
Section A
Enclosure ditch CG9/re-cut CG10



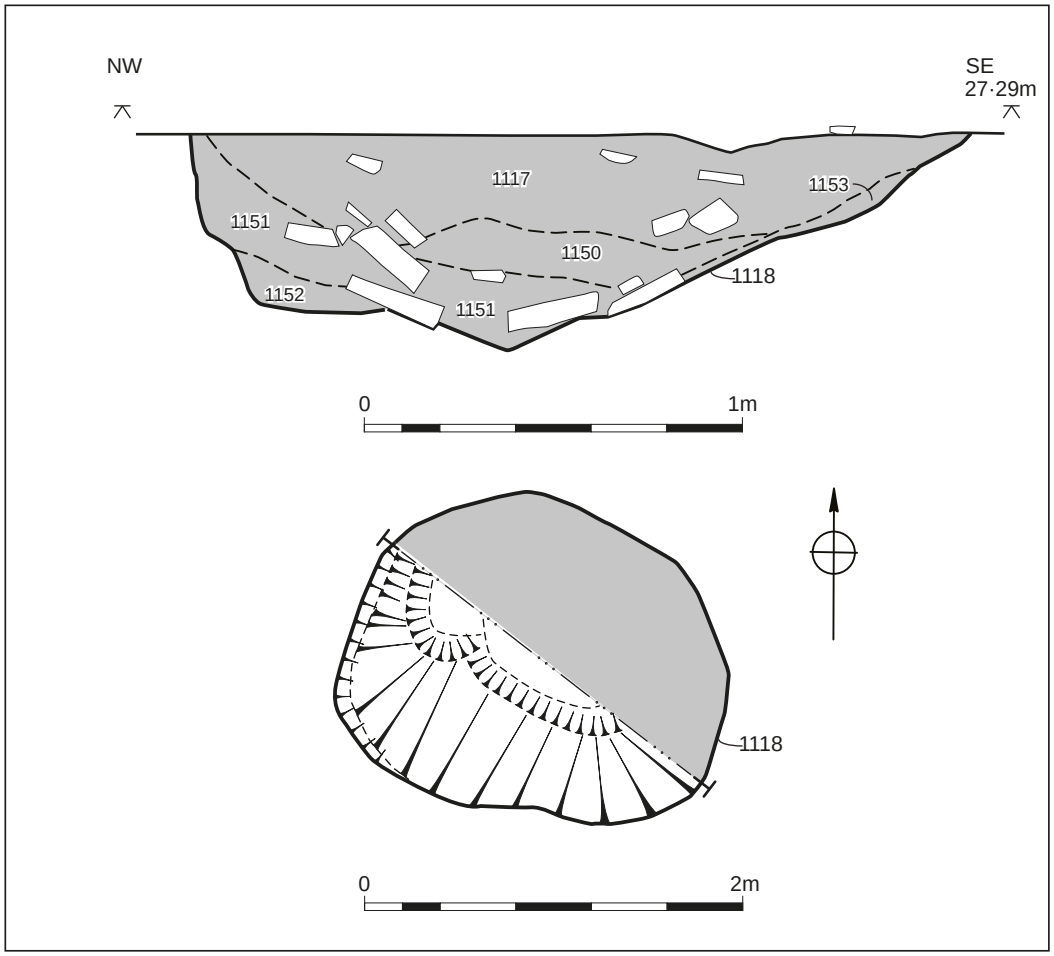
Section B
Gully 1030 and enclosure ditch re-cut CG10 and boundary ditch CG11/re-cut CG12



