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Date:	9th September 2019
Prepared by:	Andrew Simmonds (Senior Project Manager)
Checked by:	Steve Lawrence (Senior Project Manager)
Edited by:	Leo Webley (Head of Post-excavation)
Approved for Issue by:	Leo Webley (Head of Post-excavation)
Signature:	

OA South
Janus House
Osney Mead
Oxford
OX2 0ES

t. +44 (0)1865 263 800

OA East
15 Trafalgar Way
Bar Hill
Cambridge
CB23 8SG

t. +44 (0)1223 850 500

OA North
Mill 3
Moor Lane Mills
Moor Lane
Lancaster
LA1 1QD
t. +44 (0)1524 880 250

e. info@oxfordarch.co.uk
w. oxfordarchaeology.com
Oxford Archaeology is a registered Charity: No. 285627

M1dway J16, Northamptonshire

Post-Excavation Assessment and Updated Project Design

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Summary

This document comprises a post-excavation assessment and updated project design for a programme of archaeological excavation undertaken by Oxford Archaeology at the site of a mixed residential and commercial development at M1dway Junction 16, Harpole, Northamptonshire. The location was of particular significance for its proximity to a Roman villa that lies immediately adjacent to the north. The archaeological mitigation strategy comprised five excavation areas where buried features identified by a geophysical survey and trial-trench evaluation would be impacted by intrusive groundworks associated with the development. During the excavation it became apparent that archaeological features were being exposed by stripping within the preservation area between Areas 3 and 4, and consequently a watching brief was undertaken in this area.

The earliest archaeological remains comprised a flint scatter of Mesolithic date in Area 4. The same excavation area also uncovered parts of settlements dating from the late Bronze Age/early Iron Age and the middle Iron Age. Also dating from the middle Iron Age was a linear boundary in Area 5, formed by a pit alignment constructed at right angles to the adjacent part of the River Nene. This boundary continued in use into the late Iron Age/early Roman period, when it formed the western limit of a field system. The landscape appears to have been completely reorganised during the 2nd century, probably representing the establishment of the villa. Although the main complex of villa buildings lay beyond the development area, the excavation uncovered a substantial part of the associated agricultural landscape, including complexes of fields and paddocks located on either side of a spring outwash channel. An area dedicated to crop processing was identified, where five corn-drying ovens were constructed as well as a threshing floor and stone-lined tanks that may have been used for steeping grain to be used in making beer. The field systems developed and expanded over the course of the 3rd and 4th centuries, and an aisled building of probable agricultural function was constructed, as well as a building beside the spring channel that may have been a temple or mausoleum. In addition to the structural remains and artefacts, pollen, insects and waterlogged plant remains recovered from the spring channel can provide valuable evidence for the character of the contemporary landscape.

The assessment presents the preliminary findings of the fieldwork, assesses the potential of the results to address research questions pertinent to current research agendas, and sets out the programme for analysis and dissemination. Given the quantity and character of the archaeological evidence excavated at the site, it is proposed that the results of the analysis should be published as an Oxford Archaeology Monograph.

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1 INTRODUCTION

1.1 Background

1.1.1 This document comprises a post-excavation assessment and updated project design for a programme of archaeological excavation undertaken by Oxford Archaeology (OA) at the site of a mixed residential and commercial development at M1dway Junction 16, Northamptonshire. The assessment has been conducted in accordance with the principles identified in Historic England's guidance documents *Management of Research Projects in the Historic Environment*, specifically *The MoRPHE Project Manager's Guide* (EH 2006) and *PPN3 Archaeological Excavation* (EH 2008).

1.1.2 The site was located in Harpole parish, in a roughly triangular area of farmland between Junction 16 of the M1 and Harpole Mill, bounded to the north by the A4500, to the south by the motorway and the River Nene, and to the east by a track leading south from the A4500 to the mill (Fig. 1). A geophysical survey (MoLA 2015a) and trial trench evaluation (MoLA 2015b) of the entire development area indicated that archaeological remains were only present in the eastern part of the site, east of the Red Lion truck stop, comprising undated ring ditches, a pit alignment, and areas of Iron Age and Roman occupation with associated field systems. Excavation was consequently undertaken here, targeted on five areas that would be impacted by intrusive groundworks associated with the development. During the excavation it became apparent that archaeological features were being exposed by stripping within the preservation area between Areas 3 and 4, and consequently a watching brief was undertaken in this area.

1.1.3 The investigation was commissioned by CgMs (now RPS Consulting) on behalf of Midway Devco Limited and was undertaken in accordance with a written scheme of investigation (WSI) prepared by Museum of London Archaeology (MoLA 2016).

1.2 Geology and topography

1.2.1 The bedrock geology is mapped as Dyrham Formation siltstone and mudstone, overlain by deposits of alluvium, clay, silt, sand and gravel associated with the River Nene (BGS online viewer). The site slopes from north to south, from a maximum elevation of *c* 85m above Ordnance Datum (aOD) beside the A4500 to *c* 65m aOD close to the Nene in Area 4. Ridge and furrow earthworks were visible across most of the site but were interrupted by an outwash channel associated with a spring, which extended along the eastern edge of excavation Area 1 and through Area 2.

1.3 Archaeological background

1.3.1 The site has been the subject of previous archaeological investigation consisting of two desk-based assessments (Walker 2014; MoLA 2015c), a geophysical survey (MoLA 2015a) and trial-trench evaluation (MoLA 2015b), the results of which are summarized here.

1.3.2 No direct evidence of either a Palaeolithic or Mesolithic presence has been found either within the site or in its vicinity but there is later Neolithic and Bronze Age

cropmark evidence in the surrounding landscape. Part of a pit alignment containing Bronze Age pottery was found during evaluation of land to the south-west of the current site, on the opposite side of the motorway.

1.3.3 The partial remains of a Roman villa are known to survive immediately beyond the northern edge of the site. The site was discovered in 1846 and a mosaic pavement was uncovered in 1849. It was uncovered again in 1899 and was partly removed. Prior to the construction of the A45 in the 1960s (now the A4500) further investigation was undertaken, revealing the remains of a large stone cistern and a 4th-century AD structure of unknown function overlying robbed-out 2nd-century walls. Large quantities of pottery dating mainly to the 4th century AD were also recovered, but the results of this excavation have not been published and the precise location and arrangement of the villa building(s) remains unclear. Fieldwalking and magnetometer and resistivity surveys have been undertaken in the fields to the north of the villa as part of the Local People: Local Past project (Young 2010) and identified a large, sub-rectangular enclosure, within which the villa may have been situated, as well as associated ditched fields. A resistivity survey undertaken in an attempt to resolve any structural remains associated with the villa buildings detected a series of higher resistance anomalies, but the results were not clearly defined, although possible walls and areas of collapse or flooring were tentatively identified.

1.3.4 No evidence for Anglo-Saxon occupation has been found within the site.

1.3.5 The site lies some distance from the medieval settlements of Upper and Nether Heyford and it is therefore likely that it lay in open fields during that time. Ridge and furrow earthworks survive on the site.

Previous archaeological investigations

1.3.6 A geophysical survey undertaken in 2015 identified undated ring ditches, a pit alignment, areas of Iron Age/Roman settlement activity and field systems, medieval ridge and furrow cultivation, a post-medieval watermill and a possible post-medieval lime kiln. A probable palaeochannel of the River Nene was also detected (MoLA 2015a).

1.3.7 A trial-trench evaluation comprising 75 trenches identified two areas of Iron Age rectilinear field system, with circular enclosures, a probable roundhouse, and a pit alignment. Two areas of 1st to 4th-century Roman settlement were also identified, including a rectangular enclosure with rectilinear field systems, a sub-circular enclosure and the stone foundations of two structures probably relating to food-processing activity. The remnant earthwork remains of medieval ridge and furrow cultivation strips were also present in parts of the site (MoLA 2015b).

1.4 Original research aims and objectives

1.4.1 The purpose of the work, as defined in the WSI, was to determine and understand the nature, function and character of the archaeological site in its cultural and environmental setting.

1.4.2 The general aims of the investigation were to:

- Mitigate the potential impacts from the proposed development of the site through

archaeological recording, analysis and dissemination;
- Refine the date, nature, character and extent of the activity on the development site;
- Recover artefacts to assist in the development of type series within the region;
- Recover palaeo-environmental remains to determine past local environmental
- conditions;
- Preserve by record the ridge and furrow earthworks
- Preserve undisturbed areas of archaeology in situ
- Create an organised and indexed site archive;
- Analyse, interpret and report on the findings from the fieldwork.

Research frameworks

1.4.3 Specific research objectives were drawn from national and regional research frameworks documents (Knight *et al*. 2012, replacing Cooper 2006) and were used to enhance our understanding of the Iron Age, and Roman activity on the site. The specific research objectives included:

Iron Age

- Understanding the development of field systems land boundaries and how this relates to changes in the agrarian landscape (Knight *et al*. 2012, objective 4.6.1);
- What are the economic, social or political roles of pit alignments (ibid., 4.6.2)?
- How may studies of the boundaries within, around and between settlements contribute to analysis of structured deposits (ibid., 4.7.3)?
- Whether there is any evidence for agricultural intensification (ibid., 4.8.1);
- Contribute to understanding of the rural economy and diet (ibid., 4.8.2);
- Contribute to understanding the relationship between settlement patterns and agricultural changes (ibid., 4.8.3).

Roman

- The relationship between field and boundary systems to earlier systems of land allotment, and how these boundary networks developed over time (ibid., 5.4.4);
- Chart more closely the processes of agricultural intensification and expansion and the development of field systems (ibid., 5.5.4);
- The area to the west of Northampton, within which M1dway J16 falls, contains an increasing number of pit alignments, with known examples excavated at Upton (Walker and Maull 2010), Pineham (Simmonds 2015), and Harlestone Quarry (Chapman *et al*. 2015) in addition to other examples identified from cropmarks and as yet unreported excavations in the Dallington area. The site has the potential to add to the growing corpus of data about these sites within a relatively small area. This provides an opportunity to examine how these features may relate to each other and how geological and topographic factors may have influenced their location (watersheds, river courses, etc).

Site-specific research objectives

1.4.4 More specific site-based objectives were:

- Investigating the spatial extent, morphology and function of Iron Age and Roman remains at the site;
- Establishing the dating and function of the enclosures and ditches across the site;
- Establishing the extent of the industrial or crop processing activities taking place on site;
- Defining whether there is evidence for continuity or hiatus between the Iron Age and Roman phases;
- Investigating the relationship between the Roman features and the possible location of the villa to the north beyond the site.

1.5 Fieldwork methodology

1.5.1 Open area excavation was undertaken to investigate those areas of archaeology identified during the evaluation which were considered to be at risk from the development. The creation of landscaped terraces as part of the planned development was to be undertaken by cutting some areas of the slope and infilling other regions with soil. Nine areas of archaeological significance that were to undergo cutting as part of the landscaping works were identified in the WSI as requiring excavation in advance of development, and were consolidated into five larger areas during the excavation (Fig. 2). Archaeological features that lay outside these cut areas were to be preserved *in situ* by the build-up of fill material as part of the terracing works and were therefore not be excavated. During the excavation, however, it became apparent that archaeological features were being exposed during stripping within the preservation area between excavation Areas 3 and 4, and consequently a watching brief was undertaken in this area. The watching brief comprised a topsoil strip and mapping of the archaeological features, and the only features that were excavated were an inhumation grave and a cremation burial.

1.5.2 The excavation was undertaken in accordance with the Chartered Institute for Archaeologists' (2014a) St*andard and guidance for archaeological excavation* and local and national planning policies.

1.5.3 The topsoil and overburden were removed to the top of archaeological deposits by a machine using a toothless bucket operating under archaeological supervision. The exposed area was hand-cleaned to define all archaeological features present. All archaeological deposits were excavated by hand and recorded stratigraphically in accordance with OA's standard recording system and the WSI (MoLA 2016).

1.5.4 All features and spoil heaps were scanned with a metal detector in order to enhance recovery of metal artefacts.

1.5.5 The excavation and watching brief uncovered a total of four inhumation graves and a single cremation burial. These were excavated under a Home Office licence under supervision of an experienced osteoarchaeologist according to OA standard guidelines (Wilkinson, 1992). All human remains were cleaned and placed in boxes following the methods of McKinley and Roberts (1993).

1.6 Project scope

1.6.1 This post-excavation analysis encompasses the stratigraphic, artefactual and environmental data generated by the excavation. Material from the evaluation has already been reported on (MoLA 2015b) and was not included.

1.6.2 The updated project design details the research aims of the project and proposes the method of publication of the final excavation report and the dissemination of the associated data, along with recommendations for retention and disposal of material and the accessioning of the material and data archives.

2 FACTUAL DATA: STRATIGRAPHY

2.1 General

2.1.1 A dense landscape of archaeological features was uncovered that extended across all five excavation areas and the watching brief area. The results of the geophysical survey indicated that similar remains may be expected in the unexcavated areas between the excavation areas. Seven phases of activity were defined:

- Phase 1: Early Mesolithic period
- Phase 2: Bronze Age-early Iron Age
- Phase 3: Middle Iron Age
- Phase 4: Late Iron Age/early Roman period
- Phase 5: Middle Roman period
- Phase 6: Late Roman period
- Phase 7: Medieval and post-medieval periods

2.1.2 The distribution of features changed substantially over time (Fig. 2). Phase 1 was represented by a flint scatter in Area 4, and Phase 2 was limited to a possible settlement in Area 4 and a small group of features at the western end of Area 2. Phase 3 features were situated in two widely spaced locations at either end of the site, consisting of a settlement in Area 4 and a pit alignment in Area 5, and Phase 4 was represented only at the western end of the site, in Area 5 and the western end of Area 1. The features attributed to Phases 5 and 6 constituted the agricultural landscape associated with the villa situated immediately north of the site and were the most wide-spread element of the site, encompassing Areas 1, 2 and 3, as well as the watching brief area and a few ditches at the south-eastern limit of the site in Area 4. Post-Roman activity (Phase 7) consisted only of ridge and furrow earthworks, which were ubiquitous throughout the site.

2.1.3 The spring outwash channel had its source somewhere to the north of the site and was defined as a broad, shallow depression that extended along the eastern edge of Area 1 and through Area 2. The relationship between the channel and the Roman ditches that extended across it was somewhat ambiguous, and it appeared that the ditches cut the lower fills and were sealed (and obscured) by the upper silts. The lower fills produced a valuable suite of environmental evidence indicative of wet ground and open scrub or grassland in the surrounding landscape (see sections 5.3-5.5 below), and the uppermost of these deposits contained a small group of Roman sherds, suggesting that this part of the sequence was broadly contemporary with the Roman activity. Intriguingly, the palynological evidence included a rare instance of walnut pollen, which may indicate the existence of an ornamental garden associated with the villa or cultivation as an exotic foodstuff.

2.1.4 The following stratigraphic records were created:

Record type	Number
Context records	3775
A1 plans	2
A4 plans	124
A1 sections	5
A4 sections	420
Digital photographs	2148

2.2 Phase 1: Early Mesolithic period

2.2.1 An assemblage of early Mesolithic flintwork comprising a total of 72 pieces was recovered from a localised soil layer close to the River Nene in Area 4 (4235/4236, Fig. 7). The freshness of the flint suggested that it represented an *in situ* knapping scatter. Further Mesolithic flints were recovered from residual contexts in later features, as were pieces dating from the early Neolithic period and Bronze Age.

2.3 Phase 2: Bronze Age-early Iron Age

2.3.1 Features of this period were restricted to two discrete locations at the western end of Area 2 and in the north-eastern part of Area 4. The features in Area 2 (Fig. 4) comprised a curving ditch (2455), the area enclosed by which contained a tightly clustered group of two small pits (2472 and 2474) and a short linear feature (2477). All three features were filled by material that included burnt material and heat-discoloured pebbles. In Area 4 (Fig. 7), a possible settlement was represented by two enclosures, one rectilinear (4374) and the other curvilinear (4380), and a penannular gully (4376). The enclosures were closely spaced and may have been conjoined, but the junction was truncated by a Roman ditch. The rectilinear enclosure was open to the east and its companion may have been also.

2.4 Phase 3: Middle Iron Age

2.4.1 Middle Iron Age features were identified in Area 4, where the settlement may have been a successor to the Bronze Age-early Iron Age occupation, and Area 5, where part of the pit alignment recorded by the geophysical survey and trial-trench evaluation was exposed.

2.4.2 The settlement in Area 4 was at least partly enclosed, being bounded to the east and south by ditches 4377/4378 and 4381/4383, although it was uncertain whether the ditches were in use at the same time or whether they represented successive phases of a single boundary (Fig. 7). Ditch 4381/4383 was adjoined by a small enclosure (4382). The initial phase of the settlement was associated with pottery dating from the early-middle Iron Age and comprised at least five roundhouses, represented by penannular gullies (4032, 4081, 4389, 4396 and 4397). In two instances the gullies intersected, indicating that the buildings were not all contemporary, and the largest gully (4389) had been recut on at least three occasions. A further two intersecting penannular gullies (4392 and 4398) were stratigraphically later and contained pottery of middle-late Iron Age date (Plate 1). Again, the larger gully had been repeatedly

recut. Postholes located between the various penannular gullies are likely to be contemporary, and where they were situated in clusters they may represent subsidiary structures or fencelines, although none produced any pottery.

2.4.3 The pit alignment was exposed for a distance of *c* 150m, with a distinct bend half way (Fig. 8), although the geophysical survey indicated that it continued in both directions beyond the limits of the excavation area. A total of 33 pits were exposed, although further pits had evidently been destroyed when a ditched boundary was established along part of the alignment during the late Iron Age/early Roman period. The pits measured 1.5-2.5m in diameter and excavation of thirteen pits revealed that they were 0.6-0.85m deep (Plates 2 and 3). Very little artefactual evidence was forthcoming, but four pits contained small quantities of middle Iron Age pottery, with sherds of late Iron Age/early Roman pottery from the upper fills of a further three pits indicating that the features remained at least partly open into this period.

2.5 Phase 4: Late Iron Age/early Roman period

2.5.1 Features dating from the late Iron Age/early Roman period, defined by the presence of grog-tempered, 'Belgic'-style pottery that dates broadly from the mid 1st century BC to the end of the 1st century AD, were restricted to the western part of the site, in Area 5 and the western end of Area 1 (Figs 3 and 8). This comprised a field system that appeared to be bounded to the west by ditch 5529, which followed the line of the earlier pit alignment, and to the east by ditch 1469/1492. The southern boundary was defined by ditch 5439, confirming the evidence from the geophysical survey. Within the area thus defined was a complex of rectilinear and irregular field enclosures, which clearly represented more than one phase of boundaries, reflecting re-organisation of the fields over time, although the details of the sequence have not been fully worked out at this stage. No obvious evidence for domestic settlement has been identified within the field system, although it is possible on morphological grounds that the successive enclosures 5153 and 5449 served this purpose; analysis of the distribution of artefactual material during the analysis stage of the project may identify areas of occupation and refuse disposal.

2.6 Phase 5: Middle Roman period

2.6.1 During the middle Roman period the Phase 4 field system was abandoned and the landscape was completely re-organised, presumably reflecting changes associated with the establishment of the villa immediately adjacent to the north. The new arrangement was to remain in place, with some modifications, until the end of the Roman period, but due to the wide date range that is encompassed by many of the pottery spot-dates, which could only be defined broadly as 'middle-late Roman' at this assessment stage, it has not been possible to fully disentangle the middle and late Roman phases at this stage. However, it is certain that a significant of the features thus defined will prove to be of middle Roman origin and that, together with those features with definite middle Roman dates, an outline of the landscape at this time can be presented. This comprises enclosures and structures that extend across much of Areas 1 and 2, as well as the watching brief area and a smaller number of features in Areas 3 and 4 (Figs 3-7).

2.6.2 The main complex of middle and middle-late Roman features in Area 1 comprised a roughly rectangular block of conjoined enclosures, which was situated in close proximity to the location of the villa and presumably represents pens and paddocks that were directly associated with the villa buildings (Fig. 3). This included rectilinear divisions (eg 603, 961, 1501) but also some clearly curvilinear element (eg 827 and 890).

2.6.3 To the east of this, close to the outwash channel of the spring that extends along the eastern edge of the excavation area, was a small group of pits including one (1041) that contained the partly articulated remains of a cow (Plate 4). This group of features was situated close to the Phase 5 building that has been tentatively interpreted as a possible temple or mausoleum and it is possible that they represent the initial stage of the use of this location for religious or funerary practices, before it was monumentalised by the construction of the building, although the finds assemblages comprise mainly small quantities of pottery and animal bone and look more like domestic refuse than structured deposits.

2.6.4 Further south, in Area 2, and similarly close to the west bank of the channel, lay further enclosures that included a group of structures associated with crop processing (Fig. 4). A T-shaped crop-drying oven (2050; Plate 5) and part of the flue of a second (2219) were situated close to a stone-lined tank (2094), all set within a U-shaped enclosure ditch (2488). Similar complexes elsewhere have been interpreted as evidence for malting, probably for the production of beer, with the pit being filled with water to steep the grain before it was dried in the oven.

2.6.5 Ditches that predated late Roman curvilinear enclosure 20350 may represent elements of the middle Roman landscape on the east side of the channel (Fig. 5). The arrangement here is not clear, but ditch 20354 evidently defined a boundary running N-S, parallel to the channel, and other ditches (20352, 20357, 20586) appear to be the remains of enclosures adjoining its eastern side. A sequence of three successive drainage ditches (20358, 20365 and 20395), all of substantial proportions and with distinct alluvially-derived fills, were dug along the line of the outwash channel (Plate 6). Very little dating evidence was recovered from Area 3 and the watching brief area, as a result of which it is difficult to ascertain which of the features here are of middle Roman date, but there is no reason to think that the enclosures exposed do not include an element of this date (Fig. 6). One of the earlier features in this area was a stone-lined culvert (20002; Plate 7). Further south, in Area 4, this phase is represented by a pair of sinuous ditched boundaries (4379 and 4386) that extend on parallel alignments southward from the enclosures towards the River Nene (Fig. 7). They were *c* 30m apart and are clearly different in character to the enclosures further north, possibly representing a corresponding difference in the nature of the land division in this area, or a particularly wide droveway.

2.7 Phase 6: Late Roman period

2.7.1 The arrangement of the landscape that was established during Phase 5 continued during the late Roman period, with some development over time.

2.7.2 The complex of enclosures directly associated with the villa continued in use, and was defined to the west and south by the construction of ditches 1492 and 1387/1390 (Fig. 3). As in the preceding phase, both rectilinear (eg 606, 960, 1464) and curvilinear elements (eg 241, 1245) were present. One of the latest elements was an aisled building, which overlay several late Roman ditches and was aligned decidedly askew from the principle alignment of the enclosure complex. The only feature that was similarly aligned was L-shaped ditch 403, which lay at the north-eastern limit of the complex and was associated with an alignment of postholes.

2.7.3 A rectangular building (1320) was constructed in a rather isolated location to the east of the main complex (Plates 8 and 9). Although substantially robbed of most of the re-usable building material, it was evidently a substantial structure, stone-founded and roofed with stone tiles, and comprised two concentric walls with overall dimensions of 13.5 x 7.5m. The concentric arrangement, and its location beside the outwash channel of a spring, may suggest a religious function, although it lacked the evidence for offerings, often dominated by metalwork such as coins and brooches, that is common on temple sites and so an interpretation as a mausoleum is also possible. A cobbled surface was situated at the eastern end, and similar deposits (1297 and 1306) within the outwash channel may have been intended to provide a ford or stable surface. The building was separated from the complex of enclosures to the west by a substantial ditch (339).

2.7.4 To the south, the crop-processing area in Area 2 (Fig. 4) underwent considerable development, with the construction of two more T-shaped crop-drying ovens (2130 and 2323) and one of more complex design (2039; Plates 10 and 11), as well as two further stone-lined tanks (2018 and 2129; Plates 12 and 13) and a threshing floor (2146; Plate 14). Oven 2130 and tank 2129 were situated within a U-shaped arrangement of postholes that may have supported a fence or palisade, and oven 2323 was surrounded by a circular ditched enclosure, with tank 2018 immediately outside the enclosure's open north-west side.

2.7.5 A large curvilinear enclosure (20350), measuring *c* 65 x 50m, was constructed on the east side of the channel (Fig. 5). A smaller oval enclosure within it, which measured *c* 15 x 12m (20351), may be associated with it but otherwise none of the internal features are demonstrably contemporary. The enclosure was replaced by a complex of conjoined rectilinear enclosures that extended across the eastern part of Areas 2 and 3 and much of the watching brief area. A short segment of wall (20045) and a rectangular cobbled surface (20035) that yielded 4kg of animal bone as well as pottery and two coins may represent a specific activity area. An urned cremation burial (6007) situated within the watching brief area was attributed to this phase, and the close proximity of undated inhumation grave 6005 suggests that it may be of similar date, as may graves 20573 and 3004 in Areas 2 and 3. The complex did not extend as far as Area 4, where the only activity of this phase was the redefinition of one of the sinuous Phase 5 boundaries by the construction of ditch 4387 and the replacement of the other by an L-shaped ditch (4384) that may be part of a rectilinear enclosure.

2.8 Phase 7: Medieval and post-medieval periods

2.8.1 The medieval period was represented by ridge and furrow cultivation, which was present throughout the site. A ditch (5218, Fig. 8) in Area 5 that contained post-medieval pottery corresponds with the junction between two adjacent furlongs indicated on the geophysical survey. A stone-built culvert at the eastern end of Area 1 (1296, Fig. 3) was of uncertain date and may have been Roman, although it was cut through *c* 0.6m of sterile alluvium that overlay late Roman surface 1297/1306 and may therefore be considerably more recent. The only certainly modern features were the boundaries of the modern fields.

3 FACTUAL DATA: ARTEFACTS

3.1 General

3.1.1 The following finds were recovered:

Material	Number	Weight (g)
Pottery	7025	123,690
Coins	41	-
Iron objects	103	-
Copper alloy objects	18	-
Copper alloy and iron	1	-
Lead objects	20	-
Glass	2	-
Worked bone	1	-
Worked stone	83	-
Flint	243	-
Ceramic building material	-	693,000
Fired clay	371	3475
Slag	-	2800
Clay tobacco pipe	1	4

3.2 Pottery *by Edward Biddulph*

3.2.1 A total of 7025 sherds of pottery weighing 123,690g was recovered. The assemblage was scanned to identify diagnostic forms and fabrics, allowing context groups to be spot-dated and the potential of the assemblage for further work to be assessed. Each context group was quantified by sherd count and group weight. Fabrics were assigned codes taken from OA's standard recording guidelines (Booth 2016), while forms were briefly described.

3.2.2 As shown in Tables 1 and 2, most of the assemblage was recovered from Areas 1 and 2 East and belonged to contexts phased to the late Iron Age/early Roman period and middle/late Roman period or late Roman period.

