Blacksmith's Corner, Tattershall, Lincolnshire:

An Archaeological Archive Report

Planning Ref: S/175/1649/09

National Grid Reference: TF 2120 5803

AOC Project No: 32056

Site Code: BCT11

Museum Accession: LCNCC:2011.77

Date: September 2012

AOC Archaeology Group

ARCHAEOLOGY | HERITAGE | CONSERVATION

Blacksmith's Corner, Tattershall, Lincolnshire;

An Archaeological Archive Report

On Behalf of:	**DPP LLP** Apsley House 78 Wellington Street Leeds LS1 2EQ
National Grid Reference (NGR):	**TF 2120 5803**
AOC Project No:	**32056**
Prepared by:	**Ian Hogg**
Illustration by:	**Jonathan Moller**
Date of Excavation:	**3rd – 26th August 2011**
Date of Report:	**September 2012**

This document has been prepared in accordance with AOC standard operating procedures.

Author: Ian Hogg	**Date: September 2012**
Approved by: Melissa Melikian	**Date: December 2012**
Draft/ Final Report Stage:	**Date: December 2012**

Enquiries to: AOC Archaeology Group
Unit 7
St Margarets Business Centre
Moor Mead Road
Twickenham
TW1 1JS

Tel. 020 8843 7380
Fax. 020 8892 0549
e-mail. london@aocarchaeology.com

www.**aocarchaeology**.com

Contents

List of Illustrations

List of Plates

NON-TECHNICAL SUMMARY

Between the 3rd and 26th August 2011, a programme of archaeological strip, map and sample was undertaken by AOC Archaeology Group on a site at Blacksmith's Corner, Tattershall, Lincolnshire, National Grid Reference (NGR) TF 2120 5803. The works were conducted on behalf of DPP LLP and carried out ahead of a proposed development for the construction of a new retail store with associated parking.

This report details the findings of the excavation as well as the subsequent post-excavation assessment and publication.

The earliest phase of activity identified on site occurred during the Early Roman period, primarily consisting of ditches that may form part of a coaxial field system. This activity continued into the Late Roman period with the alteration of some of the field system. The site appears to have been abandoned for much of the next 500 years with the next phase dated to AD 1066 - 1200, although this activity consisted of only a single ditch. The very low level of activity continued throughout much of the medieval period with only occasional pits and a pond being recorded.

A dramatic increase in activity occurred in the mid 15th to mid 16th centuries, coinciding with the reconstruction of Tattershall Castle, and the construction of Tattershall College and Church. This phase of building at the castle appears to be associated with economic and population expansion at Tattershall. This expansion may have required the excavation of the series of pits and a barrel well recorded on the site. A series of postholes may also have been associated with a building dated to this phase. The post-medieval period saw decreased activity on site with cattle burials suggesting pastoral farming was occurring in the locality. Little activity dated to the Victorian period or later was observed on the site.

Overall, a low density of archaeological features was identified during the course of the excavation from three periods dating to the Roman medieval and post-medieval periods. As a whole, the site is thought to be of regional significance with the potential to inform on the development of Tattershall in the Late Medieval period. It also informs on the agricultural activity during the Roman period.

1 INTRODUCTION

1.1 The Site

1.1.1 This document reports on the results of the archaeological strip, map and sample, conducted by AOC Archaeology, at land at Blacksmith's Corner, Tattershall, Lincolnshire.

1.1.2 The site is centred on National Grid Reference (NGR) TF 2120 5803 and is located central to Tattershall town centre. The site is bound to the north and west by residential properties, to the east by open ground, and to the south by Blacksmith's Corner.

1.1.3 The site was previously occupied by a warehouse, facilities and yards of McCombe Coachwork Ltd; a commercial vehicle body works. The current development scheme comprises the construction of a new Tesco superstore with associated car parking facilities.

1.1.4 This report details the results of the fieldwork conducted on the site.

1.2 Planning Background

1.2.1 The local planning authority is East Lindsey District Council. Archaeological advice to the council is provided by Jan Allen, Planning Archaeologist for Lincolnshire County Council.

1.2.2 The site was bound to the south by Tattershall Conservation Area; otherwise, the site did not lie within any designated area of archaeological potential and did not contain any Scheduled Monuments or Listed Buildings.

1.2.3 An archaeological condition was attached to planning consent (Planning Ref. S/175/1649/09), in order that the archaeological implications of the development could be fully considered. Condition 4 stated:

No development shall take place until a scheme specifying the methods of recording or preserving and archaeological deposits which may be affected by the approved works, including a timetable for such recording, has been submitted to and approved in writing by the Local Planning Authority. The development shall be carried out then in accordance with the approved scheme.

This was in keeping with Planning Policy Statement (PPS5), Policy HE12: Policy principles guiding the recording of information related to heritage assets, which states that local planning authorities should require the developer to record and advance understanding of the significance of the heritage assets before it is lost (DCLG 2010).

1.2.4 The development scheme comprised the demolition of all existing structures and the construction of a two storey Tesco retail store in the southern and central section of the site, with associated service yard area to the east; hardstanding for above ground car park facilities and access roads were to be located to the north and west.

1.2.5 The initial stage of the project consisted of the production of a desk-base assessment (AOC 2009) for the site. This study identified a low potential for prehistoric, and Roman remains, with a medium potential for medieval remains and a medium to high potential for post-medieval remains. The study recommended a programme of archaeological investigation in the first instance.

1.2.6 A brief was issued by Lincolnshire County Council recommending a programme of strip, map and sample (LCC, 2011)

1.2.7 The next stage was the production of a Written Scheme of Investigation (WSI) detailing the methodology for the programme of strip, map and sample (AOC 2011a). This WSI conformed fully with the brief issued by Lincolnshire County Council.

1.2.8 Following the fieldwork and a Post-Excavation Assessment was produced (AOC 2011b), this document detailed the results and recommendation from the fieldwork. Subsequently a short publication has been produced (Forthcoming)

1.2.9 This report includes the results of the assessment and analysis reports. The fieldwork and subsequent reporting was conducted in accordance with the Written Scheme of Investigation (AOC 2011a), current best archaeological practice and local and national standards and guidelines:

2 GEOLOGY AND TOPOGRAPHY

2.1 Tattershall is situated c. 27km south-east of Lincoln on the west bank of the River Bain. The town lies on a spur of land formed by the confluence of the Rivers Bain and Witham. The natural topography of this spur differs from the surrounding areas of Ampthill Clay, with Witham Fens to the west, and the foothills of the Lincolnshire Wolds to the north and north-east.

2.2 The Engineering Site Appraisal (Pinnacle, 2009) identifies that the application site is underlain by a superficial geology of River Terrace Deposits (First Terrace) overlying a bedrock of Ampthill Clay Formation (Ancholme Group) of Jurassic (Oxfordian) age.

2.3 The site was relatively flat with a gradual decline in height from the north to south, lying at a height of approximately 5m Above Ordnance Datum (AOD).

2.4 Geo-technical site investigations were conducted within the bounds of the development site in 2007, with six trial pits excavated (AOC 2009).

- Trial Pit 1 in the north of the site encountered made ground comprising limestone fragments c.0.25m in depth overlying a 'silty topsoil' of c. 0.20m thickness. This was underlain by 'medium-dense light brown sand' to the extent of the trial pit (1.4m bgl).
- Trial Pit 2, in the north-west of the site encountered similar made ground and topsoil deposits to Trial Pit 1, overlying a 'sandy gravel'. These deposits were also recorded in Trial Pit 3 in the west of the site.
- Trial Pit 4, located to the south-west of Dorma Cottage, encountered c.0.10m of topsoil overlying 'dark brown silty fill' material to a depth of 1.10m bgl, which in-turn overlay a 'dry light brown sand / silty material' of c.0.70m thickness. This was underlain by natural sand.
- Trial Pit 5, in the south-east of the site, encountered made ground (limestone scalpings) to a depth of 0.15m bgl, overlying 'silty topsoil / fill material' to a depth of 1.05m bgl overlying natural sand.
- Trial Pit 6, in the north-east corner of the site, recorded made ground (limestone scalpings) to a depth of 0.30m over 'silty topsoil' 0.40m in thickness. This was underlain by natural sand.
- A further trial pit was excavated to the rear of the main works building, Trial Pit 7, in an area where potentially contaminated remnants / waste from the sand blasting in the adjacent workshop has been swept out and built up overtime. The Trial Pit encountered 'Black Sandy Fill' to a depth of c.1.3m bgl, overlying natural sand. A gravel bed was encountered at the bottom of the trial pit at c.1.6m bgl.

3 ARCHAEOLOGICAL AND HISTORICAL BACKGROUND

3.1 The following background is taken from the desk-based assessment of the site produced by AOC Archaeology (AOC 2009).

The Prehistoric Period (c. 500,000 BP – AD 43)

3.2 No Palaeolithic activity has been recorded within 1km of the centre of the proposed development site. However, evidence of this period has been found during gravel extraction in the wider locality, with Palaeolithic reindeer and bison bones found in the Tattershall Castle gravel pit, c. 1.5km to the south of the site, a Palaeolithic hand axe was also recovered from a gravel pit, c. 2.8km to the north-east.

3.3 Neolithic activity within the 1km study area is possibly indicated by evidence of an enclosure and linear features identified on aerial photographs, c. 630m to the north-west of the proposed development site. A number of Neolithic stone axes were found c. 880m to the south-east of the site, on the banks of the River Bain. A possible Neolithic / Bronze age settlement site has also been recorded in the Tattershall Thorpe area, c. 3.7m to the north-east of the site.

3.4 Evidence of Bronze Age activity within the 1km study area is attested through the finding of a palstave, c. 740m to the north-west of the site, while evidence of ritual activity is suggested by the site of a round barrow, c. 820m to the north-west. Further Bronze Age barrow sites have been recorded in the surrounding landscape, c. 1.6km to the west of the proposed development site and c. 2.6km to the north-east.

3.5 There are no known sites of Iron Age date within the 1km study area; however, Iron Age activity has been recorded c. 3.7m to the north-east of the site, while an Iron Age enclosure has been identified on aerial photographs c. 1.2km to the north-east of the proposed development site.

The Roman Period (AD 43 – 410)

3.6 There is no known evidence of substantial Roman activity within Tattershall itself and only one site of possible Roman date lies within the 1km study area. This relates to cropmark evidence recorded on aerial photographs, representing potential enclosures c. 850m to the north of the proposed development site.

3.7 Within the wider area of Lincolnshire, the Roman presence is attested by a number of known settlements, including major settlements at Lincoln, Horncastle, Sleaford and Ancaster; villas at Haeby, North Stoke, Denton, Norton Disney and Scampton and a saltworks at Spalding. Recently a possible pottery industry and settlement of Roman date has been identified at nearby Tattershall Thorpe (Jane Young, conversation on 27th October 2011), to the west of the site. Finds included quantities of 3rd to 4th century pottery and fired clay.

3.8 Within the vicinity of Tattershall a probable Roman enclosure (thought possibly to be a marching camp) has been identified at Tattershall Park, c. 3.7km to the south of the development site. In addition a coin hoard of over 5,000 coins was found c. 2.2km to the north-east of the site, while a possible Romano-British settlement site (including pottery kiln site and pottery finds of 3rd – 4th century) was recorded c. 1.8km to the north-west.

The Early Medieval (Saxon) Period (AD 410 - 1066)

3.9 The assessment has identified no known early medieval sites within the 1km study area. Within the wider area there has been little evidence of early medieval archaeological activity recorded, apart

from the recovery of a male inhumation of 6th or 7th century date, c. 3.7km to the north-east of the development site.

3.10 However, numerous villages in the surrounding locality contain Danish elements in their place names (e.g. '*by'* as in Coningsby and Kirkby, or '*Thorp'* as in Laythorpe), which suggest an early medieval origin for these settlements related to the Danish invasion and migration of the 9th and 10th centuries. It is very probable that this reflects a renaming of settlements that were already in existence prior to the Danelaw).

3.11 The place-name elements of Tattershall is also thought to derive from the Old English personal name *'Tathere's*', and the word '*Halh'*, meaning valley or flat alluvial land next to a river. This suggests that Tattershall has an early medieval origin; though it is not known where this settlement at Tattershall was specifically located.

The Medieval Period (AD 1066 - 1536)

3.12 Tattershall is recorded in the Domesday Book of 1086 when it comprised of two manors; Tateshale and Torp; Tattershall is then recorded in the Lindsey Survey of 1115.

3.13 The medieval settlement would have been undoubtedly dominated by Tattershall Castle, located c. 320m to the south-east of the development site. The castle was originally founded in the 13th Century by Robert de Tattershall and then later rebuilt by Ralph, Baron Cromwell at the beginning of the 15th century. The present castle remains are that of Cromwell's castle, with only fragments surviving of the earlier structure. The castle is a Scheduled Monument and includes the Grade I listed ruins of a 15th century stable block and the former Guard House. The remains of Cromwell's college are also a Scheduled Monument located to the southwest of the site. After Cromwell's death in 1456, the estate passed to his nieces Maud and Joan, but was confiscated by the crown upon the execution of Maud's third husband, Sir Gervais Clifton, after the Battle of Tewksbury in 1471. In 1487, Henry VII granted the estate to his mother Margaret Beaufort (Wotton, et al, 1771, 26).

3.14 Evidence of medieval activity has been noted in and around the castle site through a number of archaeological investigations and chance finds including a medieval pottery and animal's head in fields to the south of the castle and a French jetton on the site of Tattershall College.

3.15 It is probable that medieval settlement in Tattershall would have been focused around the Market Place; the Grade II Listed No. 60 Market Place, the Fortescue Arms, the brick wall to the rear of No.2 Market Place and the Grade II * Listed Old College (part of the Cromwell's college, located 10 metres south of No. 3 Market Place) are all of 15th century origin and demonstrate settlement activity in this area.

3.16 The Butter Cross, a Scheduled Monument located c. 60m south of the development site, sits in the centre of the Market Place and also dates to 15th century. It is probable that the Market Place would have been the location for the local market, for which a charter was granted in AD 1210 and the annual fair, which was granted in AD 1315.

3.17 There may have been medieval settlement activity within the vicinity of the Castle (possibly related to the earlier use of the site); this is indicated by cropmarks seen on aerial photographs, however, the cropmarks' provenance has not been confirmed by excavation and they might instead be enclosures, associated with the 15th century college.

3.18 Further archaeological evidence for medieval activity within the vicinity of the Market Place has been recorded through a pottery scatter at No. 14 Market Place, c. 60m to the south-west of the site, as well as medieval / post-medieval boundary ditches, c. 200m to the south-west.

3.19 In the wider area, evidence of medieval activity and land use is indicated by a number of findspots including a bronze escutcheon c. 970m to the north-east of the proposed development site; a coin of Henry VII c.900m to the east; a pottery jesters head found c.800m to the south of the site and medieval pottery noted through field walking c. 910m to the south-east of the site.

The Post-Medieval (AD 1536 – 1900) & Modern Periods (1900+)

3.20 Unlike other nearby market towns, such as Horncastle or Sleaford, Tattershall did not experience a rapid expansion in settlement size and population through the post-medieval period. While it has undoubtedly increased in size it never expanded in to what we would recognise today as a market town, instead becoming a large sized village.

3.21 A number of sites of post-medieval date lie within 1km of the site. Within the vicinity of the market place a number of listed buildings have been recorded, which indicated the continued settlement activity in this area of town through the 17th, 18th and 19th centuries. In the wider area post-medieval activity is noted through findspots, c. 580m to the south-west of the site, while archaeological evidence of this period has been encountered in the area of Tattershall Castle.

3.22 A geophysical survey recorded a late post-medieval trackway passing through the field adjacent to the east of the development site. This trackway / footpath linked onto the end of Blacksmith's Corner and appears to head in a north-easterly direction, across the fields, roughly towards Tattershall Carr; an ancient semi-natural woodland.

3.23 The Tattershall Enclosure map of 1798 identifies the development site as consisting of approximately five separate plots of land. Three buildings are shown within the boundaries of the site; one in the southeast corner of the site, fronting onto what later becomes Blacksmith's Corner, a second similarly drawn building to the west of this fronting on to Blacksmith's Corner and a further L-shaped building in the south-west corner of the site.

3.24 The 1867 estate map of Earl Fortescue, a major landowner in the Tattershall area, shows the site in greater detail. The site is shown to comprise eight separate plots of land, the boundaries of which have been altered since the earlier Enclosure map. The map shows what appears to be a triple terraced building fronting on to modern day Blacksmith's Corner in the south of the site, a smaller building marked in the adjoining plot to the north-west of this and a further small building in the north of the site. A large building is shown on the corner of the Market Place.

3.25 The trade directories list Mr. James Gray as the blacksmith in the 'Market Place' in 1849, though it can not be certain this refers to the proposed development site. The 1867 estate map labels Blacksmith's Corner along the south of the site, which would suggest a blacksmith is likely to have been located there (possible in the south-west corner of the site, on the very corner of the Market Place) for sometime prior to that for the name to have become established; though this cannot be confirmed at this stage.

3.26 The 1889 Ordnance Survey map shows the site in greater detail. The majority of the buildings on site have remained unchanged, with the majority of the remaining area of the site identified as undeveloped and likely to be agricultural land (e.g. the northern half and part of the southern half of the site). In and around the buildings in the southern half of the site the land is likely to have been in use as yard and garden areas.

3.27 A sale catalogue detailing the sale of part of the proposed development site in 1905, records that the building shown on cartographic evidence in the south-west corner of the site comprised four

cottages; the sale also included detached garden grounds in the south-east and west of the proposed development site.

3.28 Photographic evidence shows the nature of the site in the mid – late 20th centuries. The original McCombe Vehicle body workshop was present during the 1950s – 1960s, located in the south of the site, with adjacent terraced cottages to the west – as shown on the 1889 and 1905 OS Maps. These buildings are labeled as 'Smithy' on the 1889 OS map.

3.29 Aerial photographic evidence indicates how the site developed in the mid-late 20th century. By c.1960 the terrace buildings in the south of the site had been demolished, though the workshop was retained and an extension constructed to the rear. The coach repair garage is shown in the south-west corner of the site and the large main warehouse / assembly building in the east. By the 1970s, a new large extension has been constructed upon the north of the main warehouse building and the surrounding area covered with hardstanding. By the late 1980s / early 1990s, the modern two-storey extension has been constructed on the south of the main warehouse building.

4 STRATEGY

4.1 The work was carried out under the site code (BCT 11), a museum accession number LCNCC:2011.77 was also provided by the recipient museum.

5 RESEARCH AIMS

Original Research Aims

5.1 The aims of the fieldwork were defined as being:

- To establish the presence/absence of archaeological remains within the site.
- To determine the extent, condition, nature, character, quality and date of any archaeological remains encountered.
- To map any archaeological remains encountered and sample excavate targeted features.
- To assess the ecofactual and environmental potential of excavated archaeological features and deposits.
- To determine the extent of previous truncations of the archaeological deposits.
- To enable Jan Allen, archaeology advisor to East Lindsey District Council, to make an informed decision to satisfy that condition.
- To make available to interested parties the results of the investigation.

5.2 The specific aims of the fieldwork were:

- To determine the presence of any remains which could inform on the medieval development and chronology of Tattershall.
- To determine the presence any post-medieval features on site. Establish if the structures known from the post 18th century cartographic evidence still survive on site.

5.3 The final aim was to make public the results of the investigation, subject to any confidentiality restrictions through the ADS OASIS website.

Revised Research Aims

5.4 The revised research aims of the Post-Excavation Assessment were:

- What is the relationship between the Roman remains recorded on site to the remains recorded on nearby sites? How do the remains on site compare to the sites found nearby?
- Why was the site seemingly abandoned at the end of the Roman period?

- How do the remains on site inform on the size and nature of Tattershall in the 11th to 15th centuries?
- How do the remains on site compare to the sites found nearby?
- Can the results inform on the construction and industry taking place in Tattershall in the mid 15th century and associated with Ralph Cromwell's building work at the Castle, College and Church?
- Why did the land use on site change in the mid 16th century?

6 METHODOLOGY

6.1 The strip, map and sample was targeted on the footprint of the new foodstore. A programme of monitoring was also carried out on the removal of the concrete foundations of the previous building prior to the start of the programme of strip, map and sample.

6.2 The stripping was conducted using a 16 tonne 360 tracked excavated with a flat blade toothless bucket. All machining was done under the supervision of a project supervisor. The area was reduced to the first archaeological significant deposit encountered. The features within the site were then mapped and sample excavated.

6.3 The full methodology can be found in the Written Scheme of Investigation (AOC 2011).

6.4 In this report, cuts and structural remains are shown in square brackets '[000]' and fills and layers are shown in rounded brackets '(000)'.

6.5 The fieldwork was supervised by Ian Hogg and Catherine Edwards and managed by Melissa Melikian (Operations Director) for AOC Archaeology. The fieldwork was monitored by Jan Allen, Planning Archaeologist at Lincolnshire County Council who gives archaeological advice to East Lindsey District Council.

7 RESULTS

During the course of the fieldwork, four different periods of activity were recognised; the natural horizon, Roman, medieval and post-medieval.

7.1 Period 1 Natural

7.1.1 Natural orangey yellow sands gravels (4) were observed across the area at heights between 4.32mOD in the southeastern corner and 3.72mOD in the northwestern corner of the site. The natural deposit was overlain across the site by mid brownish grey silty sand subsoil (3) 0.10m thick.

7.2 Period 2 Phase 1 – Early Roman AD 43 – 150 (Figure 3 and 5)

7.2.1 The earliest activity recorded on the site was possibly part of a coaxial field system of early Roman date. The field system comprised of a single linear ditch on a northwest-southeast alignment and five further linears on a northeast-southwest alignment.

7.2.2 The single ditch on a northwest-southeast alignment [8] was 23.50m long, 0.70m wide and 0.17m deep with steep sides and a concave base; it terminated in the centre of the site. The fill (7) was a dark orangey brown sandy silt; it contained a single tiny CBM fragment thought to be intrusive.

7.2.3 The southernmost of the ditches [6] (Sections 55 and 56) was 35.00m long, 0.90m wide and 0.33m deep with steep sides and a concave base. The primary ditch fill (168) was only observed in the very southwest of the site, this was a mid brownish grey sandy silt 0.20m thick containing no finds. The upper ditch fill (5) was a firm, pale greyish brown sandy silt which contained only a small fragment of residual CBM. A second extremely similar ditch [20] ran parallel to [7] 3.00m to the northwest; this

was heavily truncated by a later recut ditch [18]. The ditch measured 11.00m in length, 0.40m in width, 0.62m in depth and was similar in profile to [6]. The ditch fill (19) was very similar to (5) and again contained no finds.

7.2.4 Another parallel ditch [28] was recorded 16.00m to the northwest; this ditch was 35.00m long 1.00m wide and 0.20m deep, it had steep sides and flat based. The ditch fill (27) of pale yellowish grey silty sand contained a single small sherd of local sandy ware dated to the 1st to 2nd centuries AD.

7.2.5 To the northwest of ditch [28] was a ditch [93] which terminated after running northeast for 11.20m from the western edge of site. The ditch had moderately sloping sides and a flat base; it was 0.70m wide and 0.17m deep. The primary ditch fill (92) consisted of mid brownish grey sandy gravel 0.09m thick and contained no finds. The upper ditch fill (91) was a very firm, mid brownish red sandy clay 0.11m thick; fill again contained no finds. Fill (91) was unusual in its reddish colour and also its firmness.

7.2.6 A second linear feature (110) ran southwest from the eastern edge of site for 13.50m before terminating. This feature had gently sloping sides and undulating base; it was 1.00m wide and 0.08m deep. The fill (109) was a loose mid greyish brown sandy silt containing no finds. This feature has been interpreted as a possible hedgeline due to its shallowness and uncertain edges. Together with ditch [93] there does seem to be a possible entrance, with a 18.50m gap between the terminals.

7.3 Period 2 Phase 2 Late Roman AD 200 – 400 (Figure 3 and 5)

7.3.1 The late Roman activity on the site appears to have remained fairly similar to the Earlier Roman agricultural activity, with only ditches and two pits being recorded and a paucity of finds noted.

7.3.2 Ditch [18] (Sections 6, 55 and 56) was linear with a v-shaped profile with steep sides. The ditch was aligned southwest-northeast but on a slightly different alignment to the previous field system, represented by ditches [5] and [20], which it truncated; the ditch measured 35.00m in length and was up to 1.87m and 0.48m deep. The ditch was at a height of 4.07mOD in the northeast and 3.83mOD in the southwest. The primary ditch fill (17) was a dark greyish brown sandy silt 0.18m thick and contained no finds. The secondary fill (16) consisted of pale greyish brown sandy silt 0.37m thick; this fill contained a single rimsherd of 3rd to 4th century Greyware.

7.3.3 A second ditch [86] (Section 30 and 49) has been assigned to this period on stratigraphic grounds. This ditch was orientated southeast-northwest for 25.00m before turning southwest for a further 7.50m. The ditch was v-shaped with steeply sloping sides and was 1.30m wide and 0.52m deep. The ditch fill (85) was a pale brownish grey silty sand and contained a single cattle radius. This ditch was roughly along the same axis as the previous earlier field system.