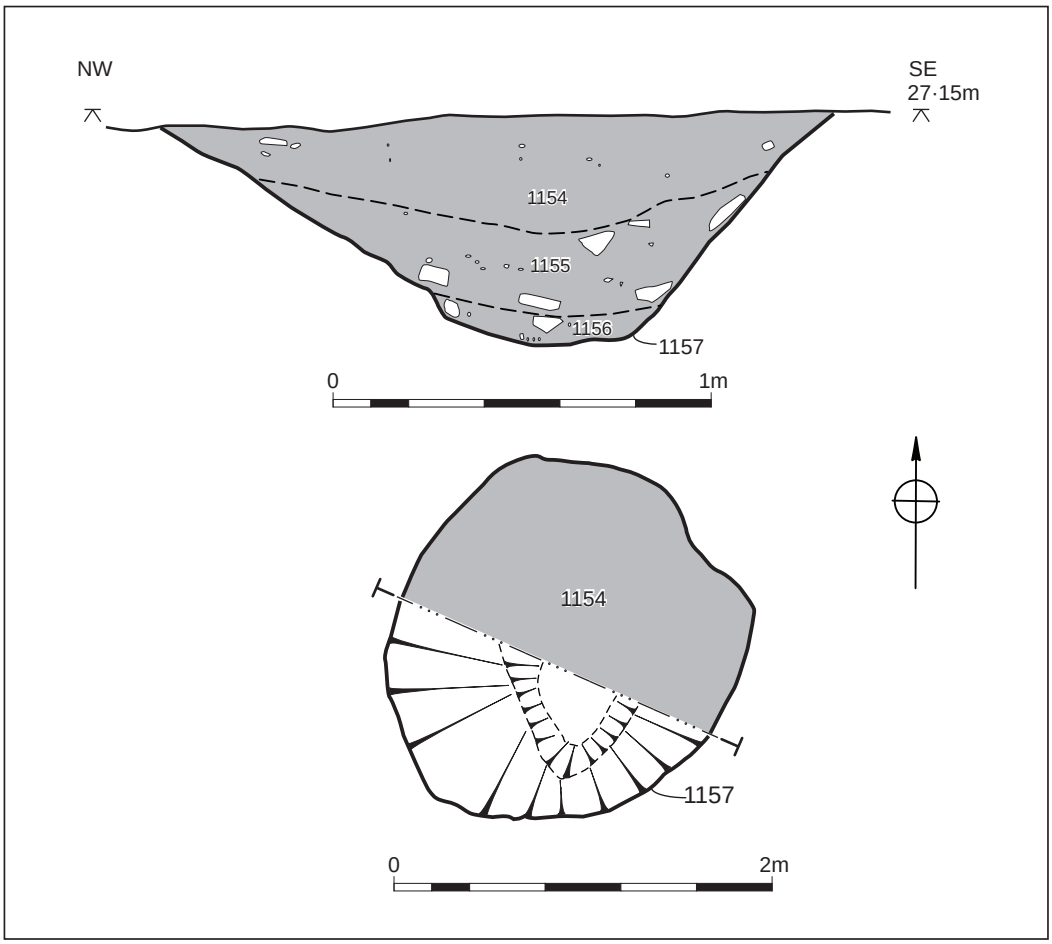
Section C
Pit 1168 and boundary ditch CG11/re-cut CG12



