Houghton Regis Flood Storage

Archaeological SMS Excavation Report

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Houghton Regis Flood Storage

Archaeological SMS Excavation Report

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Summary

Oxford Archaeology was commissioned by BAM Nuttall to undertake an archaeological strip, map, and sample excavation on the site of flood storage area to the east of Houghton Regis, Central Bedfordshire.

The archaeological works comprised the monitoring of the topsoil and subsoil stripping of the footprint for embankments and the realignment of Houghton Brook.

The excavation recorded a silted-up shallow pond or former marshy depression in the north-east part of the site, adjacent to the Houghton Brook. Two residual late Neolithic/Early Bronze Age flint flakes and Iron Age pottery were recovered from its surface. The feature was levelled in the post-medieval or modern period with a chalk deposit, used to reclaim the area for agricultural purposes.

The flint artefacts were in poor condition, although indicate limited flake production activities in the vicinity. The Iron Age pottery adds to the body of evidence for a late Iron Age and Roman rural landscape in the surrounding area, characterised by small farmsteads.

Acknowledgements

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The project was managed for Oxford Archaeology by Stuart Foreman. The fieldwork was directed by Paul Murray. Survey was carried out by Conan Parsons. Digitising was carried out by Matthew Bradley and Magdalena Wachnik. Thanks are also extended to the teams of OA staff who cleaned and packaged the finds under the supervision of Leigh Allen, processed the environmental remains under the supervision of Rebecca Nicholson, and prepared the archive under the supervision of Nicola Scott.

1 INTRODUCTION

1.1 Background

1.1.1 Oxford Archaeology (OA) was commissioned by BAM Nuttall, on behalf of Environment Agency, to conduct a strip, map and sample (SMS) excavation of the site of a proposed flood storage area (FSA), to the east of Houghton Regis, Central Bedfordshire.

1.1.2 The FSA site comprises the south-eastern part of the wider Houghton Regis North housing development. The latter has been subject to extensive archaeological assessment to inform an environmental statement, including desk-based assessment, geophysical survey and trial trenching (Albion Archaeology 2012). Some mitigation works have also been completed on a new link road and flood storage areas, which are located in the vicinity of the proposed FSA.

1.1.3 Although the local planning authority did not set a brief for this phase of work, discussions with Central Bedfordshire Council Archaeology Team (CBCA), have established the general scope of work required. Oxford Archaeology produced a Heritage Project Design (OA 2020) setting out those requirements. This document outlines how OA implemented those requirements.

1.1.4 All work will be undertaken in accordance with the National Planning Policy Framework (MHCLG 2012).

1.2 Location, geology and topography

1.2.1 The site lies to the east of Houghton Regis in Central Bedfordshire (National Grid Reference: TL04132438; Postcode: LU4 0UR). The development lies on the west side of the M1 Motorway and to the north of Kestrel Way, Luton, and forms the south-eastern corner of the wider Houghton Regis North housing development. The historic centre of Houghton Regis village lies 2.5km to the west. Dunstable town centre lies 3.5km to the south-west and Luton town centre lies 4.5km to the south-east.

1.2.2 The area of proposed development consists of a large arable field with hedgerow boundaries to the south along Kestrel Way and to the east alongside the M1 (Fig. 1). The land is relatively flat at 120-125m OD.

1.2.3 The Houghton Brook (a tributary of the River Lea) crosses the site from north-west to south-east. To the north are newly developed link roads and flood storage areas. The purpose of the latter is to relieve downstream flooding where the Houghton Brook feeds into the source of the River Lea, c 2km to the east.

1.2.4 The site lies on a chalk plateau c 2km north-west of the escarpment of the Chiltern Hills. The bedrock geology of the area is mapped as Zig Zag Chalk Formation, a sedimentary bedrock formed c 94 to 101 million years ago in the Cretaceous Period, in a local environment previously dominated by warm chalk seas.

1.2.5 Superficial deposits (formed up to 2 million years ago in the Quaternary) include alluvium infilling the valley of the Houghton Brook, adjacent to the M1. To the west the stream valley is primarily infilled with Head deposits (clay, silt, sand and gravel), which extend over most of the FSA site (BGS 2018).

1.2.6 The soils are freely draining and lime rich (Cranfield Soil and Agrifood Institute 2018).

1.3 Archaeological and historical background

1.3.1 The archaeological and historical background of the wider Houghton Regis North development has been described in detail in a report by Albion Archaeology (2012). The results are summarised below, as far as the evidence is relevant to the FSA site. The FSA embankment, compound and access road is located within Archaeological Character Areas (ACA) 16, 17, 18 and 19, as defined and mapped in the evaluation report (Albion Archaeology 2012), which forms the south-east corner of the wider development.