7.3.4 Two shallow pits [148] and [157] in the southern corner of the site have also been assigned to this phase on stratigraphic grounds; Both pits were sub-circular with gently sloping sides and flat bases and both were heavily truncated by later medieval ditch [139]. Pit [148] measured 1.20m x 1.20m x 0.20m. The fill (147) was a mid greenish grey sandy silt containing no finds. Pit [157] measured 1.00m x 0.80m x 0.40m. The pit fill (156) consisted of mid greyish brown sandy silt and contained no finds.

7.3.5 In addition to the possible Roman features, two fragments of residual Roman tegula were also found in medieval well fill (34) and post-medieval pit fill (29).

7.4 Period 3 Phase 1 Earlier Medieval AD 1066 – 1200 (Figure 4 and 5)

7.4.1 The earliest medieval activity on the site dates to the Saxon-Norman period; a single ditch [139} (Sections 47, 48, 53, and 55) was excavated in the southern corner of the site. The ditch was aligned northnorthwest-southsoutheast and was linear with steep sides and a concave base; it measured 11.20m in length, 1.00m in width and 0.60m in depth and was encountered at a height of 3.91mOD. The primary ditch fill (138) consisted of soft, dark grey sandy silt up to 0.50m thick, which contained two sherds from a Lincolnshire Fine-shelled Ware bowl dated to the 11th or 12th centuries, it also contained cattle, horse and unspecified large mammal bone. This was partially overlain by fill (151), a dark grey silty sand 0.25m thick, this deposit contained no finds. The upper ditch fill (137) consisted of mottled yellowish grey sandy silt, 0.25m thick and containing no finds.

7.5 Period 3 Phase 2 Medieval AD 1200 – 1440 (Figure 4 and 5)

7.5.1 A very low level of activity dated to AD 1250-1440 was noted on site. A single large shallow pit [102] (Section 42) was present in the centre of the site; this was oval with gently sloping sides and a flat base. The pit measured 4.35m in length, 2.26m in width and 0.24m in depth and was observed at a height of 3.89mOD. The pit fill (101) consisted of pale greyish brown silty sand, with CBM flecks. This fill contained fragments of roof tile, which can broadly be dated to the 13th to 16th centuries.

7.5.2 On the western edge of site a large pond [66] (Sections 24 and 33) was recorded; this measured 6.00m x 3.80m x 0.68m and was observed at a height of 3.68mOD. The pond had gently sloping sides with a slightly undulating base. The primary fill (65) consisted of 0.15m of very loose grey gravel and contained no finds. This was sealed by a deposit of dark brownish black peat (64) 0.30m thick that did not contain any finds but has been dated to AD 1280 – 1400 by radiocarbon dating. The environmental sample taken from this feature also included waterlogged wood and seeds; the seeds came from species such as knotweed, sorrel and dock which are prevalent in wet conditions. The presence of these species and the low level of archaeological activity seen in this phase suggests the area may have been relatively undisturbed with wild plants growing freely. The peaty fill was overlain by a deposit of mid brown sandy silt (79) 0.40m thick and containing no finds; this fill was sealed by a deposit of mid reddish orange gravel 0.10m thick (80). The pond was cut by later medieval pit [98].

7.6 Period 3 Phase 3 Later Medieval AD 1440 – 1536 (Figure 4 and 5)

7.6.1 The later medieval phase was the most intense period of activity on site and was typified by the excavation of discreet features across the site.

7.6.2 The most notable of these features were a series of large pits; these were generally found in two areas, on the eastern edge of the site and in the western corner. The pits were initially interpreted as cess pits due to their shape. However, the lack of any macrofossils in their fills, which is usually associated with cess pits calls this interpretation into question. These pits could be associated with some industrial activity occurring on the site and possibly associated with the rapid construction (including the castle) occurring in Tattershall in the 15th century. A number of the pits contained significant amounts of charcoal and especially roundwood charcoal; this may indicate it derived from coppiced woodland. Coppiced rods were often used for fuel and for wattling. They may have been gravel extraction pits, later filled with dumps of waste material.

7.6.3 The pits excavated in the east of the site [22], [84], [90], [118] varied slightly in size and shape but almost all had vertical sides and flat bases.

7.6.4 Pit [22] (Section 7) was the largest of the pits; it was rectangular with slightly flared corners, probably signs of some form of post structure covering the pit. The pit measured 2.15m x 1.75m and was

1.15m deep. The pit was observed at a height of 4.12mOD. The primary pit fill (26) consisted of a greyish black clayey sand 0.36m thick, the fill contained sherds of mid 15th to early 16th century pottery, animal bone and CBM. This primary fill was overlain by a mixed deposit of mid greyish brown clayey sand (25) which was 0.35m thick, no finds were retrieved from this deposit. The tertiary fill (24) consisted of soft, mid grey silty sand 0.25m thick, this fill also contained no finds. This was overlain by a very dark grey, silty sand fill (23) which contained frequent inclusions of mollusc shell; the fill was 0.10m thick and contained no finds. The upper pit fill (21) consisted of mid grey sandy silt 0.32m thick; this fill also contained no finds.

7.6.5 To the southeast of pit [22] was a second large, rectangular pit [118] (Section 41); this pit measured 2.19m x 1.70m x 0.85m and was seen at a height of 4.14mOD. The primary fill (117) consisted of loose, mid yellowish orange sandy gravel 0.28m thick and was probably naturally accrued through slumping; this contained no finds. The secondary fill (116) consisted of dark grey brown silty clay with very frequent inclusions of wood chippings and reed, probably discarded matting; this was 0.11m thick, but again no finds were retrieved. This deposit may represent the discarding of reeds or chippings used as flooring. The tertiary fill (115) consisted of pale yellowish green sandy clay 0.30m thick with no finds; this fill was overlain by a deposit of dark bluish grey clayey silt (114) 0.12m thick, this fill contained sherds of mid 15th to mid 16th century pottery, animal bone, CBM and possible worked stone.

Plate 1. Pit [118] Looking northeast

7.6.6 Fill (114) was sealed by a pale yellowish grey sandy silt fill (113) 0.35m thick, this fill contained CBM and sherds of mid 15th to mid 16th century pottery. This fill was overlain by a pale yellowish grey sandy silt fill (113) 0.35m thick which contained sherds of pottery dated to the mid 15th to mid 16th centuries and fragments of CBM. Fill (113) was sealed by a deposit of mid orangey yellow sandy gravel 0.14m thick; this deposit did not contain any finds. The upper fill of the pit consisted of loose, dark bluish grey sandy silt with frequent charcoal inclusions, 0.37m thick, which contained pottery dated to the mid 15th to mid 16th centuries, it also contained fragments of roof tile.

7.6.7 To the southwest of pit [118] were two smaller pits [84] and [90]. Pit [84] (Section 28) was oval in shape with steeply sloping sides and a concave base; it was 2.10m long, 1.25m wide, 0.63m deep and was observed at a height of 4.17mOD. The primary pit fill (83) consisted of firm, dark bluish grey sandy silt 0.28m thick, it contained animal bone and pottery dated to the late 15th to Mid 16th centuries. The secondary pit fill (82) consisted of mid yellowish brown sandy silt and was 0.17m thick; the fill did not contain any finds. The upper pit fill (81) was a dark brownish grey sandy silt 0.28m thick which contained oyster shell, fragments of roof tile and handmade brick.

7.6.8 Pit [90] (Section 31) was oval shaped, with vertical sides and a flat base; this measured 2.10m in length, 1.20m in width, 0.76m in depth and was observed at a height of 4.12mOD. The primary pit fill (89) was a firm dark bluish grey silty sand 0.14m thick, no finds were retrieved from this context. The secondary fill (88) consisted of mid greenish grey clay 0.47m thick, this fill contained sherds of pottery dated to the 13th to 16th centuries. The upper pit fill (87) was a firm mid orangey brown sandy silt ,0.29m thick; this fill contained roof tile and pottery dated to the mid 15th to mid 16th centuries.

7.6.9 Another pit [11] was also excavated to the southeast of these pits; this pit was subrectangular in shape with vertical sides and a concave base; the pit was 3.20m long, 1.90m wide and 0.43m deep at a height of 4.32mOD. The primary pit fill (10) consisted of soft mid orangey brown sandy silt 0.24m thick and contained no finds. The upper pit fill (9) was a dark greyish brown sandy silt that contained sherds of pottery dated to the 15th to 16th centuries as well as animal bone and two fragments of the same red brick, the fill was 0.43m thick.

7.6.10 A second group of three very similar pits [136], [142], and [155] were recorded in the southwest of the site. Pit [136] (Section 46) was oval in shape with vertical sides and a flat base, it measured 2.50m in length, 1.54m in width and 0.90m in depth; the feature was seen at a height of 3.87mOD. The primary pit fill (135) consisted of dark brownish grey sandy silt 0.45m thick containing pottery dated to the mid 15th to 16th centuries, roof tile, brick, animal bone and an iron hinge this fill also contained a waster of Toynton/Bolingbroke ware. The secondary fill (134), a loose, dark brownish grey sandy silt 0.25m thick contained roof tile, brick, floor tile, animal bone and pottery dated to the late 16th to 17th centuries, this is thought to be intrusive. The upper pit fill (133), a dark greyish black sandy silt, was 0.25m thick; this fill contained animal bone, CBM and pottery of mid 16th century date. This fill also contained seven iron objects, these included nails, a possible tine, a knife, a metalworking punch, a vessel handle and a fragment of a probably prick spur.

7.6.11 Pit [142] (Section 50) was oval in shape, with vertical sides and a flat base; it measured 1.90m x 1.20mx 0.36m at a height of 3.88mOD. The primary pit fill (141) was a mid brown sandy clay containing no finds and was 0.21m thick. The upper pit fill (140) was a dark brownish grey clayey silt containing pottery dated to the mid 15th to mid 16th centuries; this fill was 0.15m thick.

7.6.12 Pit [155] (Section 54) was oval with vertical sides and a flat base; it was 2.40m long, 1.11m wide, 0.42m deep and was observed at a height of 3.84mOD. The primary pit fill (154) consisted of soft, greyish black sandy silt 0.07m thick, the fill contained no finds. The secondary pit fill (153) was a dark grey sandy silt 0.16m thick and containing animal bone, roof tile, an unidentified iron object and pottery dated to the late 15th to mid 16th centuries. The upper pit fill (152) consisted of blackish grey sandy silt and was 0.20m thick; this contained animal bone, CBM, and pottery of 19th century date thought to be intrusive and three metallic objects including an iron nail, an iron drop handle and copper wire.

7.6.13 To the northeast of these pits was a single feature interpreted as a barrel well [39] (Section 14); the well was oval with very steep sides and a flat base. This well measured 2.10m in length, 1.55m in width and 1.15m in depth and was observed at a height of 3.94mOD. A single coopered barrel [36]

had been placed into the well; the base of the barrel had been removed. The barrel consisted of 13 staves secured with a wooden hoop, all constructed from oak heartwood. The barrel measured 0.47m in diameter, with the individual staves measuring between 0.46m and 0.61m in length. The top of the staves were not extant due to decomposition, the barrel is thought to have had an original height of 1.37m. The staves included evidence for multiple vent holes, some of which have been bunged. Two of the staves were incised; these marks are thought to be from the barrel construction. While the feature has been interpreted as a barrel well, its fill was extremely sterile which could point to a different use for the feature. It could, for instance, represent a water tank for use in industrial or construction activities.

7.6.14 Surrounding the well were seven rough wooden off cuts used as chocks to hold the barrel in place [35], [37], [38], [73], [74], [75], [76], [119] and [163]. This material has not been identified to species and had mostly been tangentially cleft. The fragments measured between 0.70m and 0.24m in length, 0.52m and 0.04m in width and 0.40m and 0.04m in thickness. Occasional stone fragments and bricks had also been used to support the barrel.

Plate 2. Barrel Well [39] looking southeast.

7.6.15 A deposit of loose pale brownish orange sandy gravel (162) had been placed around the barrel to support its weight, this fill was 0.50m thick and contained medieval Brick. The barrel was filled by loose mid brownish grey gravelly sand (34) 0.50m thick; this fill contained fragments of a small Toynton Ware jug dated 1250 – 1450, brick and roof tile dated 1450-1550, and a complete horse skull.

7.6.16 The barrel and its fill were sealed by dark greyish brown sandy clay fill (33); this fill was 0.48m thick and contained cattle and other large mammal bone, CBM, pottery dated 1450 – 1550. It also contained a socket iron tool with a flat toothed blade of undetermined function.

7.6.17 In the northwest of the site was a single large pit [98] (Section 34), this feature was 3.20m long, 2.30m wide and 0.90m deep; it was observed at a height of 3.64mOD, it was oval in shape, with steep sides and a flat base. The primary fill (97) consisted of mottled yellowish grey gravelly sand

0.40m thick, this deposit contained sherds of pot dated to the mid 15th to mid 16th centuries. The upper pit fill (96) was a mottled brownish grey sandy silt containing pottery dating to the 15th to 18th centuries, horse, cattle and large mammal bone, and CBM; the fill was 0.55m thick. This pit had a very different profile to the large pits across the south of the site and may have had a different function.

7.6.18 This pit was cut by a second smaller pit of broadly similar date [95]; this pit was oval, with gently sloping sides and a flat base; it measured 3.00m in length, 1.40m in width and 0.35m in depth. The pit fill (94) consisted of dark greyish black clayey silt; it contained cattle and sheep bones, and pottery of 13th to mid 16th century date. The fill also contained a heavy iron ring which was probably part of a bridle fitting.

7.6.19 In the north of the site were two parallel lines of postholes. The northern line of six postholes, was assigned the group number [61], and comprised of individually numbered postholes [49], [51], [53], [55], [57] and [59] (Sections 19 and 21). These were aligned southwest-northeast and were subcircular, steep sided with concave bases. The postholes varied in size between 0.27m and 0.48m in diameter, and between 0.12m and 0.30m in depth. The larger postholes [51], [53], [55], [59] were evenly spaced at around 1.20m apart, the smaller postholes [49] and [57] were situated directly next to [51] and [55] respectively and probably provided additional support to the posts. The posthole fills (48), (50), (52), (54), (56), and (58) respectively, all consisted of mid brownish grey silty sand; a single sherd of Toynton Late Medieval Ware, dated AD 1450 – 1550 was retrieved from fill (58).

7.6.20 The southernmost line of postholes, assigned the group number [60] consisted of six postholes of slightly varying size [41], [43], [45], [47], [78], and [68]. These postholes were all subcircular, with steep sides and concave bases and varied in height from 4.04mOD at the eastern end to 3.90mOD at the western end. The postholes varied in size from 0.25m to 0.47m in diameter, and 0.14m to 0.37m in depth, the larger and deeper postholes were all excavated at the eastern end of the line, this is probably due to the slightly higher ground in this area. The posthole fills (40), (42), (44), (46), (77) and (67) respectively; all consisted of mid brownish grey silty sand and contained no finds.

Plate 3. Posthole groups [60] and [61] looking west.

7.6.21 These two lines of postholes were parallel and 1.00m apart, they are likely to have formed a structure or possibly a fence line, however, the baulk obscured the course of the lines it is hard to say what form this structure took.

7.6.22 Immediately to the south of posthole [78] were two further postholes [70] and [72]; these features were extremely similar to the other postholes being subcircular with steep sides and concave bases. Posthole [70] was 0.22m in diameter and 0.13m deep, while posthole [72] was 0.28m wide and 0.10m deep. They both contained fills of mid greyish brown sandy silt (69) and (71) respectively, no finds were retrieved from these features and they have been assigned to this phase because of their proximity and similarity to the lines of postholes.

7.6.23 To the south of the postholes were a series of isolated subcircular pits; [100], [104], 106], [108]; these features were all very similar in shape and also all had steep sides and concave bases, the small pits varied in size from 0.40m to 0.90m in diameter and 0.11m to 0.20m in depth. The fills of these features (99), (103), (105), (107) respectively, were all very similar, being mid brown grey silty sand. A single sherd of Toynton/Bolingbroke Ware was retrieved from fill (107); this can be dated to AD 1450-1740. These pits may have been associated with the structure to the north.

7.6.24 Another feature possibly associated with the structure was an elongated pit excavated close to the northern boundary of the site [63], this pit was oval and measured 2.80m in length, 0.90m in width and 0.30m in depth, the pit was recorded at a height of 3.89mOD. The fill (62), a mid grey sandy silt contained a single fragment of Bourne Ware dated 1450-1550, as well as a cattle femur.

7.6.25 In the centre of the site small subcircular pit [121] cut through earlier medieval pit fill (101); the pit was circular and measured 1.45m in diameter and 0.38m in depth; the pit has gently sloping sides and a flat base. The primary pit fill (120) was a moderately compacted, pale brownish grey clayey sand 0.20m thick which contained two sherds of Cistercian Ware, a single sherd of Toynton-Bourne type pottery, CBM as well as cattle and sheep/goat bones. The upper pit fill (122), a pale brownish grey silty sand 0.17m thick contained no finds.

7.7 Period 5 Phase 1 – Post-Medieval 1536 – 1800 (Figure 4 and 5)

7.7.1 The post-medieval period saw a lessening in the intensity of the activity on the site. Only four pits have been assigned to this period. Pit [15] was excavated in the south of the site; this pit was subcircular, with steep sides and an undulating base; the pit measured 1.60m in length, 1.20m in width and 0.20m in depth. The pit fill (14) consisted of mid orangey brown sandy silt and contained three sherds of a glazed red earthenware drinking vessel, dated to between the mid 17th and 18th centuries. The fill also contained CBM, and a large variety of animal bone including sheep/goat, chicken, Woodcock and Wood Pigeon, evidence of a varied diet.

7.7.2 Two square pits [30] and [32] were excavated on the southeastern boundary of the site. They had vertical sides and flat bases; were *c*.1.60m across and 0.18m and 0.14m deep respectively. The pit fills (29) and (31) both consisted of dark greyish brown silty clay; both contained large amount of semi articulated cattle bones showed no signs of butchery. Fill (29) also contained CBM, clay tobacco pipe and Black Glazed Earthenware dated AD 1650-1750. Fill (31) contained CBM and Tin Glazed Ware date AD 1660 – 1740.

7.7.3 In the southeast of the site a single pit was excavated [13]; this was sub-rectangular with steep sides and a flat base and measured 2.30m in length, 1.20m in width and 0.19m in depth. The pit fill (12), a mid greyish brown sandy silt contained large and medium sized mammal bones as well as a brick dated to the 15th to 18th centuries.

7.8 Period 5 Post Medieval and Modern 1800 – Present (Figure 4)

7.8.1 A single brick lined Victorian cess pit was recorded in the south of the site [161], only the very base of the feature remained, it was circular and measured 1.30m in diameter and was 0.07m deep with vertical sides and a flat base. The brick lining [160] consisted of a single course of unfrogged, unmortared red bricks measuring 225mm x 110mm x 70mm and laid in stretcher pattern. The fill between the cut and the brickwork (159) consisted of loose pale grey sandy silt 0.07m thick and contained no finds. The cess pit fill (158) was a dark grey sandy silt 0.07m thick and containing CBM, and pottery including 19th century Buffware, English Stoneware and Pealrware all of which can be dated to the 19th century. This feature was probably a cess pit associated with the former blacksmiths workshop and associated dwelling in the southern corner of the site.

7.8.2 To the north of the cess pit was a small posthole [146], which had steep sides and a concave base; it measured 0.33m x 0.25m x 0.09m. The pit fill (145) contained pottery date to the late 17th to 20th centuries.

7.8.3 Features dated to the 19th and 20th centuries were noted across much of the site and were investigated to rule out the possibility of their being earlier features. Many of these were related to the coach factory which previously occupied the site, and included a chimney base and inspection pit. These features were not recorded.

7.9 Undated features

7.9.1 A number of features across the site remain undated and do not tie into any particular phase. The largest of these features was pit [128] (Section 43) in the north of the site. This pit was subcircular, steep sided with a flat base and measured 2.80m in length, 2.60m in width and 0.90m in depth. The primary pit fill (127) was a loose, mid brownish grey sandy gravel 0.40m thick which contained no finds. The secondary fill (126) consisted of dark grey silty sand 0.20m thick, again no finds were retrieved from this context. The tertiary fill (125) was a pale mottled orangey grey silty sand 0.20m thick and containing no finds. The upper pit fill (124) was a dark brownish grey sandy silt 0.35m thick, once again this fill contained no finds. is the function of this pit is hard to discern, it may have been a small gravel extraction pit unknown date.

7.9.2 A second undated pit [132] lay immediately to the east. This was oval, with steep sides, and a concave base; it was 1.60m long, 0.90m wide and 0.70m deep. The pit fill (131) was a mid orangey brown sandy silt which did not contain any finds. A second sterile pit [13] lay to the west; this pit was subcircular, with gently sloping sides and a flat base; it measured 2.20m in length, 2.00m in width and 0.20m in depth. The pit fill (129) consisted of pale orangey grey sand.

7.9.3 Two further undated pits were located to the south; pit [165] was circular, with a v-shaped profile; it measured 0.90m in diameter and 0.18m in depth. The pit fill (164) was a pale brownish grey silty sand which contained no finds. Pit [167] was oval in shape, with gently sloping sides and a flat base; it was 1.35 long, 1.30m wide and 0.30m deep. The pit fill (166) was a very pale grey silty sand containing no finds.

7.9.4 A single isolated posthole [144] was also excavated in the south of the site; this was circular with a 0.20m diameter, 0.15m deep and had a concave profile. The posthole fill (143) was a dark greyish brown sandy silt and contained no finds.

7.9.5 The archaeological features were sealed by a thick deposit of dark brownish grey sandy silt (2) which has been interpreted as an agricultural soil; it varies in depth between 0.10m in the north and 0.40m in the south. The soil was overlain by deposit of greyish brown rubbly made ground (1), which varied in thickness from 0.70m in the north to 0.10m in the south.

8 SUMMARY OF SITE ARCHIVE AND WORK CARRIED OUT

8.1 Stratigraphic Site Archive

Stratigraphic Site Archive	Quantity
Context Sheets	168
Context Register Sheets	5
Plans	18
Plan Register Sheets	1
Sections	56
Section Register Sheets	2
Levels Sheets	3
Small Finds Register	1
Photographic Register Sheets	8
Environmental Sample Register Sheets	1
Environmental Sampling Sheets	13
Photographs, Black & White	76
Digital Photos	153

9 SUMMARY OF FINDS

9.1 Quantification of Finds

9.1.1 All of the finds have been washed, catalogued and marked where appropriate. The archive boxes have been ordered and listed ready for deposition with The Collection: Art and Archaeology in Lincolnshire. The archive was assessed by specialists in accordance with the guidance laid down in MAP 2 (EH 1991). Subsequently, the animal bones, metalwork and environmental assemblages were sent for specialist analysis.

Find Type	Quantity
Roman Pottery	87g- 2 sherds
Medieval Pottery	5363g- 122 sherds
Post Medieval Pottery	732g - 31 sherds
Ceramic Building Material	28415g - 117 fragments
Metalwork	14 pieces
Clay Tobacco Pipe	21g- 2 fragments
Geological material	5653g – 6 pieces
Animal Bone	457 pieces
Environmental residues	13 samples
Preserved Wood	21 pieces

9.2 Finds (Appendix C)

Roman Pottery

9.2.1 A total of two sherds of pottery weighing 87g from two individually number contexts were examined. Each sherd represents the only dating evidence for an entire phase. Both sherds of pottery are probably of local manufacture and may originate from the pottery production at Tattershall Thorpe, the neighbouring village. This work was carried out to assessment level, the assemblage is of limited significance.

Medieval Pottery

9.2.2 A total of 122 sherds of pottery, weighing 5363g, from 16 individually numbered contexts were examined. Some 71 different vessels are represented. Sherd size tends to be largest for the 15th and 16th century material with the earlier pottery generally being represented by small sherds. Overall the medieval pottery is from local sources, much of the assemblage originating from the Kirkstead, Toynton/Bourne and Toynton/Bolingbroke industries; the pottery having moved to Bolingbroke in the mid to late 15th century. The only imported wares noted were sherds from two Dutch Red Earthenware bowls. A single waster of Toynton/Bolingbroke fabric (Figure 6) from a pit indicates the site's close proximity to a pottery industry, possibly associated with the recent discovery of a multi period pottery industry at Tattershall Thorpe (Jane Young, pers. Comm.).

9.2.3 Overall the small assemblage consists mainly of domestic cooking and table wares and is of local significance. This work was carried out to assessment level.

Post-Medieval Pottery

9.2.4 A total of 31 sherds weighing 732g were recovered from eight individually numbered contexts. This small assemblage consisted of 17th and 18th century table wares and also 19th and 20th century industrially produced wares. Many of the wares were produced fairly locally.