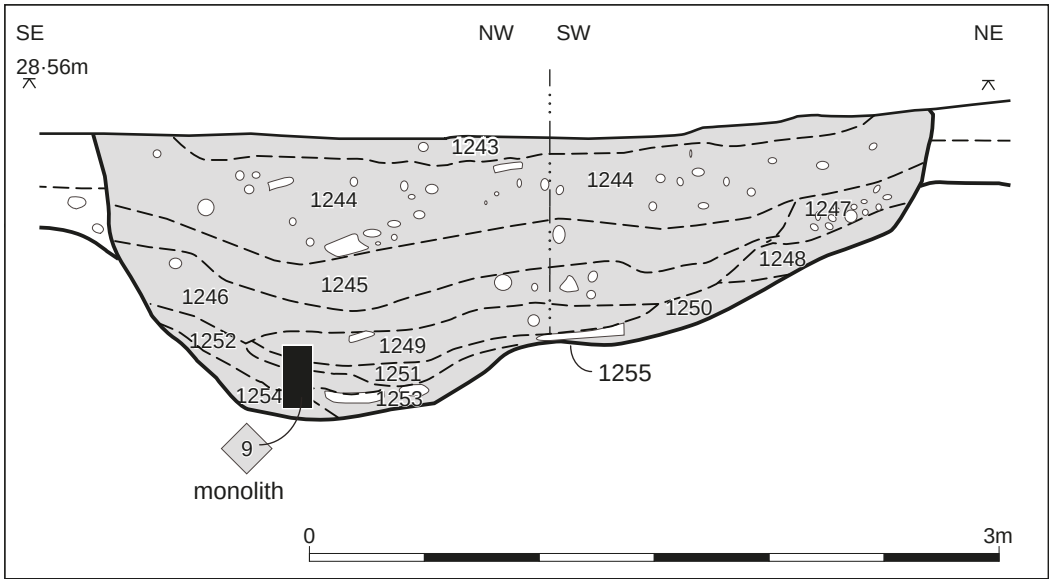
Ditch sections *Figure 7*



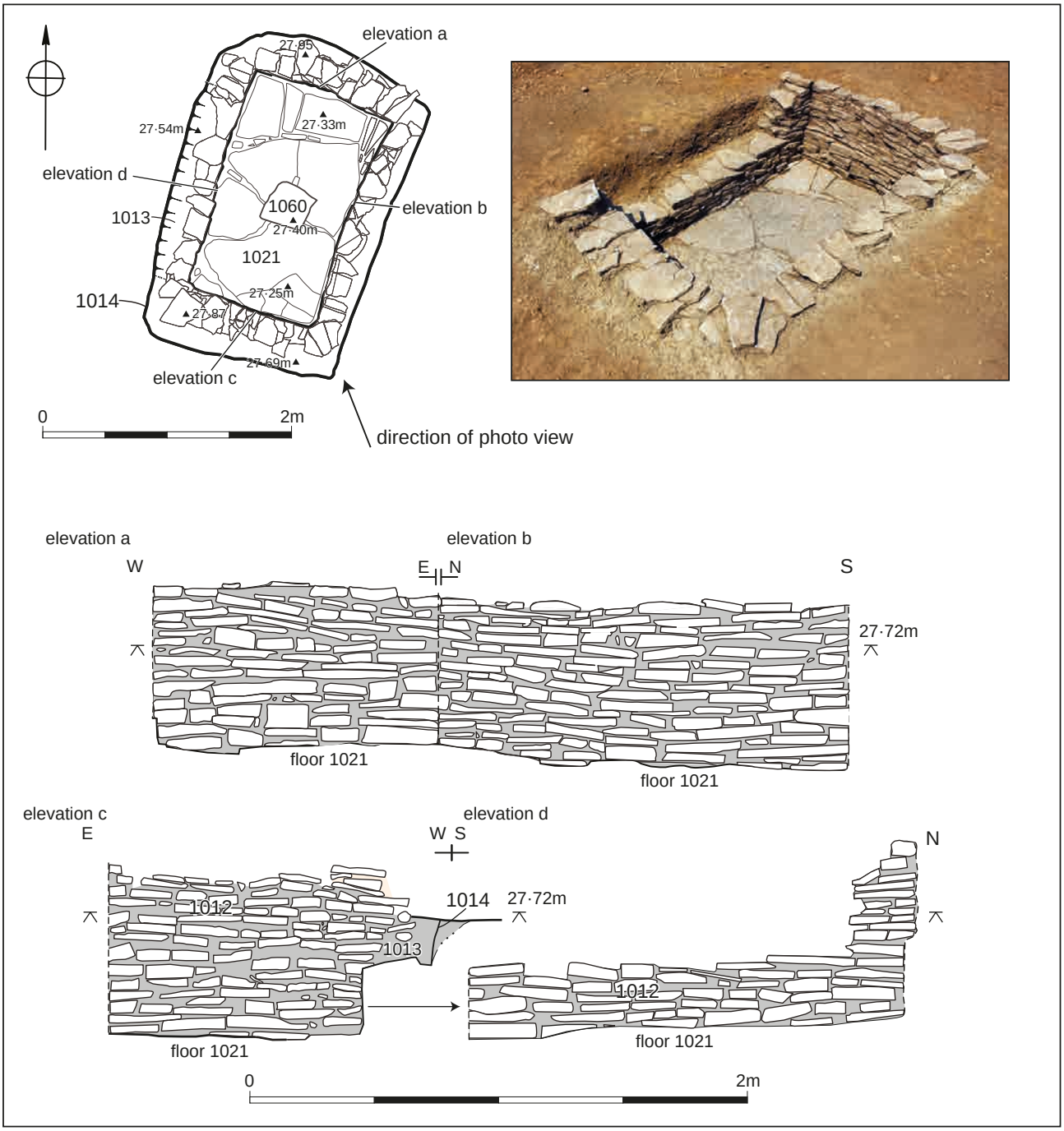
Pit 1118, CG23 *Figure 8*



Pit 1157, C23 *Figure 9*

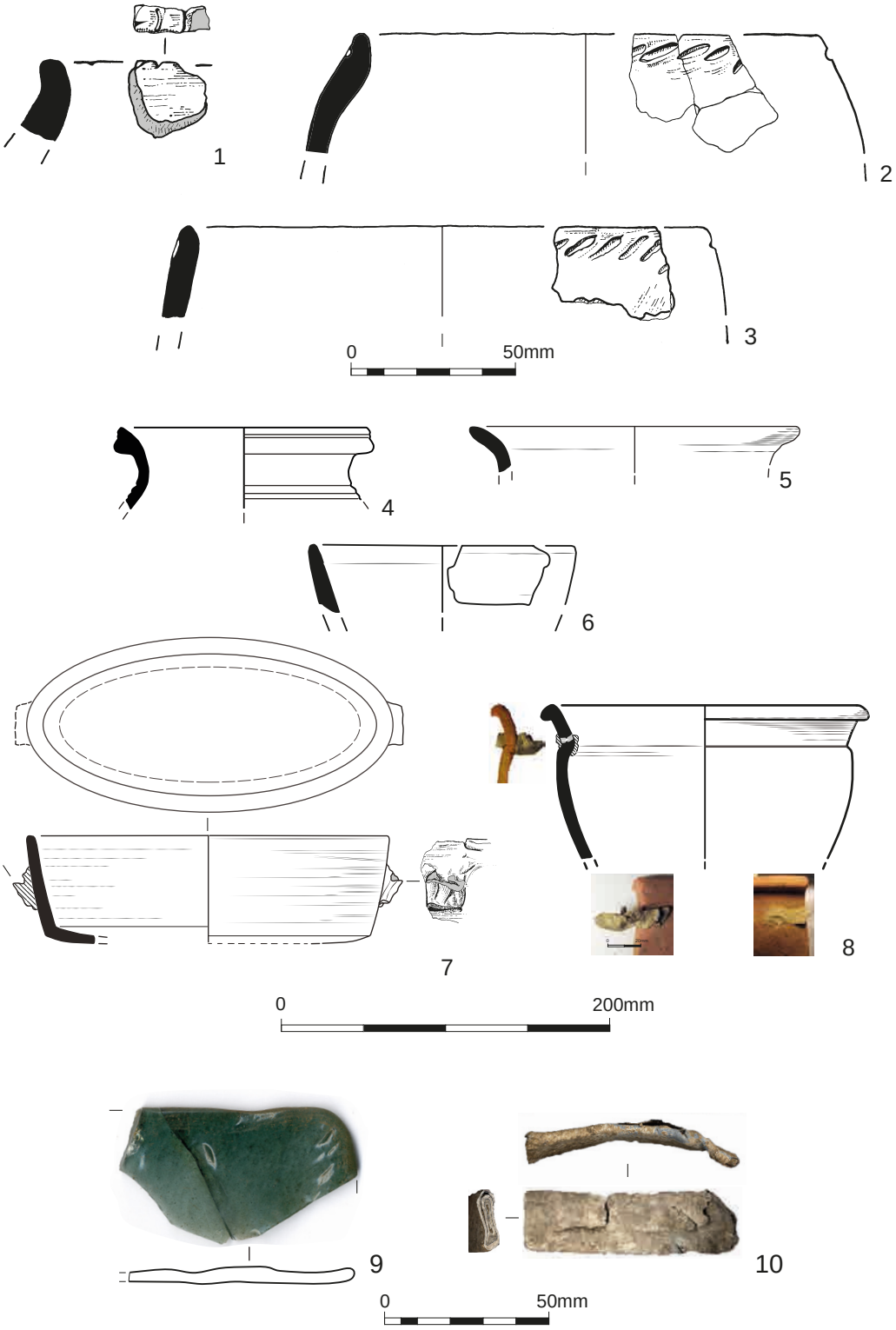


Waterhole, CG2 *Figure 10*

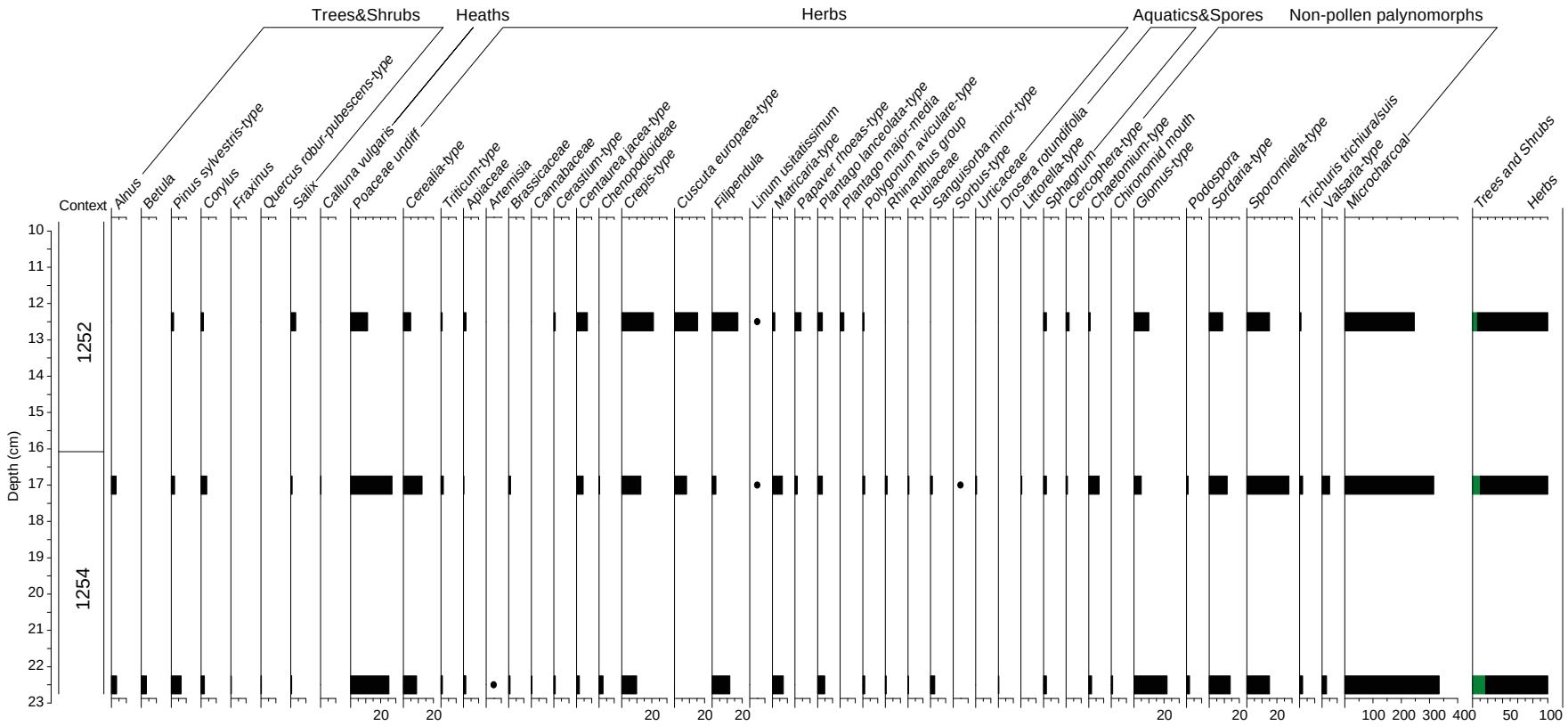


Stone structure, CG1

Figure 11