Table 1: Quantification of the pottery by area

Area	Count	Weight (g)
A1	3355	69,834
A2 East	1260	21,921
A2 West	466	7503
A3	67	573
A4	552	3843
A5	102	15,252
Watching brief	243	4764

Table 2: Quantification of the pottery by phase

Phase	Description	Count	% count	Weight (g)	% weight
1	Early Mesolithic	1	<1%	2	<1%
2	Bronze Age-early Iron Age	87	1%	851	1%
3	Middle Iron Age	429	6%	2742	2%
4	Late Iron Age/early Roman	1776	25%	24,626	20%
5	Middle Roman period	156	2%	4399	4%
5/6	Middle/late Roman	1003	14%	20,015	16%
6	Late Roman period	2636	38%	54,308	44%
7	Medieval and post-medieval periods	42	1%	560	<1%
Unphased		895	13%	16,187	13%
Total		7025		123,690	

3.2.3 The earliest pottery comprises two sherds of possible Beaker. Given that the fragments were very small and recovered from a middle Iron Age gully in Area 4, the identification is tentative and requires confirmation. Context groups given a Bronze Age-early Iron Age date (*c* 2400-400 BC) contained sherds predominantly in sandy fabrics. Shelly fabrics were also present, but to a lesser extent. Few forms were identified by rim, but jars are likely to be well-represented. Large portions of single vessels were recovered from Area 2 West.

3.2.4 Pottery of an early Iron Age or early/middle Iron Age character (*c* 700-400/100BC) was collected from Area 4. This included vessels in sandy or (less frequently) shelly fabrics, among them a slack-profiled jar or bowl. Context groups assigned to the middle Iron Age, recovered mainly from Areas 4 and 5, contained pottery largely in shelly fabrics. No forms were identified by rim, but a fragment of a handle, possibly from a jar or bowl, was noted.

3.2.5 Context groups assigned to the late Iron Age/early Roman period (*c* 50 BC-AD 100) were dominated by grog-tempered wares. Among the forms identified by rim in these wares (which included oxidised and reduced fabrics) were narrow-necked jars, barrel-shaped jars, bead-rimmed jars, storage jars and carinated bowls. A lid-seated jar was seen in a shelly fabric. The pottery was recovered from Area 5 and, to a lesser extent, Areas 1 and 4. Groups that contained grog-tempered and shelly wares in association with post-conquest pottery were dated more certainly to the early Roman period (*c* AD 43-100/120). Roman-period fabrics included Verulamium-region white ware, samian ware (probably South Gaulish) and locally-produced reduced wares. Storage jars, bead-rimmed jars, lid-seated jars, platters and beakers (?butt-beakers) were among the identified forms.

3.2.6 A much more diverse range of pottery was recorded in groups dated to the middle Roman period (*c* AD 120-250). Locally-produced reduced coarse wares were joined by colour-coated and white wares from the Nene Valley, mortaria from Mancetter-Hartshill and the Oxford region, black-burnished ware from Dorset, pink grogged ware from the Northamptonshire/Buckinghamshire border, olive oil amphorae from southern Spain and samian wares from Central and East Gaul. As expected, jars were

the most common vessel class represented, but several other classes were noted, with poppy-head, indented and globular beakers, flanged, bead-rimmed, plain-rimmed and dishes, cups, and flanged and hammer-headed mortaria being among the forms.

3.2.7 Several of the fabrics noted in the middle Roman period, such as Nene Valley colour-coated ware, black-burnished ware, shelly wares and pink-grogged ware, continued into the late Roman period (*c* AD 250-410). These were joined by colour-coated wares from Much Hadham in Hertfordshire and from Oxford. Apart from jars, the range of forms was perhaps more restricted than was the case in the middle Roman period, with, for example, dishes being confined largely to dropped flange and plain-rimmed types, beakers limited to globular, funnel-necked types, and bowls few in number. Of note was a lamp (rare outside towns, forts or religious sites) in a reduced sandy fabric.

3.2.8 A small amount of medieval and post-medieval pottery was recorded.

3.3 Coins *by Paul Booth*

3.3.1 Forty-one Roman coins were recovered during the excavation. Most date to the later 3rd and 4th centuries.

3.3.2 The coins are generally in poor condition in terms of surface encrustation and corrosion. A number of pieces are very eroded and a significant number have damaged edges which severely limited identification. The coins were scanned rapidly and some hand-cleaning to facilitate identification was undertaken by the specialist. Detailed identifications were provided where this was readily possible, though this was rarely the case. Nevertheless, many of the coins could be assigned to one of the issue periods in the scheme devised by Richard Reece (eg 1991), albeit with varying degrees of certainty, and are presented in relation to these periods in Table 3 below (for detailed notes see Appendix A), with further totals relating to broader phases of issue (ibid.). In some cases, further cleaning (by a conservator) will be necessary to enable basic identification or to enhance provisional identifications.

The assemblage

3.3.3 The earliest identifiable coin is a denarius of Hadrian dated AD 134-138 and only fairly lightly worn. Two further plated denarii are of later date, one of Julia Mamaea and the other uncertain. A single heavily worn sestertius is also probably of broad 1st-2nd century date. The later 3rd century is well represented. The Period 13 coins included three certainly or probably of Victorinus and a fourth possible issue of Victorinus is included in the general Phase B group. The condition of many of the Phase B coins makes it impossible to be certain if they were regular or irregular issues. Examples of the latter are likely to have been present, and would be assigned to Period 14 if identified. One coin of this phase had been pierced.

3.3.4 A single (incomplete) coin of AD 320-321 was of Reece's Phase C. In the following phase Periods 17-19 were fairly consistently represented. The Period 18 identifications, however, are tentative, based on the general character of small coins which are most likely to have been imitations of the common FEL TEMP REPARATIO fallen horseman type. All of these coins were heavily eroded. An earlier (eg late 3rd-century) date for some of them cannot be ruled out completely, but is considered unlikely. The presence of two certain and one possible coins of the last issue period

regularly represented in Roman Britain (Period 21) is notable in an assemblage of this size.

3.3.5 The assemblage is too small for the significance of the relative quantities of coins of different issue periods and broader phases to be completely clear, but the high proportion of coins of Reece's Phase B is striking, and is unusual in a rural site, where assemblages tend to be more heavily dominated by issues of Phase D. As noted above, the relatively high proportion of coins of Period 21 may also be significant; the implication of very late Roman activity can be checked against the evidence from the pottery.

Table 3: Quantification of Roman coins by issue period and phase

Date	Reece Period	Total coins	Phase total	% of coins assigned to phase
Before AD 41	1			
41-54	2			
54-68	3			
69-96	4			
96-117	5			
117-138	6	1		
138-161	7			
161-180	8			
180-192	9			
193-222	10	1		
222-238	11			
238-260	12			
Phase A	Uncertain	2	4	10.8
260-275	13	5		
275-296	14			
Phase B	Uncertain	7	12	32.4
296-317	15			
317-330	16	1		
Phase C	16?		1	2.7
330-348	17	7		
348-364	18	4?		
364-378	19	6		
378-388	20			
388-402	21	3		
Phase D	Uncertain		20	48.4
3-4C/unassigned		4		
Total			41	

3.4 Metal and non-metal small finds *by Ian Scott*

3.4.1 There are 146 small finds from the excavations. These comprise 103 pieces of iron, 20 pieces of lead, 18 pieces of copper alloy, one copper alloy and iron object, two glass objects, one piece of worked bone and a ceramic spindle whorl. Almost all the finds are from Areas 1 and 2 (Table 4). The largest single category of object is nails (Table 5).

Table 4: Quantification of small finds by area and phase

	Phase							
Area	**4**	**5**	**5/6**	**6**	**7**	**unph**	**unstrat**	**Total**
1	1	1	11	34	8	9	1	64
2 east			4	35	5	6		50
2 west			4	13		8		25
3				3		1		4
5	1						1	2
Total	2	1	19	85	13	24	2	146

3.4.2 There are very few finds from Phase 4 or Phase 5 contexts. They include a ceramic spindle whorl from Phase 4 pit 5310 (Area 5), which appears to be made from a sherd in an early Romano-British fabric, and part of copper alloy bow brooch from Phase 4 ditch 331 (Area 1). The only find from a Phase 5 (middle Roman) context is an iron split spike loop from pit 145 (Area 1).

3.4.3 There are 19 small finds from Phase 5/6 (middle/late Roman) contexts. They include 11 nails. The only items of interest are household items comprising a fragment of a possible knife blade from Area 1 ditch 611 and a lead ceramic rivet or repair from Area 2 East ditch 20112. Otherwise, the finds are limited in number and of limited interest.

Table 5: Quantification of small finds by Phase and object function

	Phase							
Function	**4**	**5**	**5/6**	**6**	**7**	**unph**	**unstrat**	**Total**
Tools	1			5			1	7
Transport				1		1		2
Personal	1			3	1	2		7
Toilet				1				1
Leisure				1				1
Footwear				3		3		6
Household			2	2	2	1		7
Structural		1		2				3
Binding			1	1				2
Nails			11	44		11		66
Miscellaneous				8	2	2		12
Query			3	11	3	1	1	19
Waste			2	3	5	3		13
Total	**2**	**1**	**19**	**85**	**13**	**24**	**2**	**146**

3.4.4 More than half of the small finds were recovered from Phase 6 (late Roman) contexts and more than half of these finds are nails (n=44) (see Table SF2). There are five tools, but they include part of cast iron ploughshare (Area 2 West ditch 2214). There is a

Roman hammerhead and Roman field or mower's anvil from Area 3 ditch 3036. Other possible tools include part of scythe or sickle blade (Area 2 East ditch 20264) and a possible punch or chisel (Area 2 East ditch 20021), neither of which is closely datable. More interesting are personal items: a fragment of a 1st-century broad armlet, possibly of military origin, from Area 1 ditch 204 and a fragment of a cable twist bracelet from Area 1 ditch 633. There is a small green wound glass bead from Area 2 East ditch 20234. The only toilet item is a Roman bone hair pin from Area 1 robber trench 5. This is a fairly simple form decorated with grooves around the head. There is also a single glass gaming counter from ditch 356 (Area 1). There just three hobnails from Phase 6 contexts. The two household items are two further lead ceramic rivets from Area 2 East ditches 20382 and 20517.

3.4.5 Phase 7 finds are limited but include a plain octagonal ring of Roman form and two more lead rivets from ceramic repairs all from subsoil.

3.4.6 Unphased objects include a fragment of late Roman decorated strip bracelet (Area 2 East) and a finger ring formed from a cut down bracelet (Area 2 East 20313). Unstratified finds include a modern claw hammerhead from Area 5.

3.5 Vessel and window glass *by Ian Scott*

3.5.1 The vessel glass comprises just seven sherds (Table 6). From Area 1 Phase 6 there is one very small sherd in blue glass possibly from the neck of a Roman bottle and three small undiagnostic vessel sherds.

3.5.2 From Area 6 subsoil there is one sherd from the base of a blue Roman bottle with moulded circle and an olive green sherd, probably from a post-medieval or later bottle. Another olive green sherd from a post-medieval or modern bottle came from the top of unexcavated ditch 6016 in the watching brief area.

3.5.3 There are just two sherds of window glass, both from Area 2. One sherd in greyish tinged colourless glass is a piece of probable Roman cast matt/glossy glass and came from the Phase 6 threshing floor 2146. The second sherd in very pale green glass cannot be dated closely.

Table 6: Summary of vessel and window glass

Area	Phase	vessel	window	Total
Area 1	6	4		4
Area 2	6		1	1
	unph		1	1
Area 6	7	2		2
	unph	1		1
Total		7	2	9

3.6 Worked stone *by Ruth Shaffrey*

3.6.1 A total of 96 fragments of stone were retained and submitted for analysis. A total of 76 fragments are likely to have been used as stone roofing (Table 7). Many of the fragments are too small for this identification to be certain but four fragments from Area 1, two from Area 2 west and one from Area 2 east are large enough or retain diagnostic perforations identifying them as roofing.

3.6.2 Most of the stone roofing by count (62 fragments) was found in Area 1, and of these more than half (38) are from Phase 6; most of this material was recovered from the complex of enclosures directly associated with the villa and may derive from the villa buildings, but 14 fragments came from the area around Building 1320. All of the 12 fragments from Area 2 were recovered from Phase 5/6, 6 or unphased contexts.

3.6.3 The stone roofing is made from a pale yellow or pale brown, non-shelly limestone or a fine-grained, pale brown sandstone.

Table 7: Quantification of stone roofing material

Phase	4	5	5/6	6	Unphased	Total
Area 1	2	10	6	38	6	62
Area 2 east			2	8	2	12
Area 2 west				2		2
Total	2	10	8	48	8	76

3.6.4 Eight fragments were burnt, but otherwise unworked and probably local stone.

3.6.5 A total of eleven fragments from a probable six querns and millstones were recovered (Table 8). Two rounded, non-diagnostic, fragments of lava were found in a Phase 5/6 ditch fill in Area 2 east. These are probably from a rotary quern, although it is possible they are from a millstone. A further three rotary querns were all found in Area 1. Two are unphased, but certainly of Roman date, including a complete lower rotary quern (SF 64) and a fragment of upper rotary quern (SF 86). A third rotary quern from Area 1 comprises two adjoining fragments and these were found in a Phase 6 ditch (SF 83).

3.6.6 Fragments from two millstones were recovered from Phase 6 features. One of these is a fragment of lower stone from a pit in Area 1 (SF 88). The second comprises four adjoining fragments of an upper stone (SF 118) from the fill of corn-drying oven 2039.

3.6.7 Both millstones and one of the rotary querns are made of Millstone Grit, a quern material also found during the evaluation (Chapman 2015, 53), whilst two of the rotary querns are made of Old Red Sandstone, and one is made from lava. These materials are typical of the region.

3.6.8 An additional object is a whetstone and probably a multi-functional tool, bearing smoothed areas and numerous sharpening grooves (SF 53). This was found in an unphased pit and could be of any date.

Table 8: Quantification of stone objects

	No. frags	No. objects
Millstone	5	2
Rotary quern	6	4
Saddle quern/whetstone	1	1

3.7 Flint *by Tom Lawrence*

Introduction

3.7.1 The excavations produced 243 struck and 40 burnt unworked flints weighing 417g (Table 9). A large proportion of the flints were chronologically diagnostic and are of early Mesolithic or early Neolithic date with a small Bronze Age component. The majority of flints derived from later features but a small scatter comprising two contexts (4235 and 4236) in Area 4 represents *in situ* Mesolithic activity. For the most part, flints from this assemblage were fresh, suggesting limited movement from the original deposition location.

Methodology

3.7.2 The artefacts were catalogued according to OA South's standard system of broad artefact/debitage type (Anderson-Whymark 2013; Bradley 1999), general condition noted, and dating attempted where possible. The assemblage was catalogued directly onto an Open Office spreadsheet. During the assessment additional information on condition (rolled, abraded, fresh and degree of cortication) and state of the artefact (burnt, broken, or visibly utilised) was also recorded. Retouched pieces were classified according to standard morphological descriptions (eg Bamford 1985, 72-7; Healy 1988, 48-9; Bradley 1999). Technological attribute analysis was initially undertaken and included the recording of butt and termination type (Inizan *et al*. 1999), flake type (Harding 1990), hammer mode (Onhuma and Bergman 1982) and the presence of platform edge abrasion.

The assemblage (Table 9)

3.7.3 The blade index for context 4235 was very high (50%). The curated and manufacturing pieces consisted of two opposed-platform blade cores, two crested pieces, a rejuvenation flake and a microburin. The tool percentage was also very high at around 10%. The tool assemblage consisted of two piercers, a denticulate and an end truncation. All three of these tool types are roughly made. This, along with the high blade index and presence of opposed-platform blade cores suggests an early Mesolithic date. This scatter was truncated by several ditches and is therefore incomplete.

3.7.4 Context 4236 contained an obliquely blunted point microlith and two flakes. The obliquely blunted point is smaller than one would expect in an early Mesolithic assemblage and, without further evidence, a general 'Mesolithic' date is given to this layer. Due to its size, it is hard to know whether this scatter reflects an *in situ* knapping event or pieces caught up in colluvium.

3.7.5 The assemblage from features has a high blade index of 25%. The curated pieces consist of a single-platform blade core, two opposed-platform blade cores and four multi-platform flake cores (three of which are cubic). There are two rejuvenation flakes and one crested piece. The tool count is very high at 15% and is made up of three leaf-shaped arrowheads and a barbed-and-tanged arrowhead, as well as several fine piercers and microdenticulates. A scale flaked knife, where the retouch cuts through the patina, as well as several blades and flakes with *ad hoc* retouch, were identified.

3.7.6 It is likely that the assemblage from features represents a range of periods. The high blade index may be as a result of mixed Mesolithic and early Neolithic activity. Leaf-shaped arrowheads and cubic cores represent dispersed early Neolithic activity, perhaps with a focus in Area 4. Finely-made microdenticulates and piercers are also consistent with an early Neolithic presence.

3.7.7 The barbed-and-tanged arrowhead, as well as the scale-flaked knife, demonstrate Bronze Age activity. The presence of piercers and other tools that are retouched through the patina, as well as the noticeably squatter flakes and *ad hoc* pieces in Area 5 hint that Bronze Age activity may have been focused in this area.

Table 9: Summary of the flint assemblage

Category type	Scatters	Features	Total
Flake	17	87	104
Blade	13	16	29
Bladelet	4	13	17
Blade index	17/34 (50.00%)	29/116 (25.00%)	46/150 (30.67%)
Chip	21	4	25
Irregular waste	3	11	14
Microburin	1		1
Crested piece	2	1	3
Core rejuvenation flake	1	2	3
Core single platform blades		1	1
Core opposed platform blades	2	2	4
Core multi-platform flakes		4	4
Core on a flake		1	1
Core fragment	1	6	7
Scraper side and end	1	1	2
Scraper side	1	1	2
Microlith	1		1
Leaf arrowhead		3	3
Barb and tang		1	1
End truncation	1	1	2
Piercer	2	3	5
Microdenticulate		3	3
Denticulate	1	1	2
Notch		4	4
Knife		1	1
Flake retouched		5	5
Blade retouched		1	1
Burin		1	1
Total	72	171	243

Burnt unworked no./weight (g)		40/417	40/417
No. burnt (%)	7/72 (9.72%)	9/171 (5.26%)	16/243 (6.58%)
No. broken (%) (not including waste)	30/48 (62.00%)	52/156 (33.33%)	82/204 (40.20%)
No. retouched (%) (not including waste)	5/48 (10.42%)	24/156 (15.38%)	26/204 (12.75%)

Raw material and condition

3.7.8 The majority of the flints derived from local sources. Many had a worn cortex likely deriving from nearby river gravels. The assemblage as a whole was mostly fresh or lightly damaged with only 16% of pieces being moderately or badly damaged. Table 10 demonstrates that flints from the *in situ* scatters were considerably fresher than those from features. This suggests that flints from features moved after initial deposition and may be *ex situ*. However, the overall freshness of the assemblage

indicates that this movement was limited and flints may have derived from truncated prehistoric horizons in close proximity to the features.

Table 10: Flint by condition

Condition	Features	%	Scatters	%	Total	%
Fresh	65	42.76	31	72.09	96	49.23
Light	58	38.16	9	20.93	67	34.36
Moderate	28	18.42	3	6.98	31	15.90
Heavy	1	0.67			1	0.51
Total	152	100	43	100	195	100

3.8 Ceramic building material *by Cynthia Poole*

3.8.1 A very large assemblage of ceramic building material (CBM) was recovered as bulk finds. This has been washed and marked, but has not been quantified precisely (i.e. individual count/weight by context). It is estimated to be in the order of 693kg, amounting to 30 crates and 9 boxes, which equates to 99 Size 2 boxes. Based on comparable Roman assemblages of similar bulk, this is likely to equate to between 500 and 600kg and over 6000 fragments.

3.8.2 The assemblage has not been examined in any detail, but it is clear from a scan of a random selection of boxes and crates that the assemblage is completely dominated by Roman tile and includes the standard range of Roman CBM – namely tegula, imbrex and brick. Scraps of flue tile and possible keying impressions have been found amongst the fired clay, indicating that flue tile should be expected as a significant proportion of the assemblage. The range of forms and quantity is consistent with an assemblage associated with a villa complex. In view of the evidence for mosaics at the villa, it is probable tesserae will also be present.

3.8.3 The assemblage appears to be well preserved**,** comprising large pieces**,** and it is likely to include some complete widths and lengths, although no complete tiles were noted during processing.

3.8.4 Based on the few tiles examined in any detail, the fabrics appear to broadly accord with those described in the evaluation (Chapman 2015) and are also very similar to the fired clay fabrics. A few fragments with leached shell voids found with the fired clay are probably tile (though too small to verify at this stage) and confirms that the two main categories identified at the evaluation are also present in the current assemblage. The similarity of the sandy micaceous fabric to the fired clay suggests that the tile was produced relatively locally**,** presumably for the Roman villa located to the north of the site. The micaceous fabric is broadly similar to fabric E found at the roadside settlement at Higham Ferrers (Poole 2009, 264). This may indicate both sites obtained tile from a single source, but equally it may reflect the location of both sites on or close to the same geological bedrocks, in particular the Whitby Mudstone Formation and the Northampton Sand Formation. This could result in similar fabrics for tiles produced at differing locations from the same geological deposit. Tiles

produced in shelly fabrics are normally regarded as being produced at the tilery at Harrold in north Bedfordshire.

3.8.5 The structures recorded on site are all stone built, and building stone would appear to be a readily available commodity in the region. Tile was probably therefore reserved to express status or fashion, or used in areas of buildings where stone could not fulfil a needed function, such as flue tiles.

3.9 Fired clay *by Cynthia Poole*

3.9.1 A modest assemblage of fired clay was recovered by hand excavation and sieving in roughly equal proportions. This amounted to 371 fragments weighing 3475g, of which 259 fragments weighing 1805g was recovered from sieved samples. The sampled material had a mean fragment weight of 7g and the hand collected was twice this at 14g. Preservation is relatively poor with a dominance of small, moderately to heavily abraded fragments without diagnostic features. The fired clay cannot be intrinsically dated apart from a small number of diagnostic forms, and the majority of the assemblage is dependent on other dated artefacts and stratigraphy for its phasing.

3.9.2 The fired clay was recovered in greatest quantity from Areas 1 and 2 West, whilst Areas 2 East and 3-5 produced insubstantial amounts (Table 11). The majority of the assemblage was phased as Roman, but a small quantity was middle Iron Age or late Iron Age-early Roman. This was confined to Areas 1 and 5, apart from a single scrap from Area 4. The fired clay of Roman date is largely confined to Areas 1 and 2 and most of the material from Areas 3 and 4 is unphased. More than half of the fired clay assemblage was found in corn-drying ovens, ovens or hearths, whilst the remainder was found mainly in ditch fills together with a small number of pits and postholes.

3.9.3 The fired clay divides between undiagnostic, which has only a single moulded surface surviving or was amorphous, and structural elements. Undiagnostic material found within corn-drying ovens or ovens has been classified as structural on the basis that these pieces must have derived from the structure of the feature in which it was found. The structural material comprises wall lining, suspended floors and a single possible perforated oven plate. Fragments of suspended floor, which would have been supported on wattles and more unusually laths, were found mainly in association with two corn-drying ovens (2130, 2039) and a fire pit (2336). A single fragment of perforated oven plate was also found in fire pit 2336.

3.9.4 A few pieces found in Roman deposits were indicative of industrial activity. A fragment of furnace wall lining and five fragments from a mould probably for casting a bronze object were found in ditch 607, and another possible mould fragment came from late Iron Age-early Roman ditch 5531.

3.9.5 Portable furniture was virtually absent. A single small scrap with a flat moulded surface and what appears to be the lip of a perforation piercing it has been tentatively identified as a fragment of triangular perforated brick. This was found in a late Iron Age-early Roman ditch (1471).

Table 11: Quantification of fired clay by area

Site area	Nos	Wt (g)	Comments
1	134	872	Mainly Roman, plus some LIA-ER; indeterminate, structural, triangular brick & industrial
2 east	14	142	Roman; indeterminate & ?structural
2 west	206	2497	Roman; corn-drying oven structure, drying floor & oven plate
3	11	63	Unphased; ?oven structure
4	5	29	IA & unphased; indeterminate
5	28	157	MIA-ER, most indet; possibly metalworking mould
Total	398	3761	

3.10 Iron slag and related high-temperature debris *by Lynne Keys*

3.10.1 A very small quantity of material (2.8kg), initially identified as slag, was recovered by hand on site and from soil samples (Tables 12 and 13). Most of the iron slag and related material was recovered from Area 2 (2.5kg). Other areas produced very little slag (Area 1 = 79g; Area 3 = 19g; Area 4 = 104g; Area 5 = 39g). Phases 5, 5/6, and 6 produced the largest quantities of slag.

Table 12: Quantification of slag by phase

Phase	Weight (g)
3	104
4	27
5	591
5/6	584
6	941
Unphased	533

3.10.2 All slags were fragmentary – with the exception of the three smithing hearth bottoms – which made morphological identification difficult. The morphologically diagnostic slags, however, are those produced by both smelting (the production of iron from ore and a fuel in a furnace) and smithing (the hot working of one or more pieces of iron by a smith).

3.10.3 The small quantity (205g) of smelting (or 'furnace') slag came from the fill (2317) of an unphased pit (2318) in Area 2 West. Judging by its morphology, with voids produced by burnt-out charcoal and impressions in the voids of the wood used for the charcoal, it may be Iron Age or very early Roman in date. No other diagnostic smelting slags were found.

3.10.4 The smithing slags came from various features assigned to Phases 5 or 5/6. Most are fragmentary and weigh very little so deserve no mention. Fill 2317 of Area 2 West ditch 2518 contained two smithing hearth bottoms and 203g of undiagnostic slag which had some charcoal inclusions. Area 2 West ditch 2490, fill 2349, contained one smithing hearth bottom, some undiagnostic slag, a fragment of vitrified hearth lining, and a piece of iron which may have formed part of a bar that could be smith's stock, ie a prepared piece from which a smith would cut off the required amount of iron to make an object.

3.10.5 The Phase 5 and 6 assemblages are indicative of some occasional, one-off smithing episodes taking place on the site.

Table 13: Summary of the slag assemblage

Context	Sample	Slag type	Wt (g)	L (mm)	Dp (mm)	Br (mm)	Comment
228	5	Fired clay	0.5				10-4mm
228	5	Iron	1				10-4mm
650		Undiagnostic	35				
746		Stone	3				
1001	14	Burnt charcoal / coal?	2				>10mm
1001	14	Undiagnostic	16				>10mm
1434	38	Stone	21				>10mm
2038		Cinder	103				And fuel ash slag
2100		Cinder	13				
2138		Smithing hearth bottom	204	90	70	35	One smithing flake on surface
2145		Fuel ash slag	37				
2254	2028	Cinder	2				>10mm
2254	2033	Cinder	0.5				10-4mm
2254	2033	Iron-rich undiagnostic	7				>10mm
2317		Smithing hearth bottom	16	75	70	30	
2317		Smithing hearth bottom	372	90	80	35	
2317		Undiagnostic	203				x1; charcoal inclusions.
2320		Furnace slag	205				Large voids from burnt-out charcoal; impressions left in the clay of the wood used for the charcoal.
2320		Undiagnostic	53				
2349		Fuel ash slag	27				
2349		Iron	28				Broken into fragments; piece of a bar?