1.4 Desk-based assessment (DBA)

1.4.1 The desk-based assessment completed by Albion Archaeology for the Houghton Regis North development showed that the FSA site lies in an area of archaeological remains dating from the prehistoric to post-medieval periods (Albion Archaeology 2012). The DBA covered a study area which included a 500m radius around the boundary, and was completed in accordance with the Chartered Institute for Archaeologists' guidance for desk-based assessment (CIfA 2014), and Central Bedfordshire Council's general guidance for the preparation of archaeological desk-based assessments (CBC 2012). The DBA included consideration of Central Bedfordshire Heritage Environment Record (CBHER), the National Heritage List for England (NHLE), Portable Antiquity Scheme (PAS) data and historic map evidence.

1.4.2 The DBA highlighted various previous fieldwalking projects, geophysical surveys and trial trenching undertaken for the A5-M1 Link Road evaluation works, which overlap with the FSA site. These identified a series of mostly Late Iron Age to Roman settlement sites within the study area.

Undated features

1.4.3 Several areas of undated linear and sub-rectangular cropmarks identified from aerial photographs were identified within the wider study area, including HER 16595, which lies just to the east of the M1 motorway close to the FSA site (Albion Archaeology 2012).

Mesolithic – Bronze Age (c 10000BC – 700BC)

1.4.4 Evidence for early prehistoric remains within the study area was generally sparse and mainly consisted of plough-soil flint scatters found in fieldwalking in the area to the north of Houghton Regis, not in close proximity to the FSA site (Albion Archaeology 2012). A Neolithic and Bronze Age flint scatter (HER 17758) was identified 600m to the south-east of the site at Lewsey Farm.

1.4.5 In the slightly wider area the source of the River Lea is usually considered to be a wellhead at Waulud's Bank (HER 820), a possible Neolithic henge in Leagrave in Luton, which is a scheduled monument located c 2km to the east of the FSA site. Excavations at this site in 1953, 1971 and 1982 indicated a Neolithic date for the enclosure (c 3000BC), with some indications of earlier Mesolithic activity preceding it. It may have been a domestic site originally and later employed as a henge. In addition to the

Neolithic evidence, finds of Iron Age, Roman and Medieval date have been found at this important site.

1.4.6 The DBA highlighted the strategic location of the development in proximity to important ancient long-distance communication routes. The FSA site lies c 1.3km south of the 'Theedway' (Thiodweg in Old English) and c 2km north of the Icknield Way, a ridgeway following the escarpment of the Chiltern Hills. Both are long distance routes with prehistoric origins.

1.4.7 Linear cropmarks and Iron Age pottery scatters suggest the presence of Iron Age settlement sites along the line of the Ouzel Brook, the closest c 2.5 km north-west of the site. Iron Age settlement evidence was found at Chalton Cross Farm during widening of the M1 Motorway, 2.4km north of the FSA (Albion Archaeology 2012).

Iron Age-Roman period (700BC – AD43)

1.4.8 The Theedway and Icknield Way continued in use as long distance routes in the late Iron Age and Roman period. Dunstable (Roman name *Durocobrivis*), located 3.5km to the south-west, originated as a Roman roadside settlement which developed at the junction of the Icknield Way with Watling Street.

1.4.9 A number of Roman settlements have been identified in the Houghton Regis area by fieldwalking, including two along the line of the Ouzel Brook. The artefacts recovered from the ploughsoil at these site included concentrations of late Roman pottery, tile and building stone. Of these the closest to the FSA site is HER 15501 (800 m to the north-west). HER 1453 (2.8 km to the north-west) was excavated in the 1980s and interpreted as a small temple (Albion Archaeology 2012).

Anglo-Saxon period

1.4.10 The 'Theedway' continued to be an important long distance communication route during the Anglo-Saxon period, referred to in the Chalgrave Charter of AD 926 and incorporated into various parish boundaries.

1.4.11 The River Lea, whose source lay 2km to the east of the site, formed the boundary between the Danelaw and Anglo-Saxon kingdoms in AD 894.

1.4.12 Archaeological settlement evidence of this period is very limited. Only metal-detector finds are recorded within the wider Houghton Regis North study area, the closest to the site being a gilt copper alloy mount of probable 6th-century date and a copper alloy harness junction of late Saxon date (HER 19025), located c 1.8km to the north-west (Albion Archaeology 2012).

1.5 Cartographic evidence

1.5.1 The FSA site lies within the parish of Chalton (the centre of which lies 2km to the north). Up until the 20th century Chalton was a hamlet within Toddington parish. The historic map evidence indicates that in the medieval and post-medieval period the site would have been open fields associated with Chalton, lying close to the southern and western boundaries of Toddington parish. The boundary between Toddington and Houghton Regis lay along the Ouzel Brook, c 400m west of the FSA site (Albion Archaeology 2012).