9.2.5 The assemblage is of only limited significance, the work was carried out to assessment level.

Ceramic Building Material

9.2.6 A total of 117 fragments of ceramic building material (CBM) weighing 28415g were recovered from 15 contexts. With the exception of two residual Roman tegula fragments, the CBM assemblage is of medieval and post-medieval date. The majority of the assemblage consists of roof tile and brick of local manufacture and from a wide variety of sources, including brick of the fabric type seen in the Holy Trinity Church, Tattershall. Much of the brick is very similar to that found at Tattershall College and Castle and broadly similar varieties of roof tile have been found in local excavations. The bricks used to build Tattershall Castle were know to have come from the Boston and Edlington Moor works (Blair and Ramsay, 1991, 226) and were made in two different sizes both of which were found on the site. The assemblage is of local significance, the study was carried out to assessment level.

Clay Tobacco Pipe

9.2.7 A small assemblage of two clay tobacco pipe fragments weighing 21g were recovered from two contexts. These were an incomplete bowl and stem dated 1700-1770 and a stem fragment that was not diagnostic. The assemblage is of very limited significance, the work was carried out to assessment level.

Geological Material

9.2.8 A total of six stone fragments with a total weight of 5653g were recovered from four numbered contexts. All of the material was limestone of local extraction. None of the material showed signs of working and only a single fragment of the material showed evidence of crude splitting. The assemblage is of limited significance, the work was carried out to assessment level.

Animal Bone

9.2.9 The assemblage contains 457 fragments of bone from 19 contexts. The majority of the assemblage derives from features dating to medieval and post-medieval periods. The assemblage is in a mixed condition with some large fragments remaining although a number of specimens display signs of weathering and degradation. The vast majority of the assemblage is of cattle bone from two post-medieval pits. Much of the remaining assemblage comes from large medieval pits, with a complete horse skull being retrieved from the fill of the barrel well. The assemblage is of local significance, the work was carried out to analysis level.

Environmental Samples

9.2.10 Flots from eight bulk samples as well as charcoal, uncharred material and mollusca from the residues from five samples were submitted for post-excavation assessment. With the exception of samples from the large, medieval pits each sample produced a small flot The ditch samples produces flots containing mainly uncharred plant remains with rare charcoal and charred wheat seeds, other cereals and a single common pea, as well as small mammal bones. The sample from the barrel well contained surprisingly little with only uncharred seeds found.

9.2.11 The residues from the later medieval pits produced larger flots, again mainly of uncharred remains as well as mollusc remains. The lack of charred remains was initially surprising as cess pit fills are frequently rich in these remains. The presence of uncharred remains may be post-depositional but is more likely to be contemporary as many of the samples were taken from deposits on the water table, the waterlogging ensuring good preservation. A notable lack of fly puparia and coprolites from these features brings into question their initial interpretation as cess pits, they may have been gravel extraction pits or pits of some other industrial nature. These pits contained large assemblages of charcoal with significant amounts of roundwood present; this was originally thought to indicate that it derived from coppiced woodland. Coppiced woodland is typified by a homogenous assemblage with trees growing between five and ten years before being felled; while some of the oak and hazel from the assemblage may have been coppiced, the presence of gorse/broom which is unsuitable for coppicing, suggests some of the assemblage is simply refuse material.

9.2.12 The assemblage is of limited significance, the work was carried out to analysis level.

Metalwork

9.2.13 Fifteen metal objects were recovered (14 iron and one copper alloy) from four individual contexts. Identified objects include three nails. The remaining finds came mainly from two medieval pits and including a number of tools including a knife, a metalworking punch, a possible serrated scraping tool and tines. Two handles a possible bridle ring, part of a spur, a hinge and two unidentified objects made up the remaining iron objects. A single piece of copper wire was also found. All of the finds originated from medieval contexts. The assemblage is of local significance with the work being carried out to analysis level.

Preserved Wood

9.2.14 A total on 21 pieces of preserved wood were retrieved from the site (Figure 6). The majority of the pieces were oak heartwood from the coopered barrel; the remaining seven pieces were off cuts used to secure the barrel in place; these pieces were of oak and ash. The two of the barrel staves had been incised (Figure 6); these were probably related to the barrel's construction.

9.2.15 The assemblage is of local significance; this work was carried out to assessment level.

10 CONCLUSIONS AND DISCUSSION

10.1 During the course of the excavation dispersed archaeological features were recorded across the full area of the site. The features excavated date to three distinct periods; the Roman, medieval and post-medieval periods.

10.2 The earliest phases of activity recorded dated to the 1st to 2nd centuries AD and form a possible coaxial field system seen across the entire site. The ditches were typified by being linear and shallow with very sterile fills; only a single sherd of pottery was retrieved from these features. This field system is indicative of some form of agriculture taking place, probably some distance from any settlement activity. A known settlement was located 1.8km from the site; this settlement is thought to have produced pottery of a similar type to the single sherd dated to this phase.

10.3 The second phase of Roman activity was dated to the 3rd to 4th centuries AD. This consisted of alterations to the previous field system by the excavation of larger ditches and the digging of two shallow pits. The ditches again contained very few finds suggesting the site was still some distance from the nearest settlement. The alignment and slight curve of the southwest-northeast ditch from

this phase appears to be mirrored by Blacksmith's Corner to the south, suggesting a possible continuation in the use of this boundary alignment into the medieval period.

10.4 The site seems to have been completely abandoned after the Roman period and the next phase of activity observed dates to the 11th and 12th centuries. At this time, despite having two manors, Tattershall was a small settlement without a market. The activity is limited to a single ditch on a northwest-southeast alignment. The function of the ditch is undetermined but it does not follow the alignment of the earlier ditches. The site does not seem to have been incorporated into Tattershall at this time, and remained undeveloped, possibly the low lying nature of the site made it unattractive for agriculture.

10.5 Tattershall expanded during the 13th and 14th centuries when the original castle was constructed and the settlement was granted a market charter. Despite this, there was no increase in the intensity of activity on the site; the only features of this date were a single shallow pit and a pond. The macrofossil remains in the pond deposits show the presence of weeds and wild plants. The reason for this lack of activity may have again been the low lying nature of the site discouraging any potential activity.

10.6 The site and Tattershall itself underwent a marked change during the mid 15th century when Ralph Cromwell rebuilt the castle, and also constructed the church, alms houses and college. This injection of money and industry would have led to economic and population growth. The influx of workers to help construct the numerous buildings of this time would certainly have lead to a shortage of accommodation, of wells and of areas for industrial use, the site's proximity to the centre of Tattershall would have made it an attractive location despite the problems with damp ground. It seems likely that temporary settlements would have grown up around the town to house the workers.

10.7 During this phase a series of pits were excavated across the site and a possible post-built structure, was constructed in the north part of the area. These pits were initially thought to be cess pits may have been gravel extraction pits or pits of some other industrial function. The presence of a probable barrel well in this phase along with the pits suggests the site was located on edge of the settlement of Tattershall, within easy walking distance to access the pits or well. The two lines of postholes in the northeast of the site would probably have formed a building or a fence line. This evidence suggests the site was used for industry as well as having a domestic role seen in the pottery assemblage. The presence of high status artefacts such as a bridal loop and a probable spur reinforce a link to the nearby castle, as well as a suggestion of metalworking in the area. Such a transient settlement is likely to have had little demarcation of space, with people living and working in the same area, something seen in the presence of both domestic and industrial evidence.

10.8 With the death of Ralph Cromwell in 1456 and the confiscation of the estate by the crown in 1471, the boom in Tattershall's fortunes was short lived; with work declining, the workers would have migrated to other places of potential employment.

10.9 The fortunes of Tattershall itself waned during this period as the castle was passed to successive landowners until in 1693 it was abandoned.

10.10 The period 1550 – 1800 shows a definite decline in activity on the site with only isolated pits being recorded. Two of these pits contained parts of semi-articulated cattle skeletons, and could indicate pastoral agriculture.

10.11 The later post-medieval and modern phase, after 1800 AD consisted of a single brick lined cess pit probably associated with the nearby blacksmiths. A number of unrecorded 19th century and modern

pits were also observed across the site, most of these were associated with the coach works which previously occupied the site.

10.12 The results of the excavation identified the presence of Roman, medieval and post-medieval remains on site. The presence of Roman remains, while known in the Tattershall area, was not expected on the site. The medieval activity in Tattershall has been well documented; the excavated remains clearly reflect the changing land use of the site and peripheral nature of this part of Tattershall in general, they also hint at a relationship with the large scale construction taking place at Tattershall during the mid 15th century. Although the remains are low in density, they do have the potential to add to the growing knowledge of the Tattershall area and how the area was utilised during those periods. As such the results are of at least local significance.

11 PUBLICATION AND ARCHIVE DEPOSITION

11.1 The results of the work are due to be published in Lincolnshire Past and Present, a summary of results will also be included in the Lincolnshire Archaeological Round Up, and via the Archaeological Data Service (ADS) (Appendix D).

11.2 The archive, consisting of paper records, drawings, photographs, finds and digital records will be deposited with The Collection: Art and Archaeology in Lincolnshire.

12 BIBLIOGRAPHY

AOC Archaeology Group (2005). *Fieldwork Sector On-Site Handbook.*

AOC Archaeology Group (2009). *Market Place, Tattershall, Lincolnshire: Archaeological Desk-Based Assessment*

AOC Archaeology Group (2011a) *Blacksmith's Corner, Tattershall, Lincolnshire: A Written Scheme of Investigation for a Programme of Archaeological Strip, Map and Sample.*

AOC Archaeology Group (2011b) *Blacksmith's Corner, Tattershall, Lincolnshire: A Post-Excavation Assessment Report.*

Blair, J, Ramsay, N (1991). *English Medieval Industries; craftsmen, techniques, products.* Continuum International Publishing.

Brown D and AAF (2007). *Archaeological Archives: a guide to best practice in creation, compilation, transfer and curation.*

Department for Communities and Local Government (2010), *Planning Policy Statement 5: Planning for the Historic Environment.*

English Heritage (1991). *Management of Archaeological Projects.*

English Heritage London Region (1992). *Archaeological Assessment and Evaluation Reports (Guidelines) Archaeological Guidance Paper: 5.*

English Heritage (1998a). *Archaeological Guidance Paper 3: Standards and Practices in Archaeological Fieldwork. (English Heritage London Region).*

English Heritage (1998b). *Archaeological Guidance Paper 4: Standards and Practices in Archaeological Reports. (English Heritage London Region).*

English Heritage (2002). *Environmental Archaeology: A guide to the theory and practice of methods, from sampling and recovery to post-excavation.*

English Heritage (2006). *Understanding Historic Buildings: a guide to good recording practice*

Hogg, I J (Forthcoming) *Fields, Castles, Colleges and Changing Land Use in Tattershall.* In Lincolnshire Past and Present.

Institute of Field Archaeology (1992). *Standards and Guidance and Guidelines for Finds Work*.

Institute of Field Archaeologists (1994, revised 2001). *Standard and Guidance for Archaeological Field Evaluation.*

Institute of Field Archaeologists (1997). *Code of Conduct.*

Lincolnshire County Council (2009). *Archaeology Handbook.*

Lincolnshire County Council (2010a). *Historic Environment Team Archaeological Brief. 22 Market Place, Blacksmith's Corner, Tattershall.*

Lincolnshire County Council (2010b). *Guidelines for the Deposition of Archives.*

Pinnacle Consulting Engineers Ltd. (2009). *Engineering Site Appraisal for Market Place, Tattershall.*

Museum of London (1994). Archaeological Site Manual (3rd ed).

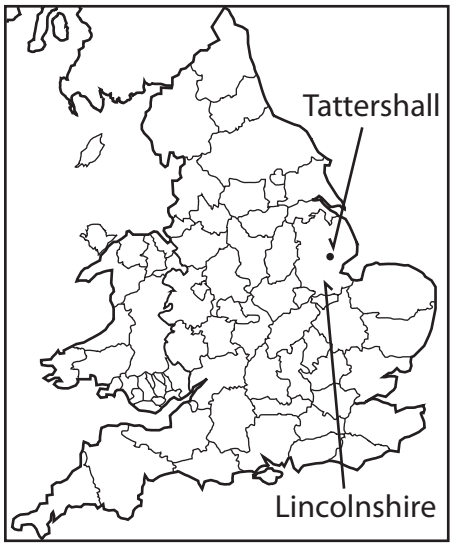
RESCUE & ICON – First Aid for Finds (RESCUE & ICON 2001).

United Kingdom Institute for Conservation (1983). *Conservation Guidelines No 2.*

United Kingdom Institute for Conservation (1990). Guidance for Archaeological Conservation Practice.

Wotton, T, Kimber, E, Johnson, R A (1771) *The Baronetage of England.* Woodfull.