Context	Sample	Slag type	Wt (g)	L (mm)	Dp (mm)	Br (mm)	Comment
2349		Smithing hearth bottom	95	60	60	20	Very small
2349		Undiagnostic	111				
2349		Vitrified hearth lining	3				
2379	2045	Cinder	8				>10mm. Greenish - glassy?
2379	2046	Iron	20				>10mm. Nails?
2400		Undiagnostic	0.5				
3021		Fired clay	4				
3046		Fuel ash slag	11				
3050		Vitrified hearth lining	4				Very fine white crushed inclusions
4023		Fuel ash slag	91				Very grey
4147		Ferruginous concretion	5				
4215		Undiagnostic	8				
5073		Undiagnostic	2				
5132		Undiagnostic	9				
5136		Fired clay	4				Reduce-fired
5213		Stone	12				
5219		Stone	12				
20000		Iron-rich cinder	62				
20000		Iron-rich undiagnostic	312				
20000		Undiagnostic	118				
20001		Undiagnostic	34				
20012		Undiagnostic	260				x1
20028		Undiagnostic	60				
20145		Stone	7				
20390		Stone	1				Discarded
20534		Undiagnostic	213				x2
Total			2816				

3.11 Clay tobacco pipe *by John Cotter*

3.11.1 A single piece of clay pipe was recovered. This has not been separately catalogued but is fully described below. Bowl type is referenced against Atkinson and Oswald's (1969) London pipes typology with types assigned to an abbreviated code (eg. AO22).

Context 4. Spot-date: mid to late 17th century

Description: 1 fragment (4g). Fairly abraded. Maximum length 45mm. Broken lower wall/base from a heel-type bowl with a trace of a teardrop-shaped heel (pointed end) surviving and a short length of stem attached. Fairly chunky early-style stem with a stem bore diameter of *c* 2.9mm. Date probably mid/late-17th century, possibly London type AO13 (*c* 1660-80).

4 FACTUAL DATA: HUMAN SKELETAL REMAINS

By Lauren McIntyre

Introduction and provenance

4.1.1 Human skeletal remains from four inhumation burials and one cremation burial were submitted for osteological assessment. This was undertaken to evaluate the potential of the excavated material to contribute to archaeological knowledge, identify what further analysis is necessary and make recommendations for additional work.

Methods

4.1.2 Assessment was conducted in accordance with national guidance (Mays 2002; Brickley and McKinley 2004; Mitchell and Brickley 2017). Articulated skeletons were rapidly examined macroscopically and recorded in a tabular form in Microsoft Excel. The information recorded for each skeleton included skeletal completeness, preservation, and potential for estimation of age and sex, metric and non-metric data and ancestry assessment. The presence/absence of dentition and dental and skeletal palaeopathological information were also considered.

4.1.3 Deposits containing cremated bone were bulk sampled in the field. Several large, fragile fragments of cremated bone were extracted from deposit 6006 to undergo careful hand washing, while the remainder of sampled material was processed by flotation and wet sieving. Sieved material was separated into >10mm, 10-4mm, 4-2mm and 2-0.5mm fractions. The >10mm and 10-4mm fractions were sorted, cremated bone fragments being separated from any extraneous material (eg stones). The 4-2mm and 2-0.5mm fractions were not sorted.

4.1.4 The cremated bone was rapidly assessed in order to identify species (ie human or animal), and examined to record its colour and weight. Each fraction was examined for identifiable bone elements and the presence of pyre and grave goods. Potential for the estimation of age and sex was assessed. The presence/absence of charcoal and animal bone was recorded. The unsorted fractions were also visually assessed in terms of proportion of bone present. This was scored as low, medium or high.

4.1.5 This report summarises the results of the osteological assessment and gives recommendations for further work.

Results

Articulated Skeletons

4.1.6 The results of the osteological assessment of skeletons from the four inhumation burials are presented in Table 14. Full details are recorded in the archive.

4.1.7 Of the four skeletons, three were more than 50% complete (Table 14). Skeleton 1420 was less than 25% complete.

4.1.8 Overall preservation was assessed based on bone surface condition and level of fragmentation of each individual. Three skeletons were in a fair condition. Skeleton 1420 was in poor condition, meaning that the surface of the bone was substantially eroded (McKinley grade 3 or higher) and the bone itself was highly fragmented.

4.1.9 All four skeletons were adults aged >18 years. There was potential for age at death to be estimated in two individuals (3006 and 6004) using dental occlusal wear (Miles 1963; 2001; Brothwell 1981, 69) and degeneration of the auricular surface (Lovejoy *et al*. 1985). However, the only auricular surface present (3006) was partial, which may limit the accuracy of age-at-death estimation. None of the skeletons had potential for age estimation using multiple aging methods.

4.1.10 Potential for sex estimation, using cranial and/or pelvic traits, was observed in three adult skeletons (3006, 6004, 20575).

4.1.11 Three skeletons had potential for non-metric analysis (3006, 6004, 20575). Non-metric traits are normal variants in skeletal anatomy, which may have a genetic or mechanical aetiology (Brothwell and Zakrzewski 2004). Skeletons were deemed to have potential for non-metric analysis if cranial and/or post-cranial skeletal elements that may exhibit such traits were present (after Berry and Berry 1967; Finnegan 1978; Brothwell and Zakrzewski 2004). Where non-metric traits were observed during assessment, these were recorded in the archive.

4.1.12 None of the skeletons had intact long bones suitable for stature estimation.

4.1.13 None of the skeletons had sufficiently intact crania for metrical analysis (ie calculating the cranial index).

4.1.14 Two skeletons had femora and/or tibiae which were complete enough to undertake metrical analysis for calculating the platymeric and/or platycnemic indices (3006, 6004). Although long bones weren't complete enough for stature estimation, fragments of bone with full relevant cross sections (ie the sub-trochanteric area of the femoral shaft and tibial shafts at the level of the nutrient foramen) had survived intact enough for post-cranial indices to be measured.

4.1.15 Two skeletons (6004 and 20575) had surviving dentitions. Dental pathology was observed in both individuals and included dental calculus and caries.

4.1.16 Skeletal pathology was observed in three skeletons (3006, 6004, 20575) and included osteoarthritis, marginal osteophytes (spinal and extra-spinal), ante mortem fracture, cribra orbitalia and periostitis. Additional, subtler pathological lesions may be observed during further analysis.

Cremated bone

4.1.17 Identifiable cremated human bone was observed in deposit 6006 (Table 15). Sorted bone fragments from the >10mm and 10-4mm sieve fractions weighed 600.8g. This included sorted bone from bulk soil sample 6000 and cremated bone that had been collected by hand during excavation. Bones from the skull, upper and lower limb and axial skeleton were identified within the >10mm and 10-4mm fractions. Skull fragments and upper and lower limb were also present in the hand-collected material. The morphology of bone fragments from both samples were in keeping with those of an adult. No indicators of age or sex were observed during rapid assessment.

4.1.18 The unsorted sieved fractions (4-2mm and 2-0.5mm) weighed 119.1g and 167.2g respectively. These contained moderate proportions of cremated bone, and the 4-2mm fraction contained identifiable human skull and fragments of vertebrae.

4.1.19 One fragment of radius shaft exhibited active periostitis. This was the only incidence of skeletal pathology recorded during assessment: subtler lesions may be observed during more detailed analysis.

4.1.20 No evidence of pyre or grave goods was observed, other than the pottery fragments recorded with the cremated bone.

4.1.21 Charcoal was absent from the deposit.

Table 14: Inhumation burials, osteological summary

SK	Completeness	Surface pres. (McKinley, 2004,16)	Frag. score	Overall cond.	Potential for age estimation?	Potential for sex estimation?	Potential for stature?	Potential for post-cranial indices?	Potential for ton-metric traits?	Dental pathology	Skeletal pathology
1420	0-25%	3	High	Poor	N	N	N	N	N	N	N
3006	76-100%	2	Medium	Fair	Y	Y	N	Y	Y	N	Y - AM fracture, periostitis, OA, OP
6004	51-75%	2	Medium	Fair	Y	Y	N	Y	Y	Y - calculus, caries	Y - periostitis, OA, OP
20575	51-75%	2	High	Fair	N	Y	N	N	Y	Y - calculus	Y - CO, OA

Key: Y = yes; N = no; OP = marginal osteophytes; VBOP = vertebral marginal osteophytes; OA = osteoarthritis; AM = ante mortem; CO = cribra orbitalia

Table 15: Cremated bone, osteological summary

Context	Deposit Type	Sample	Sorted wt (g)	Unsorted wt (g: including 2-0.5mm)	Total wt (g)	Identifiable elements present?	Colour (main)	Charcoal?	Proportion of bone, unsorted residues	Other comments
6006	Possible urned cremation burial. Heavily truncated, broken vessel. In arbitrary cut 6007 (earth-cut pit?)	n/a	95.2	-	887.1	Y (skull, upper limb, lower limb)	White	N	-	Requires sieving, sorting and incorporating with rest of sieved material from <6000>
		6000	505.6	286.3		Y (skull, axial, upper limb, lower limb)	White	N	Moderate	-

5 FACTUAL DATA: ENVIRONMENTAL EVIDENCE

5.1 Animal bone *by Lee Broderick*

5.1.1 A total of 6383 specimens were recovered by hand. All material from phased deposits was assessed, a total of 5754 specimens. Environmental samples were sieved at 10mm, 4mm, 2mm and 0.5mm fractions and added a further 69 specimens to the assessed assemblage.

Results

5.1.2 The condition of middle and late Roman phased bones in the assemblage is generally good, although that from the earlier phases is poor.

5.1.3 The majority of the assemblage comes from the late Roman phase, with earlier phases following broadly the same pattern (Table 16). This sees domestic cattle (*Bos taurus taurus*) as the most common taxon, followed by caprine (sheep, *Ovis aries*, and/or goat, *Capra hircus*). Horse (*Equus caballus*), pig (*Sus scrofa domesticus*) and dog (*Canis lupus familiaris*) are also present, in that order of commonality, in the late Roman phase – earlier phases see them either absent or else present in very small quantities, reflecting the low number of identifiable specimens. Examining the assemblage by area, it is clear that the proportions closely follow those for phase, with Areas 1 (close to a Roman villa and including a possible temple/mausoleum) and 2 East (covering a middle to late Roman field system) accounting for the majority of the assemblage (Table 17).

5.1.4 Deer is also present in the late Roman phase, as well as a single specimen from the middle Iron Age (Table 16). That early specimen is of red deer (*Cervus elaphus*), as are the majority of the Roman specimens. There is also one specimen of roe deer (*Capreolus capreolus*) amongst this later material and there is also a possibility that fallow deer (*Dama dama*) is present in the assemblage, but this will need checking when the assemblage is recorded in more detail. Both antler and post-cranial bones are present.

5.1.5 Wild birds are also present in the late Roman assemblage – possibly partridge (*Perdix perdix*) and crane (*Grus grus*), although these identifications will need checking against reference specimens. Domestic birds, comprising domestic fowl (*Gallus gallus*), duck (*Anas platorhynchus*) and goose (*Anser anser*), are also present in this phase (Table 16). Context 1001, a layer close to the temple/mausoleum, contained several burned domestic fowl bones.

5.1.6 Environmental samples indicate that the number of domestic fowl and pigs present on the site may be under-represented by the hand-collected material (Table 17). This suggests that there may be a recovery bias towards larger bone specimens and the bones of larger animals (Payne 1972).

5.1.7 There is a good number of ageable domestic cattle specimens in the assemblage, principally long bone epiphyses (Table 18). This is in contrast with a low number of specimens with butchery marks, which may be due to a relatively high prevalence of gnawing in the assemblage, principally by canids, probably domestic dogs. In contrast

to the other species present, a good proportion of the dog specimens have potential for providing biometric data. Both small and large dogs are present in the assemblage, with small dogs represented by at least one possible associated bone group (ABG) of a short, stocky individual with curved forelimbs. It may be possible to analyse the limited biometric data provided by the other species using log ratios. Likewise, economic strategy (herd structure) analysis could be augmented with pathology data.

Table 16: Total number of hand-collected animal bone specimens recorded, by phase (NISP – Number of Identified Specimens; NSP – Number of Specimens)

	2 Bronze Age–early Iron Age	**3 Middle Iron Age**	**4 Late Iron Age–early Roman**	**5 Mid Roman**	**5-6 Mid–late Roman**	**6 Late Roman**	**7 Medieval–modern**
Domestic cattle	1	24	45	50	125	513	1
Caprine		15	19	2	47	218	3
Pig		1	1	1	9	59	
Horse	1	2	4		24	77	1
Dog			3		7	33	
Deer		1			4	22	
Total mammal	2	43	72	53	216	922	5
Bird						5	
Duck						1	
Domestic fowl						6	
Total bird	0	0	0	0	0	12	0
Total NISP	2	43	72	53	216	934	5
Total NSP	8	299	423	459	1151	3405	9

Table 17: Total number of animal bone specimens recovered through environmental samples recorded, by phase (NISP – Number of Identified Specimens; NSP – Number of Specimens)

	5: Mid Roman	5-6: Mid–late Roman
Domestic cattle		16
Caprine		5
Pig	6	13
Horse		2
Deer		4
Small rodent		2
Total mammal	6	42
Domestic fowl	4	11
Total bird	4	11
Common frog/common toad		2
Total amphibian	0	2
Total NISP	10	55
Total NSP	12	57

Table 18: NSP with non-taxonomic data potential

	Butchery marks	Ageing	Biometric data	Sex
Domestic cattle	19	266	33	
Caprine	3	80	5	
Pig		92		1
Horse	2	39	6	
Dog			15	
Other	5		4	
Total	29	477	63	1

5.2 Charred plant remains and charcoal *by Julia Meen*

5.2.1 A total of 82 samples were taken for the recovery of charred plant remains and charcoal (Table 19). A total of 50 samples were processed and examined to assess their potential for further analysis.

5.2.2 The processed samples dated to three phases of activity at the site:

Phase 4: Late Iron Age/early Roman period
Phase 5: Middle Roman period
Phase 6: Late Roman period

5.2.3 In addition to this, two samples from Mesolithic deposits were taken and processed specifically for the recovery of flint.

5.2.4 The detailed results of the assessment are tabulated in Appendix B.

Table 19: Summary of processed samples by site area, phase, and feature type

	Ditch	Pit	Layer	Hearth/kiln	Corn-drying oven	Tank	Culvert	Floor	Cremation	Total
Area 1	**4**	**11**	**1**	**3**						**19**
Phase 4	2	2								4
Phase 5	1	6								7
Phase 6		1	1	3						5
Unphased	1	2								3
Area 2W	**1**	**1**			**13**	**3**		**1**		**19**
Phase 5					5					5
Phase 5/6	1									1
Phase 6					8	3		1		12
Unphased		1								1
Area 2E	**3**						**1**			**4**
Phase 5/6							1			1
Phase 6	2									2
Unphased	1									1
Area 4		**1**								**1**
Unphased		1								1
Area 5	**5**	**1**								**6**
Phase 4	5	1								6
Watching brief area									**1**	**1**
Unphased									1	1

Area 1

Phase 4 (late Iron Age–early Roman period)

5.2.5 A total of four samples from Area 1 date to Phase 4: one each from ditches 105 and 37, one from pit 671 and the fill of pot 571, from pit 570. Activity from this phase comprised a field system, comprising field enclosures which saw periodic reorganisation.

5.2.6 The sample from ditch 105 contains abundant cereal grain; although preservation is fairly poor, much can be identified, and the assemblages seems to be dominated by wheat with a little barley and occasional oat (although it is likely the latter was growing as a weed). There are occasional small legumes (*Vicia*/*Lathyrus* type) and a small number of arable weeds, as well as tubers and roots provisionally identified as onion couch grass. This is predominantly a clean grain deposit, and there is almost no charcoal present. In contrast, the sample from ditch 37 contains little identifiable material.

5.2.7 The fill of pot 571 contains limited identifiable material, with only a small number of wheat and barley grains and very little charcoal present.

5.2.8 The fill of pit 671 contains frequent cereal grain but also abundant weed seeds, especially small grasses and small daisies such as *Tripleurospermum*, and there are at least two seeds of flax. There are also at least two pieces of free-threshing wheat rachis, including one bread wheat (*Triticum aestivum*).

Phase 5 (middle Roman)

5.2.9 The middle Roman period saw a new enclosure complex, associated with the villa that lies to the north of Area 1, while the Phase 4 field system was abandoned. All seven samples from this phase are from pits directly south of where the temple/mausoleum was built during Phase 6.

5.2.10 The pits all contain charcoal: abundant in pits 1405, 1430 and 1437, in moderate quantity in pits 1433 and 1440, and in relatively low quantity in pit 1435. All assemblages from the pits were dominated by oak (*Quercus* sp.) charcoal, with sparser taxa including hazel (*Corylus avellana*), ash (*Fraxinus excelsior*), hawthorn type (Maloideae) and willow/poplar (*Salix*/*Populus*).

5.2.11 Charred plant remains in pit 1045 are relatively sparse; however, what remains are present include hazelnut shell, a hawthorn stone and seeds of beet (*Beta vulgaris*). The sample from pit 1437 contains a charred scale of stone pine, although there are few other identifiable remains. Plant remains are scarce in pits 1430, 1433, 1435 and 1440, limited to a small number of mostly poorly preserved cereal grains.

5.2.12 Pot fill 1048 (sample 6001) contains no charred plant remains but a little charcoal. Provisional identification suggest this is dominated by willow/poplar and oak with a smaller amount of hazel, but it is not clear that this fill relates to the use of the vessel: it may well be backfill from the surrounding context.

Phase 6 (late Roman)

5.2.13 Phase 6 saw the continuation and development of the Phase 5 field system. Key features include enclosure ditches 1492 and 1387/1390 and, late in the Roman period, an aisled building. Rectangular building 1320 has been suggested to be a temple or mausoleum. Five samples are from this phase: one from a pit, one from a rubbish layer and three hearths or kilns.

5.2.14 Pit 227 contains a small number of wheat and barley grains, and there is no identifiable charcoal. This pit was interpreted as having a potentially industrial use, but the plant remains do not shed much light on this. The rubbish layer contains abundant charcoal, which is dominated by oak alongside a little hazel and willow/poplar, as well as abundant snail shells; however, only a moderate number of cereal grains are present.

5.2.15 Of the three samples from hearths or kilns, the sample from 1170 contains a moderate number of wheat and barley grains, with mixed preservation. There is also frequent charcoal, and all identified pieces are of blackthorn/cherry (*Prunus* sp.) type. The sample from kiln/hearth 1130, located within the curvilinear enclosure, produced a very small flot, although the overall number of cereal grains is higher than those from 1170, and show good preservation. There was little identifiable charcoal from this sample. Hearth 1091 contains only two cereal grains, but a moderate quantity of charcoal, which is dominated by hazel with a little oak and ash.

5.2.16 There are also three samples from Area 1 that are currently unphased: one ditch and two pits. Pit 1038 contains abundant charcoal and snail shells, but few charred plant remains. The charcoal assemblage is mixed, with oak, blackthorn/cherry, hazel, hawthorn type and willow/poplar all provisionally identified. In contrast, the abundant charcoal from pit 1036 is far less mixed and is dominated by oak. Charred plant remains are absent. The ditch fill produced a small flot almost entirely consisting of cereal grain, a mix of wheat and barley with mixed preservation.

Area 2 West

Phase 5 (middle Roman)

5.2.17 Several structures from this area form a complex thought to have been used for large-scale cereal processing, perhaps including the production of beer. These include T-shaped corn-drying oven 2050, corn-drying oven 2219, and stone-lined tank 2488. Samples were taken spatially from the fills.

Corn-drying oven 2050 (five samples)

5.2.18 The sample from the north-west quadrant of fill 2046 produced a very small flot, composed mostly of fragmentary spelt glume bases, plus some weed seeds and cereal grains. Notably, there were several detached coleoptiles; all were broken, but the longest was 4mm in length. There was almost no charcoal, and none of identifiable size. The sample from the central south quadrant of fill 2046 produced only a very small number of poorly preserved cereal grains, and almost no charcoal. The sample from the central south quadrant (sample 2006) produced an extremely rich flot. Both cereal grain and especially chaff are highly abundant. The grain includes wheat and barley and lesser quantities of rye and oat. A high proportion of grains of all four types show signs of having sprouted. The chaff is spelt glume bases and spikelet forks, but there are also many fragments of broken coleoptile. The weed seed assemblage is dominated by grasses and docks. This was the only sample from corn-drying oven 2050 with sufficient charcoal to allow assessment; this was almost entirely oak, with one fragment of ash identified.

5.2.19 The sample from the east quadrant of fill 2047 produced a similar flot to sample 2004, with abundant, but often broken, spelt glume bases, and occasional cereal grain and weed seeds. The sample from the east quadrant, from fill 2048, contained a similar assemblage to that from 2047 but was larger in size and richer in cereal grain.

Phase 5/6 (middle to late Roman)

5.2.20 A single sample taken from ditch 2489 contained abundant cereal grain, mostly wheat with a lesser proportion of barley and occasional oat. Spelt glume base are abundant, and there are a moderate number of weed seeds, especially grasses. There was almost no charcoal in this sample.

Phase 6 (late Roman)

5.2.21 The crop processing complex continued to develop into the late Roman period. T-shaped corn-drying ovens 2130 and 2323 date to this period, as does oven 2039, which has a more complex design. Another two stone-lined tanks (2018 and 2129) were constructed, as well as possible threshing floor 2146. There are twelve samples from this phase: three from corn-drying oven 2130, one from corn-drying oven 2323,

four from corn-drying oven 2039, three from stone-lined tank 2129 and one from threshing floor 2146.

Corn-drying oven 2130 (three samples)

5.2.22 Sample 2044 produced quite a small flot, but cereal grain (all identified as wheat), weed seeds and chaff are quite frequent, although material is quite poorly preserve and the grain and chaff particularly are often fragmentary. Sample 2045 is from the same context but shows that this fill varies spatially, as it contains less material overall, is mostly composed of cereal grain which includes barley as well as wheat, and chaff and weed seeds are absent. Both this and sample 2044 contain a small quantity of charcoal. The final sample from the same context, sample 2046, is fairly similar to sample 2044, with frequent, although quite poorly preserved, cereal grain and with numerous weed seeds and glume bases, although the glume bases here are perhaps in general more intact. There is very little charcoal of identifiable size, so all fragments with potential have been identified at this stage, mostly oak with an isolated fragment of hazel from sample 2045.

Corn-drying oven 2323 (one sample)

5.2.23 The single sample from corn-drying oven 2323 contains frequent cereal grain, most of which is wheat; there are also abundant oat/brome caryopses and abundant spelt chaff. Little charcoal was recovered, and all examined pieces were oak.

Corn-drying oven 2039 (four samples)

5.2.24 Sample 2010 included a moderate number of cereal grains, often poorly preserved, a mixture of wheat and barley. Several of the wheat grains are sprouted, while the barley is relatively well preserved. Sample 2019, from the floor of the corn-drying oven, contained fewer grains but was far richer in fine material, including glume bases and weed seeds. Two pot fills found within the corn-drying oven were also sampled: pot 108 contains numerous oat grains and a small number of arable weed seeds and pot 109 contained a larger number of cereal grains including wheat, barley and oat, plus a moderate quantity of chaff and weed seeds. This was also the only sample from the corn-drying oven to contain any charcoal of identifiable size, although this was small in quantity.

Stone-lined tank 2129 (three samples)

5.2.25 Sample 2028 from the stone-lined tank contains abundant cereal grain, with frequent spelt chaff and occasional weed seeds. No charcoal was present. From the same fill (2254), sample 2033 produced an even larger flot; the composition is similar except weed seeds seem to be slightly more common and there is also a little identifiable charcoal. Sample 2035, from fill 2176, contains very similar material to that seen in 2254, but the flot volume is much smaller.

Threshing floor 2146 (one sample)

5.2.26 The burnt deposit overlying floor layer 2148, contained abundant spelt chaff and frequent cereal grain and detached coleoptiles. Little charcoal was present.

Unphased

5.2.27 There is one unphased sample from Area 2 West, from fire pit 2336. This contains frequent well-preserved wheat grains and abundant charcoal, which is a mixture of oak and ash.

Area 2 East

Phase 5/6 (middle to late Roman)

5.2.28 There is a single sample from this phase, from culvert 20002. This contained almost no charred plant remains or charcoal, with only two poorly preserved cereal grains.

Phase 6 (late Roman)

5.2.29 Late Roman activity in Area 2 East was focused on a series of enclosures. There are two samples from this phase, from ditches 20498 and 20603. Ditch 20603 (sample 20002) contains few charred plant remains but frequent charcoal, which is a mixture of oak, blackthorn (*Prunus spinosa*), hazel and hawthorn type. In the second ditch (sample 20000) the main identifiable item is a seed capsule of wild radish (*Raphanus raphanistrum*), but charcoal is abundant; much of it has a vitrified appearance and the majority of the examined pieces could not be identified, although oak, blackthorn/cherry and hawthorn type are probably included.

Unphased

5.2.30 There is also an unphased sample from ditch 20162. This contains two possible sloes, plus several tubers of onion couch grass (*Arrhenatherum elatius* subsp. *bulbosum*), alongside a small number of cereal grains, chaff (spelt rachis) and weed seeds, and a small quantity of charcoal, all of which appears to be willow/poplar.

Area 3

5.2.31 No samples have been processed from Area 3.

Area 4

5.2.32 The only sample from Area 4, from small fire pit 4334, is currently unphased but is likely to be prehistoric. The sample is composed entirely of charcoal, with no charred plant remains present. Many of the examined charcoal fragments could not be identified, but they include oak, ash, blackthorn/cherry, hazel and hawthorn type.

Area 5

Phase 4 (late Iron Age-early Roman)

5.2.33 Activity in Area 5 includes a middle Iron Age pit alignment and part of the late Iron Age/early Roman field system that was also uncovered in Area 1. One sample is taken from pit/hearth 5064 and the remaining five samples are from ditches: three from boundary ditches (5537, 5439 and 5440), one from large rectangular enclosure 5449, and one from a dump of charcoal in ditch 5463.

5.2.34 Pit/hearth 5064 contained charcoal only, which appears to be a mixture of oak and ash. The dump of charcoal in ditch 5463 contained only a small quantity of charcoal, mostly oak with a little blackthorn/cherry, and few charred plant remains. The sample from boundary ditch 5537 contained only a very small number of cereal grains, and no identifiable charcoal. Both samples 5004 and 5005, from east-west enclosure ditches 5439 and 5440 respectively, contained no identifiable charcoal or charred

plant remains. Sample 5003 from large rectangular enclosure 5449 produced a small flot with very little charcoal or charred plant remains.