1.5.2 Toddington was enclosed in 1797. The fields prior that date were subdivided into numerous small elongated strips ('lands') grouped into larger furlongs, which turn were grouped into fields. This arrangement is typical of medieval and post-medieval open field agriculture. The geophysical survey and trial trenching revealed surviving traces of cultivation furrows. Enclosure maps show the major reorganization of the landscape involved in this process. The fields were amalgamated into much larger rectangular fields divided by hedges and drainage ditches.

1.6 Historic hedgerows

1.6.1 Some of the pre-1845 hedges within the Houghton Regis North study area survive to the present and are therefore hedgerows of historic importance, protected under the Hedgerows Regulations 1997 (Albion Archaeology 2012). The only protected historic hedgerow in the vicinity of the FSA site runs north from Kestrel Way, alongside Pastures Way, c 400m west of the FSA. It is not affected by the development.

1.7 Geophysical survey

1.7.1 A geophysical survey was carried out throughout the Houghton Regis North development area in 2012, comprising a detailed magnetometer survey (Albion Archaeology 2012). A number of archaeological sites were identified during the survey. In the immediate vicinity of the proposed FSA site these included a well-defined set of settlement enclosures in ACA20, which is located 200m west of the FSA embankment.

1.7.2 An appraisal of the reliability of the geophysical survey, in light of the subsequent trial trenching (see following section), concluded that it was generally successful in identifying the more intensive areas of activity, in particular Iron Age to Roman farmstead sites. The latter contain substantial concentrations of artefacts and infilled ditches which are particularly susceptible to magnetometer survey. There was one exception where a settlement site was not detected by the geophysical survey, which was explained by clay geology obscuring features. A few false positive archaeological features occurred where geological features or plough furrows were interpreted as archaeology.

1.7.3 As is often the case the survey was much less successful at detecting small discrete features such as pits and postholes. Some periods and types of archaeology are characterised by discrete features and are consequently likely to be under-represented in the survey and trenching results. Human burials fall into this category.

1.8 Evaluation trenching

1.8.1 Trial trenching was also undertaken by Albion Archaeology in 2012 in relation to the wider Houghton Regis North Development. The work was completed in accordance with a written scheme of investigation (WSI) agreed with the CBCA, and with relevant local and national standards and guidance, as detailed in the evaluation report (Albion Archaeology 2012). The 50m long x 1.8m wide trenches were targeted to investigate features of archaeological potential identified by the previous surveys. Areas that appeared blank on the geophysical survey plot were also tested with trenches.

1.8.2 A total of 29 trenches were excavated within the Archaeological Character Areas comprising the FSA site, of which six trenches lay wholly or partly within the footprint

of the proposed embankment. One trench was located in ACA16, four in ACA17, nine in ACA18 and fifteen in ACA19. While no trenches were directly positioned over the temporary compound and access road, 3 trenches were located within 50m of it.

1.8.3 ACA16: The solitary trench in this area (176) lay 15 m west of the FSA embankment footprint. The topsoil/subsoil in this trench was stripped to an average depth of 0.4 - 0.6 m. The trench revealed a large irregular feature, possibly a former pond or marshy area. While no waterlogged deposits were reported the fill was a dark silty clay of alluvial origin, associated with the adjacent Houghton Brook. A single small sherd of late Bronze Age to early Iron Age pottery from the upper fill provides the only (very insecure) dating evidence for this feature.

1.8.4 ACA17: Four trenches were excavated in this area, of which Trenches 174-5 lay within the proposed embankment footprint, while Trenches 177-8 lay up to 100m to the west. The topsoil and subsoil ranged from 0.4 to 0.5 m deep on average. The earliest features encountered were two sets of cultivation furrows, presumed to be of medieval origin.

1.8.5 Post-medieval features included a possible field track indicated by a stony layer and ditch, found in Trench 174. The location of this feature matched a linear anomaly on the magnetometer survey plot. A second shallow ditch contained a stone-filled 'French Drain', which was dated by post-medieval tile fragments in the fill. A single fragment of Roman ceramic building material was recovered as a residual find from the same context. Two other undated boundary/drainage ditches were recorded in Trenches 174 and 175.

1.8.6 ACA18: Nine trenches were excavated in this area, of which Trenches 168 and 173 were located within 50m of the proposed temporary compound and access road. The topsoil and subsoil in this area ranged from 0.3 to 0.6 m deep on average. Alluvium associated with Houghton Brook was found in part of Trench 173.