Young, J (2010). *Historic Environment Advice, Heritage Lincolnshire.*



Approximate Site Location
Within England & Wales

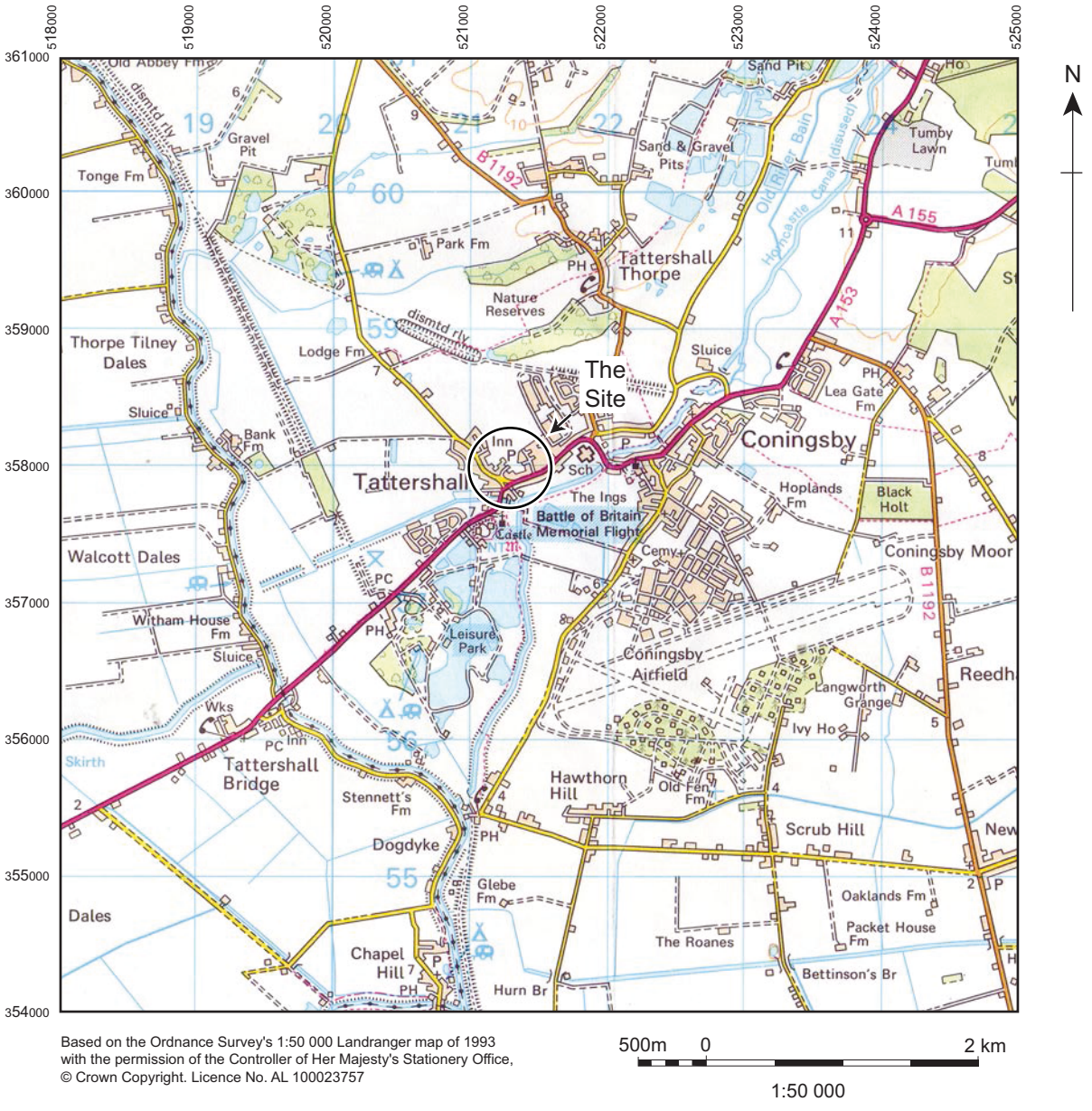


Figure 1: Site Location

AOC Archaeology Group

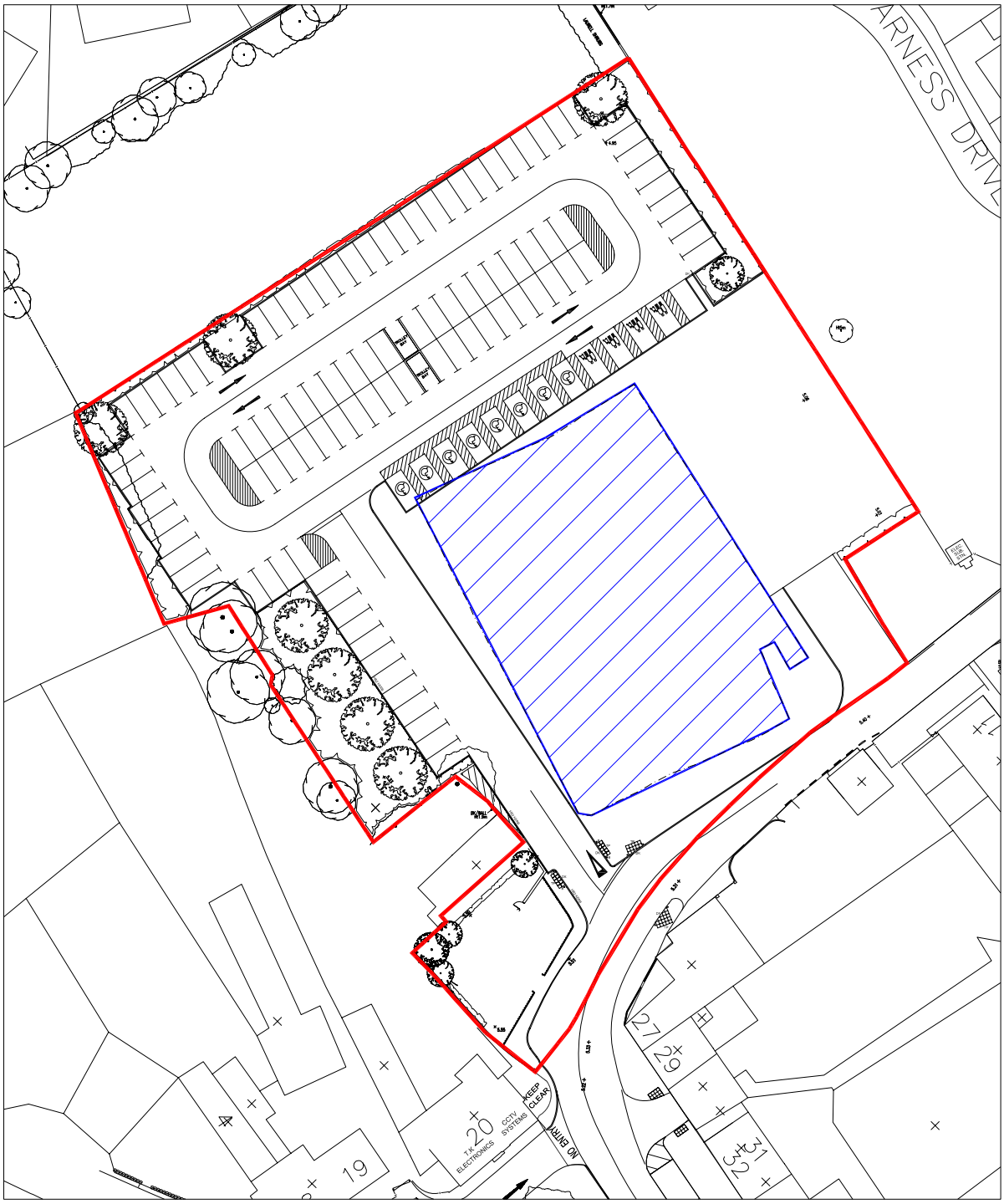


Figure 2: Detailed Site / Strip, Map and Sample Location

Figure 3: Plan of Period 2 Roman

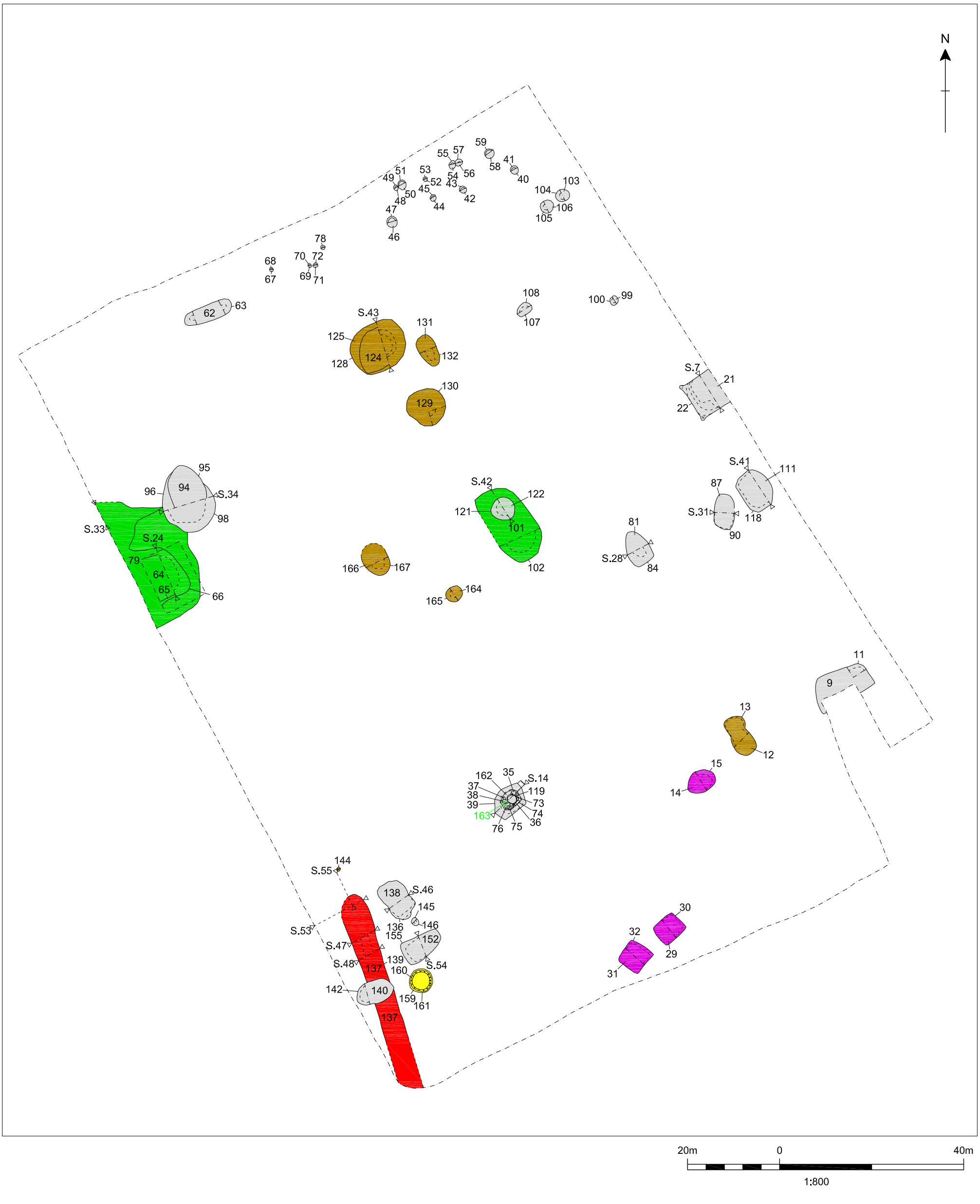


Figure 4: Plan of Period 3 Medieval and Period 4 Post-Medieval

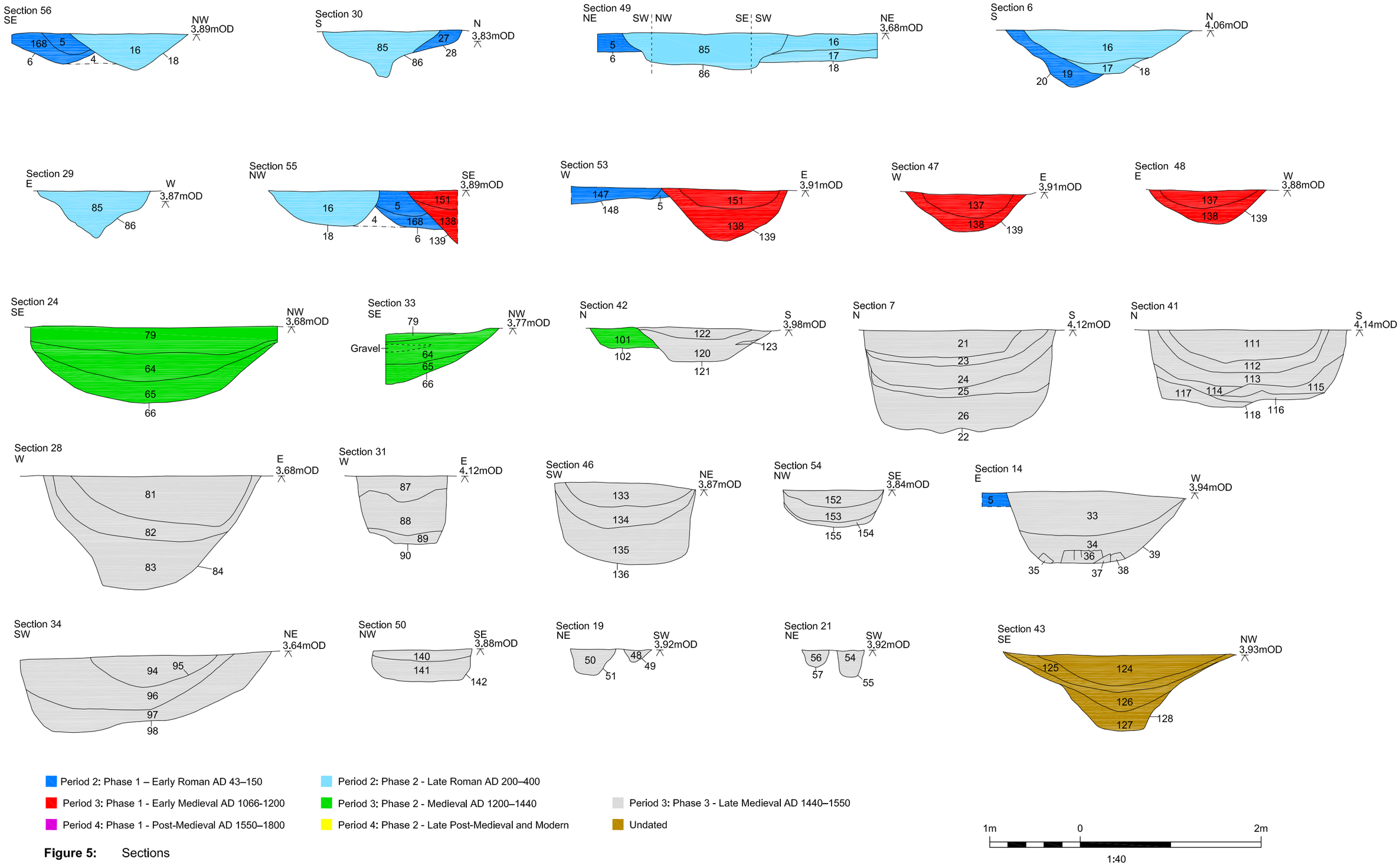


Figure 5: Sections

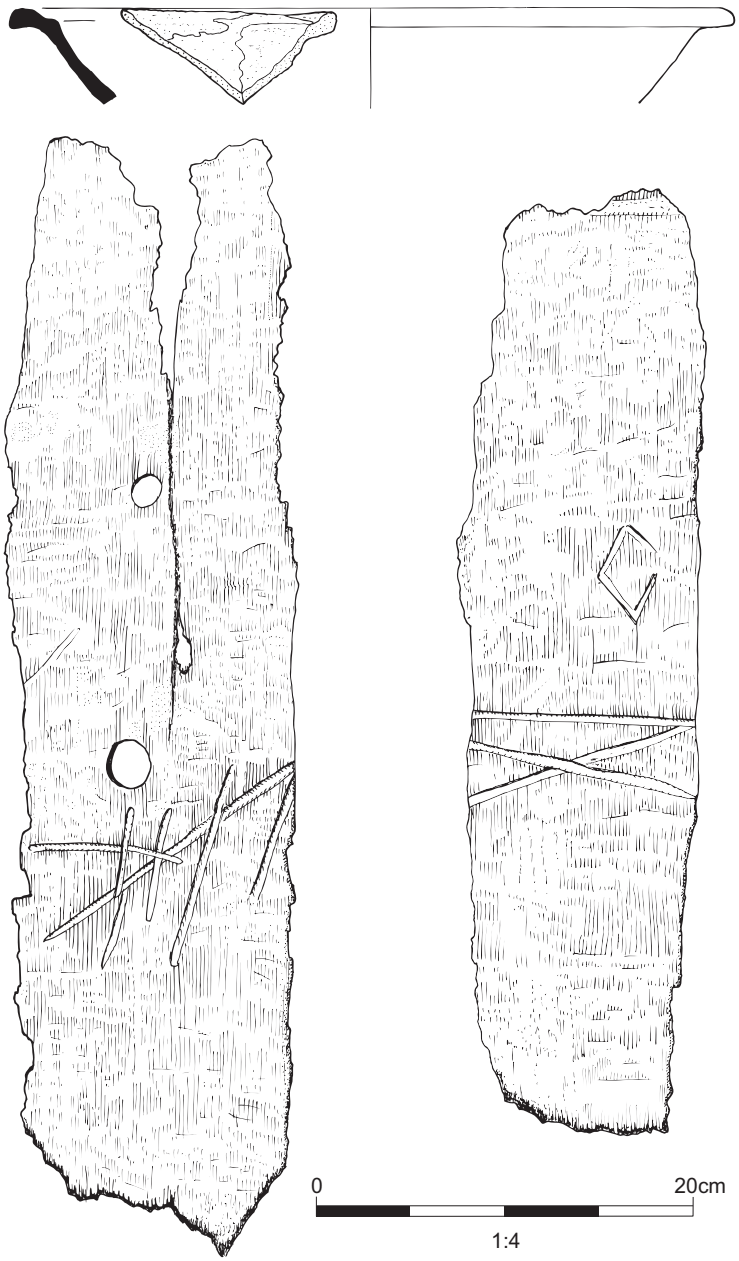


Figure 6: Illustrations of the Toyton/Bollingbroke Ware Waster and the Incised Barrel Staves

Appendices

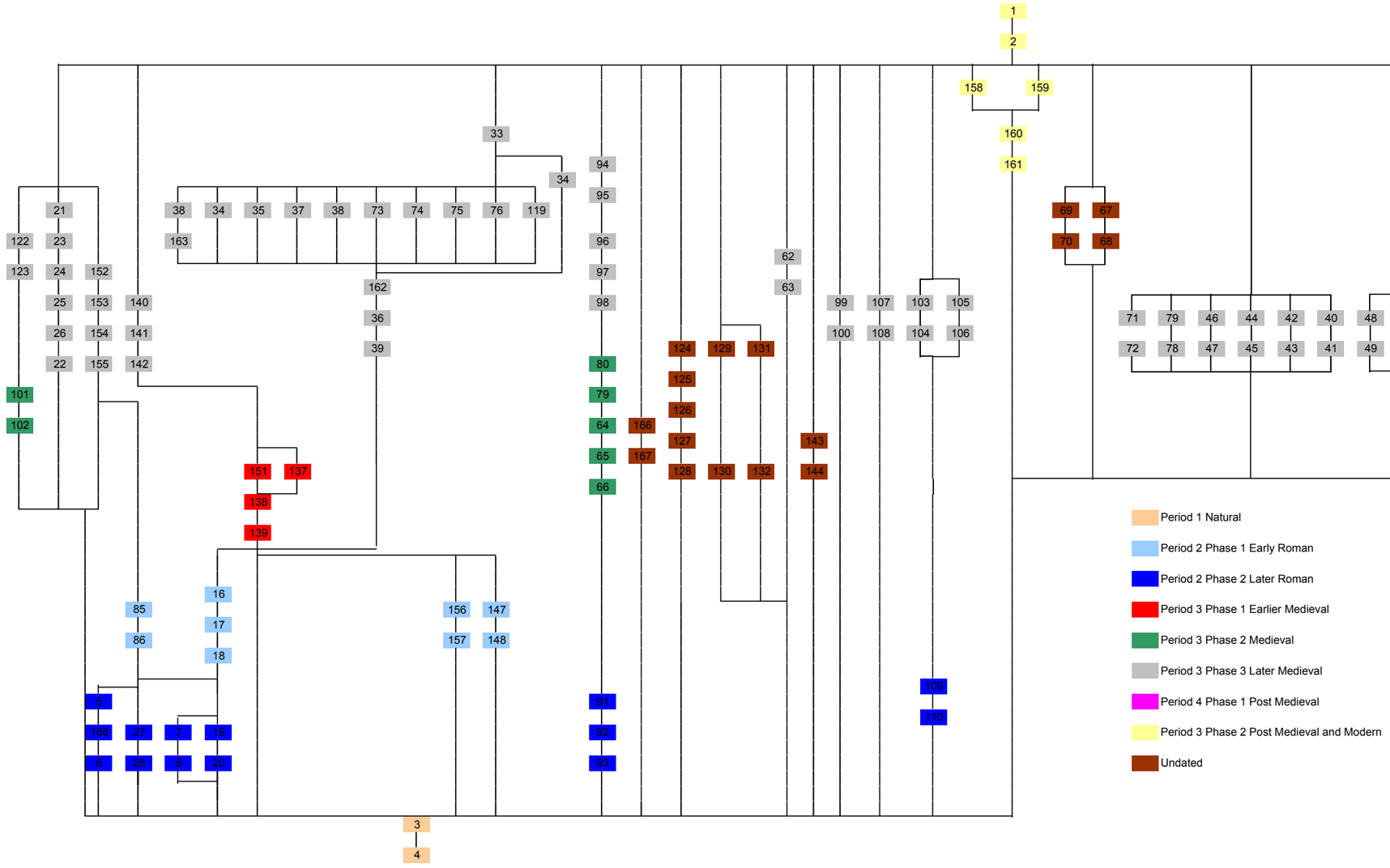
Appendix A – Context Register

Context	Context Description	Length	Width	Depth
1	Made Ground	55.00m	35.00m	0.70m
2	Agricultural Soil	55.00m	35.00m	1.10m
3	Subsoil	55.00m	35.00m	0.10m
4	Natural Sand	55.00m	35.00m	0.10m
5	Ditch Fill	21.00m	0.90m	0.33m
6	Ditch Cut	21.00m	0.90m	0.33m
7	Ditch Fill	23.50m	0.70m	0.17m
8	Ditch Cut	23.50m	0.70m	0.17m
9	Pit Fill	3.20m	1.90m	0.43m
10	Pit Fill	3.20m	1.90m	0.24m
11	Pit Cut	3.20m	1.90m	0.43m
12	Pit Fill	2.30m	1.30m	0.19m
13	Pit Cut	2.30m	1.30m	0.19m
14	Pit Fill	1.60m	1.20m	0.20m
15	Pit Cut	1.60m	1.20m	0.20m
16	Ditch Fill	35.00m	1.87m	0.37m
17	Ditch Fill	35.00m	0.90m	0.18m
18	Ditch Cut	35.00m	1.87m	0.48m
19	Ditch Fill	35.00m	0.40m	0.62m
20	Ditch Cut	35.00m	0.40m	0.62m
21	Pit Fill	2.15m	1.75m	0.32m
22	Pit Cut	2.15m	1.75m	0.85m
23	Pit Fill	2.15m	1.75m	0.10m
24	Pit Fill	2.15m	1.75m	0.25m
25	Pit Fill	2.15m	1.75m	0.35m
26	Pit Fill	2.15m	1.75m	0.36m
27	Ditch Fill	23.00m	1.00m	0.20m
28	Ditch Cut	23.00m	1.00m	0.20m
29	Pit Fill	1.60m	1.60m	0.18m
30	Pit Cut	1.60m	1.60m	0.18m
31	Pit Fill	1.60m	1.53m	0.14m
32	Pit Cut	1.60m	1.53m	0.14m
33	Well Fill	2.10m	1.55m	0.48m
34	Well Fill	2.10m	1.55m	0.33m
35	Wooden Support	0.31m	0.21m	0.15m
36	Wooden Barrel	0.52m	0.52m	0.40m
37	Wooden Support	0.24m	0.12m	0.04m
38	Wooden Support	0.39m	0.32m	0.22m
39	Well Cut	2.10m	1.55m	1.15m
40	Posthole Fill	0.50m	0.48m	0.26m
41	Posthole Cut	0.50m	0.48m	0.26m
42	Posthole Fill	0.40m	0.40m	0.40m
43	Posthole Cut	0.40m	0.40m	0.40m
44	Posthole Fill	0.30m	0.30m	0.26m
45	Posthole Cut	0.30m	0.30m	0.26m
46	Posthole Fill	0.65m	0.60m	0.30m
47	Posthole Cut	0.65m	0.60m	0.30m
48	Posthole Fill	0.30m	0.30m	0.15m
49	Posthole Cut	0.30m	0.30m	0.15m

Context	Context Description	Length	Width	Depth
50	Posthole Fill	0.40m	0.40m	0.30m
51	Posthole Cut	0.40m	0.40m	0.30m
52	Posthole Fill	0.27m	0.27m	0.20m
53	Posthole Cut	0.27m	0.27m	0.20m
54	Posthole Fill	0.30m	0.30m	0.30m
55	Posthole Cut	0.30m	0.30m	0.30m
56	Posthole Fill	0.30m	0.30m	0.20m
57	Posthole Cut	0.30m	0.30m	0.20m
58	Posthole Fill	0.50m	0.50m	0.40m
59	Posthole Cut	0.50m	0.50m	0.40m
60	Posthole group			
61	Posthole group			
62	Pit Fill	2.80m	0.90m	0.30m
63	Pit Cut	2.80m	0.90m	0.30m
64	Pond fill	6.00m	3.80m	0.30m
65	Pond fill	6.00m	3.80m	0.22m
66	Pond	6.00m	3.80m	0.68m
67	Posthole Fill	0.30m	0.30m	0.15m
68	Posthole Cut	0.30m	0.30m	0.15m
69	Posthole Fill	0.22m	0.21m	0.12m
70	Posthole Cut	0.22m	0.21m	0.12m
71	Posthole Fill	0.30m	0.30m	0.10m
72	Posthole Cut	0.30m	0.30m	0.10m
73	Wooden Support	0.70m	0.04m	0.04m
74	Wooden Support	0.41m	0.36m	0.14m
75	Wooden Support	0.38m	0.14m	0.09m
76	Wooden Support	0.40m	0.34m	0.30m
77	Posthole Fill	0.25m	0.25m	0.20m
78	Posthole Cut	0.25m	0.25m	0.20m
79	Pond fill	6.00m	3.80m	0.40m
80	Pond fill	4.00m	3.00m	0.10m
81	Pit Fill	2.01m	1.25m	0.28m
82	Pit Fill	2.01m	1.06m	0.17m
83	Pit Fill	2.01m	1.01m	0.63m
84	Pit Cut	2.10m	1.25m	0.63m
85	Ditch Fill	20.50m	1.30m	0.52m
86	Ditch Cut	20.50m	1.30m	0.52m
87	Pit Fill	2.10m	1.20m	0.29m
88	Pit Fill	2.10m	1.05m	0.47m
89	Pit Fill	2.10m	0.82m	0.14m
90	Pit Cut	2.10m	1.20m	0.76m
91	Ditch Fill	2.50m	0.50m	0.11m
92	Ditch Fill	11.20m	0.70m	0.09m
93	Ditch Cut	11.20m	0.70m	0.17m
94	Pit Fill	3.00m	1.40m	0.35m
95	Pit Cut	3.00m	1.40m	0.35m
96	Pit Fill	3.20m	2.30m	.055m
97	Pit Fill	3.20m	2.30m	0.40m
98	Pit Cut	3.20m	2.30m	0.90m
99	Pit Fill	0.40m	0.40m	0.15m
100	Pit Cut	0.40m	0.40m	0.15m

Context	Context Description	Length	Width	Depth
101	Pit Fill	4.35m	2.26m	0.24m
102	Pit Cut	4.35m	2.26m	0.24m
103	Posthole Fill	0.70m	0.65m	0.20m
104	Posthole Cut	0.70m	0.65m	0.20m
105	Posthole Fill	0.75m	0.60m	0.20m
106	Posthole Cut	0.75m	0.60m	0.20m
107	Posthole Fill	0.90m	0.60m	0.11m
108	Posthole Cut	0.90m	0.60m	0.11m
109	Hedgeline fill	13.50m	1.00m	0.08m
110	Hedgeline Cut	13.50m	1.00m	0.08m
111	Pit Fill	1.70m	1.68m	0.37m
112	Pit Fill	1.70m	1.'52m	0.14m
113	Pit Fill	2.19m	1.70m	0.35m
114	Pit Fill	1.70m	0.98m	0.12m
115	Pit Fill	1.70m	1.37m	0.80m
116	Pit Fill	1.70m	1.26m	0.11m
117	Pit Fill	1.70m	1.00m	0.28m
118	Pit Cut	2.19m	1.70m	0.85m
119	Wooden Support	0.35m	0.26m	0.11m
120	Pit Fill	1.45m	1.35m	0.20m
121	Pit Cut	1.45m	1.35m	0.38m
122	Pit Fill	1.45m	1.35m	0.15m
123	Pit Fill	1.45m	1.35m	0.04m
124	Pit Fill	2.30m	2.00m	0.35m
125	Pit Fill	2.80m	2.60m	0.20m
126	Pit Fill	2.80m	2.60m	0.20m
127	Pit Fill	1.80m	1.80m	0.40m
128	Pit Cut	2.80m	2.60m	.09m
129	Pit Fill	2.50m	2.00m	0.20m
130	Pit Cut	2.50m	2.00m	0.20m
131	Pit Fill	1.50m	0.90m	0.70m
132	Pit Cut	1.50m	0.90m	0.70m
133	Pit Fill	1.54m	1.12m	0.25m
134	Pit Fill	1.54m	1.12m	0.25m
135	Pit Fill	1.54m	1.12m	0.46m
136	Pit Cut	1.54m	1.12m	0.90m
137	Ditch Fill	11.20m	1.00m	0.25m
138	Ditch Fill	11.20m	1.00m	0.50m
139	Ditch Cut	11.20m	1.00m	0.60m
140	Pit Fill	1.90m	1.10m	0.50m
141	Pit Fill	1.90m	1.10m	0.21m
142	Pit Cut	1.90m	1.10m	0.36m
143	Posthole Fill	0.20m	0.20m	0.15m
144	Posthole Cut	0.20m	0.20m	0.15m
145	Posthole Fill	0.33m	0.25m	0.09m
146	Posthole Cut	0.33m	0.25m	0.09m
147	Pit Fill	1.20m	1.20m	0.25m
148	Pit Cut	1.20m	1.20m	0.25m
151	Ditch Fill	1.00m	0.80m	0.25m
152	Pit Fill	1.23m	1.11m	0.20m
153	Pit Fill	1.11m	1.00m	0.16m

Context	Context Description	Length	Width	Depth
154	Pit Fill	0.90m	0.85m	0.07m
155	Pit Cut	1.23m	1.11m	0.42m
156	Pit Fill	1.00m	0.80m	0.40m
157	Pit Cut	1.00m	0.80m	0.40m
158	Pit Fill	1.20m	1.20m	0.07m
159	Pit Fill	1.20m	1.20m	0.07m
160	Brick Pit Lining	1.20m	1.20m	0.07m
161	Pit Cut	1.20m	1.20m	0.07m
162	Pit Fill	1.20m	1.05m	0.50m
163	Wooden Support	0.32m	0.23m	0.26m
164	Pit Fill	0.90m	0.90m	0.18m
165	Pit Cut	0.90m	0.90m	0.18m
166	Pit Fill	1.35m	1.30m	0.30m
167	Pit Cut	1.35m	1.30m	0.30m
168	Ditch Fill	0.50m+	0.70m	0.20m


1
2
158
159
160
161
33
34
94
95
96
97
98
62
63
99
100
107
108
103
104
105
106
69
67
70
68
71
79
46
44
42
40
72
78
47
45
43
41
48
50
52
54
56
58
49
51
53
55
57
59
81
87
111
112
113
114
115
116
117
82
88
83
89
84
90
118
31
29
32
30
133
134
135
145
136
146
9
13
10
12
11
21
122
23
123
24
152
25
153
140
26
154
141
22
155
142
38
34
35
37
38
73
74
75
76
119
163
162
36
39
101
102
80
79
64
65
66
166
167
124
129
131
125
126
127
128
130
132
143
144
151
137
138
139
16
17
18
85
86
156
147
157
148
6
168
27
7
19
6
28
8
20
91
92
93
109
110
3
4
Period 1 Natural
Period 2 Phase 1 Early Roman
Period 2 Phase 2 Later Roman
Period 3 Phase 1 Earlier Medieval
Period 3 Phase 2 Medieval
Period 3 Phase 3 Later Medieval
Period 4 Phase 1 Post Medieval
Period 3 Phase 2 Post Medieval and Modern
Undated

Appendix C – Specialist Reports

Report on the pottery from blacksmith's corner, Tattershall, Lincolnshire (bct 11)

Jane Young and Ian Rowlandson

Introduction

An assemblage of one hundred and forty-five sherds, representing no more than ninety-two vessels in total, was submitted for examination. The pottery ranges in date from the Roman to the early modern period. The pottery has been fully archived to the standards for acceptance to the Collection in Lincoln in accordance with Lincolnshire County Council's Archaeological Handbook (sections 13.4 and 13.5) and within the guidelines laid out in Slowikowskki, *et al*. (2001) and the minimum archive by *The Study Group for Roman Pottery* (Darling 2004). Visual fabric identification of the non-local pottery was undertaken by x20 binocular microscope. The assemblage was quantified by three measures: number of sherds, weight and vessel count within each context. Every effort was made to identify cross-context joins, of which only one definite example was found. The pottery data was entered on an access database using post-Roman fabric codenames (see Table 1) developed for the Lincoln Ceramic Type Series (Young, Vince and Nailor 2005) and Roman codes developed by the City of Lincoln Archaeological Unit- CLAU (see Darling and Precious *forthcoming)*.

Condition

The pottery is mainly in a slightly abraded to fairly fresh condition. Sherd size mainly falls into the medium to fairly large size range (between 20 and 100 grams) but includes a few smaller sherds. Twenty-five vessels are represented by more than one sherd and there is one definite cross-context joining vessel. A few sherds are discoloured due to deposition in water-lain deposits.

Overall Chronology and Source

Twenty-one different post-Roman pottery ware types and two Roman sherds were recognised. The assemblage includes local, regional and imported types. The post-Roman material ranges in date from the Saxo-Norman to early modern periods and spans the period between the 11th to 12th and 19th to 20th centuries. A range of identifiable vessel types was recovered, mainly various types of jug, bowl and jar but also including several drinking vessels (cups, drinking jugs and a mug), plates, bottles and urinals.

Table 1 ***Pottery types with total quantities by sherd and vessel count***

Codename	Full name	Earliest date	Latest date	Total sherds	Total vessels
BL	Black-glazed wares	15	1750	2	2
BOU	Bourne D ware	13	1650	14	5
CIST	Cistercian-type ware	14	1650	14	10
CMP	Coal Measures Purple	14	1600	1	1
CREA	Creamware	17	1830	1	1
DUTR	Dutch Red Earthenware	12	1650	2	2
ENGS	Unspecified English Stoneware	17	1900	2	2
FREC	Frechen stoneware	15	1680	2	2
GRE	Glazed Red Earthenware	15	1650	3	1
GREY	Roman Greyware	40	400	1	1
IAGR	Native Tradition (Roman)	40	150	1	1
LERTH	Late earthenwares	17	1900	9	3
LFS	Lincolnshire Fine-shelled ware	97	1200	2	1
LMLOC	Late Medieval local fabrics	13	1550	8	7
MEDLOC	Medieval local fabrics	11	1450	1	1
NCBW	19th-century Buff ware	18	1900	6	4
PEARL	Pearlware	17	1900	4	2
TB	Toynton/Bolingbroke wares	14	1750	23	11
TGW	Tin-glazed ware	16	1770	1	1
TOY	Toynton Medieval Ware	12	1450	3	3
TOYBT	Toynton Bourne-type	13	1500	1	1
TOYII	Toynton Late Medieval ware	14	1550	42	29
TPW	Transfer printed ware	17	1900	2	1

Roman

Two Roman sherds were presented for study. From context 16 the single rim sherd from a wide mouthed bowl in a greyware fabric (GREY, BWM3) should be dated to the late 3rd to 4th century. An abraded rim sherd from a large bowl in a sandy native tradition fabric (IAGR, BNAT) from context 27, dates to the mid 1st to mid 2nd century AD. Both of these sherds may be from a multi period pottery production centre in the nearby parish of Tattershall Thorpe currently being studied by the author (IR).