Watching brief
Phase 6 (late Roman)

5.2.35 Sample 6000, from cremation burial 6007, contained no charred plant remains or charcoal.

5.3 Waterlogged plant remains *by Julia Meen*

5.3.1 Several samples from the site had potential for the recovery of organic material such as plant and insect remains that have been preserved through waterlogging of the soil. In features that are permanently saturated with water, anoxic conditions are created in which decay is inhibited and organic tissues that would otherwise break down are preserved. At M1dway, waterlogged samples primarily came from the spring outwash channel in Area 1, with potentially waterlogged material also recovered from a ditch in Area 2 West, and from the culvert in Area 2 East.

5.3.2 1L subsamples of sediment were processed for the recovery of organic remains using the 'wash-over' technique, with flot and residue collected separately onto 250µm mesh and retained in sealed plastic bags with water to prevent desiccation. A representative sample of each flot was assessed using a binocular microscope at up to x40 magnification. Each flot was given an abundance score for different types of ecofact including waterlogged seeds, insect remains, plant stem and wood fragments, using the same 5-point scale as used to score charred plant remains. Two ratings were then assigned to each sample based on their potential for both waterlogged plant remains and insects, using the same A-D scale used for charred plant remains. The results of the assessment are shown in Table 20.

5.3.3 Two vertical sequences of samples were taken through the main fills (1300-1305) of the spring outwash channel in Area 1, from two separate sample columns through the fills. The assessment from the sequences show comparable results: in both sequences, good preservation for waterlogged plant remains is limited to fill 1305, although preservation from this context is better overall in the second column (ie sample 35).

5.3.4 In both columns, the uppermost fills are poor in waterlogged plant remains. In contexts 1300, 1301 and 1302 plant taxa are limited to nettle (*Urtica dioica*), and elder (*Sambucus nigra*), the latter being a robust seed which is often preferentially preserved in poorly waterlogged burial environments. Seeds are also sparse in context 1303 (samples 27 and 33), although occasional other taxa survive, including thistle (*Cirsium* sp.), sedge (*Carex* sp.) and fumitory (*Fumaria officinalis*). Fill 1304 appears to have an anthropogenic element, with frequent charcoal and a number of charred glume bases of spelt wheat (*Triticum spelta*). Nettle and rush (*Juncus*) seeds are common from this context, with smaller numbers of taxa including mint (*Mentha* sp.), water crowfoot (*Ranunculus* subgenus *Batrachium*) and marshwort (*Apium* sp.).

5.3.5 Seeds in fill 1305 are frequent and well preserved. These include watercress (*Nasturtium officinale*), Henbane (*Hyoscyamus niger*), dock (*Rumex* sp.), water starwort (*Callitrichte* sp.), carrot (*Daucus carota*) and hawkbit (*Leondoton* sp.),

representing a mix of aquatics and wet ground taxa as well as plants of open scrub or grassland habitat. Insect remains are also well preserved.

5.3.6 Overall, the second sequence (samples 30-35) showed better preservation for insects than the first sequence. Although no insect remains were recovered from the upper three fills in either sequence, they are well preserved in samples 33, 34 and 35 (contexts 1303, 1304 and 1305).

5.3.7 The sample from ditch 2511, dated from the middle to late Roman period, includes both frequent waterlogged seeds and insect remains. The waterlogged seeds include sowthistle (*Sonchus* sp.), bramble (*Rubus* sp.), both common and small nettle (*Urtica dioica* and *U. urens*), grasses (Poaceae) and sedges. The observed taxa presumably reflect plants growing in the base of a water-containing ditch as well as scrubby vegetation overhanging the ditch and more open ground in the vicinity.

5.3.8 The sample from culvert 20002, also dated to the middle to late Roman period, had no potential for either plant remains or insects.

Table 20: Assessment results from contexts with potential waterlogging

Sample no.	Context	Floated vol.	Flot vol.	Mesh size	Wood/ culm	Roots	Moss	Insect	Seed	Molluscs	Comments flot	Potential WPR	Potential insects
Samples from spring outwash channel													
29	1301	1L	2ml	250		*		*	*		Very small flot, mostly root fragments. Two seeds *Urtica dioica*, single insect fragment.	D	D
25	1302	1L	5ml	250					**	*	Very small flot. Numerous waterlogged *Sambucus* seeds, but no other taxa. Small number of molluscs shells *Gyraulus crista*. Charcoal flecks. No insect remains.	D	D
27	1303	1L	5ml	250	*			*	*		Very small flot, mostly charcoal flecks and small wood fragments. Scarce *Sambucus* seeds and highly fragmented insect remains.	D	D
28	1304	1L	10ml	250	**			**	**	*	Small flot. Frequent small wood fragments. Frequent charcoal, mostly flecks. Low number of seeds including *Sambucus*, *Urtica dioica*, *Cirsium* and *Apium*. Small number of mollusc shells, including *Galba truncatula*. Several charred spelt glume bases. Occasional insect remains, but fragmentary.	C	C
26	1305	1L	100ml	250	****			****	****	*	Much of flot composed of chunks of waterlogged wood. Frequent well preserved waterlogged seeds. Frequent *Urtica dioica*. Also present *Callitrichte, Ranunculus acris* type and subgenus *Batrachium*, Poaceae, *Nasturtium officinale*, *Apium*, *Sambucus*, *Cirsium*, *Hyoscyamus niger*, *Carex*, *Rumex*. Insect remains present.	B	B
30	1300	1L	5ml	250		**					Very small flot, mostly composed of root fragments. No plant or insect remains.	D	D
31	1301	1L	2ml	250		**					Very small flot, composed only of small root fragments.	D	D
32	1302	1L	2ml	250		**			*		Very small flot, frequent fine roots, fine charcoal flecks. Occasional *Sambucus* seeds, one *Urtica dioica*. No insect remains.	D	D
33	1303	1L	30ml	250	****			***	**	*	Much of flot composed of wood pieces. Sparse seeds, including *Cirsium*, *Sambucus*, *Carex*, *Fumaria*. Charcoal flecks, rare charred spelt glume bases. Insect remains present and well preserved, although not in great quantity.	C	B/C
34	1304	1L	50ml	250	****			****	***	**	Abundant wood fragments. Frequent *Urtica dioica* and *Juncus*, also *Sambucus*, *Cirsium*, *Mentha*, *Ranunculus* subgenus *Batrachium*. Frequent well preserved insect remains. Occasional charred spelt glume bases, frequent charcoal flecks. Occasional molluscs including *Anisus leucostoma*.	C	B

Sample no.	Context	Floated vol.	Flot vol.	Mesh size	Wood/ culm	Roots	Moss	Insect	Seed	Molluscs	Comments flot	Potential WPR	Potential insects
35	1305	1L	100ml	250	*****		**	****	*****		Frequent *Urtica dioica*, also numerous other seeds including *Daucus carota*, *Leontodon*, Poaceae, *Ranunculus acris* type and subgenus *Batrachium*, *Apium*, Lamiaceae, *Stellaria*, *Carex*. Moss fragments. Frequent well preserved insects, including mites.	A	A
Ditch 2511 - middle to late Roman													
2050	2501	1L	100ml	250	****			****	*****	*	Abundant wood pieces. Frequent seeds including *Rumex*, Poaceae, *Urtica dioica*, *Carex*, *Nasturtium officinale*, *Sonchus*, *Cirsium*, *Stellaria*, *Apium*, *Rubus*, *Urtica urens*. Frequent insect remains. Charcoal	B	B
Culvert 20002 - mid to late Roman													
20006	20525	1L	2ml	250							Very small flot, only containing amorphous plant fragments, no identifiable plant remains or insects.	D	D

5.4 Insects *by Enid Allison*

5.4.1 Three samples were submitted for insect assessment, all from deposits dated to the Roman period. Due to the poor condition of much of the insect material only broad identifications were made during scanning (see Appendix C).

Context 1305, sample 35 (primary silty clay deposit in spring outwash channel)

5.4.2 The sample produced a rich assemblage of fragmentary insect remains representing an estimated 200 beetles and bugs. Levels of erosion are generally moderate but are more advanced in some cases. Weevils (Curculionidae) are particularly poorly preserved. Eurytopic water beetles (*Helophorus* spp., *Octhebius*, *Hydrobius fuscipes*), together with occasional water flea ephippia (Cladocera: resting eggs) and ostracod carapaces, suggest aquatic conditions but not necessarily permanently. *Prasocuris phellandrii*, a leaf beetle associated with wetland habitats, is primarily associated with marsh marigold (*Caltha palustris*) and other Ranunculaceae (Cox 2007, 144). The assemblage is dominated by terrestrial taxa with scarabaeoid dung beetles (Geotrupinae, Aphodiinae spp.), click beetles (Elateridae) and weevils all common, indicating grassland habitats. A single bark beetle (Scolytinae) was noted, suggesting occasional trees and shrubs.

Context 1304, sample 34 (silty clay deposit in spring outwash channel)

5.4.3 An assemblage of poorly preserved insect remains was recovered (estimated 100+ individuals). Fragmentation is very high and erosion moderate to advanced. The condition of the material suggests that waterlogging was incomplete, allowing aeration of the deposit. No aquatic beetles were seen during scanning. Scarabaeid dung beetles (Aphodiinae spp.), click beetles (Elateridae) and weevils (Curculionidae) are all common, indicating grassland habitats. *Mecinus pyraster* is specifically associated with ribwort plantain (*Plantago lanceolata*). There were only very slight hints of an anthropogenic element in the make-up of the deposit from a few eurytopic decomposers.

Context 2501, sample 2050 (fill of ditch 2279; middle to late Roman)

5.4.4 The sample produced a rich assemblage of fragmentary insect remains representing an estimated 200+ beetles and bugs. Levels of erosion are moderate. The assemblage is dominated by terrestrial taxa but a number of eurytopic aquatic beetles indicate that the ditch contained water for at least some of the time. The general implications of the insect assemblage are for relatively dry, open ground and grassland. The ground beetle *Calathus fuscipes* is typical of such conditions, for example, and remains of scarabaeid dung beetles (Aphodiinae spp.) are common, suggesting the presence of grazing animals close to the ditch. There may also have been scrubby vegetation: larvae of the dock bug (*Coreus marginatus*) feed on docks (*Rumex*) and other Polygonaceae (Bantock and Botting 2018), but from late summer onwards the adults can be found on a variety of plants and are often abundant on brambles (*Rubus*). Phyllotreta species are associated with wild and cultivated Brassicaceae, hinting at the presence of disturbed ground.

5.5 Pollen *by Mairead Rutherford*

5.5.1 Following the cleaning, logging and subsampling of soil monoliths, six sub-samples of probable Roman date were submitted for palynological assessment. Monolith samples 23 and 24 are from a silty, variably organic deposit that was present within a spring outwash channel. Monolith sample 2027 is from the fills of a stone-lined structure 2129. The final sample (20003) comes from enclosure ditch 20365.

Quantification

5.5.2 The sub-samples were prepared using a standard chemical procedure (method B of Berglund and Ralska-Jasiewiczowa 1986), using HCl, NaOH, sieving, HF, and Erdtman's acetolysis, to remove carbonates, humic acids, particles > 170 microns, silicates and cellulose, respectively. The sub-samples were then stained with safranin, dehydrated in tertiary butyl alcohol, and the residues mounted in 2000cs silicone oil. Sub-samples were assessed for pollen preservation and abundance by examining slides at a magnification of 400x, by ten equally spaced traverses across at least two slides to reduce the possible effects of differential dispersal on the slides (Brooks and Thomas 1967). Pollen identification was made following the keys of Moore *et al*. (1991), Faegri and Iversen (1989), and a small modern reference collection. Identification of non-pollen palynomorphps (NPP) follows van Geel (1978) and van Geel and Aptroot (2006). Plant nomenclature follows Stace (2010).

Results

5.5.3 Pollen preservation was generally mixed (Table 21), with sufficient pollen for analysis recorded only in the deposits associated with the spring outwash channel (samples 23 and 24). Although pollen was present in all but one of the other sub-samples, none was recorded in sufficient quantity to merit further work. Table 22 provides the raw pollen counts.

Table 21: Details of lithology and sub-sampling

Sample no.	Context	Depth (m)	Lithology	Sub-sampling (m)	Potential for pollen
Spring outwash channel					
23	*1300*	0-0.15	Medium brown, mottled orange, medium stiff silty clay.	0.09-0.10	Yes
23	*1301*	0.15-0.38	Grey silty clay, medium stiff.		
23, 24	*1302*	0.38-0.55	Grey – light brown sand and silty clay, charcoal flecks, soft.		
24	*1303*	0.55-0.66	Grey silty clay, very soft.		
24	*1304*	0.66-0.78	Brown – black sand and silty clay, soft.		
24	*1305*	0.78-0.90	Brown-black organic silty, variably sandy clay with plant debris, soft.	0.87-0.88	Yes
Stone-lined structure 2129					
2027	*2254*	0-0.10	Dark brown crumbly clay, medium firm.	0.03-0.04	No

Sample no.	Context	Depth (m)	Lithology	Sub-sampling (m)	Potential for pollen
2027	*2252*	0.10-0.43.5	Variably mottled dark grey / orange /black stiff clay, charcoal fragments, chalk fragments.	0.41-0.42	No
2027	*2250*	0.43.5-0.50	Grey/orange stiff clay, stones.		
Ditch 20365					
20003	*20366*	0-0.15	Brown clay, crumbly, more consolidated from 0.10m, charcoal flecks. Stones.	0.11-0.12	No
20003	*20367 to 20369*	0.15-0.42	Grey silty clay, soft, some orange mottling, white pottery fragments. Gradational boundaries.	0.29-0.30	No
20003	20371	0.42-0.50	Light grey mottled silty clay with iron staining.		

Spring outwash channel

5.5.4 Two sub-samples from deposits 1300 and 1305 were assessed and mixed/good pollen recovery was achieved from both. The deeper sub-sample, from fill 1305, which has been dated as Roman, contained pollen dominated by herbs, in particular grasses (Poaceae) and dandelion-type (*Taraxacum*-type). There were also records for occurrences of pollen of ribwort plantain (*Plantago lanceolata*), the carrot family (Apiaceae, including plants such as cow parsley, water-dropworts and marshworts), daisy-type (Asteraceae, a large group comprising, for example, sow-thistles, burdocks and oxeye daisies) and sedges (Cyperaceae), and as well as sporadic records of docks/sorrels (Rumex spp.), common knapweed (*Centaurea nigra*) cabbage family (Brassicaceae, another large group including plants such as garlic mustard, winter-cresses and shepherd's-purses), vetches (*Vicia*-type), bedstraws (Rubiaceae) and the goosefoot family (Amaranthaceae, formerly Chenopodiaceae, comprising plants such as fat-hen, good king henry and many-seeded goosefoot).

5.5.5 Tree and shrub pollen contributed approximately 10% of the total pollen count, comprising mainly pollen of walnut (*Juglans*), with occurrences of alder (*Alnus*), hazel-type (*Corylus*-type), oak (*Quercus*), pine (*Pinus*) and ash (*Fraxinus*).

5.5.6 Fern spores identified included occurrences of bracken (*Pteridium aquilinum*) and adder's tongue fern (*Ophioglossum* sp.). The freshwater algal type, Pediastrum (HdV-760), was also present. Micro-charcoal was recorded in low numbers. The preservation of pollen in this sub-sample was generally mixed, with some good but also some poor preservation.

5.5.7 Pollen from the upper deposit (1300), which is undated but likely to be post-Roman, was dominated by dandelion-type and sedges, with fewer counts for grasses, ribwort plantain, the cabbage and goosefoot families. Cereal-type pollen was recorded; however, as the dimensions of cereal-types overlap with those of wild grasses such as sweet-grasses (*Glyceria* spp.), the identification cannot be certain (Andersen 1979). Pollen of knotgrass and the pinks family (Caryophyllaceae) was also present. Ferns were represented by spores of common polypody (*Polypodium vulgare*), bracken and

monolete ferns (Pterospida). The colonial freshwater algal type, Botryococcus (HdV-766) was also present. The sub-sample recorded occurrences of non-pollen palynomorphs including Glomus (HdV-207). Preservation was mixed to good.

5.5.8 The pollen data may be interpreted to suggest a possible transition from a largely open, grassy habitat supporting a relatively diverse herb assemblage, with evidence to support occurrences of woodland stands or tree copses or possibly ornamental gardens (including tree types such as oak, ash, walnut), to one of damper, wetter habitats supporting dominantly grasses, dandelion-type and sedges with practically no tree cover. Of particular interest in the lower deposit is the relatively large count of pollen of the walnut tree, representing 7.5% of the total pollen count and over 60% of the total tree count. However, pollen of the walnut tree is small and easily wind transported, so may have been derived locally or from further away. Walnut is generally regarded as a Roman introduction to western Europe (Godwin 1975). Once introduced to southern England, it is likely that the tree continued to be grown locally, presumably for the edible walnuts (*Juglans regia* L.) and possible medicinal uses.

5.5.9 It is probable that the area surrounding the channel may have been used for grazing animals. This is supported by records of weeds of disturbed ground such as ribwort plantain, mugworts, common knapweed and knotgrass, as well as from recovery of fungal spores of Sordaria (HdV-55A/B), known to host on animal dung (van Geel *et al*. 1978; van Geel and Aptroot 2006). There is a little evidence for the presence of ferns of bracken and adder's tongue fern, as well as for the freshwater colonial alga, Pediastrum (HdV-760), the latter supporting the location of the site along a spring line.

5.5.10 In contrast, the pollen sub-sample from the upper fill contained an assemblage dominated by grasses, sedges and dandelion-type, suggesting considerably damper, open grassy areas. The only tree pollen recorded is that of pine, suggesting that previously occurring stands of trees (oak, ash, walnut, as described above) may have been cleared. Cereal-type pollen in the assemblage could be representative of wild grasses, such as sweet-grasses, which could grow in a wet environment such as along a spring line – the latter also conducive to the growth of the freshwater algal type, Botryococcus (HdV-766). Sweet-grasses have previously been described as growing on mud or in shallow water in marshes, ditches, wet meadows (Stace 2010). Wet meadows could have provided suitable habitats for pasturing animals. It is possible that bracken may have been growing locally around the feature or could have been collected from heathland, moorland, hillsides or woodland, potentially for domestic use, for example as animal bedding, thatch or fuel. The presence of fungal spores of Glomus (HdV-207) suggests evidence for disturbed/eroded soils, which could have been caused, for example, by animals trampling in the vicinity of the site.

Stone-lined structure 2129

5.5.11 Both sub-samples, from the upper and lower deposits (2254 and 2252) within the feature, contained similar, sparse pollen assemblages and an abundance of wood and charcoal debris. The pollen assemblages are made up primarily of grasses and dandelion-type. Pollen of ribwort plantain and of the cabbage and goosefoot family are present in the deeper deposit 2252. Cereal-type pollen, the dimensions of which

suggest grains of wheat/oats (*Triticum*/*Avena*), occur in both deposits. Tree pollen is rare; occurrences only of alder and hazel-type are recorded from deposit 2252.

5.5.12 The pollen counts are too low for full interpretation; however, it is interesting that abundant woody debris and micro-charcoal are prevalent in both sub-samples within this stone-lined feature. It is possible that the wood and charcoal may have been used in the heating process during processing of cereals for malting/brewing, and that the fill includes dumped material from this activity. The sparse pollen assemblages could have been derived from the area surrounding the features and possibly reflect local vegetation of open grass and disturbed ground.

Ditch 20365

5.5.13 Pollen was present in very low numbers in the lower deposit (20367). The main pollen type recorded was of grasses, with cabbage-type, ribwort plantain, buttercup-type (Ranunculaceae) and dandelion-type also present. Pollen of alder was also present as well as a couple of spores of monolete ferns. The limited assemblage suggests a possible open, grassy palaeoenvironment, supporting ruderal vegetation, typified by recovery of pollen from plants such as ribwort plantain, dandelion-types and buttercup-types.

Table 22: Results of pollen assessment

Sample no.		**23**	**24**	**2027**	**2027**	**20003**	**20003**
Context		**1300**	**1305**	**2254**	**2252**	**20366**	**20367**
Preservation		**Mixed**	**Mixed**	**Mixed**	**Mixed**	**-**	**-**
Potential		**Yes**	**Yes**	**No**	**No**	**No**	**No**
Depth (m)		**0.09-0.10**	**0.87-0.88**	**0.03-0.04**	**0.41-0.42**	**0.11-0.12**	**0.29-0.30**
Trees/Shrubs							
Alnus	Alder		1		1		1
Corylus avellana-*type*	Hazel-type		1		1		
Fraxinus	Ash		1				
Juglans	Walnut		7				
Quercus	Oak		1				
Pinus	Pine	2	1				
Crops							
Cereal-type/large grasses	Cereals/large grasses	1		1	1		
Herbs							
Amaranthaceae	Goosefoot family	2	1		11		
Apiaceae	Carrot family		2				
Artemisia	Mugworts		1				
Asteraceae	Daisy family		4	1			
Brassicaceae	Cabbage family	5	2		6		4
Caryophyllaceae	Pinks family	1					
Centaurea nigra	Common knapweed		1				
Cyperaceae	Sedges	24	3				
Filipendula	Meadowsweet		1				

Sample no.		23	24	2027	2027	20003	20003
Context		1300	1305	2254	2252	20366	20367
Preservation		Mixed	Mixed	Mixed	Mixed	-	-
Potential		Yes	Yes	No	No	No	No
Depth (m)		0.09-0.10	0.87-0.88	0.03-0.04	0.41-0.42	0.11-0.12	0.29-0.30
Plantago lanceolata	Ribwort plantain	2	3		3		1
Plantago *spp.*	Plantains		1				
Poaceae	Grass family	11	46	1	10		5
Polygonum aviculare	Knotgrass	1	1		1		
Ranunculaceae	Buttercups						1
Rubiaceae	Bedstraws		1				
Rumex-type	Docks/Sorrels		1				
Taraxacum-type	Dandelion-type	35	6	1	9		1
Vicia-type	Vetches		1				
Herbs (indeterminate)	Herbs (indet.)		3				
Ferns							
Ophioglossum spp.	Adder's Tongue		1	1			
Pteridium aquilinum	Bracken	5	2	1	1		
Polypodium vulgare	Polypody	1					
Pteropsida	Monolete ferns	1			1		2
	Total land pollen	91	93	6	45	0	15
	Number of traverses	10	10	10	10	10	10
Mosses	*Sphagnum*	1					
Microscopic charcoal				++	++		
Deteriorated grains		16	4	-	8	-	2
Fungal spores/NPP							
Botryococcus HdV-766		1					
Glomus HdV-207		5		3			
Pediastrum HdV-760			2				
Sordaria HdV-55A/B			4				

5.6 Marine shell *by Rebecca Nicholson*

5.6.1 In total, approximately 94 individual shells (1.6kg) were recovered from 20 contexts, mostly by hand collection on site, almost all coming from middle and late Roman features in Area 1 (Table 23). A relatively small quantity of shells (0.5kg) was recovered from the residues of sieved soil samples. Several pit fills, those dated being middle Roman (Phase 5), included over 20 valves, but no context included over 30 identifiable shells.

5.6.2 For this assessment all bivalves were quantified (left and right valves were counted separately) and examined for evidence of epibont infestation and encrustations as well as marks inflicted during opening and removing the shellfish (following descriptions and illustrations in Winder 2011). Notes were also made concerning general condition, size and hinge shape but no measurements were taken.

5.6.3 All the recovered shell is of the European flat oyster (*Ostrea edulis* L.). Most contexts yielded single or small numbers of oyster valves, of variable size and condition, but mostly of the traditional round form. The features with the greatest quantity of shells include pits 1038, 1045 and 1430. Shells were also recovered from rubbish/midden deposit 1001. In general the oysters are in fair or poor condition, some being very thin and friable. A few shells have a distinct chalky deposit internally, which may reflect rapid changes in salinity and growth in estuarine conditions (MacDonald 2011). Some shells have evidence of tunnelling, principally on the exterior, mainly consistent with the marine polychaete worm *Polydora ciliate* (Johnston). There are very occasional examples of infestation in the form of tunnels consistent with those caused by *Polydora hoplura* Claparède. These polychaete worms are a significant problem for the modern shellfish industry, causing mudblisters internally and exterior damage, although the shellfish can still be eaten safely. There are also several instances of holes probably caused by predatory gastropod molluscs such as dogwhelks or sting winkle. A relatively small proportion of shells have opening notches, suggesting that the shellfish were opened when still alive.

Table 23: Quantification of oysters

Context	Phase	No. shells/frags	Weight (g)	No. of left valves	No of right valves
146	5	2	20	1	1
228	6	1	17	1	
786	undated	6	93	5	1
186	5/6	1	2		
229	6	5	34	4	1
756	undated	2	4		
829	6	1	16	1	
1001	6	14	139	4	9
1039	undated	1	35	1	
1040	undated	20	73	4	2
1046	5	1	21		1
1047	5	24	450	14	12
1048	5	4	52	4	
1207	7	1	18		1
1434	5	1	28		1
1438	5	1	25	1	
2147	6	1	18	1	
20013	6	1	9		1
1431 sieved	5	25	340	5	8
1436 sieved	5	5	9		
1438 sieved	5	1	16		1
1047 sieved	5	16	136	4	3
1001 sieved	6	25	21	1	1

6 STATEMENT OF POTENTIAL

6.1 Stratigraphy

6.1.1 The stratigraphic assessment has established a provisional phasing sequence for the site. There is, however, potential to achieve greater resolution of the site phasing by thorough checking of the stratigraphic relationships and application of dating evidence, including any revised pottery dating that arises from full analysis of the ceramic assemblage. It is particularly hoped that the dating of many of the features currently dated ceramically to the middle-late Roman period will be refined and enable these two phases to be more clearly distinguished than was possible at the assessment stage.

6.1.2 The site comprises a palimpsest of super-imposed features and a programme of detailed stratigraphic analysis will be necessary to fully comprehend the sequence. This will be particularly relevant to the Phase 4 field system and the Phase 5 and 6 features that comprise the complex in Area 1 associated with the villa and the field systems in Areas 2, 3 and the watching brief area, all of which clearly consist of more than a single episode.

6.1.3 Investigation of the spatial distribution of key categories of artefactual material has potential to identify areas of domestic occupation and refuse disposal where this is not evident from identifiable structures. This may be particularly pertinent to the Phase 4 field system, where no obvious evidence has currently been identified for the settlement from which the fields were farmed; successive enclosures 5153 and 5449 at the south-western corner may have served this function, but no buildings are present within them, necessitating recourse to artefactual evidence to prove or refute this hypothesis.

6.1.4 Detailed analysis of the form of building 1320, which has been tentatively interpreted as a possible temple or mausoleum, will be essential to establish the validity of this interpretation.

6.2 Pottery

6.2.1 Detailed recording of the prehistoric and Roman pottery will allow the dating of context groups and, in turn, the site sequence, to be refined and finalised. Chronological distinctions may also be made through the analysis of the relative proportions or presence and absence of key forms and fabrics.