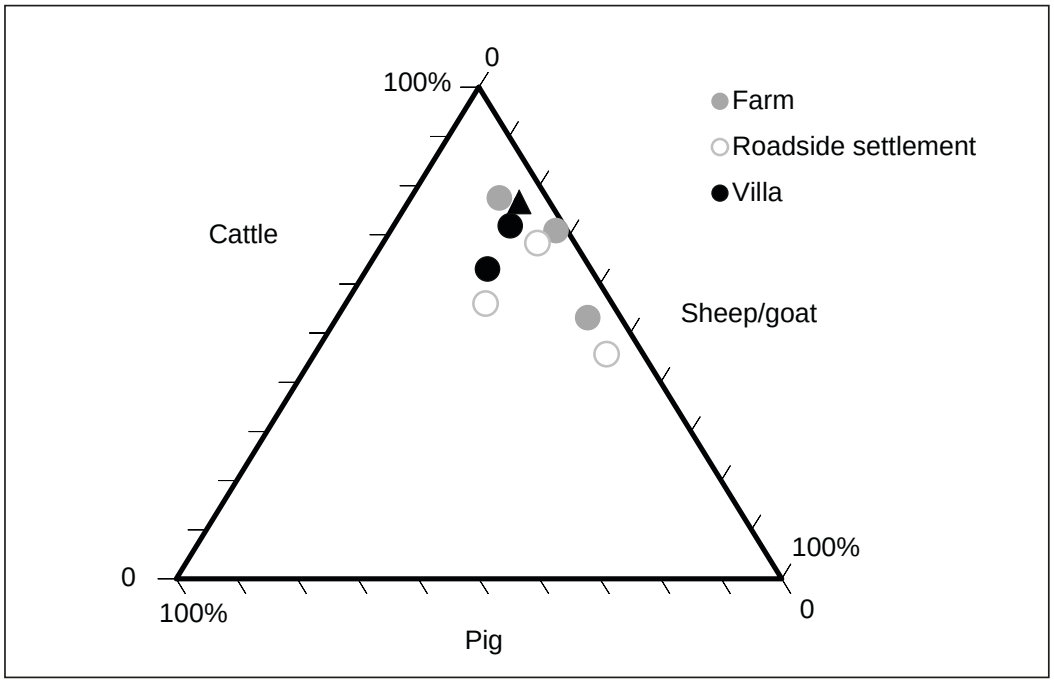


Pottery, window glass and 'curse tablet' *Figure 12*



Pollen Percentage Diagram of Monolith 9, Waterhole CG2

Figure 13



Triplot to show relative proportions of the main domesticates at Offenham (black triangle) in relation to other rural sites in the county.
For a description of sites see Table 14.
Childswickham is excluded from the figure on account of the low NISP *Figure 14*

Plates

Plate 1: Overview of the landscape before the excavation area was opened, facing south-west, no scales

Plate 2: The excavation area following machine removal of topsoil and subsoil, facing south-east, 2x 1m scales