Saxo-Norman to Medieval

Five vessels are of Saxo-Norman or medieval type. Two sherds from a single Lincolnshire Fine-shelled ware bowl (LFS) were recovered from deposit (138). This vessel can only be generally dated to the 11th or 12th centuries, although the wall thickness suggests a post-conquest date. Three medieval-type Toynton ware (TOY) sherds were recovered from the site. Two of the sherds come from either medium-sized jugs or jars and can only be generally dated to between the late 13th and mid 16th centuries. These two sherds come from deposits

(113) and (136). The third sherd was recovered from deposit (34) and is from a small jug of late 13th to 15th century date. This basal sherd exhibits wear marks along the basal angle. The body sherd of a jug in a local fabric (MEDLOC) found in deposit (88) might be a local Medieval Toynton-type. Similar vessels occur at nearby Kirkstead.

Late Medieval to early Post-Medieval

One hundred and five sherds representing sixty-six vessels are of late medieval to early post-medieval type. The majority of these vessels are of Late Medieval Toynton-type (TOYII) or Toynton/Bolingbroke-type (TB). These two types appear in the archaeological record from the mid 15th century and are known to have been produced in nearby Toynton All Saints and at Old Bolingbroke, although an increasing number of other sites are producing waste material. Late Medieval Toynton ware peaks in early to mid 16th century assemblages and is often a 'fossil-type' in dissolution deposits across central Lincolnshire and occasionally also in North Lincolnshire. It does not appear to survive far into the second half of the 16th century as it is rarely found stratified with the Glazed Red Earthenwares that dominate later 16th century assemblages. The twenty-nine vessels from this site include a range of different fabrics suggesting that they were not all manufactured at the same centre. Identifiable vessels are mainly jugs but two bowls and at least one urinal also occur in the assemblage. Only one vessel, a large jug or jar found in deposit (83), appears to be decorated. This vessel has an applied and pressed strip around the neck, just below the lid-seated rim and could have had a bunghole. The side-handled urinal found in deposit (114) is of a type commonly found in dissolution deposits in the county. A second vessel represented by a large rim sherd has lost the handle, but may also be a urinal as the upright rim is of a type uncommon on jugs. This vessel was recovered from deposit (133). Two bases from jugs or jars have worn basal angles from usage.

Eleven vessels are of Toynton/Bolingbroke type (TB) which was manufactured at Toynton All Saints and Toynton St. Peter's from the mid 15th century through to at least the mid to late 16th century. Potters are thought to have moved to Bolingbroke from Toynton from about the mid/late 15th century onwards where production of the ware probably continued into the mid 17th century. Other centres such as Ingoldmells produced similar types and it is difficult to easily distinguish the products of each production centre. Amongst the Toynton/Bolingbroke type vessels from this site is a large bowl that is most definitely a waster (DR1). It has cracked during firing and distorted post-breakage in the kiln. Most of the sherds were recovered from deposit (26) but two further large joining fragments were found in deposit (114). Wasters of late medieval to early post-medieval date have recently been discovered at a nearby quarry site at Tattershall Thorpe, but these have not yet been examined. Fragments from four further bowls were recovered from the site of which one is identical in shape to the waster vessel. Another bowl found in deposit (87) is low-fired and could represent a firing failure. Three of the other vessels are jugs, one of which has wear marks on the base and three are large jugs or jars. A single large jug or jar of Toynton Bourne-type (TOYBT) was recovered from deposit

(121). This type was possibly made at Ingoldmells and is usually found in early to mid 16th century deposits.

Eight sherds from seven of the pottery vessels submitted for examination are of late medieval to early post-medieval local type (LMLOC) and can be dated to the period between the mid 15th and mid 16th centuries. One vessel, a bowl from deposit (135), appears to be a waster. The vessel is under-fired and is badly spalled. Three vessels have an abundant quartz-tempered fabric similar to that used for some of the bricks (Fabric 1) and tiles (Fabric 4) found on the site and also used for late 16th to early 17th century and earlier vessels produced at nearby Kirkstead. These Kirkstead vessels have a fabric that contains a characteristic 'white sand', occasional flint and very occasional fine calcareous grains.

Fourteen sherds from five vessels are of Late medieval to early post-medieval Bourne-type (BOU). These vessels include jugs, a jar and a probable urinal. The base and body sherds of the possible urinal found in deposit (153) all have a thick internal white deposit, probably caused by uric acid. This ware type first appears in the mid 15th century and has probably died out by the mid 16th century. A single regional coarseware jug or jar sherd was recovered from deposit (140). The sherd is of Coal Measures Purple-type (CMP) and was probably produced in South Yorkshire between the 15th and mid 16th centuries.

Fourteen sherds from ten small Cistercian ware cups (CIST) were recovered from the site. Most of the vessels are in slightly sandy or fine purple to orange fabrics that could have been produced in Yorkshire or Derbyshire between the mid 15th and mid 16th centuries, but one base is in a coarse orange-red fabric that appears to be of local type. The shape of this base, which was recovered from deposit (33), is unusual and has not been noted in the area before. No obvious decoration is present on the cups although the over-fired and slightly distorted vessel from deposit (152) may have an impressed design.

Two imported Dutch Red Earthenware (DUTR) cooking pots or pipkins of general 14th to 16th century type were recovered from the site.

Post-Medieval

Seven vessels are of post-medieval mid/late 16th to 18th century date. Three sherds from a single Glazed Red Earthenware (GRE) tall-necked mug found in deposit (14) appear to be a copy of German Stoneware drinking jugs of the late 16th to early/mid 17th centuries. The vessel, which has a thick dark green, almost black internal and external glaze, may have been made at Boston.

Two Black-glazed Earthenware (BL) vessels are of Staffordshire or Derbyshire type and date to between the mid 17th and 18th centuries. One sherd comes from a cup and the other from a jug or jar. An unglazed earthenware sherd (LERTH) found in deposit (152) is probably from a black or brown-glazed jar of late 17th to 18th century date.

A small and discoloured rim sherd found in deposit (31) is from a Tin-glazed Earthenware bowl with blue-painted decoration. This vessel is of mid 17th to 18th century date. Two sherds

appear to be from two different Frechen (FREC) drinking jugs. It is probable that these vessels are early and date to between the mid/late 16th and early/mid 17th centuries.

Early Modern

Ten industrially produced vessels and two earthenware vessels are of late post-medieval to early modern type and include stonewares (ENGS), industrial coarsewares (NCBW) and industrial finewares (CREA, PEARL and TPW). Vessels are mainly tablewares include a range of plates, jars and bottles. The latest of these vessels (TPW) probably belongs to the period between the mid and late 19th centuries. Of note are two unusual unglazed Earthenware (LERTH) vessels found in deposit (145). The vessels are in a fine orange sandy fabric with red surfaces. These vessels could be jars or garden pots of late 17th to 20th century date.

Site Sequence

All of the pottery was recovered from cut features, most of which are pits. Both Roman sherds came from ditch fills with the earliest mid 1st to mid 2nd century vessel being found in Ditch (28) and the later late 3rd to 4th century vessel coming from Ditch 18. Most groups are very small and can only be generally dated to within a span of the mid 15th to mid 16th centuries, but a few features produced slightly larger groups.

A small group of eighteen fairly fresh sherds from a total of eight vessels was recovered from Pit (22). The group includes the greater part of a wasted large Toynton/Bolingbroke bowl of probable mid 16th century date. This vessel has cracked and distorted during firing and strongly suggests the presence of a nearby production site or kiln. Further sherds of this bowl were recovered from Pit [118] (fill 114). Two other Toynton/Bolingbroke vessels and three Late Medieval Toynton-type jugs also occur in this mid 16th century group. The other two vessels are a Cistercian ware cup and a jug or jar in a fabric similar to that produced at nearby Kirkstead Abbey.

Two fills of Well [39] (Fills 33 and 34) produced a small group of ten vessels each represented by a single sherd. Most of the vessels are Late Medieval Toynton-type jugs, jars or bowls but the group also includes a Toynton/Bolingbroke bowl and an imported Dutch Red Earthenware cooking pot or pipkin. This group could date to anywhere between the late 15th and mid 16th centuries. Two Cistercian ware cups and a Toynton Bourne-type large jug or jar of similar date are attributed to Wooden support (121).

Pit [118] produced a small group of fifteen vessels from three different fills (deposits 111, 113 and 114). Vessels are mainly of Late Medieval Toynton or Toynton/Bolingbroke type but the group also includes a late medieval to early post-medieval Bourne ware jug and a small Cistercian cup. This group is of mid 16th century date and the presence of joining sherds with Pit [22] suggests they were open at the same time.

Most of the vessels recovered from Pit [136] are likely to be of mid 16th century date, although the Frechen ware drinking jugs recovered from fills (133) and (134) are unlikely to pre-date

the second half of the 16th centrury and are more probably of mid/late 16th to early/mid 17th century date. The group mainly comprises Late Medieval Toynton-type and locally made vessels including a possible urinal, but also includes two Cistercian ware cups and two Frechen ware drinking jugs.

Summary and Recommendations

This is a small group of pottery of mainly late medieval to early post-medieval date, but also including Roman, Saxo-Norman, medieval and early modern vessels. The composition of the assemblage suggests that most of the material was deposited between the late 15th and mid 16th centuries and includes both domestic vessels and production waste. The material is of a similar nature to other domestic groups found in the area but does include one definite waster and several other mis-fired vessels.

The waster bowl should be illustrated. The early modern material has been discarded in agreement with the Collection and the potential local Cistercian ware cup has been added to the County Type Series. The remaining assemblage should be kept for future study, especially as part of any further characterisation of the Lincolnshire post-medieval fabrics.

References

Darling, M.J., 2004, Guidelines for the archiving of Roman Pottery. *Journal of Roman Pottery Studies* 11, 67-74.

Darling, M.J. and Precious, B.J., *forthcoming*, *Corpus of Roman Pottery from Lincoln*, Lincoln Archaeological Studies No. 6, Oxbow Books, Oxford

Lincolnshire Archaeological Handbook 2009 edition [Internet]. Available from <http://www.lincolnshire.gov.uk/upload/public/attachments/1073/Archaeological_Handbook.pdf

Slowikowski, A. Nenk, B. and Pearce, J. 2001. *Minimum Standards for the Processing, Recording, Analysis and Publication of Post-Roman Ceramics.* Medieval Pottery Research Group, Occasional Paper 2.

Young, J., Vince A. And Nailor V. 2005. *A Corpus of Anglo-Saxon and Medieval Pottery from Lincoln*. Lincoln Archaeological Studies **7**

Report on the ceramic building material from blacksmith's corner, Tattershall, Lincolnshire (bct 11)

Jane Young Ceramic Consultant

Introduction

One hundred and seventeen fragments of ceramic building material weighing 28.415 kg were submitted for examination. The material ranges in date from the Roman to the early modern period. The fragments were examined both visually and at x 20 binocular magnification. The resulting archive was then recorded using Lincolnshire codenames in an Access database and complies with the guidelines laid out in Slowikowski, *et al.* (2001) and complies with the Lincolnshire County Council's *Archaeological Handbook* (sections 13.4 and 13.5). Nine different brick and ten different tile fabrics have been identified amongst the material examined and descriptions of these based on x20 binocular magnification are given below. These fabrics should be used as the basis for a Tattershall brick and tile Fabric Type Series.

Condition

The material recovered is mainly in a fairly abraded to slightly abraded condition. Few fragments have mortar adhering. Several brick and tile fragment have heat-altered surfaces.

The Ceramic Building Material

A limited range of ceramic building, medieval to post-medieval flat roof tile and brick, was examined. The types are shown in Table 1.

Table 1: Ceramic Building material codenames and total quantities by fragment count and weight

Codename	Full name	Total	Total weight in grams
BRK	Brick	57	21896
FLOOR	Floor tile	8	2000
NIB	Nibbed tile	2	488
PNR	Peg, nib or ridge tile	48	3814
TEG	Tegula	2	217

The Roman tile

Two Tegula fragments in different fabrics were recovered from the site.

Fabric 1

This fabric is reduced with thin oxidised surfaces and has common medium-sized (most 0.2-0.4mm but up to 0.6mm) subround quartz grains together with moderate iron-rich grains of slag. A single Tegula recovered residually from deposit (29) is in this fabric. The tile is very highly fired or has been burnt and is between 21 and 24mm thick.

Fabric 2

This fabric is oxidised to a dull orange-red colour and has abundant round to subround quartz (most 0.2 to 0.5mm) with occasional larger well-rounded white grains up to 15mm together with moderate fine to medium-sized (0.2-0.6mm) iron-rich grains, sparse to moderate

calcareous grains and moderate laminated shale or mudstone pellets. A single Tegula recovered residually from deposit (34) is in this fabric. The tile is 24mm thick.

The Medieval to Post-Medieval roof tile

Fifty fragments from forty-one different roof tiles were examined. The tiles were divided into eight different fabric types (Table 2) which may suggest a number of different sources for the material, or chronological differences in local production.

Table 2: roof tile fabrics and total quantities by tile count

	Total tiles
Site Tile Fabric 3	21
Site Tile Fabric 3/4	1
Site Tile Fabric 4	8
Site Tile Fabric 5	1
Site Tile Fabric 6	2
Site Tile Fabric 7	1
Site Tile Fabric 8	1
Site Tile Fabric 9	1
Site Tile Fabric 10	5
Totals	41

A range of eight different visual fabrics is present and the descriptions given below are based on a x20 binocular microscopic examination. Individual variations within these fabrics are described in the archive. One tile exhibits a mixed fabric (Fabric 3/ 4) possibly suggesting that these two fabrics may have been produced in the same area if not the same workshop.

Fabric 3

This fabric is usually oxidised to a dull orange to orange-red colour and has abundant medium-sized (mainly 0.2-0.4mm but up to 0.8mm) subround to round quartz grains (often appearing cloudy or white), together with sparse to moderate laminated shale or mudstone up to 2.0mm, sparse iron-rich grains, sparse rounded calcareous inclusions, probably limestone and occasional fragments of flint up to 13mm. Occasional streaks and pellets of inclusion-free clay may also occur. This is the most common fabric to occur on the site with twenty-one examples being recovered. A single suspension nib is of the central applied and folded type. Tile thickness ranges between 14mm and 19mm centring on 16mm. These tiles are most probably of late medieval to early post-medieval type.

Fabric 4

This fabric is usually oxidised to a dull orange to dull red-brown colour and has abundant mixed (most 0.4 to 0.8mm but up to 1.0mm) round to subround quartz grains (often appearing cloudy or white), together with moderate angular iron-rich grains up to 5mm, sparse to moderate flint, sparse laminated shale/mudstone, mainly sparse rounded calcareous inclusions, probably limestone (although patches of common grains can occur) and occasional pebbles up to 17mm. Occasional lumps of white clay with abundant quartz grains

as above may also occur. This fabric appears to be similar to one (Fabric 1) occurring at the nearby site of Holy Trinity Church, Tattershall (Young 2011) and used for medieval-type tiles (including a decorated ridge tile) of 13th to 15th century date. Part of an applied and folded central nib is present on one tile. Tile thickness on the eight examples found is variable between 13mm and 20mm

Fabric 5

The single tile in this fabric is a dark reduced colour with light orange surfaces. This fabric has moderate mixed (0.2-0.6mm) subround quartz grains, together with sparse iron-rich grains and moderate fine calcareous inclusions that appear to include mineral calcite. There are also moderate flattened vesicles within the matrix. The single tile is 20mm thick and has a possible paw print on the upper surface. The tile dates to between the medieval and early post-medieval periods.

Fabric 6

This fabric fires to a dull-orange-brown colour and has common mixed (0.4-0.8mm but up to 1.0mm) round to subround quartz together with sparse to coarse-sized (up to 1mm) iron-rich grains and occasional calcareous grains. The fabric also has common organic voids. The single measurable fragment in this fabric is 18mm thick. The tile dates to between the medieval and post-medieval periods.

Fabric 7

The single tile in this fabric is reduced with oxidised surfaces and has common mixed (most 0.2-0.6 mm but up to 0.8mm) round to subround quartz grains, together with common fine black iron-rich grains and sparse calcareous inclusions, probably limestone. The single tile fragment in this fabric is quite thin at 13mm. The tile dates to between the medieval and early post-medieval periods.

Fabric 8

The singe tile in this light firing fabric has abundant mixed (most 0.2-0.6mm but up to 0.8mm) round to subround quartz grains and moderate fine iron-rich grains. The tile is fired to a pale reduced colour and has light oxidised surfaces. This tile is 15mm thick and is typologically of medieval to late medieval date.

Fabric 9

This reduced fabric has moderate medium to coarse-sized (0.2-0.8mm) round to subround quartz grains together with moderate rounded iron-rich grains (some up to 3.0mm and possibly including slag) and sparse white clay pellets and flint. The single tile in this fabric is 15mm thick and is likely to be of medieval to late medieval date.

Fabric 10

This fabric is oxidised to a dull orange colour but may have a reduced core. It contains common mixed (mainly 0.1-0.4mm but up to 0.8mm) subround to round quartz grains (often appearing cloudy or white), together with common laminated shale or mudstone up to 13mm, and sparse angular iron-rich grains up to 2.0mm. The five roof tiles is this fabric vary between 14mm and 20mm in thickness. A single unglazed floor tile also occurs in this fabric (see below).

The Late Medieval to Post-Medieval Brick

Fifty-seven fragments from forty-four handmade bricks were found on the site. Ten of these are in an oxidised fabric almost identical to Tile Fabric 4 (Brick Fabric 1) and are similar to bricks found at the Holy Trinity Church site (ibid.). These bricks are quite low-fired and the abundant quartz filler can often be rubbed away from the surface. No complete late medieval to early post-medieval bricks are present in the assemblage, but one complete early modern brick handmade brick was recovered. Many of the bricks are in such a poor condition that little of the methods of manufacture can be seen, although the edges of most examples appear to be sanded. It is not possible to date these bricks closely but they mainly appear to be of 15th to 16th century type.

Table 3: brick fabrics and total quantities by brick count

	Total bricks
Site Brick Fabric 1	23
Site Brick Fabric 2	5
Site Brick Fabric 3	1
Site Brick Fabric 4	1
Site Brick Fabric 5	4
Site Brick Fabric 6	5
Site Brick Fabric 7	1
Site Brick Fabric 8	2
Site Brick Fabric 9	2
Totals	44

Fabric 1

This fabric mainly fires to a dull red-brown colour and has abundant mixed (0.4-0.8mm) round to subround quartz grains (often appearing cloudy to white), together with moderate angular iron-rich grains up to 5mm but mainly below 0.2mm, sparse rounded calcareous inclusions, probably limestone, sparse to moderate fragments of flint up to 15mm and occasional pebbles up to 17mm. Several of the bricks are 'salt-surfaced'. This is the most common fabric to be recovered from the site. Bricks are sand-moulded and occasionally bedded on straw. No complete bricks are present in the assemblage but measurable widths vary widely from 98mm to 120mm. The bricks seem to be narrower the hard they are fired with the smallest width at 98mm coming from a near-vitrified brick. Brick thickness varies between 45mm and 56mm but centres on 50mm. One of the bricks has been 'rubbed' to form a rounded end. A number of

the bricks have sunken margins or sunken upper surfaces. These bricks are characteristically of late medieval to early post-medieval 15th to 16th century type.

Fabric 2

This fine calcareous fabric fires to reds, greys and purples. It contains only rare quartz, iron-rich and calcareous grains above 0.1mm. The calcareous grains include fossil or marine shell. Visually this fabric is similar to tiles produced at Boston. The five examples recovered from this site are fairly abraded and fragmentary. The three examples with original side surfaces all appear to be sand-moulded and one example has been laid or bedded on straw. A single fragment is measurable and this is 122mm wide and 50mm thick. This type of brick in Boston dates from the 14th to 16th centuries.

Fabric 3

A single brick in this fabric has fired to a dull orange colour. This poorly mixed fabric mainly has common mixed (0.2-0.6mm but up to 0.8mm) round to subround quartz grains, together with sparse to moderate fine iron-rich grains (mainly below 0.8mm but some larger) and sparse rounded calcareous inclusions. Patches with abundant quartz and common calcareous grains occur throughout the brick. A `single brick in this fabric was recovered from the site. The brick is sand-moulded and has salt-surfacing. The brick measures 106mm by 55mm. This fabric is also used for an unglazed floor tile (see below). The brick is of late medieval to early post-medieval type.

Fabric 4

This fine silty fabric has rare visible inclusions even at x20 magnification. The single brick in this fabric is fired to an orange-red colour. The fragment in this fabric is not measurable but is definitely slop-moulded. The brick is of late medieval to early post-medieval type.

Fabric 5

The bricks in this fabric are a dull orange-brown to red-brown colour. This fabric has abundant to very mixed (0.4-0.8mm) mainly cloudy round to subround quartz grains, together with moderate fine iron-rich grains and variable but mainly common calcareous inclusions including fossil shell. Lenses and pellets of clean light firing clay and sparse to moderate laminated shale or mudstone pellets also occur. The four bricks in this fabric are all slop-moulded and mainly salt-surfaced'. The two measurable bricks are both 50mm thick and the single width present is 110mm. Five unglazed floor tiles are also in this fabric (see below). The bricks are of late medieval to early post-medieval type.

Fabric 6

This coarse calcareous fabric fires to oranges and reds and has moderate to common mixed (0.4-0.6mm but up to 0.8mm) round to subround quartz grains together with moderate to common iron-rich grains up to 0.8mm and very mixed but mainly common rounded calcareous inclusions up to 1.0mm, probably limestone. Occasional straw voids can be seen

in the fabric. The five bricks in this fabric are sand-moulded with depths of between 50mm and 58mm. The bricks are of late medieval to early post-medieval type.

Fabric 7

The single yellow brick in this fabric has moderate very mixed round to subround quartz grains between 0.2 and 1.0mm (but up to 1.5mm) together with rare iron-rich grains, sparse calcareous grains and sparse flint (up to 10 mm). The brick in this fabric has been sand-moulded and roughly struck. It has uneven bedding with possible cloth and finger marks and measures 104mm by 70mm. This brick is from deposit (152) and is likely to be of 18th to 19th century date.

Fabric 8

This yellow brick fabric has common fine quartz below 0.1mm with rare larger quartz grains and rare iron-rich grains. Occasional straw voids and oxidised clay pellets can be seen in the fabric. One complete brick and one partial brick occur in this fabric. Both bricks are from deposit (152) and appear to have been used upside-down as flooring bricks as the undersides are heavily worn. The complete brick measures 225mm x 107mm x 40+mm. The other fragment is not quite so worn and suggests a thickness of 45mm. These bricks are of 18th to 19th century date.

Fabric 9

This fabric is similar to Fabric 1. One overfired brick has fired to a purple colour whilst the other brick is a dull orange-red colour. The fabric has abundant mixed (0.4-0.8mm) round to subround quartz grains (often appearing cloudy to white), together with moderate angular iron-rich grains up to 5mm but mainly below 0.2mm including moderate slag, sparse rounded calcareous inclusions, probably limestone, sparse to moderate fragments of flint up to 15mm and occasional pebbles up to 17mm. Both bricks are sand-moulded but otherwise are unalike due to differential firing. The vitrified brick measures 98mm by 48mm and the lower-fired brick 105 x 50mm. The brick is of late medieval to early post-medieval type.

The Late Medieval to Post-Medieval floor tile

Eight fragments from seven unglazed late medieval to early post-medieval floor tiles in three fabrics (Table 4) were recovered from the site. None of the tiles provide complete measurements but the thickness of the tiles suggests that they might be of a larger type.

Five of the tiles are in Brick Fabric 5 which is also used for slop-moulded bricks. All of the tiles have cut chamfered edges and three have well-worn upper surfaces. The thickness of these tiles varies between 38mm and 44mm. They appear carefully made and are reminiscent of tiles made at Stixwold Abbey but it has not been possible to directly compare them.

Single floor tiles also occur in Brick Fabric 3 and Tile Fabric 10. The tile in Brick Fabric 3 has at least one chamfered edge and is 44mm thick. Unlike the tiles in Brick Fabric 5 this example

is poorly made with sunken margins to the tile. The example in Tile Fabric 10 is much thinner at 26mm but has carefully cut chamfered edges.

Table 4: floor tile fabrics and total quantities by tile count

	Total tiles
Site Brick Fabric 3	1
Site Brick Fabric 5	5
Site Tile Fabric 10	1
Totals	7

Summary and Recommendations

The ceramic building material recovered probably dates between 13th and 18th centuries and is mainly typical of types found on other sites in the Coningsby and Tatershall area. A wide range of fabrics was found within the tile and brick suggesting a variety of workshops for the material. It is known that the brick used for Tattershall Castle was obtained from several sources including production sites at Edlington Moor and Boston as well as reusing earlier bricks from Revesby Abbey (Smith 1985). The bricks are likely to be contemporary with those used for the nearby College and Castle in the mid to late 15th century, but there has been no opportunity to directly compare them as part of this assessment.

Small featureless fragments have been discarded in agreement with the Collection. Little is known about the ceramic building material sequence in this area and therefore all of the retained material should be kept for future analysis.

References

Lincolnshire Archaeological Handbook 2009 edition [Internet]. Available from <http://www.lincolnshire.gov.uk/upload/public/attachments/1073/Archaeological_Handbook.pdf

Slowikowski, A. Nenk, B. and Pearce, J. 2001. *Minimum Standards for the Processing, Recording, Analysis and Publication of Post-Roman Ceramics.* Medieval Pottery Research Group, Occasional Paper **2**.