6.2.2 Comparison of prehistoric forms and fabrics with those from other sites will allow the assemblage to be placed within its cultural context.

6.2.3 Identification and quantification of the Roman-period pottery will provide information on ceramic supply to the site and help place the settlement within its trade networks. Stephen Rippon (2018, 172-96) has suggested that the distribution of pottery can be culturally, as well as geographically, determined, with the resulting pattern reflecting tribal or other territorial or cultural boundaries. The pattern of supply at the M1dway site will be considered with this in mind. Several kilns are known near the site (Study Group for Roman Pottery, nd). The products of these kilns will be compared with the pottery from the M1dway site to identify local pottery and assess the scale of local

supply (although, given the limited publication of such kiln material, this analysis will not be conclusive).

6.2.4 The pottery will contribute to questions of site status and function. A villa is known to exist immediately to the north of the site, and it is likely that the site lies within its estate. A key research aim will be to determine whether the pottery is comparatively high status or is of a more basic, rural character. Key measurements include the ratio of dishes and bowls against jars (Evans 2001) and the relative proportion of decorated samian (Willis 2005). Values will be compared with sites of various type in the region. Further clues to status are offered by individual pieces, such as the lamp from Area 1.

6.2.5 A note will be made of perforated vessels, worn surfaces, burnt sherds, graffiti and the like, which can contribute to questions of vessel use. For example, which forms were used as cooking-pots? Do wear patterns within samian vessels conform to established patterns (Biddulph 2008)?

6.2.6 The assemblage has good potential to reveal patterns of deposition. Quantities and the typological composition of the pottery by feature type and phase will be examined. Comparison across the site of mean sherd weights and measures derived from rim percentage data may provide insight into the function of features, identify core and peripheral areas of activity, and point to different modes of deposition and waste disposal. Values within features will also be compared in order to potentially separate groups associated with primary or secondary use and further inform understanding of pottery deposition. Complete or near-complete vessels will also be noted.

6.2.7 The post-Roman pottery will be identified and a brief note written.

6.3 Coins

6.3.1 The coins, although relatively few in number, make an important contribution to understanding the chronology and character of the site. Most of the coins can be associated with individual contexts, and some of these associations are significant, such as the presence of SF 117 (dated AD 364-378) in flue of the large corn-drying oven 2039. The assemblage can usefully be compared with those from other sites in the area.

6.4 Metal and non-metal small finds

6.4.1 The assemblage is not very large but has some potential for further analysis. The finds from Phases 4 and 5 are very limited in number but they do include a ceramic spindle whorl made from a reused pottery sherd in an early Romano-British fabric and an incomplete bow brooch.

6.4.2 Finds are largely concentrated in Phase 5/6 (middle/late Roman) and 6 (late Roman) contexts, with the majority coming from Phase 6. The range of finds from these phases is still quite limited but does include a number of identifiable Roman objects, although some finds that are often numerous on Romano-British sites such as nails are only present in relatively small numbers. Hobnails, which are often quite numerous, are limited to only six examples. Nonetheless there is some potential to contribute to an understanding of the nature of the occupation on the site in the Roman period.

6.4.3 Finds from Phase 7 contexts are very limited but do include Roman finger rings and two lead ceramic repairs or rivets.

6.5 Vessel and window glass

6.5.1 The window and vessel glass assemblage is small and requires no further analysis.

6.6 Worked stone

6.6.1 The stone has good potential to contribute to our understanding of the site in terms of the construction of the buildings and also to our interpretation of the nature of activities taking place (ie types of food and level of intensity of production).

6.6.2 The querns and millstones indicate the processing of grain, and the millstones are evidence that some of that processing had been centralised. They should be considered alongside the environmental evidence to see if there is any indication that the processing included the crushing of malt.

6.6.3 The recovery of the complete quern from a ditch suggests a placed deposit, and its position within the ditch should be investigated alongside the presence of any other finds.

6.6.4 A significant proportion of stone roofing indicates the presence of stone-roofed buildings nearby, presumably the villa buildings and Building 1320. This will need to be considered alongside evidence for ceramic roofing, as stone roofing is generally considered atypical before the 3rd century.

6.7 Flint

6.7.1 The early Mesolithic of Northamptonshire is poorly known, with many assemblages unstratified or poorly provenanced (Deegan and Foard 2008; Philips 1998), leading to a dearth of information relating to habitual Mesolithic practice. Scatter 4235, therefore, represents an opportunity to contextualize the Mesolithic activity of this site both within its broader and immediate landscape setting. Intra-scatter spatial analysis should be conducted to identify the behavioural, technological and spatial processes. Such analysis would likely identify manufacturing and processing areas, seating areas and drop and toss zones.

6.7.2 In most cases the good condition of the flint in context 4235 and uniformity in the raw material would provide good potential for refitting analysis to aide in understanding nuances within the chaîne opératoire, but because the scatter has been truncated by several ditches and the assemblage is therefore incomplete, refitting is not recommended in this instance.

6.7.3 There is potential for understanding raw material procurement practices through a more detailed analysis of the raw material, including qualitative measurements of the cortex and material of the flint.

6.7.4 In addition, there is potential for further metric and technological analysis of the debitage and tools within this scatter. This would enable a comparison with other sites in the region and further afield so that the date of this scatter can better estimated.

6.7.5 The assemblage from features represents a broad range of technologies and periods. Metrical analysis of the debitage would further aid in refining periods within this assemblage. There is also potential for more intricate spatial patterns to exist. With further spatial analysis these will become apparent.

6.8 Ceramic building material

6.8.1 This is a large assemblage, which has potential for further analysis and can make a contribution to understanding activity on the site in relation to the villa situated immediately to the north of the site. The assemblage clearly relates to the villa buildings and the CBM provides evidence for the character of the buildings and the materials used in their construction. Variations in forms and differences of date can provide evidence for alterations or refurbishment that may have occurred at different periods. The relationship to any buildings and minor structures on the site itself can provide evidence for reuse of tile within the villa estate.

6.8.2 The assemblage warrants full recording and analysis. A report should be produced describing the CBM and discussing the material in relation to the site, the nearby villa and other comparable regional assemblages. Analysis of the distribution of the tile should address its use in structures present within the excavated area or establish whether it represents disposal of demolished material from the villa.

6.9 Fired clay

6.9.1 This small assemblage has limited potential to contribute to an understanding of activities and structures on the site. Whilst much of the material is undiagnostic and can only indicate activity in a very generalised manner, there is a small quantity of significant material that enhances the evidence for activity on the site. In particular, the evidence for metalworking and casting of small artefacts is significant. The evidence for the use of wattle- and lath-supported structures in the construction of the corn-drying ovens provides further evidence for the materials used in the construction of the drying floors. The use of laths in such a situation is unusual, as such impressions are most commonly only found in ceiling plaster.

6.9.2 Recording of the fired clay should be completed and a report produced describing the assemblage and discussing it in relation to the site, and where relevant other comparable material.

6.10 Iron slag and related high-temperature debris

6.10.1 Aside from extracting the now fragmentary pieces of iron (smith's stock bar?) from context 2349, there is no recommendation for further work.

6.11 Clay pipe

6.11.1 The single pipe is of little interest beyond its dating value and has been adequately catalogued and described. No further work is necessary.

6.12 Human remains

6.12.1 Overall, bone preservation of the human skeletal assemblage ranged from fair to poor. This will limit the level of osteological data that can be obtained by detailed,

macroscopic analysis: in particular, there is limited capacity for assigning skeletons to particular age at death categories. However, it is evident that relevant information does survive for other key parameters. More specifically, it will be possible to explore biological sex, post-cranial indices, normal anatomical variation, dental and skeletal pathology.

6.12.2 More detailed analysis of the burnt bone deposits has the potential to provide information on the minimum number of individuals, sex, age and skeletal pathology. Osteological information obtained from burnt bone is much more limited than it is from unburnt articulated skeletons, but sufficient detail should be possible which will allow these variables to be explored.

6.12.3 In addition, there is the potential to explore funerary rite and pyre technology by further detailed analysis of colour, weight and fragmentation. Colour variation between bone fragments relates to different temperatures achieved during cremation. This information may be employed to explore factors such as the position of the corpse on the pyre and whether there was any selection of particular bones from the pyre for burial. Bone fragment colour, deposit weight, fragmentation and observations relating to the presence of charcoal may also be employed to confirm the types of deposit, eg cremation burial, token or cenotaph burials, deposits of pyre debris or other cremation-related deposits (McKinley, 2013: 151-5).

6.12.4 Interpretation of deposit 6006 may be impeded by observed truncation of the feature. It is not possible to determine how truncated the deposit was. The amount of cremated bone that has been lost is unclear, so the original bone weight cannot be established. These factors should be taken into consideration during analysis and when attempting to elucidate the nature of the deposit.

6.13 Animal bone

6.13.1 The Nene valley is the most well-studied area of Roman Northamptonshire, but further research into the type and organisation of agriculture in the region is still needed (Knight *et al*. 2018). The M1dway assemblage has the potential to profile the herd structure of domestic cattle (and possibly also caprine) on the site, which would directly contribute to this research objective. The presence of an adjacent villa brings other research questions, relating to elite status. Specifically, the possible presence of exotic and wild animals such as fallow deer, crane and partridge needs to be investigated thoroughly with the aid of reference specimens.

6.13.2 Fallow deer have been thought to be a Norman introduction but there is now some evidence for an earlier, Roman date (Bendrey 2003; Sykes 2004; 2010). The earliest conclusively dated specimens in Britain have been identified from Fishbourne Palace, West Sussex, from the mid-late 1st century AD (Sykes 2010), with other examples from Monkton and Canterbury in Kent. It is also worth noting that possible Roman fallow deer have recently been found elsewhere in Northamptonshire, although these have yet to be radiocarbon dated (OA 2017).

6.13.3 The short, stocky dogs are also possibly significant. Lap dogs were a luxury that supposedly began to appear in the Roman period and another small dog has been recovered from Roman Northamptonshire previously (Davis 1997). Small dogs from

elsewhere in Britain at this time, however, are of a gracile, rather than stocky, type (Bennett and Timm 2018). As such, careful thought should be given to whether the curved shape of the limbs is related to breeding a stocky dog or whether it is pathological (eg rickets).

6.13.4 Context 1001, which contained the burned domestic fowl specimens, was interpreted as a rubbish layer, so it may represent the disposal of domestic waste. Possible ritual deposits of burned fowl have recently been identified from Roman Alchester (Broderick 2018), however, and with the possible temple/mausoleum in this area of the site, such alternative interpretations should be considered. Interpretations of ritual activity at Alchester were, however, made on the basis that the remains had been deliberately interred within a ceramic vessel.

6.13.5 Notwithstanding any possible ritual activity, comparisons of the assemblage associated with the villa should begin with Stanwick. Another Roman villa in Northamptonshire, it produced a substantial animal bone assemblage which has been published (Davis 1997). The recent publication of the review of Roman rural Britain (Allen *et al*. 2017), with its accompanying online data resource (Allen *et al*. 2015) provides an opportunity to contextualise the assemblage from the field systems within national and regional patterns.

6.14 Charred plant remains

6.14.1 The charred plant remains vary in quality and quantity but a number of samples contain well-preserved assemblages that have significant potential to contribute to regional and site-specific research aims concerning agricultural intensification, economy, diet and, in particular, the extent and character of the industrial or crop processing activities taking place.

Area 1

6.14.2 Sample 1 from late Iron Age/early Roman ditch 105 is predominantly a deposit of cleaned grain while sample 10, from the fill of pit 671, includes frequent cereal grain together with abundant weed seeds and occasional flax. Full recording of these will provide data about crops cultivated at the site in the period as well as factors such as conditions in the fields, season of harvest and harvesting technique which can be compared to material recorded from later phases of the site, as well as with other contemporary sites from the wider region. It has been suggested that arable agriculture expanded in the East Midlands during the Iron Age, with a focus previously on pastoral farming. Monkton (2006, 16) argues that studies of plant remains from this region should focus on better understanding this expansion, particularly how it differs between sites situated on different soil types and across settlements of different type.

6.14.3 In comparison to cereals, which are routinely, albeit accidentally, charred during processing and are generally common on sites of this period, crops such as flax are less frequently preserved archaeologically and thus the extent of their cultivation is poorly understood. The presence in sample 10 of at least two pieces of free-threshing wheat rachis, including one definite bread wheat (*Triticum aestivum*), is worthy of record. Although by the Roman period spelt was the dominant type of wheat

cultivated in Britain, a recent synthesis demonstrates that free-threshing wheat has been found on almost 30% of late Iron Age/early Roman sites, with a rise in frequency to almost 40% by the late Roman period (Lodwick 2017a, 16-17).

6.14.4 Charred remains from sample 15, from middle Roman pit 1045, include gathered resources (hazelnut shell, a hawthorn stone) and unusual evidence of beet (*Beta vulgaris*) cultivation. While beet is native to Britain, Northamptonshire lies outside its usual coastal range, and the fact that it is charred further strengthens its case for being a cultivar. Van der Veen *et al*. list beet amongst their list of crops newly cultivated in the Roman period and note that, although it is never particularly common, it increases in frequency as the Roman period progresses (van der Veen *et al*. 2008, 21, 27-8).

6.14.5 Stone pine, in sample 39 from pit 1437, is a non-native tree and one that has an established association with Roman ritual contexts (van der Veen *et al*. 2008, 30). Lodwick (2017b) has recently discussed the significance of pine nut in Roman ritual practices and its presence at M1dway in a pit outside the possible temple/mausoleum may strengthen its interpretation as a religious structure.

6.14.6 Analysis of two samples from late Roman kilns/hearths (sample 19 from stokehole fill 1134, and sample 20 from kiln/hearth 1130) will provide valuable data on both arable cultivation, fuel selection and use.

6.14.7 If a secure date is obtained for ditch 1122 (sample 18), then its grain-rich flot would be worth recording to increase coverage of samples in this area.

Area 2 West

6.14.8 The archaeological remains of corn-drying ovens, stone-lined tanks and a possible threshing floor in Area 2 West provide evidence for a significant, large-scale crop processing complex. The presence of sprouted cereal grains from both Phase 5 and Phase 6 are potentially indicative of malting, which would require fresh water and a watertight tank in which to steep the grain: the stone-lined pits could potentially have fulfilled this role. Similar tanks have been found at other sites with strong evidence for large-scale malting, including at Norman Way Industrial Estate in Cambridge (Fosberry and Moan 2018), Springhead roadside settlement in Kent (Stevens 2011a) and Whitelands Farm, Bicester in Oxfordshire (Stevens 2011b). Floor 2146 could potentially have been utilised as a malting floor, as it would have provided a suitable surface on which to lay out the germinating grain before it was ready for kilning.

6.14.9 The strongest evidence for the production of malt comes from Phase 5 corn-drying oven 2050. The five assessed samples from this structure varied both in quantity and diversity of material. The richest flot (sample 2006) includes grain of wheat, barley, rye and oat, a high proportion of which show signs of having sprouted (often with dorsal grooves or attached extended coleoptiles). There are also many fragments of broken coleoptiles. These characteristics suggest that the sample contains debris from the production of malt, but the apparent use of all four types of grain in the production of malt is unusual and requires further investigation. Typically, at Romano-British sites with evidence for malting, spelt wheat is utilised, although there is occasional evidence for barley being used alongside wheat (eg Gatehampton Farm: Letts 1995 and Beck Row: Fryer 2004). Using mixtures of grain for malt, occasionally

seen today in specialist craft beers, was more common in the Saxon period, by which time barley was the principle grain used for malt. Recording and analysis of several samples (at least 2006 and 2008) is warranted in order to explore this topic.

6.14.10 From the late Roman corn-drying ovens, the three samples from structure 2130 all merit full identification. To compare different features, and their uses, the single sample from late Roman corn-drying oven 2323 also merits identification. Sample 2010 from corn-drying oven 2039 may include material deriving from several different episodes, while the sample taken from the floor of the corn-drying oven contained fewer grains but was far richer in fine material, including glume bases and weed seeds. It will be important to establish the range of spatial variation of charred remains within the feature in order to understand the processes and origin of the material.

6.14.11 As discussed by van der Veen (1989), corn-drying ovens may have been used for more than one function and the charred remains they contain may have accumulated as a result of various processes. The importance of analysing charred assemblages from corn-drying ovens in the East Midlands is highlighted in the regional research agenda (Monkton 2006, 277).

6.14.12 Sample 2028 from stone-lined tank 2129 contains abundant cereal grain, with frequent spelt chaff and occasional weed seeds. None of the examined grain showed clear signs of having sprouted, and there are relatively few detached coleoptiles, so there is no definite evidence for malting and this may be a dump of burnt crop processing waste placed into the tank after it had gone out of use. At least one sample should be fully recorded.

6.14.13 The burnt deposit sitting on top of floor layer 2149 contained abundant spelt chaff and frequent cereal grain and analysis is warranted in order to better understand this deposit. The common occurrence of detached coleoptiles suggests that waste from the removal of glumes and sprouts from part-processed malt may have built up on this surface, although it may be a dump rather than an *in situ* accumulation on a primary working surface.

6.14.14 Sample 2003, from ditch 2085, dated as middle to late Roman, contained abundant cereal grain and spelt glume bases, plus numerous weed seeds. Analysis of this sample is merited due to the abundance and range of material.

6.14.15 Fire pit 2336 contains frequent well-preserved wheat grains but is currently unphased. Further work would only be warranted if the feature is securely dated.

Area 2 East

6.14.16 Sample 20001 from ditch or beamslot 20162 includes possible sloe and tubers of onion couch grass but is currently unphased. Onion couch grass is common in prehistoric cremations, while collected fruits such as sloes would have formed an important part of the diet in the prehistoric period. The sample would only merit further recording if a prehistoric date was established.

6.15 Charcoal

6.15.1 The analysis of charcoal from a selection of samples has the potential to provide useful information of the utilisation of woodland resources in the late Iron Age and Roman

periods, but principally on the selection of woods to fire the corn-drying ovens. There are also occasional examples of samples which may derive from structures or objects.

Area 1

6.15.2 The six sampled pits from Phase 5 contain charcoal assemblages which are fairly similar in character. Recording of two samples (sample 37, which contains the most diverse range of taxa, and sample 15, which is more oak dominated and includes some roundwood) would characterise these assemblages.

6.15.3 Phase 6 rubbish layer 1001 (sample 14) contains abundant charcoal, which may reflect domestic fuel use and could act as a comparison to the charcoal recovered from the ovens.

6.15.4 As probable fuel residue from stokehole 1134, the charcoal from sample 19 can provide a useful insight into the selection of wood for kilns/hearths at the site. Initial examination suggests blackthorn/cherry wood is common, providing a potentially significant contrast to the oak-rich samples elsewhere. The charcoal from hearth 1091 (sample 17) is again different, appearing to be dominated by hazel wood.

Area 2 West

6.15.5 The corn-drying ovens from Area 2 West have not, in general, produced much charcoal, perhaps due to careful cleaning after each firing, poor preservation, or the use of other materials, such as cereal chaff, as fuel.

6.15.6 A single sample (2006) from Phase 5 corn-drying oven 2050 has a significant quantity of charcoal that would merit analysis; initial assessment suggests it is dominated by oak.

6.15.7 Of the three samples from Phase 6 corn-drying oven 2130, the two samples from context 2376 (samples 2044 and 2045) produced only a small quantity of charcoal which has been fully identified. These results should be included in the final publication.

6.15.8 Sample 2040 from corn-drying oven 2323 contains a small quantity of identifiable charcoal, again this appears to be dominated by oak, but additional identification is required to fully quantify the taxa.

6.15.9 In contrast to the corn-drying oven samples, sample 2033 from stone-lined pit 2323 appears to comprise a mix of oak and hazel/alder charcoal. If shown to be alder, a structural use is possible, as alder is strong under waterlogged conditions and has been used historically for revetments (Edlin 1974, 23).

Area 2 East

6.15.10 Late Roman ditch 20603 (sample 20002) contains frequent charcoal which includes a range of taxa; this should be fully analysed to provide data that can be compared to the assemblages from the features related to crop processing.

Area 5

6.15.11 Sample 5000, from Phase 4 pit/hearth 5064 contained frequent charcoal, consisting of a mix of oak and ash. As a late Iron Age/early Roman feature, the sample merits analysis.

Undated fire pit samples

6.15.12 The features from the site which contain the richest charcoal assemblages are the unphased features described as fire pits. These are features 1038, 1036, 2336 and 4224. Most have mixed charcoal assemblages. These assemblages would certainly warrant analysis on the basis of assemblage size and composition but a better understanding of the nature and date of the features is required.

6.16 Waterlogged plant remains

6.16.1 Preservation of organic archaeological remains through waterlogging is, in comparison to preservation through charring, relatively rare. In contrast to charring, in which it is more robust items and those more likely to come into contact with fire that most commonly survive, the anoxic conditions produced by waterlogging can create an environment in which even delicate plant tissues are preserved. Where waterlogged deposits occur, therefore, there is potential for the recovery of a far wider range of plant remains compared to those found in charred assemblages, such as fruits, vegetables and leaves. However, the permanently waterlogged conditions required for such preservation usually occur only in the deepest of features, where deposits extend below the water table. A high proportion of the waterlogged archaeobotanical data from the Roman period in Britain comes from urban sites, where a high density of occupation is associated with large numbers of features such as wells and cess pits where such material can be preserved. A review by Van der Veen *et al.* found that around a half of excavations at urban sites on which sampling was conducted yielded waterlogged remains, rising to approximately two thirds in the larger towns. In contrast, the proportion of rural sites with waterlogged material was much lower, although it is better represented on elite sites such as villas (van der Veen *et al*. 2007, 192). Van der Veen argues on the basis of these findings that sampling should be a priority on Roman rural sites with waterlogged preservation (ibid, 193).

6.16.2 At M1dway, the presence of waterlogged remains is even more significant because of the possible temple or mausoleum excavated in the east of Area 1. Ritual complexes are rare in themselves, but the recovery of waterlogged remains from them is exceptionally so – the same study of Roman archaeobotanical remains found fewer than ten records from temple or shrine sites (van der Veen *et al*. 2007, 192). The charred stone pine scale identified from a pit close to the possible temple building (charred plant remain and charcoal assessment, above) can be read as a possible votive offering, and with good waterlogged preservation from the nearby spring there is potential for the recovery of further plant items with ritual significance.

6.16.3 The upper fills from the spring (contexts 1300, and 1302, 1303) have little potential for either waterlogged plant remains or insects, and no further work is recommended.

6.16.4 The basal fill of the spring has excellent preservation of waterlogged seeds, with plant taxa representing both damp ground and more open or grassland vegetation, perhaps pasture. This sample therefore offers the potential for reconstructing the surrounding environment, particularly in combination with the insect and pollen results. It is recommended that the better preserved of the two sampled sequences (sample 35) should be taken to full analysis, as well as the overlying context 1304 (sample 34)

which, while preservation is not as good, will be a useful comparison to the material in the lower fill.

6.16.5 The sample from ditch 2511 (sample 2050) has good preservation for both waterlogged plant remains and insects. This feature, dated from the middle to late Roman period, includes aquatic taxa growing in the base of a water-containing ditch, scrubbier vegetation presumably growing on the slopes of the ditch, as well as plants characteristic of more open ground that perhaps reflects wider vegetation in the area around the ditch. It is recommended that this sample should be taken to full analysis for waterlogged plant remains.

6.17 Insects

6.17.1 All three assessed samples produced large insect assemblages providing clear indications of grassland, probably on relatively dry open ground. Scarabaeid dung beetles (Aphodiinae) were common in all the samples, indicating that grazing herbivores were a significant presence in the vicinity of the sampling points. Numbers of decomposer beetles were low in all the samples, and very few of them were synanthropes, suggesting that organic occupation waste had not contributed significantly to the deposits.

6.17.2 The samples all have potential for further analysis to provide data on the local environment and land use, which can be viewed in conjunction with that obtained from the waterlogged plant remains and pollen to provide a more comprehensive picture. The condition of the remains precluded the close identification of many taxa during scanning, however, and this will also be the case for some taxa at the analysis stage, notably for weevils (Curculionidae). This will limit information on specific herbaceous plants.

6.18 Pollen

6.18.1 Pollen was present in very low numbers in the lower deposit of enclosure ditch 20365 in Area 2 East and was relatively sparse in the fills of stone-lined feature 2129 in Area 2 West. Consequently, the pollen these features has limited potential to provide useful information about the local environment or use of the feature.

6.18.2 Conversely, the sub-samples from the organic deposits associated with the spring line in Area 1 include abundant and well-preserved pollen suitable for analysis, but of these contexts 1302-1305 are the only ones to be securely dated as Roman. The pollen assemblage from the deeper sub-sample, from fill 1305, is dominated by herbs, in particular grasses (Poaceae) and dandelion-type (*Taraxacum*-type) as well as pollen from plants typically found in grassland and damp places such as ribwort plantain (*Plantago lanceolata*), the carrot family (Apiaceae, including plants such as cow parsley, water-dropworts and marshworts), daisy-type (Asteraceae and sedges (Cyperaceae). Interestingly, tree and shrub pollen which contributed approximately 10% of the total pollen count in the scanned sample was composed mainly of pollen of walnut (*Juglans*) which is likely to indicate the presence of walnut trees close by. Walnut is thought to have been introduced by the Romans and grown presumably primarily for its nuts. The samples from the dated part of this sequence therefore have

high potential to provide a picture of the local landscape and probably also of plants that were planted by the occupants of the Roman villa to the north beyond the site.

6.18.3 It is therefore recommended that the additional three contexts 1302-1304 from deposits associated with the spring should be initially checked for pollen and if present, the sub-samples from monolith 24 should then be analysed in full. Analysis would hope to confirm indications from assessment and to track changes in the environment during the Roman occupation of the site.

6.19 Marine shell

6.19.1 The shellfish are all oyster, mostly of the traditional rounded shape for *Ostrea edulis*, with rounded hinges and no evidence of growth in crowded beds. The relatively small number of shells per context, and the fact that the contexts that contain the greatest quantity of shells typically include shells in poor, chalky and flakey condition, means that the potential for further analysis and interpretation of the shell assemblage is very limited and probably not worthwhile, but a short report based on this assessment should be included in the final publication.

6.19.2 Oysters are present on most Roman military, urban and villa sites in England, which demonstrates the widespread movement of these perishable shellfish, presumably packed in pots or wrapped in seaweed. The small size of the assemblage is consistent with those recovered from excavations around the extramural settlement of Alchester (Winder 2002; Nicholson 2018), all of which suggests that oysters were an occasional food.

6.20 Overall potential

6.20.1 The excavation produced significant evidence pertaining to settlement and land use in this part of the Nene Valley during the Mesolithic, later prehistoric and Roman periods, and has potential to address several of the research themes and topics raised in the East Midlands Historic Environment Research Framework (EMHERF). The principle significance of the results of the excavation relate to the agricultural landscape associated with the adjacent Roman villa, but evidence was also found for the prehistoric landscape that preceded it.