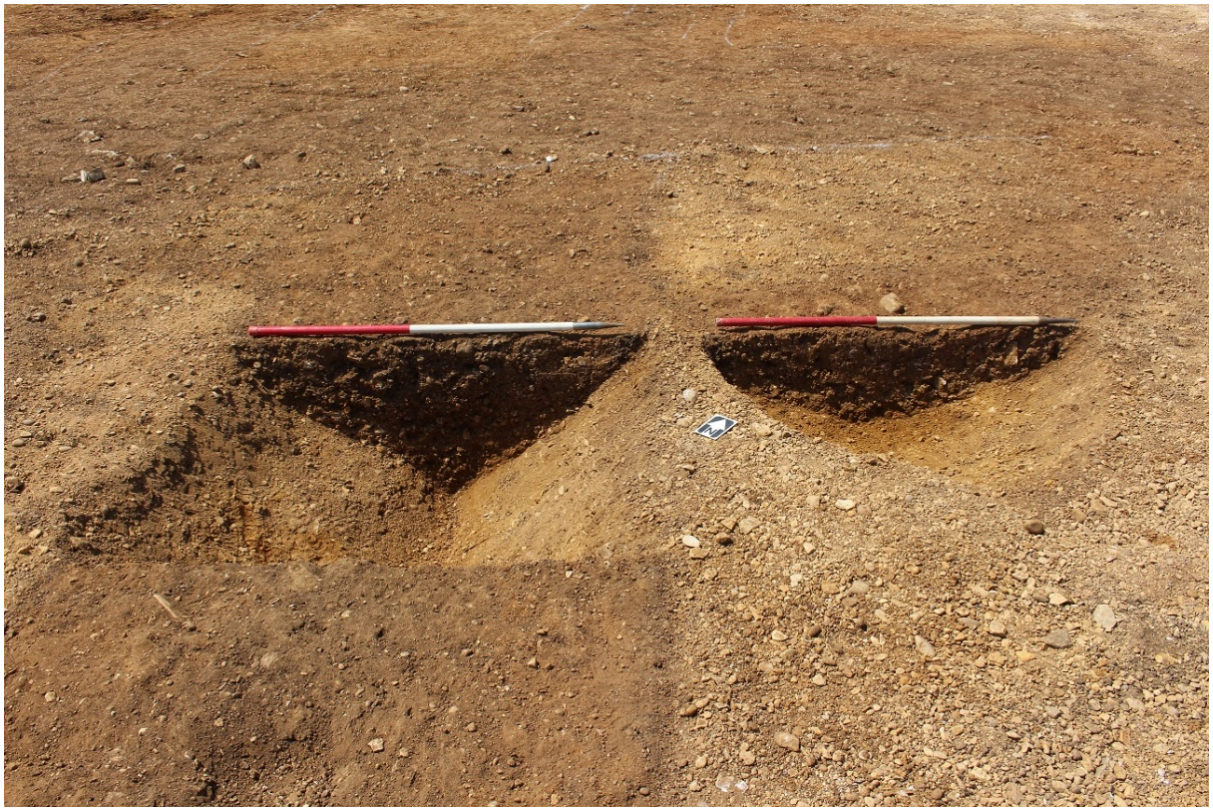


Plate 3: Boundary ditch CG11/CG12 (left) and early prehistoric feature 1168, facing north-west, 2x 1m scales