Smith, T. P. 1985. *The Medieval Brickmaking Industry in England 1400-1450.* BAR Series 138

Young, J. 2011. *The Ceramic Building Material from Holy Trinity Church, Tattershall.* Unpublished developer report for Allen Archaeology Ltd.

Blacksmith's Corner, Tattershall Lincolnshire (BCT11)

Specialist Post-Excavation Assessment Reports prepared by Archaeology South-East on behalf of AOC Archaeology Group

The Bulk Metalwork by Trista Clifford

Three iron nails were recovered from the excavation, from two individual contexts of 15th century date. Nails were assigned Registered Finds numbers on site but have been deaccessioned for the purposes of this report.

Pit fill (133) contained two general purpose nails with flat, circular heads and square sectioned stems, length 44mm. A similar nail was also recovered from pit fill (152).

Significance and potential

The nails have been fully recorded for the site archive and are considered to hold local significance only. As such the assemblage has no potential for further study.

Further Work

No further work is proposed. Information for the site narrative can be taken from this report.

The Geological Material by Luke Barber

The excavations produced just six pieces of stone, weighing 5653g, from four different contexts. Although all the fragments are fresh, none show any definite signs of having been humanly worked. However, it is likely that at least the piece from (135) was deliberately, if crudely, split into a block that could be used in construction. All of the stone consists of limestone though three different variations were noted: a cream coloured coarse oolite was recovered from (135) (a 2520g rough block measuring 175 x 125 x 60mm), another cream coloured, but less dense/finer oolite from (33) (172g) and an off-white fine limestone with occasional oolitic seams (context (82) 3/2925g and (136) 1/36g). The source for all of these limestones is likely to be in the Middle Jurassic series that contains a number of beds of similar types including the Lincolnshire Limestone series and the Great Oolitic Limestone. These would have been available fairly locally a little way to the west of the site.

Significance and Potential

As the material can be considered quite local to the site, and shows no signs of having been modified, it is not considered to hold any potential for further analysis.

Further Work

No further work is recommended and the assemblage is recommended for discard.

Blacksmith's Corner, Tattershall Lincolnshire (BCT11)

Specialist Post-Excavation Analysis Reports prepared by Archaeology South-East on behalf of AOC Archaeology Group

The Registered Finds by Trista Clifford

Introduction and overview of the assemblage

An assemblage consisting of eleven objects, ten iron and one copper alloy, was recovered from six separate Period 3, phase 3 contexts. They represent a limited range of activity typical of the late medieval period and include fixtures and fittings, tools and objects associated with horsemanship.

Catalogue

1. RF<1> [33] Well fill; Period 3 Phase 3
Socketed spatulate **iron tool** with ?toothed edge. Incomplete. Length 98.3mm. Width 34.5mm. Thickness 6mm.

2. RF<2> [94] Pit fill; Period 3 Phase 3
Iron ring. Oval in section. Complete. External diameter 93.8mm. Internal diameter 65mm. Section diameter 14mm. Possibly structural or a bridle cheek piece.

3. RF<4> [133] Pit fill; Period 3 Phase 3
Square sectioned **iron rod** with slight curve and tapered end; possible tine. Incomplete. Length 59.5mm. Width 8.8mm.

4. RF<5> [133] Pit fill; Period 3 Phase 3
Square sectioned **iron rod** with slight curve and tapered end; possible tine. Incomplete. Length 59.5mm. Width 8.8mm

5. RF<7> [133] Pit fill; Period 3 Phase 3
Iron ?spur branch. Incomplete. Slightly flattened, bifurcated terminal with worn break, probably the remains of a strap junction. Semicircular section. Length 124mm. Thickness 13.5mm.

6. RF<8> [133] Pit fill; Period 3 Phase 3
Scale tanged **iron knife blade**. Incomplete. The blade back is in line with the tang, which partially remains with two rivet holes present. ?copper alloy shoulder plate. Length 165mm. Width 18.1mm. Thickness 4mm. Similar to Cowgill et al 1987, 94: 122-123

7. RF<9> [133] Pit fill; Period 3 Phase 3
Iron metalworking punch. Incomplete. Rectangular section, end circular in section, tapering to a point. Length 104.5mm. Width 12.5mm. Thickness 7mm.

8. RF<10> [135] Pit fill; Period 3 Phase 3
Iron hinged bracket. Complete. Rectangular straps; three attachment holes in one strap. Length 131mm. Width 27mm. Thickness 8mm. Similar examples exist from Abbotts Lane, London, dated to the mid 16th century (Egan 2005, 68 5.2)

9. RF<11> [152] Pit fill; Period 3 Phase 3

Two pieces of drawn **copper alloy wire**, circular section. Incomplete. Function uncertain. Lengths 80mm and 75mm. Thickness 3mm.

10. RF<13> [153] Pit fill; Period 3 Phase 3
Iron drop handle, reverse L shaped arms. Complete. Length 123mm. Width 45mm. Thickness 14.5mm. A similar smaller example was found at Coppergate, York (Ottoway and Rogers 2002, 2845 Fig 1423).

11. RF<14>[153] Pit fill; Period 3 Phase 3
Iron strip, probable waste. Incomplete. Length 70mm. Width 22mm.

Discussion
Pit fill [94] contained a large iron ring, RF<2>. The size of the ring, diam. 93.8mm, possibly suggests use as a structural or bridle fitting. An iron hinge with rectangular straps was recovered from cesspit fill [135], RF<10>. The hinge is similar in form to examples from Abbotts Lane, London, dated to the mid 16th century (Egan 2005, 68 5.2). The Tattershall example exhibits three holes for attachment on one strap.

An iron drop handle, RF<13> came from pit fill [153]. The handle is formed from a square sectioned rod, bent at right angles at both ends, with hooked terminals (l. 123mm). A similar smaller example was found at Coppergate, York (Ottaway and Rogers 2002, 2845 Fig 1423).

Pit fill [133] contained RF<8>, a scale tanged knife blade (total length165mm). The blade back is in line with the tang, which partially remains with two rivet holes present. A ?copper alloy shoulder plate separates blade and tang. Similar knives exist from late 14th century contexts in London (E.g. Cowgill et al 1987, 94: 122, 123)

A metalworking punch, RF<9>, was also recovered from [133] (l. 104.5mm). Similar examples exist from Coppergate (Ottaway and Rogers 2002, 2721) dating from the 13th-16th century. Also within this fill was recovered an iron spur branch fragment, RF<7>. As both ends are broken, it is not clear whether it would have originated from a rowel spur or prick spur, therefore it could date anywhere between the 13th and 16th century.

A number of objects were recovered for which a function could not be established. These include RF<14> from pit fill [153], a narrow iron strip with several notches cut out of one side; two lengths of copper alloy wire from [152], and two small possible tines from a forked tool from [133].

A socketed object of probable agricultural function came from late medieval well fill [33]. The blade (w. 34.5mm) is flat and spatula shaped, with a row of small, fine teeth visible along the edge. The object is probably a narrow hoe or 'spud', very similar to Roman examples (e.g. Rees 2011, 97; Manning 1985, Pl.19 F14-16), some of which have tines (Manning 1976, Fig.19.83). A much later example comes from 17th century Norwich (Margeson 1993, 194 no 1516) confirming that the design is long lived. Alternatively it may have been for use with a two beam vertical loom as a toothed weft beater, although it is much different in design to examples of 12th and 13th century date from Winchester and Coppergate respectively (Walton Rogers 1997, 1762). Based on the appearance of the object the former identification seems most likely.

The Animal Bone by Lucy Siburn

Introduction

A small assemblage totalling 376 identifiable fragments and comprising both hand collected and environmentally processed material was recovered from contexts dating from the early Romano-British to the post-medieval periods. However, the majority were from medieval and post-medieval periods. The assemblage was in a mixed state of preservation, with some larger and complete fragments present as well as some degraded and weathered material.

The assessment identified the potential for examining cattle and sheep husbandry regimes. Unfortunately, a re-organisation of the data with reference to closer dating has meant that the resulting phased assemblages are too small to make this a feasible study. General observations will, however, be made. In addition, the potential of the post-medieval assemblages from [29] and [31] were noted, as well as the possible significance of the horse skull recovered from late medieval well [34]. Both of these will be addressed.

Methodology

The assemblage was recorded onto an Excel spreadsheet and according to the zoning system outlined by Serjeantson (1996). Wherever possible the fragments were identified to species and the skeletal element represented. In order to distinguish between the bones and teeth of sheep and goats a number of criteria were used including those outlined by Boessneck (1969), Boessneck *et al* (1964), Halstead *et al* (2002), Hillson (1995), Payne (1985), Prummel and Frisch (1986) and Schmid (1972).

Tooth wear was recorded according to Grant (1982) and all metrical data taken in accordance with Von den Driesch (1976). The state of fusion was noted and each fragment was then studied for signs of butchery, burning, gnawing and pathology.

Species Representation

The indentified assemblage has been re-quantified by phase in the table below. For the purposes of this report, fragments identified as probable cattle or sheep-sized have been included, but those identified only as large or medium mammal have not. The final fragment count is 206.

The NISP count (Number of Identified Specimens) has been calculated and includes all elements. The Minimum Number of Individuals (MNI) has been calculated using the most common element and taking sides into consideration. These figures are shown in brackets.

Taxa	Period 2, phase 1, Early Romano-British	Period 2, phase 2, Late Romano-British	Period 3, Phase 1 Early Medieval	Period 3, Phase 2 Medieval	Period 3, Phase 3 Late Medieval	Period 4, Phase 1 Post-Medieval
Cattle	1	1	1	1	31 (2)	127 (4)
Sheep				2 (1)	5 (3)	
Sheep/goat				3 (1)	7 (2)	5 (1)
Pig					2 (1)	
Horse			1	1	4 (1)	

Hare/rabbit					1	
Chicken					2 (1)	1
Greylag/domestic goose					1	
Wood pigeon						3 (1)
Woodcock						1
Bird					5 (1)	
Salmonid					2 (1)	
Total	1	1	2	7	58	137

Table 1: NISP and MNI count

Romano-British

Only two fragments were recovered from these periods, a cattle radius from Period 2, phase 1 ditch [85] and a phalanx from Period 2, phase 2 ditch [91].

Medieval

Period 3, phase 1 ditch [138] produced fragments of cattle pelvis and horse tibia. The seven fragments from Period 3, phase 2 were recovered from pit [101] and included a cattle cranial fragment, sheep horn-core and mandible, mandible and metacarpal of sheep/goat as well as a horse scapula. With the exception of the sheep horn-core, which displayed cuts and chops to the base, nothing of significance was noted.

Late medieval (Period 3, phase 3)

The fifty-eight fragments from this period were recovered from 16 contexts including pits, cess-pits and wells. Cattle formed the majority of the assemblage and elements represented include the cranium, longbones, metapodials, pelvis and loose teeth. Unfortunately, the small quantities present do not make meaningful observations regarding the age of the population to be made. However, the calculated MNI (minimum number of individuals) is two and this includes at least one juvenile and one mature animal. As all parts of the skeleton are represented it is possible that animals were both killed and eaten on site, but the data set is too small to enable meaningful conclusions to be made. No butchery evidence was noted.

Although sheep and sheep/goat fragments are less frequent, the small assemblage is dominated by mandibles and produced an MNI calculation of 5. This includes one juvenile, one animal at 27-36 months (Stage F) and two adults (Stage G) (Hambleton 1999). The lack of younger animals suggests that sheep may have been utilised primarily for milk rather than meat, however the population is too small to draw confident conclusions from it. A single sheep horncore fragment from [153] displays butchery evidence and appears to have been sliced away from the skull. This may suggest that the horn core was removed for further working.

Pigs were represented by fragments of tooth and longbone, hare/rabbit, chicken, goose and bird longbones were recovered as well as salmonid vertebrae, and all in very small quantities from well [34], and cess pits [26] [135] and [152].

In addition to the skull (discussed below), identified horse fragments included a longbone, maxilla fragment and a metacarpal recovered from pit [96] and cess-pit [133]. The horse skull was recovered from the base of well [34]. Throughout history horses have been considered important, due partly to their close relationship with humans and their use as status symbols (Hamerow, 2006, 20). This has been reflected in their frequent and prominent association

with so called 'special deposits' from the Iron-Age through to Anglo-Saxon period both in Britain and more widely across northern Europe (Hamerow, 2006, 20-23). It is also recognised that wells are commonly used for such deposits, and that these deposits are often placed on the base of features (Hamerow, 2006). In accordance with these criteria, it would seem possible that the horse skull located at the base of well [34] could have some ritualistic significance. However, it is perhaps unlikely that these pagan rituals would have continued through into the largely Christian, late medieval period. During this time, horse bones, grease, fertiliser, hair, hides and meat were more practically utilised (Edwards 1987, cited in web source 2).

Post-medieval (Period 4, phase 1)

Three post-medieval pits produced animal bone ([14], [29] and [31]).

Cattle

The cattle remains, which comprise 93% of the assemblage were all recovered from [29] and [31]. The MNI has been calculated as 4.

MNE (Minimum Number of Elements) calculations include all parts of the bone with the exception of scapulae, cranial fragments and innominate bones where only the glenoid cavity, occipital condyles and acetabulum are counted. This is in an attempt to avoid distortion as a result of fragmentation. The results are shown in Table 2 below:

ELEMENT	Period 4, Phase 1, Post- Medieval
Mandible	2
Atlas	1
Axis	1
Scapula	4
Humerus	7
Radius	6
Ulna	4
Metacarpal	5
Femur	1
Tibia	1
Calcaneum	1
Metatarsal	2
Phalanx 1	8

Table 2: Cattle MNE counts

All parts of the cattle carcass are represented in this phase but longbones and metapodials dominate. The presence of both meat bearing and non meat bearing elements of the skeleton, including some extremities, suggests that whole animals were buried and that this was not a specialised butchery site. This idea is supported by the fact that no butchery marks were noted on any elements.

Age at Death

Age at death has been estimated through the analysis of tooth wear and epiphyseal fusion, which is detailed in Table 3 below.

.

CATTLE		FUSED	UNFUSED	TOTAL	% FUSED
7>18 M0NTHS	SCAPULA P.RADIUS D. HUMERUS PHG 1	4 4 4			
	TOTAL	12	0	12	100
2>3 YEARS	D. TIBIA D. METAP	 6			
	TOTAL	6	0	6	100
3.5>4 YEARS	P.ULNA P.HUMERUS P.FEMUR D.FEMUR D.RADIUS P.TIBIA CALCANEUM	1 2 1 1 2	3 5 3		
	TOTAL	7	11	18	39

Table 3: Cattle age at death

A total of 36 elements provided epiphyseal fusion data. The analysis shows that the cattle bones derive from an older population, and that therefore, meat is unlikely to have been their primary use. Metrical data (see table 4 below), which has identified the probable presence of cows (Howard 1963) could be used to suggest that these animals come from a milk herd, but measurements were only possible for an MNI of two animals.

Biometry

The available metrical data is summarised in the table below. Withers heights estimations were possible for five elements and these are included in the table. All these measurements fall within the expected range for a post-medieval herd (web source 1).

Skeletal Element	Greatest Length (mm)	Greatest Distal Breadth (mm)	Withers Height Estimation (cm)
Radius	292		125.56
Metacarpal	219	59.3	131.40
Metacarpal	211	64.7	126.60
Metacarpal	211	64.8	126.60
Metatarsal	248	57.3	132.68

Table 4; Metrical data. (Measurements taken according to Von den Driesch, 1976 and withers heights estimates derived from Matolsci, 1970, and Fock 1966)

Sheep/goat

Five fragments, recovered from pits [14] and [29] produced an MNI calculation of 1, and included fragments of longbones, a tarsal and a pelvis. All elements appeared to be from mature animals and three from [14] showed evidence of carniverous gnawing.

Birds

Chicken, woodcock and woodpigeon are represented in small quantities in pit [14]. They are all likely to have formed part of a post-medieval diet and the presence of woodcock and woodpigeon suggests that hunting was carried out.

Environmental Samples and Charcoal Analysis by Lucy Allott and Karine Le Hégarat

Introduction

This report summarises the findings arising from assessment of bulk soil samples taken by AOC Archaeological Group during the archaeological investigation at Blacksmith Corner, Tattershall. The results of further identification and interpretation of wood charcoal from pit feature [22] are also presented. Samples were taken from features dating to the early Roman period (Period 2, Phase 1), and the later medieval occupation (Period 3, Phase 3).

Methodology

During assessment flots were scanned under a stereozoom microscope at x7-45 magnification and an overview of their contents was recorded. Preliminary identifications of macrobotancial remains were made with reference to modern comparative material and reference texts (Cappers *et al.* 2006, Jacomet 2006, NIAB 2004). Nomenclature used follows Stace (1997).

Wood charcoal fragments were subsampled from the large assemblage recovered from the fill [26] of pit [22]. One hundred fragments were fractured along three planes (TS - transverse, TLS - tangential longitudinal and RLS - radial longitudinal sections) and viewed under a stereozoom microscope at x7-45 for preliminary grouping and an incident light microscope at x50, 100, 200 & 400 magnifications for identification. Identifications were made through comparison with reference atlases (Hather 2000, Schweingruber 1990, Schoch *et al*. 2004) and recorded in table 5.

Results

Period 2, Phase 1 Early Roman AD 43-150

Ditch features [8], [6], [28] and [93] dated to this phase of land use produced small flots dominated by uncharred material including small woody debris, leaf fragments as well as uncharred seeds of elder (*Sambucus nigra*), blackberry/raspberry (*Rubus fruticosus* agg*/idaeus*), sun spurge (*Euphorbia helioscopia*), sow-thistles (*Sonchus* sp.), cinquefoils (*Potentilla* sp.) and birch (*Betula* sp.). Several of the elder seeds may have preserved by mineralisation however the majority of seeds in these features either provide an indication of relatively modern disturbance through processed such as bioturbation or have preserved in a sealed anoxic environment. Charred macrobotanical remains that are perhaps more likely to be contemporary were infrequent occurring in only two of the ditch deposits (<5> [27] from ditch [28] and <3> [7] from ditch [8]). The assemblages comprised indeterminate cereal caryopses, a single possible common pea (cf. *Pisum sativum*) cotyledon, seeds from the goosefoot family (Chenopodiaceae) and poorly preserved fragments of indeterminate charred plant remains. Although too infrequent to provide evidence for agriculture, diet or the use of crops and wild plant, these remains could represent domestic waste discarded in the ditches.

Period 3, Phase 3 Later Medieval AD 1440-1536

Samples from both large pit features [136] and [22] produced large quantities of uncharred vegetation, with wood charcoal fragments more abundant in sample <1> from pit [22]. The uncharred botanical component of sample <1> comprised roots, twigs, leaves, bark, an amalgam of broken down plant matter, hazelnut (*Corylus avellana*) shell fragments and infrequent uncharred seeds of the goosefoot family. Uncharred roots and twigs were also

common in sample <11> together with numerous uncharred seeds from a diverse range of taxa including elder, blackberry/raspberry, dock/knotgrass (*Polygonum/Rumex* sp.) buttercup (*Ranunculus* sp.), possible sun spurge, marshwort (cf. *Apium* sp.), sedge (*Carex* sp.), rushes (*Juncus* sp.) and seeds from the goosefoot and pink (Caryophyllaceae) families. There was a general paucity of charred macroplant remains in these samples with infrequent charred cereal grains, grass (Poaceae) caryopses, a single tare/vetch/vetchling (*Vicia/Lathyrus* sp.) seed and indeterminate charred plant remains recorded in the flot from sample <11>.

Wood charcoal fragments were particularly abundant in the primary fill of pit feature [22]. Analysis of these (Table 5) confirmed that fragments of roundwood, noted during assessment, were particularly common. On the whole fragments were well preserved and in some instances sapwood and bark were retained on the roundwood. Taxa identified include:

- *Quercus* sp. - Deciduous Oak - either sessile (*Q. petraea*) or pedunculate (*Q. robur*). These taxa cannot be distinguished from each other based on their wood anatomy.
- Leguminosae - Gorse/Broom - this is a group of taxa that are anatomically very similar and cannot be identified beyond the broad family grouping.
- *Salix/Populus* sp. - Willow/Poplar – these taxa are anatomically very similar and although sometimes possible to distinguish between there is overlap in the 'diagnostic' features. In this instance it has not been possible to satisfactorily determine which taxon is represented.
- *Corylus avellana* – Hazel
- *Alnus* cf. *glutinosa* – Alder
- *Betula* sp. – Birch
- Maloideae – hawthorn/whitebeam/rowan/apple/pear – this sub-family of the Rosaceae family contains a range of fruiting trees that cannot be separated based on their wood anatomy alone.

Discussion

Uncharred plant remains were relatively common in early Roman ditches and later medieval pit features excavated at this site. Such remains are likely to suggest post-depositional disturbances within the deposits, however, sufficiently moist conditions at the time of burial combined with anoxic burial environment such as deep well sealed deposits or a high water table can ensure the survival of uncharred vegetation. If such conditions were encountered on this low-lying site, the assemblage of uncharred plant remains might be contemporary with the infilling of the features and therefore provide evidence for vegetation in the vicinity or food substances brought to the area. There are similarities in assemblages from both periods with plants commonly found on disturbed/waste grounds (blackberry/raspberry, sun spurge) as well as plants associated with wetland environments (sedge, rushes and marshwort). Elder occurs as a hedgerow plant and produces edible berries.

Pit features [22] and [136] were initially interpreted as cess pit features, however, assessment of samples from these pits revealed no remains that can be used to positively identify the presence of cess. Cesspits tend to be characterised by the presence of remains preserved by soluble phosphates and carbonate replacement such as fly puparia or mineralised plant remains (for example fruit stones, pips, seeds) and/or by the presence of coprolites (Green 1979, EH 2011). During the medieval period, not only human waste but also animal dung and all kinds of household rubbish were deposited within pits (Greig 1992). It is possible that the pits could have been regularly cleaned and the apparent absence of cess material within pits [22] and [136] doesn't therefore exclude the possibility that both features were used as

cesspits. Although the seed assemblages which predominantly consist of weeds from waste/disturbed ground, were not typical of cess pits, hazelnut shell fragments in pit [22] provide some evidence for the use of wild plants.

The rich charcoal assemblage from the primary fill of pit [22] was of particular interest. Large assemblages of charcoal are relatively common in cess pit deposits and the charcoal may have been used to neutralise odours. Analysis aimed to investigate the composition of the assemblage further and to investigate possible origins of the wood. The assemblage was not dominated by one taxon and instead a range of taxa including large woodland trees as well as smaller shrubs were represented. Taxa such as oak and hazel burn well and would have been favoured for fuel while others such as alder and the possible willow or poplar burn less well. These are perhaps more likely to have derived from sources other than fires such as structures. Alder and willow/poplar also provide evidence for wetter, perhaps low lying ground that could have been supported either along the banks of the River Bain or on fenland to the west. Leguminosae taxa such as gorse or broom grow in a range of habitats but are common on sandy soils.

During assessment it was postulated that the assemblage may originate from woodland managed through coppicing. If the charcoal solely derives from managed, coppiced woodland a homogenous assemblage or an assemblage dominated by one taxon might be expected. Coppicing is undertaken on a roughly 5-10 (up to 15) year cycle to maintain a regular supply of small, straight 'coppiced rods' that can be used for several purposes such as in construction of wattle or other structures requiring strong, flexible timber (Sunshine 2006) or for the production of wood charcoal in charcoal burners to provide cost effective and efficient fuel. Hazel and willow are particularly suited to use in wattle or basket making for example. Initial investigation appeared to support the suggestion of coppicing and analysis revealed an interesting assemblage in which over half of the fragments viewed derived from small pieces of round wood. However, the round wood assemblage also contained fragments displaying only two years growth (probably from small twigs) through to more mature specimens with up to 11 growth rings visible. The smaller twigs were restricted to the gorse/broom and Maloideae group taxa. Gorse/broom taxa rarely grow to any significant size and are not suitable for coppicing. The ranges of growth rings in the oak and hazel assemblages are broadly consistent with those of coppiced woodland and both are eminently suited to management using this technique. It is possible therefore that some of the wood fragments derive from managed woodland however variation within this assemblage, both with regards the range of taxa and growth patterns represented, suggests that the assemblage derives from several sources. Although it has not been possible to determine the exact origins of this fuel the charcoal rich dump within this pit could simply reflect an amalgam of refuse including fuel cleared from hearths that would have been required for domestic, as well as industrial activities carried out in the vicinity.