1.8.7 The earliest archaeological features identified in ACA18 are two Roman tracks, defined by ditches, which were first identified by the magnetometer survey and confirmed and dated by the trenching (Trenches 146 and 166-68). The tracks lie broadly east-west and north-south and meet at a junction in the western part of ACA18. The N-S track appears to connect to an Iron Age and Roman farmstead in ACA20. The track junction, which has high potential for Roman finds including burials, is located 300m west of the proposed FSA embankment and is thus not affected by the development. However, one of the trackway flanking ditches was traced as far east as Trench 173, which lies adjacent to the proposed temporary compound and access road. An undated ditch in Trench 171 lies on a similar alignment to the north-south Roman track and may part of a contemporary field system.

1.8.8 The only other archaeological features in ACA18 were a series of medieval plough furrows, on a north-south alignment, which were recorded in Trench 173.

1.8.9 ACA19: Fifteen trenches were excavated in ACA19, of which four (Trenches 159-161) lay partly within the embankment footprint and one (164) lay within 50m of the temporary compound and access road. The topsoil and subsoil in this area ranged from 0.4 to 0.6m deep in total on average.

1.8.10 The earliest dated features comprised medieval cultivation furrows identified in Trenches 163 and 165. The only other features identified in this area were an undated ditch terminal in Trench 156 and two undated intercutting ditches in Trench 163.

1.8.11 ACA20: This area is the site of a late Iron Age and Roman farmstead, defined by ditched enclosures, which was first discovered by geophysical survey and subsequently dated and characterized by trenching. The site lies 200m west of the FSA embankment and will not be affected by groundworks for the development. This is the nearest identified ancient settlement focus to the development and peripheral associated features may be encountered in the SMS excavation areas.

SMS excavation

1.8.12 Previously completed SMS excavations have, to date, included a new link road and flood storage areas located immediately to the west and north of the present site. Reports on these are not available at the time of writing. While no focus of settlement was found, some mainly late prehistoric features were discovered, including posthole alignments and field systems. While these were not very dense, they showed that there is a greater level of activity between the known late prehistoric and Roman settlements than appears from the trenching or geophysical survey (Martin Oakes, CBCA, pers. comm.).

2 AIMS AND METHODOLOGY

2.1.1 The project sought to address relevant local and national archaeological research objectives, in particular as set out in the following documents:

- Bedfordshire Archaeology: Research and Archaeology Resource Assessment, Research Agenda and Strategy (Oake *et al.* 2007).
- Eastern Counties Research Framework, Resource Assessment (Glazebrook 1999) and Research and Archaeology: A Framework for the Eastern Counties 2. Research Agenda and Strategy (Brown and Glazebrook 2000; Medleycott 2011).

2.1.2 The archaeological objectives identified in Section 2.2 below are mainly concerned with the Iron Age/Romano-British and medieval/post-medieval remains identified in the baseline surveys. If unexpected remains emerge the objectives will be reviewed and updated, as necessary.

2.2 Specific aims and objectives

2.2.1 The specific aims and objectives of the SMS excavation were as follows:

2.3 To determine or confirm the general character and approximate date of any remains, by means of artefactual or other evidence.

2.4 Fieldwork methodology

2.4.1 Informed by the results of the geophysical survey and trial trenching the archaeological mitigation for the FSA area comprised an archaeological strip, map and sample (SMS) excavation of the footprint of the FSA embankment and Houghton Brook diversion. The groundworks footprint is shown on Figure 2.

2.4.2 The topsoil and any subsoil obscuring archaeological features were mechanically stripped and any archaeological remains present were surveyed to create an overall map of the features and their relationships. A sample of the archaeological features were hand excavated in order to establish the date, form and function of archaeological features identified and to put them into their spatial, chronological, functional and environmental context.

3 RESULTS

3.1 Introduction and presentation of result

3.1.1 The results of the SMS are presented below and include a stratigraphic description of the archaeological remains. The full details of all archaeological features with dimensions and depths of all deposits are tabulated in Appendix A. Finds and environmental data can be found in Appendix B.

3.2 General soils and ground conditions

3.2.1 The predominant geology comprised sandy gravels with occasional chalk patches becoming chalk to the south-west. At the north-eastern limit of the excavation (NE of Ditch 5), in the vicinity of Houghton Brook, the geology comprised light grey silts with irregular areas of sandy gravel.

3.2.2 The geological horizon was overlain by a former ploughsoil, which was generally 0.2m thick and only recorded to the south-west of Ditch 5, which in turn was overlain by the current ploughsoil.

3.2.3 Ground conditions throughout the excavation were generally good, and the site remained dry throughout. Archaeological features, where present, were easy to identify against the underlying geology.

3.3 Late Bronze Age - Early Iron Age

3.3.1 The Bronze Age/Early Iron Age was represented by two flint flakes and a small quantity of Iron Age pottery, recovered from the upper fill (4) of a probable former shallow pond or marshy area (9).