6.20.2 The earliest activity recorded at the site is represented by the Mesolithic flint scatter in Area 4. Evidence for Mesolithic occupation sites is uncommon in Northamptonshire compared to other counties in the East Midlands, although its location beside the River Nene is consistent with the apparent preference for such locations (Myers n.d., fig. 18). More detailed analysis of the composition of the scatter has the potential to elucidate how the site was used, potentially identifying the site type (EMHERF topic 2.3.2), and how it fits into regional settlement patterns (EMHERF topic 2.2.2). The source of the lithic material will also be investigated, in order to investigate the associated procurement strategies (EMHERF topic 2.5.1).

6.20.3 The later prehistoric settlement features in Area 4 produced a fairly small and very limited artefactual assemblage, which consequently restricts the potential for further analysis. However, more detailed analysis of the ceramic material may clarify the chronology, in particular as regards establishing whether the Bronze Age/early Iron

Age and middle Iron Age features do indeed represent distinct phases of settlement. Sites of the earlier of these two periods are comparatively rare in the region, so any settlement elements that can be confirmed will be of significance (EMHERF topic 4.3.1). The morphology of the middle Iron Age settlement will be a particular focus of analysis – it appears to have been of an enclosed form, which became increasingly common at this time, and may contribute to our understanding of the function and chronology of this phenomenon (EMHERF topics 4.4.1 and 4.10.1). The evident repeated redefinition of enclosures 4389 and 4392 may indicate that they were of particular significance, and it is possible that they enclosed the locations of the main domestic buildings. No structural evidence survived for such buildings, but analysis of the distribution of pottery and animal bone may serve as a proxy to help demonstrate their former locations. No deposits of charred plant remains dating from this period were identified that might inform on the crops that were grown, but the animal bone assemblage, although small, will provide evidence regarding the community's husbandry practices. The pit alignment in Area 5 is an example of a characteristic phenomenon of the period that is particularly prevalent in the Northampton area, with excavated examples nearby at Upton and Oundle (Moore *et al*. 2013; Northamptonshire Archaeology 1998). The significance of the form of these boundaries and their function within Iron Age society are ongoing areas of research that are flagged up in the regional research agenda (EMHERF topic 4.6.2).

6.20.4 The development of field systems is the subject of EMHERF topic 4.6.1, and the example uncovered in Areas 1 and 5 represents a significant new development in the landscape of this part of the Nene Valley around the time of the Roman conquest. Further stratigraphic analysis may be able to clarify whether it was laid out as a single coherent scheme or developed in a more piecemeal fashion, and analysis of the distribution of domestic refuse such as pottery and animal bones may be able to identify areas of settlement, in the absence of surviving buildings. The longevity of the field system will also be examined in order to clarify whether its eventual abandonment can be directly associated with reorganisation of the landscape connected to the establishment of the adjacent villa.

6.20.5 The main buildings of the villa complex are likely to lie beneath and to the north of the A4500, which forms the northern boundary of the site, and the significance of the excavation results lies in the large area of the agricultural landscape around the villa that has been investigated, which will enable the associated farming practices to be studied. In particular, stratigraphic relationships and ceramic dating evidence will elucidate the expansion and development of the villa's field systems (EMHERF topic 5.5.4), and can be supplemented by information from the geophysical surveys that CLASP have undertaken to the north of the A4500. Information on the crops grown on the villa's estate will be provided by analysis of charred plant remains from the crop processing complex in Area 2, and the animal bone assemblage will inform on husbandry strategies; palaeoenvironmental evidence from the spring outwash channel will further enhance our knowledge of the character of the landscape, and together these strands of evidence will contribute to an understanding of the villa's economy (EMHERF topic 5.4.6). There is evidence that the population had access to exotic foodstuffs that are not commonly found on rural settlements, including beet,

pine nuts, walnut, and wild (presumably hunted) animals such as deer, crane and partridge, and this provides the potential to define a distinct, high-status diet by which the villa community distinguished themselves from the bulk of the population (EMHERF topic 5.5.3). Fallow deer is an extremely uncommon find on Roman sites, having until recently been thought to be exclusively a medieval phenomenon, and if the identification is confirmed, radiocarbon dating will be considered. The character and function of building 1320 requires further analysis, but a religious or funerary role is a definite possibility and potentially provides evidence for the religious life of the villa community (EMHERF topic 5.8.3).

7 UPDATED PROJECT DESIGN

7.1 Revised research aims

7.1.1 The revised research aims are derived from the potential of the data from the excavation to address regional research aims in the East Midlands Historic Environment Research Agenda (Knight *et al*. 2012). They are formulated as questions in accordance with guidance from English Heritage (now Historic England) regarding the formulation of updated project aims (English Heritage 2006, 45).

Phase 1: Mesolithic period

1. Does the flint scatter represent an *in situ* knapping site? What does its composition tell us about the activities undertaken here and the role of this site in relation to occupation in the region?

Phase 2: Bronze Age-early Iron Age

2. Can the ceramic dating of this phase be refined?
3. Does the artefactual evidence from the enclosures in Area 4 support their interpretation as part of a domestic settlement or is another interpretation, perhaps as livestock pens, more likely?
4. What is the significance of the limited group of features in Area 2?

Phase 3: Middle Iron Age

5. Can the dating of the settlement in Area 4 and the pit alignment in Area 5 be refined by closer ceramic dating?
6. Is the settlement a direct successor to the possible settlement represented by the Phase 2 enclosures, or was there a hiatus between them? How does the settlement compare morphologically with contemporary settlements in the region? What can the animal bone assemblage tell us about husbandry practices at the settlement, and how does this correspond to regional patterns of agricultural activity?
7. How does the pit alignment compare to similar structures in the area around Northampton and further afield, in terms of morphology, date, and landscape context? What are the economic, social or political roles of this and other similar features?

Phase 4: Late Iron Age/early Roman period

8. What can further stratigraphic analysis of the field system tell us about its development? Does the arrangement of enclosures and trackways during the Roman period indicate that livestock were the predominant element of the community's economic strategy? Can analysis of the distribution of pottery and animal bones identify areas of domestic occupation and refuse disposal within the field system?

Phase 5: Middle Roman period

9. When was the villa landscape established? Did it develop organically from the early Roman landscape or was there a wholesale replacement of the existing arrangements? How does this compare with the development and chronology of equivalent establishments elsewhere in Northamptonshire and beyond?

10. Can we characterize the agricultural economy of the villa? How were the structures in the crop processing area in Area 2 used, and what does the evidence from this area tell us about centralization and intensification of processing during the middle and late Roman periods? What can reconstruction of the contemporary environment from waterlogged plant remains, pollen and insect evidence from the spring outwash channel add to this picture?
11. What is the character and significance of the metalworking activity indicated by the ceramic moulds?
12. What evidence does the artefactual assemblage provide for other household, agricultural or craft activities?
13. What evidence is there for high status among the villa community? How did they use material resources, including dining habits and exclusivity of diet, to express their social identity? Can the distribution of key artefactual types indicate areas occupied by groups of differing status within the villa landscape?

Phase 6: Late Roman period

14. How did the landscape develop during the late Roman period, and was this accompanied by changes in agricultural practices?
15. What is the significance of the large curvilinear enclosure 20350? Does its unusual size and form provide some indication of its function?
16. Can the identification of the possible fallow deer be confirmed, and if so what is its significance for our understanding of the introduction of this species into Britain?
17. Can analysis of the form of building 1320 and its associated artefactual assemblage confirm whether it had a religious/funerary function? What does this tell us about the religious life and/or funerary practices of the community?
18. What can the human remains tell us about the health and diet of the community?
19. When was the villa abandoned? Was this a sudden occurrence or can any evidence for more gradual decline be identified? How does this compare with similar sites elsewhere?

7.2 Interfaces

7.2.1 The results of the geophysical survey and trial-trench evaluation will be integrated into the report where they contribute to understanding of the excavated remains.

7.2.2 The excavations of the Roman villa located immediately to the north of the site took place during the 19th century and the 1960s and have not been published, but data from the more recent fieldwalking and geophysical surveys undertaken by CLASP is available. Integration of this information will be essential to understanding the Roman remains excavated at M1dway.

7.3 Methods statement

Stratigraphy (research aims 4, 6, 7, 8, 9, 10, 14, 15, 17)

7.3.1 A general review of the stratigraphic data has been undertaken for this PXA. At the analysis stage, the stratigraphic sequence will be refined through a more detailed examination of the records than is appropriate at the assessment stage, with reference to artefactual dating evidence, principally that provided by pottery and

coins. The analysis will particularly focus on the palimpsests of features comprising the Phase 4 field system, the Phase 5/6 enclosure complex in Area 2 and the contemporary field system that extends across Areas 2, 3 and the watching brief areas.

7.3.2 If required to clarify issues of chronology and phasing, up to five samples will be submitted for radiocarbon dating.

7.3.3 The existing CAD plan will be revised in the light of any clarifications and re-interpretations of the stratigraphic data, and will be used as the basis for phase plans to be presented in the published report.

7.3.4 The spatial distribution of key artefact groups will be investigated in order to identify activity areas and areas used for disposal of refuse, including pottery, animal bone and ceramic building material.

7.3.5 A full archaeological description will be produced.

Pottery (research aims 2, 3, 5, 6, 9, 12, 13, 14, 19)

7.3.6 The pottery will be fully recorded in accordance with established standards for prehistoric and Roman pottery (PCRG 2011; PCRG, SGRP, MPRG 2016). A range of analytical tools will be used, including statistical analyses (eg mean sherd weights, descriptive statistics, regression analysis, spatial analysis, correspondence analysis), with the results expressed through graphical outputs (eg charts and plots). The pottery report and analysis will be supported by summary data tables.

7.3.7 A selection of pottery will be illustrated by photography and/or line drawings. Some 70 vessels are anticipated. Decorated samian will be presented as scanned rubbings.

Coins (research aims 9, 14, 19)

7.3.8 The coins have only been scanned quite rapidly. Further work is required to confirm and refine identifications as far as possible. In order to facilitate this five coins will require specialist cleaning by a conservator. On completion of that work an updated catalogue will be prepared. This will form the basis of a report which will consist of an expanded version of the present assessment text, incorporating relevant comparative data from the region.

Metal and non-metal small finds (research aims 12, 13)

7.3.9 Some more detailed recording will be required. Not all finds will require additional detail. A report will be prepared in which the overall composition of the finds assemblages from Phases 5/6 and 6 will be characterised, discussed, and compared to other Roman rural finds assemblages. Selected identified Roman finds will be catalogued and illustrated. Potentially some 14 to 18 objects could be catalogued and illustrated.

Vessel and window glass (research aim 12)

7.3.10 The assessment text will be incorporated into the final report.

Worked stone (research aims 10, 12, 17)

7.3.11 Most of the stone has been recorded at assessment stage. However, some detailed recording will need to be carried out at the analysis stage.

7.3.12 All the stone types present on the site are easily identifiable to lithological type, so no further petrographical analysis is required.

7.3.13 Further work should concentrate on two aspects of the assemblage. The stone roofing should be considered in the light of evidence for ceramic roofing. The querns and millstones will need to be investigated in conjunction with the environmental and structural evidence from the site. Bringing these together will help us interpret what was occurring on site.

7.3.14 The querns and millstones will also need to be placed in the local and regional context, both in terms of the types of stones used for the querns and supply patterns to the villa and area but also in terms of how grain processing was organised. If the villa was producing a surplus, as potentially indicated by the millstones, what might this surplus have been used for? And how does a production of a surplus here relate to other sites in the local vicinity where this also occurred?

7.3.15 Four items should be illustrated: two millstones (SFs 88 and 118), the sharpening stone (SF 53) and the complete lower rotary quern (SF 64).

Flint (research aim 1)

7.3.16 It is recommended that material from the scatter undergoes full analysis. This includes length and breadth measurements of all unbroken >10mm debitage and qualitative descriptions of the raw material (colour and description of material, inclusions and cortex). Length and breadth measurements should also be taken for debitage within features.

7.3.17 Detailed spatial analysis of the scatter via GIS should be conducted to identify intra-scatter spatial patterns. A broad spatial analysis of the assemblage from features should also be considered.

7.3.18 A comparison of length:breadth ratios and blade indices with *in situ* scatters within Northamptonshire and further afield should also be conducted.

Ceramic building material (research aim 17)

7.3.19 The assemblage should be fully recorded in accordance with guidelines set out by the Archaeological Ceramic Building Materials Group (ACBMG 2007). Fabrics will be characterised on the basis of macroscopic features supplemented by the use of x20 hand lens or binocular microscope at x25 for finer constituents and a fabric series created for the site and a sample of all fabric types will be retained as part of the archived group. During recording material will be selected for discard and disposed of during this process. All non-diagnostic material will be discarded, as will poorly preserved diagnostic items. Material to be retained will include any items with complete length or breadth, tegula corners with cutaway preserved unless badly damaged and incomplete, any pieces with markings, all flue tile with keying or vents preserved, and a representative sample of brick and imbrex whilst ensuring the assemblage includes a full range of examples of fabric types.

7.3.20 A report will be produced, and a selection of the tile illustrated.

7.3.21 Tile will be selected for discard by the specialist during the recording phase and disposed of at this time.

Fired clay (research aim 11)

7.3.22 Recording of the assemblage should be completed. Undiagnostic fragments will be selected for discard by the specialist during the recording phase and disposed of at this time.

7.3.23 A report will be produced, and the metalworking mould will be illustrated.

Iron slag and related high-temperature debris (research aims 11, 12)

7.3.24 No further work is proposed.

Clay pipe

7.3.25 No further work is proposed.

Human skeletal remains (research aim 18)

7.3.26 It is recommended that all unburnt, articulated skeletons and cremated human bone should undergo full osteological analysis, following published guidelines (Brickley and McKinley 2004; Mitchell and Brickley 2017). For all unburnt bone this should include an inventory of elements for each skeleton, estimation of age, sex and stature (where possible), calculation of post-cranial indices, identification of any non-metric traits, and identification of any dental and skeletal pathology.

7.3.27 For all burnt bone deposits, full analysis should include a record of the colour, weight and level of fragmentation. The 4-2mm fractions should be fully sorted in order to more reliably estimate the total bone weight present. In addition, the 2-0.5mm residues should be visually assessed to look for identifiable fragments.

Animal bone (research aims 3, 10, 13, 14, 16, 17)

7.3.28 The assemblage will be recorded with the aid of the Oxford Archaeology reference collection and standard identification guides and using the diagnostic zones described by Serjeantson (1996) for mammals, Strid (2012) for mammal mandibles and Cohen and Serjeantson (1996) for birds. The dog ABGs and fallow deer specimens (if confirmed) will be photographed.

Charred plant remains and charcoal (research aims 10, 13, 14)

7.3.29 The following samples will be analysed for charred plant remains:

Area 1

Phase 4: 1, 10

Phase 5: 15, 39

Phase 6: 19, 20

Area 2

Phase 5: 2006, 2008

Phase 5/6: 2003

Samples 2006 and 2008 from corn-drying oven 2050

Samples 2044, 2045 and 2046 from corn-drying oven 2130

Sample 2040 from corn-drying oven 2323

Samples 2010 and 2019 from corn-drying oven 2039

One of samples 2028 and 2033 from stone-lined tank 2129

Sample 2022 from threshing floor 2146

7.3.30 In addition, sample 18 from Area 1, sample 2043 from Area 2 West, and sample 20001 from Area 2 East, all of which are currently unphased, should be analysed if secure dates can be established.

7.3.31 Analysis of the proposed samples for charred plant remains will comprise the sorting and identification of macrofossils, tabulation of the results and production of a report, including relevant background research. Where appropriate, statistical techniques will be employed to investigate trends in the data. The flots will be sorted and examined using a low-power binocular microscope at x10 - x40 magnifications. Identifications will be made by comparison to seeds held in the Oxford Archaeology's reference collection and published guides (eg Cappers *et al*. 2006). Uncertain identifications may require the use of an external reference collection. Nomenclature for the plant remains will follow Stace (2010).

7.3.32 Six samples are recommended for full analysis of 100 charcoal fragments in order to fully characterize the range of wood taxa present: samples 14, 1, 19, 37, 5000 and 20002.

7.3.33 In addition, four samples which do not contain sufficient material for full analysis are recommended for further work; for these a more limited identification of *c* 50 fragments should be undertaken: 17, 2006, 2033 and 2040.

7.3.34 The results of the assessment of samples 2044, 2045 and 20001 should be included in the final publication report.

7.3.35 If a secure date is assigned to any of the four fire pits 1036, 1038, 2336 and 4224 these should also be considered for analysis.

7.3.36 Fragments >2mm will be fractured and examined initially on the transverse section at x10 - x40 magnifications, and where necessary on the radial and tangential sections at up to x400 magnification using a Brunel metallurgical microscope. Identifications will be made on the basis of diagnostic anatomical characteristics and with the aid of keys in Hather (2000) and Schweingruber (1990). The number of fragments by wood taxa will be recorded, tabulated, and reported on, including relevant background research.

Waterlogged plant remains (research aim 10)

7.3.37 The plant macrofossils from three samples (34, 35 and 2050) will be fully analysed.

7.3.38 Analysis will comprise the sorting and identification of macrofossils, tabulation of the results and production of a report, including relevant background research. The flots will be sorted and examined using a low-power binocular microscope at x10-x40 magnifications. Where material is highly rich, it may be necessary to sort only a representative fraction (eg one half or a quarter) of a flot.

7.3.39 Identifications will be made by comparison to seeds held in the Oxford Archaeology's reference collection and published guides (eg Cappers *et al*. 2006). Uncertain identifications may require the use of an external reference collection. Nomenclature for the plant remains will follow Stace (2010).

Insects (research aim 10)

7.3.40 Sclerites of terrestrial and aquatic beetles (Coleoptera) and bugs (Hemiptera) will be removed from the paraffin flots onto moist filter paper for examination under a low-power stereoscopic zoom microscope (x10–x45). Identification will be by comparison with modern insect material and with reference to standard published works.

Pollen (research aim 10)

7.3.41 Volumetric samples (1 ml) will be taken from the sub-samples and processed using a standard chemical procedure. Three contexts (1302-1304) from deposits associated with the spring will be initially checked for pollen and if present, the sub-samples from monolith 24 will then be analysed in full.

7.3.42 Pollen counts of at least 400 grains (including trees and shrubs, herbs and fern spores) will be made for samples that have been prioritised for analysis. Pollen will be counted from equally spaced traverses across whole slides at a magnification of x400 (x1000 for critical examinations). Pollen data will be presented as percentage diagrams using the computer programs TILIA and TGView (Grimm 1991-2011).

Marine shell (research aim 10)

7.3.43 The assessment text will be redrafted for inclusion in the publication report.

7.4 Publication and dissemination of results

7.4.1 It is proposed that the final report should be published by OA as a monograph, provisionally entitled *Harpole: the landscape of a Roman villa at M1dway J16, Northamptonshire*. This will be a softback volume of 150 to 200 pages, with a print run of 250 copies.

7.4.2 The volume will comprise a detailed stratigraphic description and specialist reports on the artefactual and ecofactual material. This evidence will be brought together in a research-based synthetic discussion section that will provide an interpretation of the site in its regional perspective.

7.4.3 The volume will be supported by a digital research archive disseminated via the OA Library (https://library.thehumanjourney.net/). This is likely to include scanned primary excavation records in pdf format, and any technical data produced by specialists that is not presented in the monograph.

7.5 Retention and disposal of finds and environmental evidence

Pottery

7.5.1 The pottery has the potential to inform future research through re-analysis and thus it is recommended that it is retained. This follows the advice set out in the *Standard for pottery studies in archaeology* (PCRG, SGRP, MPRG 2016).

Coins

7.5.2 The coin assemblage represents a valuable resource for future analysis of regional and national Roman coin assemblages and should be accessioned with an appropriate museum.

Metal and non-metal small finds

7.5.3 The finds assemblage is comparatively small and little of the assemblage is unstratified or unphased. Consequently, it is best to retain the whole assemblage rather than select a small number of items for discard.

Glass

7.5.4 The vessel and window glass assemblage together with the two glass objects is very small and should be retained.

Worked stone

7.5.5 The rotary querns and sharpening stone should retained, due to their potential for future analysis. Most of the probable stone roofing can be discarded, but samples of each stone type should be retained.

Flint

7.5.6 The worked flints should be retained and the unworked pieces should be discarded.

Ceramic building material

7.5.7 The CBM has good potential for further research and analysis in relation to the production and use of building materials in the region during the Roman period. However, retention of the full assemblage is not necessary and selective discard will be undertaken by the specialist at the time of recording. This discard will be undertaken in line with standard OA procedures. All amorphous or non-diagnostic fragments will be discarded (except when a piece is the only example of a fabric). Of identifiable tile forms, any tiles with complete length or width dimensions and all tiles with markings will be retained, except where markings are extremely poorly preserved. All tegula corner fragments will be retained except where these are very damaged and incomplete together with a complete range of flange profile types. All flue tile with evidence of keying or vents will be retained and a representative sample of imbrex and brick with preference given to corner fragments. Preference will also be given if necessary to ensure the full range of fabrics is retained.

Fired clay

7.5.8 The fired clay has limited potential for further research and analysis and the completed record should be sufficient should any wider regional analysis of fired clay be undertaken in the future. Retention of the full assemblage is therefore not necessary and selective discard will be undertaken by the specialist whilst completing the recording, retaining only the diagnostic pieces.

Slag

7.5.9 After the iron has been retrieved from amongst the slag in context 2349, there is no need for further work. The assemblage could be discarded if space is at a premium.

Human remains

7.5.10 The human bone assemblage should be retained in full.

Animal bone

7.5.11 The assemblage should be considered a priority for retention, potentially containing material of national significance.

Charred plant remains and charcoal

7.5.12 It is recommended that all samples apart from those assessed to have no potential (ie containing no identifiable charred plant remains or no charcoal of identifiable size) should be retained within the archive. This should include all samples scored as 'C' or higher for potential for charred plant remains and/or charcoal, and include all extracted and identified remains from the samples selected for analysis. Retention of this material will allow for any further work that researchers may wish to undertake in the future, such as radiocarbon dating.

Waterlogged plant remains

7.5.13 Archiving of waterlogged organic material is problematic. Retention of material in water is effective only in the short-term, and preservation using alcohol, although more stable, requires the alcohol to be periodically topped up. Full stabilisation and conservation, such as for museum display, is expensive and usually reserved only for exceptional organic remains. Long term archiving of the waterlogged plant remains from M1dway is, consequently, unfeasible. It is preferable to record the important remains as fully as possible at this stage, because by the point at which any future researchers have the opportunity to examine them further they may have significantly degraded.

Insects

7.5.14 The paraffin flots and will be stored in sealed containers in a cool, dark and well ventilated location prior to analysis. However, long term storage in water, 70% ethanol or IMS is problematic as the sclerites degrade, so unusual or significant specimens will be mounted dry on cards for retention in the archive and the remaining material which has been recorded will be discarded.

Pollen

7.5.15 The pollen slides are not suitable for long-term storage. Consequently, retention in the archive is not considered to be a priority.

Marine shell

7.5.16 The shells are not abundant, have no notable features and are in fairly poor condition, so retention in the archive is not recommended.

7.6 Ownership and archive

7.6.1 OA will retain copyright of all reports and the documentary and digital archive produced in this project. OA will maintain the archive to the standards recommended by the Chartered Institute for Archaeologists (CIfA 2014b) and the Archaeological Archives Forum (Brown 2011). The documentary archive has been security copied.

There is currently no receiving repository for archaeological archives in Northamptonshire. OA will retain the finds and documentary archive until one becomes available. Northamptonshire Historic Environment Archive has allocated the event number ENN108879. The digital archive will be deposited with ADS. The landowner's permission to donate the finds to this repository will be sought.

8 RESOURCES AND PROGRAMMING

8.1 Project team structure

8.1.1 The project team is set out in the table below:

Name	Organisation	Role
Andrew Simmonds	OA South	Project management, phasing, report writing
Steve Lawrence	OA South	Project management
Leo Webley	OA South	Project monitoring
Nicky Scott	OA South	Archive management
Rebecca Nicholson	OA South	Environmental management and marine shell
Leigh Allen	OA South	Finds management
Geraldine Crann	OA South	Finds admin
Matt Bradley	OA South	Geomatics management
Magdalena Wachnik	OA South	Graphics management
Alex Davies	OA South	Prehistoric pottery
Edward Biddulph	OA South	Roman pottery
John Cotter	OA South	Post-Roman pottery
Paul Booth	External	Roman coins
Dana Goodburn	External	Conservation of Roman coins
Ian Scott	OA South	Small finds
Ruth Shaffrey	OA South	Worked stone
Tom Lawrence	OA South	Worked flint
Cynthia Poole	OA South	Ceramic building material and fired clay
Lauren McIntyre	OA South	Human skeletal remains
Julia Meen	OA South	Charred and waterlogged plant remains and charcoal
Lee Broderick	OA South	Animal bone
Mairead Rutherford	OA North	Pollen
Enid Allison	External (Canterbury Archaeological Trust)	Insects

8.2 Task list and programme

8.2.1 Production of a monograph draft for peer review will be completed in 2 years from the commencement of the analysis stage. The external peer review is likely to require two months, and production of the published volume will take 6 months from receipt of the review comments. The estimated total length of the programme is therefore 2 years 6 months.