	Phase		**Period 3, Phase 3, Later Medieval AD 1440 - 1536**
	Sample Number		**1**
	Context		**26**
	Feature Type		**Pit**
Taxonomic Identifications	English Name	round wood or indeterminate size	
Leguminosae	gorse/broom	rw	10 (2 and 5 gr recorded in 2 specimens)
Leguminosae	gorse/broom	indeterminate	3
Quercus sp.	deciduous oak	rw	11(3, 5, 6, 7, 8, 11 gr recorded in 6 specimens)
Quercus sp.	deciduous oak	indeterminate	17
Salix/Populus sp.	willow/poplar	rw	5 (10 gr recorded in 1 specimen)
Salix/Populus sp.	willow/poplar	indeterminate	5
Corylus/Alnus sp.	hazel/alder	rw	4
Corylus/Alnus sp.	hazel/alder	indeterminate	3
Alnus cf. *glutinosa*	alder	rw	13 (6 gr recorded in 3 specimens)
Alnus cf. *glutinosa*	alder	indeterminate	14
Betula sp.	birch	rw	3
Betula sp.		indeterminate	3
Corylus avellana	hazel	rw	7 (5, 7, 8, 9 gr recorded in 5 specimens)
cf. Maloideae group	hawthorn, whitebeam, rowan, apple, pear	rw	2 (2 and 11 gr recorded in 2 specimens)

Table 5: Charcoal analysis data (rw = round wood, gr = growth rings)

Bibliography

Boessneck, J, Muller, H-H and Teichert, M 1964 'Osteologische unterscheidungmerkmale zwischen schaf (*Ovies aries* Linne) und ziege (*Capra hircus* Linne)'. *Kuhn-Archiv* 78, 5-129

Boessneck, J 1969 'Osteological Differences between sheep (*Ovis aries* Linne) and goat (*Capra hircus* Linne)', *in* Brothwell D R and Higgs, E D (eds) *Science in Archaeology: A Comprehensive Survey of Progress and Research*. London: Thames and Hudson, 331-58

Cappers, R.T.J., Bekker R.M. & Jans J.E.A. 2006. *Digital Seed Atlas of the Netherlands.* Groningen Archaeological Series 4. Barkhuis, Netherlands

Cowgill, J et al.1987. Knives and Scabbards; Medieval finds from excavations in London. MoL, London

Edwards, E. H. (1987). *Horses: their role in the history of man*. London

Egan, G. 2005. Material Culture in London in an age of transition MoLAS Monograph 19, London

Fock, J. 1966. *Metrische Untersuchungen anMetapodien einiger europäischer Rinderrassen.* Diss. Munich.

Grant, A 1982 'The use of toothwear as a guide to the age of domestic ungulates', *in* Wilson, B Grigson, C and Payne, S (eds) Ageing and Sexing Animal Bones from Archaeological Sites. BAR British Series 109, 91-108

Green, F. J. 1979. Phosphatic mineralisation of seeds from Archaeological Sites. *Journal of Archaeological Science* **6**, 279-284.

Greig J. 1992. What shall we call these organic pit fills? *Circaea* **8**, pp. 70-73.

Halstead, P, Collins, P and Isaakidou, V 2002 'Sorting sheep from goats: morphological distinctions between the mandibles and the mandibular teeth of adult *Ovis* and *Capra*'. J*ournal of Archaeological Science* 29, 545-553

Hambleton, E. (1999). 'Animal Husbandry Regimes in Iron Age Britain: A Comparitive Study of Faunal Assemblages from Iron Age Sites'. BAR British Series 282. Oxford: Archaeopress

Hather, J. G. 2000. *The Identification of the Northern European Woods: A Guide for archaeologists and conservators.* Archetype Publications Ltd, London.

Hillson, S 1995 *Mammal Bones and Teeth: An Introductory Guide to Methods of Identification*. London: Institute of Archaeology

Howard, M.M. 1963 'The metrical distinction of metapodia and crania' in A.E. Maurant and F.E. Zeuner (ed.) *Man and Cattle*, 18:91-100: Royal Anthropological institute

Jacomet, S. 2006. Identification of cereal remains from archaeological sites. 2nd ed. *Archaeobotany laboratory, IPAS, Basel University,* Unpublished manuscript.

Manning, W. H. 1985. Catalogue of the Romano-British Iron Tools, Fittings and Weapons in the British Museum. BMP Ltd London.

Manning, W. H. 1976. Catalogue of Romano-British Ironwork in the Museum of Antiquities, Newcastle upon Tyne. Dept. of Archaeology, The University of Newcastle upon Tyne.

Margeson, S. 1993. 'Norwich Households: The Medieval and Post-Medieval Finds from Norwich Survey Excavations 1971-1978' *East Anglian Archaeology Report No. 58.* The Norwich Survey/Norfolk Museums Service.

Matolsci, J. (1970). Historische Erforschung der Körpergröße der Rindes auf Grund von ungarischem Knochenmaterial. *Zeitschrift für Tierzüchtung und Züchtungsbiologie* 87, 89-137.

NIAB 2004. *Seed Identification Handbook*: Agricultural, Horticulture and Weeds. 2nd ed. NIAB, Cambridge.

Ottaway, P. and Rogers, N. 2002 Craft, Industry and Everyday Life: Finds From Medieval York York Archaeological Trust and CBA

Payne, S 1985 'Morphological distinctions between mandibular teeth of young sheep, *Ovis*, and goats, *Capra'*. *Journal of Archaeological Science* 12, 139-47

Prummel, W and Fische, H-J 1986 'A Guide to the Distinction of Species, Sex and Body Size in Bones of Sheep and Goat'. *Journal of Archaeological Science* 13, 567-577

Schmidt, E. 1972. 'Atlas of Animal Bones- for pre-historians, archaeologists and quaternary geologists.' Amsterdam: Elsevier Publishing Company.

Schoch, W., Heller, I., Schweingruber, F. H., and Kienast, F. 2004. *Wood anatomy of central European Species*. Online version: www.woodanatomy.ch

Schweingruber, F. H. 1990. *Anatomy of European woods.* Eidgenössische Forshungsanstalt für Wald, Schnee und Landschaft, Birmensdorf (Hrsg.). Haupt, Bern und Stuttgart.

Serjeantson, D 1996 'The animal bones', *in* Needham, S and Spence T (eds) *Runnymede Bridge research excavations, Volume 2: Refuse and disposal at Area 16 East, Runnymede.* London: British Museum, 194-223

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

Sunshine, P 2006. *Wattle and Daub*. Shire Publications, Princes Risborough

Von Den Driesch, A. 1976. 'A Guide to the Measurement of Animal Bones from Archaeological Sites', Peabody Museum Bulletin Harvard University.

Walton Rogers, P. 1997. Textile production at 16-22 Coppergate, York : York Archaeological Trust and Council for British Archaeology

Web sources

1) www.chillinghamwildcattle.com/userimages/armitage.pdf *(accessed 28/02/12)*

2) www.york.ac.uk/inst/chumpal/EAU-reps/EAU94-60.pdf *(accessed 28/02/12)*

Report For The Conservation Of Tattershall Metal Small Finds

Summary

The following assessment of conservation needs for the accessioned metal small finds from the excavations at Tattershall. Work outlined in this document is needed to produce a stable archive in accordance with MAP2 (English Heritage 1992) and the Museum of London's Standards for archive preparation (Museum of London 1999).

Wherever possible preventative rather than interventive conservation strategies are implemented. Procedures aim to obtain and retain the maximum archaeological potential of each object.

Condition

Iron.

The objects are in a stable condition. The surfaces are covered by a thin layer of corrosion.

Copper alloy

The copper alloy find is stable.

List of artefacts:

Site	SF No	Context	Description	X-ray No.
BCT 11	1	33	Iron tool	001
BCT 11	2	94	Iron Ring	001
BCT 11	3	133	Iron Nail	001
BCT 11	4	133	Iron Nail	001
BCT 11	5	133	Iron Nail	001
BCT 11	6	133	Iron Nail	001
BCT 11	7	133	Iron Handle	001
BCT 11	8	133	Iron Knife	001
BCT 11	9	133	Iron Object	001
BCT 11	10	135	Iron Hinged bracket	001
BCT 11	11	152	CuA wire	001
BCT 11	12	152	Nail	001
BCT 11	13	152	Iron Handle	001
BCT 11	14	153	Iron Object	001

X-ray catalogue:

X-Ray No	Volts(KeV)	Time (mins)	Finds no.
001	110 80	3.5 3	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 12, 13, 14 11

Treatment

Iron

Some small finds were cleaned to clarify details. The finds that were cleaned were SF 1, 8, 10, 14.

The cleaning of the selected iron finds was carried out using an air-abrasive machine and 53µ aluminium oxide powder and mechanically using a scalpel.

Materials used

Air-abrasive powder: 53µ aluminium oxide.

Conservator: Emily Noel-Paton
Date of report: 08/06/12

Bibliography

English Heritage. 1992. *Management of Archaeological Projects II.*

Museum of London. 1999. *General standards for the preparation of archaeological archives to be deposited with the Museum of London.*

An Assessment of clay tobacco pipe from Blacksmiths Corner, Tattershall

Site code:LCNCC:2011.77

Paul Fitz
AOC Archaeology

Summary

Two pieces of tobacco pipe were retrieved from a single context (29) during excavations at the Tesco site, Blacksmiths Corner. An incomplete bowl and stem, weighing 18 grams and a stem piece weighing 3 grams.

The bowl is a plain type 25 (Oswald & Atkinson) common in the south east of England from 1700-1770, with feint milling around the top of bowl.

The stem does not appear to be from the same pipe being fresher in colour and abrasion. It is not diagnostic.

Discussion/Recommendations

These two pieces have little significance on a local or national level. It would be worth comparing the date of any pottery from the context with the suggested date from the bowl but nothing else.

The pipe will be amalgamated with the finds archive and deposited at the Lincoln Collection museum in the not too distant future.

Material for illustration

None

Analysis of potential

The pipe provides broad dating evidence for the features in which it occurs.

Significance of the data

International and national

The assemblage is not of International or National significance.

Regional and Local

The assemblage is not of Regional or Local significance.

Further work required

No further work is required.

Preparation for deposition in the archive and conservation

None

ENVIRONMENTAL ARCHAEOLOGICAL INVESTIGATION OF BLACKSMITH'S CORNER, TATTERSHALL, LINCOLNSHIRE (SITE CODE: BCT11

D.S. Young
Quaternary Scientific (QUEST), School of Human and Environmental Sciences, University of Reading, Whiteknights, PO Box 227, Reading, RG6 6AB, UK

INTRODUCTION

This report summarises the findings arising out of the environmental archaeological investigation undertaken by Quaternary Scientific (QUEST), University of Reading in connection with archaeological excavations at Blacksmith's Corner, Tattershall, Lincolnshire (Site Code: BCT11; National Grid Reference: TF 2120 5803). The site lies at a height of approximately 5m OD and is mapped by the BGS (1:50,000 sheet 115) as underlain by superficial geology of River Terrace Deposits (sand and gravel) overlying Ampthill Clay Formation bedrock. During excavation of the site, one bulk sample was collected from an organic horizon (sample <6>; context (64)), described as a pond fill within a depression measuring 2.5 by 2.8m and 0.3m deep. The aim of the assessment was to quantify the organic content and, if suitable plant macrofossil material is present, to radiocarbon date the sample.

METHODS

Organic matter determinations

Three sub-samples from sample <6> were taken for determination of the organic matter content (Table 9). The organic matter content was determined by standard procedures involving: (1) drying the sub-sample at 110^0C for 12 hours to remove excess moisture; (2) placing the sub-sample in a muffle furnace at 550°C for 2 hours to remove organic matter (thermal oxidation), and (3) re-weighing the sub-sample to obtain the 'loss-on-ignition' value (see Bengtsson and Enell, 1986).

Macrofossil assessment

A one litre subsample was extracted from sample <6> for the recovery of macrofossil remains including waterlogged plant macrofossils, waterlogged wood, insects and Mollusca. The extraction process involved the following procedures: (1) removing a subsample and measuring one litre of volume by water displacement, and (2) processing the sample by wet sieving using 300µm and 1mm mesh sizes. The sample was scanned under a stereozoom microscope at x7-45 magnifications, and sorted into the different macrofossil classes. The concentration and preservation of remains was estimated for each class of macrofossil (Table 10).

Preliminary identifications of the seeds within the sample, have been made using modern comparative material and reference atlases (e.g. Cappers *et al.* 2006; Martin & Barkley, 2000). Nomenclature used follows Stace (2005).

Radiocarbon dating

Persicaria *sp. seeds were extracted from sample <6> for radiocarbon dating. The selected seeds were submitted for AMS radiocarbon dating to Beta Analytic INC, Radiocarbon Dating Laboratory, Florida,*

USA. The results have been calibrated using OxCal v4.0.1 Bronk Ramsey (1995, 2001 and 2007) and IntCal04 atmospheric curve (Reimer et al*., 2004). The results are displayed in Table 11.*

RESULTS OF THE ORGANIC MATTER CONTENT DETERMINATIONS

Quantification of the organic matter content by Loss-on-Ignition allowed an assessment of the organic content of sample <6> (context (64)) (Table 9). The results revealed that organic matter values were between 12 and 25% in the three replicate subsamples, indicating that the mineral content of context (64) is high. The relatively broad variation in % organic content between the three subsamples may be indicative of the mixing of sediment within the archaeological feature.

Table 9: Results of the Loss-on-Ignition analysis of three replicate subsamples from sample <6>. Blacksmith's Corner, Tattershall, Lincolnshire (Site Code: BCT11)

Sample number	Organic matter (%)
<6> A	12.63
<6> B	15.54
<6> C	24.50

RESULTS OF THE MACROFOSSIL ASSESSMENT

A subsample measuring one litre in volume was extracted from sample <6> for the recovery of macrofossil remains including waterlogged plant macrofossils, waterlogged wood, insects and Mollusca (Table 10). The results of the assessment indicated that sample <6> contained no charred plant remains (charcoal or wood), Mollusca, insects, magnetic particles or artefacts. Waterlogged wood was present in moderate quantities in the larger (>1mm) fraction of the sample, while waterlogged seeds were present in moderate to high quantities within both fractions (>300µm and >1mm). Preliminary identifications of the waterlogged seeds indicate that the assemblage is dominated by herbaceous taxa including *Persicaria* sp. (knotweeds), cf. *Bidens* sp. (bur-marigolds), *Rumex*/*Polygonum* sp. (dock/sorrel/knotweed), *Ranunculus repens* (creeping buttercup) and *Carduus* sp. (thistles). One fragment of bone was found within the larger fraction (>1mm).

Table 10: Results of the macrofossil assessment of sample <6>. Blacksmith's Corner, Tattershall, Lincolnshire (Site Code: BCT11)

								Charred					Waterlogged		Mollusca		Bone			
Sample number	Context number	Volume sampled (l)	Size of context sampled (%)	Volume processed (l)	Volume remaining	Fraction (e.g. flot, residue, >300µm)	Description of matrix (%)	Charcoal (>4mm)	Charcoal (2-4mm)	Charcoal (<2mm)	Seeds	Chaff	Wood	Seeds	Whole	Fragments	Large	Small	Fragments	Insects
<6>	(64)	40	<5	1	39	>1mm	Organic fill of pond	-	-	-	-	-	3	5	-	-	-	-	1	-
						>300µm		-	-	-	-	-	-	3	-	-	-	-	-	-

Key: 0 = Estimated Minimum Number of Specimens (MNS) = 0; 1 = 1 to 25; 2 = 26 to 50; 3 = 51 to 75; 4 = 76 to 100; 5 = 101+

RESULTS OF THE RADIOCARBON DATING

Persicaria sp. seeds from sample <6> have been radiocarbon dated to AD 1280 to 1400 (670 to 560 cal BP). The δ13C (‰) value for the sample is consistent with that expected for organic sediment, and there is no evidence for mineral or biogenic carbonate contamination. The dates indicate that the organic horizon accumulated during the High to Late Middle Ages.

Table 11: Results of the radiocarbon dating of sample <6>. Blacksmith's Corner, Tattershall, Lincolnshire (Site Code: BCT11)

Laboratory code / Method	Sample number	Context number	Material	Uncalibrated radiocarbon years before present (yr BP)	Calibrated age BC/AD (BP) (2-sigma, 95.4% probability)	δ13C (‰)
Beta-307142 AMS	<6>	(64)	*Persicaria* sp. seeds	650 +/- 30	AD 1280 to 1400 (670 to 560 cal BP)	-29.0

CONCLUSIONS

The aim of the environmental archaeological assessment was to quantify the organic content of sample <6> (context (64)) and to determine the presence of plant macrofossils suitable for radiocarbon dating. Loss-on-ignition analysis demonstrated that organic matter values were between 12 and 25% in three replicate subsamples, indicating that the mineral content of context (64) is high, but that sufficient organic material may be present for radiocarbon dating. Macrofossil assessment of the sample confirmed that waterlogged seeds were present in high quantities, and thus *Persicaria* sp. seeds were sent for radiocarbon dating. The results of the radiocarbon dating indicated that the organic horizon accumulated during the High to Late Middle Ages (AD 1280 to 1400 (670 to 560 cal BP)).

RECOMMENDATIONS

No further work is recommended on the sample from Blacksmith's Corner, Tattershall unless the context is deemed of sufficient archaeological interest to necessitate a full analysis of the waterlogged macrofossils (seeds and wood) within the sample.

REFERENCES

Bengtsson, L. & Enell, M. (1986) Chemical Analysis. In (Berglund, B.E. ed.) *Handbook of Holocene palaeoecology and palaeohydrology,* 423-451. Chichester: John Wiley and Sons.

Bronk Ramsey C. (1995) Radiocarbon Calibration and Analysis of Stratigraphy: The OxCal Program, *Radiocarbon* **37 (2)**, 425-430.

Bronk Ramsey C. (2001) Development of the Radiocarbon Program OxCal, *Radiocarbon* **43 (2a)**, 355-363.

Bronk Ramsey, C. (2007) Deposition models for chronological records. *Quaternary Science Reviews* INTIMATE special issue; **27**(1-2), 42-60.

Cappers, R.T.J., Bekker R.M. & Jans J.E.A. (2006) *Digital Seed Atlas of the Netherlands. Groningen Archaeological Series 4*. Barkhuis, Netherlands.

Martin, A.C. and Barkley, W.D. (2000) Seed Identification Manual. *The Blackburn Press, New Jersey.*

Reimer, P.J., Baille, M.G.L., Bard, E., Bayliss, A., Beck, J.W., Bertrand, Blackwell, P.G., Buck, C.E., Burr, G.S., Cutler, K.B., Damon, P.E., Edwards, R.L., Fairbanks, R.G., Friedrich, M., Guilderson, T.P., Hogg, A.G., Hughen, K.A., Kromer, B., McCormac, G., Manning, S., Bronk Ramsey, C., Reimer, R.W., Remmele, S., Southon, J.R., Stuiver, M., Talamo, S., Taylor, F.W., van der Plicht, J. and Weyhenmeyer, C.E. (2004) IntCal04 terrestrial radiocarbon age calibration, 0-26 cal kyr BP, *Radiocarbon* **46 (3),** 1029-1058.

Stace, C. (2005) *New Flora of the British Isles*. Cambridge: Cambridge University Press.

Waterlogged Wood Assessment Report: Blacksmiths Corner, Tattershall. Lincolnshire

Michael Bamforth BSc AIfA (October 2011)

INTRODUCTION

This report has been compiled by Michael Bamforth on behalf of AOC Archaeology Group (London).

This document aims to assess the potential of the waterlogged wood assemblage in terms of woodworking technology, woodland reconstruction, decay analysis, species identification, dendrochronology and conservation and retention.

A total of 21 discreet items of waterlogged wood were recovered during an archaeological excavation undertaken by AOC Archaeology at Blacksmiths Corner, Tattershall, Lincolnshire, under site code BCT 11 in autumn of 2011. Michael Bamforth recorded the material at the offices of AOC during September 2011. The material had all survived due to waterlogging and was recovered from a single feature:

Well [039]

A single coopered vessel, consisting of thirteen staves (036.1 – 036.13) and a wooden hoop (036.14) was recovered from the base of the feature. The vessel was 'chocked' in place by a further seven pieces of wood (035, 038, 074, 075, 076, 119 & 163). The primary fill around the wooden vessel has been dated to between the 15th and 18th centuries (pers. comm. I. Hogg, AOC, 2011).

METHODOLOGY

This document has been produced in accordance with English Heritage guidelines for the treatment of waterlogged wood (Brunning 2010) and recommendations made by the Society of Museum Archaeologists (1993) for the retention of waterlogged wood.

Several items were double numbered. In these cases, it was possible to identify the correct numbers for the items from the field records.

Each discreet item was recorded individually using a pro forma 'wood recording sheet', which is based on the sheet developed by the Fenland Archaeological Trust for the post excavation recording of waterlogged wood.

Every effort was made to refit broken or fragmented items. However, due to the nature of the material, the possibility remains that some discreet yet broken items may have been processed as their constituent parts as opposed to as a whole.

The metric data were measured with hand tools including rulers and tapes; the tool marks were measured using a profile gauge.

The system of categorisation and interrogation developed by Taylor (1998, 2001) has been adopted within this report.

Features and classifications of coopered vessels and staves have been adopted from Morris (2000).

Items identifiable to species by morphological traits visible with a hand lens (oak - *Quercus* sp. and ash – *Fraxinus excelsior*) were noted. Other items were sub-sampled to allow later identification to taxa via microscopic identification as necessary.

CONDITION OF MATERIAL

Condition scale developed by the Humber Wetlands Project (Van de Noort *et al*. 1995: Table 15.1) will be used throughout this report (Table 1). The condition scale is based primarily on the clarity of surface data. Material is allocated a score dependent on the types of analyses that can be carried out, given the state of preservation. The condition score reflects the possibility of a given type of analysis but does not take into account the suitability of the item for a given process.

CONDITION SCORE	MUSEUM CONSERVATION	TECHNOLOGY ANALYSIS	WOODLAND MANAGEMENT	DENDRO-CHRONOLOGY	SPECIES IDENTIFICATION
5 excellent	+	+	+	+	+
4 good	-	+	+	+	+
3 moderate	-	+/-	+	+	+
2 poor	-	+/-	+/-	+/-	+
1 very poor	-	-	-	-	+/-
0 non-viable	-	-	-	-	-

Table 1: Condition scale

If preservation varies within a discreet item, the section that is best preserved is considered when assigning the item a condition score. Items that were set vertically in the ground often display relatively better preservation lower down and a relatively poorer preservation higher up.

CONDITION SCORE	FREQUENCY	% OF ASSEMBLAGE
5	0	0.0
4	16	76.2
3	5	23.8
2	2	9.5
1	0	0.0
0	0	0.0

Table 2: Condition of material

The upper portions of the staves have all been truncated by the 'preservation horizon', the point above which waterlogged wood will not have survived on a given site. There is a low occurrence of fragmentation and breakage.

Using the above condition scale, the majority of the material scores a 4 (Table 2). This condition score reflects a well-preserved assemblage. Technological analysis, an assessment of possible woodland management practices and species identification is possible throughout the assemblage.

The material is in a suitable condition to allow the consideration of dendrochronological analysis. The oak is slow grown, straight grained and has few knots. When considered in conjunction with the presence of sapwood on one of the staves, this vessel represents a good candidate for dendrochronology.

RANGE AND VARIATION

Staves

A total of thirteen barrel staves (036.1 – 036.13) (Table 3) and a securing hoop (036.14) forming a single coopered vessel, were recovered from this context. The staves, set in the base of well [036], form the base of a stave built vessel. The staves were vertically set, shoulder to shoulder in a circle with a diameter of 0.47m at the base and 0.54m at the widest point, the middle of the vessel.

The lower c. 0.5m of the vessel was relatively well preserved. The staves are all in good condition, the majority scoring a 4 for condition, with two staves scoring a 3. Above this point, the barrel staves had degraded. The height to which the staves have survived represents the preservation horizon for waterlogged wood in this feature. There is a tendency for the back (outer) faces of the staves to have evidence of woodworm (circular holes, c.1-2mm in diameter) towards the base. The bases of all but one of the staves display evidence of having broken in antiquity, generally across the croze groove. This is unsurprising as the groove represents a naturally weak point in the staves.

All of the staves are fashioned from good quality oak heartwood. A single stave (036.2) has sapwood remaining along one edge. The material is straight grained and slow grown, with ring widths varying between 1-5mm.