3.3.2 The exposed part of the pond measured c 46m NW-SE, 10m NE-SW and was 0.62m deep. Four deposits (4, 11, 12, 13) were recorded filling the pond (Fig. 3).

3.3.3 The lowest deposit (13), exposed within a hand-excavated section, comprised soft, mid grey brown silt, with occasional fine chalk particles and shell. This deposit was up to 0.2m thick, with an irregular contact with the overlying deposit (12). Deposit 12 comprised Loose, light grey silt with 30% fine chalk particles, 4% very small gravels and 2% shell. This was a thin (0.06m) undulating deposit which appeared to represent a low energy fluvial deposit. Overlying 12 was a thin deposit (11), 0.08m thick, comprising moderately compact, dark grey brown silty clay. The final silting of the pond (4) was a homogenous deposit 0.26m thick which comprised soft, mid grey silt with rare flints and chalk particles. The Late Bronze Age/Early Iron Age finds were recovered from the surface of this deposit. Deposit 4 was overlain by the plough-soil (1). Overlying the topsoil and confined to the area of the pond was a layer of re-deposited chalk (10). This deposit appeared to be placed to infill the depression created by the pond.

3.4 Post Medieval

3.4.1 A ditch (5), aligned NW-SE, was recorded towards the north-eastern limit of the excavation, c 3m to the southwest of the pond or marshy area (9).

3.4.2 The ditch was 2m wide and 0.6m deep and contained three fills (6, 7, 8). It had a slightly irregular profile, the north-eastern side being 45°, the south-western side 40°, and a flattish base.

3.4.3 The primary fill (6) comprised compact, dark brown silt, with occasional small flints, 0.18m thick. The secondary fill (7) comprised friable, dark grey brown silt with 2% small flints, 0.3m thick. The tertiary fill (8) comprised compact, mid-brown clay silt with 5% flints, 0.3m thick.

3.4.4 The secondary fill clearly tipped in from the south-western side of the feature, suggesting that a bank formed from the up-cast once lay on this side of the feature.

4 DISCUSSION

4.1 Reliability of field investigation

4.1.1 The excavation was conducted in clear and dry conditions. The archaeological features, where present, were clearly defined in contrast with the underlying geology.

4.2 Late Neolithic – Early Bronze Age

4.2.1 The Late Neolithic/Early Bronze Age period is represented by two flint flakes recovered from the surface of a silted-up shallow pond or marshy area. The closest Neolithic activity is represented by a flint scatter (HER 17758) recorded 600m to the South-east of the site at Lewsey Farm.

4.2.2 The flint artefacts may well be of the same date and would indicate limited flake production activities in the vicinity. Given that they are in such poor condition they are clearly redeposited with little indication of surviving lithic bearing sediment or potentially in situ material.

4.3 Iron Age

4.3.1 The Iron Age is represented by a small quantity of pottery, again recovered from the surface of the silted-up pond/marshy area.

4.3.2 Strip, map and sample excavations have been carried out on a new link road and flood storage area immediately to the west and north of the site. Reports on these are not currently available. While no settlement or other focus of activity was identified, some mainly late prehistoric features were recorded, including post-holes and field systems.

4.3.3 A Late Iron Age Roman farmstead, defined by ditched enclosures, first identified by geophysical survey and subsequently dated and characterised by trenching (Albion Archaeology 2012), is situated 200m west of the site.

4.3.4 The Iron Age pottery adds to the body of evidence for a predominantly late Iron Age and Roman rural landscape, characterised by small farmsteads.

4.4 The shallow pond/marshy area

4.4.1 This feature lies c 20m to the south of the Houghton Brook and was probably infilled in relatively recent times. A deposit of re-deposited chalk geology, which produced no dateable artefacts, had been placed within the feature, overlying a plough-soil. The feature could be an infilled natural marshy hollow, next to the brook, rather than a man-made pond. The small assemblage of worked flint and pottery sherds, recovered from the earlier fills of the feature, is too small to be considered reliable dating evidence, and is of mixed date.

4.4.2 The feature appears on the geophysical survey plot (Figure 2 of the Heritage Project Design; OA 2020). The survey key identifies the geophysical anomaly as ‘scattered magnetic debris’.

4.5 Post-medieval

4.5.1 A substantial ditch, aligned NW-SE, almost certainly represents a former drainage and flood defense feature. There was evidence for a bank on its south-west side and it was

filled with silty deposits. It was located 3m south-west of the pond/ marshy area, at its closest point. The alignment of the ditch suggests that it drained into the Houghton Brook to the north-west, although the relationship was not seen in this phase of the excavation.

4.5.2 The ditch divides the area of the pond/ marshy area recorded adjacent to Houghton Brook, from agricultural land to the south-west.