8.2.2 A task list is presented below.

Task no.	Description	Performed by	Days
	Management tasks		
101	Project management	A Simmonds	5
102	Project management	S Lawrence	1
103	Project monitoring	L Webley	1
104	Archive management	N Scott	2

Task no.	Description	Performed by	Days
105	Environmental management	R Nicholson	2
106	Finds management	L Allen	3
107	Finds admin	G Crann	0.5
108	Geomatics management	M Bradley	1
109	Graphics office management	M Wachnik	1
	Stratigraphic analysis and phasing tasks		
201	Stratigraphic analysis	A Simmonds	20
202	Write statigraphic narrative	A Simmonds	15
203	Radiocarbon dating (up to five samples)	External	
204	Illustrations	Illustrator	15
	Finds analysis tasks		
301	Prehistoric pottery	A Davies	2
302	Prehistoric pottery illustrations	Illustrator	0.5
303	Roman pottery	E Biddulph	35
304	Roman pottery illustrations	Illustrator	10
305	Post-Roman pottery identification	J Cotter	0.25
306	Coins conservation (5 coins)	External	
307	Coins	P Booth	2
308	Small finds	I Scott	3.5
309	Small finds illustrations	Illustrator	2
310	Worked stone	R Shaffrey	7
311	Worked stone illustrations	Illustrator	1
312	Flint	T Lawrence	4
313	Flint illustrations	Illustrator	1
314	CBM	C Poole	30
315	Add CBM to finds database	G Crann	5
316	CBM illustrations	Illustrator	5
317	Fired clay	C Poole	5
318	Fired clay illustrations	Illustrator	1
	Human skeletal remains		
401	Osteological analysis	L McIntyre	5
	Environmental analysis tasks		
501	Animal bone	L Broderick	36
502	CPR and charcoal	J Meen	33
503	Waterlogged plant remains	J Meen	7
504	Marine shell	R Nicholson	0.5
505	Insects	E Allison	
507	Pollen processing		2
508	Pollen analysis	M Rutherford	16.5
	Report production tasks		
601	Write discussion	A Simmonds	15
602	Compile and edit report	A Simmonds	10
603	Edit	SPM	5

Task no.	Description	Performed by	Days
604	Academic review	External	
605	Copy edit	SPM	10
606	Revisions	A Simmonds	2
607	Indexing	SPM	5
608	Typesetting	External	
609	Proofreading	SPM	5
610	Printing	External	
	Archive and deposition		
701	Prep paper archive for deposition	N Scott	6
702	Prep finds for deposition	Supervisor	20
703	Prep geomatic archive for deposition	G Jones	0.5
704	ADS fee	External	
705	Driver and helper	Technician	2
706	Deposition fee	External	

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APPENDIX A SUMMARY OF THE COIN ASSEMBLAGE

SF	Cxt	Est Date	Reece Period	Denomination	Obv	Rev	Ref	Condition
79	1001	134-138	6	denarius	HADRIANVS AVG COS III PP	FELICI TAS AVG	RIC 234	SW/SW
29	1190	202-203?	10	denarius 16mm	empress ?IVLI[A AVGVSTA	PIE]TAS PV[BLI]CA Pietas l with altar at feet[	cf RIC 643	W/W
74	3001	1-2C		sestertius	head r	standing figure		VW/VW
119	20283	2-3C		?plated denarius 17-18mm	laureate head r IMP A[ ]C	?		SW/W
6	1086	268-270	13	radiate 18mm	IMP C VICTORI[NVS …	?		SW/rev encrusted
73	3001	268-270?	13	radiate 18mm	radiate head r]?ORINVS[	CO [AV]G victory l		SW/SW
194	20015	268-270?	13	radiate 20mm	]?ICT[ ]VS PF AVG	figure l		W/W
57	20436	271-274	13	radiate 18-20mm	IMP C TETRICVS [	VIRTVS [AV] G		W/W
17	1271	259-275	13	radiate 17-18mm	]S AVG radiate head r	IOVI VI[CTORI, stg l holding thunderbolt and spear		W/W
3	262	260-296?		radiate 20mm		poss eta in field		VW/VW?
32	127	260-296?		radiate 18mm	]RINVS PF AVG			SW/
8	1236	260-296?		radiate 15-20mm	radiate head r	figure		W/W
26	1264	260-296?		radiate -19mm	?	figure stg l		EW/EW
27	1264	260-296?		?radiate 15-16mm	?	figure stg l		VW/VW
28	1368	260-296?		radiate 15-17mm	radiate head r			VW/VW
30	623	260-296?		radiate 17mm	? IMP [ ]S AVG	] AD[, figure l		W/W
56	4055	320-321	16	AE2? 17mm+	DN CONS?[helmeted head r	VIRTVS [EXERCIT] standard and 2 captives, VOT XX on standard		SW/SW
15	2	333-334	17	AE3 17mm	CONSTANTINOPOLIS	victory on prow	RIC VII Lyons 266	W/W
4	184	330-335	17	AE3 17mm	VRBS ROMA	wolf and twins		W/W
112	4221	330-335	17	AE3 12mm+	head r	Gloria Exercitus 2 standards		SW/SW
113	4221	330-335	17	AE3 13mm	head r	Gloria Exercitus 2 standards		SW/SW

SF	Cxt	Est Date	Reece Period	Denomination	Obv	Rev	Ref	Condition
40	20437	335-341	17	AE3 15mm	head r	Gloria Exercitus 1 standard		VW/VW
44	20236	335-341	17	AE3 14mm	CONST[ANS PF AVG]	Gloria Exercitus 1 standard		VW/W
59	20567	341-348	17	AE3 15mm	head r	Victoriae dd augg q nn		VW/VW
34	356	350-364?	18	AE4 11mm	head r	?FTR fh		VW/VW
87	1026	350-364?	18	AE4 6-7mm	??	??		EW/EW?
100	20000	350-364??	18	AE4 11-12mm				EW/EW?
101	20000	350-364??	18	AE4 6-7mm				EW/EW?
10	857	364-378	19	AE3 17mm	head r	Securitas Reipublicae		VW/VW
14	503	364-378	19	AE3 17mm	head r	Securitas Reipublicae		W/W
23	127	364-375	19	AE3 17mm	DN VALENTINI] ANVS PF AVG	SECVRITAS] REIPVBLICAE		W/W
58	20015	364-378	19	AE3 16-17mm	DN VA]LEN S PF AVG	SECVRITAS REIPVBLICAE		SW/SW
66	20436	364-378	19	AE3 15mm	head r	Gloria Romanorum		VW/VW
117	2161	364-378	19	AE3 14mm	head r	GLORIA R[OMANORVM		SW/SW
46	20049	388-402	21	AE4 12-13mm	head r	V]ICTOR [IA AVGGG		W/W
45	20471	388-402	21	AE4 12-13mm	head r	victory		VW/VW
90	1090	388-402??	21	AE4? 12-13mm		victory?		VW/VW
120	20325	4C??		AE4 12-13mm				EW/EW
2	260	late 3-4C		AE3 16mm+	head r			EW/EW
72	3001	3-4C		AE3 13-14mm	head r, possibly radiate?	figure??		EW/EW
5	1084	3-4C?		20mm	head r??			W/W??

APPENDIX B ENVIRONMENTAL ASSESSMENT RESULTS

Area 1

Sample no.	Context no.	Cut no.	Feature type	Floated volume	Flot box no.	Flot vol	% scanned	Grain	Legume	Seed	Chaff	Fruit/nut	Flot charcoal >4mm	Flot charcoal 2-4mm	Molluscs	Comments charred plant remains	Comments charcoal	Potential CPR	Potential charcoal
Phase 4																			
1	106	105	Ditch Fill	40L	1	150ml	80%	*****	**	**	*			10		Abundant cereal grain. Preservation generally quite poor, clinkered, but many identifiable. Dominated by wheat, with a lower proportion barley and occasional oat. Tubers and charred rootlets cf onion couch grass. Occasional 3mm legumes and seeds *Galium aparine*. Occasional other seeds including *Polygonum aviculare*, *Euphrasia/Odontites* and *Tripleurospermum.*	Very little charcoal present.	A/B	D
2	117	37	Ditch Fill	7L	1	5ml	100%	*								Small flot. Five barley grains, little other identifiable material	Charcoal flecks only, none identifiable	C/D	D
7	572	570	Pot Fill	30L	1	50ml	100%	**					3	4		Much of flot is composed of modern root. Small number of poorly preserved cereal	Little charcoal present	C/D	D

Sample no.	Context no.	Cut no.	Feature type	Floated volume	Flot box no.	Flot vol	% scanned	Grain	Legume	Seed	Chaff	Fruit/nut	Flot charcoal >4mm	Flot charcoal 2-4mm	Molluscs	Comments charred plant remains	Comments charcoal	Potential CPR	Potential charcoal
																grains, including wheat, cf barley and oat.			
10	711	671	Pit Fill	24L	1	35ml	100%	****	*	****	**		5	20		Fairly small flot, but most of its volume is composed of cereal grain. This is a mix of barley and wheat, with barley more common, plus occasional oat. Frequent weed seeds, especially small Poaceae and small Asteraceae (incl *Tripleurospermum*) but also *Rumex*, *Fallopia, Carex* and *Galium*. Occasional barley rachis and also two rachis pieces free-threshing wheat, one clearly *T. aestivum*. Two seeds flax. Occasional cereal culm, one glume bases *T. spelta*.	Little charcoal of identifiable size.	A/B	D
Phase 5																			
15	1047	1045	Pit Fill	20L	1	650ml	75%	****		*		**	200	500	***	Frequent snail shells. Cereal grain common, mixture of wheat and barley. Two seeds *Beta*	Many large pieces charcoal, including roundwood. Dominated by	B	A

Sample no.	Context no.	Cut no.	Feature type	Floated volume	Flot box no.	Flot vol	% scanned	Grain	Legume	Seed	Chaff	Fruit/nut	Flot charcoal >4mm	Flot charcoal 2-4mm	Molluscs	Comments charred plant remains	Comments charcoal	Potential CPR	Potential charcoal
																vulgaris. Several pieces hazelnut shell. Stone *Crataegus monogyna.*	oak, with some hazel and willow/poplar.		
37	1431	1430	Pit Fill	12L	1	200ml	100%	*					300	300	****	Abundant mollusc shell, including abundant smashed cf oyster, other shells dominated by *Trochulus hispidus*, also *Vallonia* sp, *Vertigo antivertigo* and Psidium. Poor for charred plant remains, only 2 wheat grains.	Abundant charcoal. Dominated by oak, with some hazel, field maple and hawthorn type, including occasional roundwood.	D	B
38	1434	1433	Pit Fill	15L	1	150ml	100%	**		*	*		100	300	***	Frequent snail shells, *mostly Trochulus hispidus*, but also *Galba truncatula*, *Vertigo* spp, *Cochlicopa*, *Carychium*, *Vallonia*. Very small number of poorly preserved cereal grains, rare glume base fragments and rare seeds.	Frequent charcoal. Mixed assemblage including oak, ash, hawthorn type and hazel.	D	B
39	1438	1437	Pit Fill	10L	1	450ml	50%	*		*	*	*	300	1000	***	Frequent molluscs, mainly *Trochulus hispidus*. Scale of stone pine cone. One cereal	Many large pieces of wood, including large pieces of oak roundwood, also some hazel. Mix	A	A

Sample no.	Context no.	Cut no.	Feature type	Floated volume	Flot box no.	Flot vol	% scanned	Grain	Legume	Seed	Chaff	Fruit/nut	Flot charcoal >4mm	Flot charcoal 2-4mm	Molluscs	Comments charred plant remains	Comments charcoal	Potential CPR	Potential charcoal
																grain, rare weed seeds and rare glume bases.	of roundwood and non-roundwood.		
40	1436	1435	Pit Fill	5L	1	20ml	100%	*					36	50	**	Three poorly preserved cereal grains.	Fairly low number of charcoal pieces, but a relatively high proportion >4mm in size. Mostly oak, including occasional roundwood, plus hazel and probable willow or poplar.	D	B/C
41	1441	1440	Pit Fill	8L	1	40ml	100%	*					41	100	***	Frequent molluscs including *Troculus hispidus*, *Vertigo, Vallonia, Carychium*. One charred wheat grain.	Moderate quantity of charcoal. Dominated by oak, also ash and willow/poplar.	D	B/C
6001	1048		Pot fill	0.5L	2	15ml	100%						16	37	*	No charred plant remains.	Small quantity of charcoal. Frequent willow/poplar, also oak and hazel.	D	C
Phase 6																			

Sample no.	Context no.	Cut no.	Feature type	Floated volume	Flot box no.	Flot vol	% scanned	Grain	Legume	Seed	Chaff	Fruit/nut	Flot charcoal >4mm	Flot charcoal 2-4mm	Molluscs	Comments charred plant remains	Comments charcoal	Potential CPR	Potential charcoal
5	228	227	Pit Fill	20L	1	50ml	100%	**		*				9	***	Much of flot is composed of modern root. Snails including *Trochulus hispidus, Veritigo, Pupilla, Vallonia* and *Cochlicopa*. Small number of cereal grains, quite poorly preserved, wheat and barley. One seed each of oat and brome.	Little charcoal present	C/D	D
14	1001		Rubbish layer	40L	1	900ml	50%	***		*	*		500	1000	*****	Flot predominately composed of charcoal and snail shells. Abundant shells *Trochulus hispidus,* also *Vallonia, Vertigo, Carychium, Cochlicopa, Galba truncatula.* Moderate number of cereal grains, mostly wheat. Rare weed seeds, including *Rumex* and *Eleocharis*. Single spelt glume base observed.	Highly abundant charcoal, including numerous large pieces >10mm. Dominated by oak, with hazel and willow/poplar also present.	C	A
17	1092	1091	Hearth	13L	1	40ml	100%	*					23	47		Two cereal grains. Abundant modern root.	Long, thin pieces of wood, mixture of hazel with oak and ash.	D	A

Sample no.	Context no.	Cut no.	Feature type	Floated volume	Flot box no.	Flot vol	% scanned	Grain	Legume	Seed	Chaff	Fruit/nut	Flot charcoal >4mm	Flot charcoal 2-4mm	Molluscs	Comments charred plant remains	Comments charcoal	Potential CPR	Potential charcoal
19	1134	1170	Kiln/hearth	30L	1	200ml	50%	***	*	*		*	100	500		Moderate number of cereal grains, mix of wheat and barley, preservation mixed. One fragment hazelnut shell, one seed Papaver sp, and two small legumes.	All examined items blackthorn/cherry type.	C	B
20	1133	1130	Kiln/hearth	6L	1	5ml	100%	****					6	10		Small flot, mostly consisting of mix of wheat and barley grains, some with very good preservation.	Little charcoal of identifiable size.	C	D
Unphased																			
13	1040	1038	Pit Fill	40L	1	350ml	100%	**		*			300	500	*****	Flot predominately composed of charcoal and snail shells. Abundant shells *Trochulus hispidus,* also smaller numbers *Cochlicopa, Galba truncatula, Carychium, Vallonia,Vertigo (*incl *V. angustior* and *V. antivertigo)* and *Succinea/Oxyloma.* Small number of poorly preserved cereal grains, mostly identifiable as wheat, plus a seed *Galium* sp.	Large quantity of charcoal, including large pieces >10mm, and including roundwood. Includes much oak, but also diffuse porous taxa including hazel, blackthorn/cherry, willow/poplar and hawthorn type.	D	B

Sample no.	Context no.	Cut no.	Feature type	Floated volume	Flot box no.	Flot vol	% scanned	Grain	Legume	Seed	Chaff	Fruit/nut	Flot charcoal >4mm	Flot charcoal 2-4mm	Molluscs	Comments charred plant remains	Comments charcoal	Potential CPR	Potential charcoal
16	1037	1036	Pit Fill	10L	1	1100ml	50%						500	5000		No charred plant remains.	Flot composed entirely of charcoal. Highly abundant charcoal. Dominated by oak, with a little hazel roundwood.	D	B
18	1123	1122	Ditch Fill	6L	1	10ml	100%	****		*				5		Small flot, consisting almost entirely of cereal grain; mixture of barley and wheat, with one cf rye. Occasional sunken grains. One seed *Tripleurospermum*.	Very little charcoal present.	B/C	D

Area 2 West

Sample no.	Context no.	Cut no.	Feature type	Floated volume	Flot box no.	Flot vol	% scanned	Grain	Legume	Seed	Chaff	Fruit/nut	Flot charcoal >4mm	Flot charcoal 2-4mm	Molluscs	Comments charred plant remains	Comments charcoal	Potential CPR	Potential charcoal
Phase 5																			
2004	2046	**2050**	Corn-drying oven	10L	2	5ml	100 %	**		**	**** *					Very small flot, mostly composed of spelt glume bases, often fragmentary. Occasional cereal grains and weed seeds, mostly medium Poaceae and *Rumex*. Around a dozen detached coleoptiles, broken but up to 4mm length.	No charcoal of identifiable size.	C	D
2005	2046	**2050**	Corn-drying oven	7L	2	2ml	100 %	**						7		Very small flot, containing a small number of poorly preserved cereal grains.	Almost no charcoal present.	D	D
2006	2046	**2050**	Corn-drying oven	15L	2	200ml	25%	**** *		***	**** *		21	50		Abundant cereal grain, wheat and barley plus lesser quantities rye and oat (and Brome). Significant proportion of all grain types show evidence of having sprouted. Highly abundant spelt glume bases and spikelet forks. Frequent broken fragments of detached coleoptile. Moderate number of seeds, mostly Poaceae and *Rumex*.	Mostly oak.	A	B

Sample no.	Context no.	Cut no.	Feature type	Floated volume	Flot box no.	Flot vol	% scanned	Grain	Legume	Seed	Chaff	Fruit/nut	Flot charcoal >4mm	Flot charcoal 2-4mm	Molluscs	Comments charred plant remains	Comments charcoal	Potential CPR	Potential charcoal
2007	2047	**2050**	Corn-drying oven	7L	2	10ml	100 %	**		*	****					Small flot, mostly composed of spelt glume bases, often fragmentary. Occasional cereals. Rare weed seeds, grasses and dock. Occasional fragments of detached coleoptile.	No charcoal of identifiable size.	C	D
2008	2048	**2050**	Corn-drying oven	7L	2	15ml	100 %	****		**	****					Much of flot composed of spelt glume bases, often fragmentary. Moderate quantity cereal grain, many quite poorly preserved. Occasional detached coleoptiles. Occasional weed seeds.	No charcoal of identifiable size.	B	D
Phase 5/6																			
2003	2013	**2085**	Ditch Fill		2	80ml	80%	****		***	****	*	5	5		Abundant cereal grain, preservation mixed; mostly wheat with some barley. Rare oat. Abundant spelt glume bases, although often damaged. Moderate number weed seeds, including *Rumex, Tripleurospermum, Anthemis cotula* and *Poaceae*. Rare detached embryos and coloeptiles. Fragment hazelnut shell.	Very little charcoal present.	B	D

Sample no.	Context no.	Cut no.	Feature type	Floated volume	Flot box no.	Flot vol	% scanned	Grain	Legume	Seed	Chaff	Fruit/nut	Flot charcoal >4mm	Flot charcoal 2-4mm	Molluscs	Comments charred plant remains	Comments charcoal	Potential CPR	Potential charcoal
Phase 6																			
2010	2079	**2081**	Corn-drying oven 2039	30L	2	20ml	100 %	***	*	**	**					Small flot, predominately composed of cereal grain. Preservation mixed with many indet, but where identifiable are mix of wheat and barley. The barley grains show better preservation, while several of the wheat grains have clearly sprouted with dorsal grooves. Occasional oat grain. Rare glume bases and occasional cereal grains, including *Fallopia, Tripleurspermum/Anthemis* type*, Rumex* and Poaceae. Single detached coleoptile noted.	No charcoal of identifiable size.	B/C	D
2019	2161	**2081**	Corn-drying oven 2039	10L	2	15ml	100 %	***		***	**** *					Small flot, much composed of cereal grain. Preservation often fairly poor but most identifiable to genus, with mix of wheat and barley. Frequent glume bases, occasional barley rachis and frequent oat awn. Frequent weed seeds, mostly *Anthemis cotula,*	No charcoal of identifiable size.	B	D

Sample no.	Context no.	Cut no.	Feature type	Floated volume	Flot box no.	Flot vol	% scanned	Grain	Legume	Seed	Chaff	Fruit/nut	Flot charcoal >4mm	Flot charcoal 2-4mm	Molluscs	Comments charred plant remains	Comments charcoal	Potential CPR	Potential charcoal
																Poaceae and *Rumex*. Occasional detached coleoptile and embryos.			
2020	2189	**2081**	Corn-drying oven 2039	0.5 L	2	2ml	100 %	**		**	**					Small number of cereal grains, wheat and oat. Occasional spelt glume bases and occasional weed seeds including *Anthemis cotula,* Poaceae and *Carex*.	No charcoal of identifiable size.	C	D
2021	2190	**2081**	Corn-drying oven 2039	3L	2	10ml	100 %	***		***	***		12	20		Moderate number of cereal grains, including wheat, barley and oat. Numerous weed seeds including Cyperaceae, *Rumex, Anthemis cotula* and *Persicaria*. Occasional chaff: spelt glume bases and barley rachis.	Charcoal in low quantity	C	C
2022	2148	**2146**	Floor	8L	2	15ml	100 %	****		**	**** *			7		Cereal grain common, mostly wheat. Highly abundant spelt glume bases. Detached coleoptiles common. Occasional weed seeds,	Charcoal present in low quantity and of small size.	A	D

Sample no.	Context no.	Cut no.	Feature type	Floated volume	Flot box no.	Flot vol	% scanned	Grain	Legume	Seed	Chaff	Fruit/nut	Flot charcoal >4mm	Flot charcoal 2-4mm	Molluscs	Comments charred plant remains	Comments charcoal	Potential CPR	Potential charcoal
																mostly *Rumex* and large grasses.			
2028	2254	**2204**	Pit 2129	32L	2	200ml	50%	*****		**	****					Abundant cereal grain, dominated by wheat; oat common and occasional barley. None of the grain shows clear sign of germination. Frequent spelt glume bases. Occasional weed seeds, mostly *Rumex* and Poaceae. Rare detached coleoptiles.	No charcoal of identifiable size.	A/B	D
2033	2254	**2204**	Pit 2129	40L	2	250ml	25%	*****		****	****		16	50		Highly abundant cereal grain. Preservation mixed. Dominated by wheat, oat and brome also very common, barley less frequent. No clear sign of germination. Frequent spelt chaff and frequent weed seeds, mostly dock. Rare detached coleoptiles.	Charcoal present, although mostly of small size; mix of oak and alder/hazel, not yet confirmed but probably at least some is alder.	A	B/C

Sample no.	Context no.	Cut no.	Feature type	Floated volume	Flot box no.	Flot vol	% scanned	Grain	Legume	Seed	Chaff	Fruit/nut	Flot charcoal >4mm	Flot charcoal 2-4mm	Molluscs	Comments charred plant remains	Comments charcoal	Potential CPR	Potential charcoal
2035	2176	**2150**	Pit 2129	8L	2	15ml	100 %	***		**	***					Very similar material to that seen in context 2254, but a much smaller flot.	No charcoal of identifiable size.	C	D
2040	2327	**2323**	Corn-drying oven 2323	8L	2	100ml	25%	****		**	*****		10	50		Frequent cereal grain, mostly wheat, no sign of germination. Also frequent oat/brome. Abundant spelt chaff, occasional weed seeds, mostly dock.	Charcoal present, although mostly of small size; all examined pieces oak.	A/B	B
2044	2379	**2378**	Corn-drying oven 2130	10L	2	35ml	100 %	****		***	***			23		Frequent cereal grain, preservation fairly poor and grain often fragmented, but much can be identified as wheat. Frequent weed seeds, mostly dock and grasses. Glume bases common, but many fragmentary.	Little charcoal of identifiable size, all of these included in assessment . All oak.	B/C	C
2045	2379	**2378**	Corn-drying oven 2130	8L	2	5ml	100 %	****					3	21		Flot small, but predominately composed of cereal grain: mostly wheat, with rare barley.	All potentially identifiable pieces examined, mostly oak with rare hazel.	B/C	C

Sample no.	Context no.	Cut no.	Feature type	Floated volume	Flot box no.	Flot vol	% scanned	Grain	Legume	Seed	Chaff	Fruit/nut	Flot charcoal >4mm	Flot charcoal 2-4mm	Molluscs	Comments charred plant remains	Comments charcoal	Potential CPR	Potential charcoal
2046	2379	**2378**	Corn-drying oven 2130	10L	2	30ml	100 %	****		***	***			8		Frequent cereal grain, often poorly preserved and fragmentary. Predominately wheat with occasional barley; occasional germinated wheat grains. Numerous weed seeds, mostly dock, and spelt glume bases quite frequent.	Little charcoal of identifiable size.	B/C	D
Unphased																			
2043	2337	**2336**	Fire pit	35L	2	1600ml	10%	*****			**		500	5000		Frequent well preserved wheat grain. Rare spelt glume bases.	Highly abundant charcoal, mix of oak and ash.	B	B

Area 2 East

Sample no.	Context no.	Cut no.	Feature type	Floated volume	Flot box no.	Flot volume	% scanned	Grain	Legume	Seed	Chaff	Fruit/nut	Flot charcoal >4mm	Flot charcoal 2-4mm	Molluscs	Comments charred plant remains	Comments charcoal	Potential CPR	Potential charcoal
Phase 5/6																			
20006	20525	20544	Culvert fill	30L	2	10ml	100%	*		*			1	1		Two cereal grains, including one cf barley, and two small grass seeds.	Almost no charcoal of identifiable size.	D	D
Phase 6																			
20000	20109	20111	Ditch Fill	34L	2	300ml	50%	*		*			200	2000		Two cereal grains and one seed capsule *Raphanus raphanistrum*	Abundant charcoal, but much is vitrified (or else has almost anthracite like texture) and is not identifiable. Probably not suitable for further work.	D	C/D
20002	20312	20310	Ditch Fill	35L	2	50ml	100%	**		*			54	300		Small number of poorly preserved cereal grains. One oat grain and one *Carex* seed.	Frequent charcoal, mix of oak, hazel, *Prunus* (including probable blackthorn) and hawthorn type.	D	B
Unphased																			
20001	20163	20162	Ditch Fill	35L	2	20ml	100%	**					11	29		Small number of cereal grains. 2 cf fruits - possible sloes? Several tubers onion couch grass. Occasional spelt glume bases. Occasional seeds, including *Tripleurospermum, Fallopia*, Poaceae.	Small quantity of charcoal; all examined pieces willow/poplar.	C	B

Area 4

Sample no.	Context no.	Cut no.	Feature type	Floated volume	Flot box no.	Flot volume	% scanned	Grain	Legume	Seed	Chaff	Fruit/nut	Flot charcoal >4mm	Flot charcoal 2-4mm	Molluscs	Comments charred plant remains	Comments charcoal	Potential CPR	Potential charcoal
Unphased																			
4002	4223	4224	Fire pit	40L	2	600ml	50%						300	3000		Flot entirely composed of charcoal; no charred plant remains.	Abundant charcoal, mix of oak, ash, hazel, blackthorn/cherry, and a diffuse porous taxon to be checked further, possibly lime.	D	B

Area 5

Sample no.	Context no.	Cut no.	Feature type	Floated volume	Flot box no.	Flot vol	% scanned	Grain	Legume	Seed	Chaff	Fruit/nut	Flot charcoal >4mm	Flot charcoal 2-4mm	Molluscs	Comments charred plant remains	Comments charcoal	Potential CPR	Potential charcoal
Phase 4																			
5000	5065	5064	Pit/Hearth	5L	2	40ml	100%						44	300		No charred plant remains.	Charcoal heavily mineral encrusted, some items could not be identified. Mostly a mixture of oak and ash.	D	B
5001	5075	5071	Ditch fill	16L	2	10ml	100%	*					6	50		Charred plant remains limited to 3 poorly preserved wheat grains.	Some charcoal of identifiable size. Dominated by oak, with a little blackthorn/cherry and probable hazel.	D	C
5002	5163	5212	Ditch fill	8L	2	2ml	100%	*		*						Very small flot. Rare indet cereal grains, one seed each of *Eleocharis* and *Galium*.	Charcoal flecks only.	D	D
5003	5323	5292	Ditch fill	20L	2	20ml	100%	*		*	*		3	6		Rare, poorly preserved cereal grain. Occasional weed seeds. Rare chaff, including piece of barley rachis.	Little charcoal of identifiable size.	D	D
5004	5401	5400	Ditch fill	8L	2	5ml	100%									No charred plant remains.	No charcoal of identifiable size	D	D
5005	5403	5402	Ditch fill	10L	2	5ml	100%			*						Small flot, mostly modern root. One charred seed *Eleocharis* and one *Rumex*	No charcoal of identifiable size	D	D