CONTEXT	LENGTH (mm)	BREADTH (mm)	THICKNESS (mm)	DECAYED AT TOP?	BROKEN AT BASE?	CHIV AT BASE?	CROOZE GROOVE?	CHIME AT BASE	WOODWORM	SHAPE	NOTES
36.1	615	146 Ðbase 160 Ðtop	8 Ð10	Y	Y	N	Y	?		Curved outwards. Tapered	Incised on outside. 2 x sub-circular holes: 17x22 & 15x17
36.2	540	116 Ðbase 130 Ðtop	9 Ð12	Y	N	Y	Y	N	Outer face	Curved outwards. Tapered	Incised on outside. Sapwood along one edge
36.3	510	89 Ðbase 106 Ðmiddle	6 Ð11	Y	Y	Y	?	?		Curved outwards. Bellied	
36.4	523	122 Ðbase 135 Ðtop	7 Ð9	Y	Y	Y	Y	?		Curved outwards. Tapered	2 x circular holes, bunged with splitoak: 10x10 & 7x6
36.5	538	95 Ðbase 110 Ðmiddle	6 Ð9	Y	Y	Y	Y	?	Outer face	Curved outwards. Bellied	Chiv is on the outside. Croze groove is 20 wide. One edge broken
36.6	465	115 Ðbase 135 Ðtop	9 Ð5	Y	Y	Y	Y	?		Curved outwards. Tapered	Chiv is on the outside.
36.7	460	110	10	Y	Y	Y	Y	?	Outer face	Curved outwards.	One edge fragmented.
36.8	505	115	8 Ð9	Y	Y	?	?	?	Outer face	Curved outwards.	Broken in half.
36.9	465	110 Ðbase 125 Ðmiddle	7 Ð10	Y	Y	Y	?	?		Curved outwards. Bellied	2 x circular holes: 9x11 & 8x9
36.10	490	120 Ðbase 136 -middle	6 Ð10	Y	Y	Y	Y	?	Outer face	Curved outwards. Bellied	1 edge broken. 1 x circular hole: 22x23
36.11	495	110 Ðbase 125 Ðmiddle	6 Ð10	Y	Y	Y	?	?	Outer face	Curved outwards. Bellied	Both edges broken
36.12	510	125 Ðbase 144 Ðmiddle	8 Ð10	Y	Y	N	Y	?	Outer face	Curved outwards. Bellied	1 x circular hole with splitwood bung: 16x17. 1 x circular hole with RW bung: 11x11. 1 x circular hole: 15x16

Table 3: Catalogue of staves

The staves are all radially aligned. The individual staves vary in length between 460-615mm, in breadth between 95-160mm and in thickness between 6-12mm. The majority of the staves are bellied in the centre and curved outwards; several staves are also tapered from the base towards the top.

The stave that remained intact at the bottom (036.2) shows clear evidence of the vessel's construction. A c.2mm thick groove (the croze groove) was present approximately 35mm from the inside bottom edge. The groove, square in profile, would originally have housed a caskhead (in this case, the base). Several of the staves displayed a chiv (internal bevel) above the croze groove to aid the insertion of the head. Unusually, several of the staves had the chiv on the outer face. In the single intact case, no chime (bevel) was seen on the bottom edge.

Small round holes passing from the inner to the outer face of the staves were recorded on five staves. Of these, four staves had multiple holes. Several of the holes contained bungs (Table 4).

STAVE	NOTES (dimensions in mm)
36.1	2 x sub-circular holes: 17x22 & 15x17
36.4	2 x circular holes, bunged with split oak: 10x10 & 7x6
36.9	2 x circular holes: 9x11 & 8x9
36.10	1 x circular hole: 22x23
36.12	1 x circular hole with split wood bung: 16x17.
	1 x circular hole with RW bung: 11x11. 1 x circular hole: 15x16

Table 4: Holes through staves

Two of the staves (036.1 & 036.2) display incised lines/marks on the outer (back) face. Stave (036.1) has a series of six lines, five of which seem to comprise engraved tally markings (Plate 1). The grooves have a sub-rectangular profile, and are between 2-3mm wide. At their deepest point, they are 2mm deep. They fade out at the ends. Stave (036.2) has three lines, the lower two making a diagonal cross whilst the upper line crosses the stave horizontally above the cross (Plate 2). These grooves have a square cross section, being 2mm wide and 2mm deep. In both cases, the lines seen on the two incised staves do not appear on the staves adjacent to them.

Several of the staves were broken across the weak point represented by the internal groove (the croze groove). The lower sections of these staves are not present. Neither was any kind of base (caskhead). This suggests that the vessel base was broken prior to the staves' insertion in the well.

Hoop

Wooden hoop (036.14) ran around the outside of the staves for the complete circumference, towards the base of the vessel. The hoop is in good condition, scoring a 4. Upon lifting of the barrel, the hoop broke into twelve fragments. The hoop is formed of straight grained ash heartwood with growth rings varying between 2-5mm. This long, radially aligned baton has an elongated triangular cross section. Although the original length is hard to determine due to the fragmentation of the item, it has a maximum breadth of 56mm and a maximum thickness of 50mm. The ends taper and overlap for a 230mm length, where they are secured by a single split wood dowel with a diameter of 9mm. This dowel may originally have pegged the hoop to the barrel.

Chocks

Timber debris (035) remains unidentified to species and scores a 3 for condition. It is a tangentially cleft outer chord with bark, sapwood and heartwood all present. Both ends are cross cut. A clear, flat tool facet is visible on one end, measuring 110mm by 70mm. The item itself measures 185mm in length, is 320mm wide and 170mm thick.

Timber (038) remains unidentified to species and scores a 4 for condition. This item originated from the crux between the trunk and two limbs of a tree; bark, sapwood and heartwood are present. The proximal end and one edge of the trunk have been trimmed flat. The distal ends of the two side branches are very flat and appear to have been sawn. One edge of the trunk has been tangentially split away. The item is 230mm long, 400mm wide and 300mm thick. The two side branches have diameters of 180mm and 170mm.

Timber (074) remains unidentified to species and scores a 3 for condition. Bark, sapwood and heartwood are all present. The item is a radial 1/8 split, both ends of which have been trimmed. Broad, flat tool facets are present on the trimmed ends. The item measures 430mm by 370mm by 180mm. The original diameter of the item is c.400mm.

Timber debris (075) remains unidentified to species and scores a 4 for condition. Bark, sapwood and heartwood are all present. The item is a radial 1/8 split, both ends of which have been trimmed from one direction. No clear facets remain. The item measures 410mm by 135mm by 90mm.

Roundwood (076) remains unidentified to species and scores a 4 for condition. Bark, sapwood and heartwood are all present. Both ends have been cross cut. Flat facets are visible, with a single measurable stop mark measuring 65:6mm.

Debris (163) remains unidentified to species and scores a 4 for condition. It is formed of heartwood only. It has been tangentially split and with flat tool facets visible over much of the item. At least two different tools are represented, each of which is described by a stop mark measuring 110:19mm and 90:10mm respectively.

DISCUSSION

Open topped, stave built (coopered) vessels are first recorded in western Europe in the 2nd Millennium BC (Ashbee, Bell & Proudfoot 1989). The techniques of cask production (vessels closed at both ends) were introduced during the Roman period (Earwood 1993). Despite the length of the tradition, the techniques employed in the construction of stave built vessels have a strong continuity from Roman to recent times (Earwood 1993).

Coopered vessels are constructed from vertical staves, set edge to edge in a circle and held together with hoops of metal, wood or withies. Coopered vessels made in the wet, dry or white (open topped) traditions have been prevalent throughout the historic period and would be expected from an assemblage of this date if conditions for preservation allow (Morris 2000). Although they have been produced in a huge variety of sizes and forms, the following terms provide useful categories (Comey 2007; Morris 2000):

- Cask: Large, sealed container. Wet coopered examples generally more bellied than dry coopered examples.
- Keg: Medium to large sealed container. Straight sided. Dry coopered.
- Tub: Medium open topped container. Variety of forms. White coopered. Larger than a bucket. Opposed raised staves are used to lift, but are not joined by a handle
- Bucket: Small to medium open topped container. Straight sided. White coopered. Handle joined to two opposed raised staves.

Vessel

The use of radially cleft oak is typical of stave built vessels of this period, as are all the features of the recovered staves, including the chiv and the square cut croze groove (Morris 2000). The slight variation in the width of the staves is a feature common to coopered vessels (Comey 2007).

The broken ends of several staves, and the lack of any sealing caskhead at the base of the staves, points to the vessel having broken at the base in antiquity, prior to being deposited in the well.

The securing split wood hoop, secured with a single wooden dowel is also typical of coopered vessels. This may originally have been pegged into a stave.

The staves are generally bellied. The diameter of the vessel at the base is 0.47m, and is 0.54m at the widest point, approximately 0.32m up from the base of the vessel. The form of the staves and of the complete vessel suggests a cask (see above). This would be a bellied item, originally sealed at both ends. The form suggests a wet coopered vessel, used to store and transport liquids. As the upper segments of the staves are degraded, this is to some extent conjecture, but is considered likely.

The presence of multiple vent holes in the staves, some of which are bunged, supports the suggestion that this was a wet coopered cask (Morris 2000).

Marks present on stave built vessels generally represent one of three things: construction marks, makers / merchant marks or symbolic marks (Morris 2000). In both cases, the incised lines on the two incised staves reach the edge of the stave but do not continue onto the

adjacent stave. This suggests that the incisions were made before the vessel was assembled. It seems likely therefore, that the marks are either construction or makers marks.

Several of the staves appear tapered rather than bellied, which raises the possibility that the vessel was partially broken and that these staves were added from a separate vessel to facilitate the use of the item as a well lining (see below).

The seven 'chocks' have clearly been used as packing to secure the vessel in place in the well. They all seem to represent off-cuts and rubbish, utilised as packing.

Volume of the vessel

The potential volume of the vessel has been estimated using the following formula from Morris (2000). As the vessel is not complete, some of the data have been estimated:

$$\text{Volume} = \pi H/3 (R^2 + Rr + r^2)$$

H – Height. Estimated at 137cm, based on mean average height from base of staves to widest point of stave, doubled.

R – Maximum radius at centre of vessel. Estimated at 27cm, by adding all the maximum widths of the staves together to calculate the circumference. Where this value is not known for a stave, the mean average of the measured staves was substituted.

r – Minimum radius at base of vessel. Estimated at 23.6cm, by adding all the minimum widths of the staves together to calculate the circumference.

The volume is calculated as 137.87 litres, which is equivalent to 8413.44 cubic inches. Converting this to the wine gallon (216 cubic inches = 38.95 gallons), the Winchester gallon (269 cubic inches = 31.39 gallons) and the customary gallon (231 cubic inches = 36.42 gallons) places the vessel firmly in the category of a barrel.

It is noted that this equation tends to underestimate the volume of a barrel, and also that very small errors in the original measurements can lead to widely varying volume calculations (Morris 2000). As such, this calculation can only be described as an estimate.

Coopered Vessels as well linings

There are many examples of both complete and broken coopered vessels utilised as the linings of wells, both individually and stacked one atop another.

Excavations in York unearthed two, three-tiered cask lined wells: a 15th century example from Coppergate, and a 14th century example from the Bedern Foundry site (Morris 2000).

Similarly, the staves of a large tub were used to line a 15th century well at Covehithe in Suffolk (Durbridge 1977-8).

STATEMENT OF POTENTIAL

This document aims to assess the potential of the waterlogged wood assemblage in terms of woodworking technology, woodland reconstruction, decay analysis, species identification, dendrochronology and conservation and retention.

There is not sufficient material to address the issue of woodland reconstruction. Decay analysis is not advised, as the author is not aware of any ongoing discussion of the preservation environment in this area. None of the material is of sufficient interest to warrant conservation and retention. Similarly, the woodworking technology is not of sufficient interest to warrant further analysis.

Dendrochronology – Ian Tyers

Dendrochronological analyses of medieval and post-medieval waterlogged barrel remains from London and elsewhere in the UK have identified a wide range of sources for the timbers. Most barrels from archaeological sites are in the second or more use; relatively few complete barrels are recovered. Typical re-uses for coopered vessels include well or pit linings, furniture, and also as a conveniently salvaged source of planking.

Barrels using local timber are relatively rare in the later medieval period, but wood from Scandinavia, northern Germany, the eastern Baltic, northern France, and Greece have been identified by the dendrochronological matching of the barrel stave sequences to reference data from these areas. Dendrochronologists working abroad, particularly in Denmark and Belgium, have identified similarly diverse ranges of source timbers in excavated barrels from these areas. Some barrels have been seen with timbers from more than one source.

There is some evidence to suggest barrels have an extensive re-use, or recycled life. Indeed some 19th century evidence suggests barrels were dismantled and returned to places of origin, or alternative locations, and even today whole industries rely on the availability of re-used barrels (e.g. the whisky, wine, and gardening industries are using a common pool of barrels). The vessel staves therefore have the potential to provide dating evidence for the site, with stratigraphic evidence constraining the dates of other features above or below.

The ability to potentially identify the use of timbers from the same tree, or from local or non-local woodland may assist in reconstructing construction techniques and choices, and illuminate resource availability. Because of the use of radially split planking, barrels have the potential to provide good dendrochronological reference series'.

RECOMMENDATIONS

Production of archive

It is suggested that, for the sake of completeness and to record the incised marks, staves (036.1) and (036.2) are illustrated at an appropriate scale.

Further analysis

No further analysis is advised. However, dating and possibly provenancing via dendrochronology is a possibility, should this be appropriate for the project.

Suggested timetable of works

Once removed from an anoxic burial environment, waterlogged wooden remains will begin to break down and decay. It is therefore essential that provisions for additional recording work and conservation take place as soon as possible.

Therefore, it is advised that the suggested illustration of staves (036.1) and (036.2) is carried out as soon as possible, preferably within six months.

PLATES

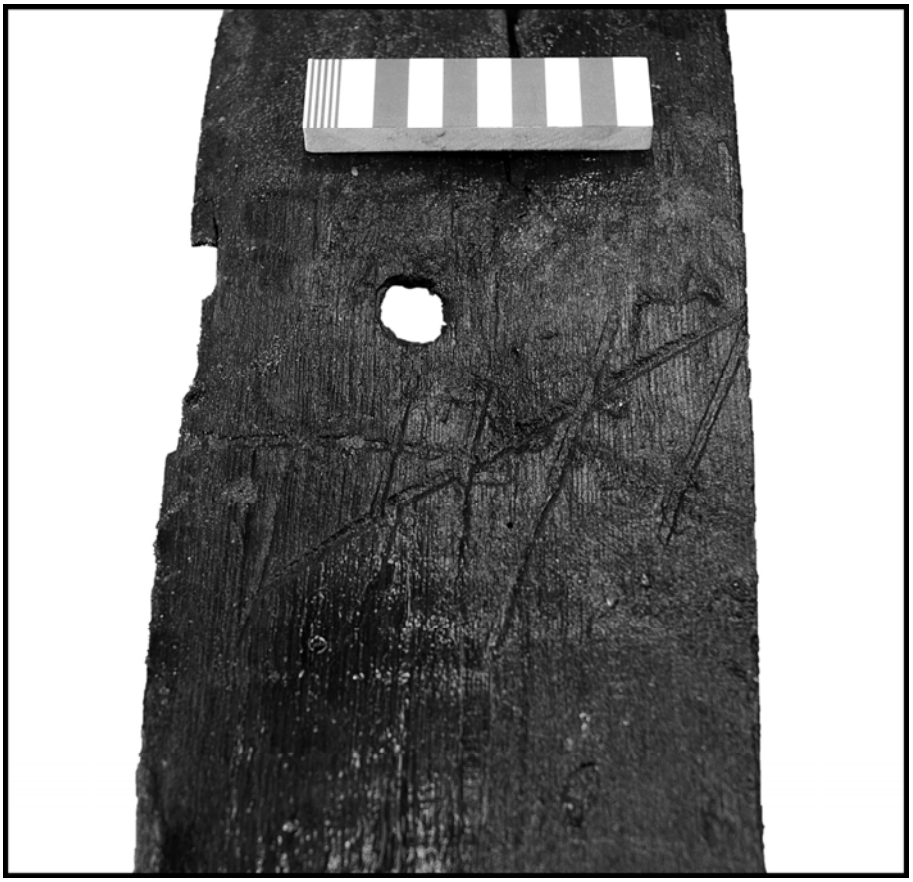


Plate 1: Detail of stave (036.1)

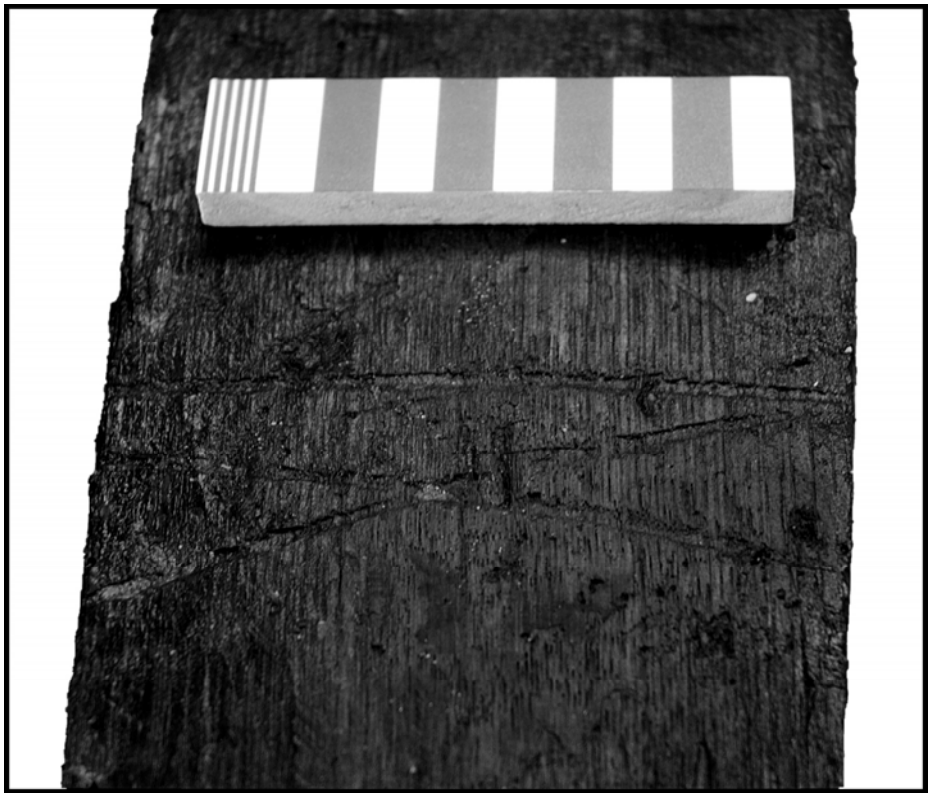


Plate 2: Detail of stave (036.2)

BIBLIOGRAPHY

Ashbee, P., Bell, M. A. & Proudfoot, E. V., 1989. *The Wilsford Shaft 1960-62*. Archaeological Report Number 11. English Heritage, London.

Brunning, R., 2010. *Waterlogged Wood: Guidelines on the recording, sampling, conservation and curation of waterlogged wood*. English Heritage, London.

Comey, M. G., 2007. Stave-Built Vessels. In: M. Brisbane & J. Hather (eds.) *Wood Use in medieval Novgorod*. Oxbow, Oxford.

Durbridge, P., 1977-8. A Late medieval Well at Covehithe. *Lowestoft Archaeological and Historical Society* Annual Report 10.

Earwood, C., 1993. *Domestic Wooden Artefacts in Britain and Ireland from Neolithic to Viking times*. University of Exeter Press, Exeter.

Morris, C. A., 2000. Craft, Industry and Everyday Life: Wood and woodworking in Anglo-Scandinavian and medieval York. *The Archaeology of York*, Volume 17: The Small Finds.

Society of Museum Archaeologists, 1993. *Selection, Retention and Dispersal of Archaeological Collections: guidelines for use in England, Wales and Northern Ireland* (1st edition).

Taylor, M., 1998. Wood and bark from the enclosure ditch. In: F. M. M. Pryor (ed.) 1998. *Etton: excavations at a Neolithic causewayed enclosure near Maxey, Cambridgeshire, 1982-87.* English Heritage Archaeological Reports 18, London, pp 115-59.

Taylor, M., 2001. The Wood. In: F. M. M. Pryor (ed.) 2001. *The Flag Fen Basin: Archaeology and Environment of a Fenland Landscape.* English Heritage Archaeological Reports, London, pp 167-228.

Van de Noort, R., Ellis, S., Taylor, M. & Weir, D., 1995. Preservation of Archaeological sites. In: R. Van de Noort & S. Ellis (eds.) *Wetland Heritage of Holderness - an archaeological survey*. Humber Wetlands Project (1st Edition).

Appendix D – OASIS Form

OASIS ID: aocarcha1-99270

Project details	
Project name	Blacksmith's Corner, Tattershall, Lincolnshire
Short description of the project	A programme of strip, map and record and a watching brief was undertaken during the construction of a new superstore and car park. The natural gravels were cut by Roman coaxial field systems. Medieval activity was sparse until the mid 15th century with only isolated ditches, pits and a pond being found. Between 1450 and 1550 a series of pits and a barrel well were excavated; a possible wooden building was also dated to this phase. This activity probably mirrors the expansion of Tattershall at this time, with the castle, church and college all being built. The Post-Medieval activity was sparse, with only isolated pits and a brick lined cess pit recorded.
Project dates	Start: 03-08-2011 End: 26-08-2011
Previous/future work	Yes / No
Any associated project reference codes	aocarcha1-60386 - OASIS form ID
Any associated project reference codes	S/175/1649/09 - Planning Application No.
Any associated project reference codes	BCT11 - Sitecode
Any associated project reference codes	LCNCC:2011.77 - Museum accession ID
Any associated project reference codes	30906 - Contracting Unit No.
Type of project	Recording project

Site status	None
Current Land use	Industry and Commerce 3 - Retailing
Monument type	DITCHES Roman
Monument type	DITCH Medieval
Monument type	PITS Roman
Monument type	PITS Medieval
Monument type	PITS Post Medieval
Monument type	POSTHOLES Medieval
Monument type	BARREL WELL Medieval
Monument type	POND Medieval
Significant Finds	POTTERY Medieval
Significant Finds	ANIMAL BONE Medieval
Significant Finds	METALWORK Medieval
Significant Finds	CBM Medieval
Significant Finds	POTTERY Post Medieval
Significant Finds	WOOD Medieval
Investigation type	""Open-area excavation""
Prompt	Direction from Local Planning Authority - PPS

Project location	
Country	England
Site location	LINCOLNSHIRE EAST LINDSEY TATTERSHALL Blacksmith's Corner, Tattershall, Lincolnshire
Postcode	LN4 4LJ
Study area	1.00 Hectares
Site coordinates	TF 2120 5803 53 0 53 06 19 N 000 11 21 W Point
Height OD / Depth	Min: 4.00m Max: 4.00m
Project creators	
Name of Organisation	AOC Archaeology
Project brief originator	Local Authority Archaeologist and/or Planning Authority/advisory body
Project design originator	AOC Archaeology
Project director/manager	Alan Ford
Project supervisor	Ian Hogg
Type of sponsor/funding body	developer
Name of sponsor/funding body	DPP LPP
Project archives	
Physical Archive	The Collection: Art and Archaeology of Lincolnshire

recipient	
Physical Archive ID	LCNCC:2011.77
Physical Contents	"Animal Bones","Ceramics","Environmental","Metal","Wood"
Physical Archive notes	wood not retained-2 carpenters marks drawn as part of full assessment recommendation
Digital Archive recipient	The Collection: Art and Archaeology of Lincolnshire
Digital Archive ID	LCNCC:2011.77
Digital Contents	"Stratigraphic"
Digital Media available	"Images raster / digital photography","Images vector","Text"
Digital Archive notes	jpeg images, report etc
Paper Archive recipient	The Collection: Art and Archaeology of Lincolnshire
Paper Archive ID	LCNCC:2011.77
Paper Contents	"Animal Bones","Ceramics","Environmental","Metal","Stratigraphic","Wood"
Paper Media available	"Context sheet","Drawing","Matrices","Microfilm","Photograph","Plan","Report","Section","Unpublished Text"
Paper Archive notes	project set -up, primary and post excavation records
Project bibliography 1	

Publication type	Grey literature (unpublished document/manuscript)
Title	BLACKSMITH'S CORNER, TATTERSHALL, LINCOLNSHIRE: A WRITTEN SCHEME OF INVESTIGATION FOR AN ARCHAEOLOGICAL STRIP MAP AND RECORD, AND WATCHING BRIEF
Author(s)/Editor(s)	Clarke, C.
Date	2011
Issuer or publisher	AOC Archaeology
Place of issue or publication	London
Description	A4 text, 2 illustrations, 23 pages bound between plastic covers

Project bibliography 2

Publication type	Grey literature (unpublished document/manuscript)
Title	Market Place,Tattershall,Lincolnshire:ARCHAEOLOGICAL DESK-BASED ASSESSMENT
Author(s)/Editor(s)	Carter,N.
Date	2009
Issuer or publisher	AOC archaeology
Place of issue or publication	London
Description	A4 sized, research results,image plates,old maps,geotech logs

Project bibliography 3

Grey literature (unpublished document/manuscript)

Publication type	
Title	Blacksmith's Corner, Tattershall, Lincolnshire: A Post-Excavation Assessment report
Author(s)/Editor(s)	Hogg,I.
Date	2011
Issuer or publisher	AOC Archaeology
Place of issue or publication	AOC London
Description	A4 ,full colour 95 page (cover -to cover) text results,illustrations,image plates, finds and environmental results.
Entered by	fitz (paul.fitz@aocarchaeology.com)
Entered on	29 June 2012









AOC Archaeology Group

AOC Archaeology Group, Unit 7, St Margarets Business Centre, Moor Mead Road, Twickenham TW1 1JS

tel: 020 8843 7380 | **fax:** 020 8892 0549 | **e-mail:** london@aocarchaeology.com

www.aocarchaeology.com