APPENDIX A CONTEXT INVENTORY

Context Inventory						
Context No.	**Type**	**Width (m)**	**Depth (m)**	**Description**	**Finds**	**Date**
1	Layer	-	0.3	Ploughsoil	-	-
2	Layer	-	0.32	Sub-soil	-	-
3	Layer	-	-	Geology	-	-
4	Fill	-	-	Upper fill of 9. Soft, mid grey silt. Final silting of pond.	Flint flake. Flint tool. Pottery.	-
5	Cut	2	0.6	Ditch aligned NW-SE	-	-
6	Fill			Primary fill of 5. Compact, dark brown silt, occasional small flints.	-	-
7	Fill			Secondary fill of 5. Friable, dark grey brown silt. 2% small flints	-	-
8				Tertiary fill of 5. Compact, mid brown clay silt, 5% flints. 0.3m.	Fe nail.	
9	Natural feature	46m (as seen)	0.5 (as seen)	Shallow pond or infilled natural marshy hollow.	-	-
10	Layer		0.35	Re-deposited chalk overlying topsoil (1). Dumped deposit in area of pond (9). Presumed to have been placed to reclaim the marshy area for agriculture.	-	-
11	Fill		0.1	Fill of 9. Moderately compact, dark grey brown silty clay.	-	-
12	Fill		0.05	Fill of 9. Loose, light grey silt, 30% fine chalk particles, 4% small gravels, 2% shell.		
13	Fill		0.2	Lowest recorded fill of 9. Soft, mid grey brown silt, occasional fine chalk particles.		
14	Layer		0.6	Current foot-path		20th C
15	Layer		0.6	Soft, mid brown silt. Up-caste/bank material from cleaning out of river.		Modern

APPENDIX B Finds Reports

B.1 Pottery

By Alex Davies

Introduction

B.1.1 Five highly abraded body sherds from the same vessel, weighing 3g, were found in context 4. The fabric includes abundant fine shell and occasional quartz sand, and the vessel appears to have been burnished.

Discussion

B.1.2 The lack of diagnostic features makes dating difficult, although the sherds are probably Iron Age.

B.2 Flint

By Michael Donnelly

Introduction

B.2.1 A very small assemblage of two struck flints was recovered from this excavation. Both were in poor condition and were recovered from context 4, an upper fill of the shallow pond/ natural marshy feature.

B.2.2 The core is of a type similar to levallois cores of late Neolithic date but is a more discoidal form of Neolithic (4000-2500 BCE) to early Bronze Age (2500-1500 BCE) form. The flake is undiagnostic but would very comfortably fit within the same date range as the core.

B.2.3 This very small assemblage indicates an extremely limited and redeposited flint related phase of activity here. Given that they are in such poor condition they are clearly redeposited with little indication of surviving lithic bearing sediment or *potentially in situ* material.

Methodology

B.2.4 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 was 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 (e.g. Bamford 1985, 72-77; 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.

Context	type	sub-type	notes	date
4	Discoidal core	Flakes	Semi-levallois style discoidal core of probable Neolithic to early Bronze Age date in poor condition	Neo-EBA
4	Flake	Distal trimming	Regular flake in poor condition possibly Neolithic or EBA in date	?Neo-EBA

B.3 Metal

By Paul Murray

Introduction

B.3.1 A single forged ferrous nail weighing 33g was found in context 8. The nail had an ovoid head (24mm x 14mm) and a square shaft (10mm wide). It was 130mm long tapering to a point, which had been bent 90°. The nail was moderately rusted, although generally in a robust condition.

Discussion

B.3.2 The nail was undiagnostic, although its general character and moderate rusting suggested it is likely to be of post-medieval or Victorian date.

APPENDIX C ENVIRONMENTAL REPORTS

C.1 Environmental Samples

By Richard Palmer

Introduction

C.1.1 A 34L bulk sample was taken from the Watching Brief at Houghton Regis Flood Storage Area, M1, primarily for the retrieval and assessment of Charred Plant Remains (CPR) and the recovery of bones and artefacts. The sample was taken from the top fill, context 4, of pond 9, finds from the surface of which have a late Bronze Age/early Iron Age date. Lower fills of the feature were not sampled but are described as containing shell.

Method

C.1.2 The sample was a light yellowish brown (10YR 6/4) loamy sand which showed no evidence of waterlogging and so was processed in its entirety at Oxford Archaeology using a modified Siraf-type water flotation machine. The flot was collected in a 250µm mesh and heavy residue in a 500µm mesh and dried. The residue fractions were sorted by eye and with the aid of a magnet while the flot material was sorted using a low power (x10) binocular microscope to extract cereal grains and chaff, smaller seeds and other quantifiable remains.