Watching brief

Sample no.	Context no.	Cut no.	Feature type	Floated volume	Flot box no.	Flot volume	% scanned	Grain	Legume	Seed	Chaff	Fruit/nut	Flot charcoal >4mm	Flot charcoal 2-4mm	Molluscs	Comments charred plant remains	Comments charcoal	Potential CPR	Potential Ccarcoal
6000	6006	6007	Cremation	4L	2	5ml	100%									Flot entirely composed of modern roots	No charcoal	D	D

Charcoal assessment results

Area	Sample no.	Context no .	Cut no.	Feature	Phase	Flot vol	Charcoal >4mm	Charcoal 4-2mm	Quercus	cf Quercus	Fraxinus	cf Fraxinus	Prunus cf spinosa	Prunus	cf Prunus	Corylus	cf Corylus	Corylus/Alnus	Acer	Pomoideae	cf Pomoideae	Salix/Populus	cf Salix/Populus	diffuse porous	indet	total examined
1	13	1040	1038	Pit Fill	Unph	350ml	300	500	8 (r)					2 (r)		1				2		2				15
1	14	1001		Rubbish layer	6	900ml	500	1000	10	1						2						2				15
1	15	1047	1045	Pit Fill	5	650ml	200	500	12 (r)							2						1				15
1	16	1037	1036	Pit Fill	Unph	1100 ml	500	5000	12	1						2 r										15
1	17	1092	1091	Hearth	6	40ml	23	47	3		2					10										15
1	19	1134	1170	Kiln/hearth	6	200ml	100	500						15												15
1	37	1431	1430	Pit Fill	5	200ml	300	300	9 (h)							2	1		1 r	2 (r)						15
1	38	1434	1433	Pit Fill	5	150ml	100	300	8		4					1				2						15
1	39	1438	1437	Pit Fill	5	450ml	300	1000	13 (r)							2 (r)										15
1	40	1436	1435	Pit Fill	5	20ml	36	50	11 (r)							1							2		1	15
1	41	1441	1440	Pit Fill	5	40ml	41	100	8 (r)		3											1	2	1		15
1	6001	1048		Pot fill	5	15ml	16	37	5							2						8				15
2W	2006	2046	2050	Corn-drying oven	5	200ml	21	50	14		1															15
2W	2033	2254	2204	Pit fill	6	250ml	16	50	8						1			6								15
2W	2040	2327	2323	Corn-drying oven	6	100ml	10	50	15																	15

2W	2043	2337	2336	Fire pit	Unph	1600ml	500	5000	8		4	2													14
2W	2044	2379	2378	Corn-drying oven	6	35ml		23	20																20
2W	2045	2379	2378	Corn-drying oven	6	5ml	3	21	18							1							1		20
2E	20000	20109	20111	Ditch Fill	6	300ml	200	2000	2	1				1							1		1	9	15
2E	20001	20163	20162	Ditch Fill	Unph	20ml	11	29														11	4			15
2E	20002	20312	20310	Ditch Fill	6	50ml	54	300	6				1	2 (r)		3	2			1						15
4	4002	4223	4224	Fire pit	Unph	600ml	300	3000	4		1			1		2				1				5	1	15
5	5000	5065	5064	Pit/Hearth	4	40ml	44	300	6		5													1	3	15
5	5001	5075	5071	Ditch fill	4	10ml	6	50	10					3	1		1									15

r = roundwood, h = heartwood

APPENDIX C INSECT ASSESSMENT RESULTS

Insects and other invertebrate taxa noted during scanning the paraffin flots

Identification has not been pressed to species level in most cases and the list should be regarded as provisional. Ecological codes shown in square brackets for Coleoptera (beetles) and Hemiptera (bugs) are as follows: d – damp ground/waterside, l – wood/timber; oa – outdoor taxa (not found within buildings or accumulations of decomposing organic material), ob – probable outdoor taxa, p – plant-associated taxa, rd – dry decomposers, rf – foul decomposers, rt – eurytopic decomposers, sf – facultative synanthropes, u – uncoded, w – aquatics. Some taxa are uncoded pending closer identification. Nomenclature for Coleoptera follows Duff (2018)

ANNELIDA
Oligochaeta (earthworm) egg capsules

CRUSTACEA
CLADOCERA (water fleas)
Daphnia sp. ephippia
OSTRACODA
Ostracoda sp.

INSECTA
DERMAPTERA (earwigs)
Dermaptera sp.
HEMIPTERA (bugs)
Heteroptera
Coreus marginatus (Linnaeus) [oa-p]
Pentatomoidea sp(p).
Lygaeidae spp. [oa-p]
Homoptera
Auchenorhyncha spp. [oa-p]

COLEOPTERA (beetles)
Carabidae (ground beetles)
Calathus fuscipes (Goeze) [oa]
Carabidae spp. and sp. indet.[ob]
Helophoridae (grooved water scavengers)
Helophorus spp. [oa-w]
Hydrophilidae (water scavengers and allies)
Hydrobius fuscipes (Linnaeus) [oa-w]
Cercyon spp. [u]
Megasternum concinnum (Marsham) agg. [rt-sf]
Histeridae (clown beetles)
Onthophilus striatus (Forster) [rt-sf]
Histerinae sp. [rt]
Hydraenidae (moss water beetles)
Limnebius sp [oa-w]
Ochthebius cf *minimus* (Fabricius) [oa-w]
Silphidae (carrion beetles)
Silphidae sp(p). [u]

Staphylinidae (rove beetles)
Lesteva longoelytrata (Goeze) [oa-d]
Tachinus spp. [u]
Mycetoporus sp. [u]
Aleochariinae spp. [u]
Platystethus cornutus group [oa-d]
Platystethus nitens (Sahlberg) [oa-d]
Anotylus spp. [rt]
Staphylininae spp. [u]
Geotrupidae (dor beetles)
Geotrupinae sp. [oa-rf]
Scarabaeidae (dung beetles and chafers)
Aphodiinae spp. [ob-rf]
Onthophagus sp. [oa-rf]
Byrrhidae (pill beetles)
?*Byrrhus* sp. [oa]
Elateridae (click beetles)
Elateridae spp. [ob]
Latridiidae (minute brown scavenger beetles)
Enicmus sp. [rd-sf]
Chrysomelidae (seed and leaf beetles)
Prasocuris phellandrii (Linnaeus) [oa-p-d]
Longitarsus sp. [oa-p]
Phyllotreta sp(p). [oa-p]
Alticini sp. [oa-p]
Apionidae
Apionidae spp. [oa-p]
Curculionidae (weevils)
Mecinus pyraster (Herbst) [oa-p]
Ceutorhynchinae spp. [oa-p]
Scolytinae sp. [l]]
Curculionidae spp. [oa-p]
Coleoptera spp. and sp. indet. [u]
DIPTERA (flies)
Diptera sp. puparia

HYMENOPTERA
Formicidae sp. (ants)

Insecta spp. larval fragments

ARACHNIDA
Acarina spp. (mites)

APPENDIX D RISK LOG

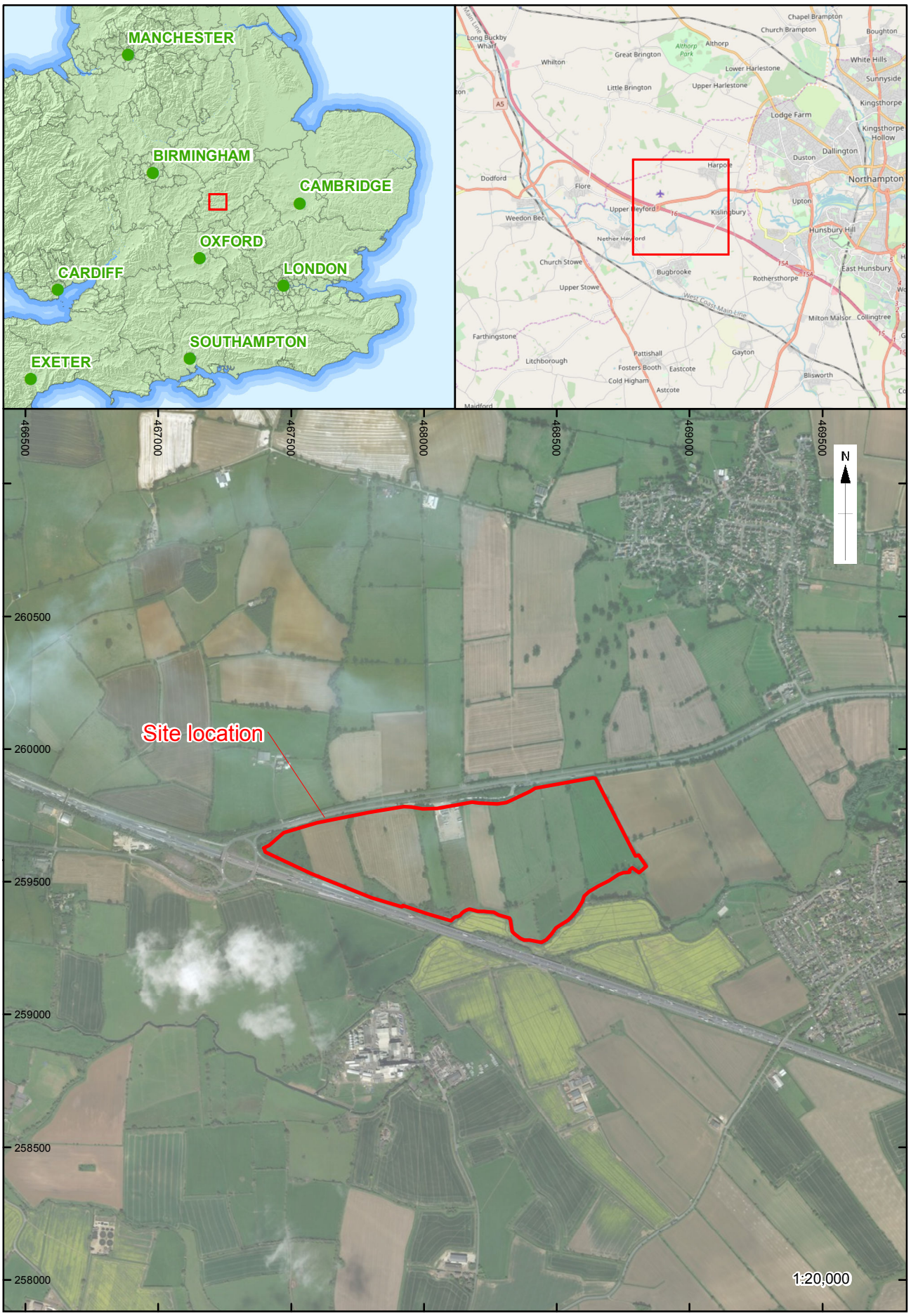
D.1.1 The table below lists potential risks for the PX analysis work.

No.	Description	Probability	Impact	Countermeasures	Estimated time/costs	Owner	Date updated
1	Specialists unable to deliver analysis report due to over running work programmes/ ill health/other problems	Medium	Variable	OA has access to a large pool of specialist knowledge (internal and external) which can be used if necessary	Variable		
2	Non-delivery of full report due to field work pressures/ management pressure on co-authors	Medium	Medium-high	Liaise with OA management team	Variable		

APPENDIX E HEALTH AND SAFETY

E.1.1 All OA post-excavation work will be carried out under relevant Health and Safety legislation, including the Health and Safety at Work Act (1974). A copy of the Health and Safety Policy can be supplied. The nature of the work means that the requirements of the following legislation are particularly relevant:

- Workplace (Health, Safety and Welfare) Regulations 1992 – offices and finds processing areas
- Manual Handling Operations Regulations (1992) – transport: bulk finds and samples
- Health and Safety (Display Screen Equipment) Regulations (1992) – use of computers for word-processing and database work
- COSSH (1988) – finds conservation and environmental processing/analysis



X:\m\M1DEX_M1dway_M1_Junction_16_Northants\010Geomatics\03 GIS Projects\M1DEX_Figure 1_2017-11-14.mxd*benjamin.brown*04/06/2019

Figure 1: Site location

Survey Data supplied by :
Oxford Archaeology

0 100 m

Scale at A3 1:2000

Figure 2: Plan of the excavation areas

X:\m\M1DEX_M1dway_M1_Junction_16_Northants\010Geomatics\02 CAD\M1DEX_M1_Junction_16_Master_2019-09-10.dwg(Figure 3 - 2019)*-*M1DEX* M1 J16*MB* 10 Sep 2019

N

85.1m

Aisled building

403

453

241

1492

1501

606

1486

1464

827

603

961

960

890

1245

1387/1390

1469/1492

1296

339

Building 1320

1297

1165

1306

1041

Limit of excavation

Archaeological feature

Archaeological intervention

Building

Furrow

Phase key

Phase 4 - Late Iron Age - early Roman 1

Phase 4 - Late Iron Age - early Roman 2

Phase 5 - Middle Roman

Phase 5/6 - Middle-Late Roman

Phase 6 - Late Roman

Phase 7 - Modern

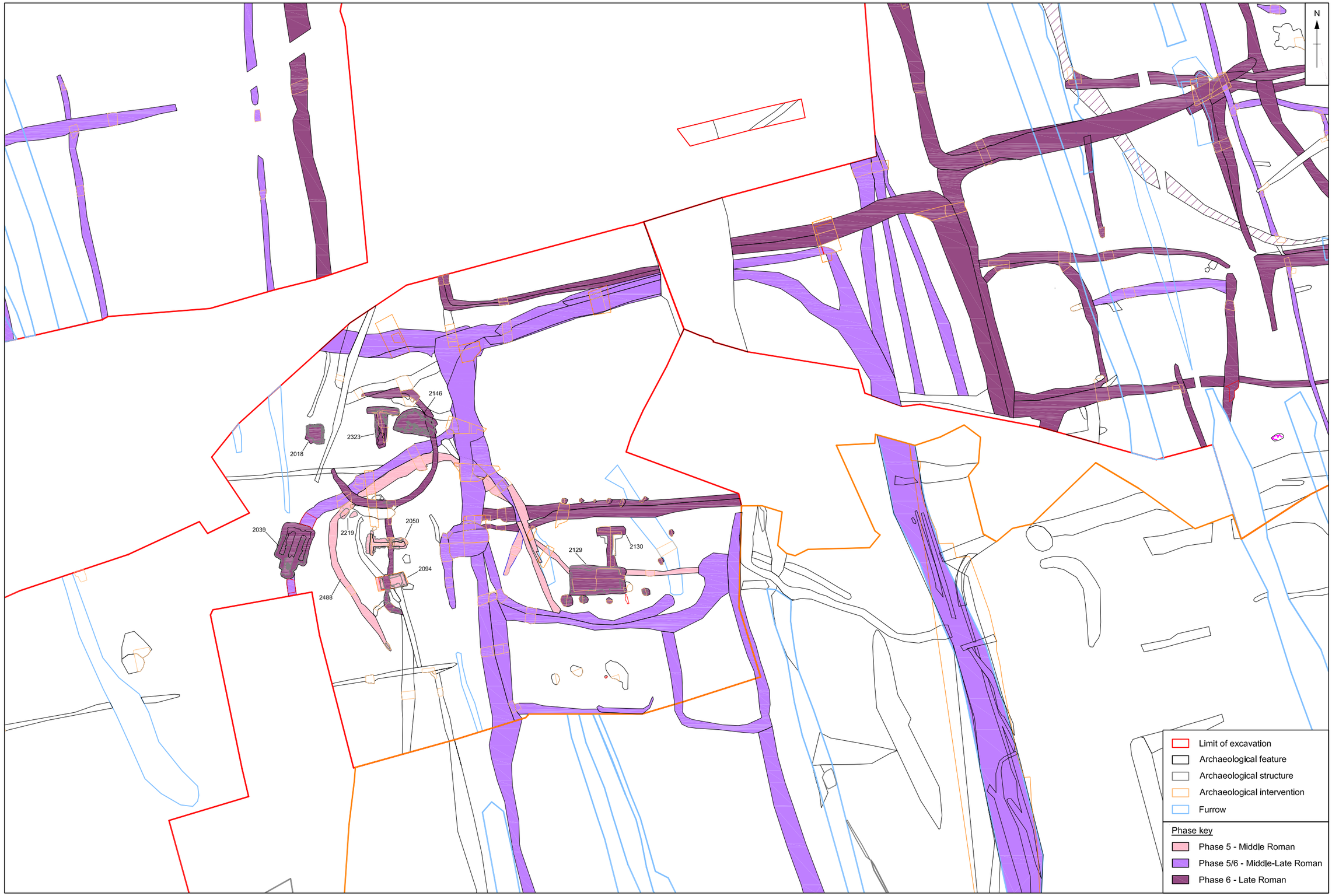
CHECKED BY:

0

50 m

Scale at A3 1:750

Figure 3: Plan of Area 1



X:\m\M1DEX_M1dway_M1_Junction_16_Northants\010Geomatics\02 CAD\M1DEX_M1_Junction_16_Master_2019-02-19.dwg(Figure 4 - 2019)* "M1DEX" M1 J16 "MB" 20 Mar 2019

Figure 4: Plan of Area 2 West

X:\m\M1DEX_M1dway_M1_Junction_16_Northants\010Geomatics\02 CAD\M1DEX_M1_Junction_16_Master_2019-02-19.dwg(Figure 5 - 2019)*-*M1DEX* M1 J16*benjamin.brown* 20 Mar 2019

N

20357
20352
20354
20351
20586
20350
20365
20035
20045
20002
20358
20395
20573

Limit of excavation
Archaeological feature
Archaeological structure
Archaeological intervention
Furrow

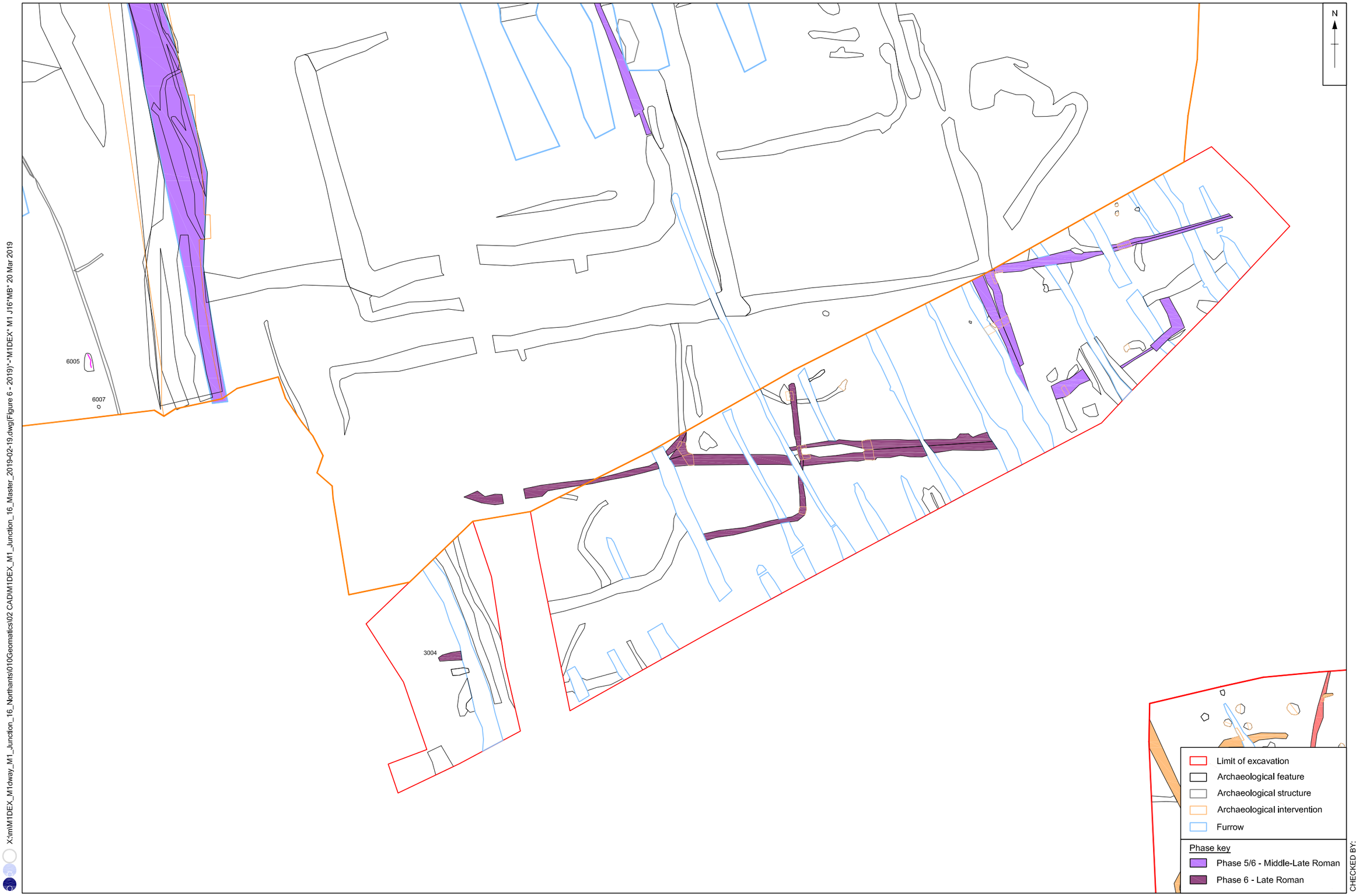
Phase key
Phase 5/6 - Middle-Late Roman
Phase 6 - Late Roman curvilinear enclosure
Phase 6 - Late Roman

CHECKED BY:

0 20 m

Scale at A3 1:400

Figure 5: Plan of Area 2 East



0 20 m

Scale at A3 1:400

Figure 6: Plan of Area 3

Figure 7: Plan of Area 4

Figure 8: Plan of Area 5

Plate 1: Middle Iron Age penannular ditch 4392

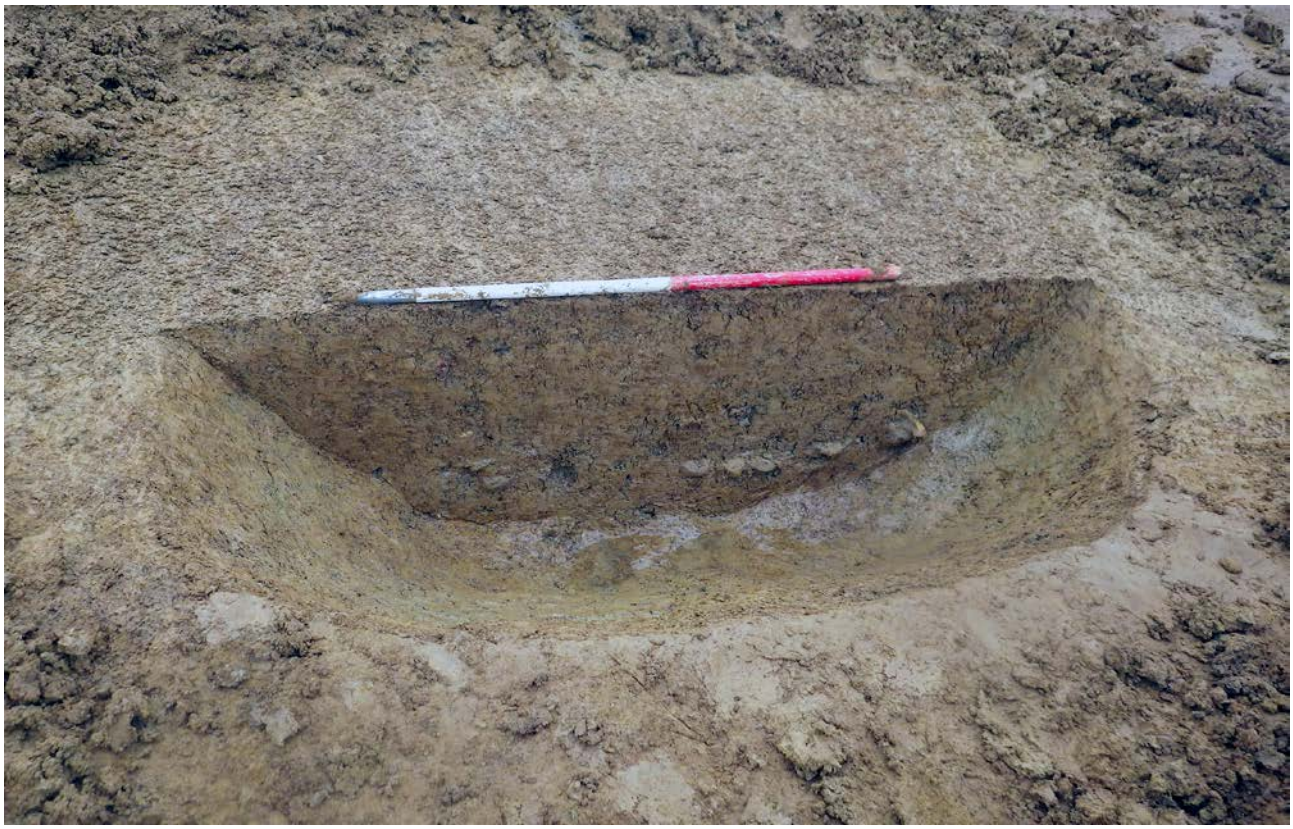


Plate 2: Pit 5150, part of the middle Iron Age pit alignment

Plate 3: Pit 5107, part of the middle Iron Age pit alignment

Plate 4: Partly articulated cattle burial in middle Roman pit 1041

Plate 5: Excavating Middle Roman corndrying oven 2050

Plate 6: Middle-late Roman drainage ditches 20358, 20365 and 20395

Plate 7: Stone-built culvert 20002

Plate 8: Building 1320, possibly a temple or mausoleum, viewed across the spring outwash channel, with cobbled surface 1165 in the foreground

Plate 9: Excavating a section across the outwash channel, with Building 1320 in the background

Plate 10: Late Roman corndrying oven 2039

Plate 11: Pottery within the stokehole of corndrying oven 2039

Plate 12: Late Roman stone-lined tank 2018

Plate 13: Recording late Roman stone-lined tank 2129

Plate 14: Late Roman paved threshing floor 2146

oxfordarchaeology

Head Office/Registered Office/ OA South

Janus House
Osney Mead
Oxford OX2 0ES

t: +44 (0) 1865 263 800
f: +44 (0) 1865 793 496
e: info@oxfordarchaeology.com
w: http://oxfordarchaeology.com

OA North

Mill 3
Moor Lane
Lancaster LA1 1QD

t: +44 (0) 1524 541 000
f: +44 (0) 1524 848 606
e: oanorth@oxfordarchaeology.com
w: http://oxfordarchaeology.com

OA East

15 Trafalgar Way
Bar Hill
Cambridgeshire
CB23 8SQ

t: +44 (0) 1223 850500
e: oaeast@oxfordarchaeology.com
w: http://oxfordarchaeology.com