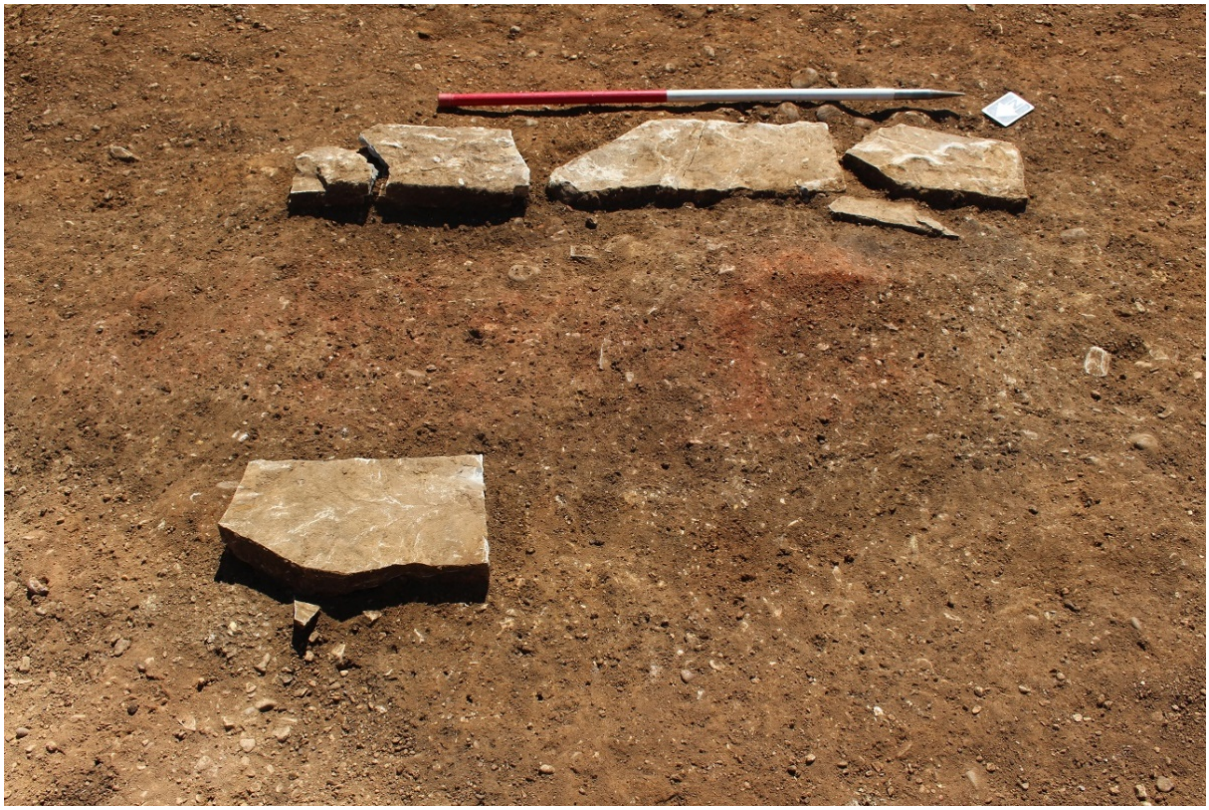


Plate 4: Badly truncated oven/dryer CG3 with central deposit of burnt reddish-orange sand, facing south-east, 1m scale

Plate 5: Linear ditches CG13/CG14 with rubble inclusions (right), cut by ditch CG8 (left), facing north-east, 2x 1m scales

Plate 6: Large waterhole feature CG2 cut through earlier ditches, facing south-west, 3x 1m scales

Plate 7: Cattle skull in ditch CG8 at south-west edge of site, facing north-east, 0.5m scale

Plate 8: Pit in south-east of site that contained dumped rubble, part of CG23, facing north-east, 1m scale

Plate 9: Rubble infill on western side of stone-built tank CG1, facing north-west, 1m scale

Plate 10: Stone-built tank CG1 with stone pad in the central part of the floor, facing north-east, 2x 1m scales

Plate 11: Stone-built tank CG1, stone slab removed, facing south-east, 1m scale

Plate 12: Pottery with lead repair from the upper fills in the waterhole feature, 9cm scale

Appendix 1: Summary of project archive (WSM70440)

TYPE	DETAILS*
Artefacts and Environmental	Animal bones, Ceramics, Environmental, Glass, Human bones, Industrial, Metal, Worked stone/lithics, other
Paper	Context sheet, Diary (Field progress form), Drawing, Matrices, Plan, Report, Section
Digital	Database, GIS, Images raster/digital photography, Spreadsheets, Survey, Text

**OASIS terminology*

Appendix 2: Summary of data for Worcestershire HER Artefacts

WSM 40770

P5361

period - note 1	material class	object specific type	start date	end date	Count	weight (g)	specialist report?	key assemblage? (note 3)
Bronze Age	ceramic	pot	-1000	-801	4	38	Y	N
Middle Iron Age	ceramic	pot	-400	-101	32	151	Y	Y
Iron Age	ceramic	briquetage	-400	42	7	37	Y	N
Roman	ceramic	pot	43	410	364	5260	Y	Y
medieval	ceramic	pot			1	6		
modern	ceramic	pot			1	1		
Roman	ceramic	tile	43	410	48	2201	Y	Y
medieval	ceramic	tile	1200	1499	1	163	N	N
Roman	ceramic	fired clay	43	410	4	48	N	N
Roman	stone	building material	43	410	505	46202	Y	N
prehistoric	stone	flint			10	89.1	N	N
Roman	metal	copper alloy	43	410	2	2	N	N
modern	metal	copper alloy	1800	1900	2	7	N	N
Roman	metal	iron	43	410	89	368	N	N
modern	metal	iron	1800	1950	3	9	N	N
Roman	metal	lead	43	410	4	38	N	Y
Roman	slag (fe)		43	410	37	1037	N	N
Roman	glass	window	43	199	2	19	Y	Y
modern	glass	vessel	1800	1950	1	12	N	N

Appendix 3: Summary catalogue of human remains

A summary of the osteoarchaeological observations are presented below.

SK(1105)

Inventory: Cranial bones, left pars lateralis, pars basillaris, no maxillae; both orbital roofs observable; 3 right ribs, 6 left ribs; 4 cervical vertebral bodies, 3 right cervical neural arches, 6 left cervical neural arches; 3 thoracic vertebral bodies; 6 right thoracic neural arches, 9 left thoracic neural arches; 1 lumbar vertebral body, 4 right lumbar neural arches, 5 left lumbar neural arches; 2 sternal bodies; right and left complete humerii; left ulna complete; left femur, tibia and fibula complete; right proximal femur and fibula; complete right and partial left ilia; right pubis, scapula and clavicle, left scapula and clavicle, partial; 2 metacarpals, 3 hand phalanges; 6 metatarsals and one foot phalanx. 4 deciduous tooth crowns present.

Completeness: 75>%

Condition: Good (grades 1-2)

Dental inventory and pathology:

1105	Observable dentition	Observable tooth sockets	Ante-mortem loss	Caries	Calculus	Periodontal disease	Enamel hypoplasia	Abscess
n	4	0	-	-	-	-	0	-

Age assessment: *c* 1 month.