Results and Discussion

C.1.3 A 25ml flot was produced after processing (Table 1), much of this volume is dried root. The charred assemblage is extremely small with the flot being dominated by a small mixed terrestrial and freshwater molluscan assemblage. These include *Aegopinella* sp., *Vitrea* sp. and *Vallonia* sp. as well as the freshwater snail *Planorbis planorbis*. All charred material is less than 4mm in greatest dimension and consists of a small quantity of wheat grains (*Triticum* sp.) many damaged or fragmented, several glumes and a single grass seed (Poaceae). Modern seeds are also present in the flot. The residue produced no artefacts.

C.1.4 The recovered assemblage is limited and offers little potential for interpretation on its own but does indicate the potential for the recovery of charred material and molluscs on site. As the sampled deposit lies directly below ploughsoil, some mixing of material is possible and with such a small charred assemblage radiocarbon dating is not likely to be worthwhile.

Sample no.	Context no.	Area/Trench	Feature/Deposit	Date	Sample vol. (L)	Flot vol. (ml)	Charcoal >2mm	Grain	Chaff	Weeds	Molluscs	Other	Notes
1	4		9		34	25		++	+	+	+++		10YR 6/4 loamy sand. Modern roots and seeds present.

Key: +=present (up to 5 items), ++=frequent (5-25), +++=common (25-100), ++++=abundant (100+).
Table 1: Assessment of CPR Bulk sample.

APPENDIX D BIBLIOGRAPHY

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APPENDIX E SITE SUMMARY DETAILS

Site name:	Houghton Regis Flood Storage Area
Site code/ Accession number:	LUTNM:2020/11
Grid Reference	TL04132438
Type:	Strip, map and sample excavation
Date and duration:	15th June – 25th June 2020
Area of Site	0.88Ha
Location of archive:	The archive is currently held at OA, Janus House, Osney Mead Oxford, OX2 0ES, and will be deposited with Luton Culture in due course, under the following accession number: LUTNM:2020/11.
Summary of Results:	Oxford Archaeology was commissioned by BAM Nuttall to undertake an archaeological strip, map, and sample excavation on the site of flood storage area to the east of Houghton Regis, Central Bedfordshire. The archaeological works comprised the monitoring of the topsoil and subsoil stripping of the footprint for embankments and the realignment of Houghton Brook. The excavation recorded a silted-up shallow pond or former marshy depression in the north-east part of the site, adjacent to the Houghton Brook. Two residual late Neolithic/Early Bronze Age flint flakes and Iron Age pottery were recovered from its surface. The feature was levelled in the post-medieval or modern period with a chalk deposit, used to reclaim the area for agricultural purposes. The flint artefacts were in poor condition, although indicate limited flake production activities in the vicinity. The Iron Age pottery adds to the body of evidence for a late Iron Age and Roman rural landscape in the surrounding area, characterised by small farmsteads.