Sex determination: Unobservable

Non-metric traits: None

Skeletal pathology: None

Appendix 4: Pollen preparation method

Floatation Method for Pollen Preparation using Sodium Polytungstate (Dr. T Mighall)

Protective clothing must be worn throughout the procedure. Breathing masks must be used when making up sSodium polytungstate.

This process is carried out in a fume hood and uses:

10% HCl and NaOH, this is an irritant and may cause burns. If spilt on skin or splashed in eyes, wash with copious cold running water and seek medical advice.

Acetic acid is highly corrosive and harmful in contact with skin. Spills and splashes should again be washed with running water.

Acetic anhydride/sulphuric acid is volatile when mixed with water. These may cause severe burns when in contact with skin or splashes in eye. Again use copious cold, running water to rinse and seek medical advice.

Sodium polytungstate should be disposed of by storing in a waste bottle and dispose of using a recognised waste disposal company.

1. Take large, round- bottomed, screw-capped tubes and add 1-3g of sample to them, make a note of amounts used.
2. Add 1 lycopodium tablet to each tube along with a small amount of distilled water.
3. When tablet fully dissolved, vortex and add 10% NaOH.

HUMIFICATION

4. Tubes are then placed in a hot waterbath for 20 minutes.
5. Tubes are then centrifuged at 3800rpm for 3 minutes and decant supernatant.
6. Add a small volume of distilled H2O and sieve into a beaker. Wash tube and sieve through with more water.
7. Centrifuge, decant and wash with distilled water twice more.
8. Add 10% HCl to residue and again place in the waterbath for 3 minutes. Vortex, centrifuge and decant.
9. Wash, centrifuge and decant.
10. Add approx. 5mls. of acetic acid, vortex and centrifuge again.

ACETOLYSIS - WEAR MASKS

11. Make up acetolysis mixture. Add 6ml of sulphuric acid to 54ml of acetic anhydride, slowly and carefully stir. This is a 1:9 mixture ratio.
12. Add this mixture to tubes and place in a boiling waterbath for 2 minutes.
13. Top up tubes with glacial acetic acid, then centrifuge, decant into beaker containing acetic acid.
14. Wash, centrifuge and decant twice more. Transfer residue to small, clear round bottomed tubes
15. Make up sodium polytungstate solution in a plastic beaker. Add 56g of sodium polytungstate to 44ml. of distilled water, stir until dissolved. Wear face mask and gloves.
16. Add 6mls of polytungstate solution to each tube. Mix and centrifuge for 20 minutes.

17. Pipette off the supernatant from round – bottomed tubes into conical tubes already containing distilled water.
18. Centrifuge for 10minutes at 2,500rpm. Decant.
19. Wash, spin and decant twice more.

DEHYDRATION

20. Transfer residue into microfuge tubes, centrifuge and decant. 3,000 for 5 minutes.
21. Add 100 ethanol, stir, centrifuge and decant.
22. Add TBA, stir, centrifuge and decant.

1. 23 Pour off TBA and add a layer of silicon oil, leave alcohol to evaporate overnight.

Appendix 5: Pollen count data

Name	12.5cm	17cm	22.5cm
Alnus		10	11
Betula			11
Pinus sylvestris-type	2	7	21
Corylus	2	12	7
Fraxinus			1
Quercus robur-pubescens-type			1
Salix	4	3	2
Trees and Shrubs	**8**	**32**	**54**
Calluna vulgaris		1	
Heaths	**0**	**1**	**0**
Poaceae undiff	14	86	80
Cerealia-type	6	39	28
Triticum-type	1	5	3
Apiaceae	2	1	5
Artemisia			1
Brassicaceae		4	3
Cannabaceae			1
Cerastium-type	1		3
Centaurea jacea-type	9	14	6
Chenopodioideae		1	8
Crepis-type	26	40	31
Cuscuta europaea-type	19	25	
Filipendula	21	8	37
Linum usitatissimum	1	1	
Matricaria-type	2	21	23
Papaver rhoeas-type	5	5	
Plantago lanceolata-type	4	10	15

Plantago major-media	3		
Polygonum aviculare-type	1	4	4
Rhinanthus group		4	2
Rubiaceae		2	1
Sanguisorba minor-type		4	9
Sorbus-type		2	
Urticaceae		2	
Herbs	**115**	**280**	**261**
Drosera rotundifolia			1
Littorella-type		2	
Sphagnum	2	2	2
Cercophera-type	2	1	
Chaetomium-type	1	7	2
Chironomid mouth			1
Glomus-type	10	5	22
Podospora		1	2
Sordaria-type	9	12	14
Sporormiella-type	15	28	15
Trichuris trichiura/suis	1	2	2
Valsaria-type		5	3
Microcharcoal	246	315	334
Concealed	3	1	
Folded	15	10	28
Broken			7
Pitted	7	3	13
Lycopodium counted	110	115	115
Total Land Pollen	**123**	**313**	**315**