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Figure 1: Site location

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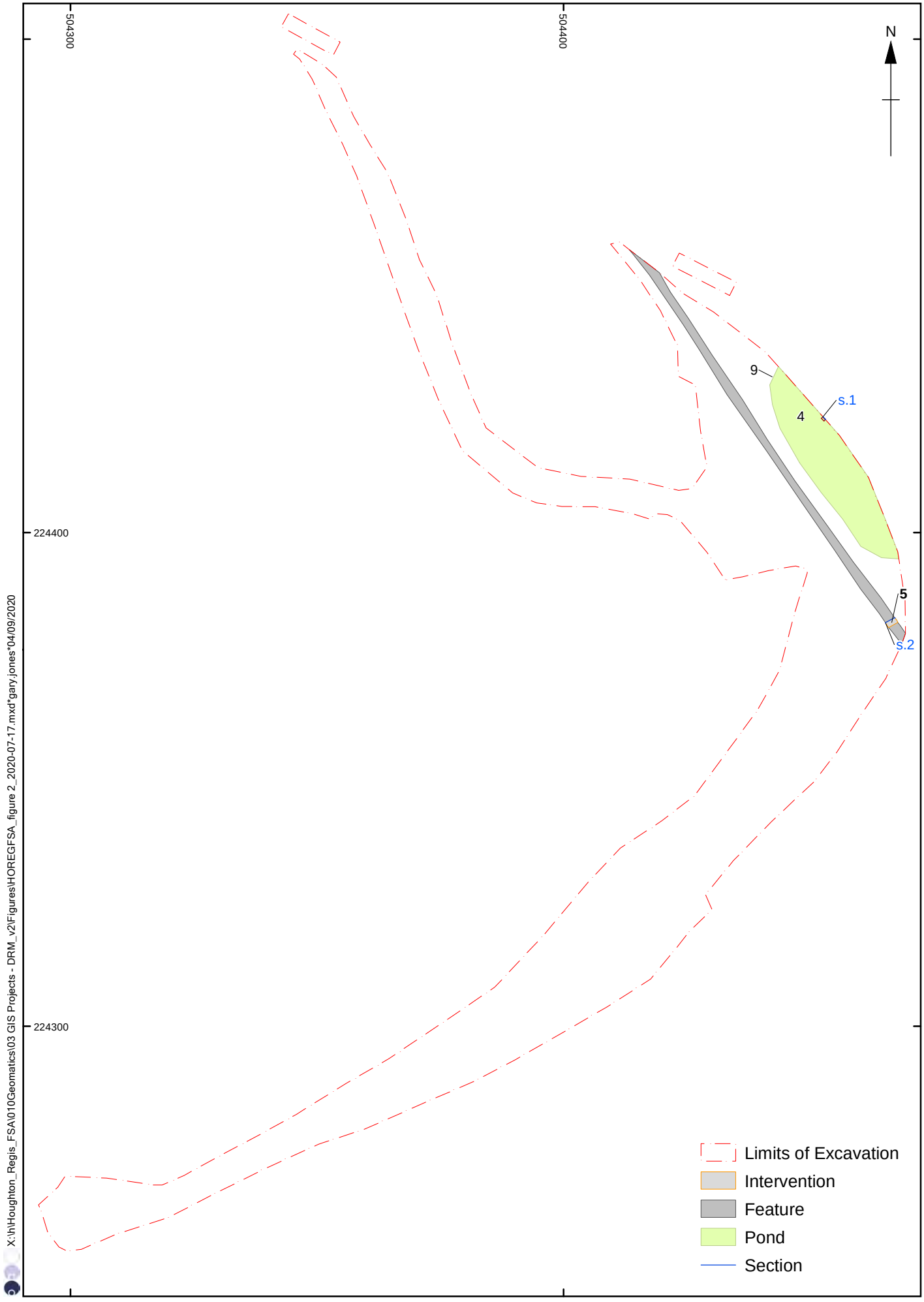

Figure 2: Site map

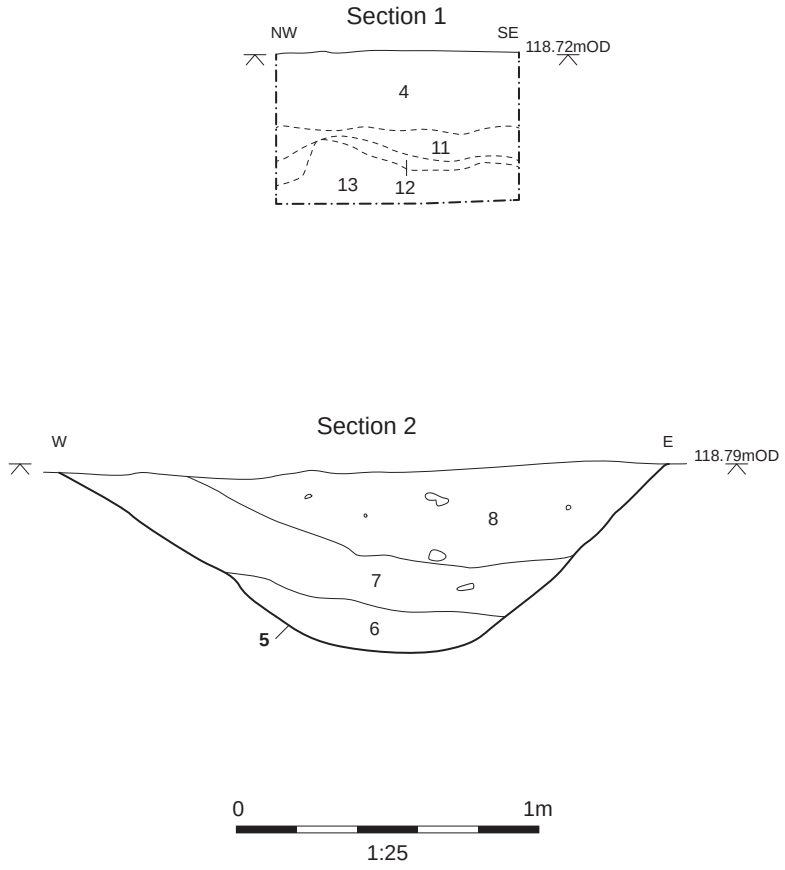

Figure 3: Sections

Plate 1. Ditch 5 (view to north)

Plate 2. Pond 9 (view to south)

Plate 3. Section 1 (view to north-east)

Plate 4. Gen shot of Houghton Brook diversion (view to north)

Plate 5. Gen shot of Ditch 5 (view to north-west)